



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Week 18, 2019

April 28, 2019 – May 4, 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 18:		Total Case Counts: 8/1/2017 – 5/4/2019:	
Number of new cases (n=21):	Confirmed [^] - 0 Probable - 11 Suspected - 10	Total number of cases (n=4621):	Confirmed [^] - 629 Probable - 2705 Suspected - 1287
Number of counties with new cases:	15	Total number of counties with cases:	108 (90% of KY counties)
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:	672 (14.5%)
Number of cases with genotype IB among those with genotype testing:	0	Total number of cases with genotype IB among those with genotype testing:	613 (91% of those tested)
Number of Hospitalizations:	9	Total Number of Hospitalizations:	2233 (48%)
Number of deaths Reported [†] :	4 [#]	Total number of deaths reported [†] :	57 (1.2%)

* 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.

[#] Four of the deaths being reported this week were identified through periodic death record review. 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 – May 4, 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	3	0	2	1	15.4
Allen	46	4	29	13	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	58	0	37	21	215.7
Boone	57	4	31	22	43.6
Bourbon	12	0	10	2	59.9
Boyd	171	101	43	27	356.4
Boyle	29	0	17	12	96.9
Bracken	5	0	3	2	60.5
Breathitt	30	0	23	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	2	56	11	74.6
Carlisle	1	0	1	0	20.6
Carroll	10	1	6	3	93.3
Carter	127	43	62	22	467.9
Casey	8	1	5	2	50.8
Christian	71	1	60	10	100.8

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – May 4, 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
Clark	93	0	57	36	258.0
Clay	77	0	37	40	378.1
Clinton	1	0	0	1	9.7
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	200	4	146	50	62.1
Fleming	4	0	0	4	27.7
Floyd	141	1	78	62	388.7
Franklin	57	1	43	13	112.9
Gallatin	7	0	5	2	79.8
Garrard	17	0	12	5	97.0
Grant	42	3	33	6	168.1
Grayson	30	2	25	3	113.8
Green	3	0	3	0	27.1
Greenup	61	30	19	12	171.7
Hardin	40	10	10	20	37.0
Harlan	23	0	13	10	86.1
Harrison	24	0	14	10	127.8
Hart	2	0	2	0	10.7
Henry	11	3	6	2	68.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – May 4, 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
Hickman	1	0	0	1	22.1
Hopkins	20	0	14	6	43.9
Jackson	21	0	12	9	156.4
Jefferson	658	310	236	112	85.3
Jessamine	62	0	40	22	116.2
Johnson	80	0	44	36	354.1
Kenton	121	7	93	21	73.2
Knott	36	1	24	11	235.4
Knox	99	0	65	34	317.0
Larue	3	0	1	2	21.1
Laurel	223	0	166	57	370.6
Lawrence	24	3	14	7	152.7
Lee	36	0	33	3	547.9
Leslie	37	0	33	4	358.0
Letcher	9	0	7	2	40.3
Lewis	26	0	15	11	194.9
Lincoln	37	2	24	11	151.3
Logan	2	0	2	0	7.4
Madison	146	2	100	44	160.0
Magoffin	54	0	32	22	430.7
Marion	23	1	17	5	118.6
Marshall	3	0	1	2	9.6
Martin	40	0	29	11	349.3

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – May 4, 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
Mason	26	0	17	9	151.4
McCracken	13	3	5	5	19.9
McCreary	22	0	17	5	126.0
Meade	12	1	1	10	42.6
Menifee	17	0	11	6	263.4
Mercer	39	0	25	14	181.2
Metcalfe	2	0	1	1	19.8
Monroe	1	0	0	1	9.4
Montgomery	93	6	65	22	333.0
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	26	0	19	7	178.4
Perry	87	0	64	23	327.6
Pike	76	0	56	20	129.1
Powell	48	0	30	18	387.9
Pulaski	80	0	54	26	124.1
Robertson	1	0	1	0	46.9
Rockcastle	24	0	14	10	143.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – May 4, 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
Rowan	48	1	31	16	195.8
Russell	2	0	1	1	11.3
Scott	24	0	16	8	43.7
Shelby	23	9	12	2	48.5
Simpson	7	0	7	0	38.7
Spencer	8	3	4	1	43.2
Taylor	50	2	35	13	196.3
Todd	1	0	0	1	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	2	0	1	1	9.7
Webster	3	0	2	1	23.0
Whitley	194	7	103	84	535.7
Wolfe	26	0	18	8	357.9
Woodford	14	0	10	4	53.1
Total Number of Cases:	4621	629	2705	1287	103.7

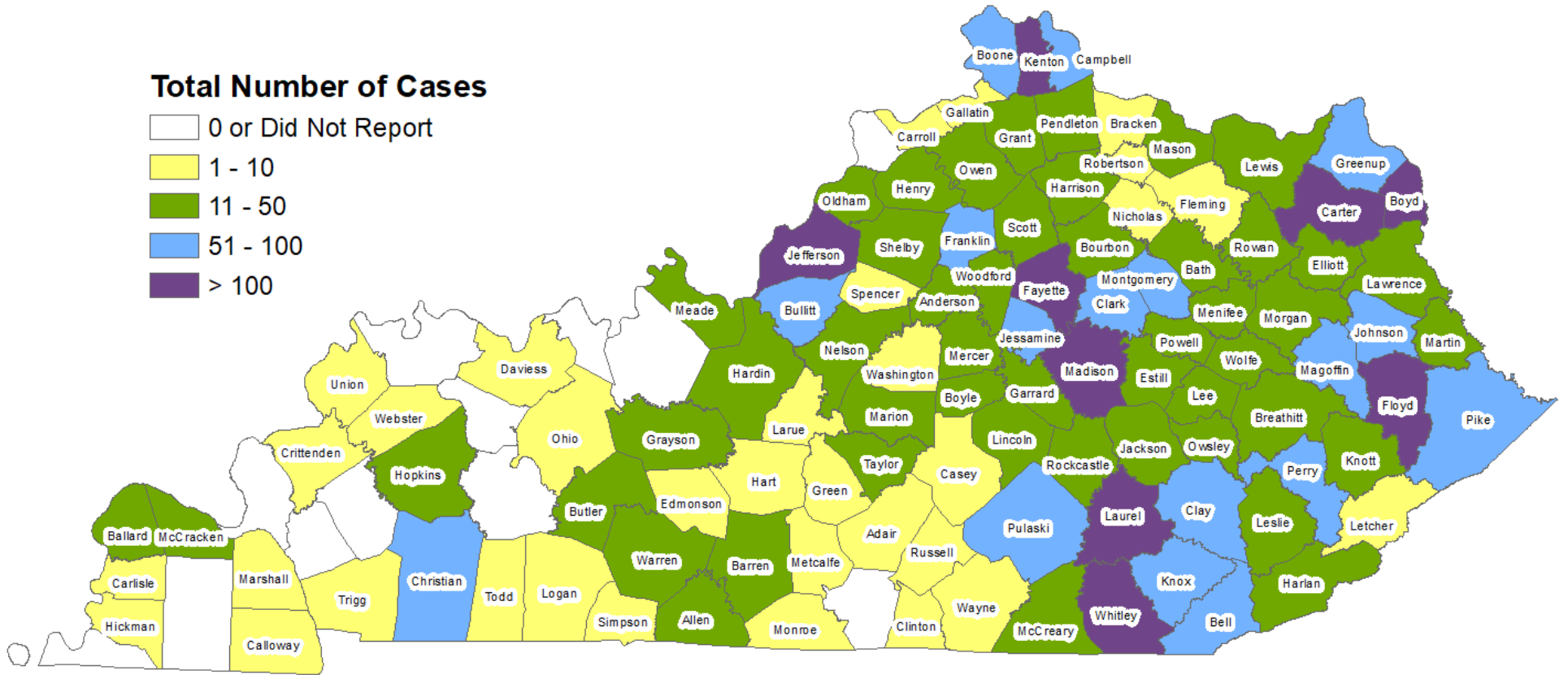
* Cases are reported based on date of specimen collection.

[^] 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: Geographic Distribution of Outbreak-Associated Cases by County

KY17-089 Distribution of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - May 4, 2019

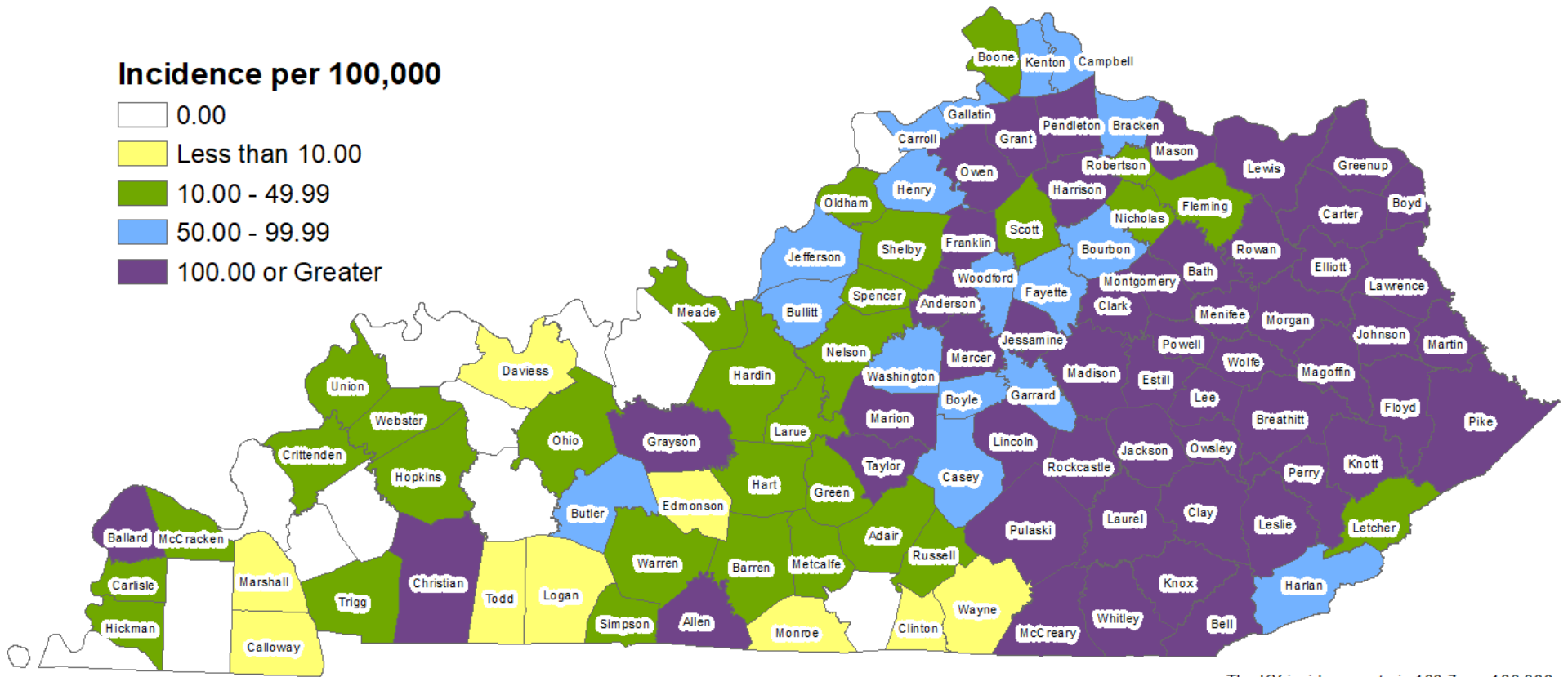


n = 108 counties with outbreak-associated cases

Counties where cases have not previously been identified: Calloway.

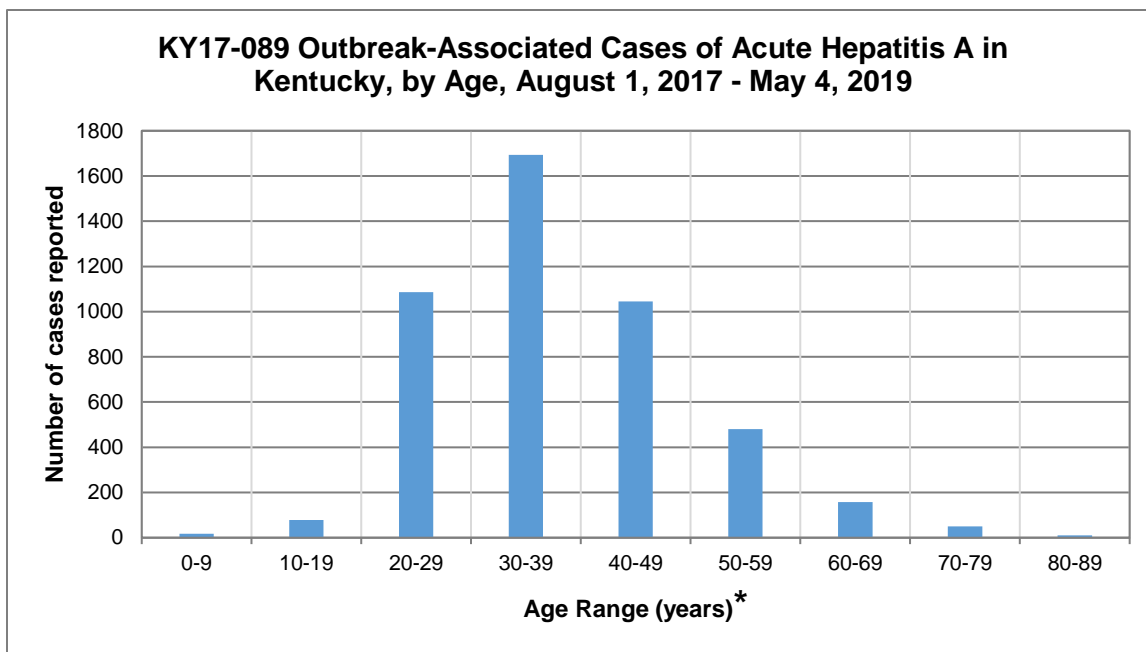
Figure 2: Incidence of Outbreak-Associated Cases by County

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - May 4, 2019



The KY incidence rate is 103.7 per 100,000.
 Note: Rates calculated from numerators less than 20 may not be reliably used to determine trends.

Figure 4: 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

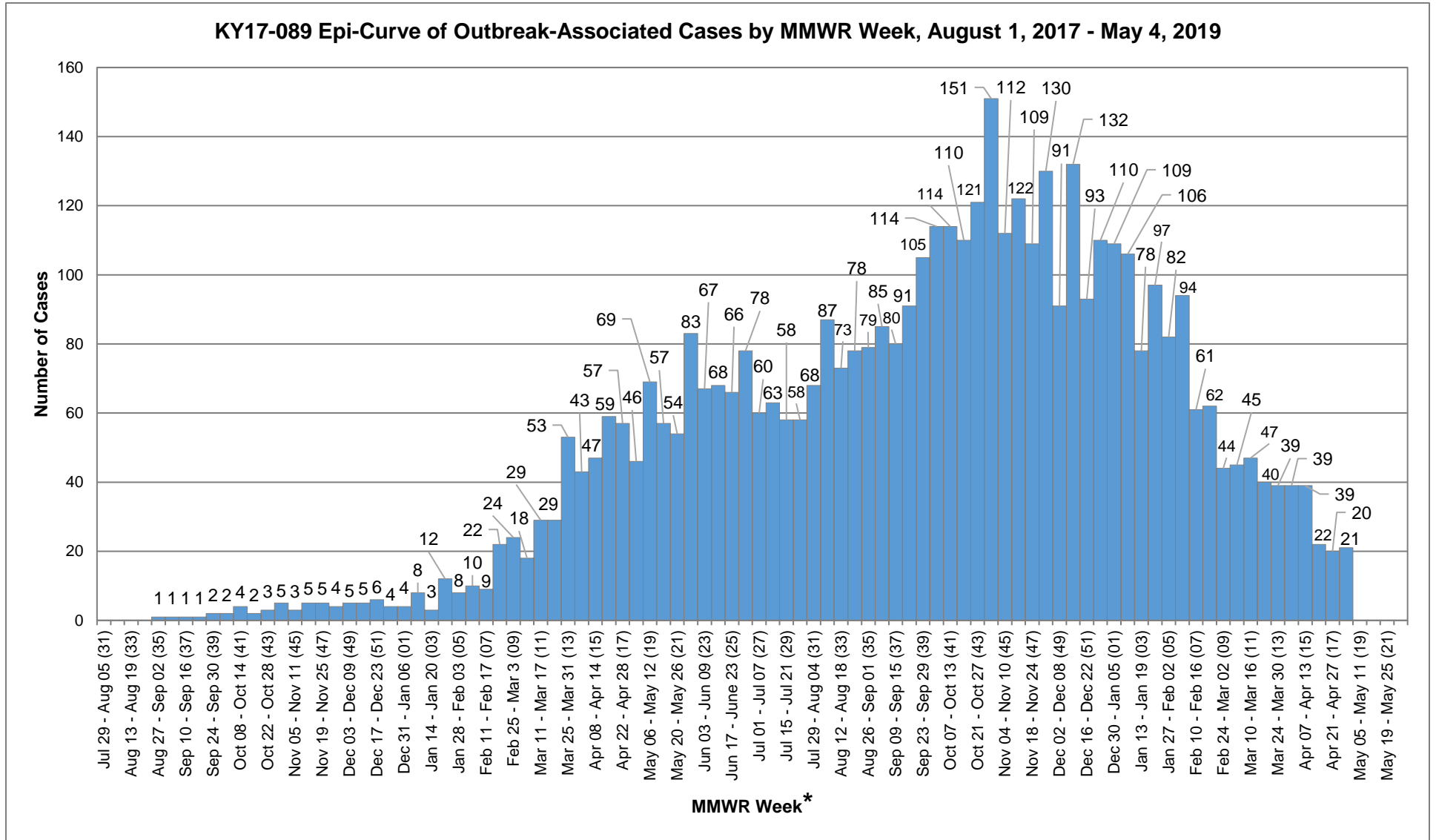
KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 – May 4, 2019 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=3743) [*]
Homelessness + No/Unk Illicit Drug Use	57 (1.5%)
Illicit Drug Use + No/Unk Homelessness	2680 (72%)
Homelessness + Illicit drug use	295 (7.9%)
No Outbreak-Related Risk Factors	711 (19%)

* Risk factor information is unavailable for 878 (19.0%) of all outbreak-associated cases.

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

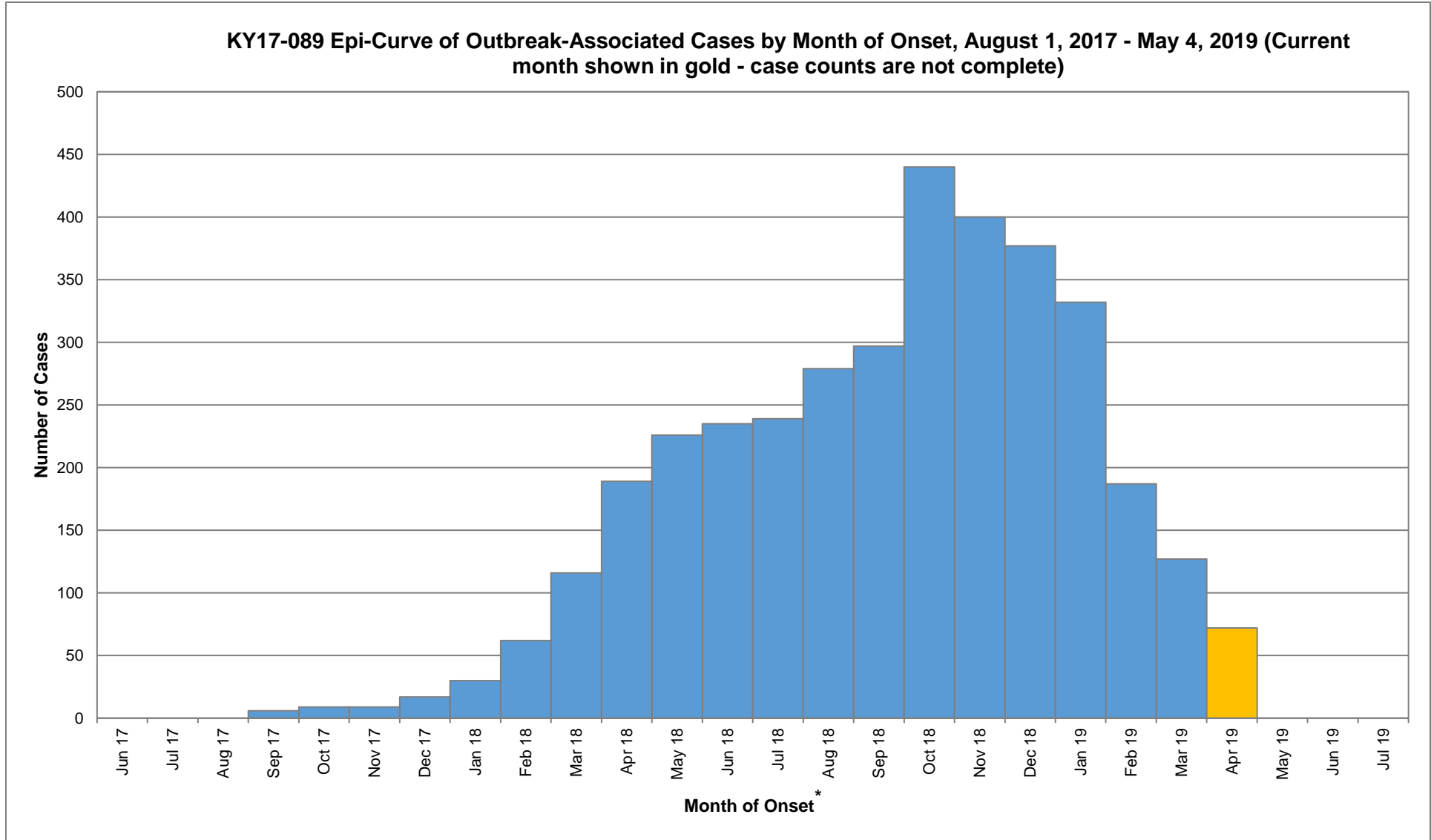
[^] 35 MSM cases have been reported. Of those, 11 have reported no other risk factors. MSM is not considered an outbreak-related risk factor.

Figure 5: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



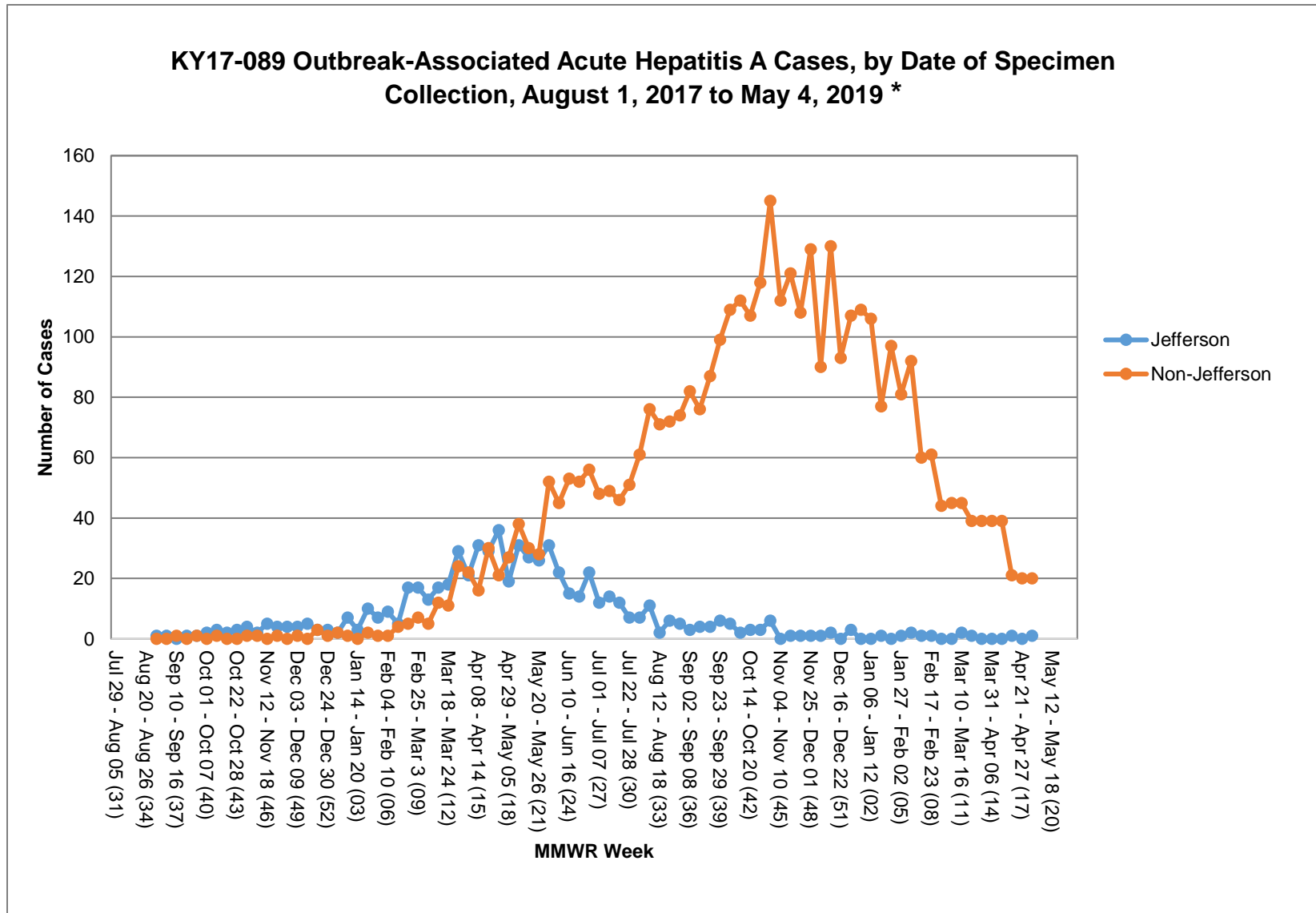
* MMWR weeks are based on date of specimen collection.

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



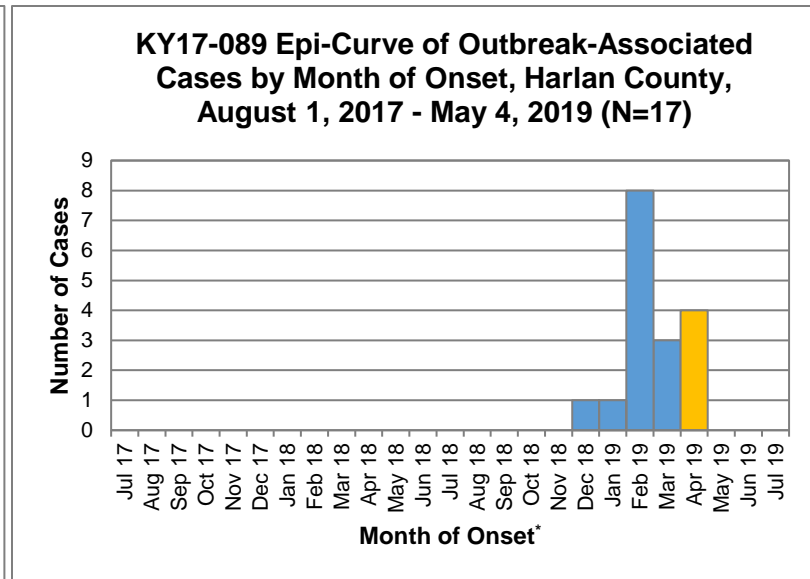
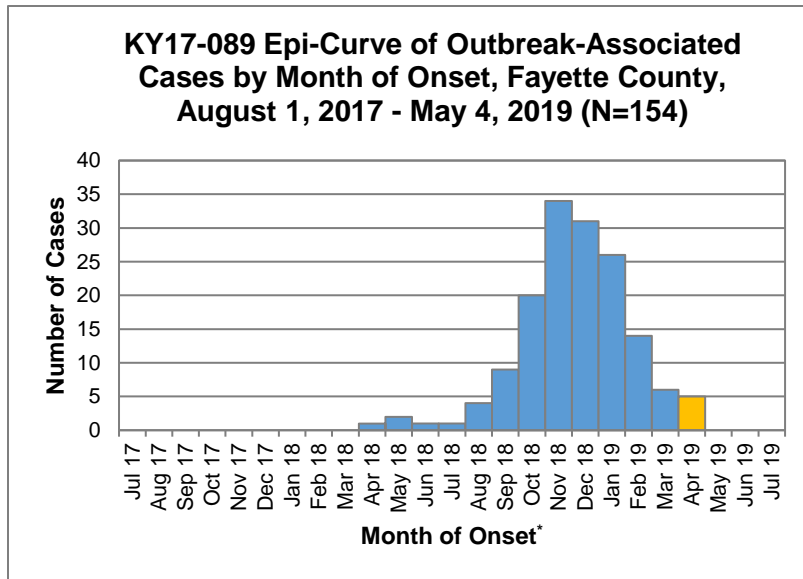
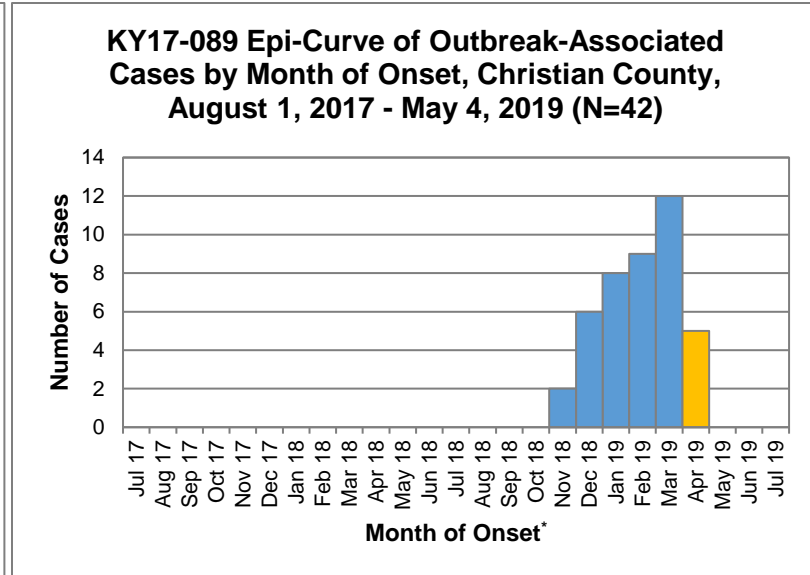
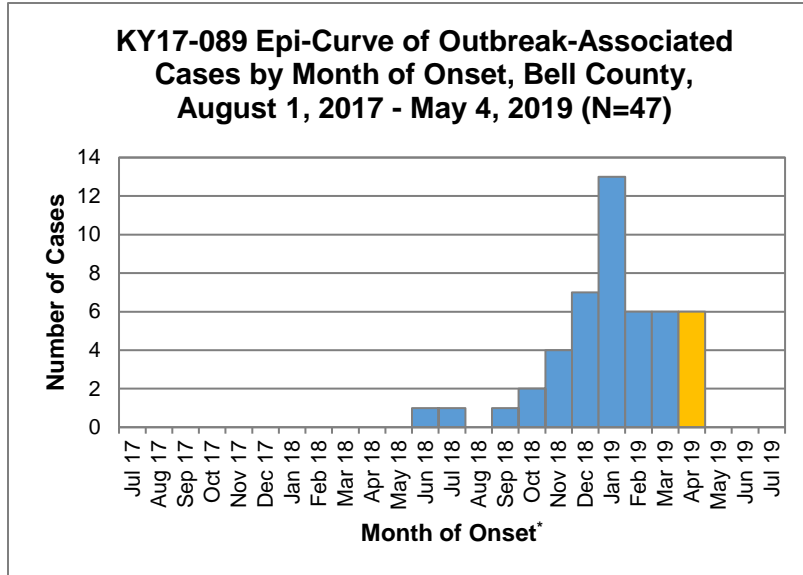
* Date of onset has been reported for 79.0% (or 3649/4621) of cases.

Figure 7: Case Count Comparison of Acute Hepatitis A cases, Jefferson County versus Non-Jefferson Counties



* MMWR weeks are based on date of specimen collection.

Figures 8-11: 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 (Bell, Christian, Fayette, and Harlan Counties)



Figures 12-15: 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 (Hopkins, Jessamine, Kenton, and Pulaski Counties)

