



## Kentucky Department for Public Health

### KY17-089 - Acute Hepatitis A Outbreak Weekly Report

### Morbidity and Mortality Weekly Report (MMWR) Week 28, 2018

### July 8, 2018 – July 14, 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 28:		Total Case Counts: 8/1/2017 – 7/14/2018:	
Number of new cases (n=51):	Confirmed - 0 Probable - 36 Suspect - 15	Total number of cases (n=1170):	Confirmed - 430 Probable - 475 Suspected - 265
Number of counties with new cases:	19	Total number of counties with cases:	68 (57% of KY counties)
Number of cases with specimens submitted for genotyping where results are available:	68	Number of cases with specimens submitted for genotyping where results are available:	455 (39%)
Number of cases with genotype IB among those with genotype testing:	57	Total number of cases with genotype IB among those with genotype testing:	414 (91% of those tested)
Number of Hospitalizations:	21	Total Number of Hospitalizations:	659 (56%)
Number of deaths Reported <sup>†</sup> :	0	Total number of deaths reported <sup>†</sup> :	8 (<1%)

\* Cases are reported based on date of specimen collection

<sup>†</sup> 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**

<b>KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – July 14, 2018*^#</b>					
<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Adair	2	0	1	1	10.3
Allen	2	0	2	0	9.6
Anderson	3	0	2	1	13.3
Ballard	7	3	2	2	87.1
Barren	1	1	0	0	2.3
Bell	3	0	1	2	11.2
Boone	5	0	5	0	3.8
Bourbon	2	0	2	0	10.0
Boyd	139	77	33	29	289.7
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	44	23	17	4	54.8
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	94	27	49	18	346.3
Casey	1	1	0	0	6.3
Christian	1	1	0	0	1.4
Clark	1	0	1	0	2.8
Daviess^	1	0	0	1	1.0
Edmonson	1	0	1	0	8.2

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – July 14, 2018\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Elliott	7	0	2	5	93.0
Estill	1	0	1	0	7.0
Fayette	6	1	3	2	1.9
Fleming <sup>^</sup>	3	0	0	3	20.8
Floyd	3	0	1	2	8.3
Franklin	8	0	5	3	15.8
Garrard	3	0	1	2	17.1
Grant	9	3	4	2	36.0
Grayson	6	2	3	1	22.8
Greenup	47	20	16	11	132.3
Hardin	21	5	5	11	19.4
Henry	6	1	3	2	37.5
Hopkins	1	0	0	1	2.2
Jefferson	544	236	215	93	70.5
Jessamine	1	0	0	1	1.9
Johnson	3	0	1	2	13.3
Kenton	7	2	5	0	4.2
Knott	2	0	2	0	13.1
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
Logan <sup>^</sup>	1	0	1	0	3.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – July 14, 2018\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
Madison	2	1	0	1	2.2
Marion	2	2	0	0	10.3
Marshall	2	0	1	1	6.4
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	35	1	25	9	125.3
Morgan	1	0	1	0	7.6
Nelson	13	3	5	5	28.5
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	12	0	7	5	48.9
Russell	1	0	0	1	5.6
Shelby	12	2	7	3	25.3
Spencer	4	3	1	0	21.6
Taylor	6	1	3	2	23.6
Warren	16	4	10	2	12.4
Washington	1	0	0	1	8.2
Whitley	24	1	13	10	66.3

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – July 14, 2018\*^#**

<b>County</b>	<b>Total number of cases reported</b>	<b>Number of confirmed cases</b>	<b>Number of probable cases</b>	<b>Number of suspected cases</b>	<b>Incident Rate per 100,000 population</b>
<b>Total Number of Cases:</b>	<b>1170</b>	<b>430</b>	<b>475</b>	<b>265</b>	<b>26.3</b>

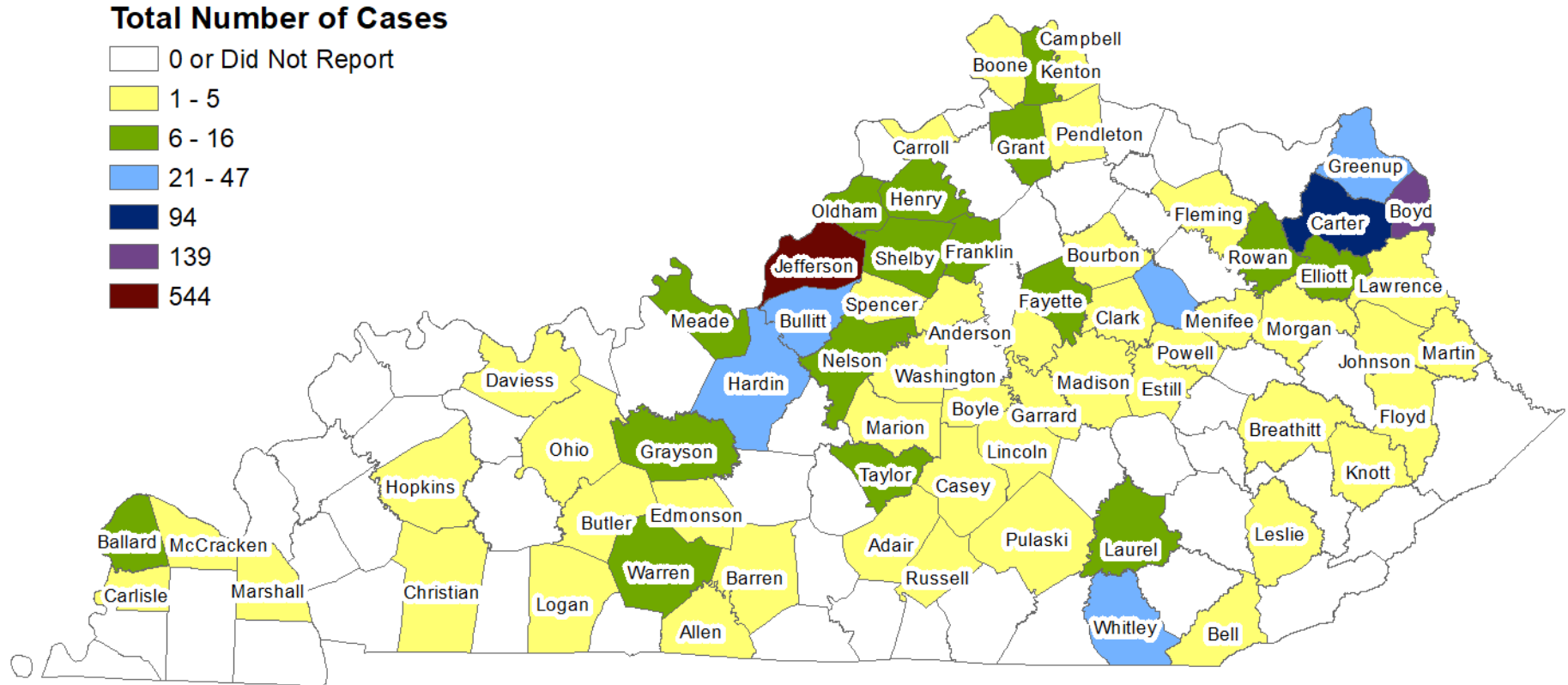
\* Cases are reported based on date of specimen collection.

^ 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: Boyd and Greenup.

**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 14, 2018**

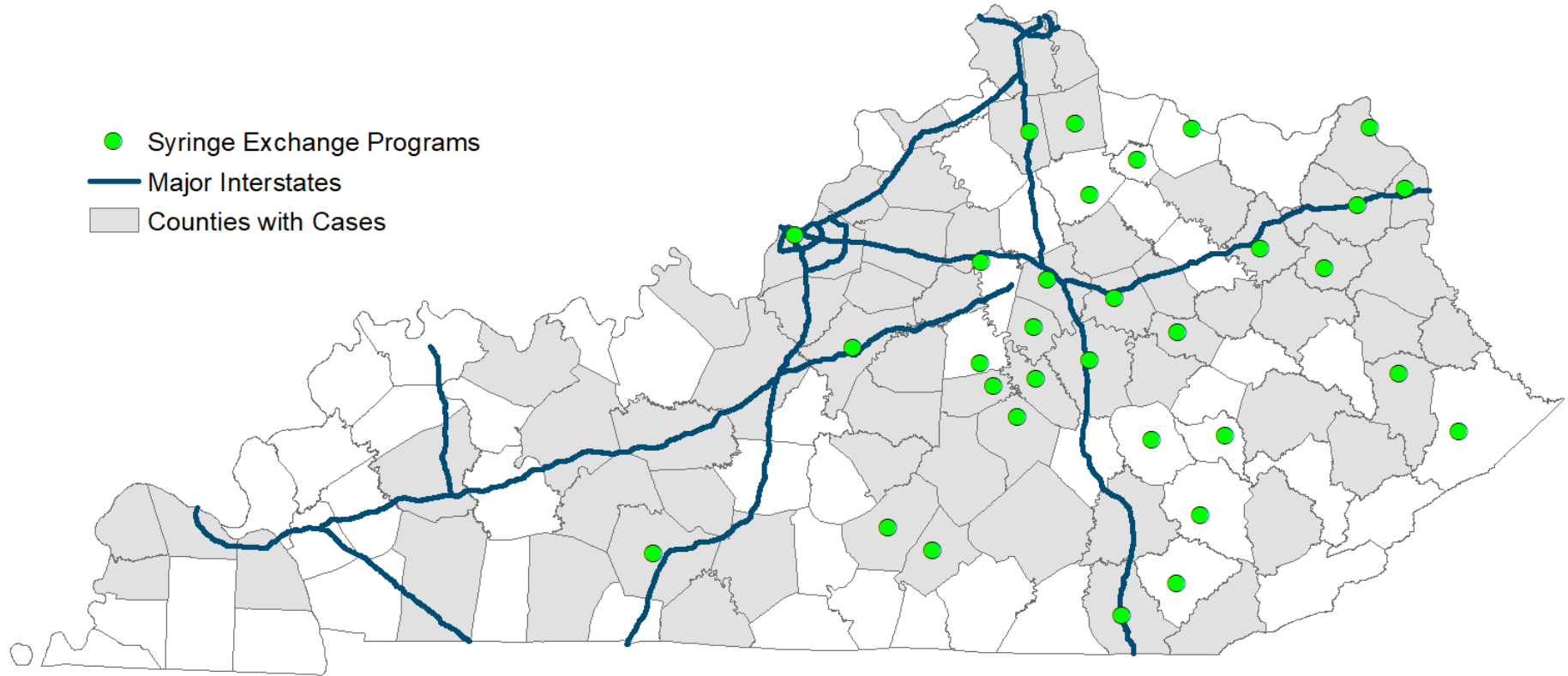


**n = 68 counties with outbreak-associated cases**

**Counties where cases have not previously been identified: Daviess, Fleming, Logan.**

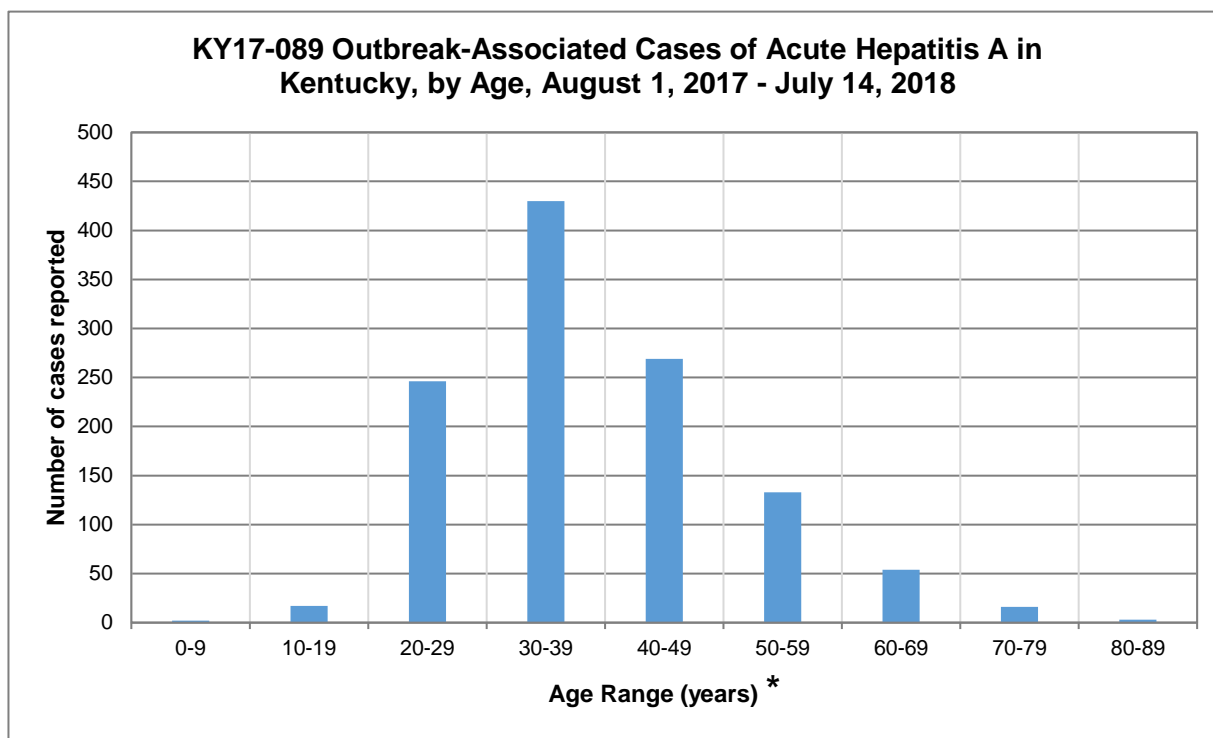
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

### KY17-089 Major Interstates and Syringe Exchange Programs In Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - July 14, 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 38.6 years, and the median age is 37.0 years.

**Table 3: Frequent Risk Factors of Outbreak-associated Cases**

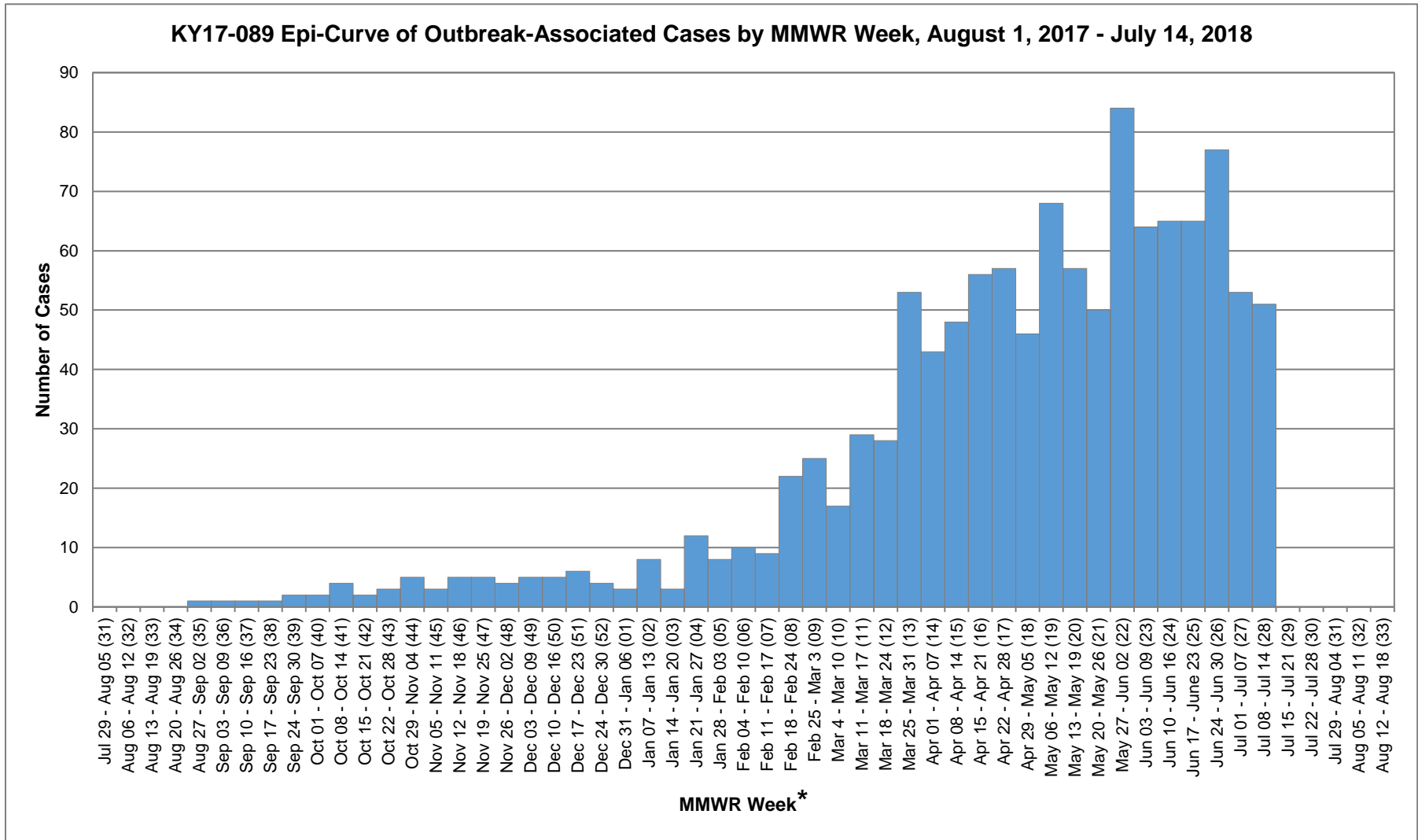
KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases*, August 1, 2017 – July 14, 2018	
Risk Factor	Number of Cases Reporting Risk Factor (n=905)* †
Homelessness only	14 (1.5%)
Illicit drug use only	540 (60%)
Homelessness + illicit drug use	137 (15%)
MSM only	5 (<1%)
No Risk Factors	150 (17%)

\* Risk factor information is unavailable for 265 (23%) 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.

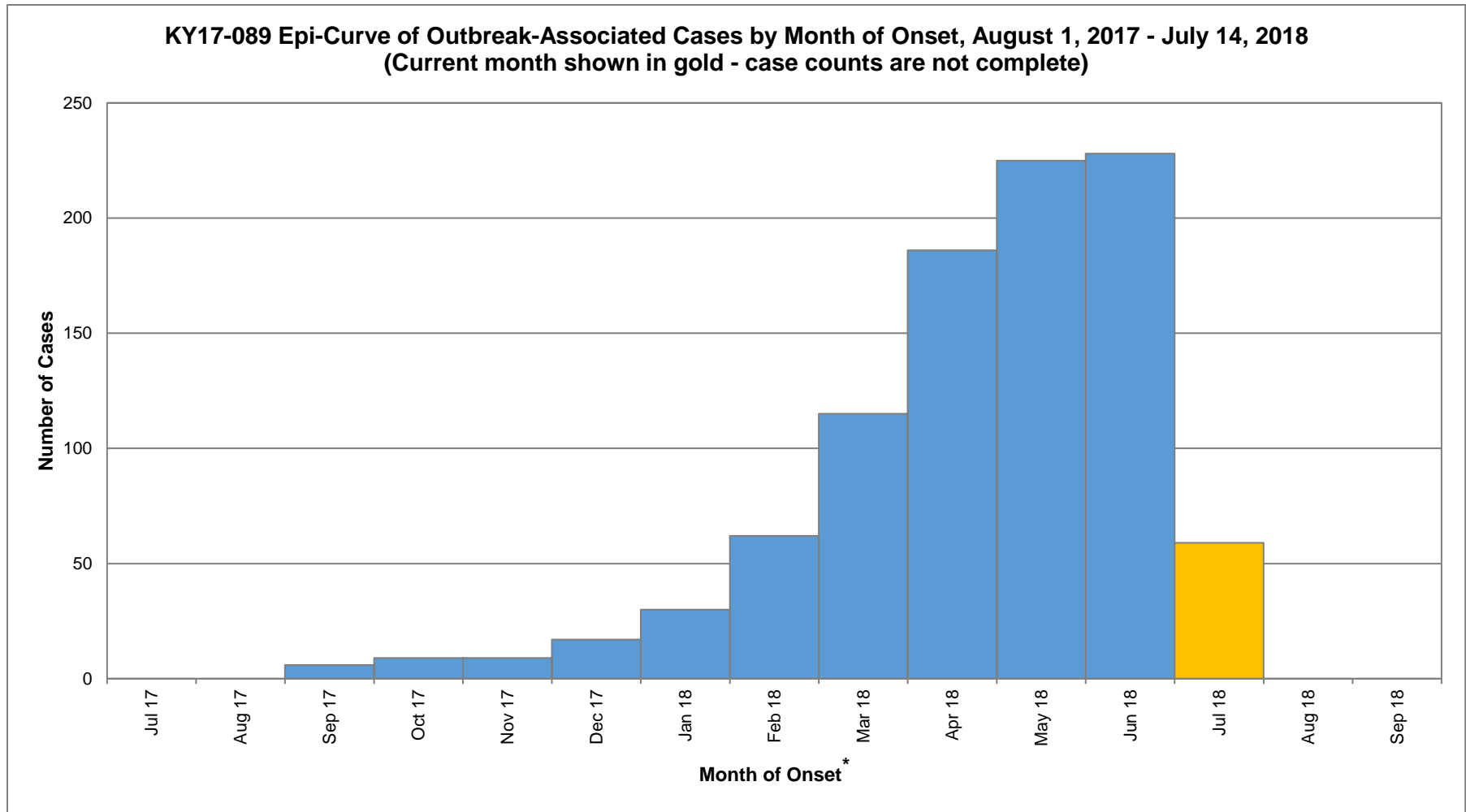


Figure 4: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



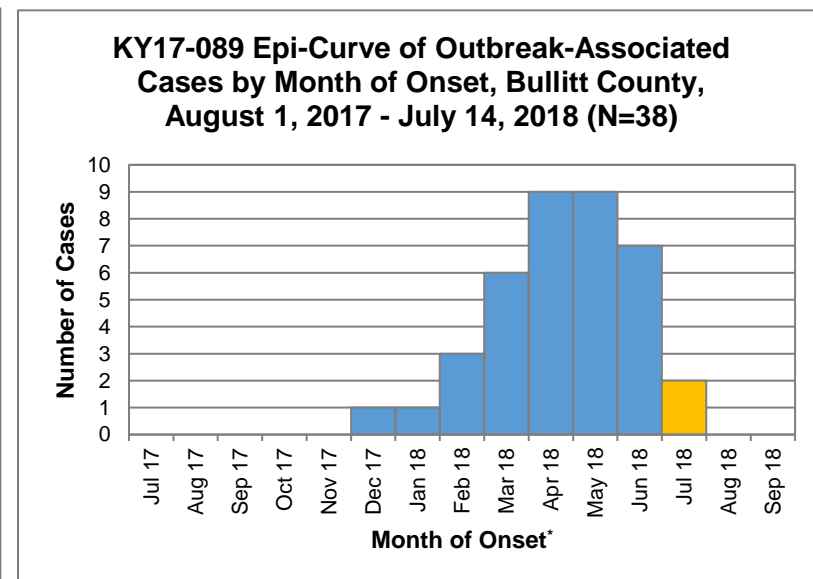
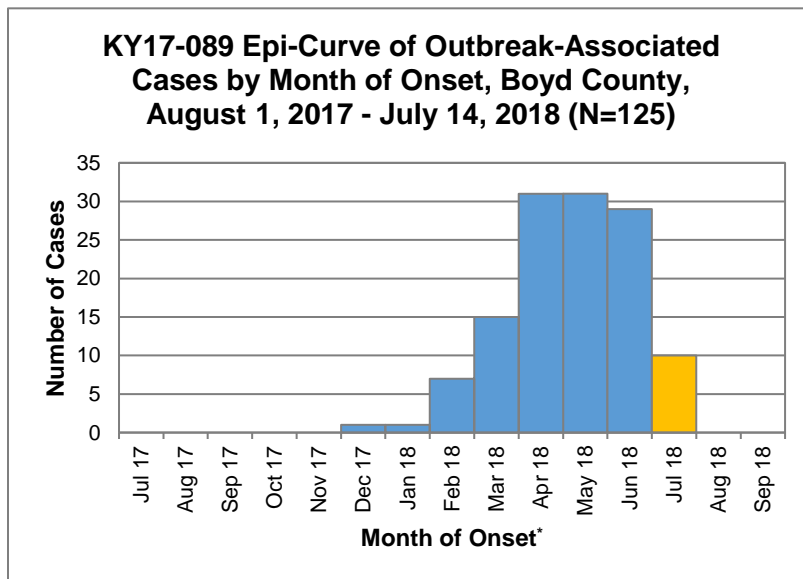
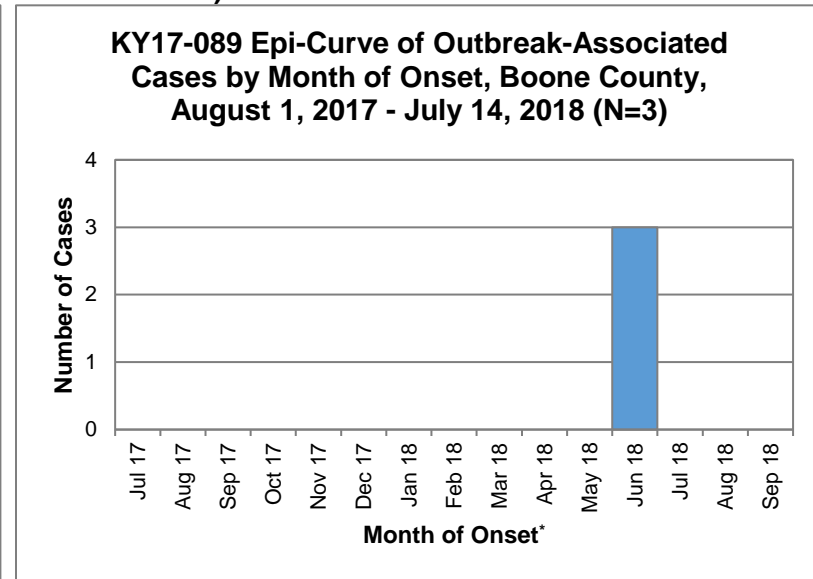
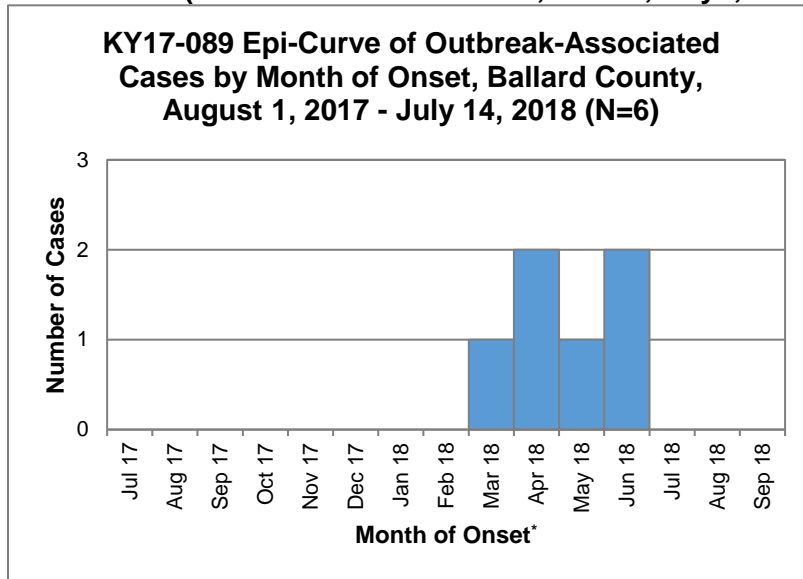
\* MMWR weeks are based on date of specimen collection.

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

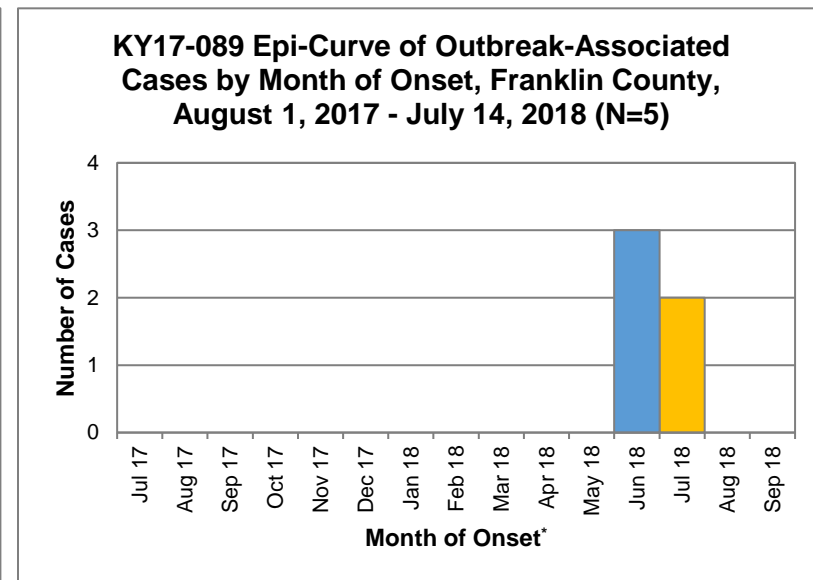
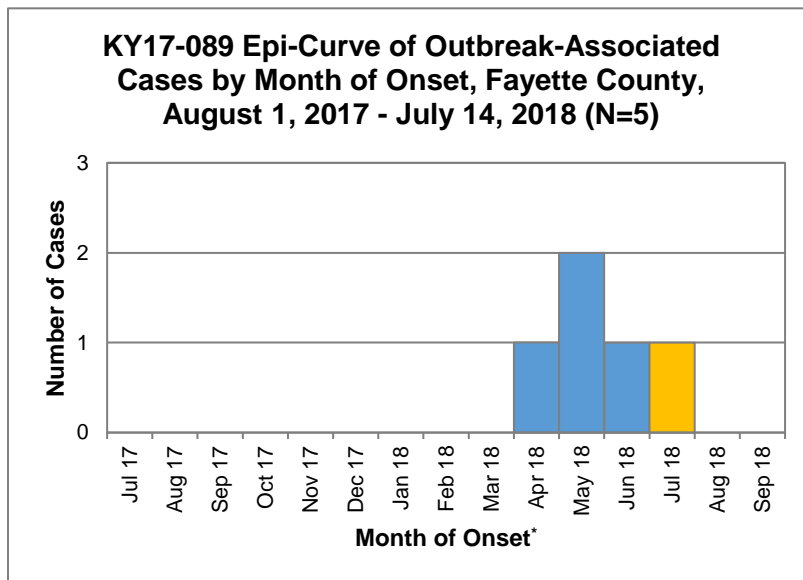
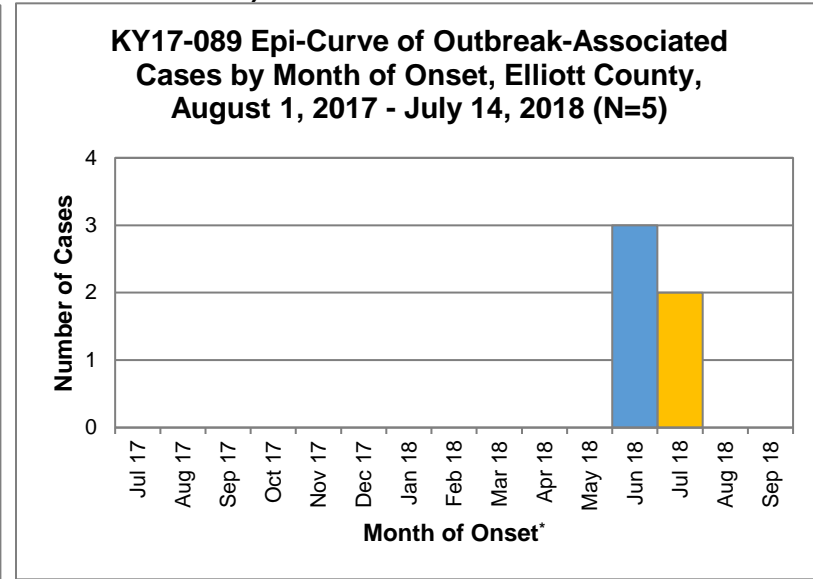
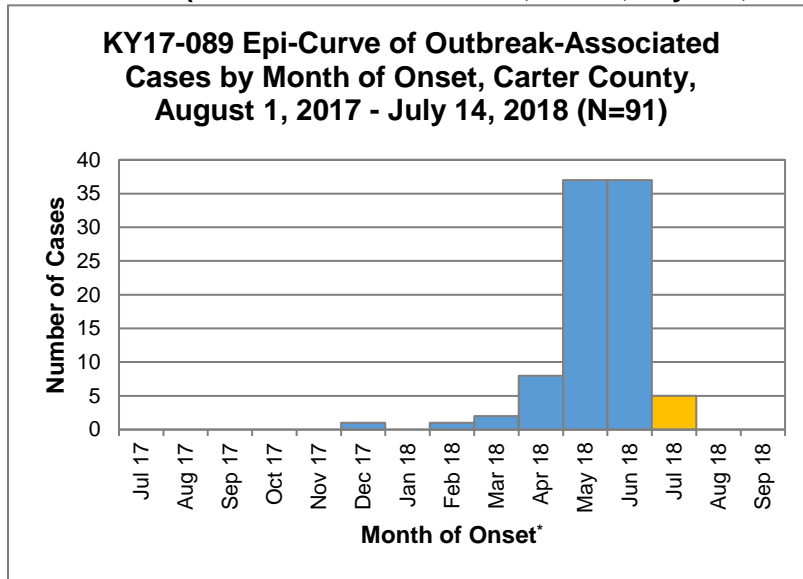


\* Date of onset has been reported for 80.9% (or 946/1170) of cases.

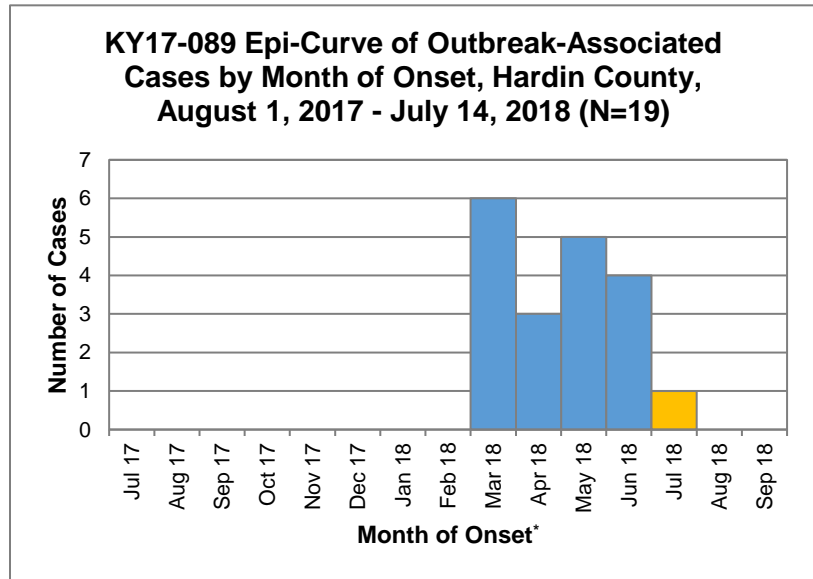
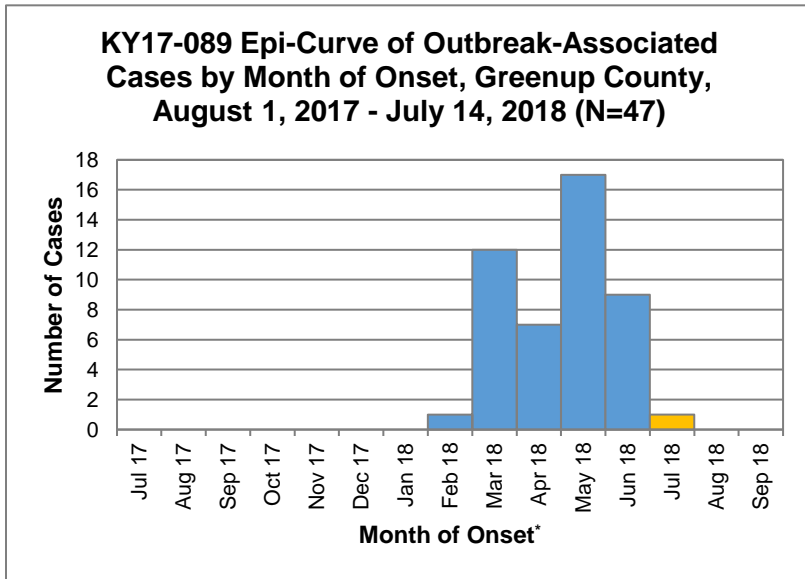
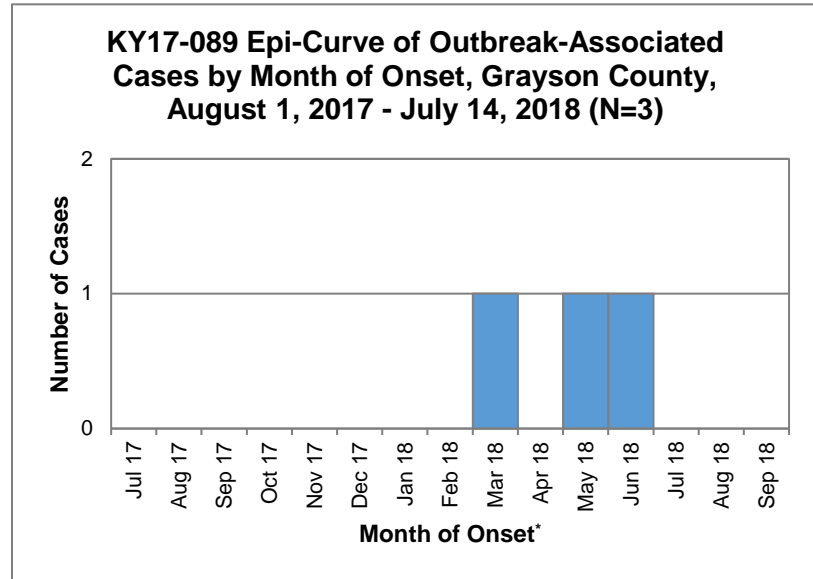
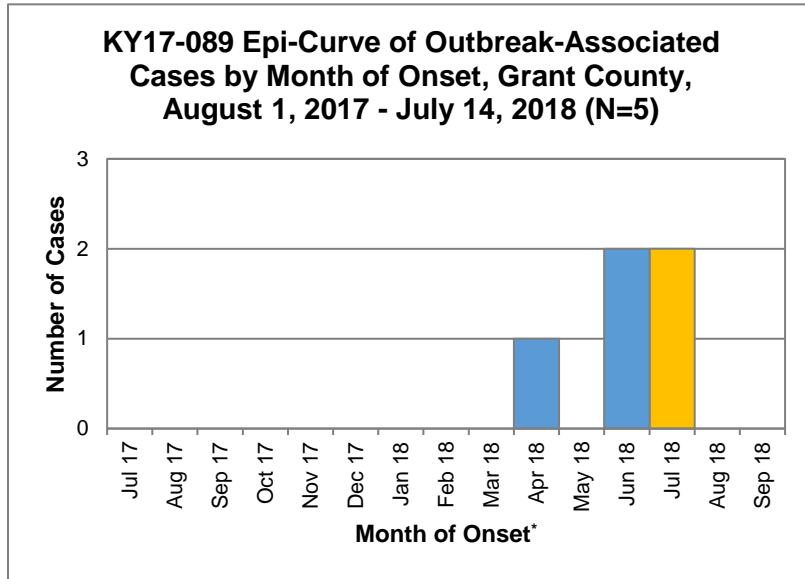
**Figures 6-9: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Counties include Ballard, Boone, Boyd, and Bullitt Counties)**



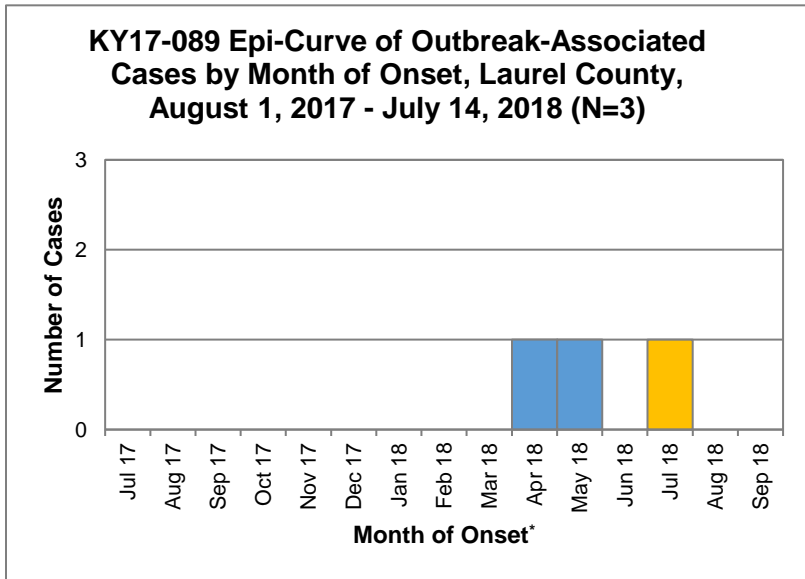
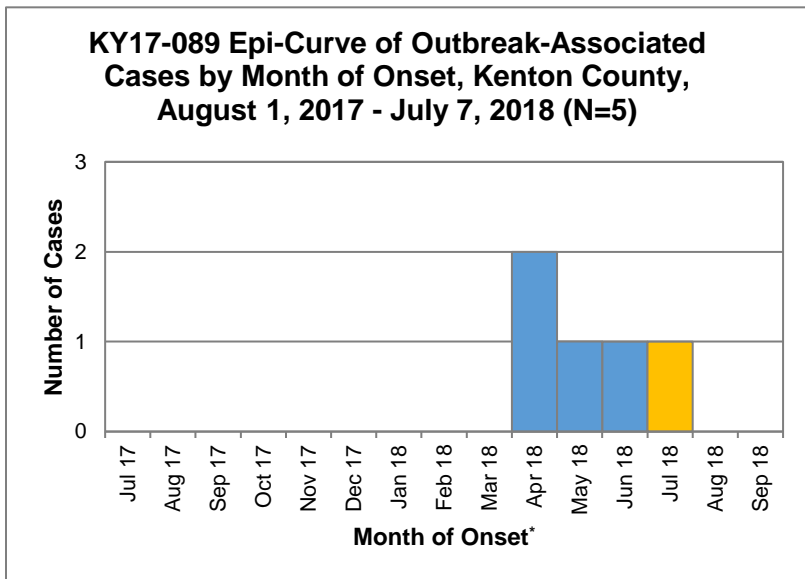
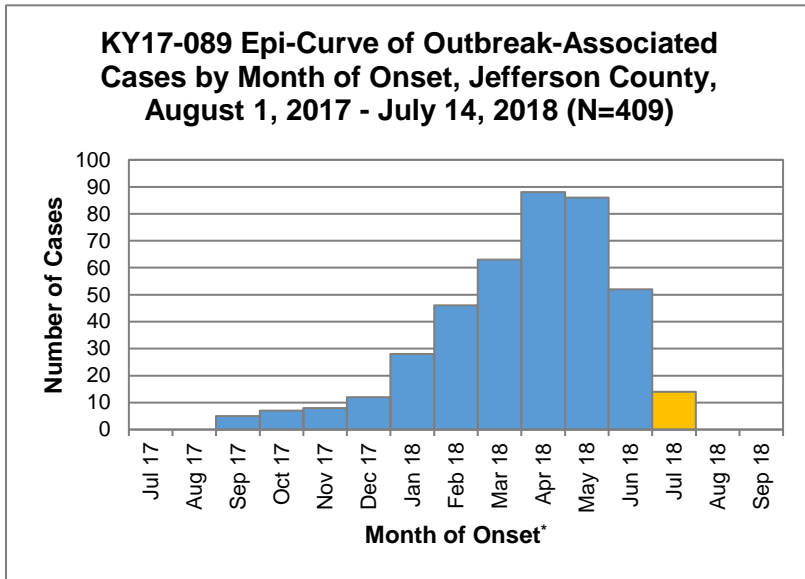
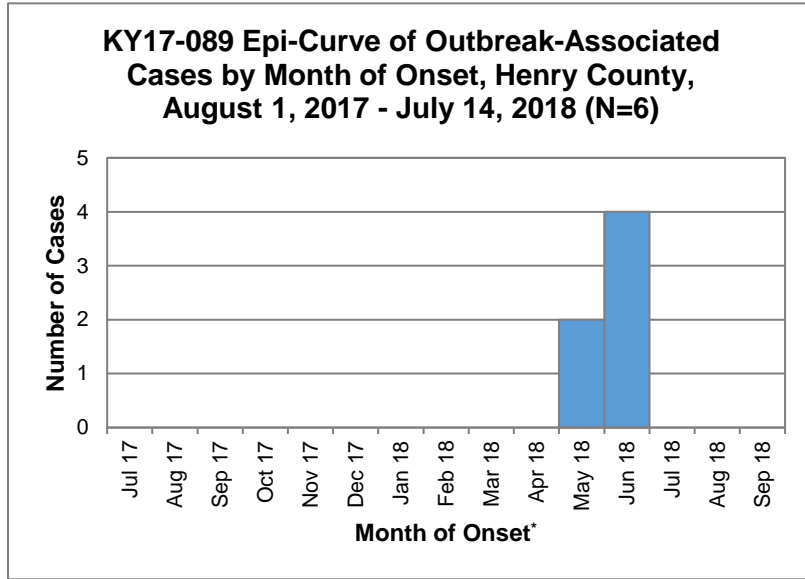
**Figures 10-13: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Counties include Carter, Elliott, Fayette, and Franklin Counties)**



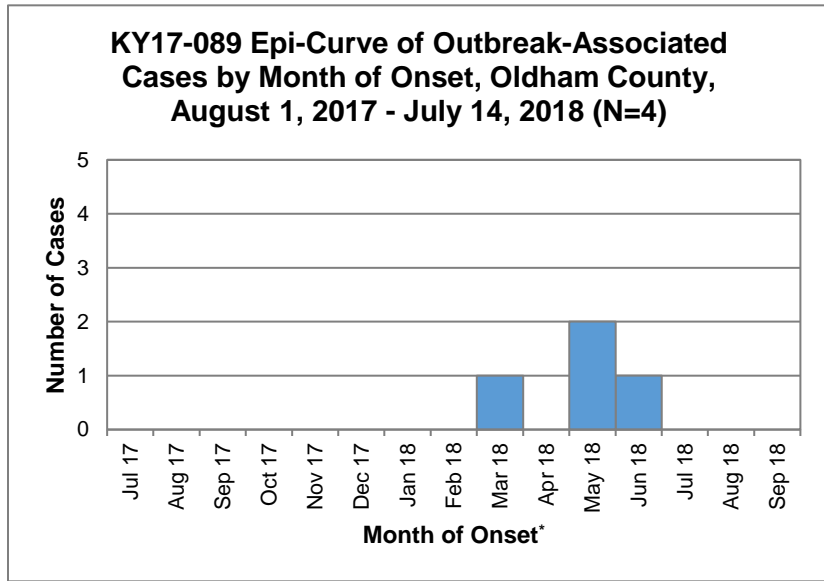
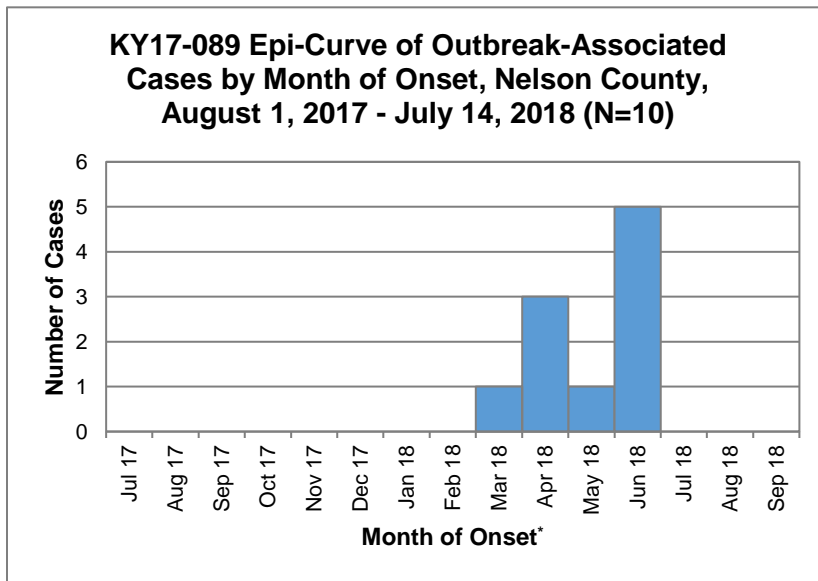
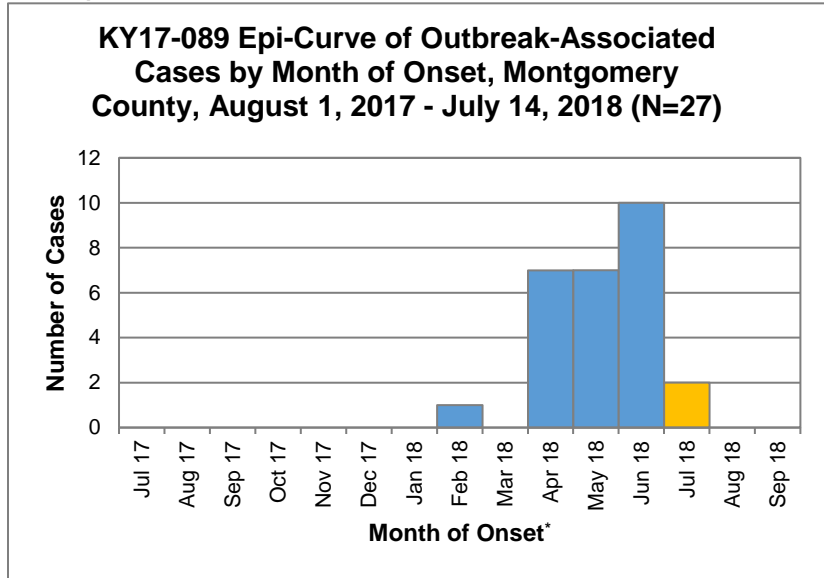
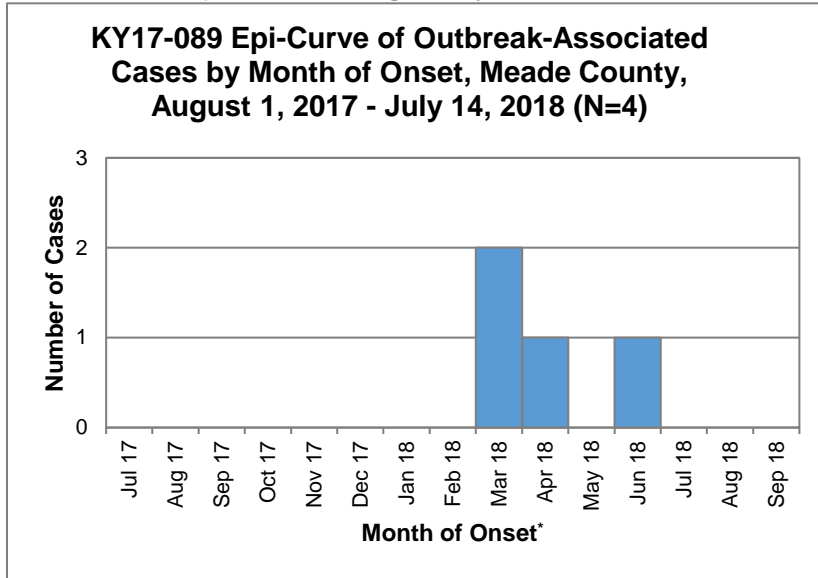
Figures 14-17: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Grant, Grayson, Greenup, and Hardin Counties)



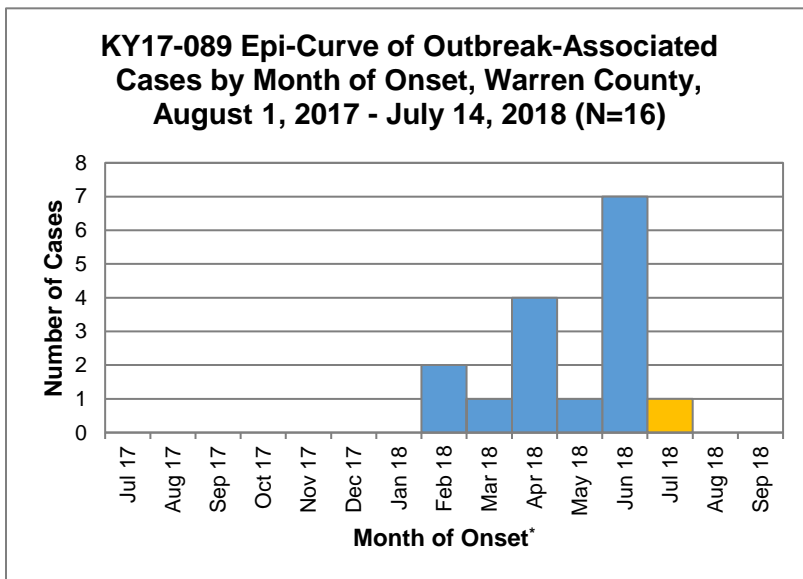
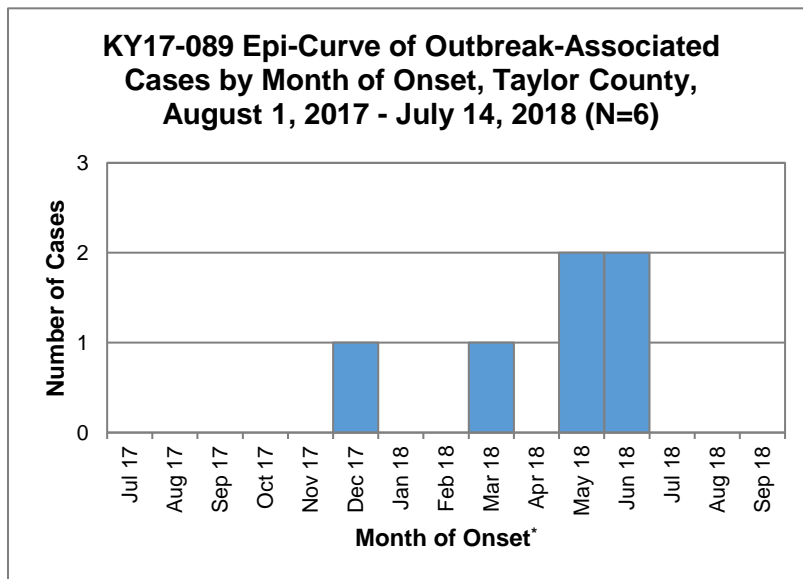
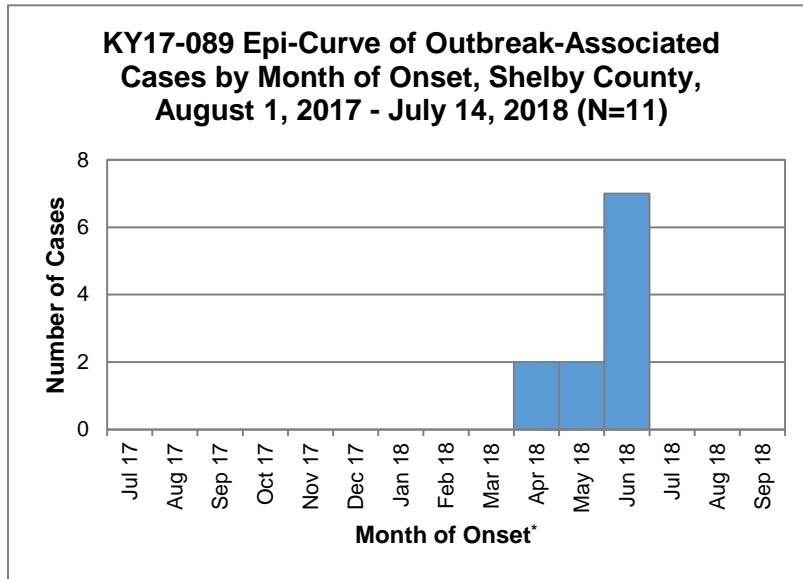
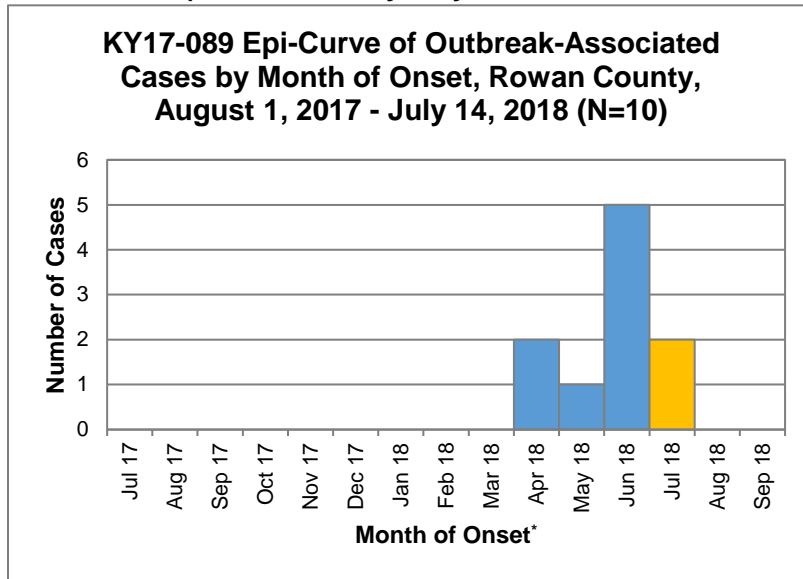
Figures 18-21: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Henry, Jefferson, Kenton, and Laurel Counties)



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



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





**Figure 30: Epidemic-curve (Epi-curve) of Outbreak-Associated Cases in Counties with at least 5 reported cases, by Month of Onset (Whitley County)**

