



Kentucky Department for Public Health
KY17-089 - Acute Hepatitis A Outbreak Weekly Report
Morbidity and Mortality Weekly Report (MMWR) Week 37, 2018
September 9, 2018 – September 15, 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 37:		Total Case Counts: 8/1/2017 – 9/15/2018:	
Number of new cases (n=65):	Confirmed[^] - 0 Probable - 46 Suspected - 19	Total number of cases (n=1788):	Confirmed[^] - 506 Probable - 835 Suspected - 447
Number of counties with new cases:	34	Total number of counties with cases:	88 (73% 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 (30%)
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:	35	Total Number of Hospitalizations:	999 (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 15, 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	8	0	3	5	64.6
Bell	3	0	1	2	11.2
Boone	14	1	8	5	10.7
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	60	25	27	8	74.8
Butler	3	0	1	2	23.4
Campbell	20	1	16	3	21.6
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	3	0	2	1	8.3
Clay	3	0	1	2	14.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 15, 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
Daviess	2	0	1	1	2.0
Edmonson	1	0	1	0	8.2
Elliott	14	1	3	10	186.1
Estill	4	0	3	1	28.0
Fayette	15	2	8	5	4.7
Fleming	3	0	0	3	20.8
Floyd	32	0	18	14	88.2
Franklin	19	0	13	6	37.6
Gallatin	2	0	1	1	22.8
Garrard	3	0	1	2	17.1
Grant	23	3	15	5	92.1
Grayson	16	2	12	2	60.7
Green	1	0	1	0	9.0
Greenup	54	23	17	14	152.0
Hardin	27	7	5	15	25.0
Harrison	1	0	1	0	5.3
Hart	1	0	1	0	5.3
Henry	9	2	5	2	56.2
Hickman	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	2	0	2	0	14.9
Jefferson	607	279	225	103	78.7
Jessamine	2	0	0	2	3.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 15, 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
Johnson	20	0	9	11	88.5
Kenton	32	2	28	2	19.3
Knott	6	0	6	0	39.2
Knox	9	0	5	4	28.8
LaRue	1	0	1	0	7.0
Laurel	19	0	15	4	31.6
Lawrence	14	2	7	5	89.1
Leslie	4	0	2	2	38.7
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	12	0	8	4	95.7
Marion	8	2	4	2	41.2
Marshall	2	0	1	1	6.4
Martin	22	0	13	9	192.1
McCracken	7	2	2	3	10.7
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	52	3	37	12	186.2
Morgan	2	0	2	0	37.9

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 15, 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
Nelson	14	3	6	5	30.7
Ohio	6	0	3	3	24.8
Oldham	8	3	3	2	12.0
Owen	3	0	3	0	27.9
Pendleton	3	0	1	2	20.6
Perry	4	0	0	4	15.1
Pike	10	0	9	1	17.0
Powell	7	0	5	2	56.6
Pulaski	2	0	1	1	3.1
Rowan	33	0	20	13	134.6
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	30	2	23	5	117.8
Warren	19	6	10	3	14.7
Washington	4	0	2	2	33.0
Whitley	73	3	45	25	201.6
Wolfe	2	0	1	1	27.5
Total Number of Cases:	1788	506	835	447	40.1

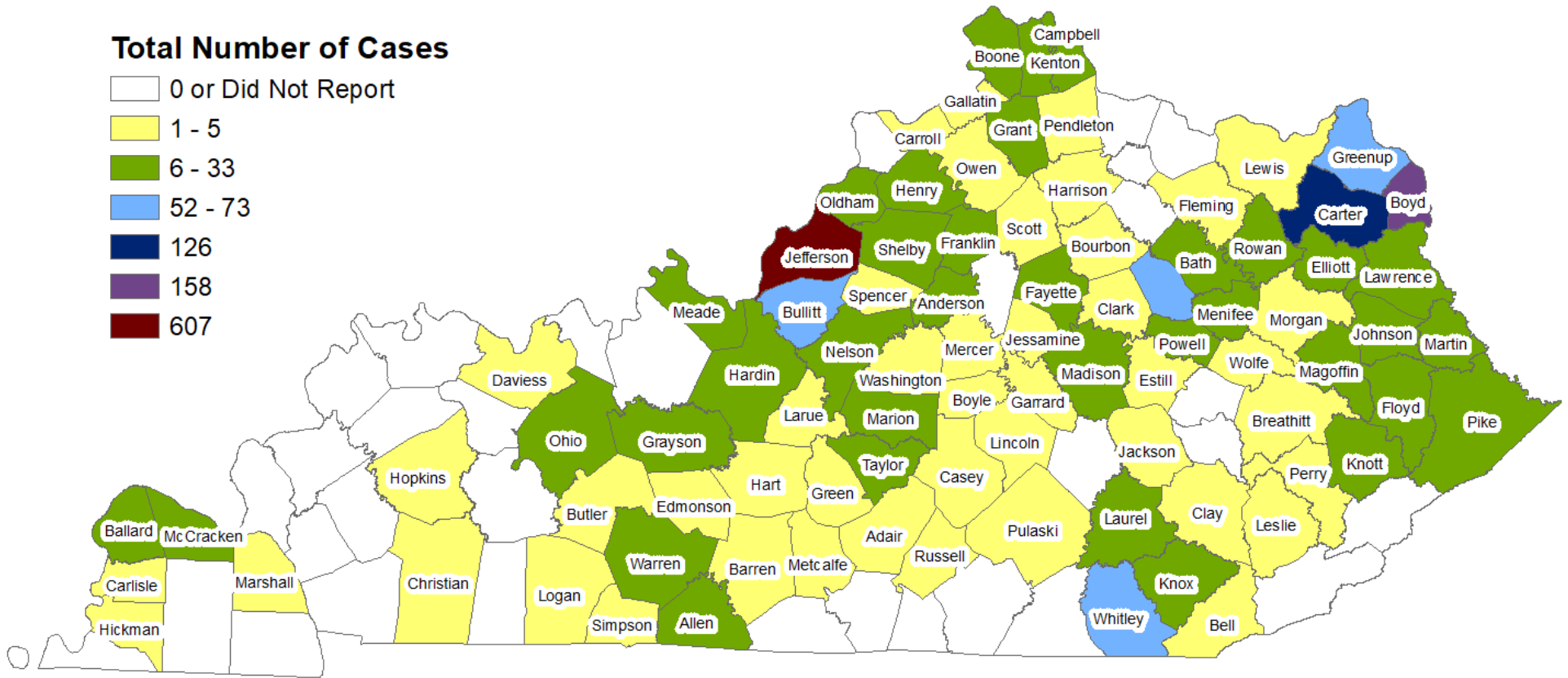
* Cases are reported based on date of specimen collection.

[^] 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 15, 2018

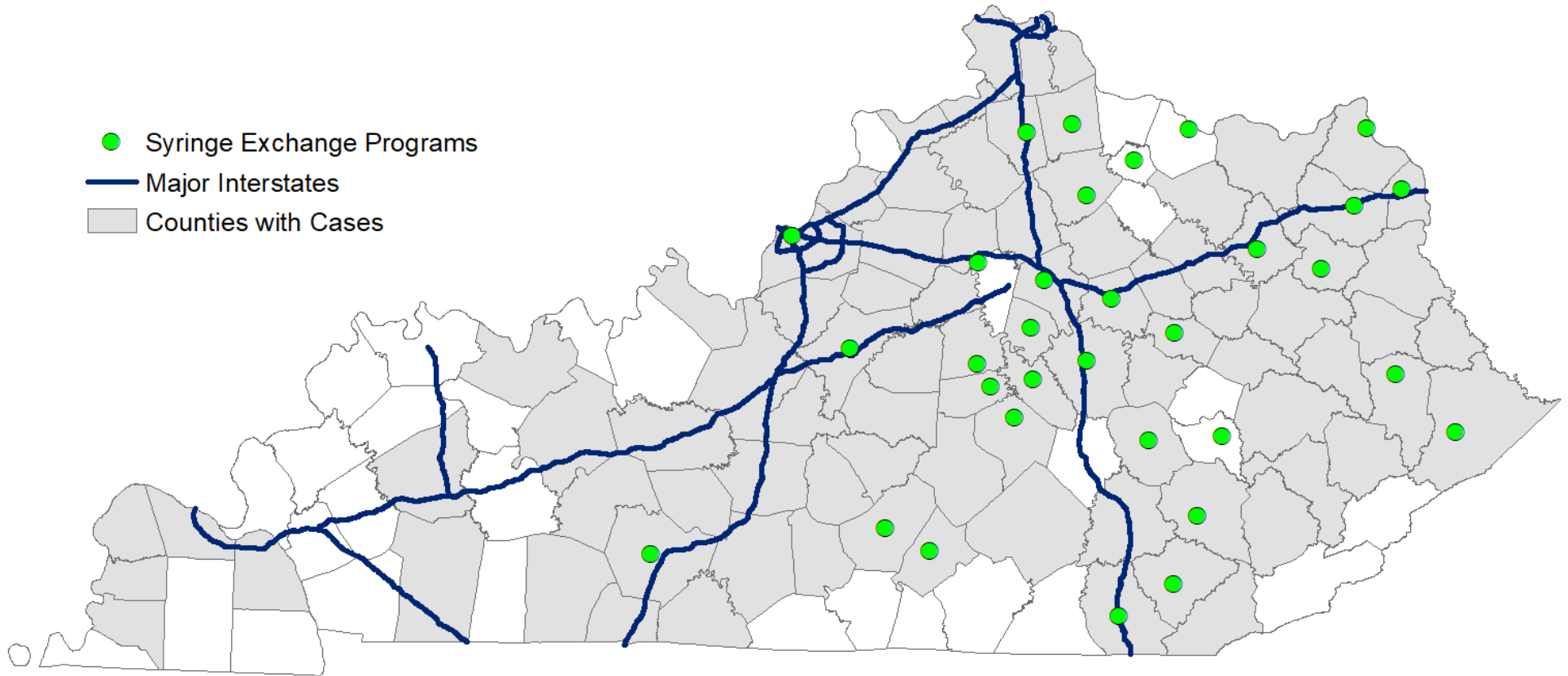


n = 88 counties with outbreak-associated cases

Counties where cases have not previously been identified: Mercer, Scott.

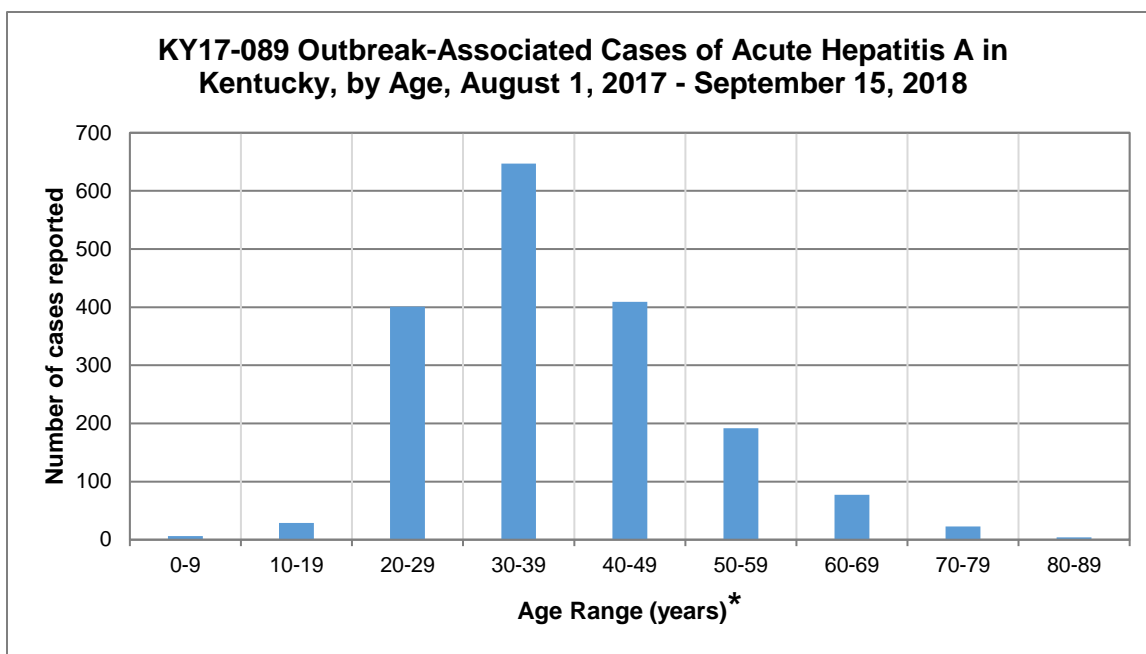
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs In Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - September 15, 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 15, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=1471) ^{* †}
Homelessness + No Illicit Drug Use	17 (1.2%)
Illicit Drug Use + No/Unk Homelessness	919 (62%)
Homelessness + Illicit drug use	179 (12%)
No Outbreak-Related Risk Factors	334 (23%)

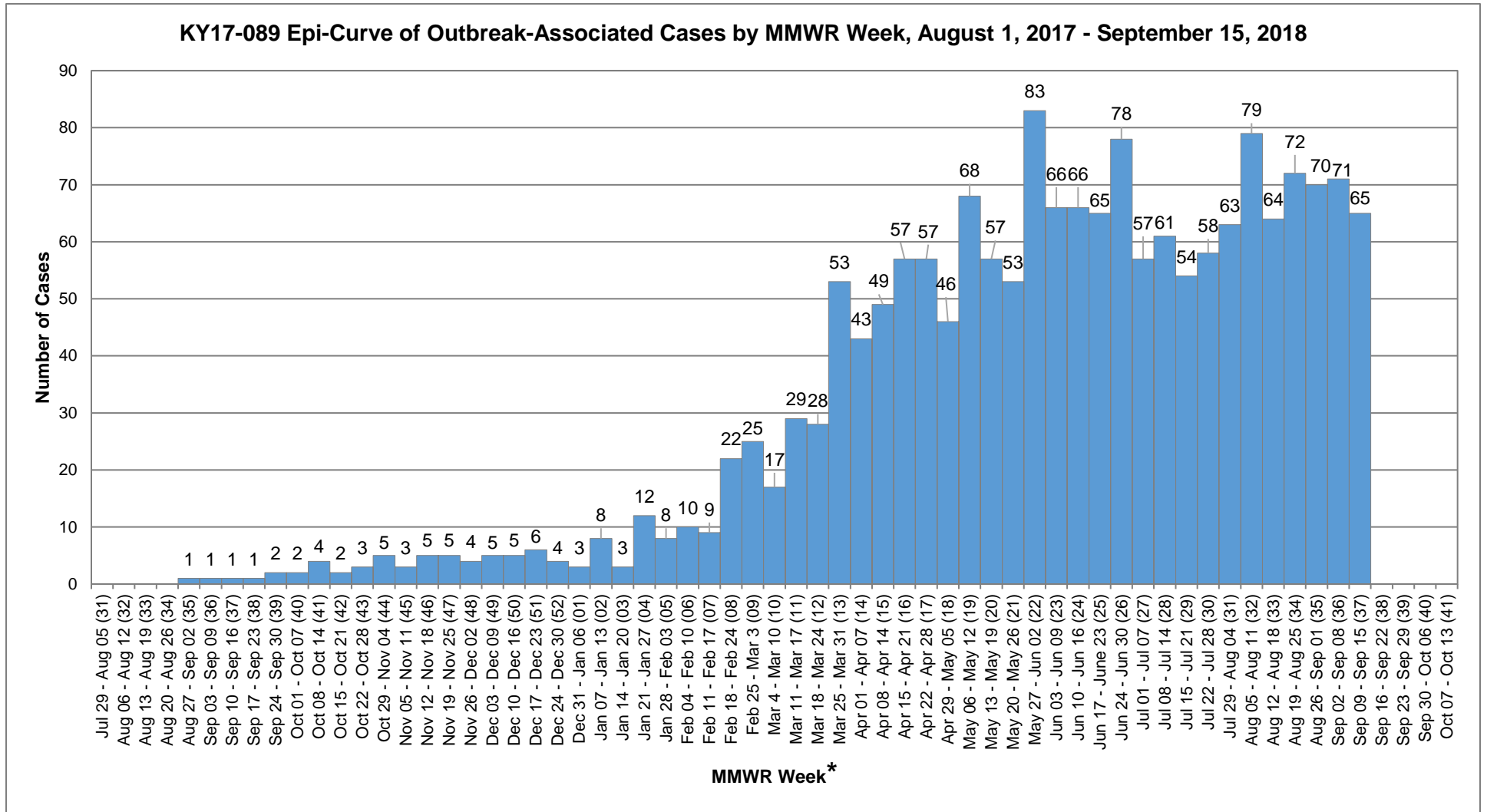
* Risk factor information is unavailable for 317 (17.7%) of all outbreak-associated cases.

† 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.

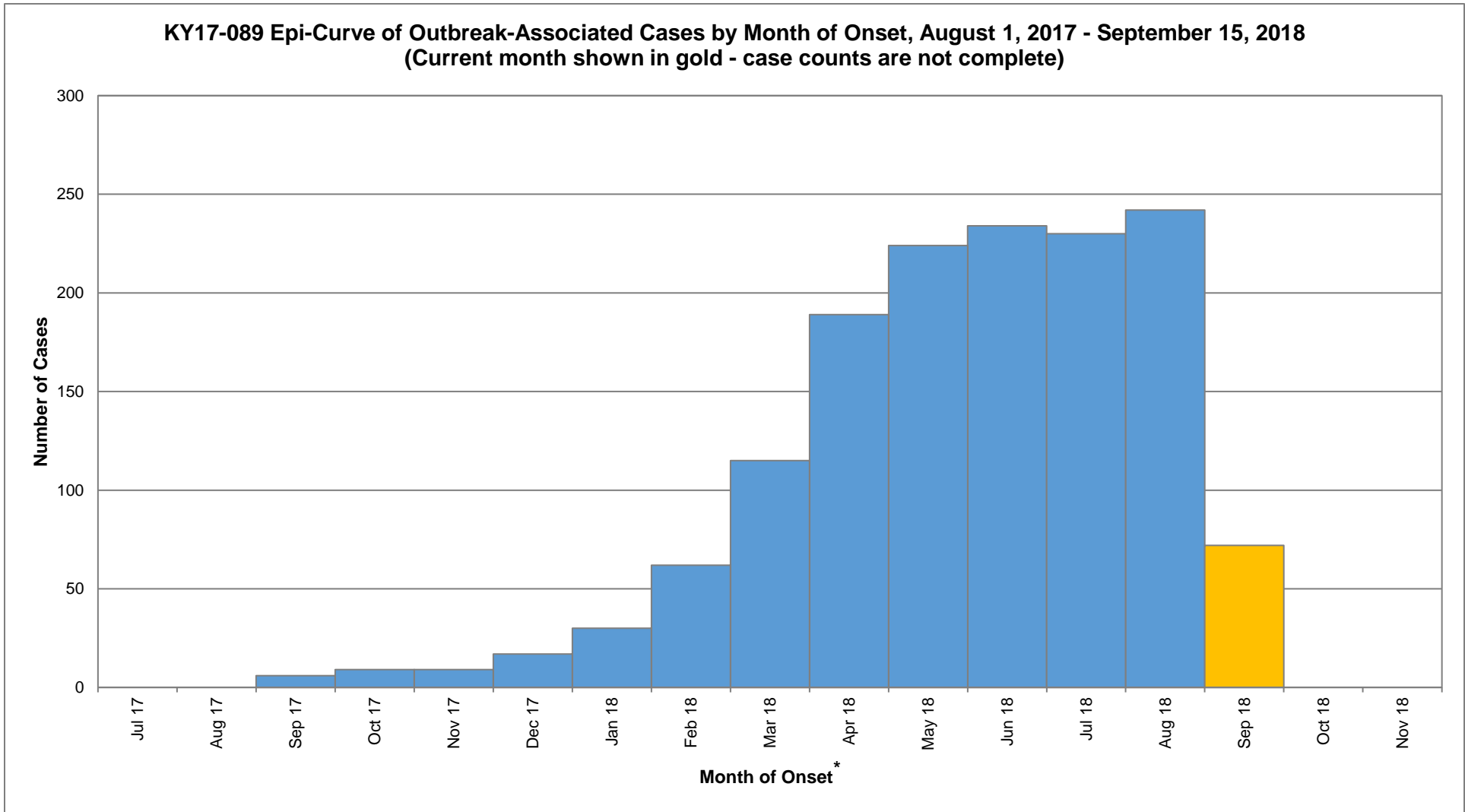
^ 30 MSM cases have been reported. Of those, 9 have reported no other risk factors.

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



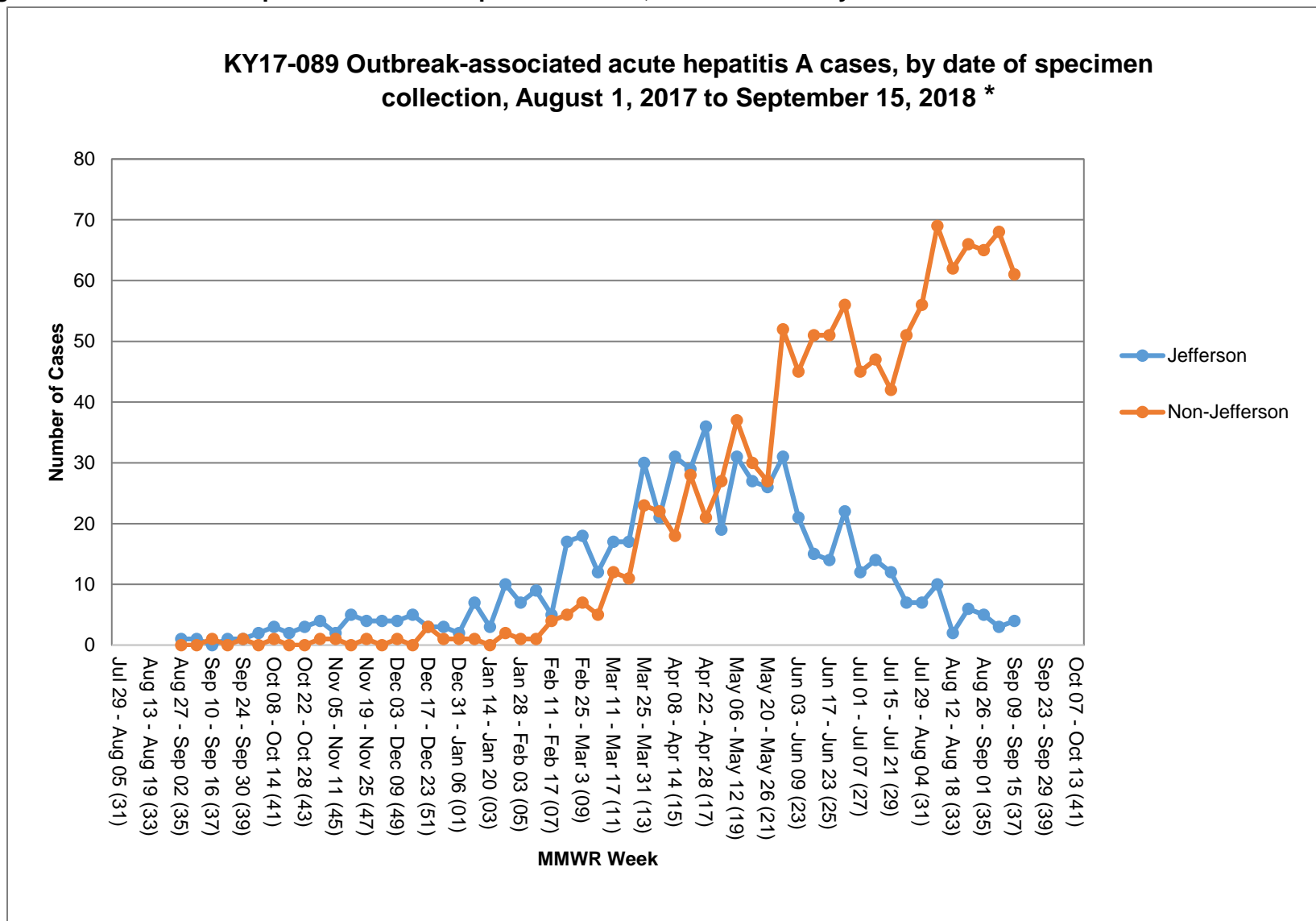
* MMWR weeks are based on date of specimen collection.

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



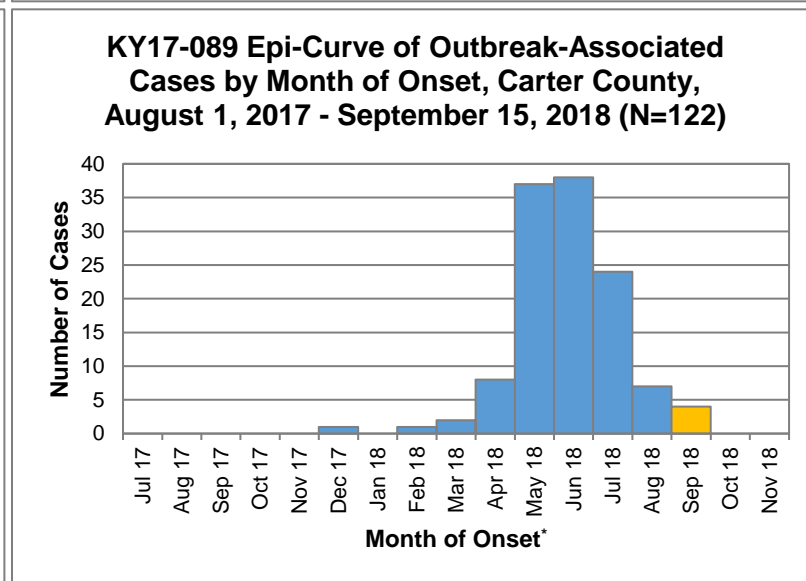
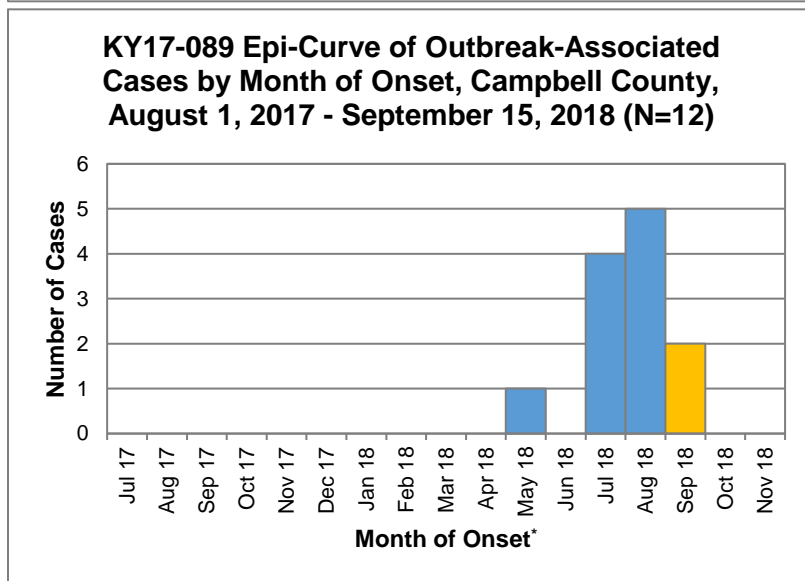
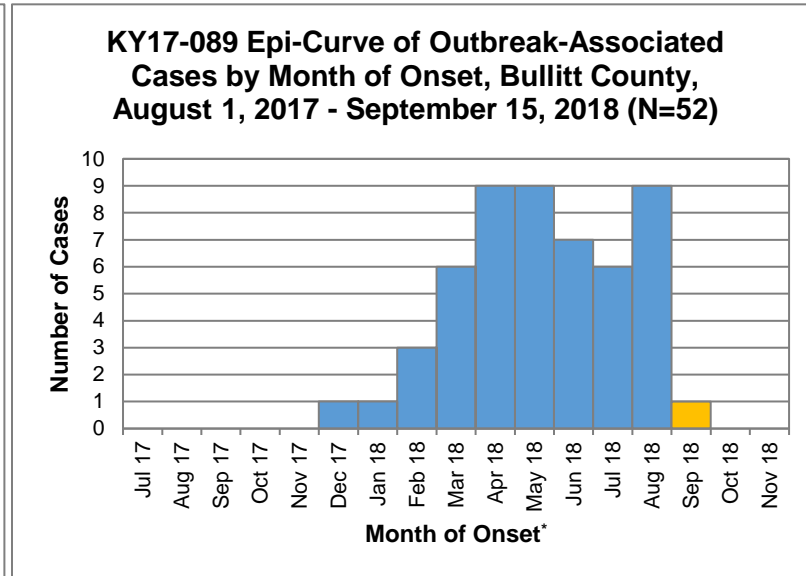
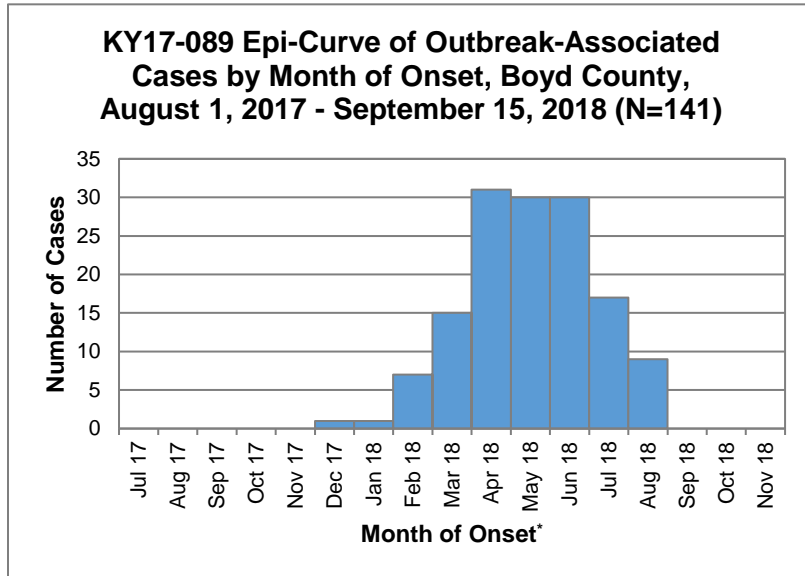
* Date of onset has been reported for 80.5% (or 1439/1788) of cases.

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

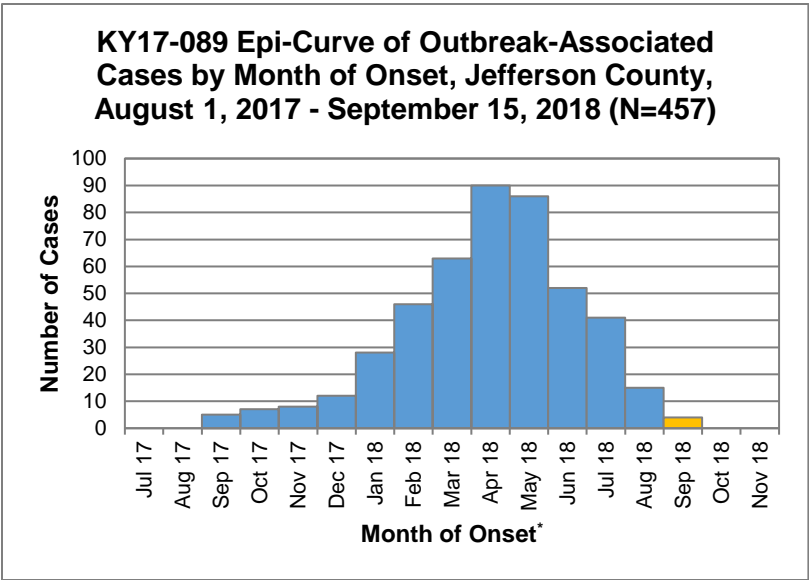
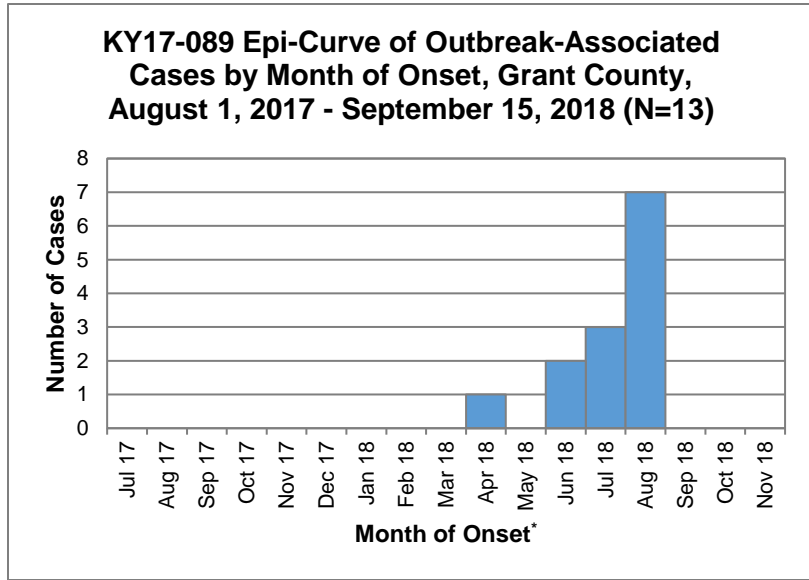
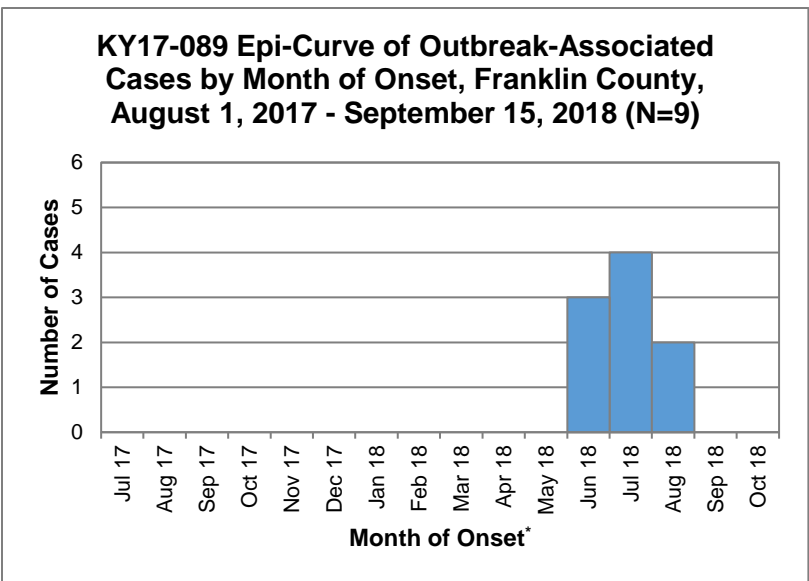
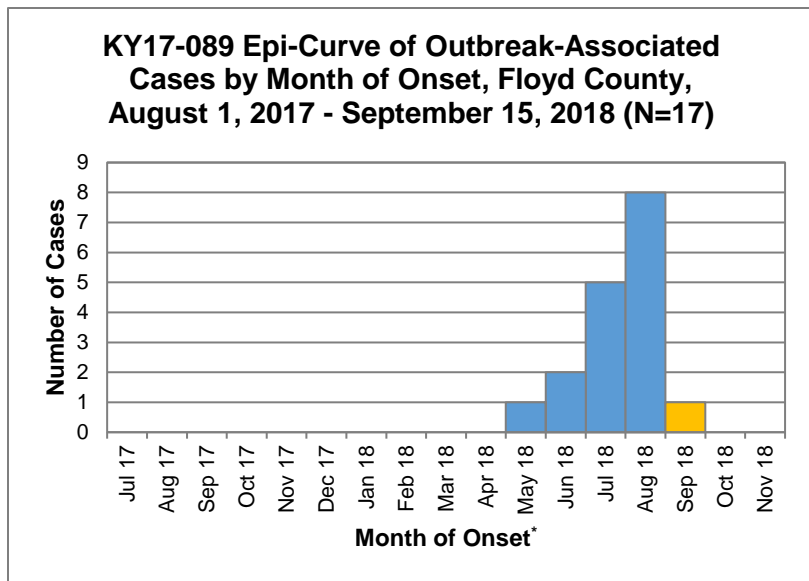


* MMWR weeks are based on date of specimen collection.

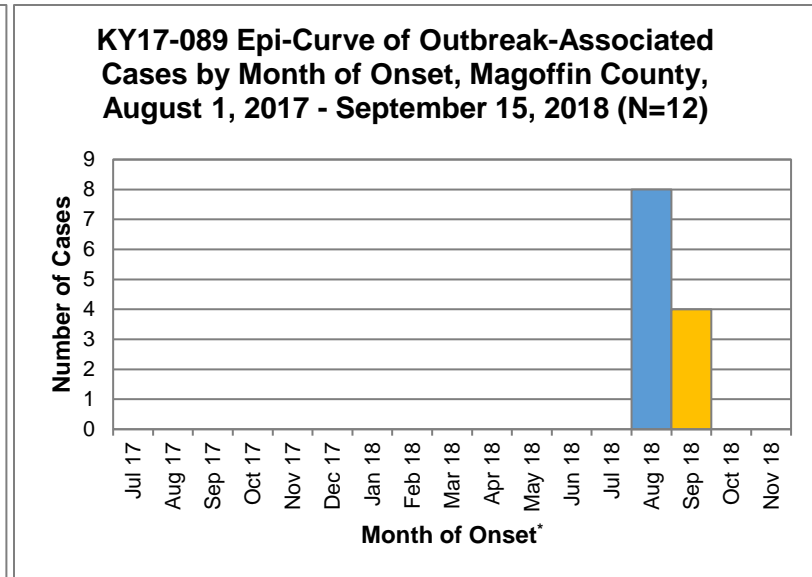
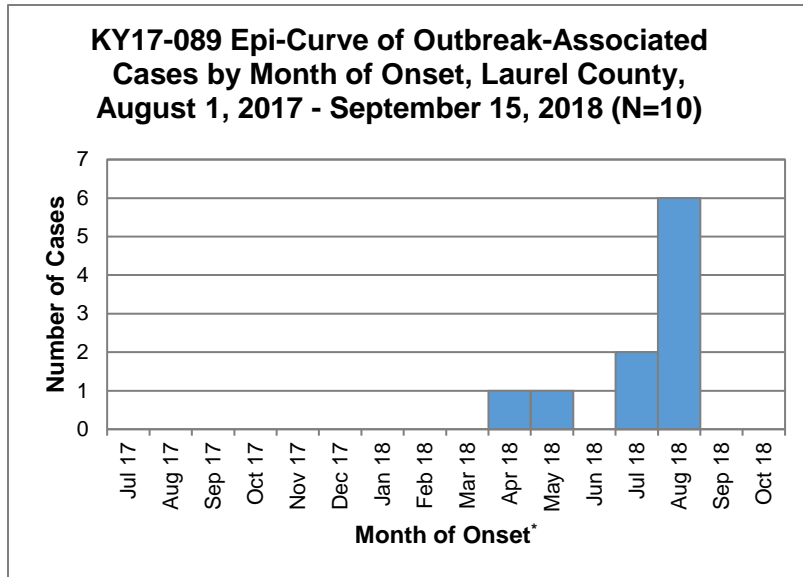
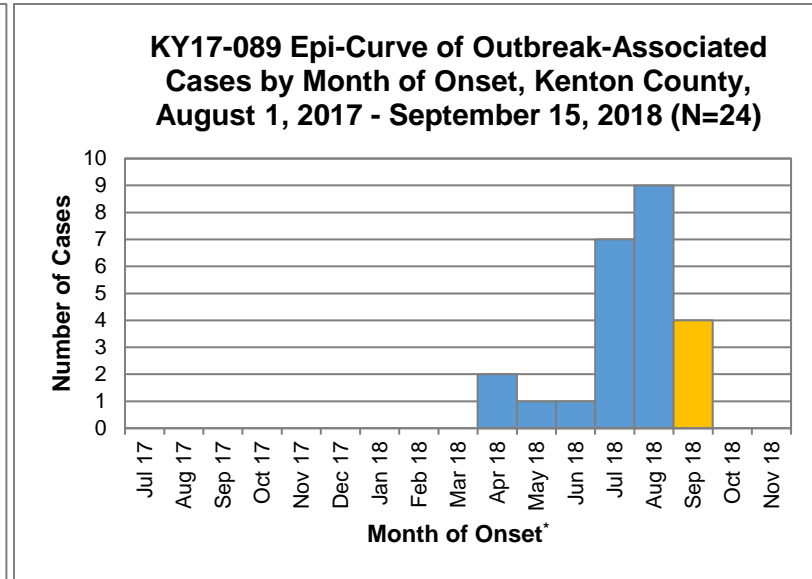
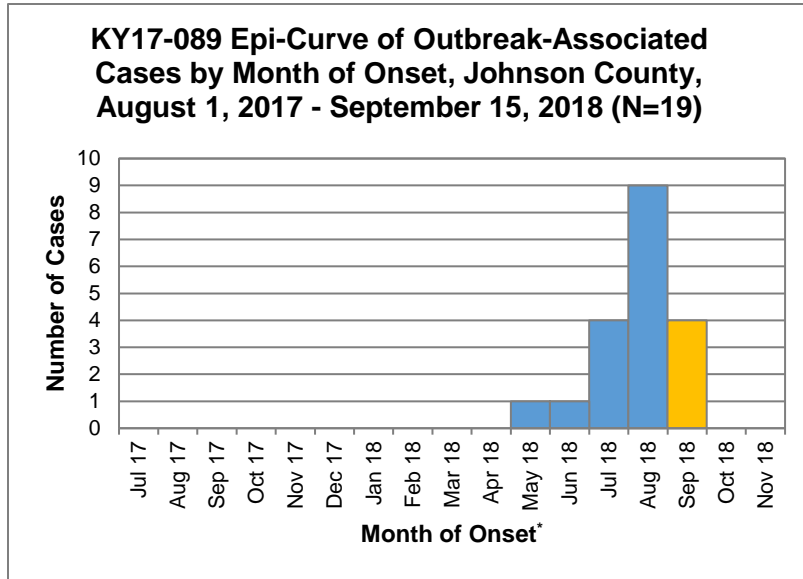
Figures 7-10: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Counties Boyd, Bullitt, Campbell, and Carter Counties)



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 Floyd, Franklin, Grant, and Jefferson 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 (Johnson, Kenton, Laurel, and Magoffin 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 (Martin, Montgomery, Rowan, and Taylor Counties)

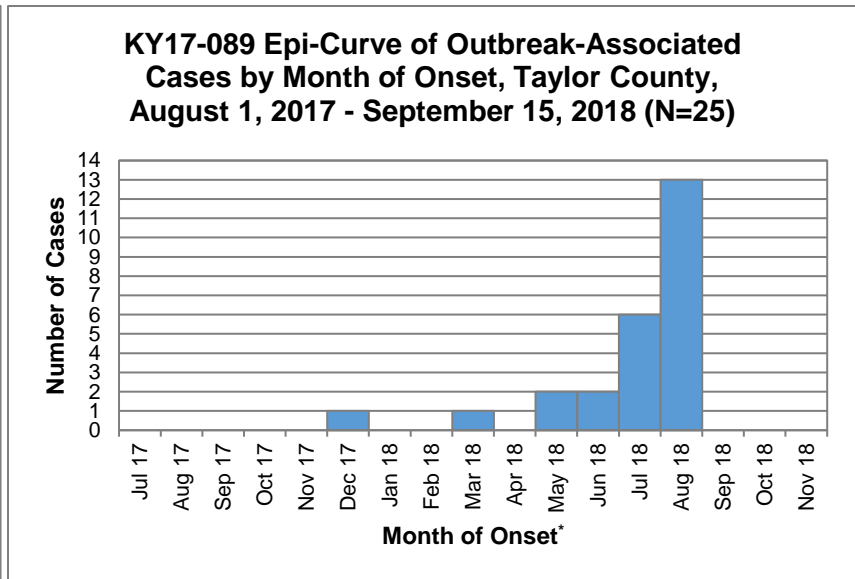
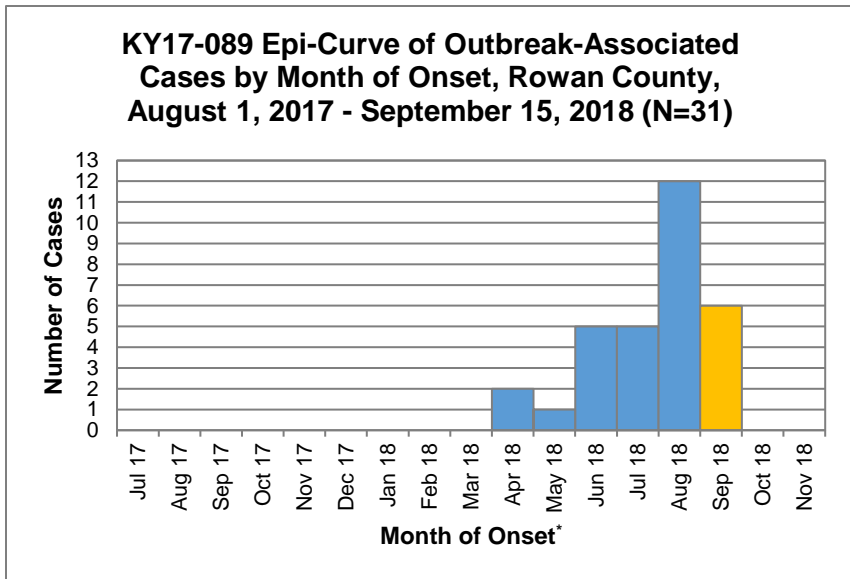
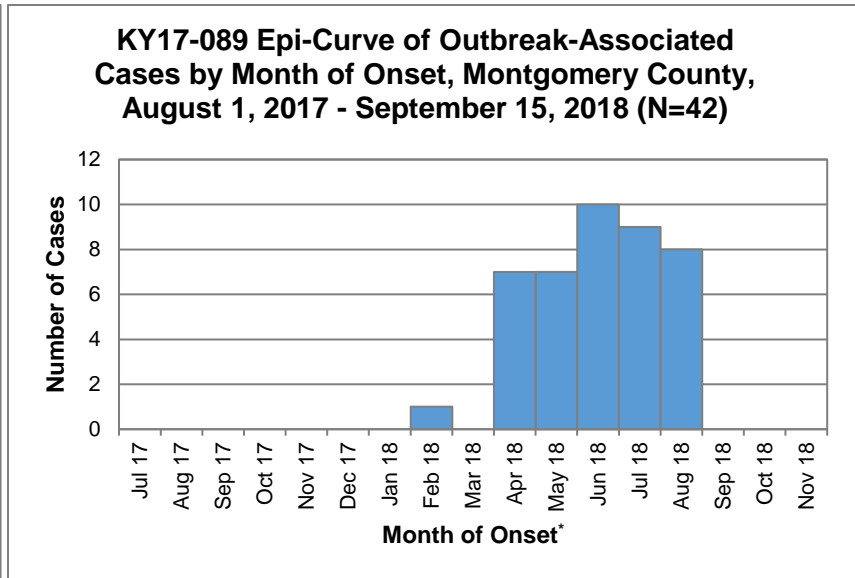
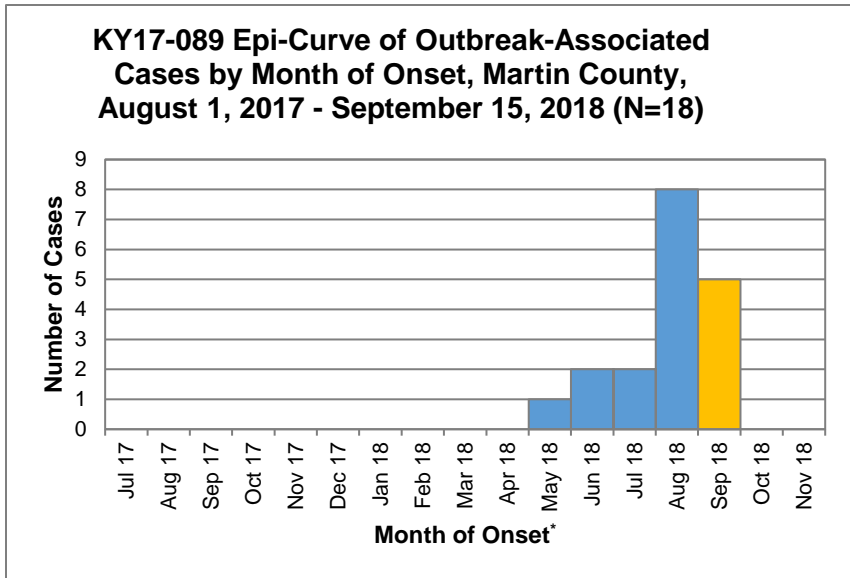


Figure 23: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Whitley County)

