



# Kentucky Department for Public Health

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

### Morbidity and Mortality Weekly Report (MMWR) Week 50, 2018

#### December 9, 2018 – December 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 50:		Total Case Counts: 8/1/2017 – 12/15/2018:	
Number of new cases (n=102):	Confirmed <sup>^</sup> - 0 Probable - 77 Suspected - 25	Total number of cases (n=3265):	Confirmed <sup>^</sup> - 587 Probable - 1854 Suspected - 824
Number of counties with new cases:	37	Total number of counties with cases:	98 (82% 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:	626 (19%)
Number of cases with genotype IB among those with genotype testing:	0	Total number of cases with genotype IB among those with genotype testing:	572 (91% of those tested)
Number of Hospitalizations:	39	Total Number of Hospitalizations:	1625 (50%)
Number of deaths Reported <sup>†</sup> :	2	Total number of deaths reported <sup>†</sup> :	21 (<1%)

\* Cases are reported based on date of specimen collection

<sup>^</sup> Cases are generally confirmed weeks after submission for testing, so will only be reflected in total case counts.

<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 – December 15, 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	3	0	2	1	15.4
Allen	30	4	21	5	143.3
Anderson	15	0	12	3	66.5
Ballard	10	4	3	3	124.4
Barren	9	1	8	0	20.5
Bath	27	0	11	16	218.1
Bell	13	0	8	5	48.3
Boone	37	4	20	13	28.3
Bourbon	8	0	8	0	39.9
Boyd	170	98	44	28	354.3
Boyle	21	0	12	9	70.2
Breathitt	6	0	6	0	46.3
Bullitt	64	30	24	10	79.8
Butler	4	0	1	3	31.2
Campbell	56	2	45	9	60.5
Carlisle	1	0	1	0	20.6
Carroll	5	1	1	3	46.7
Carter	126	41	63	22	464.2
Casey	5	1	3	1	31.7
Christian	3	1	2	0	4.3
Clark	64	0	40	24	177.6
Clay	43	0	23	20	211.1

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – December 15, 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>
Daviess	4	0	2	2	4.0
Edmonson	1	0	1	0	8.2
Elliott	23	4	4	15	305.7
Estill	11	0	9	2	77.0
Fayette	111	4	89	18	34.5
Fleming	4	0	0	4	27.7
Floyd	103	1	62	40	284.0
Franklin	48	0	37	11	95.1
Gallatin	3	0	2	1	34.2
Garrard	5	0	3	2	28.5
Grant	36	3	27	6	144.1
Grayson	27	2	22	3	102.4
Green	3	0	3	0	27.1
Greenup	61	28	20	13	171.7
Hardin	36	10	8	18	33.3
Harrison	14	0	8	6	74.5
Hart	2	0	2	0	10.7
Henry	10	3	5	2	62.5
Hickman	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	11	0	6	5	81.9
Jefferson	644	292	239	113	83.5
Jessamine	14	0	10	4	26.2

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – December 15, 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>
Johnson	61	0	35	26	270.0
Kenton	91	7	72	12	55.0
Knott	17	1	13	3	111.2
Knox	59	0	39	20	188.9
Larue	3	0	1	2	21.1
Laurel	141	0	117	24	234.3
Lawrence	23	3	13	7	146.3
Lee	16	0	16	0	243.5
Leslie	18	0	16	2	174.2
Letcher	3	0	2	1	13.4
Lewis	11	0	6	5	82.5
Lincoln	16	2	9	5	65.4
Logan	1	0	1	0	3.7
Madison	75	2	56	17	82.2
Magoffin	43	0	25	18	343.0
Marion	23	1	17	5	118.6
Marshall	2	0	1	1	6.4
Martin	37	0	27	10	323.1
Mason	7	0	6	1	40.8
McCracken	8	2	3	3	12.2
McCreary	7	0	7	0	40.1
Meade	12	1	1	10	42.6
Menifee	17	0	11	6	263.4

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,  
by County, August 1, 2017 – December 15, 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>
Mercer	28	0	19	9	130.1
Metcalf	2	0	1	1	19.8
Montgomery	81	5	59	17	290.0
Morgan	21	1	16	4	159.2
Nelson	19	4	6	9	41.6
Nicholas	2	0	0	2	28.1
Ohio	6	0	3	3	24.8
Oldham	14	3	8	3	21.1
Owen	6	0	6	0	55.7
Owsley	3	0	1	2	67.6
Pendleton	8	0	6	2	54.9
Perry	48	0	34	14	180.8
Pike	40	0	33	7	67.9
Powell	19	0	16	3	153.5
Pulaski	10	0	8	2	15.5
Robertson	1	0	1	0	46.9
Rockcastle	4	0	4	0	24.0
Rowan	44	0	28	16	179.5
Russell	2	0	1	1	11.3
Scott	11	0	7	4	20.0
Shelby	21	5	12	4	44.3
Simpson	6	0	6	0	33.1
Spencer	6	3	2	1	32.4

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – December 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
Taylor	46	2	32	12	180.6
Trigg	1	0	1	0	6.9
Warren	34	8	19	7	26.4
Washington	5	0	3	2	41.2
Whitley	166	3	92	71	458.4
Wolfe	21	0	15	6	289.1
Woodford	6	0	4	2	22.8
<b>Total Number of Cases:</b>	<b>3265</b>	<b>587</b>	<b>1854</b>	<b>824</b>	<b>73.3</b>

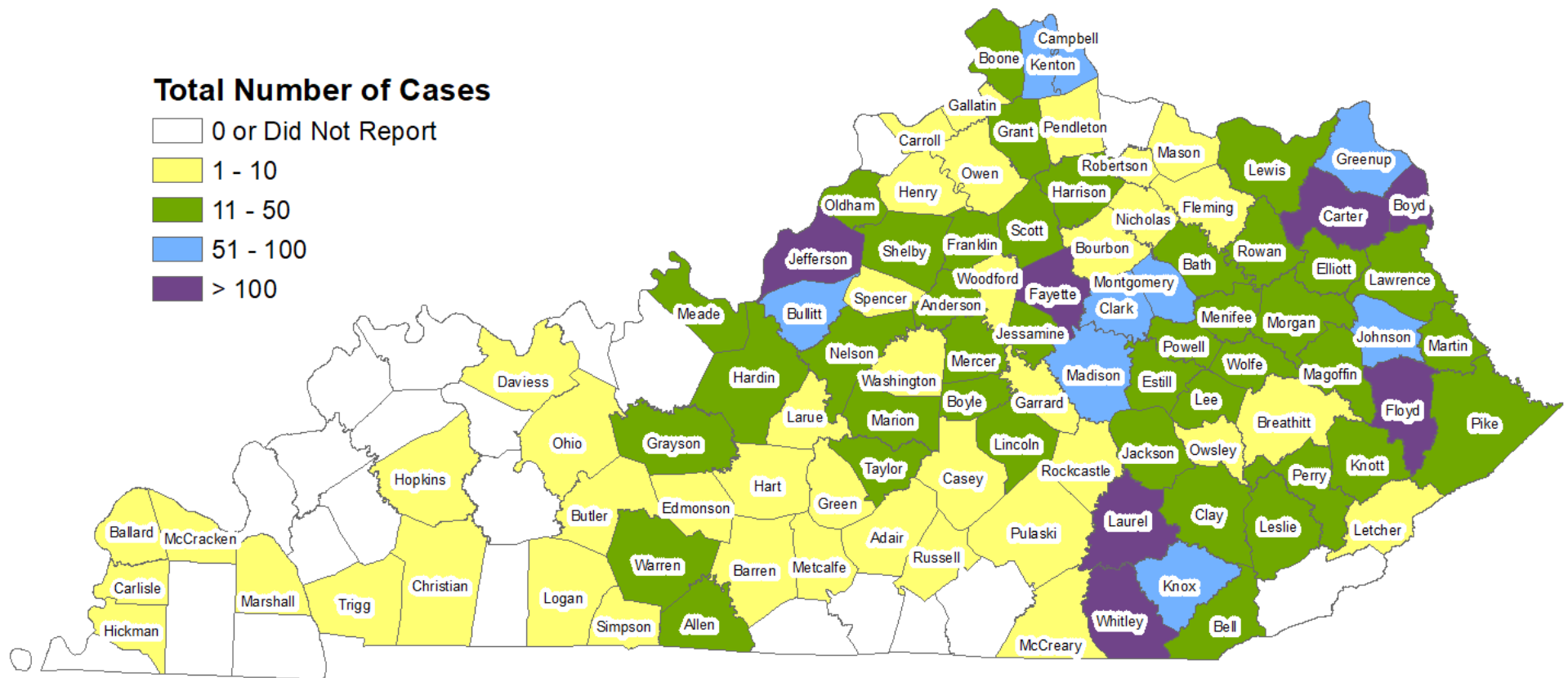
\* Cases are reported based on date of specimen collection.

^ 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: 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 - December 15, 2018**

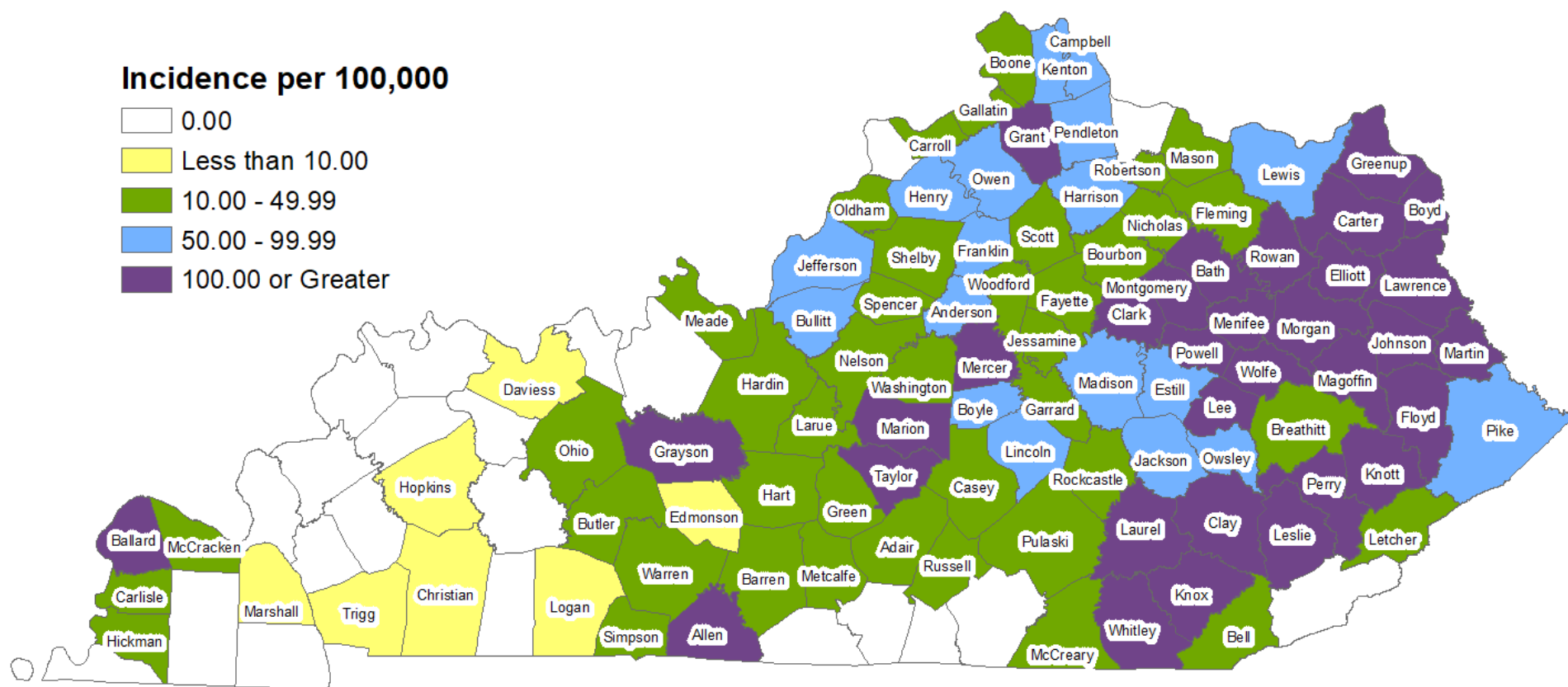


**n = 98 counties with outbreak-associated cases**

**Counties where cases have not previously been identified: None.**

**Figure 2: Incidence of Outbreak-Associated Cases by County**

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - December 15, 2018

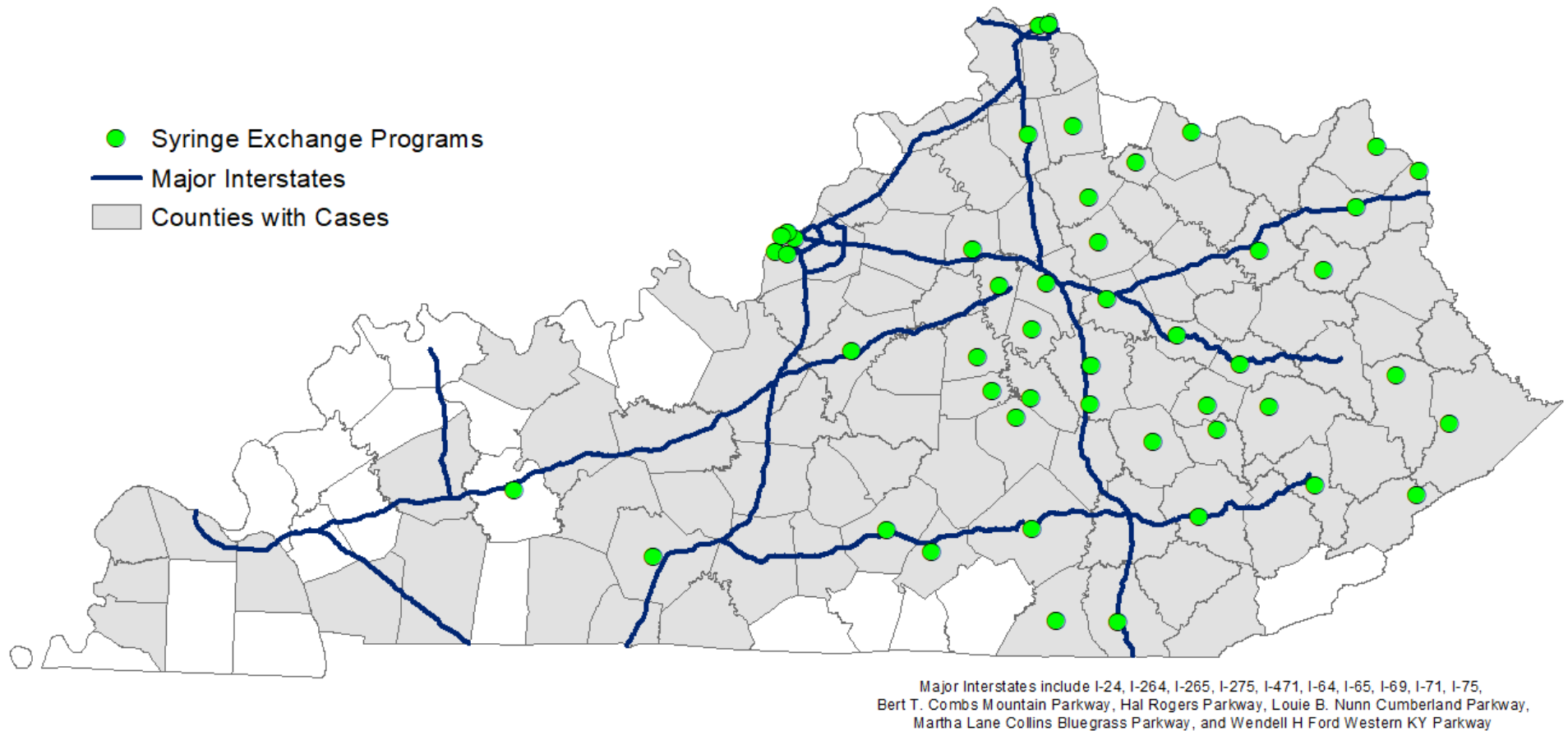


The KY incidence rate is 73.3 per 100,000.  
Note: Rates calculated from numerators less than 20 may not be reliably used to determine trends.

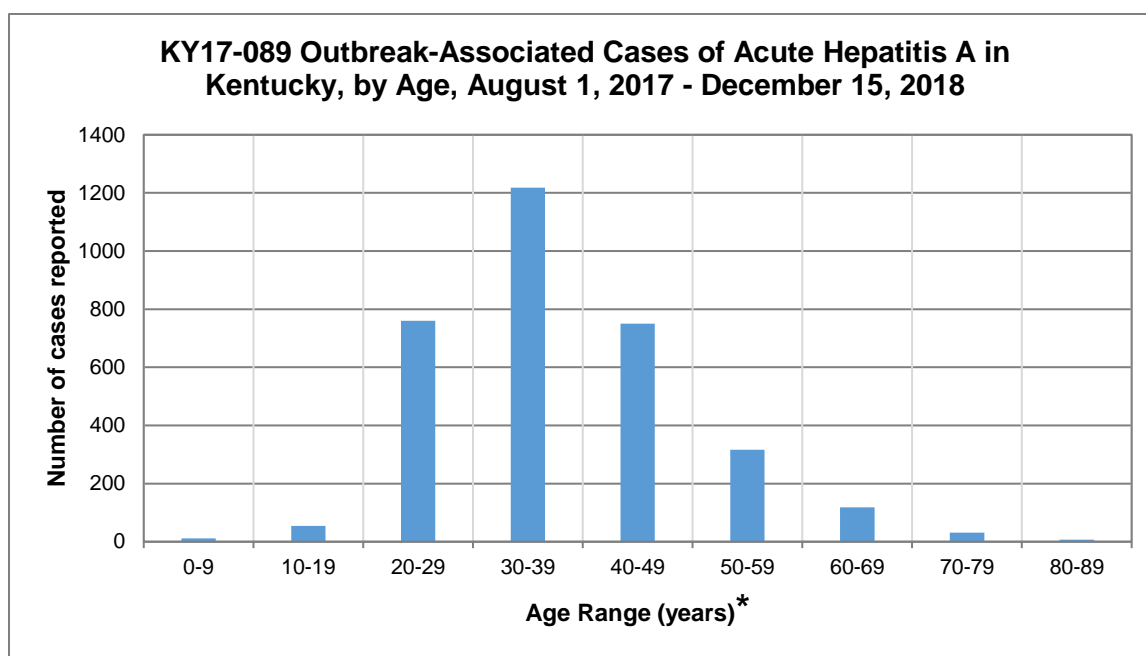


Figure 3: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

## KY17-089 Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - December 15, 2018



**Figure 4: Outbreak-Associated Cases by Age**



\* The mean age of cases is 37.5 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 – December 15, 2018 <sup>#^</sup>	
Risk Factor	Number of Cases Reporting Risk Factor (n=2690) <sup>* †</sup>
Homelessness + No/Unk Illicit Drug Use	48 (1.8%)
Illicit Drug Use + No/Unk Homelessness	1869 (69%)
Homelessness + Illicit drug use	256 (9.5%)
No Outbreak-Related Risk Factors	517 (19%)

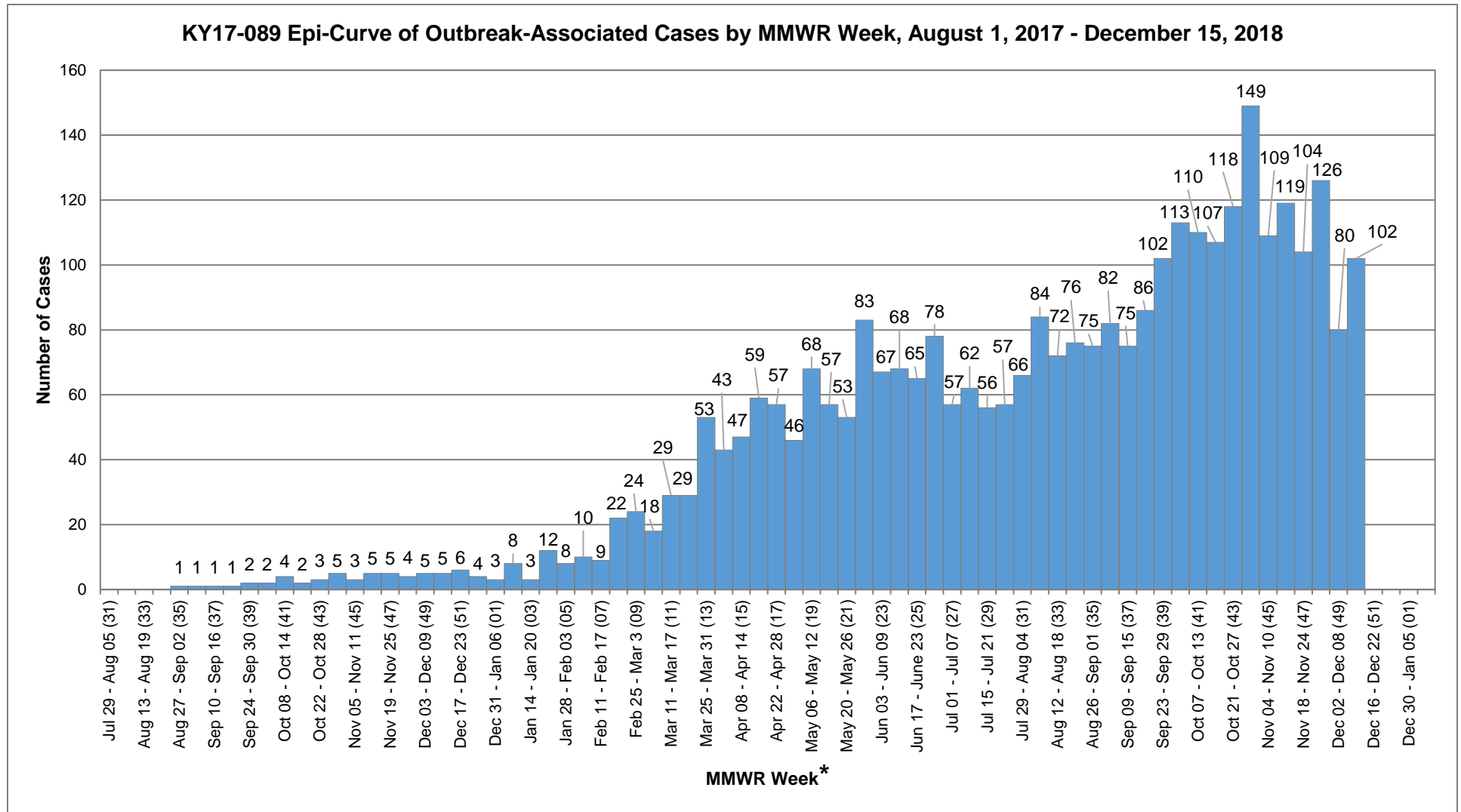
\* Risk factor information is unavailable for 575 (17.6%) of all outbreak-associated cases.

† 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.

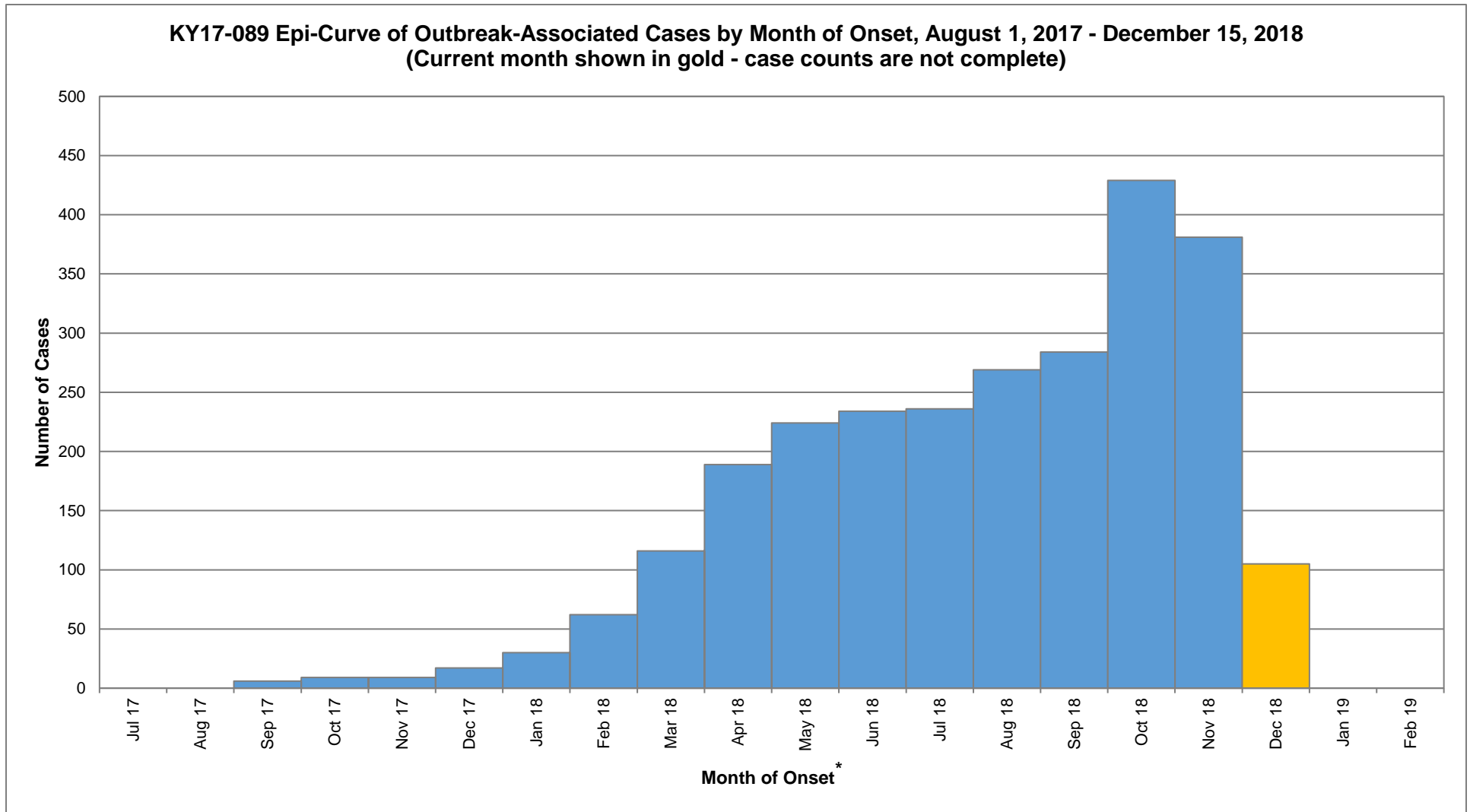
^ 34 MSM cases have been reported. Of those, 10 have reported no other risk factors.

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



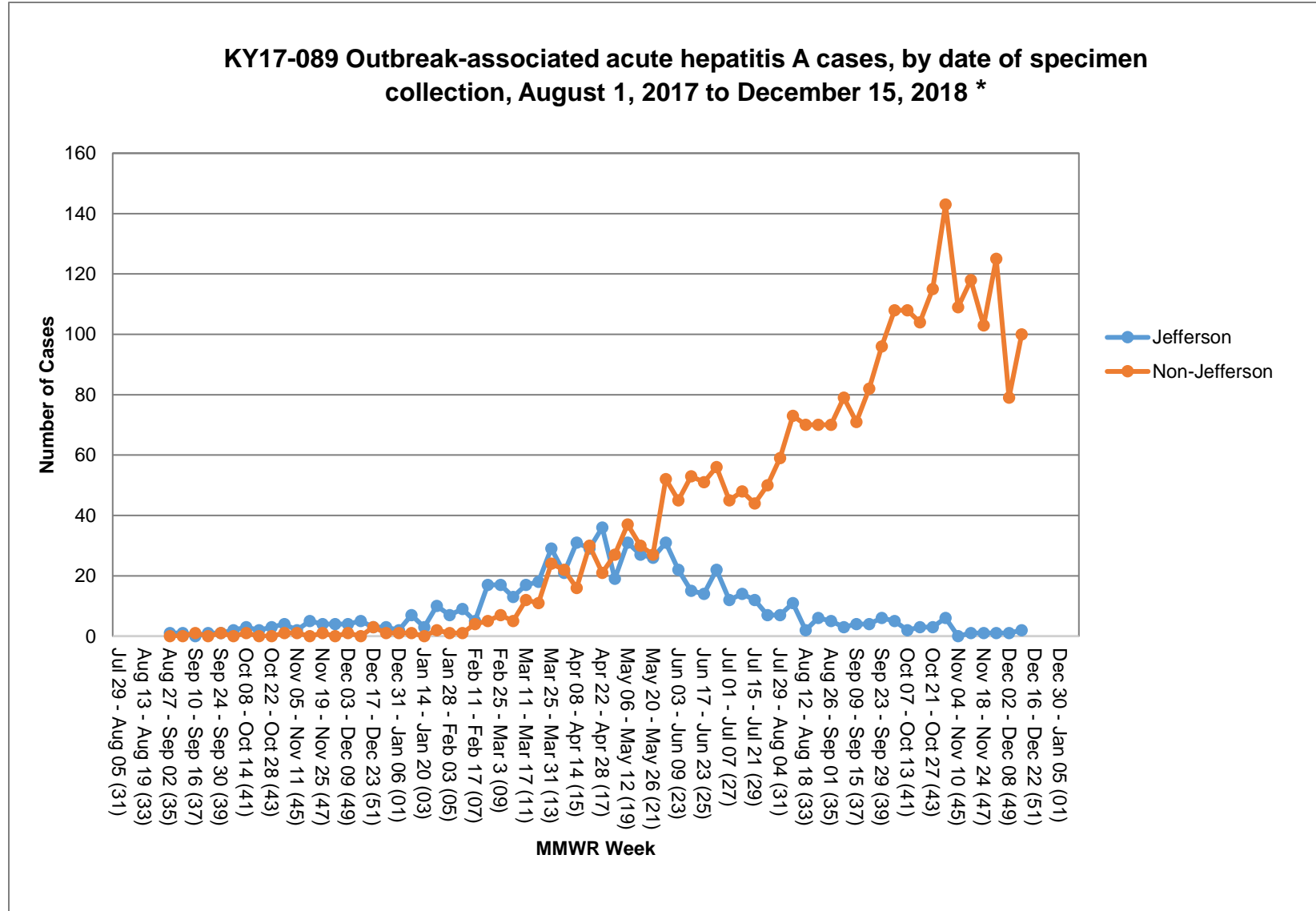
\* MMWR weeks are based on date of specimen collection.

**Figure 6: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases by Month of Onset**



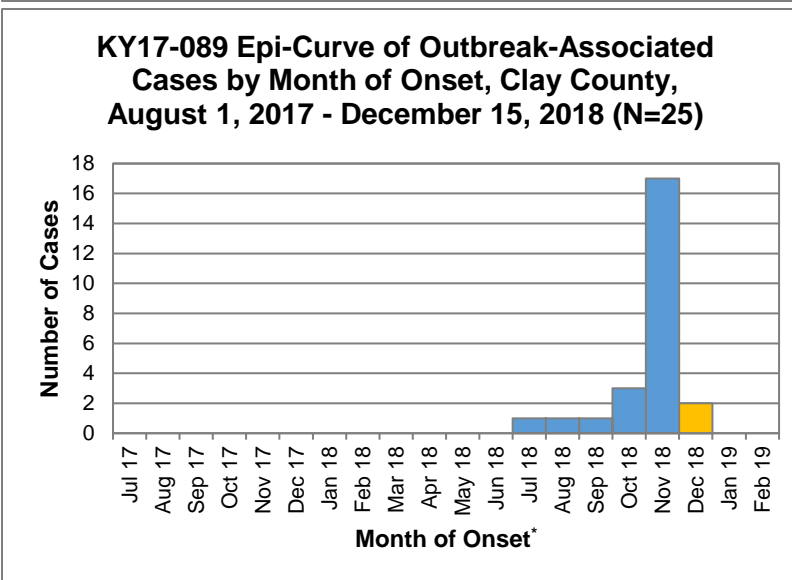
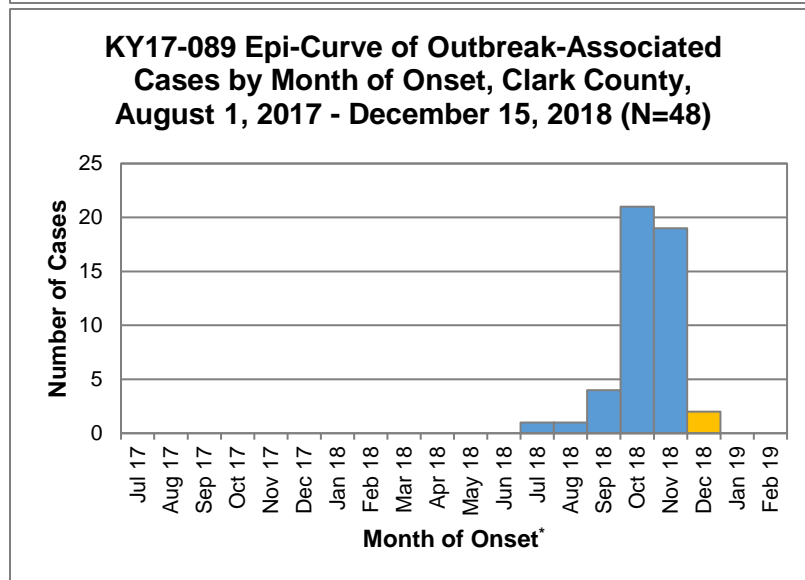
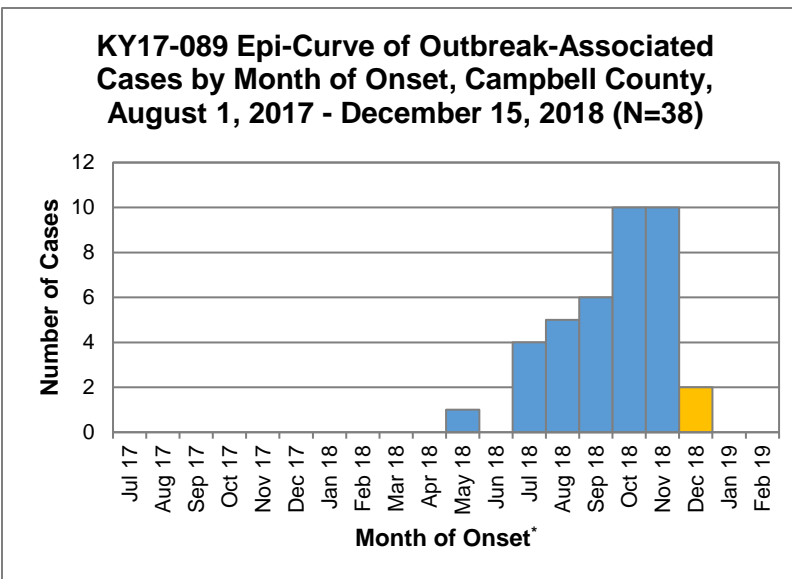
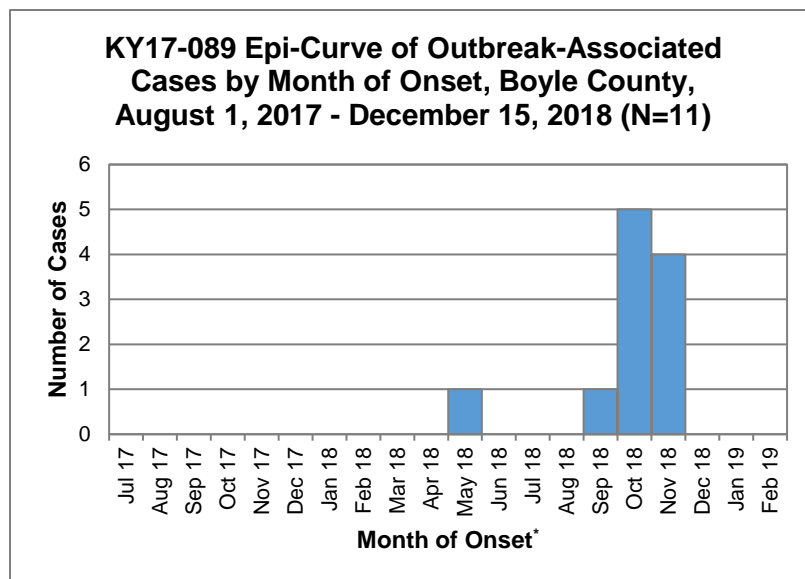
\* Date of onset has been reported for 79.6% (or 2600/3265) of cases.

**Figure 7: Case count comparison of acute hepatitis A cases, Jefferson County versus Non-Jefferson Counties**

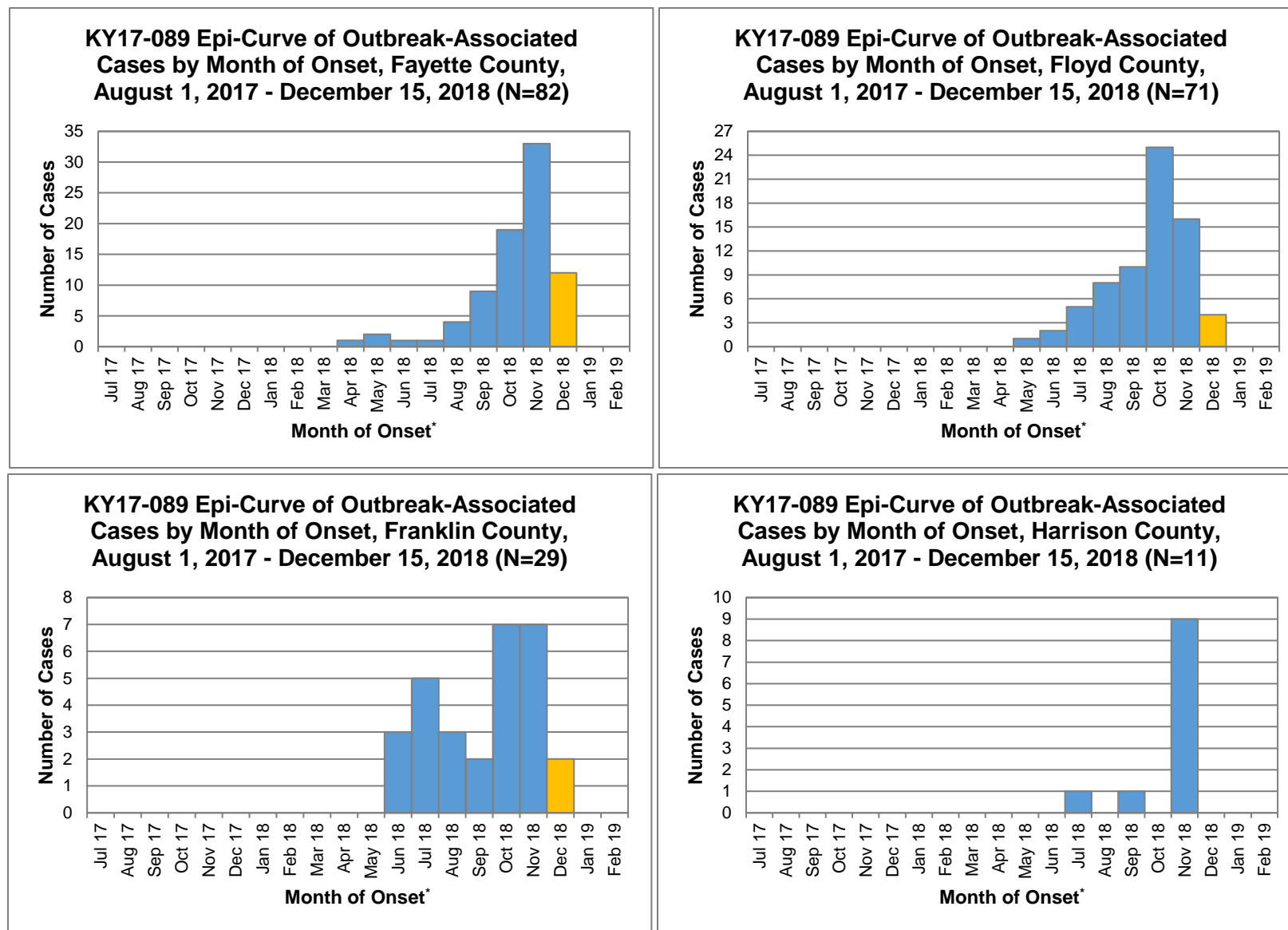


\* MMWR weeks are based on date of specimen collection.

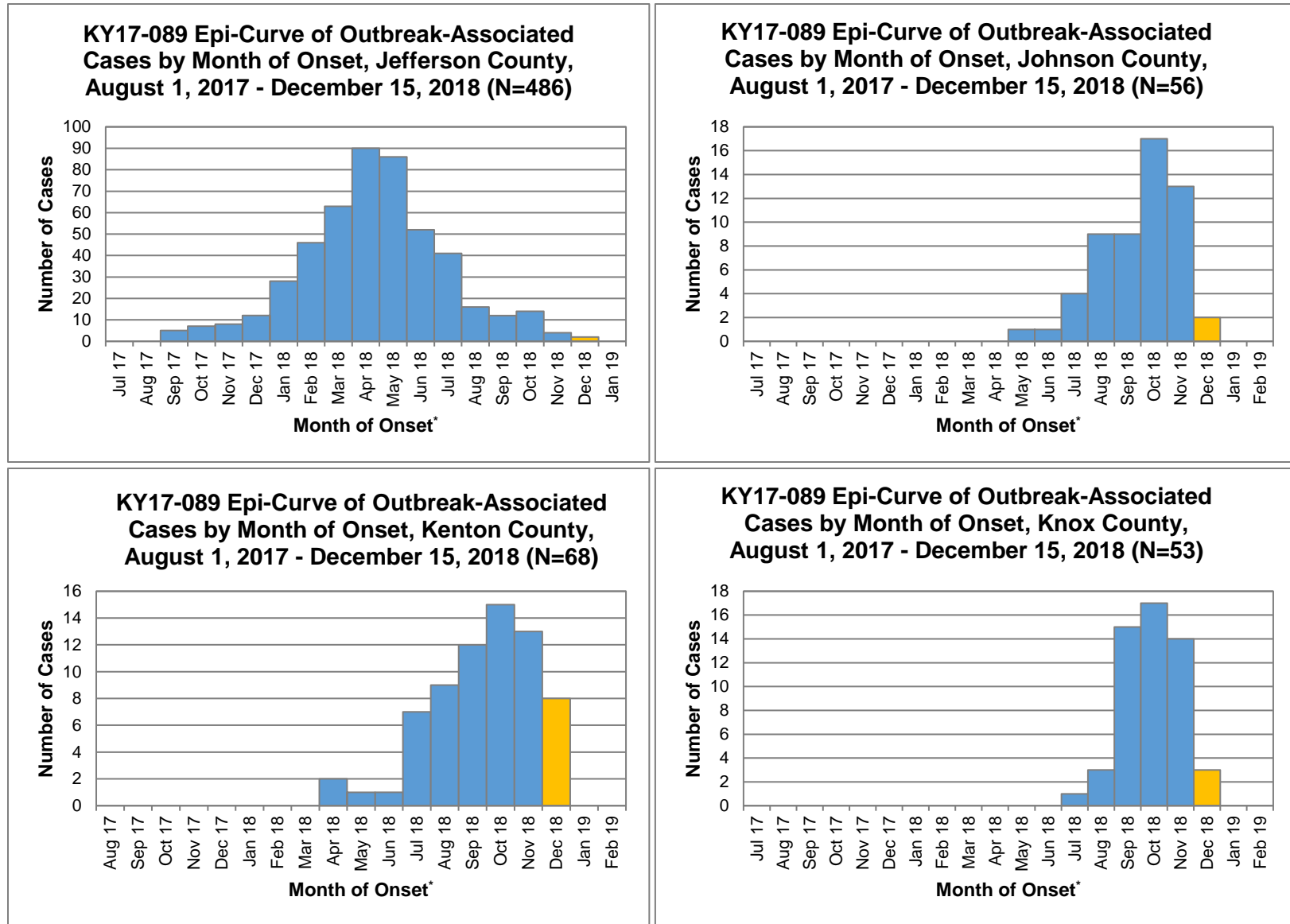
**Figures 8-11: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Boyle, Campbell, Clark, and Clay Counties)**



**Figures 12-15: 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 (Fayette, Floyd, Franklin, and Harrison Counties)**

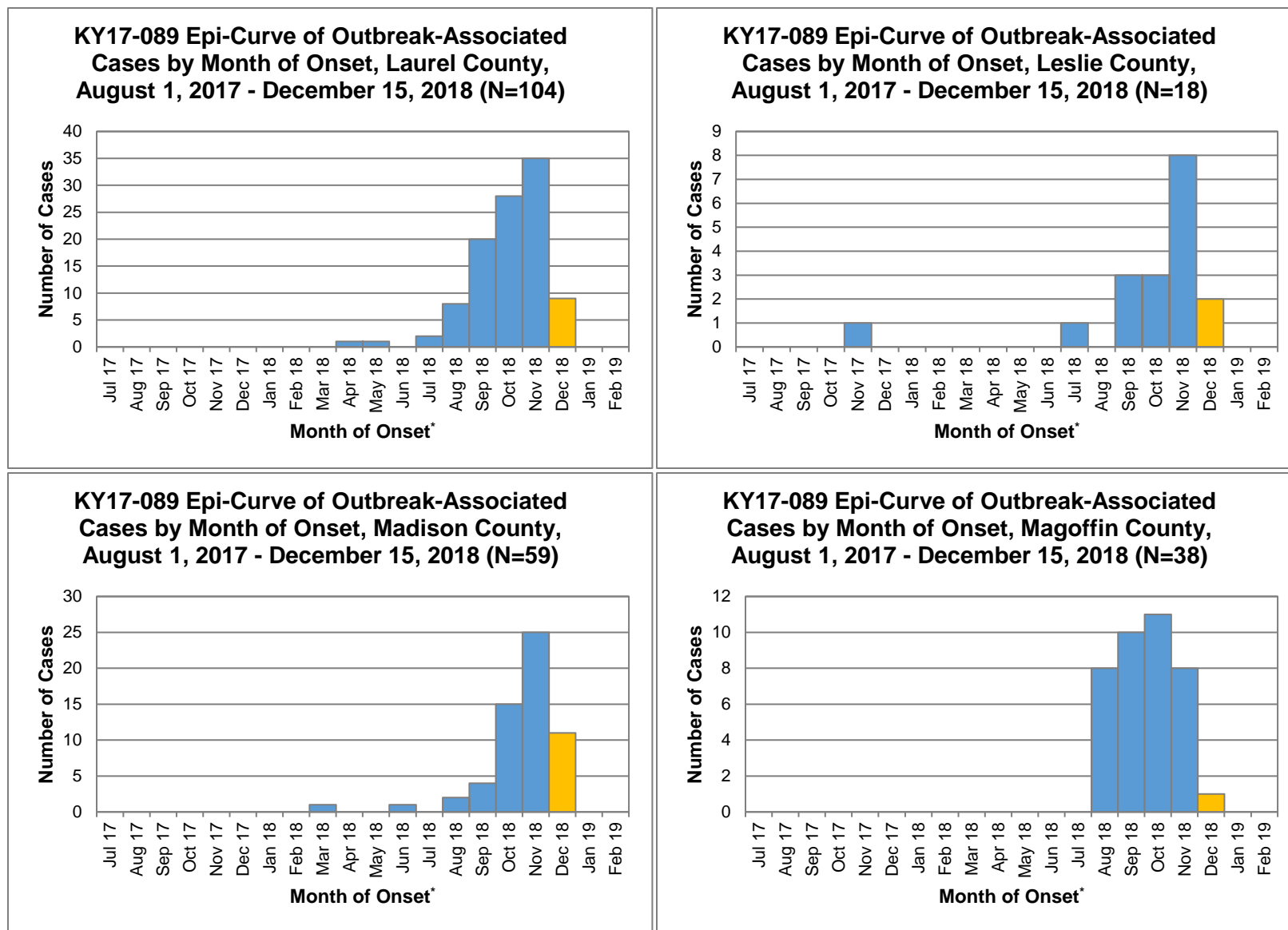


**Figures 16-19: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Jefferson, Johnson, Kenton, and Knox Counties)**

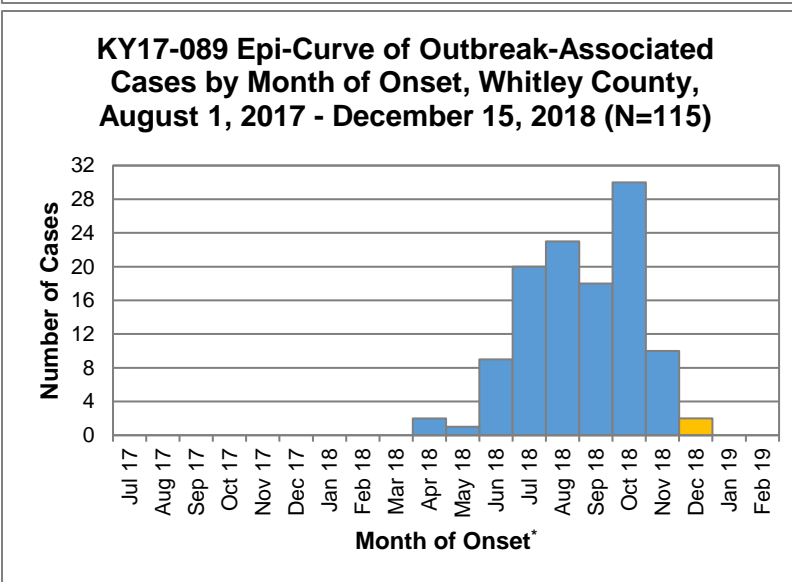
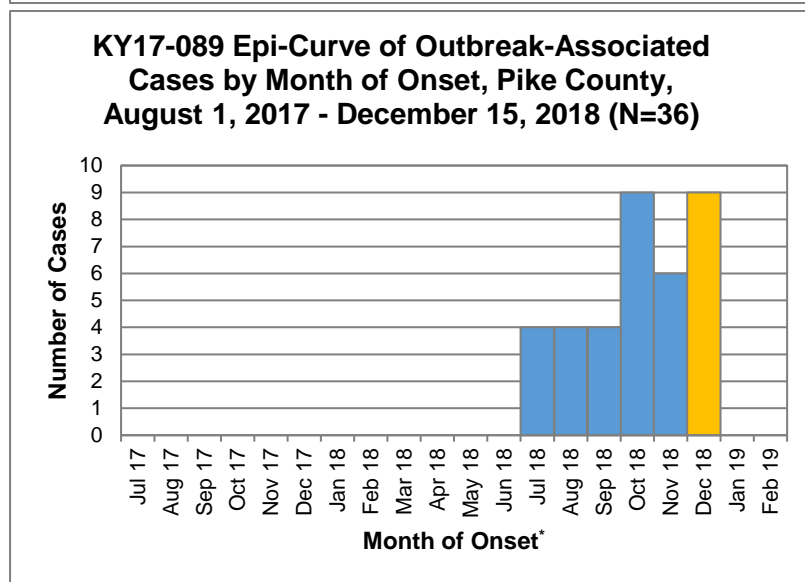
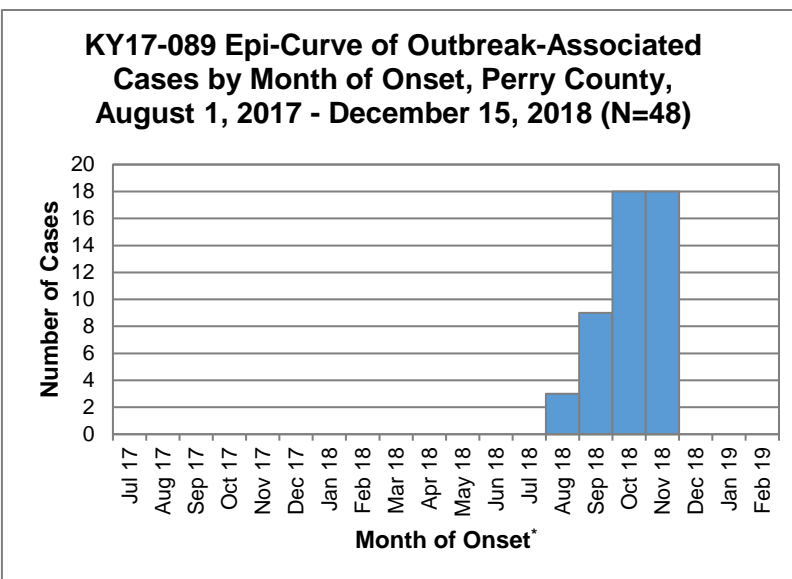
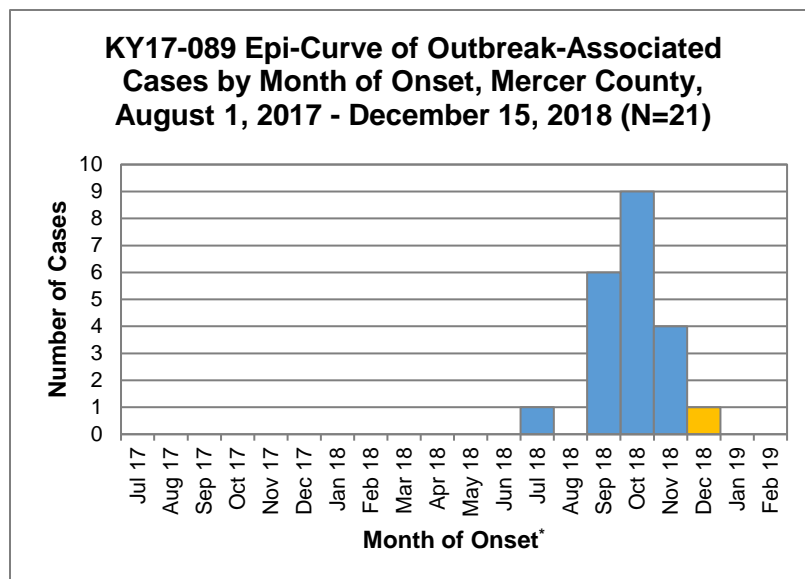




**Figures 20-23: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Laurel, Leslie, Madison, and Magoffin Counties)**



**Figures 24-27: 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 (Mercer, Perry, Pike, and Whitley Counties)**



**Figures 28: 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 (Wolfe County)**

