



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Week 31, 2018

July 29, 2018 – August 4, 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 homelessness and illicit drug use. 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.

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 31:		Total Case Counts: 8/1/2017 – 8/4/2018:	
Number of new cases (n=51):	Confirmed - 0 Probable - 38 Suspect - 13	Total number of cases (n=1341):	Confirmed - 441 Probable - 588 Suspected - 312
Number of counties with new cases:	27	Total number of counties with cases:	78 (65% of KY counties)
Number of cases with specimens submitted for genotyping where results are available:	0	Number of cases with specimens submitted for genotyping where results are available:	465 (35%)
Number of cases with genotype IB among those with genotype testing:	0	Total number of cases with genotype IB among those with genotype testing:	423 (91% of those tested)
Number of Hospitalizations:	31	Total Number of Hospitalizations:	759 (57%)
Number of deaths Reported [†] :	0	Total number of deaths reported [†] :	8 (<1%)

* Cases are reported based on date of specimen collection

[†] 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 – August 4, 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	7	0	7	0	33.4
Anderson	5	0	3	2	22.2
Ballard	9	3	2	4	112.0
Barren	1	1	0	0	2.3
Bell	3	0	1	2	11.2
Boone	7	0	6	1	5.4
Bourbon	2	0	2	0	10.0
Boyd	150	79	39	32	312.6
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	47	23	18	6	58.6
Butler	3	0	1	2	23.4
Campbell	10	1	7	2	10.8
Carlisle	1	0	1	0	20.6
Carroll	1	0	0	1	9.3
Carter	112	28	63	21	412.6
Casey	1	1	0	0	6.3
Christian	1	1	0	0	1.4
Clark	2	0	2	0	5.5
Clay	1	0	1	0	4.9
Daviess	2	0	1	1	2.0

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – August 4, 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	8	0	2	6	106.3
Estill	1	0	1	0	7.0
Fayette	7	2	3	2	2.2
Fleming	3	0	0	3	20.8
Floyd	11	0	5	6	30.3
Franklin	10	0	8	2	19.8
Garrard	3	0	1	2	17.1
Grant	10	3	5	2	40.0
Grayson	7	2	4	1	26.6
Greenup	51	21	17	13	143.6
Hardin	23	5	6	12	21.3
Harrison^	1	0	1	0	5.3
Hart	1	0	1	0	5.3
Henry	6	1	3	2	37.5
Hickman	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	1	0	1	0	7.4
Jefferson	571	238	231	102	74.0
Jessamine	1	0	0	1	1.9
Johnson	6	0	3	3	26.6
Kenton	11	2	7	2	6.7
Knott	2	0	2	0	13.1

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – August 4, 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
Knox	2	0	1	1	6.4
Laurel	9	0	7	2	15.0
Lawrence	4	1	1	2	25.4
Leslie	2	0	0	2	19.4
Lincoln	3	1	0	2	12.3
Logan	1	0	1	0	3.7
Madison	2	1	0	1	2.2
Marion	4	2	1	1	20.6
Marshall	2	0	1	1	6.4
Martin	5	0	2	3	43.7
McCracken	6	2	1	3	9.2
Meade	8	1	1	6	28.4
Menifee	5	0	3	2	77.5
Metcalfe	1	0	1	0	9.9
Montgomery	40	1	29	10	143.2
Morgan	1	0	1	0	7.6
Nelson	14	3	6	5	30.7
Ohio	4	0	2	2	16.5
Oldham	7	3	2	2	10.5
Pendleton	1	0	1	0	6.9
Pike^	1	0	1	0	1.7
Powell	2	0	2	0	16.2
Pulaski	1	0	1	0	1.6

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – August 4, 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
Rowan	15	0	10	5	61.2
Russell	1	0	0	1	5.6
Shelby	17	4	10	3	35.8
Simpson	3	0	3	0	16.6
Spencer	4	3	1	0	21.6
Taylor	11	2	8	1	43.2
Warren	17	5	10	2	13.2
Washington	2	0	1	1	16.5
Whitley	37	1	21	15	102.2
Wolfe	1	0	0	1	13.8
Total Number of Cases:	1341	441	588	312	30.1

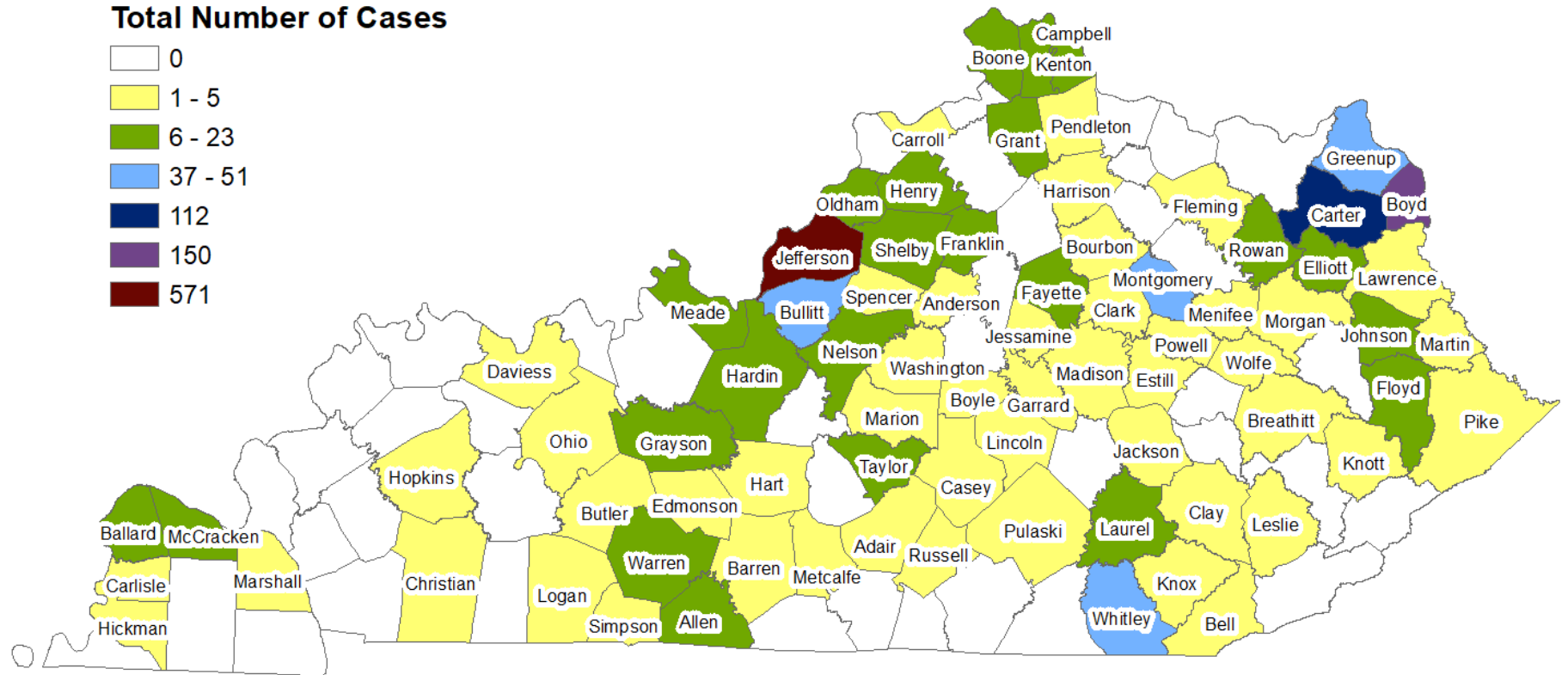
* Cases are reported based on date of specimen collection.

[^] 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 - August 4, 2018

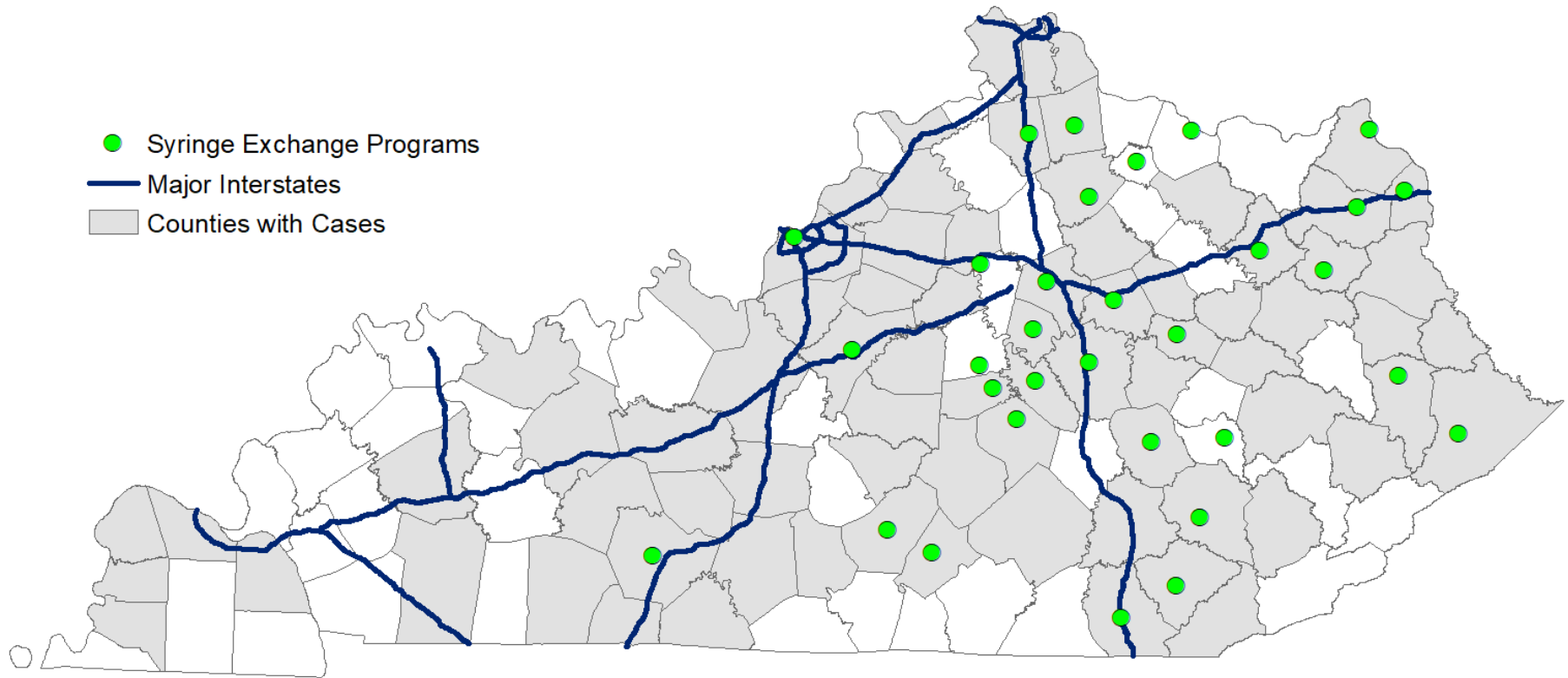


n = 78 counties with outbreak-associated cases

Counties where cases have not previously been identified: Harrison, Pike.

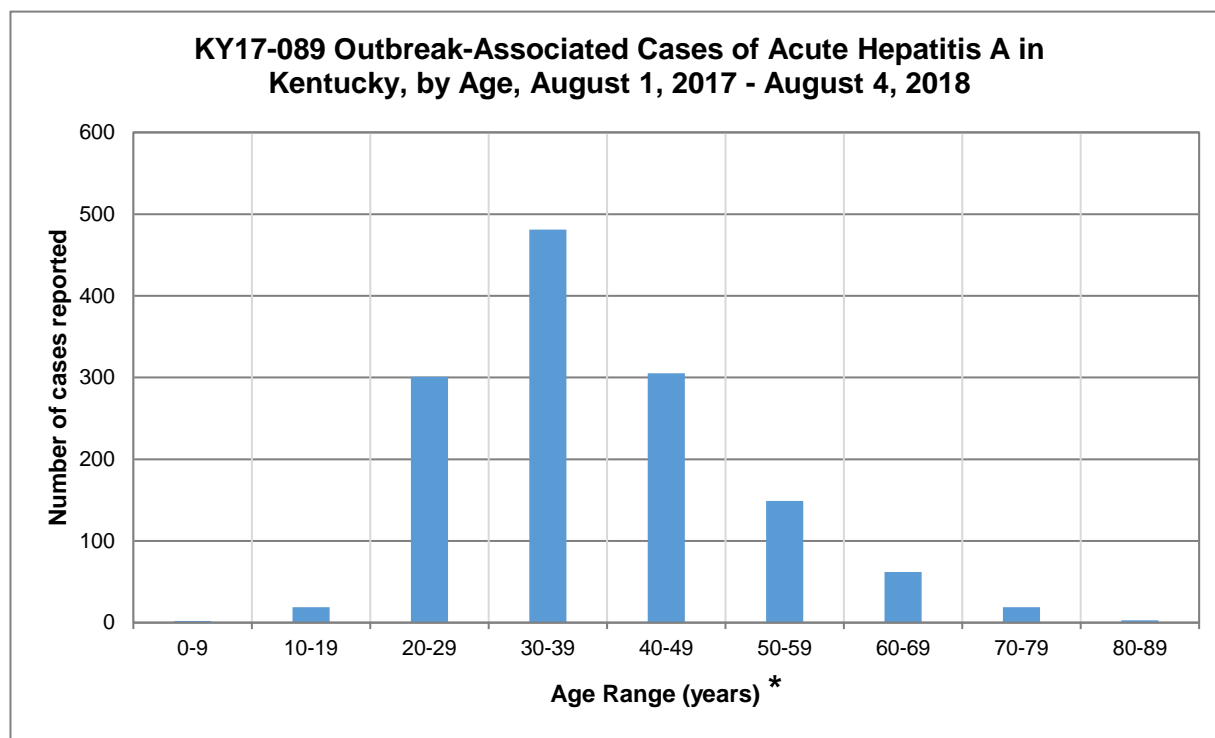
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs In Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - August 4, 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 38.4 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 – July 28, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=1110) ^{* †}
Homelessness + No Illicit Drug Use	15 (1.4%)
Illicit Drug Use + No/Unk Homelessness	675 (61%)
Homelessness + Illicit drug use	151 (14%)
No Outbreak-Related Risk Factors	248 (22%)

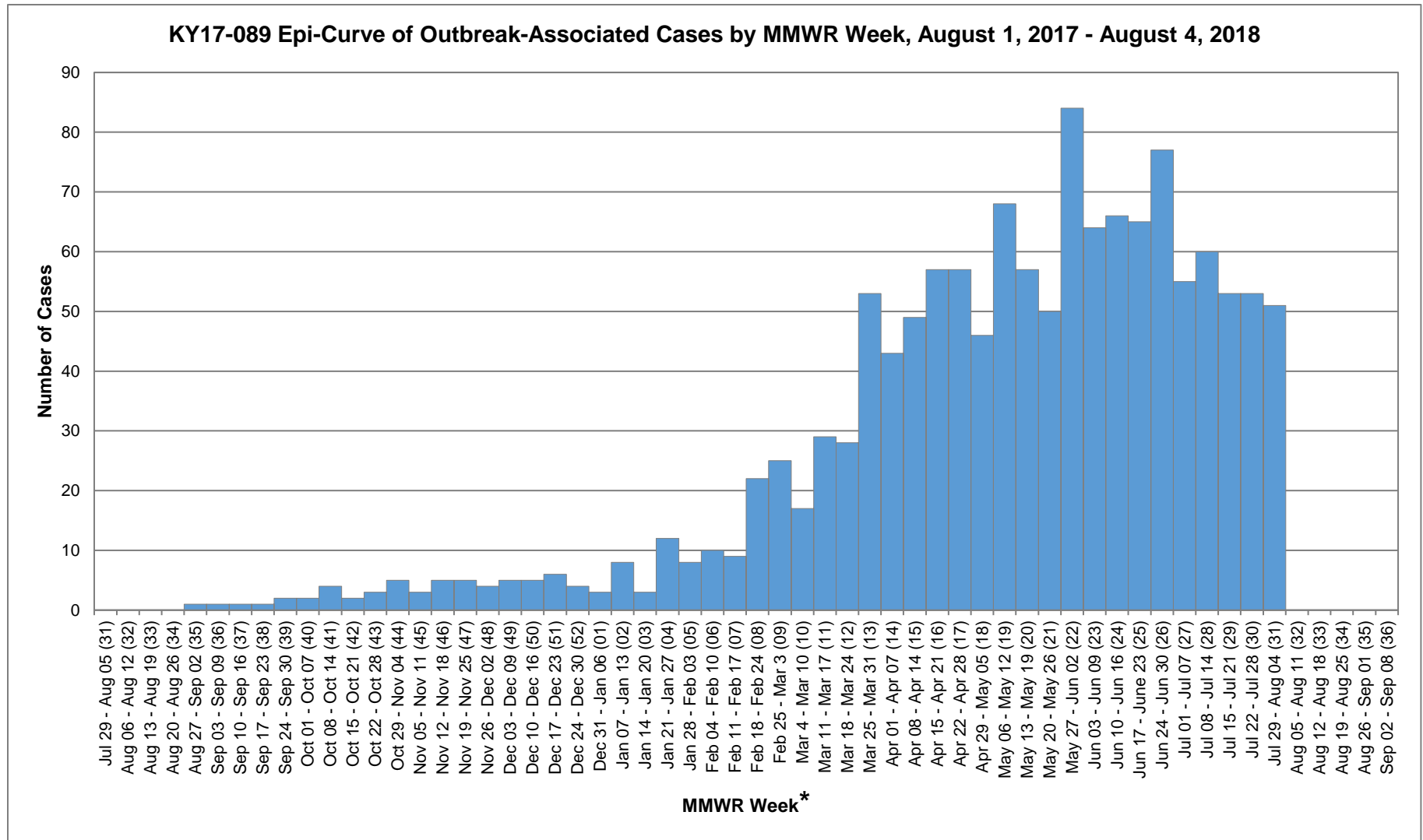
* Risk factor information is unavailable for 231 (17.2%) of all outbreak-associated cases.

† 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.

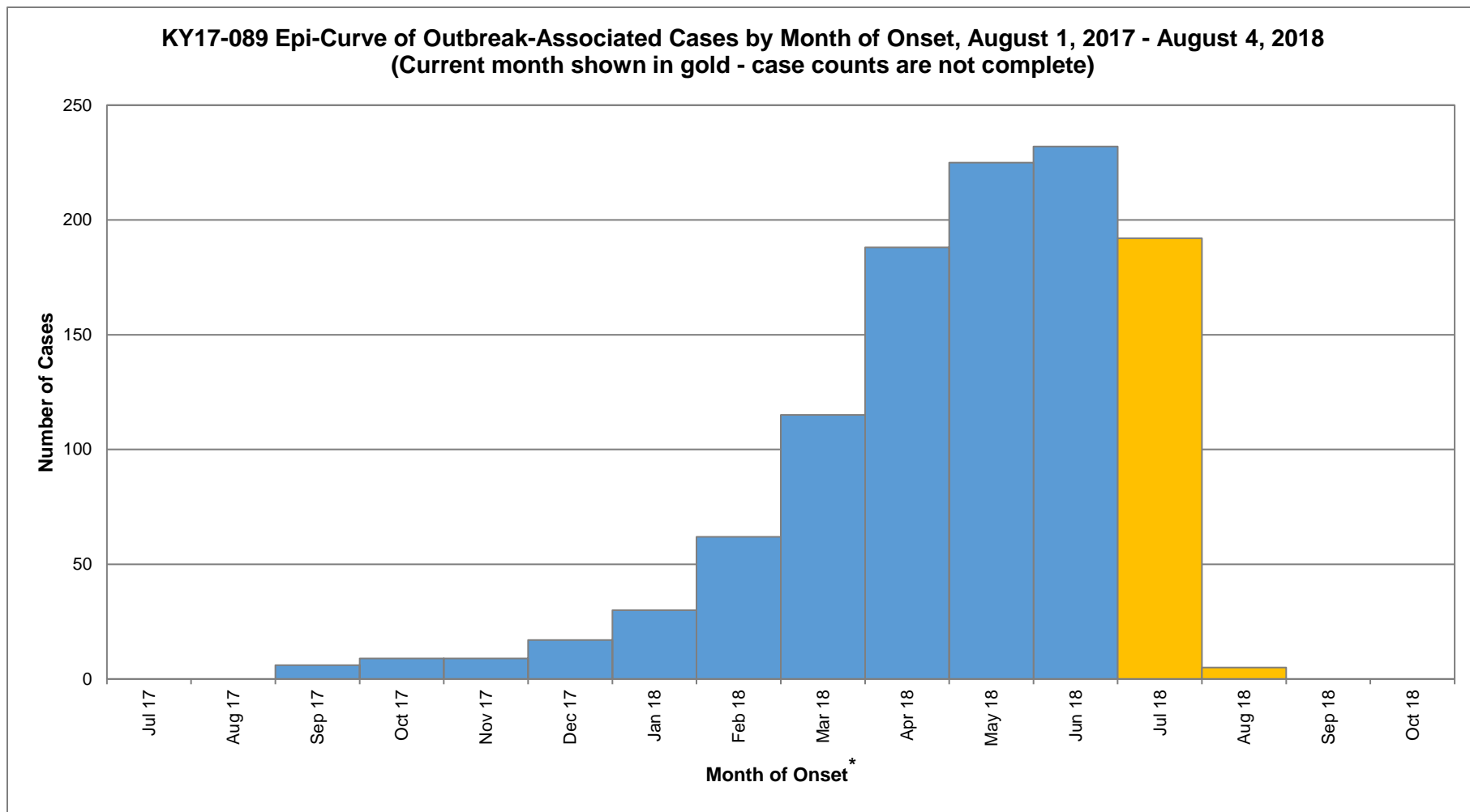
^ 26 MSM cases have been reported. Of those, 7 have reported no other risk factors.

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



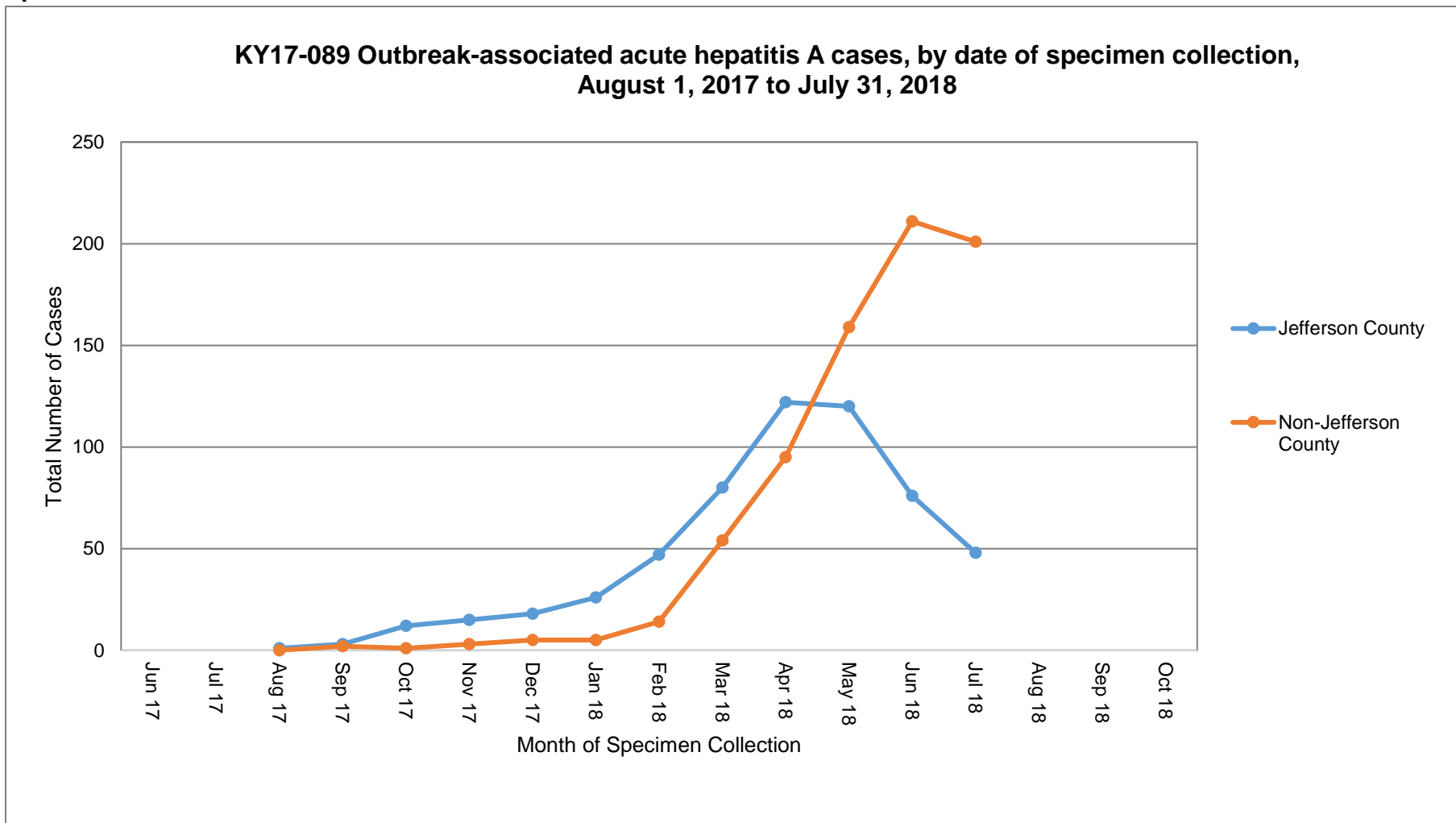
* MMWR weeks are based on date of specimen collection.

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

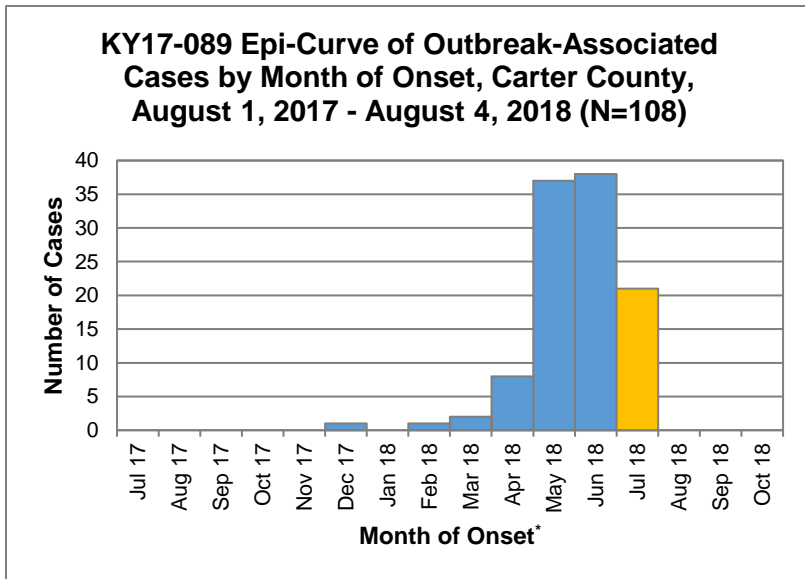
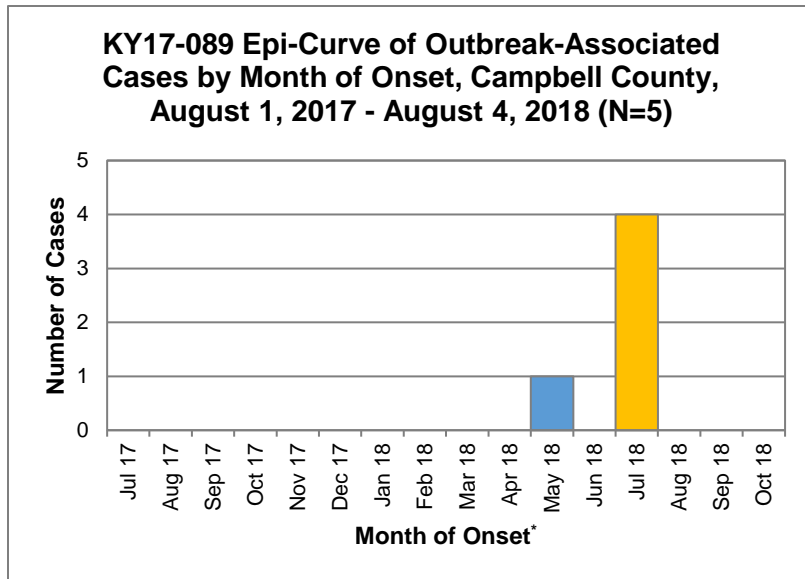
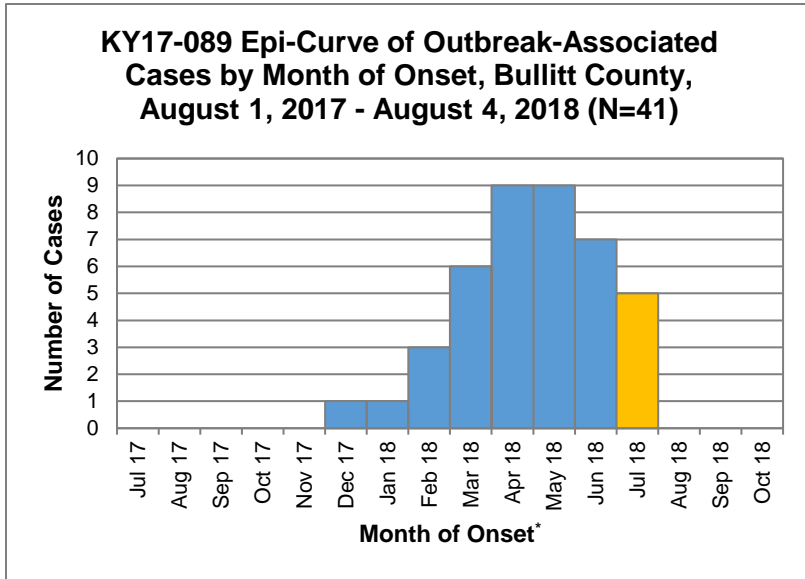
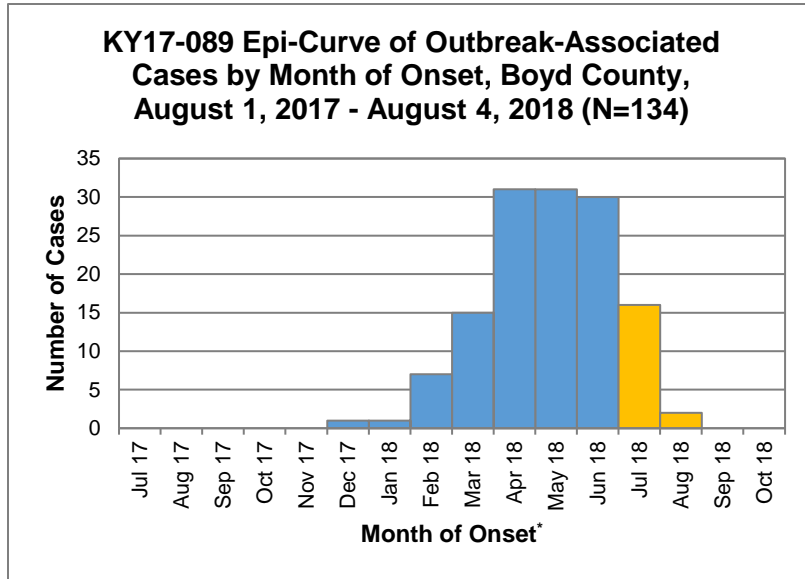


* Date of onset has been reported for 81.3% (or 1090/1341) of cases.

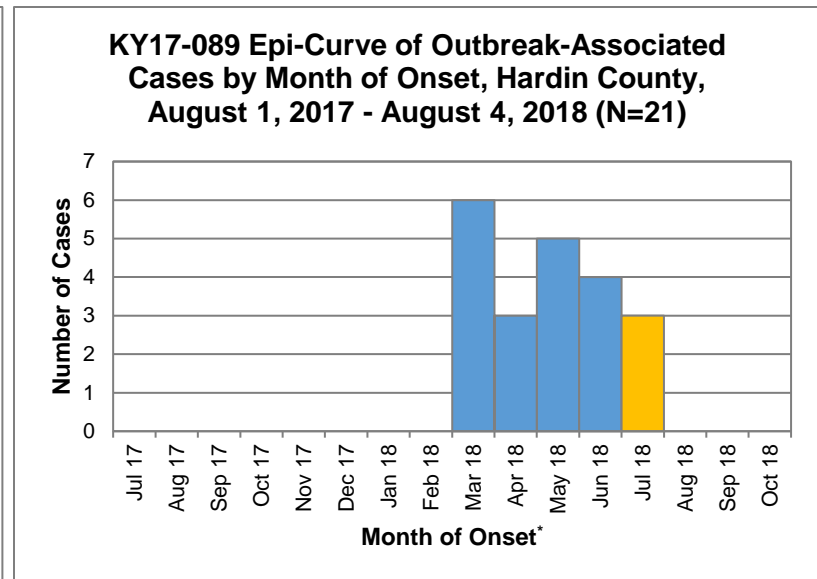
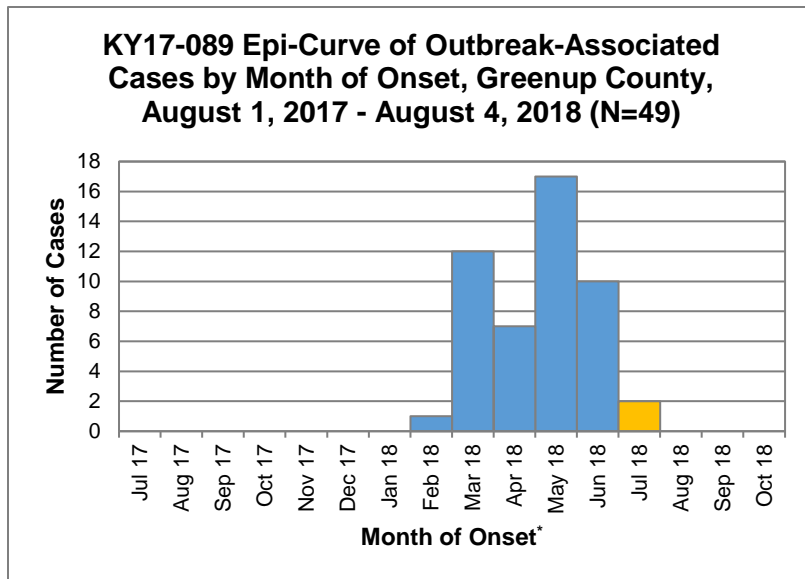
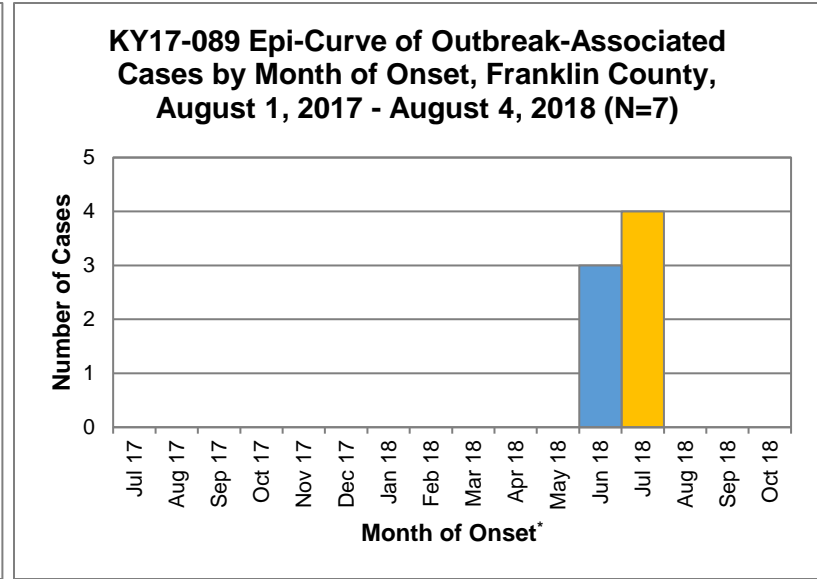
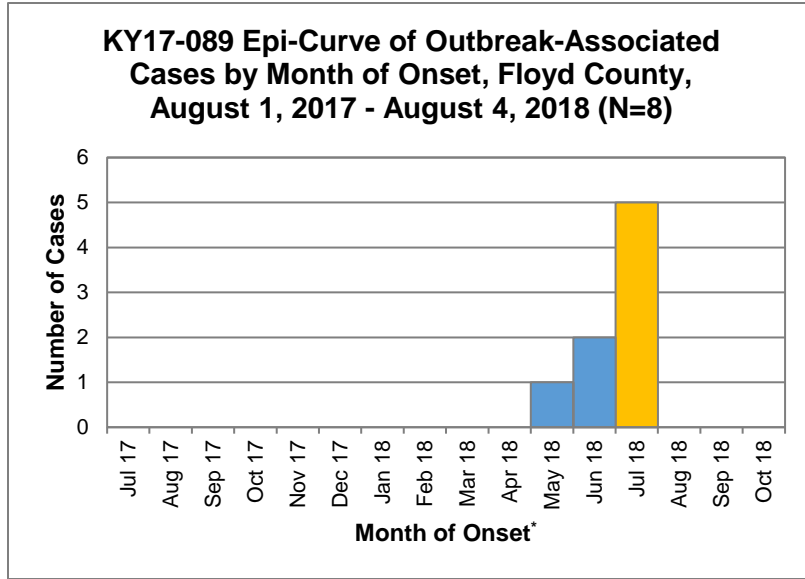
Figure 6: Case Count Comparison of acute hepatitis A cases, Jefferson County versus Non-Jefferson Counties, by Date of Specimen Collection



Figures 7-10: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, 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, by Month of Onset (Counties include Floyd, Franklin, Greenup, and Hardin Counties)



Figures 15-18: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Jefferson, Montgomery, Nelson, and Rowan Counties)

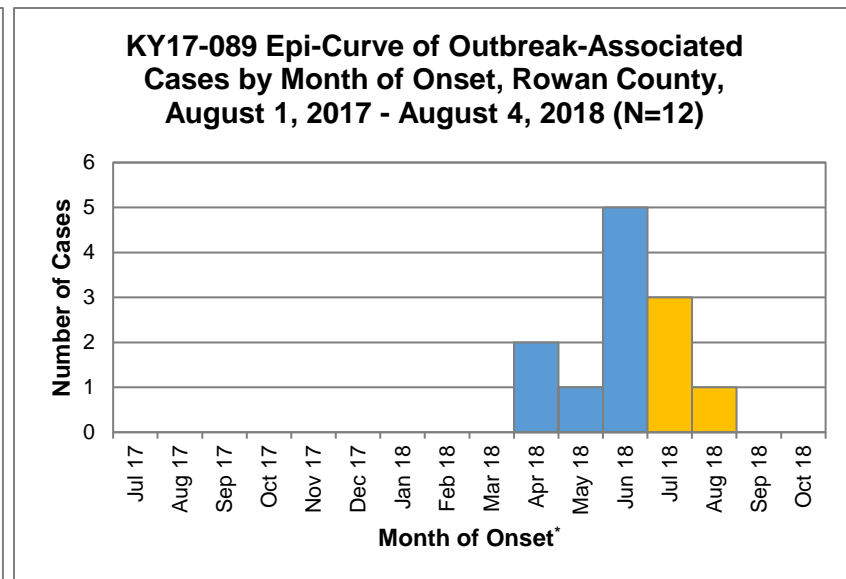
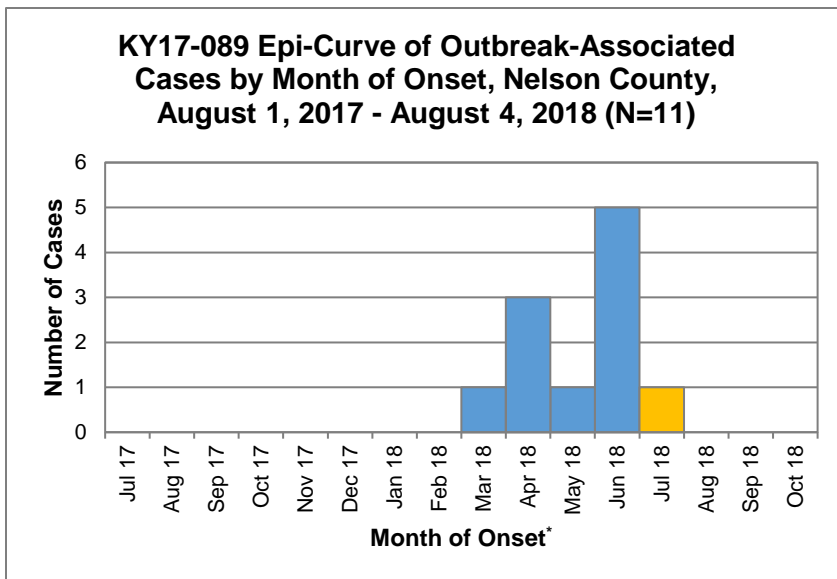
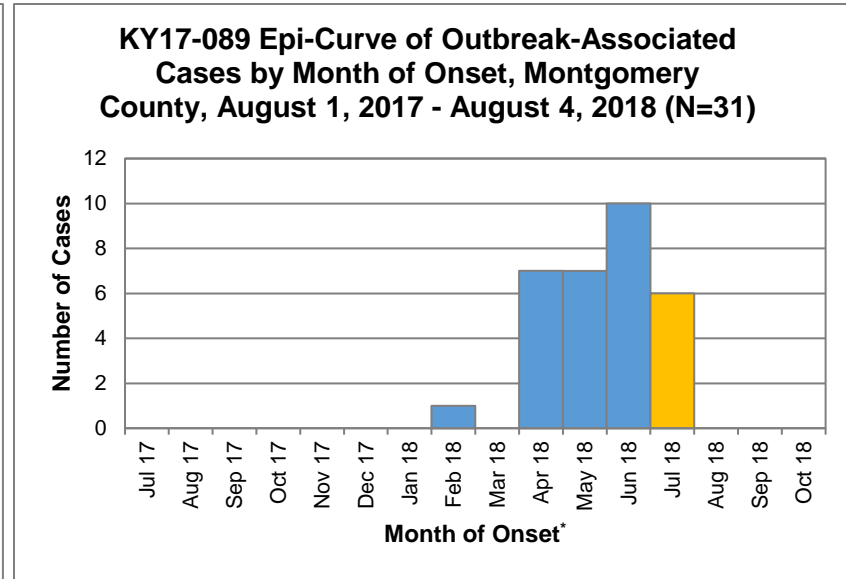
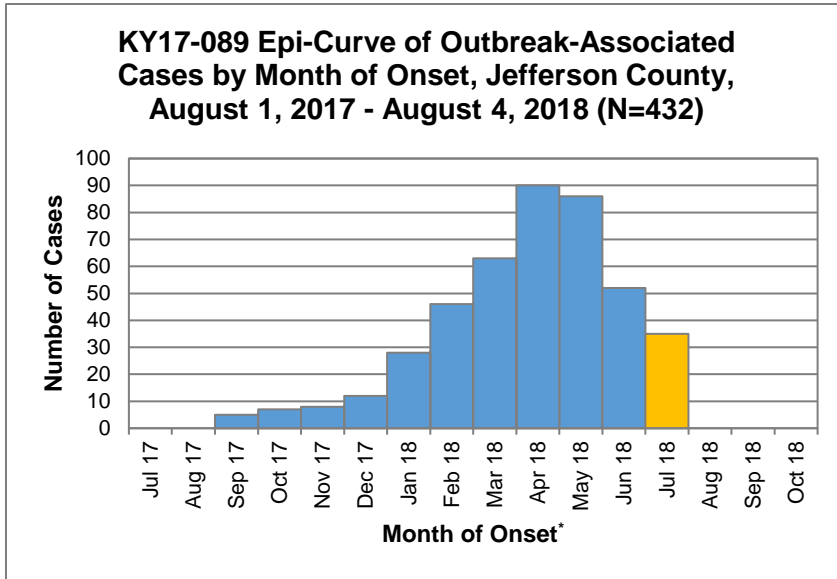


Figure 19-21: Epidemic-curves (Epi-curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases, by Month of Onset (Shelby, Warren, and Whitley Counties)

