



Kentucky Department for Public Health
KY17-089 - Acute Hepatitis A Outbreak Weekly Report
Morbidity and Mortality Weekly Report (MMWR) Week 38, 2018
September 16, 2018 – September 22, 2018

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 38:		Total Case Counts: 8/1/2017 – 9/22/2018:	
Number of new cases (n=56):	Confirmed[^] - 0 Probable - 46 Suspected - 13	Total number of cases (n=1851):	Confirmed[^] - 506 Probable - 885 Suspected - 460
Number of counties with new cases:	34	Total number of counties with cases:	89 (74% 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:	536 (29%)
Number of cases with genotype IB among those with genotype testing:	0	Total number of cases with genotype IB among those with genotype testing:	488 (91% of those tested)
Number of Hospitalizations:	27	Total Number of Hospitalizations:	1029 (56%)
Number of deaths Reported[†]:	0	Total number of deaths reported[†]:	14 (<1%)

* 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.

Table 2: Cumulative Distribution of Cases by County

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – September 22, 2018*^#					
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	2	0	1	1	10.3
Allen	12	0	8	4	57.3
Anderson	8	0	7	1	35.5
Ballard	9	3	2	4	112.0
Barren	3	1	2	0	6.8
Bath	9	0	3	6	72.7
Bell	3	0	1	2	11.2
Boone	16	1	9	6	12.2
Bourbon	2	0	2	0	10.0
Boyd	158	82	41	35	329.3
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	61	25	27	9	76.0
Butler	3	0	1	2	23.4
Campbell	22	1	18	3	23.8
Carlisle	1	0	1	0	20.6
Carroll	2	0	0	2	18.7
Carter	126	33	68	25	464.2
Casey	1	1	0	0	6.3
Christian	1	1	0	0	1.4
Clark	4	0	3	1	11.1
Clay	3	0	1	2	14.7
Daviess	2	0	1	1	2.0

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 22, 2018*^#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Edmonson	1	0	1	0	8.2
Elliott	15	1	4	10	199.4
Estill	4	0	3	1	28.0
Fayette	18	2	12	4	5.6
Fleming	3	0	0	3	20.8
Floyd	32	0	19	13	88.2
Franklin	21	0	15	6	41.6
Gallatin	2	0	1	1	22.8
Garrard	3	0	1	2	17.1
Grant	24	3	16	5	96.1
Grayson	17	2	13	2	64.5
Green	2	0	2	0	18.1
Greenup	55	23	18	14	154.9
Hardin	28	7	5	16	25.9
Harrison	1	0	1	0	5.3
Hart	1	0	1	0	5.3
Henry	10	2	5	3	62.5
Hickman	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	2	0	2	0	14.9
Jefferson	611	279	229	103	79.2
Jessamine	2	0	0	2	3.7
Johnson	21	0	10	11	92.9
Kenton	36	2	32	2	21.8

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 22, 2018*[^]#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Knott	8	0	7	1	52.3
Knox	11	0	7	4	35.2
LaRue	1	0	1	0	7.0
Laurel	21	0	17	4	34.9
Lawrence	15	2	8	5	95.4
Lee [^]	2	0	2	0	30.4
Leslie	5	0	3	2	48.4
Lewis	3	0	2	1	22.5
Lincoln	4	1	1	2	16.4
Logan	1	0	1	0	3.7
Madison	6	1	3	2	6.6
Magoffin	15	0	10	5	119.6
Marion	11	2	7	2	56.7
Marshall	2	0	1	1	6.4
Martin	23	0	14	9	200.8
McCracken	8	2	3	3	12.2
Meade	12	1	1	10	42.6
Menifee	11	0	7	4	170.4
Mercer	4	0	1	3	18.6
Metcalfe	1	0	1	0	9.9
Montgomery	54	3	39	12	193.4
Morgan	5	0	5	0	37.9
Nelson	14	3	6	5	30.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 22, 2018*[^]#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Ohio	6	0	3	3	24.8
Oldham	8	3	3	2	12.0
Owen	3	0	3	0	27.9
Pendleton	4	0	2	2	27.4
Perry	7	0	1	6	26.4
Pike	10	0	9	1	17.0
Powell	7	0	5	2	56.6
Pulaski	2	0	1	1	3.1
Rowan	34	0	21	13	138.7
Russell	1	0	0	1	5.6
Scott	1	0	0	1	1.8
Shelby	20	5	11	4	42.2
Simpson	5	0	5	0	27.6
Spencer	5	3	1	1	27.0
Taylor	31	2	23	6	121.7
Warren	21	6	11	4	16.3
Washington	5	0	3	2	41.2
Whitley	79	3	47	29	218.1
Wolfe	2	0	1	1	27.5
Total Number of Cases:	1851	506	885	460	41.6

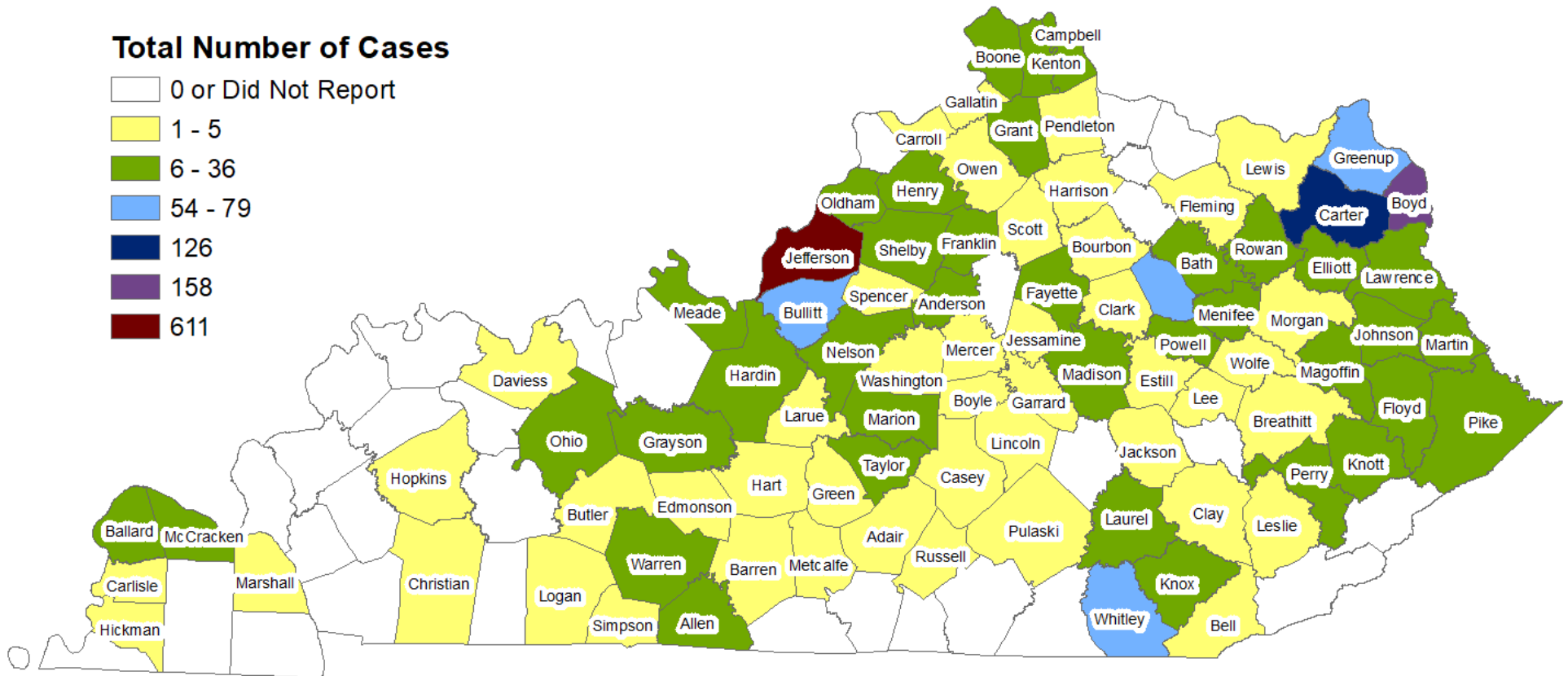
* Cases are reported based on date of specimen collection.

[^] 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 - September 22, 2018

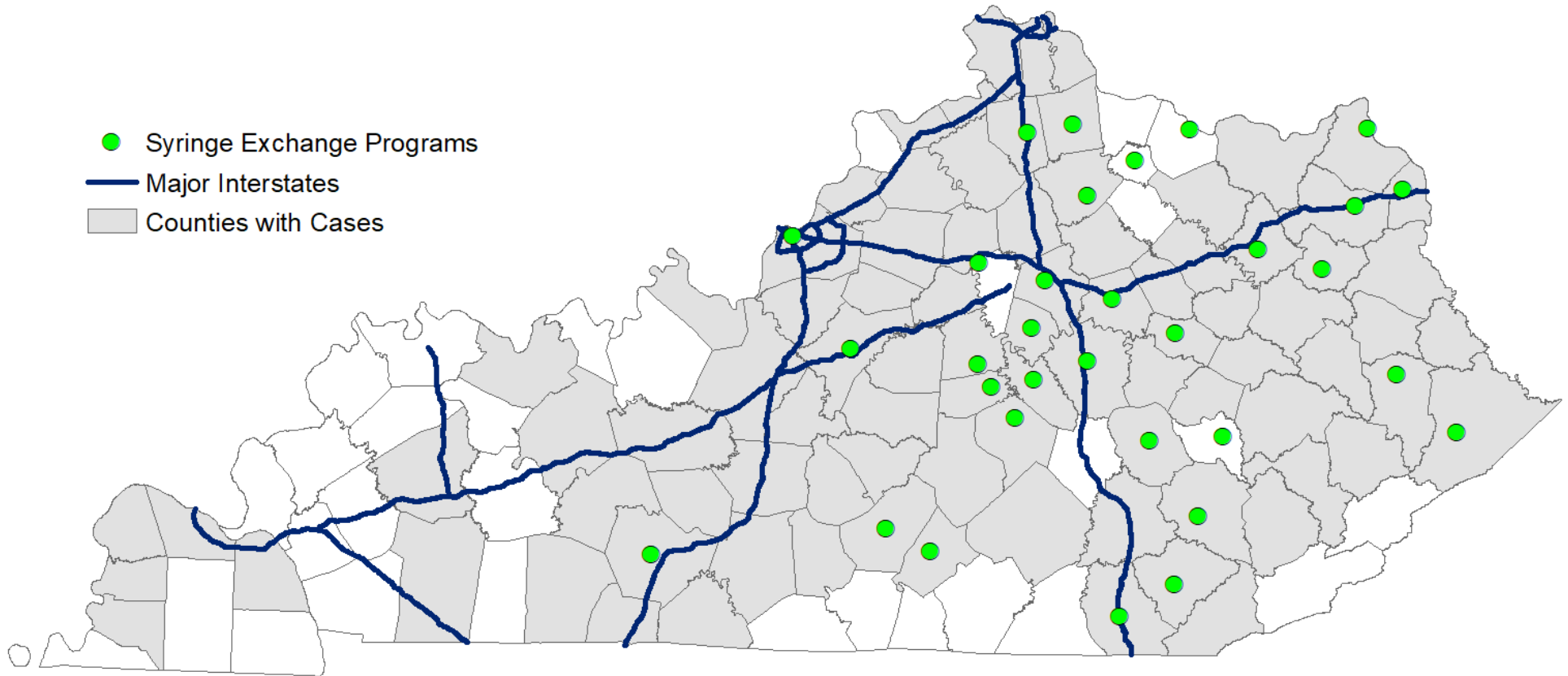


n = 89 counties with outbreak-associated cases

Counties where cases have not previously been identified: Lee.

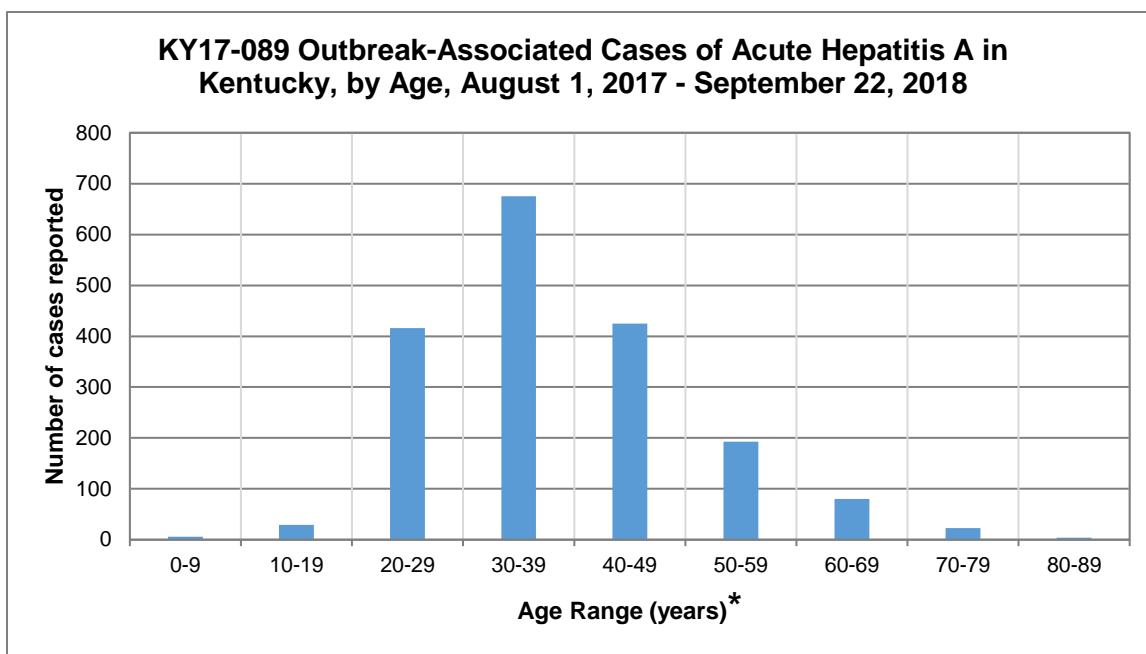
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs In Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - September 22, 2018



Major Interstates include I-24, I-264, I-265, I-275, I-471, I-64, I-65, I-69, I-71, I-75, Martha Lane Collins Bluegrass Parkway, and Wendell H Ford Western KY Parkway

Figure 3: Outbreak-Associated Cases by Age



* The mean age of cases is 38.1 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 – September 22, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=1525) ^{* †}
Homelessness + No Illicit Drug Use	17 (1.1%)
Illicit Drug Use + No/Unk Homelessness	960 (63%)
Homelessness + Illicit drug use	185 (12%)
No Outbreak-Related Risk Factors	341 (22%)

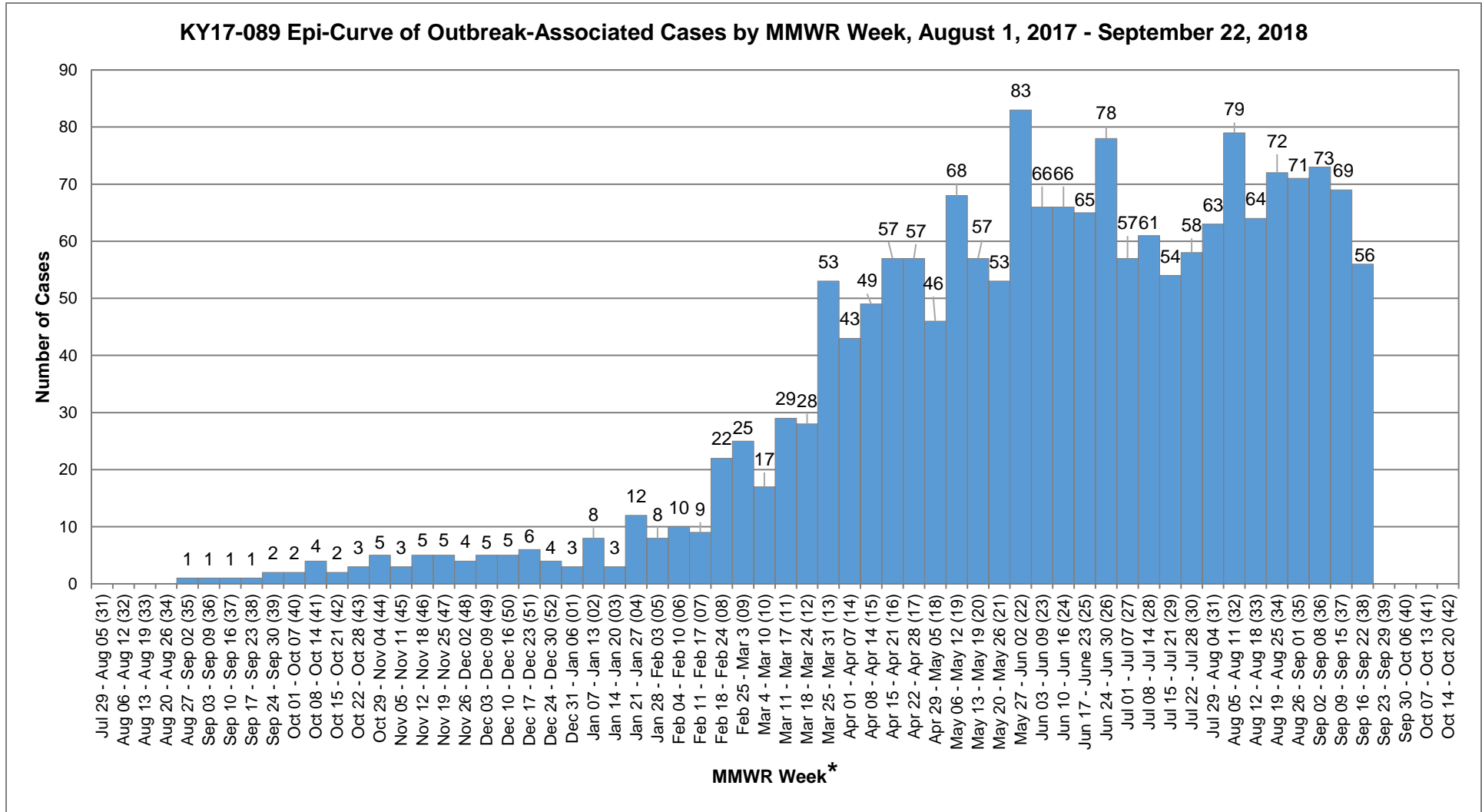
* Risk factor information is unavailable for 326 (17.6%) of all outbreak-associated cases.

† 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.

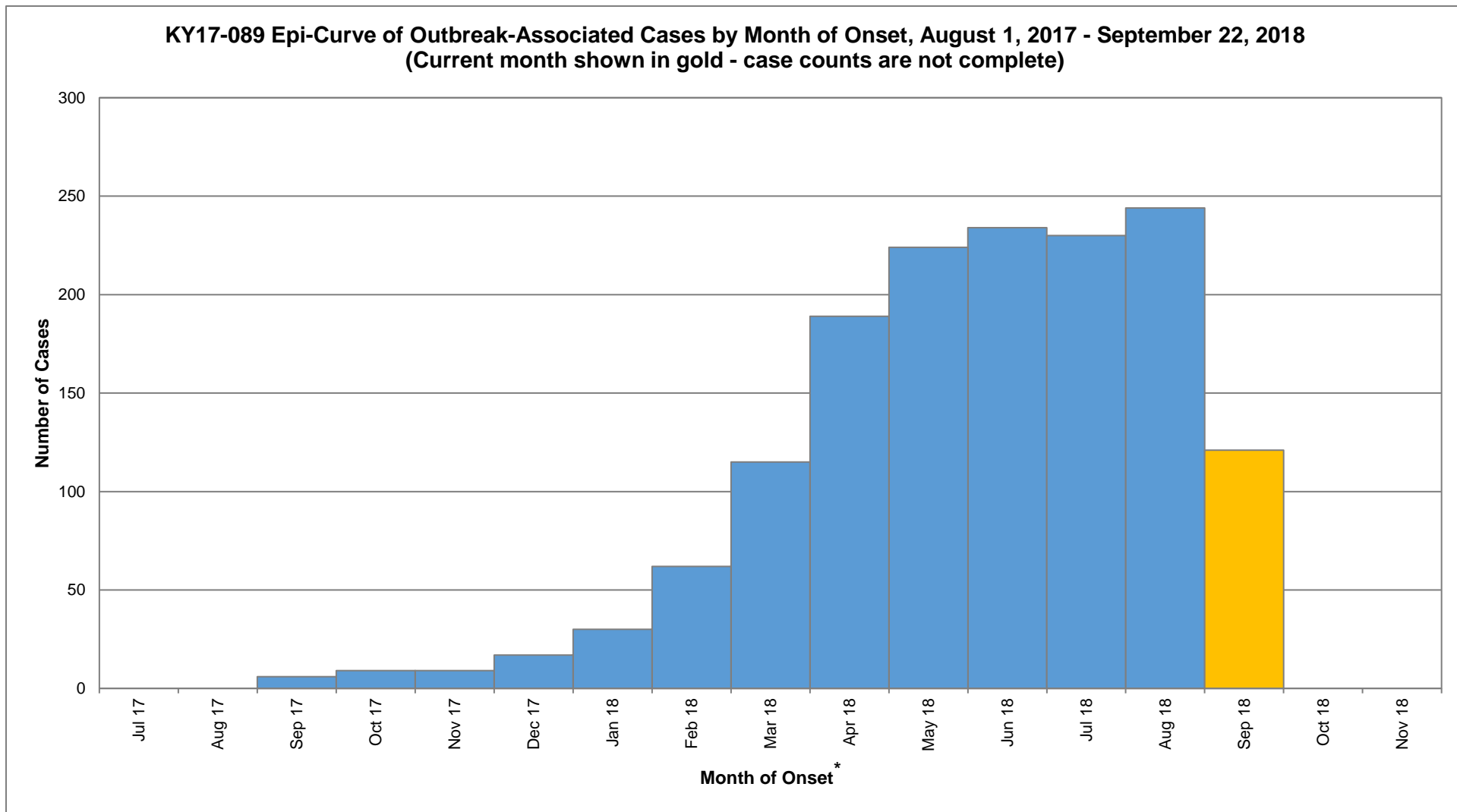
^ 31 MSM cases have been reported. Of those, 9 have reported no other risk factors.

Figure 4: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



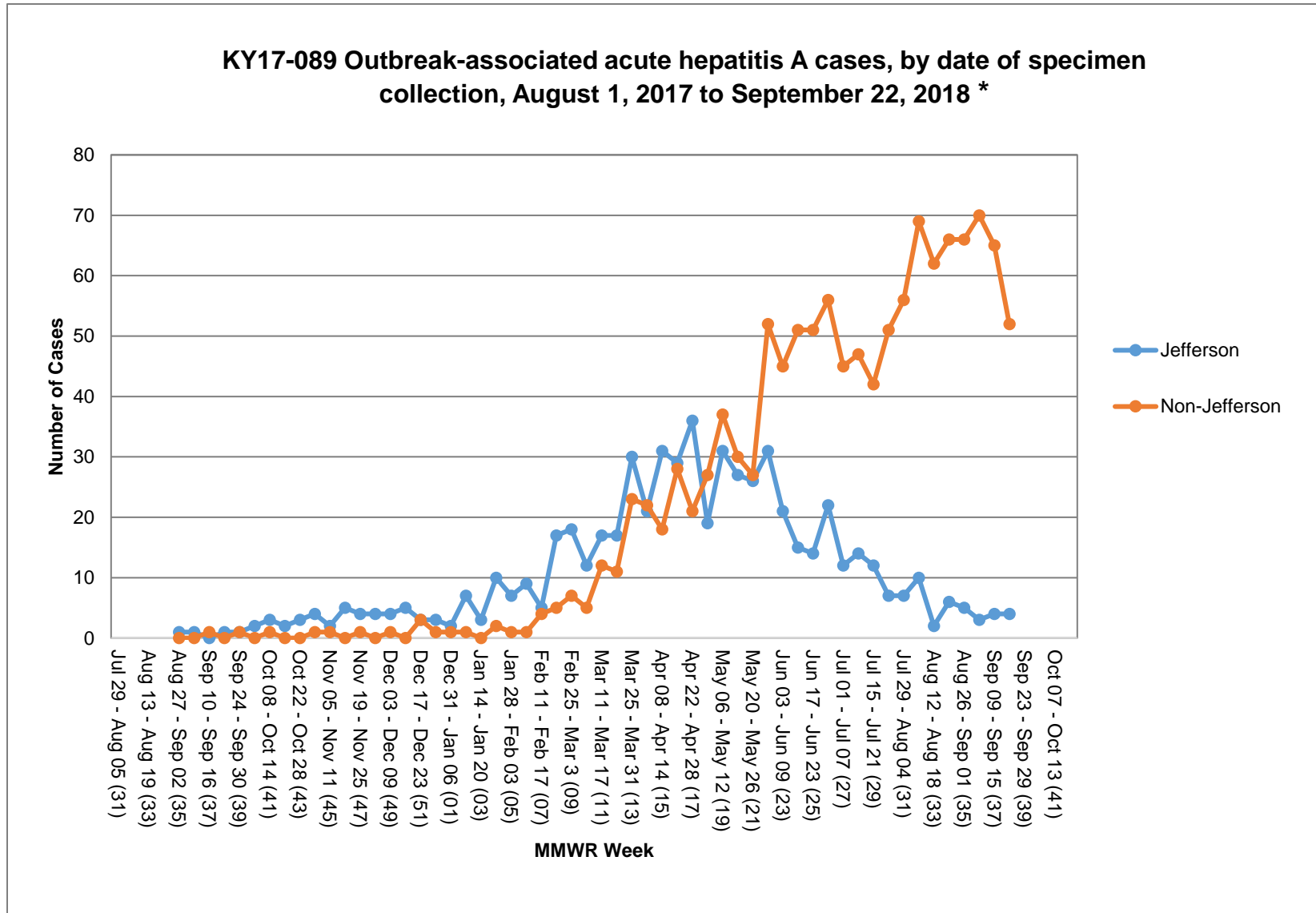
* MMWR weeks are based on date of specimen collection.

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



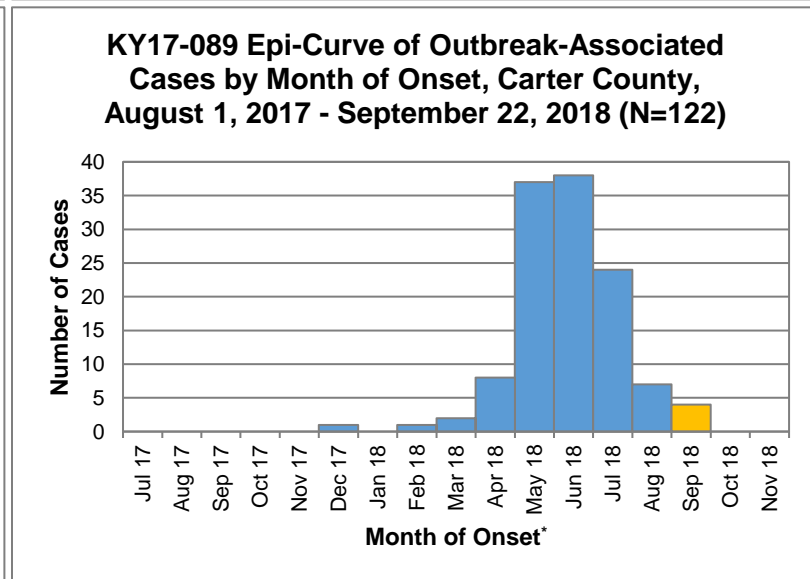
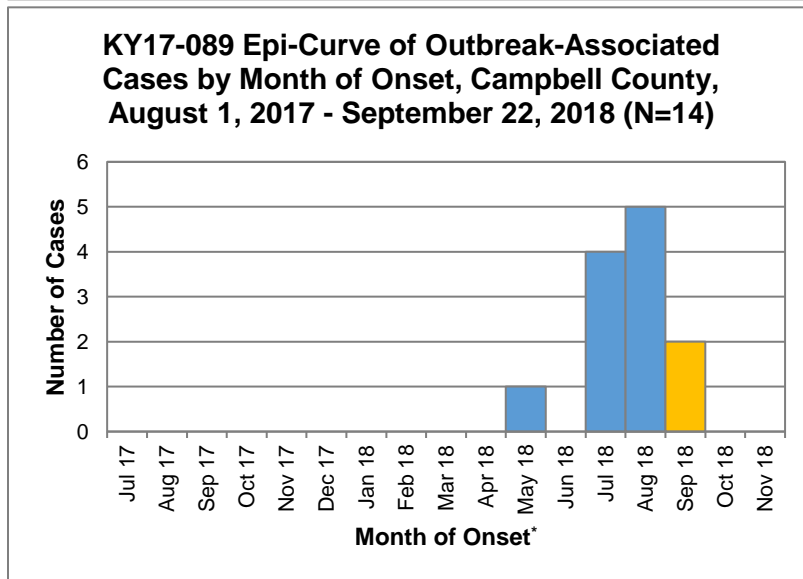
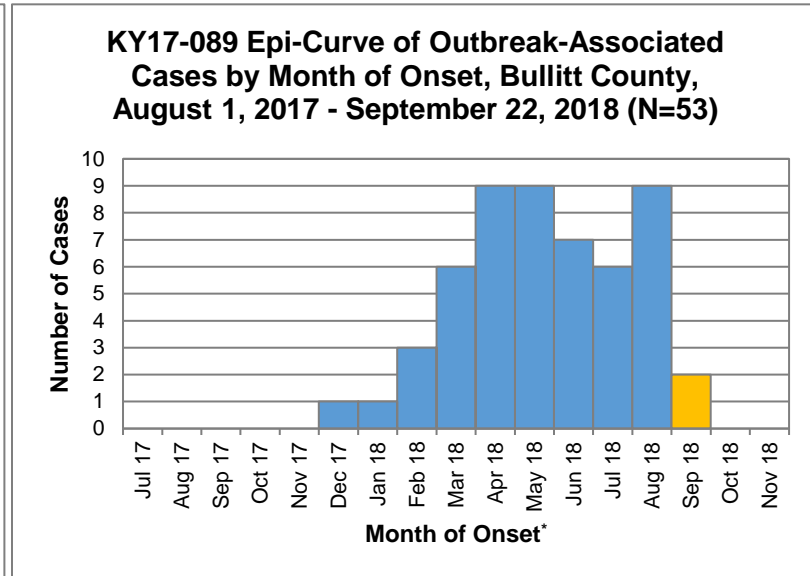
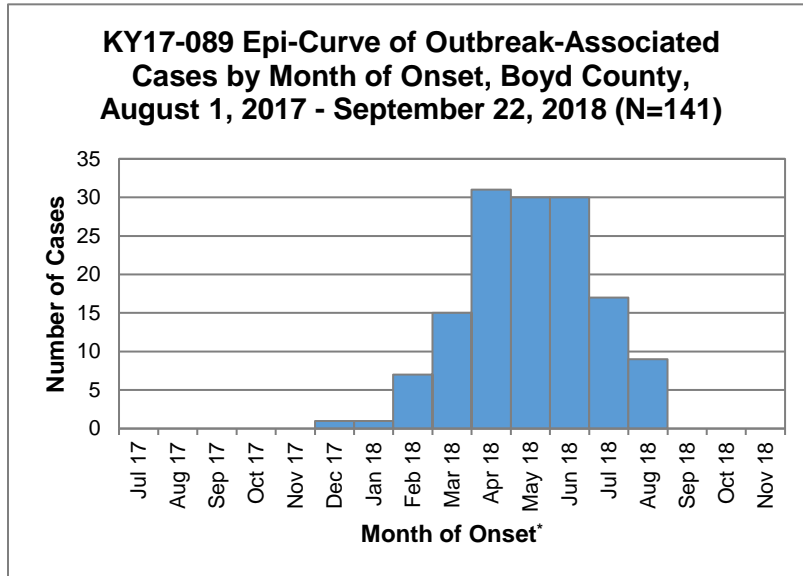
* Date of onset has been reported for 80.5% (or 1490/1851) of cases.

Figure 6: Case count comparison of acute hepatitis A cases, Jefferson County versus Non-Jefferson Counties

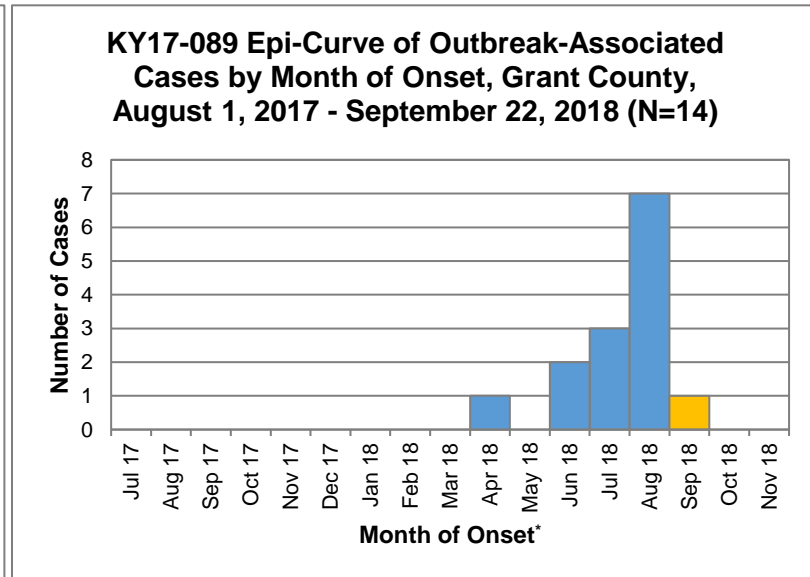
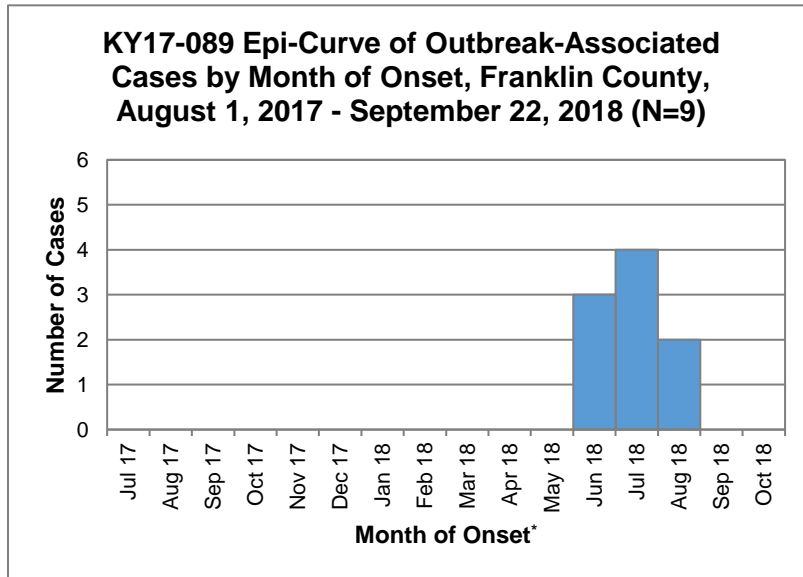
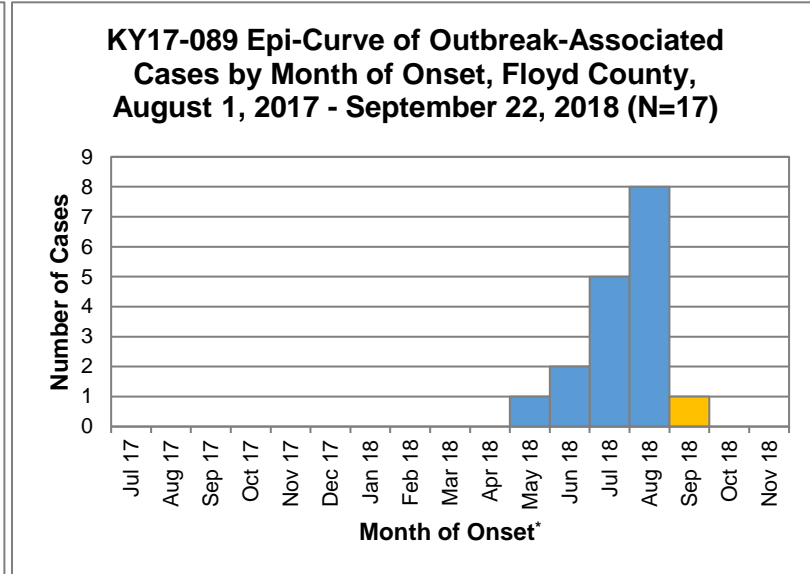
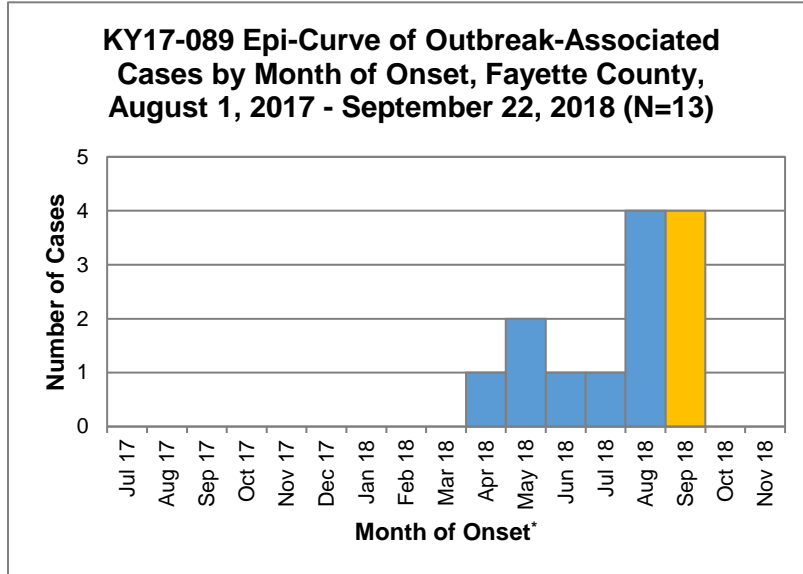


* MMWR weeks are based on date of specimen collection.

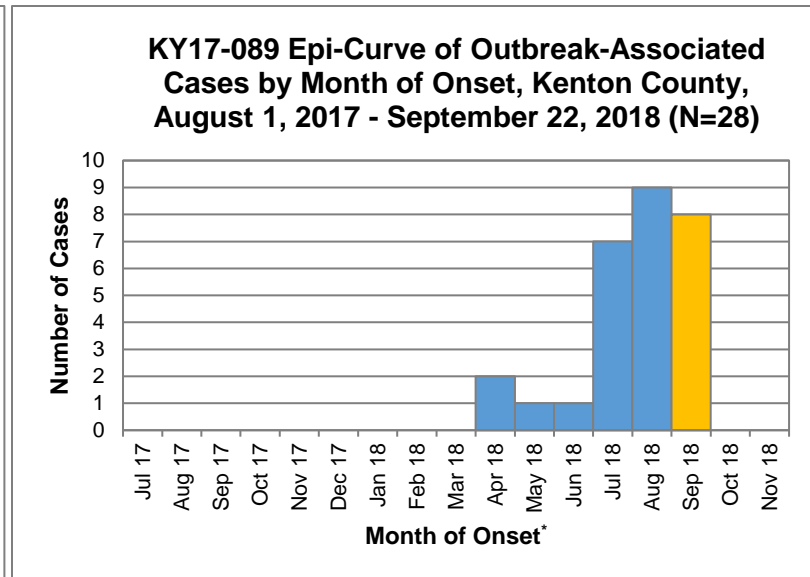
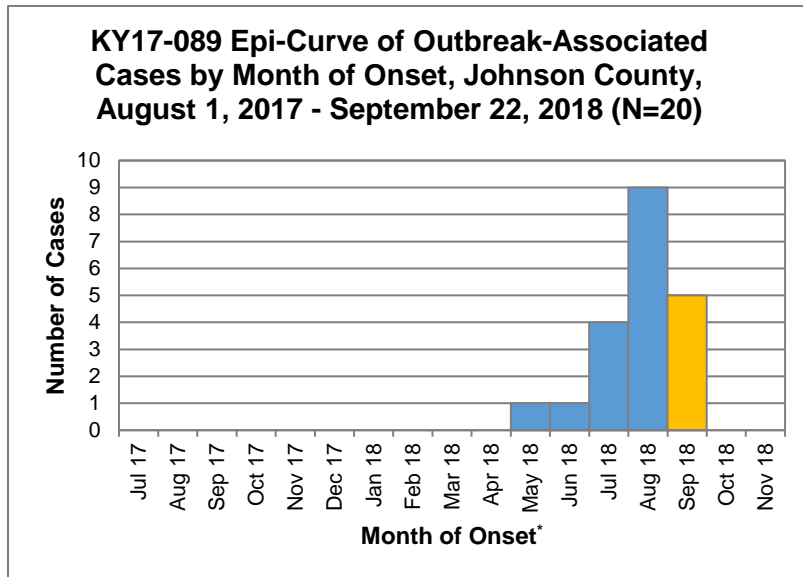
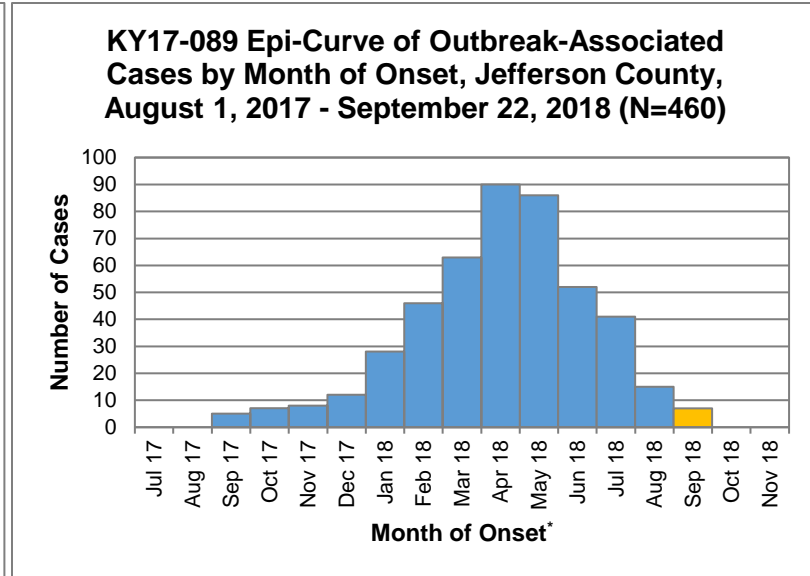
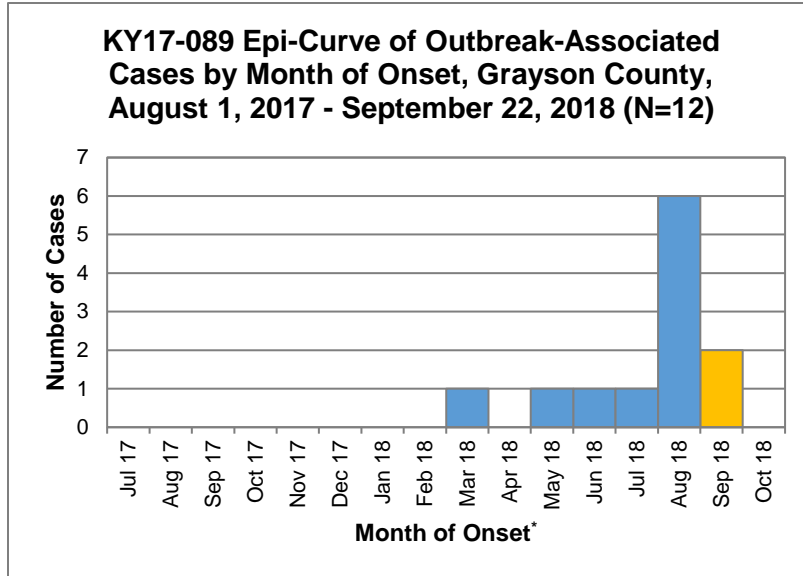
Figures 7-10: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Counties Boyd, Bullitt, Campbell, and Carter Counties)



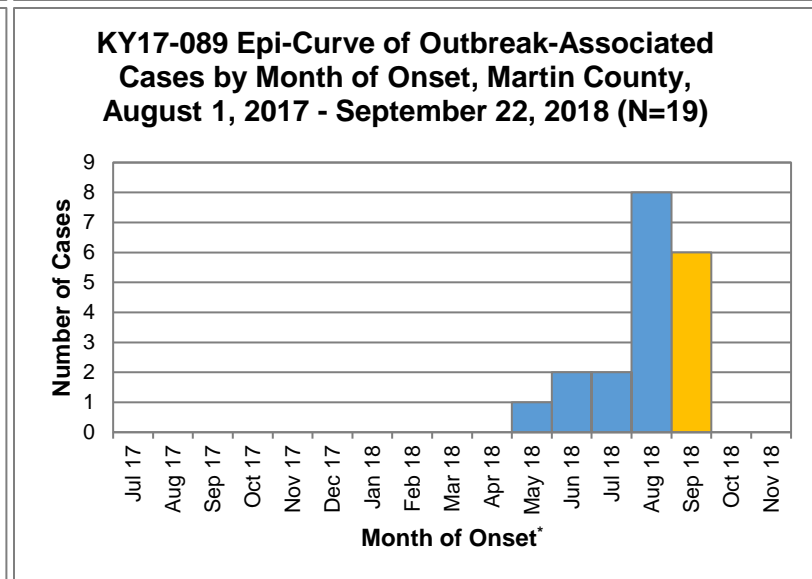
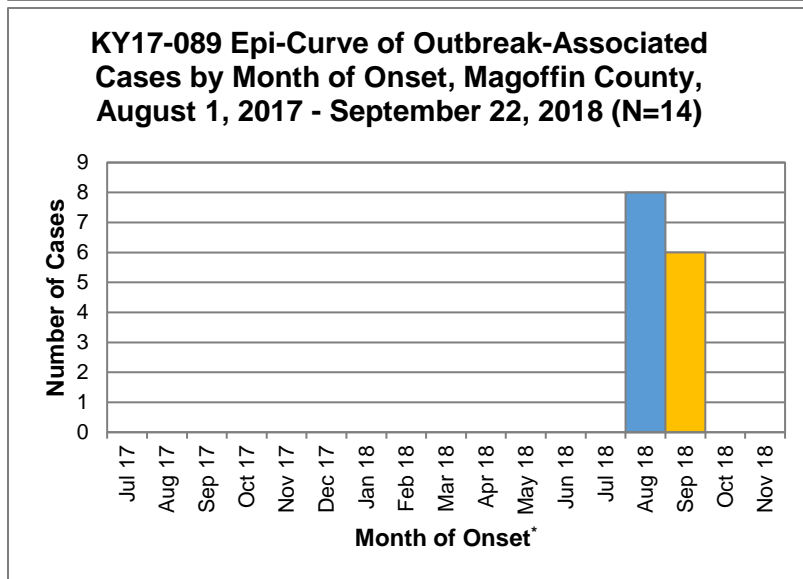
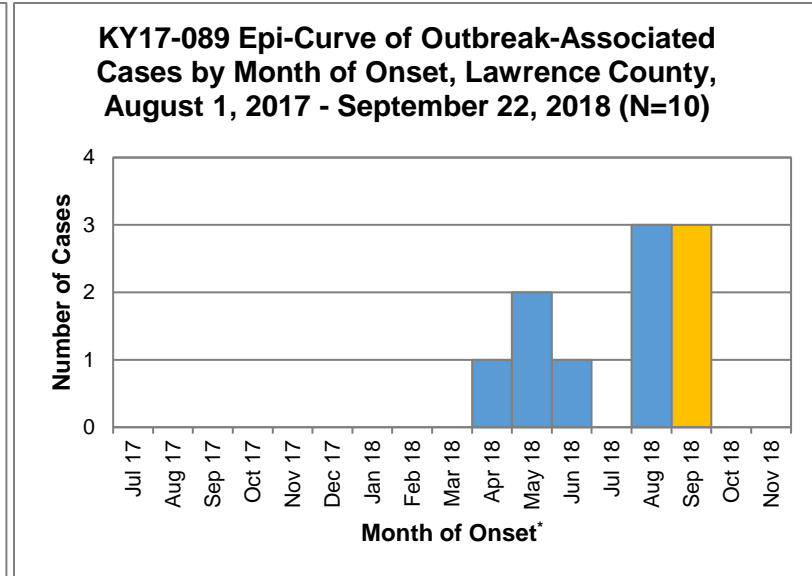
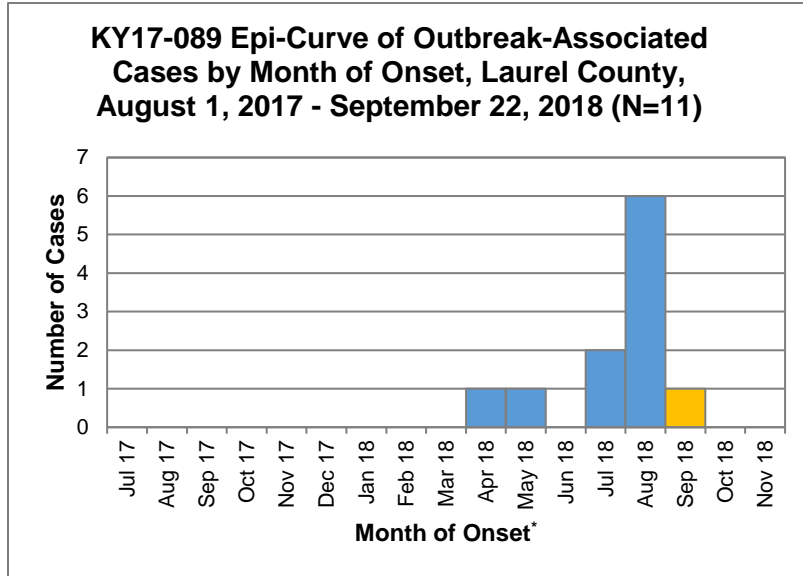
Figures 11-14: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Counties include Fayette, Floyd, Franklin, and Grant Counties)



Figures 15-18: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Grayson, Jefferson, Johnson, and Kenton Counties)



Figures 19-22: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Laurel, Lawrence, Magoffin, and Martin Counties)



Figures 23-26: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Montgomery, Rowan, Taylor, and Whitley Counties)

