



Kentucky Department for Public Health

KY17-089 - Acute Hepatitis A Outbreak Weekly Report

Morbidity and Mortality Weekly Report (MMWR) Week 49, 2018

December 2, 2018 – December 8, 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 49:		Total Case Counts: 8/1/2017 – 12/8/2018:	
Number of new cases (n=61):	Confirmed [^] - 0 Probable - 40 Suspected - 21	Total number of cases (n=3122):	Confirmed [^] - 587 Probable - 1744 Suspected - 791
Number of counties with new cases:	28	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 (20%)
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:	20	Total Number of Hospitalizations:	1576 (50%)
Number of deaths Reported [†] :	0	Total number of deaths reported [†] :	19 (<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 – December 8, 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	3	0	2	1	15.4
Allen	30	4	21	5	143.3
Anderson	15	0	12	3	66.5
Ballard	9	4	2	3	112.0
Barren	7	1	6	0	16.0
Bath	27	0	11	16	218.1
Bell	11	0	7	4	40.9
Boone	37	4	20	13	28.3
Bourbon	8	0	8	0	39.9
Boyd	169	98	43	28	352.2
Boyle	19	0	10	9	63.5
Breathitt	5	0	5	0	38.6
Bullitt	64	30	24	10	79.8
Butler	4	0	1	3	31.2
Campbell	54	2	44	8	58.4
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	1	1	0	0	1.4
Clark	62	0	39	23	172.0
Clay	40	0	21	19	196.4

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – December 8, 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	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	100	4	80	16	31.1
Fleming	4	0	0	4	27.7
Floyd	98	1	58	39	270.2
Franklin	42	0	33	9	83.2
Gallatin	3	0	2	1	34.2
Garrard	5	0	3	2	28.5
Grant	34	3	25	6	136.1
Grayson	27	2	22	3	102.4
Green	3	0	3	0	27.1
Greenup	60	28	20	12	168.9
Hardin	36	10	8	18	33.3
Harrison	11	0	8	3	58.6
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	9	0	5	4	67.0
Jefferson	642	292	237	113	83.3
Jessamine	12	0	9	3	22.5

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – December 8, 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	57	0	31	26	252.3
Kenton	83	7	66	10	50.2
Knott	17	1	13	3	111.2
Knox	58	0	39	19	185.7
Larue	3	0	1	2	21.1
Laurel	123	0	101	22	204.4
Lawrence	23	3	13	7	146.3
Lee	14	0	14	0	213.1
Leslie	15	0	13	2	145.2
Letcher	3	0	2	1	13.4
Lewis	11	0	6	5	82.5
Lincoln	14	2	8	4	57.2
Logan	1	0	1	0	3.7
Madison	59	2	43	14	64.7
Magoffin	42	0	24	18	335.0
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 8, 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
Mercer	27	0	18	9	125.5
Metcalf	2	0	1	1	19.8
Montgomery	81	5	59	17	290.0
Morgan	20	1	16	3	151.7
Nelson	18	4	6	8	39.4
Nicholas	2	0	0	2	28.1
Ohio	6	0	3	3	24.8
Oldham	13	3	7	3	19.6
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	30	0	25	5	50.9
Powell	19	0	16	3	153.5
Pulaski	10	0	8	2	15.5
Robertson	1	0	1	0	46.9
Rockcastle	3	0	3	0	18.0
Rowan	44	0	28	16	179.5
Russell	2	0	1	1	11.3
Scott	8	0	4	4	14.6
Shelby	21	5	12	4	44.3
Simpson	6	0	6	0	33.1
Spencer	5	3	1	1	27.0

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – December 8, 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	44	2	32	10	172.7
Trigg^	1	0	1	0	6.9
Warren	33	8	18	7	25.6
Washington	5	0	3	2	41.2
Whitley	158	3	86	69	436.3
Wolfe	18	0	13	5	247.8
Woodford	3	0	1	2	11.4
Total Number of Cases:	3122	587	1744	791	70.1

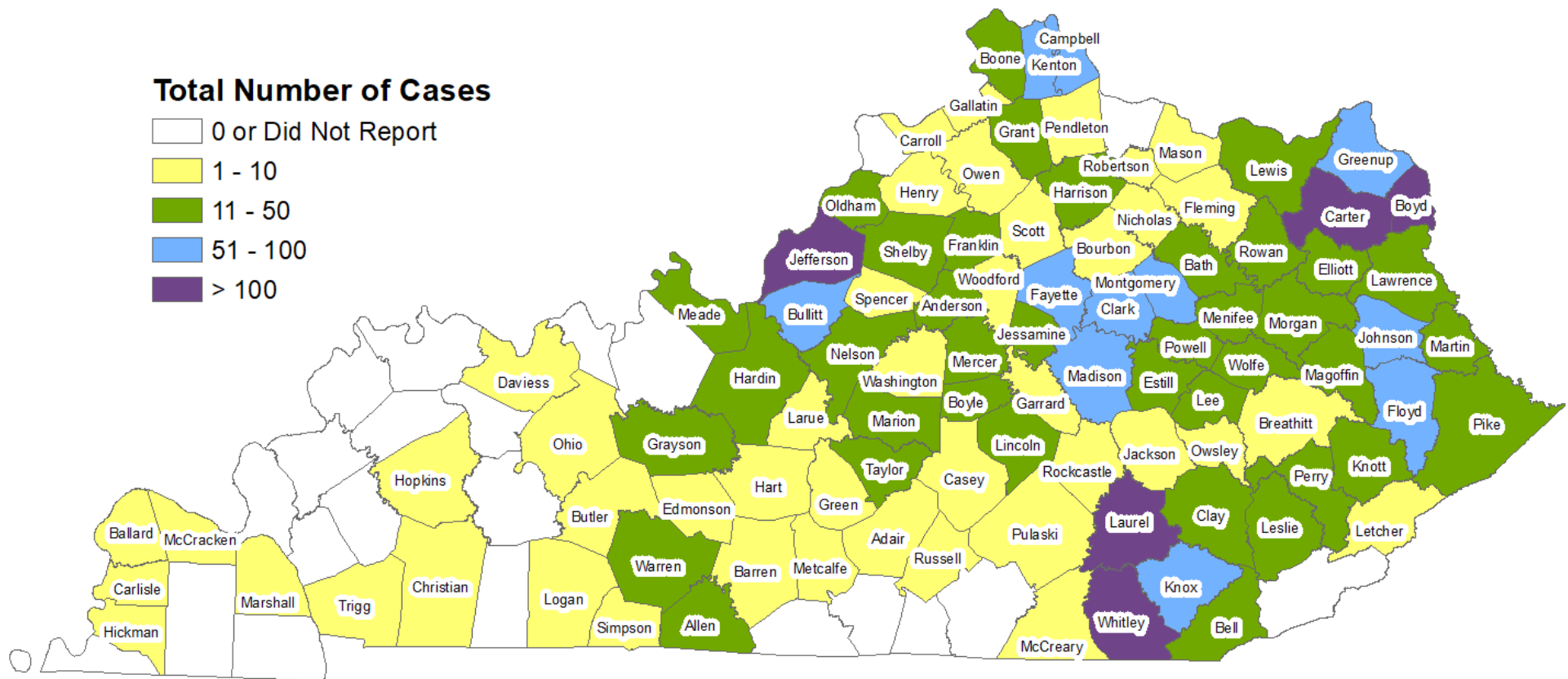
* Cases are reported based on date of specimen collection.

^ 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 - December 8, 2018



n = 98 counties with outbreak-associated cases

**Counties where cases have not previously
been identified: Trigg.**

KY17-089 Incidence of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - December 8, 2018

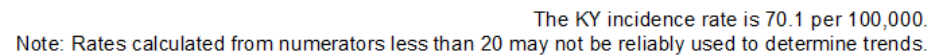


Figure 3: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - December 8, 2018

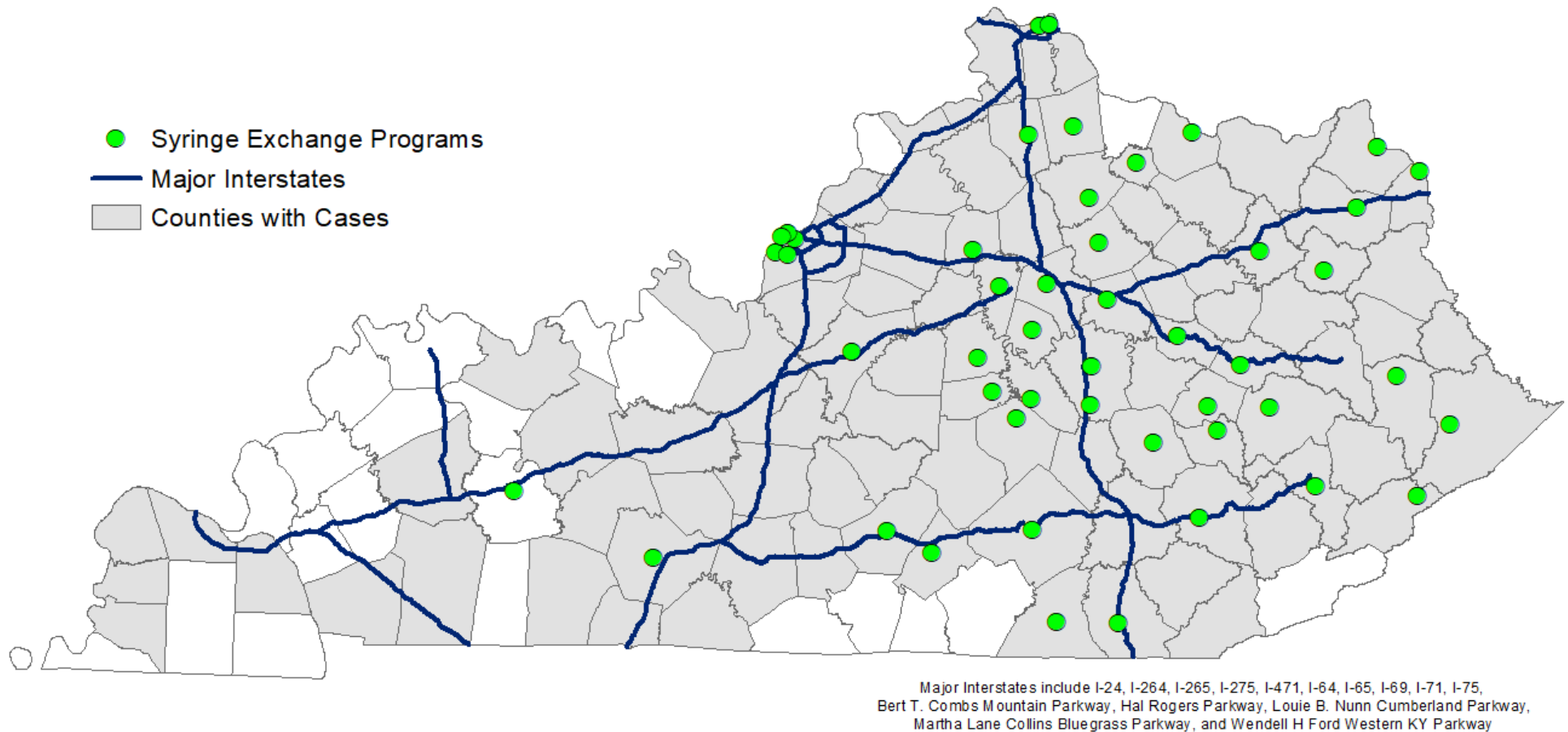
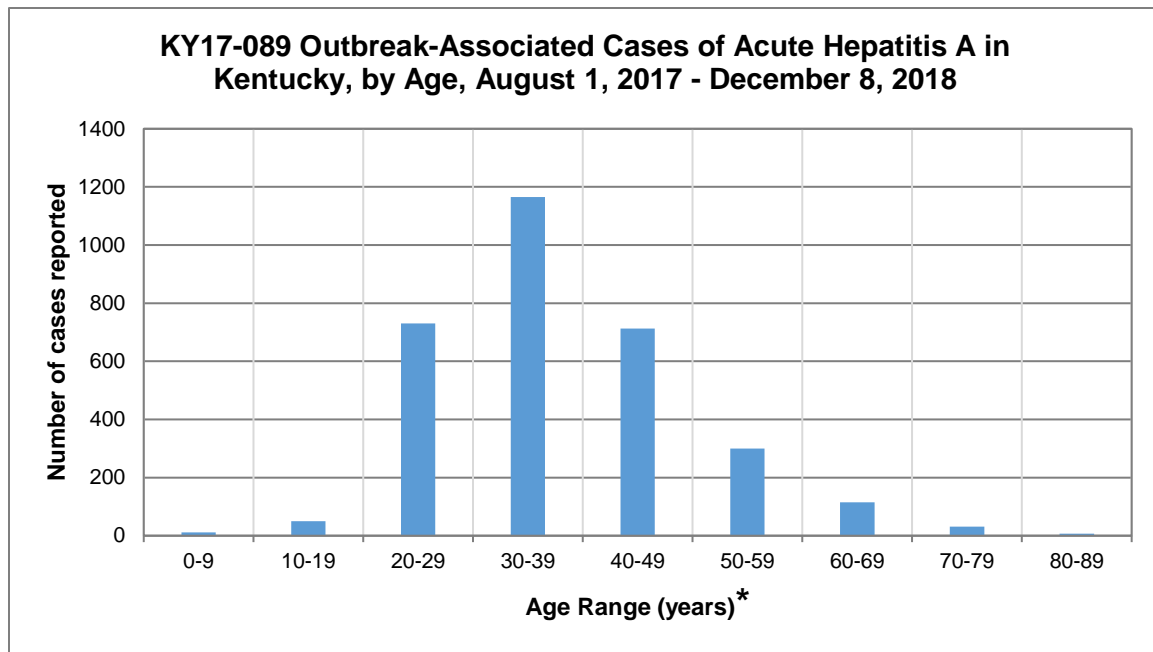


Figure 4: Outbreak-Associated Cases by Age



* 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 8, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=2565) ^{* †}
Homelessness + No/Unk Illicit Drug Use	47 (1.8%)
Illicit Drug Use + No/Unk Homelessness	1764 (69%)
Homelessness + Illicit drug use	253 (10%)
No Outbreak-Related Risk Factors	501 (20%)

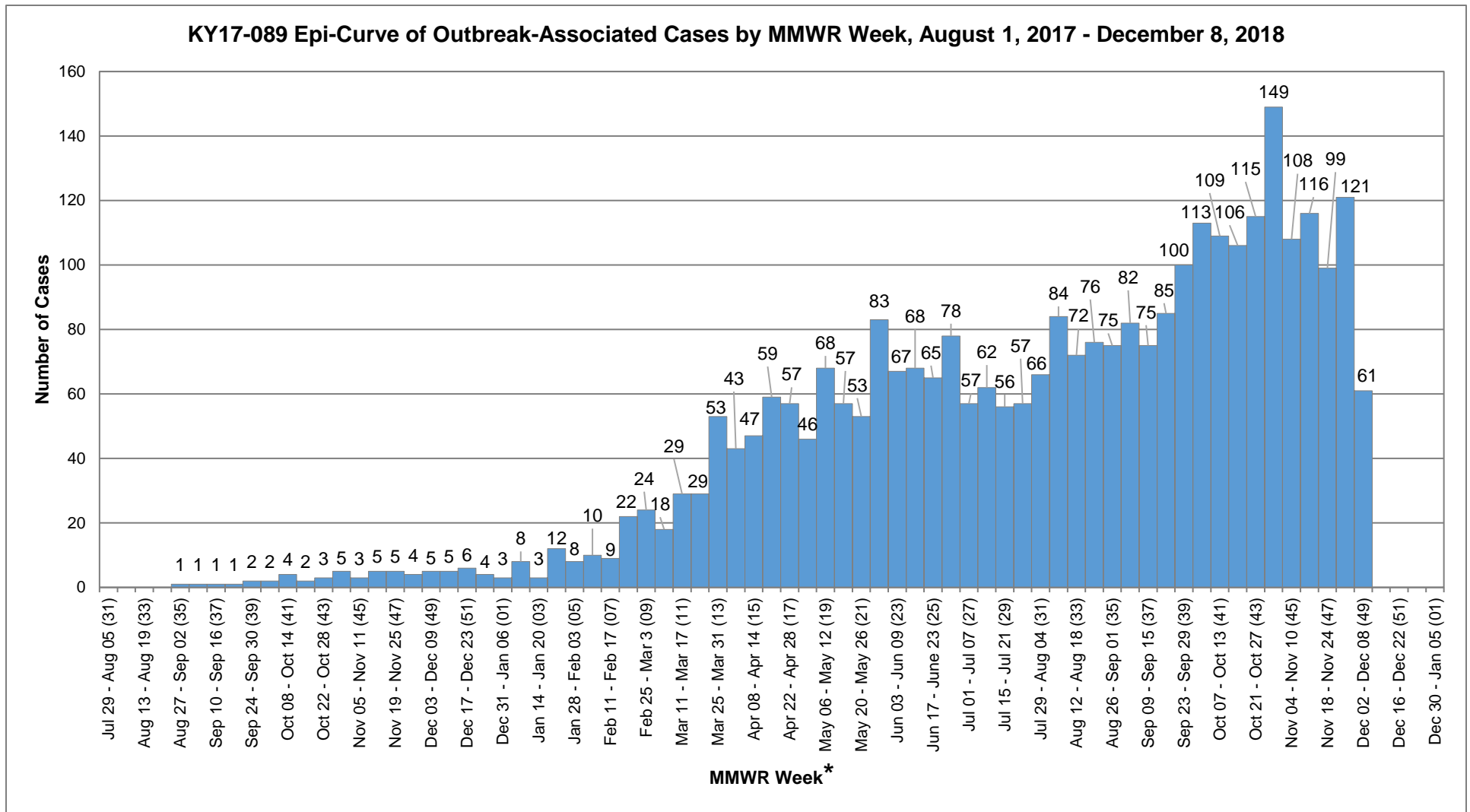
* Risk factor information is unavailable for 557 (17.8%) of all outbreak-associated cases.

† 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.

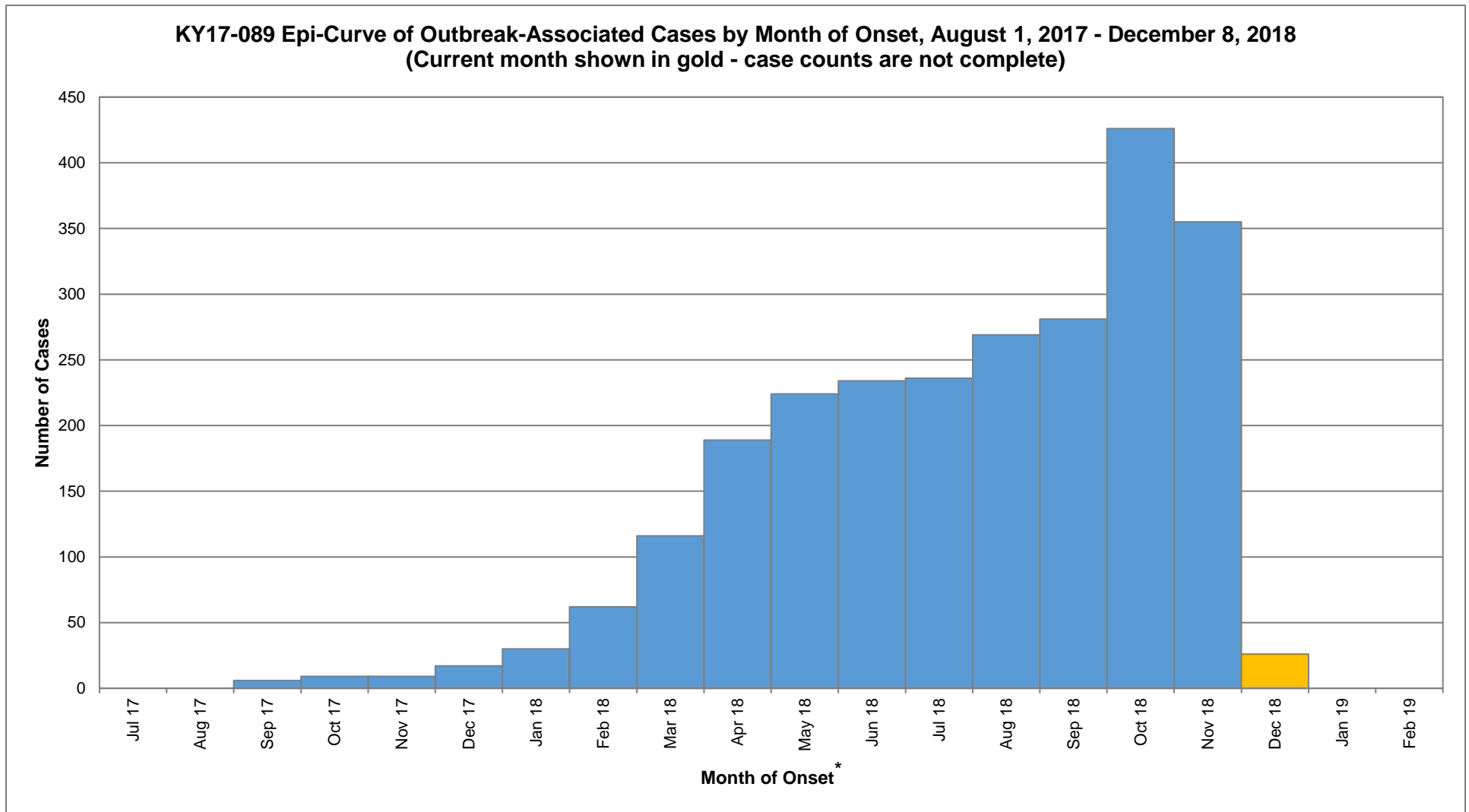
^ 34 MSM cases have been reported. Of those, 10 have reported no other risk factors.

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



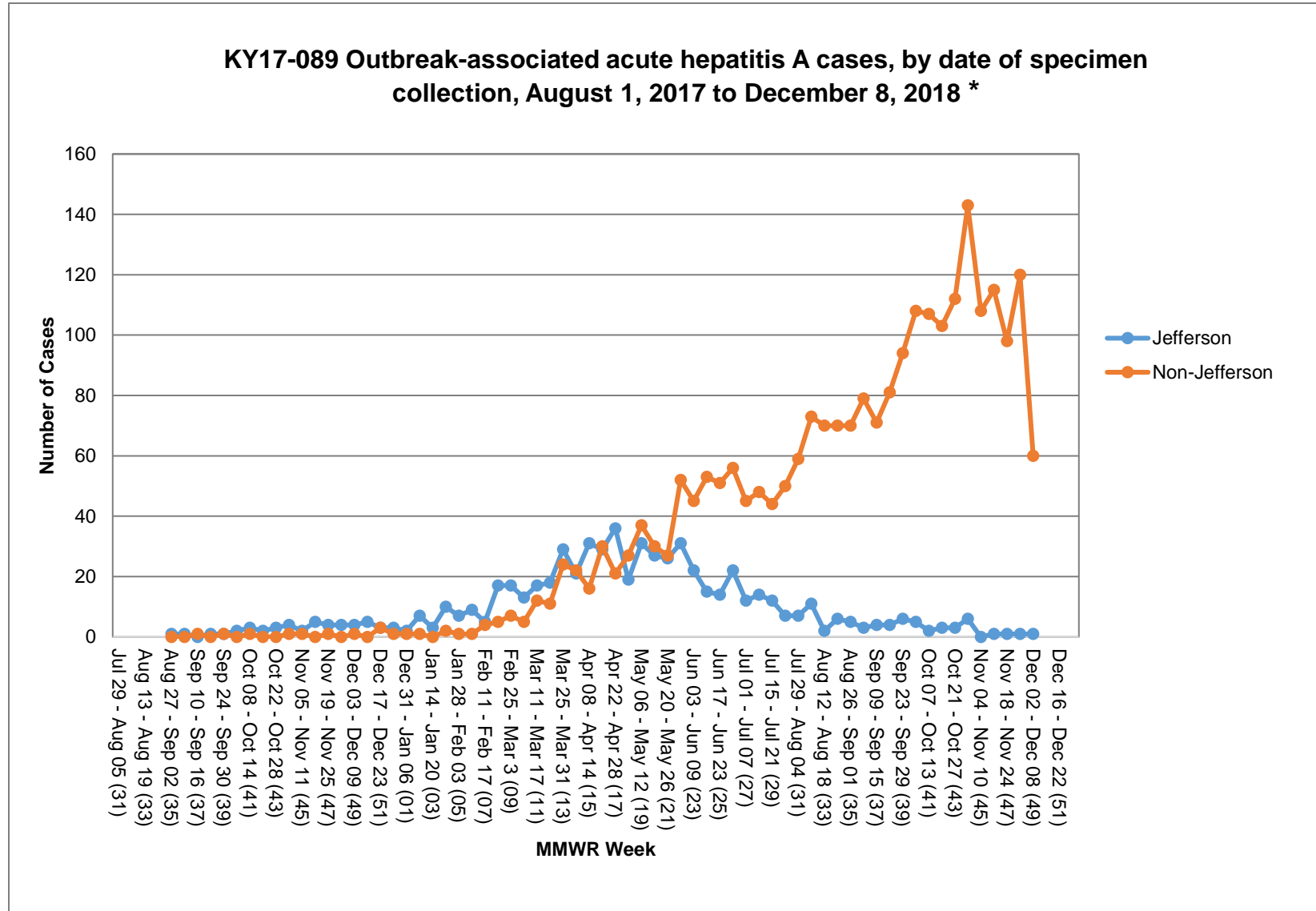
* MMWR weeks are based on date of specimen collection.

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



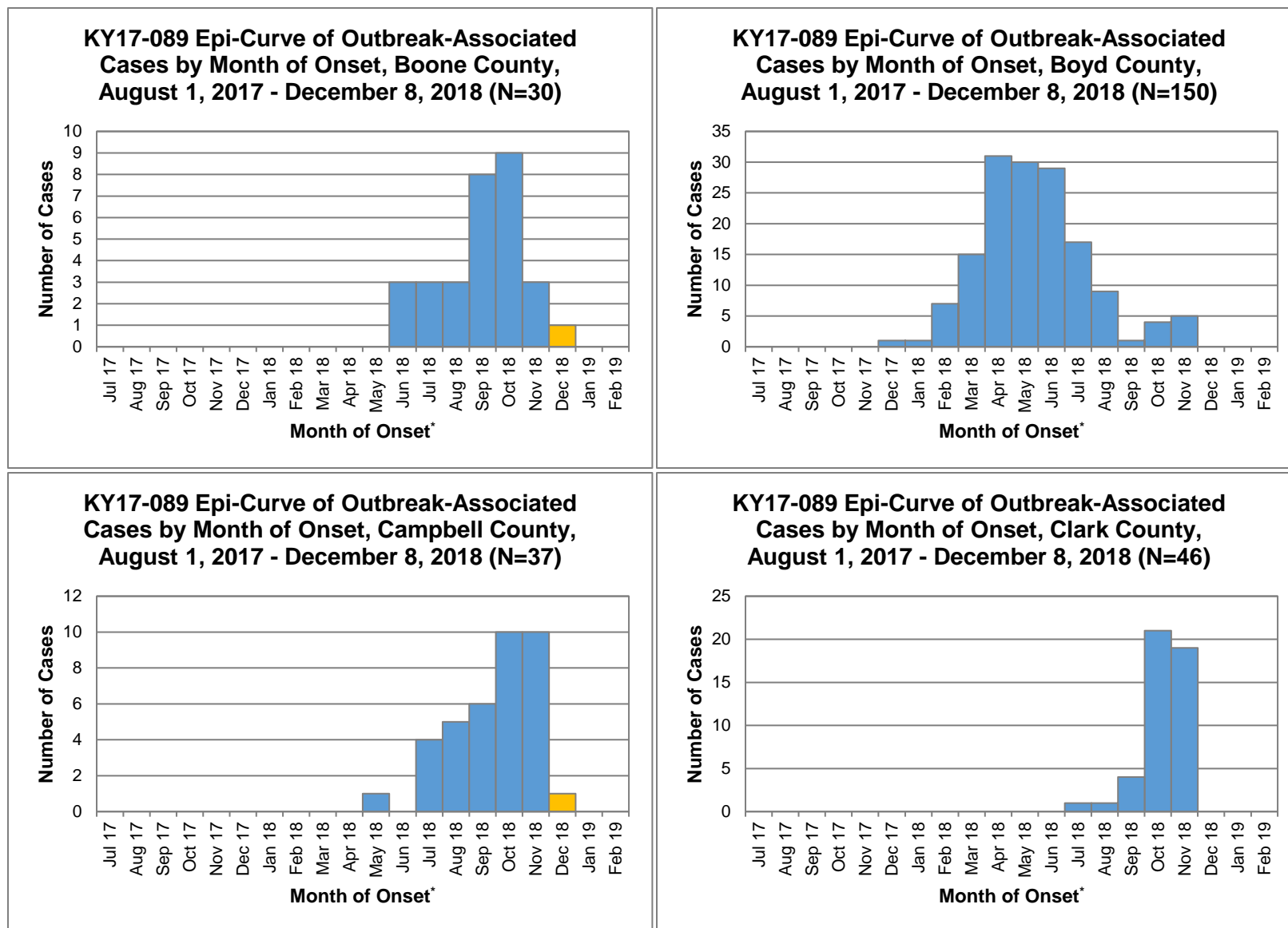
* Date of onset has been reported for 79.7% (or 2489/3122) of cases.

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

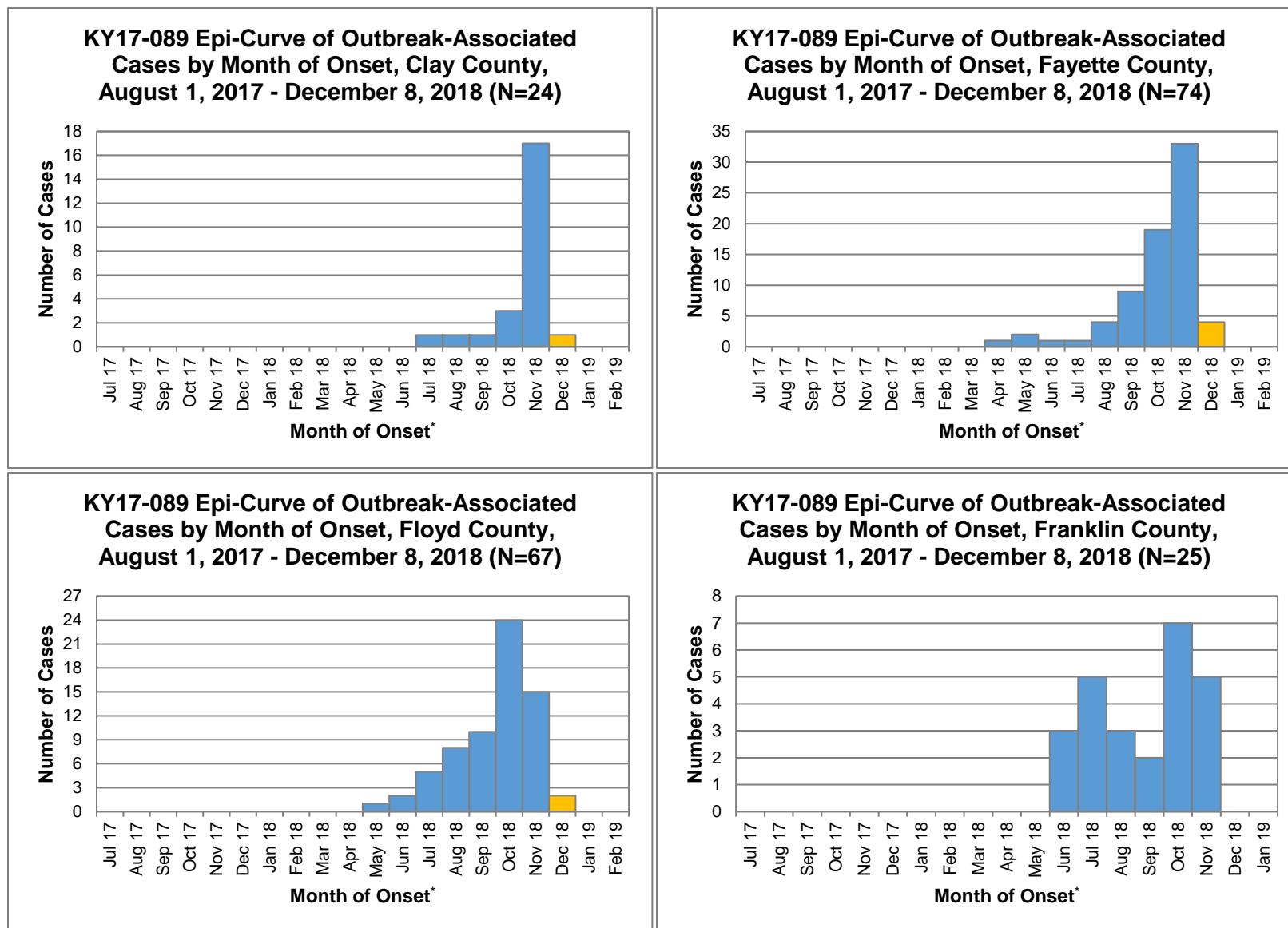


* MMWR weeks are based on date of specimen collection.

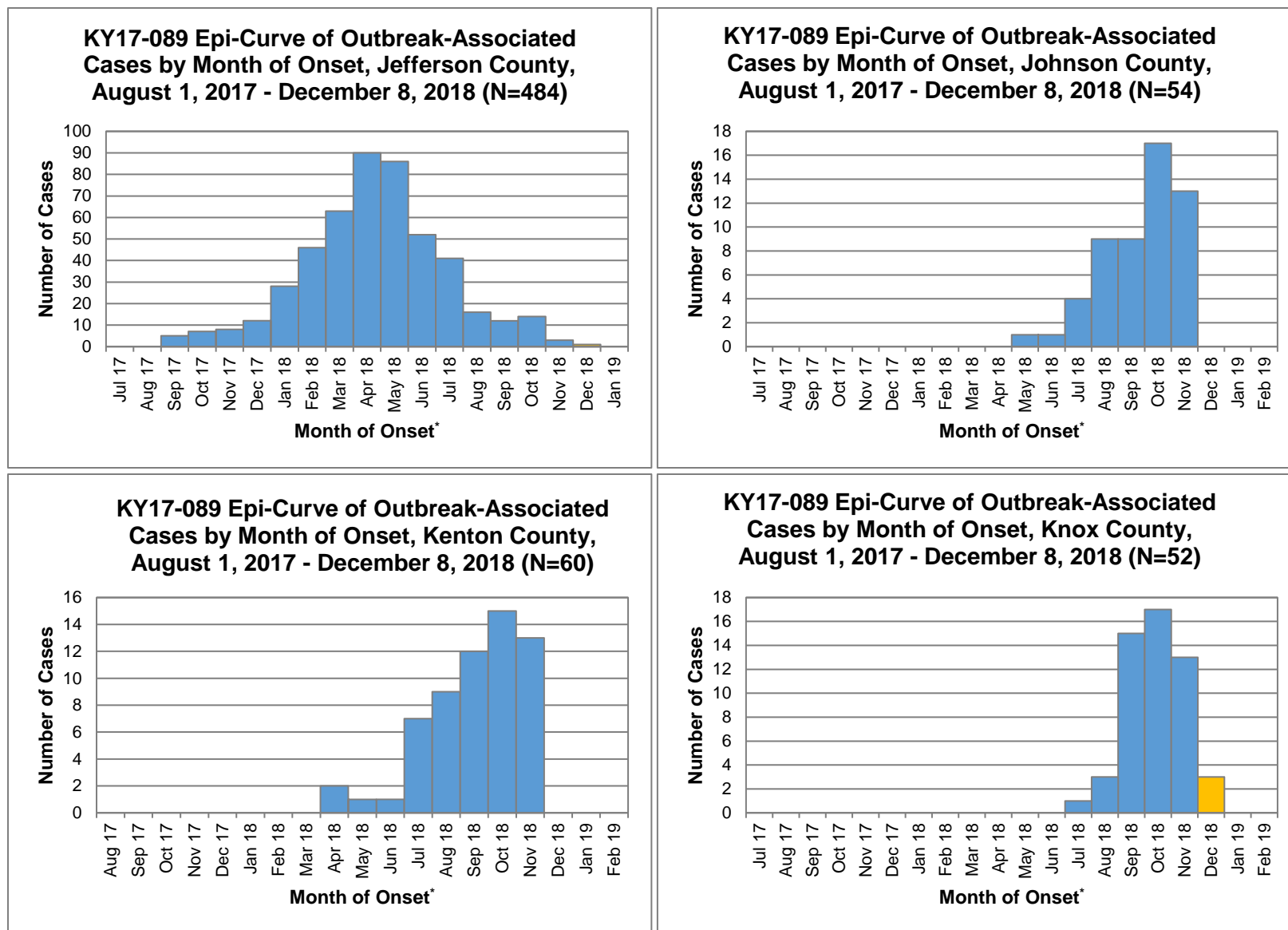
Figures 8-11: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Boone, Boyd, Campbell, and Clark Counties)



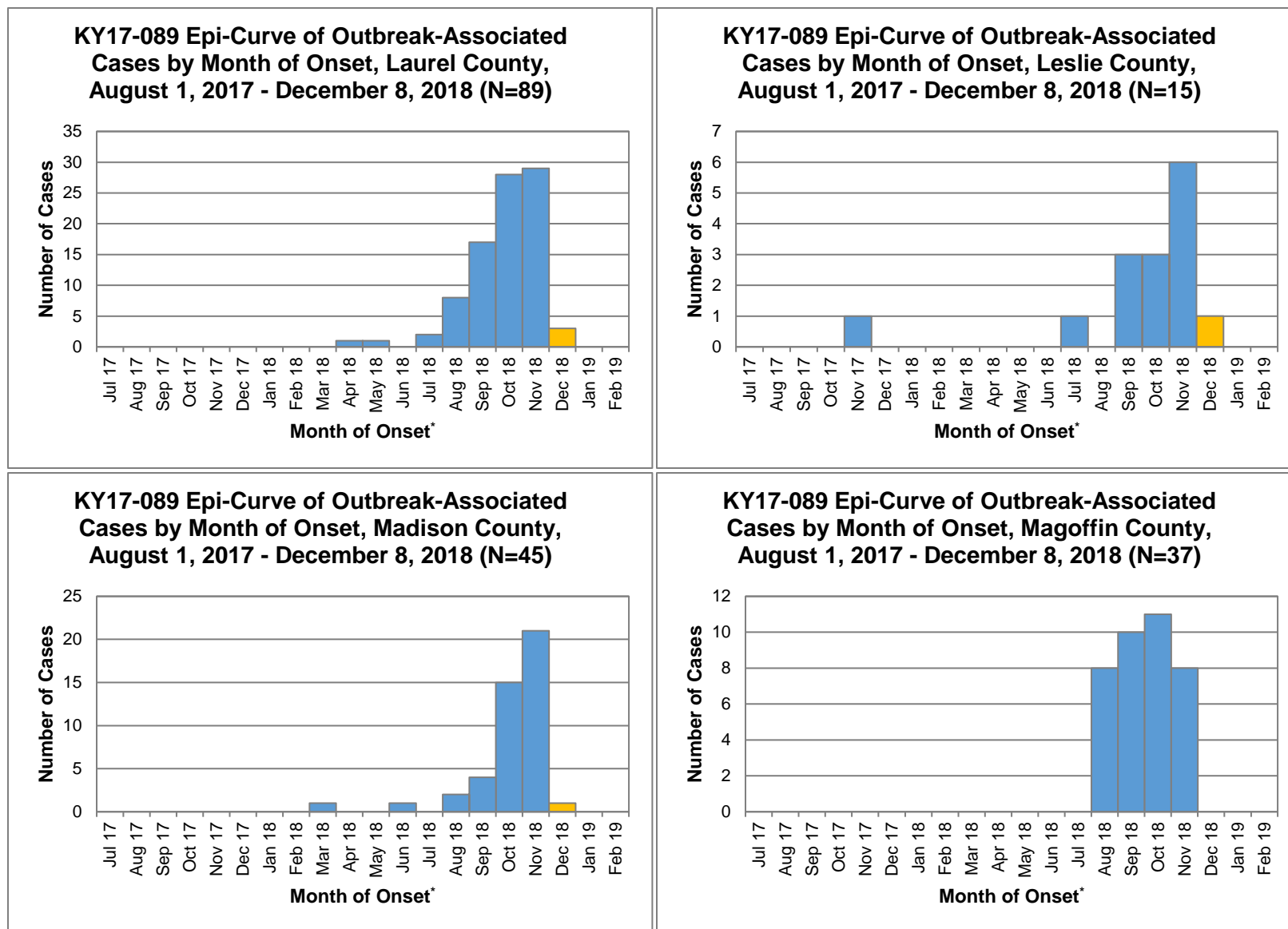
Figures 12-15: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Clay, Fayette, Floyd, and Franklin Counties)



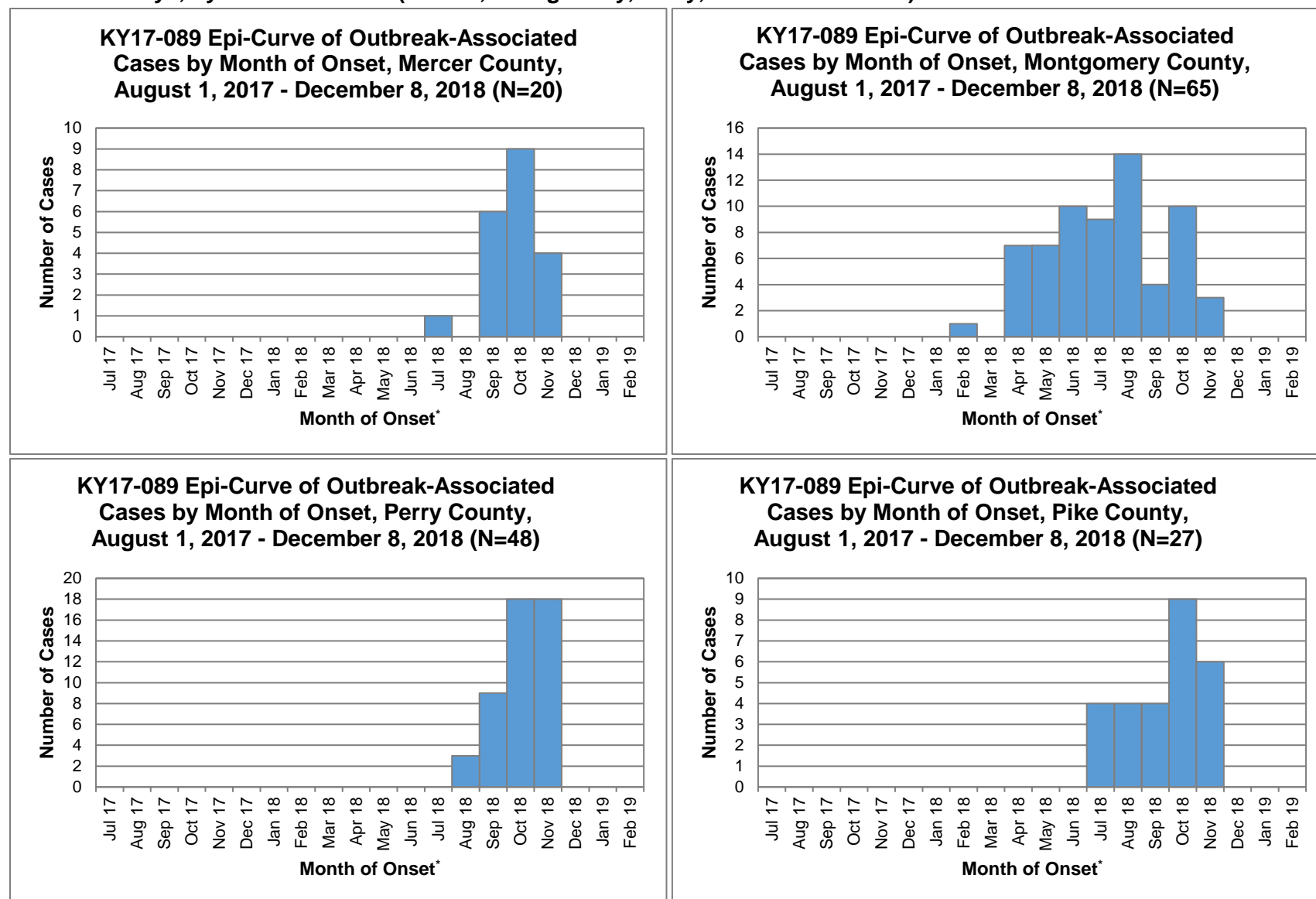
Figures 16-19: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Jefferson, Johnson, Kenton, and Knox Counties)



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, Montgomery, Perry, and Pike Counties)



Figures 28-29: 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 (Whitley and Wolfe Counties)

