



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Week 27, 2018

July 1, 2018 – July 7, 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 27:		Total Case Counts: 8/1/2017 – 7/7/2018:	
Number of new cases (n=43):	Confirmed - 0 Probable - 21 Suspect - 22	Total number of cases (n=1094):	Confirmed - 373 Probable - 460 Suspected - 261
Number of counties with new cases:	18	Total number of counties with cases:	65 (54% 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:	387 (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:	359 (93% of those tested)
Number of Hospitalizations:	16	Total Number of Hospitalizations:	628 (57%)
Number of deaths Reported[†]:	1	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 – July 7, 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	2	0	2	0	9.6
Anderson	3	0	2	1	13.3
Ballard	6	3	2	1	74.6
Barren	1	1	0	0	2.3
Bell	1	0	0	1	3.7
Boone	4	0	4	0	3.1
Bourbon	2	0	2	0	10.0
Boyd	134	57	43	34	279.3
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	43	22	16	5	53.6
Butler	1	0	0	1	7.8
Campbell	4	1	2	1	4.3
Carlisle	1	0	1	0	20.6
Carroll^	1	0	0	1	9.3
Carter	85	15	50	20	313.1
Casey	1	1	0	0	6.3
Christian	1	1	0	0	1.4
Clark	1	0	1	0	2.8
Edmonson	1	0	1	0	8.2
Elliott	5	0	2	3	66.5

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – July 7, 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
Estill	1	0	1	0	7.0
Fayette	6	1	3	2	1.9
Floyd	1	0	1	0	2.8
Franklin	6	0	3	3	11.9
Garrard	3	0	1	2	17.1
Grant	7	2	5	0	28.0
Grayson	6	2	3	1	22.8
Greenup	46	15	17	14	129.5
Hardin	18	5	5	8	16.7
Henry	6	1	3	2	37.5
Hopkins	1	0	0	1	2.2
Jefferson	525	220	210	95	68.1
Jessamine	1	0	0	1	1.9
Johnson	2	0	0	2	8.9
Kenton	6	2	4	0	3.6
Knott	1	0	1	0	6.5
Laurel	6	0	3	3	10.0
Lawrence	4	1	1	2	25.4
Leslie	1	0	0	1	9.7
Lincoln	3	1	0	2	12.3
Madison	2	1	0	1	2.2
Marion	2	2	0	0	10.3
Marshall	1	0	1	0	3.2

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – July 7, 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
Martin	3	0	0	3	26.2
McCracken	4	2	0	2	6.1
Meade	6	1	1	4	21.3
Menifee	1	0	0	1	15.5
Montgomery	30	1	20	9	107.4
Morgan [^]	1	0	1	0	7.6
Nelson	12	3	5	4	26.3
Ohio	4	0	2	2	16.5
Oldham	6	3	2	1	9.0
Pendleton	1	0	1	0	6.9
Powell	2	0	2	0	16.2
Pulaski	1	0	1	0	1.6
Rowan	10	0	5	5	40.8
Russell	1	0	0	1	5.6
Shelby	12	2	7	3	25.3
Spencer	4	3	1	0	21.6
Taylor	5	0	3	2	19.6
Warren	14	3	9	2	10.9
Washington	1	0	0	1	8.2
Whitley	18	1	7	10	49.7
Total Number of Cases:	1094	373	460	261	24.6

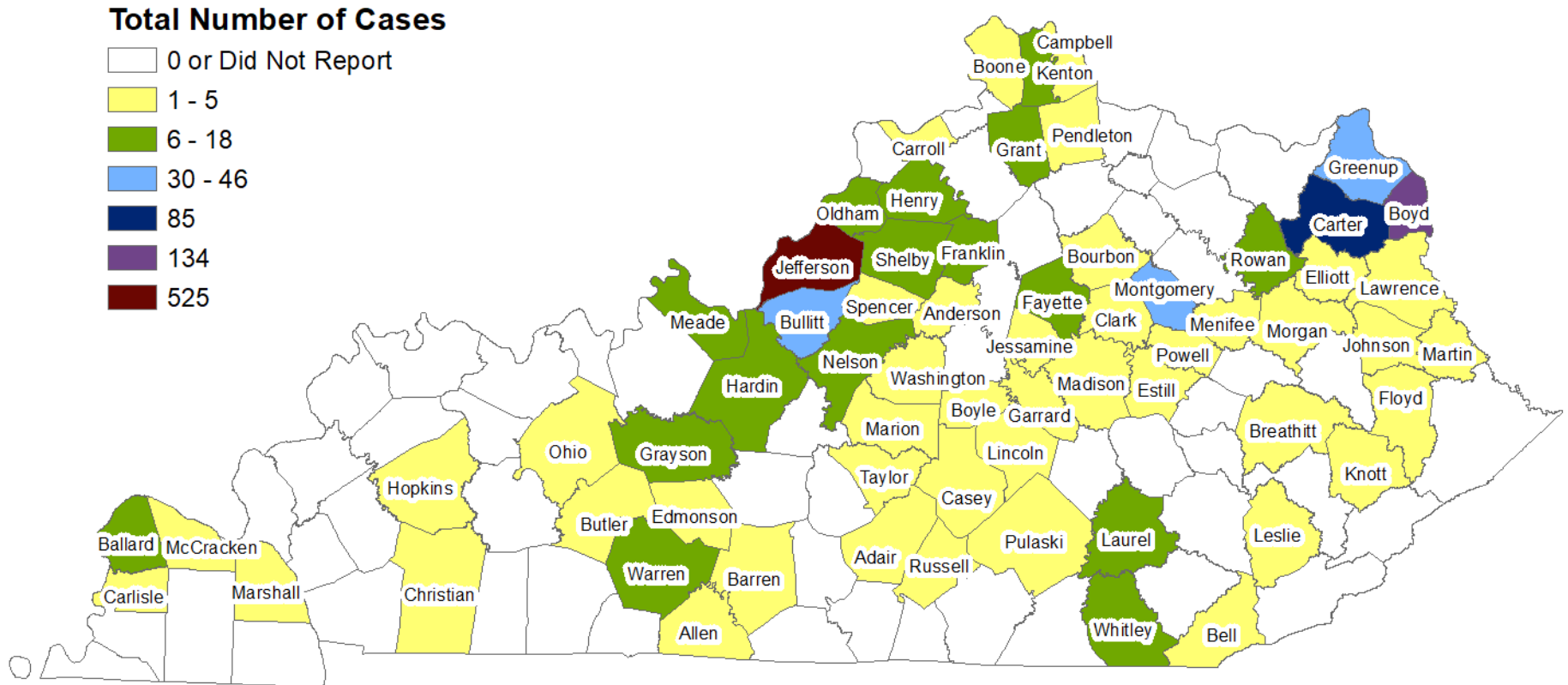
* Cases are reported based on date of specimen collection.

[^] 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 - July 7, 2018

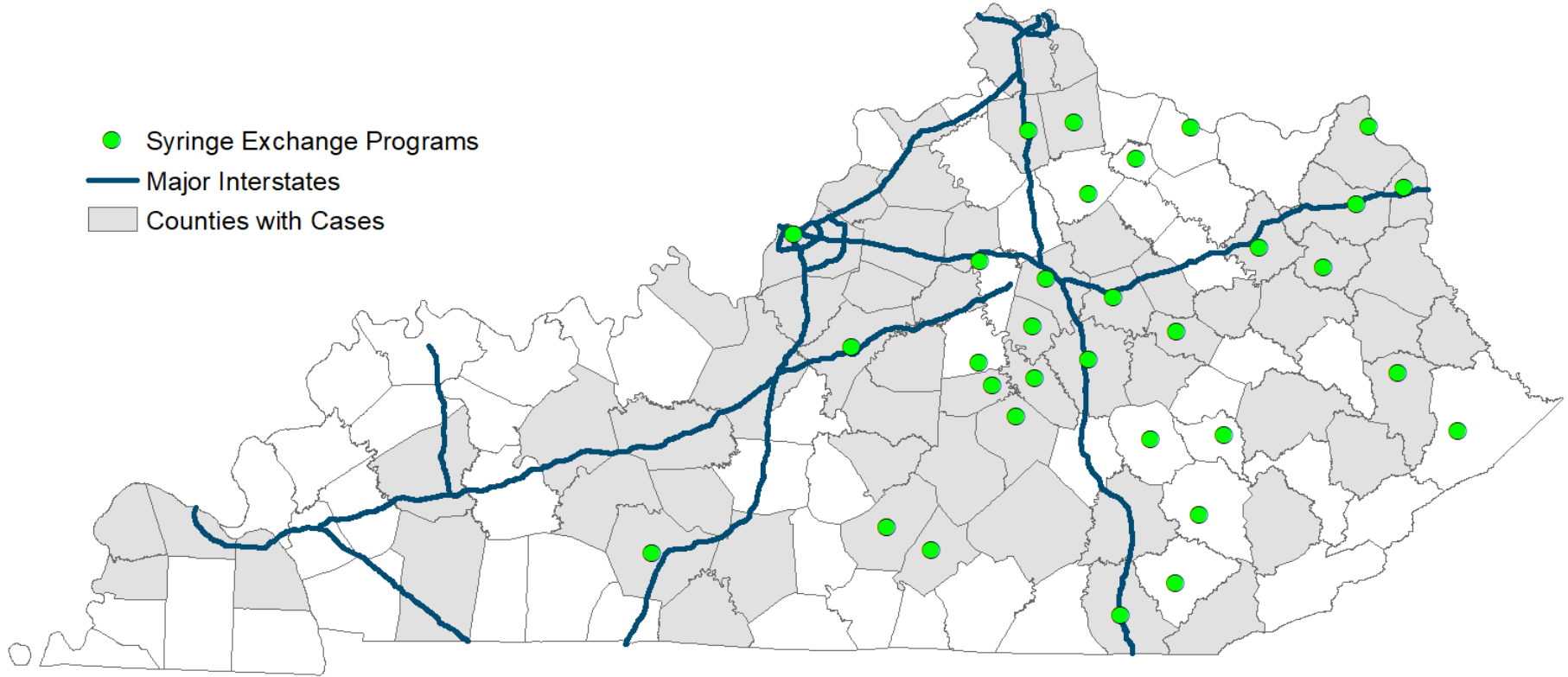


n = 65 counties with outbreak-associated cases

Counties where cases have not previously been identified: Carroll, Morgan.

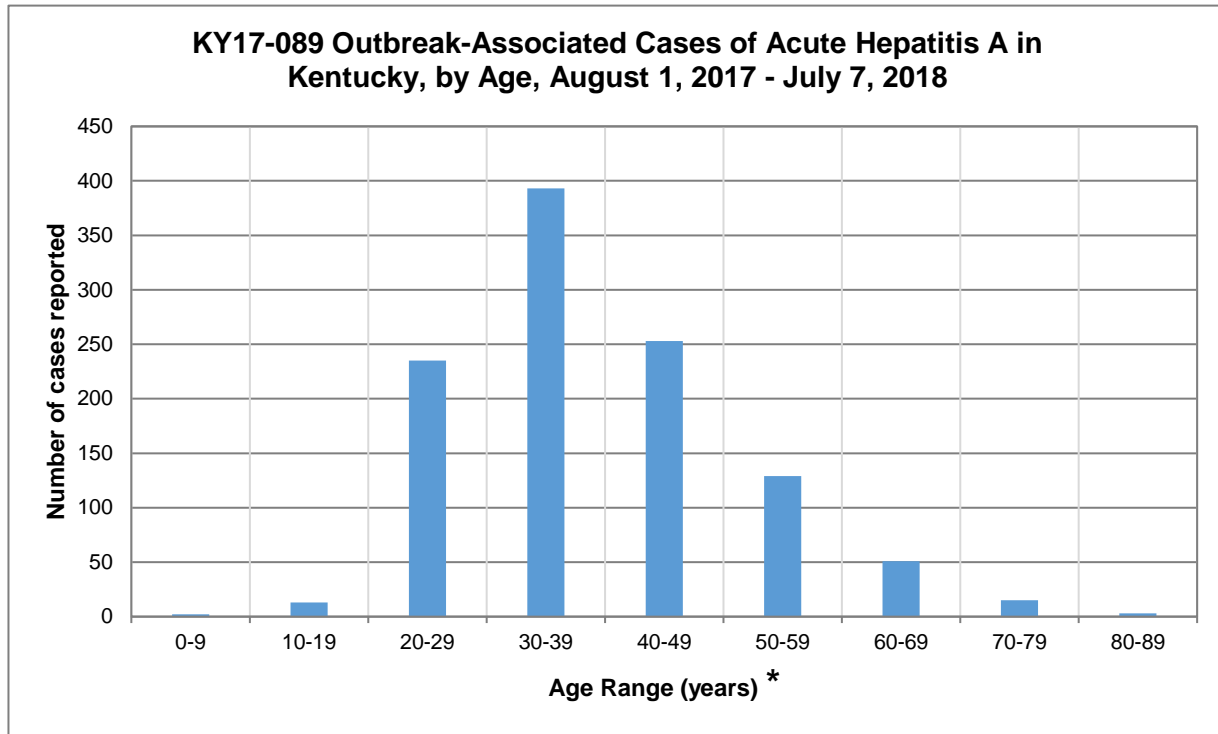
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

**KY17-089 Major Interstates and Syringe Exchange Programs In
Counties Reporting Outbreak-Associated Acute Hepatitis A Cases,
August 1, 2017 - July 7, 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



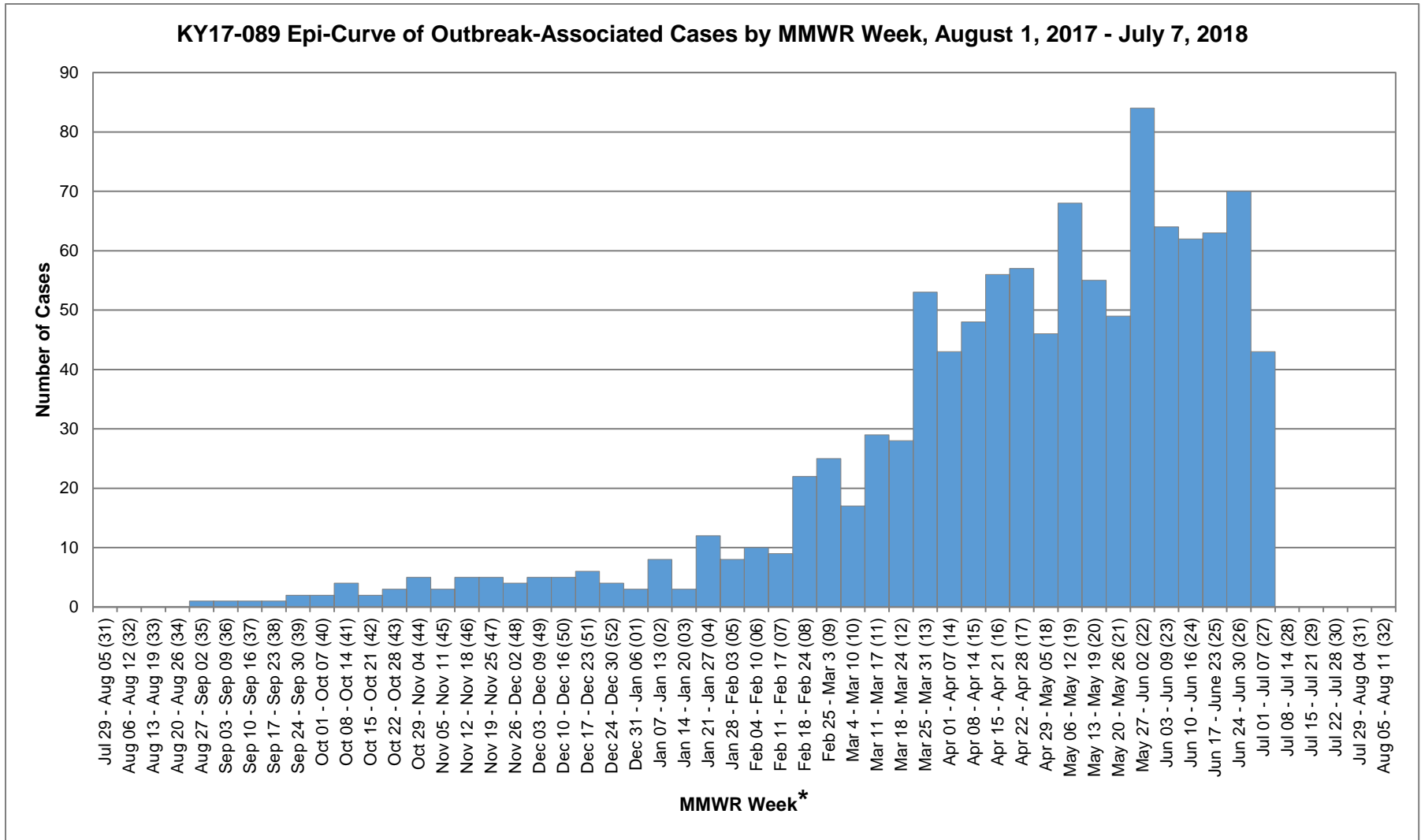
* The mean age of cases is 38.7 years, and the median age is 37.0 years.

Table 3: Frequent Risk Factors of Outbreak-associated Cases

KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases*, August 1, 2017 – July 7, 2018	
Risk Factor	Number of Cases Reporting Risk Factor (n=694)*
Homelessness only	14 (2%)
Illicit drug use only	501 (72%)
Homelessness + illicit drug use	108 (16%)
MSM only	3 (<1%)
No Risk Factors	133 (19%)

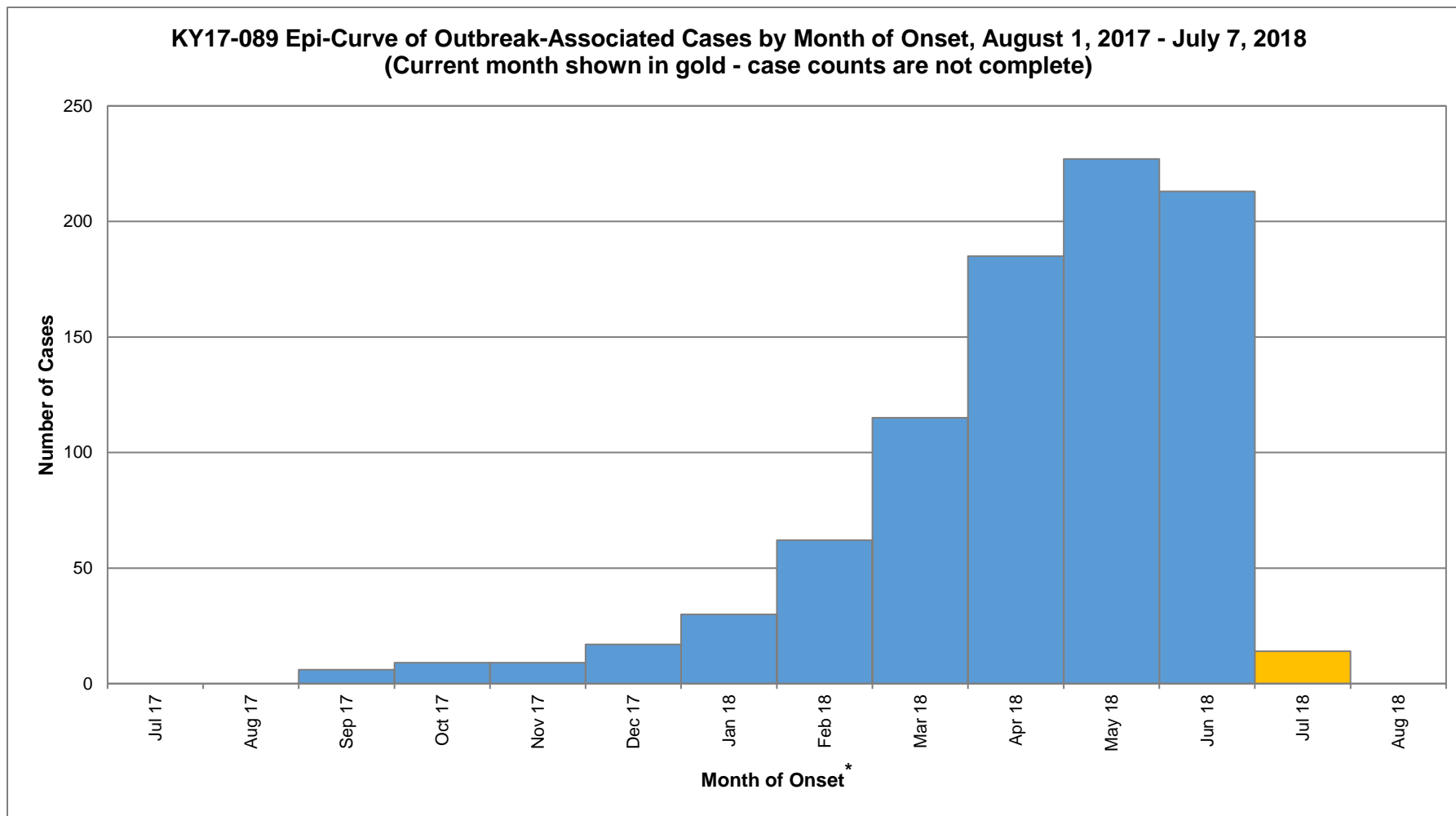
* Risk factor information is unavailable for 400 (37%) of all outbreak associated cases.

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



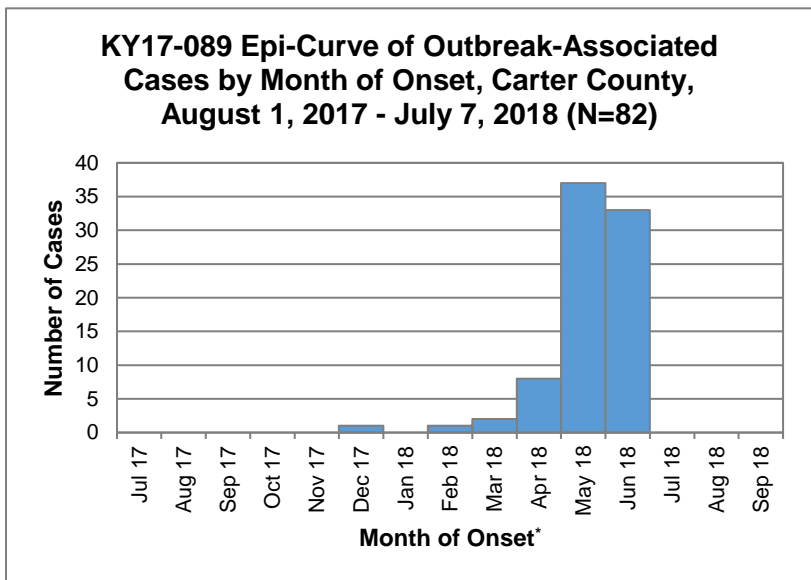
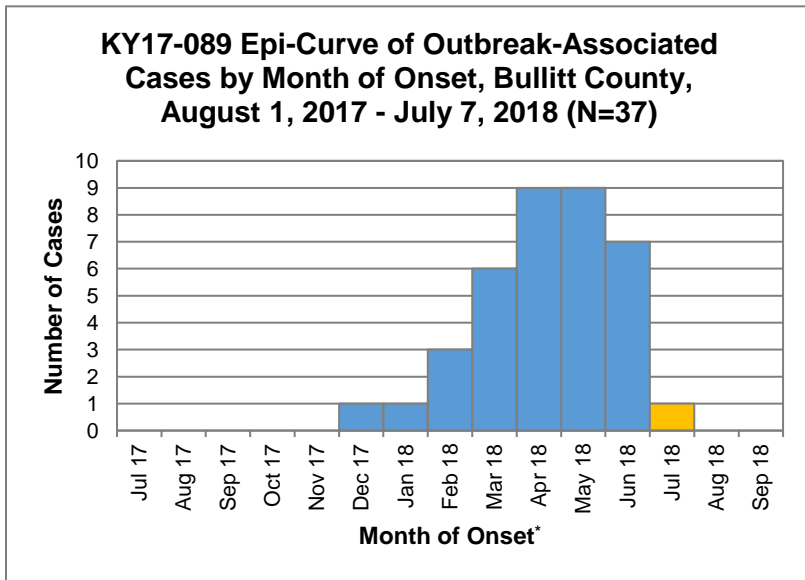
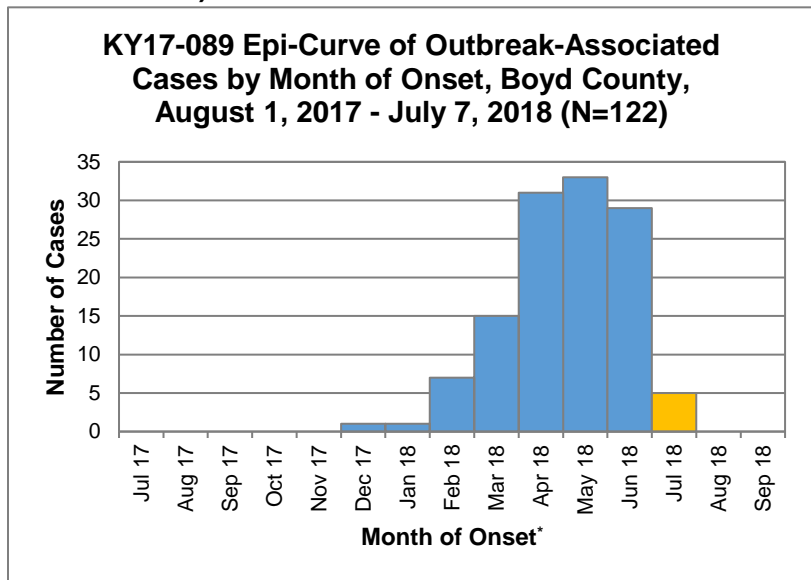
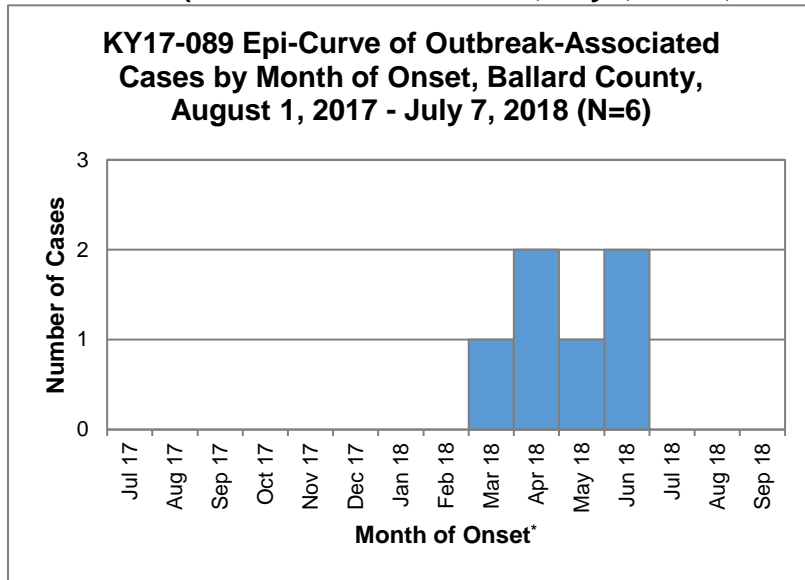
* MMWR weeks are based on date of specimen collection.

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

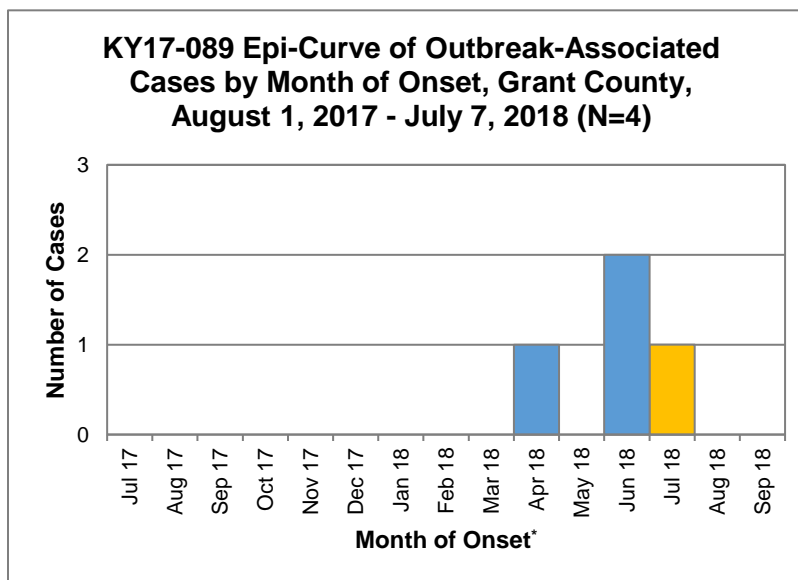
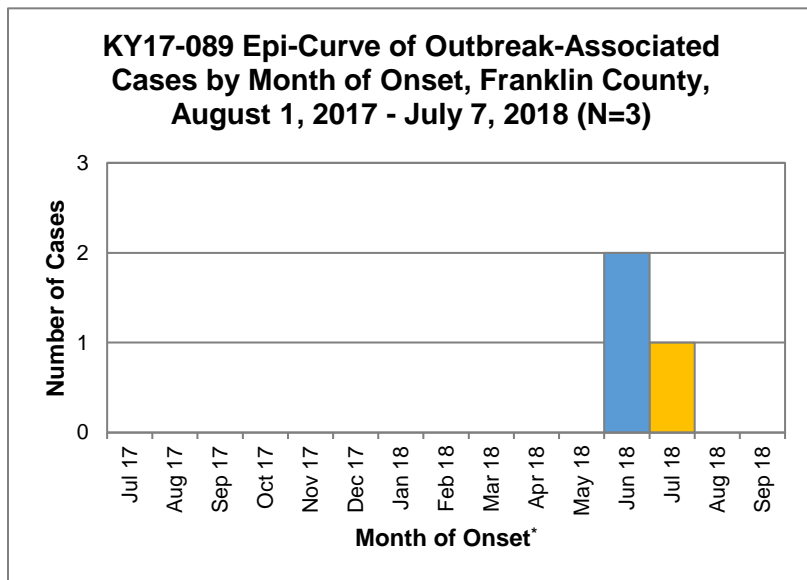
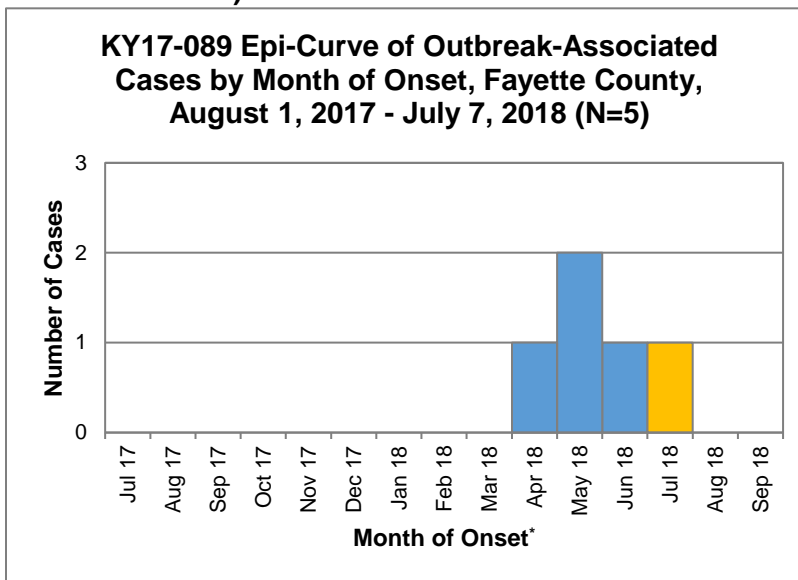
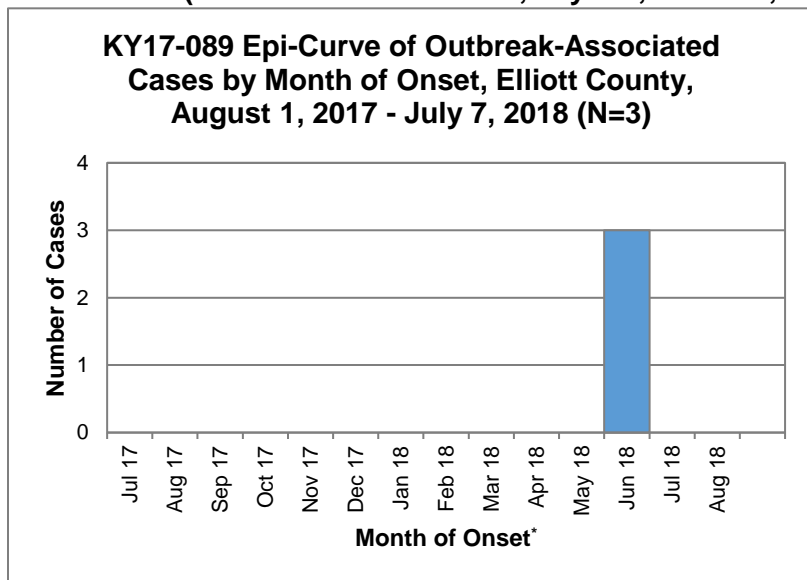


* Date of onset has been reported for 81.1% (or 887/1094) of cases.

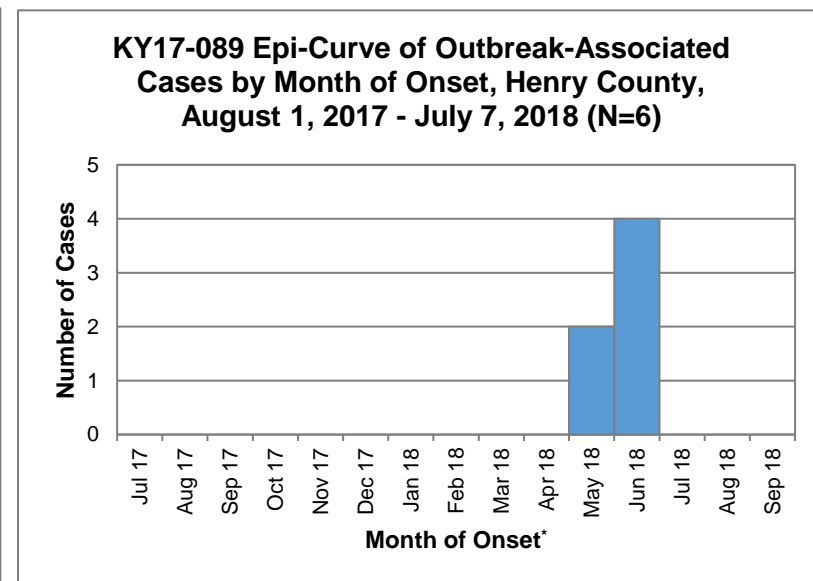
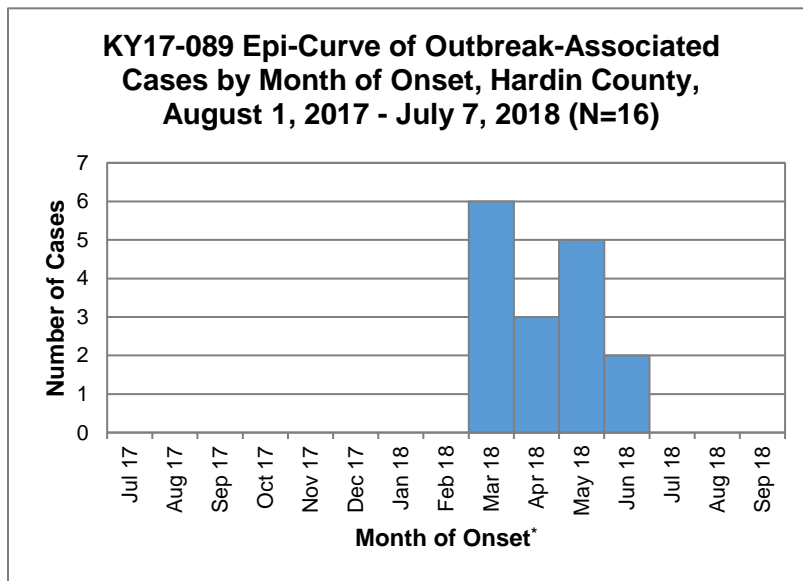
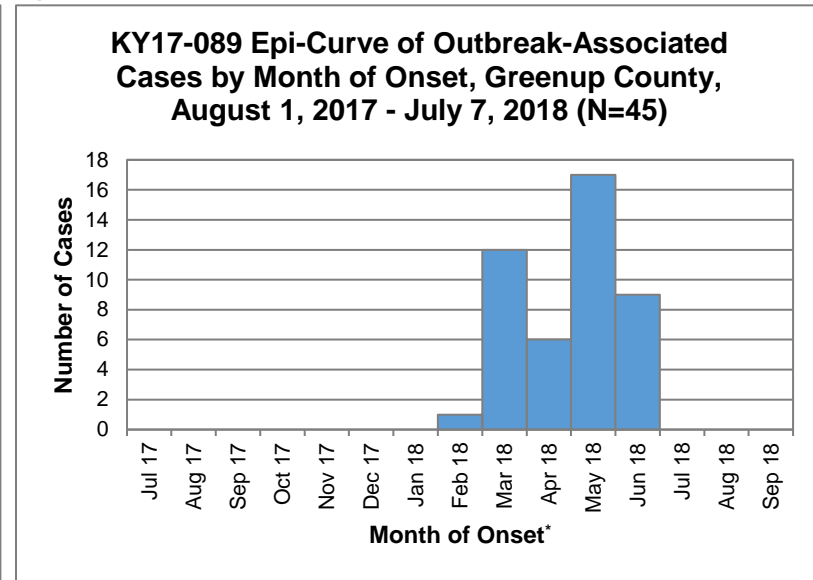
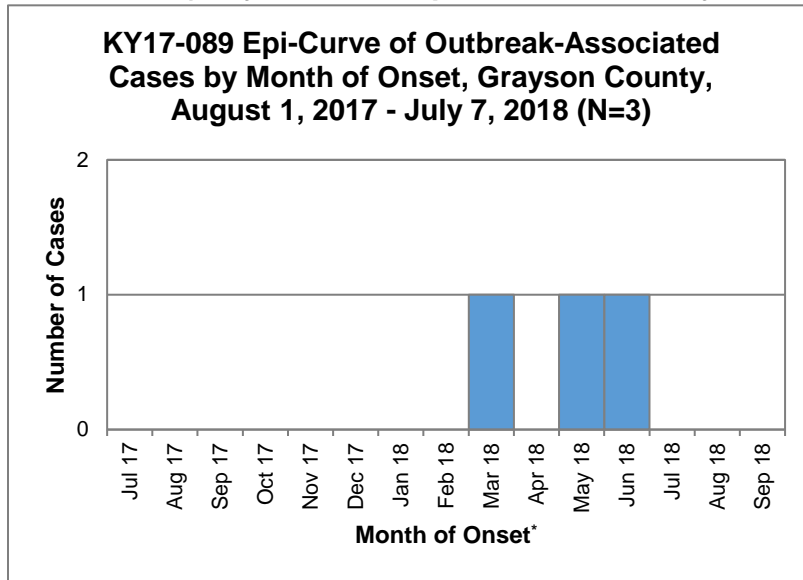
Figures 6-9: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Counties include Ballard, Boyd, Bullitt, and Carter Counties)



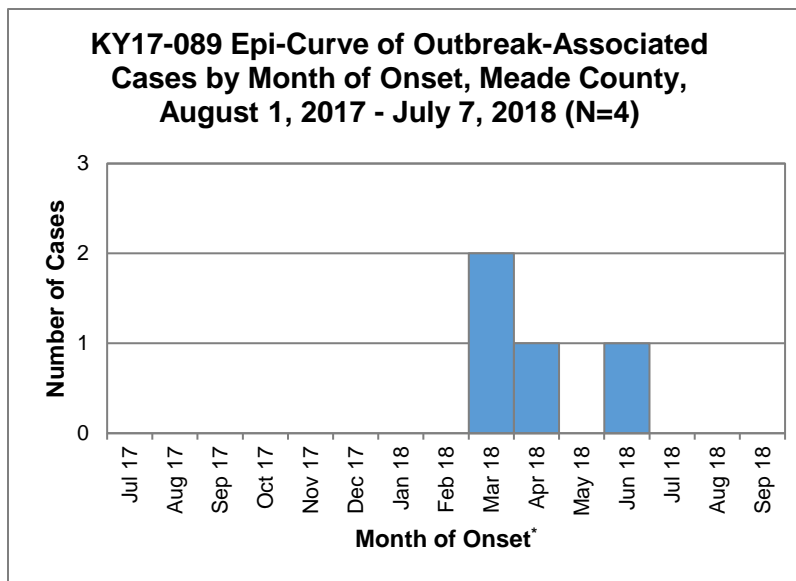
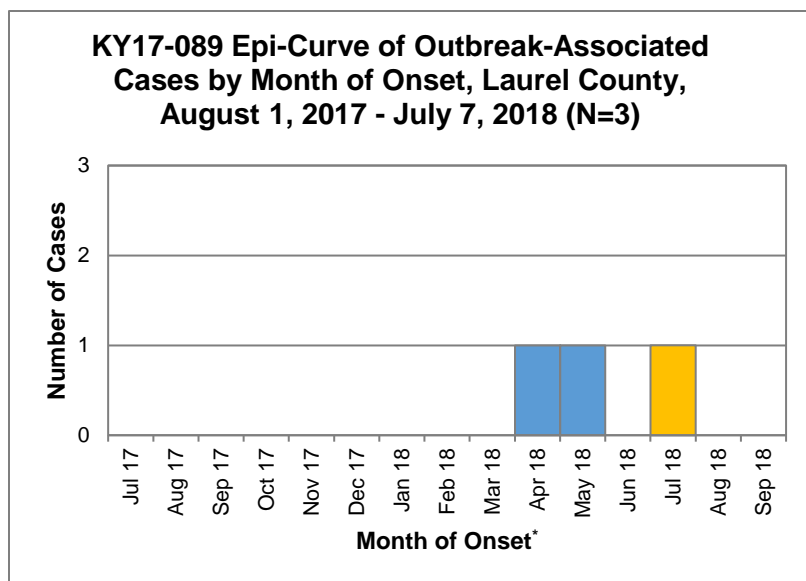
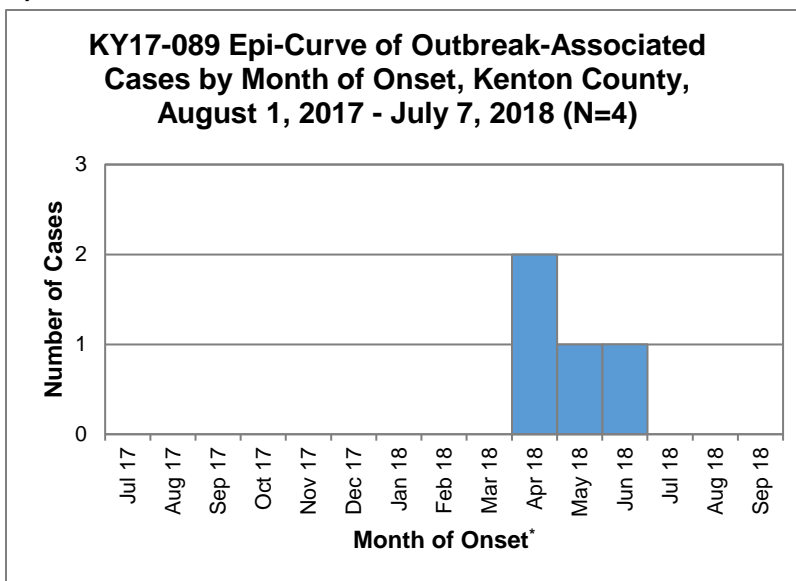
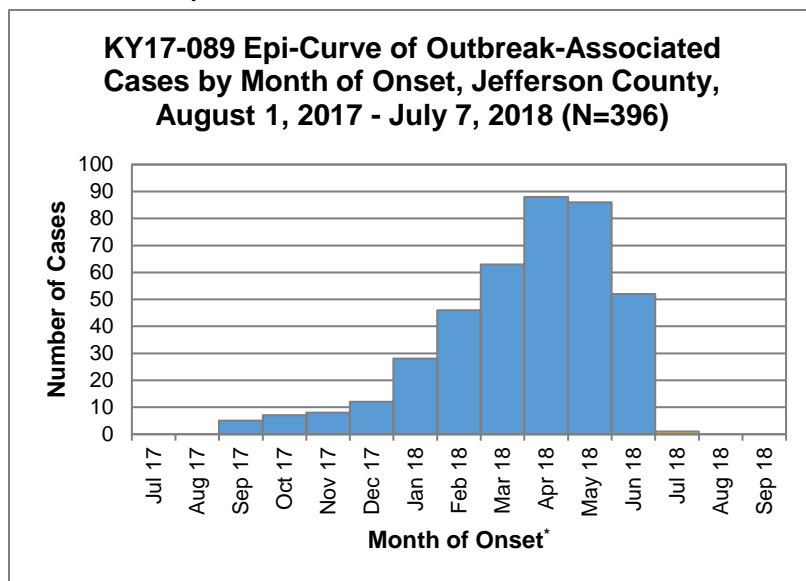
Figures 10-13: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Counties include Elliott, Fayette, Franklin, and Grant Counties)



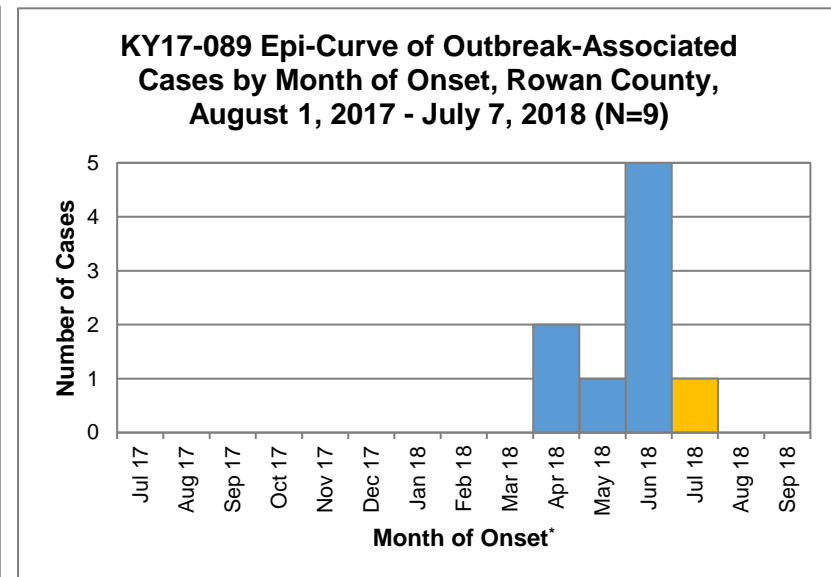
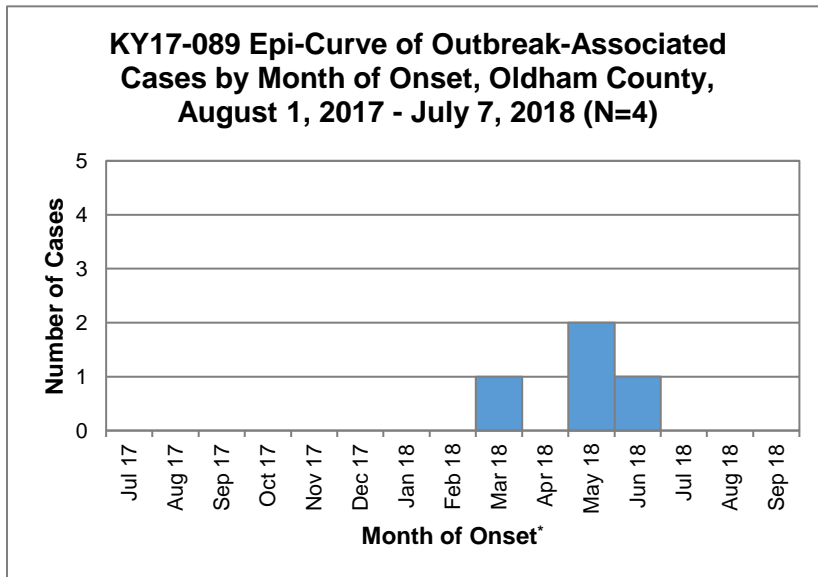
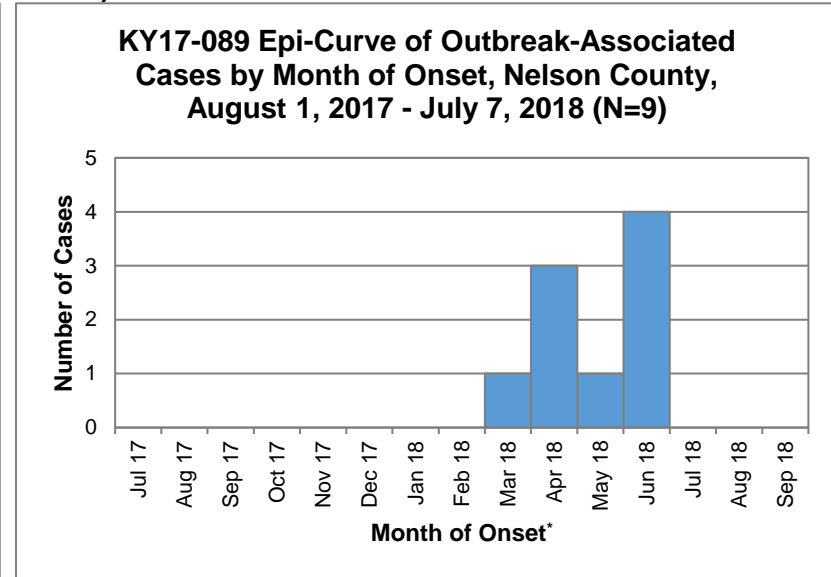
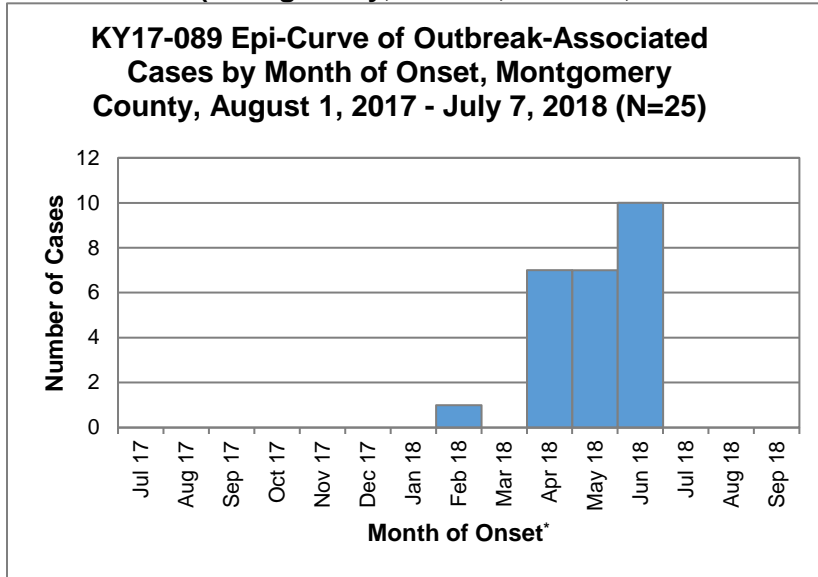
Figures 14-17: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Grayson, Greenup, Hardin, and Henry Counties)



Figures 18-21: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Jefferson, Kenton, Laurel, and Meade Counties)



Figures 22-25: Epidemic-curve (Epi-curve) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Montgomery, Nelson, Oldham, and Rowan Counties)



Figures 26-29: Epidemic-curve (Epi-curve) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Shelby, Taylor, Warren, and Whitley Counties)

