



## **Kentucky Substance Use Research & Enforcement**

*Using data to drive public safety and public health efforts against substance use across the Commonwealth*

### **Brief 19: Six Major Overdose-Related Substances and General Overdose-Related Events in Kentucky, January 1, 2017–December 31, 2021**

Based on data from possession and trafficking citations, drug overdose-related deaths, emergency department visits, hospitalizations, submissions to the state police lab, and general drug overdose-related events



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Produced by the Kentucky State Police Intelligence Branch and the Kentucky Injury Prevention and Research Center, as bona fide agent for the Kentucky Department for Public Health.

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## Data Evaluation Survey



We would like to hear your feedback on the Kentucky Substance Use Research & Enforcement (K-SURE) briefs and other outputs you use. This will help us improve future K-SURE briefs, stakeholder engagement, dissemination, and audience receptivity. You can find the survey here:

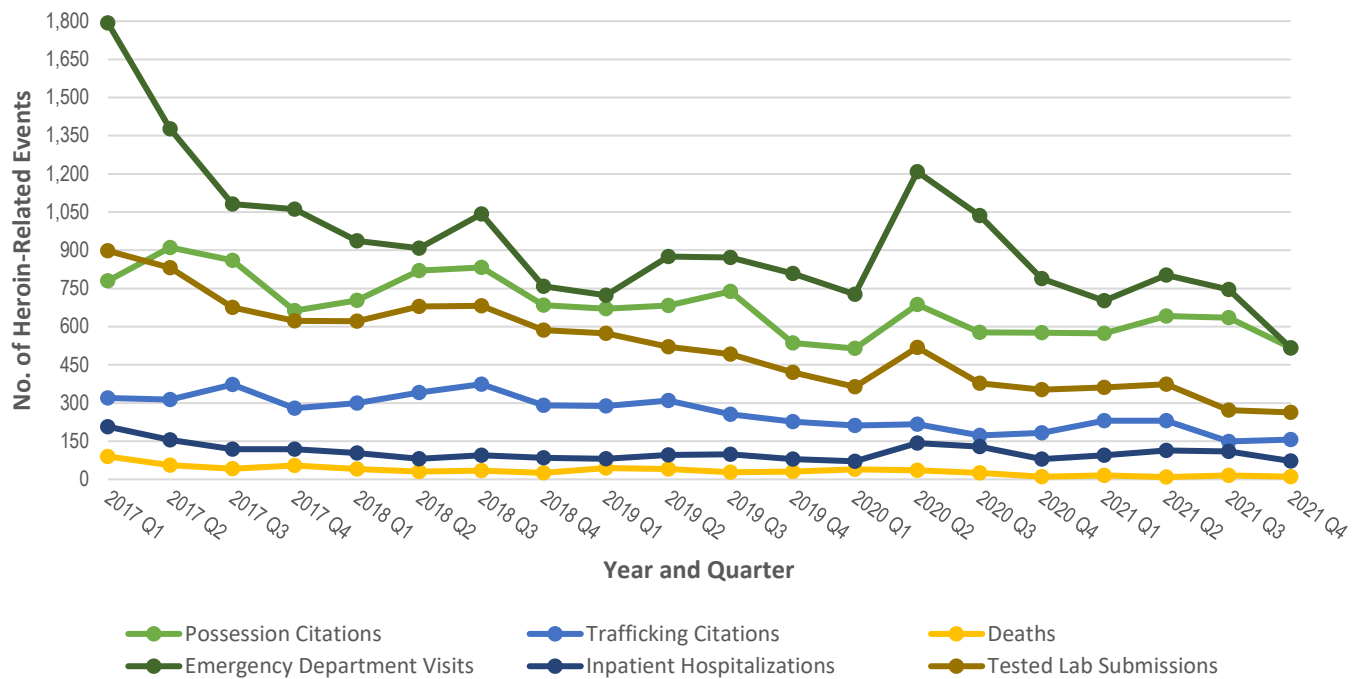
[https://uky.az1.qualtrics.com/jfe/form/SV\\_bDzBAIOXZprzO85](https://uky.az1.qualtrics.com/jfe/form/SV_bDzBAIOXZprzO85)



Thank you in advance!

- The K-SURE Team -

## Heroin-Related Events



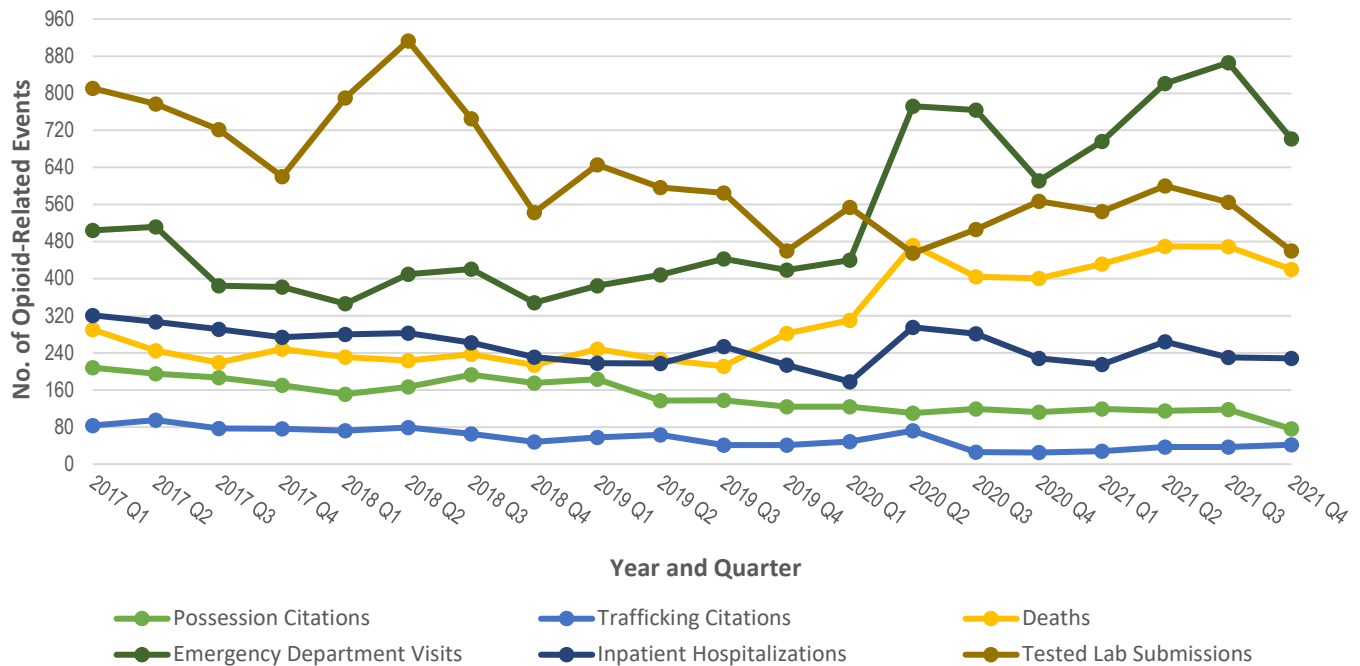
Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s).

Data sources: Kentucky Open Portal System; Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky State Police Crime Laboratory.

### Key Findings:

- Heroin possession citations decreased by 33.7% from January 2017 through December 2021 and by 18.6% from Q3 2021 through Q4 2021.
- Heroin trafficking citations decreased by 51.3% from January 2017 through December 2021 and increased by 4.7% from Q3 2021 through Q4 2021.
- Kentucky resident heroin-related deaths declined by 87.8% from January 2017 through December 2021 and by 31.3% from Q3 2021 through Q4 2021.
- Both heroin-related emergency department (ED) visits and inpatient hospitalizations declined from January 2017 through December 2021 (by 71.2% and 65.2%, respectively) and from Q3 2021 through the Q4 2021 (by 30.8% and 34.5%, respectively).
- Heroin-related tested lab submissions decreased 70.7% from January 2017 through December 2021 (heroin accounted for 7% of the total tested submissions from January 2017 through December 2021 [data not shown]) but decreased 3.3% from Q3 2021 through Q4 2021.
- Overall, total heroin-related events (possession and trafficking citations, deaths, ED visits, hospitalizations, and tested lab submissions) decreased by 62.5% from the beginning of 2017 through the end of December 2021. Heroin-related events decreased by 20.4% from Q3 2021 through Q4 2021.

## Opioid-Related Events

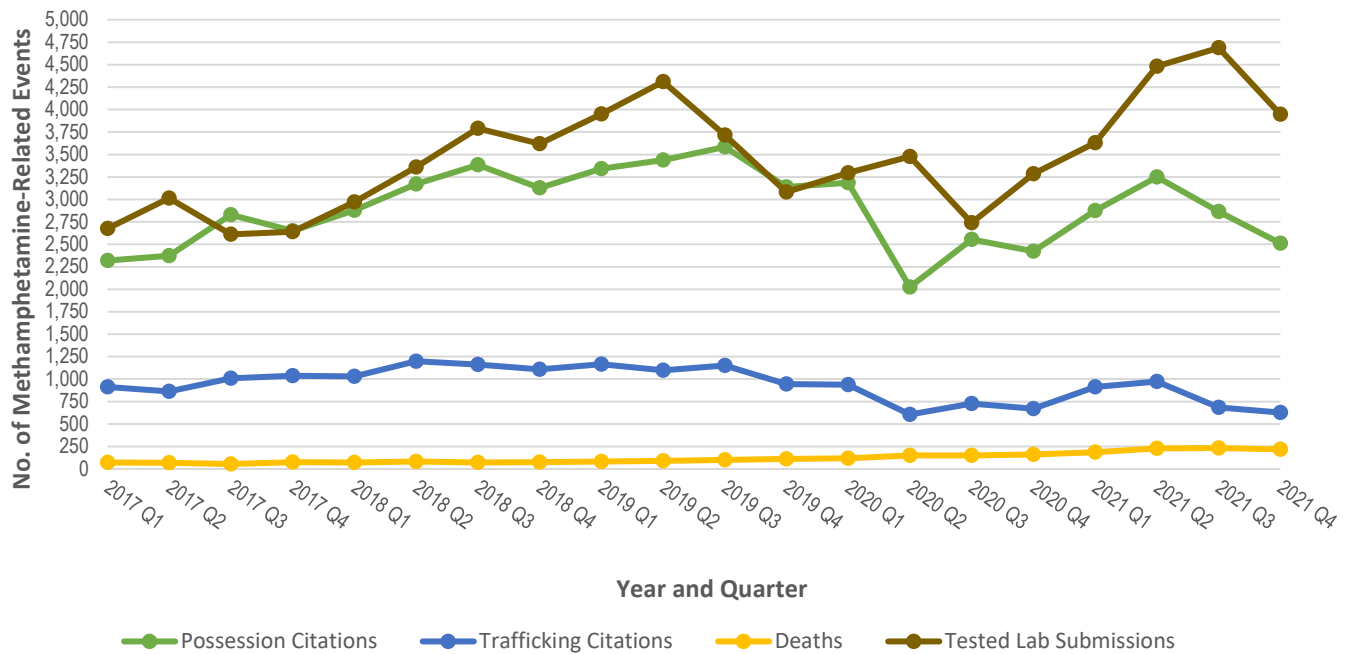


Data are provisional and subject to change. Opioid-related events reflect non-heroin- and non-fentanyl-related opioids. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s). Data sources: Kentucky Open Portal System; Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky State Police Crime Laboratory.

### Key Findings:

- Opioid possession citations decreased by 63.5% from Q1 2017 through Q4 2021 and by 35.6% from Q3 2021 through Q4 2021.
- Opioid trafficking citations decreased by 49.4% from Q1 2017 through Q4 2021, and increased by 13.5% from Q3 2021 through Q4 2021.
- Opioid-related ED visits increased by 39.3% from Q1 2017 through Q4 2021 and decreased by 18.9% from Q3 2021 through Q4 2021.
- Opioid-related inpatient hospitalizations declined by 29% from Q1 2017 through Q4 2021 and no change was observed from Q3 2021 through Q4 2021.
- Kentucky resident opioid-related deaths increased by 44.8% from Q1 2017 through Q4 2021 and decreased by 10.4% from Q3 2021 through Q4 2021.
- Tested lab submissions that positively identified opioids decreased by 43.3% from 2017 through Q3 2021 and by 18.6% from Q3 2021 through Q4 2021. Opioids accounted for 8.4% of the total tested submissions from Q1 2017 through Q4 2021 (data not shown).
- Opioids and their devastating effects remain prevalent throughout the Commonwealth. A 13.0% and 15.6% reduction in opioid-related events were observed from Q1 2017 through Q4 2021 and from Q3 2021 through Q4 2021, respectively.

## Methamphetamine-Related Events

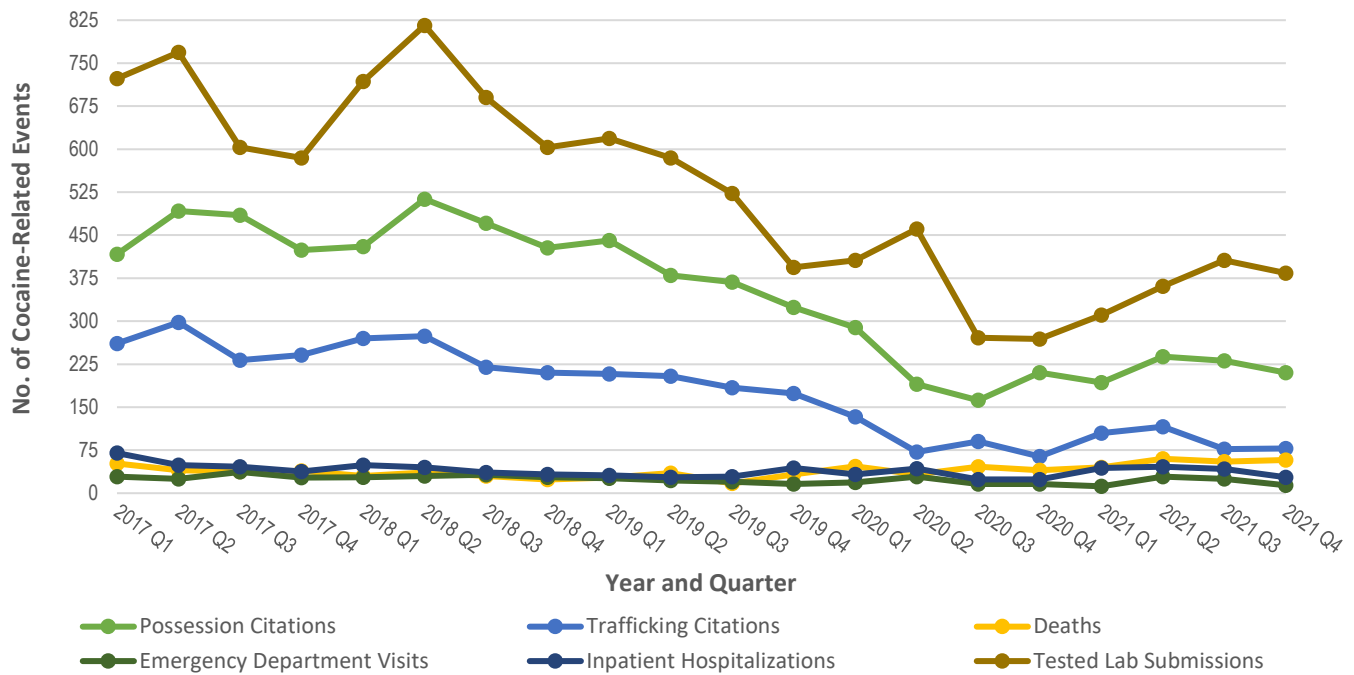


Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s).  
 Data sources: Kentucky Open Portal System; Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky State Police Crime Laboratory.

### Key Findings:

- Methamphetamine possession citations rose 8.3% and trafficking citations decreased by 31.3% from Q1 2017 through Q4 2021. Both methamphetamine possession and trafficking citations decreased from Q3 2021 through Q4 2021 (by 12.4% and 8.3%, respectively).
- A 204.2% increase in methamphetamine-related overdose deaths was observed among Kentucky residents from Q1 2017 through Q4 2021; all involved the use of more than one drug (polydrug use). A 6% decrease in deaths occurred from Q3 2021 through Q4 2021.
- Tested lab submissions positively identifying methamphetamine increased by 47.5% from Q1 2017 through Q4 2021 and decreased by 15.8% from Q3 2021 through Q4 2021. Methamphetamine remains the most common drug submitted to Kentucky State Police Laboratories, accounting for 46.5% of the total tested submissions from Q1 2017 through Q4 2021 (data not shown).
- Methamphetamine use and distribution continue to threaten the Commonwealth’s safety and health, as methamphetamine-related events increased by 22.2% from Q1 2017 through Q4 2021; however, from Q3 2021 through Q4 2021 methamphetamine-related events decreased by 13.8%.

## Cocaine-Related Events



Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s).

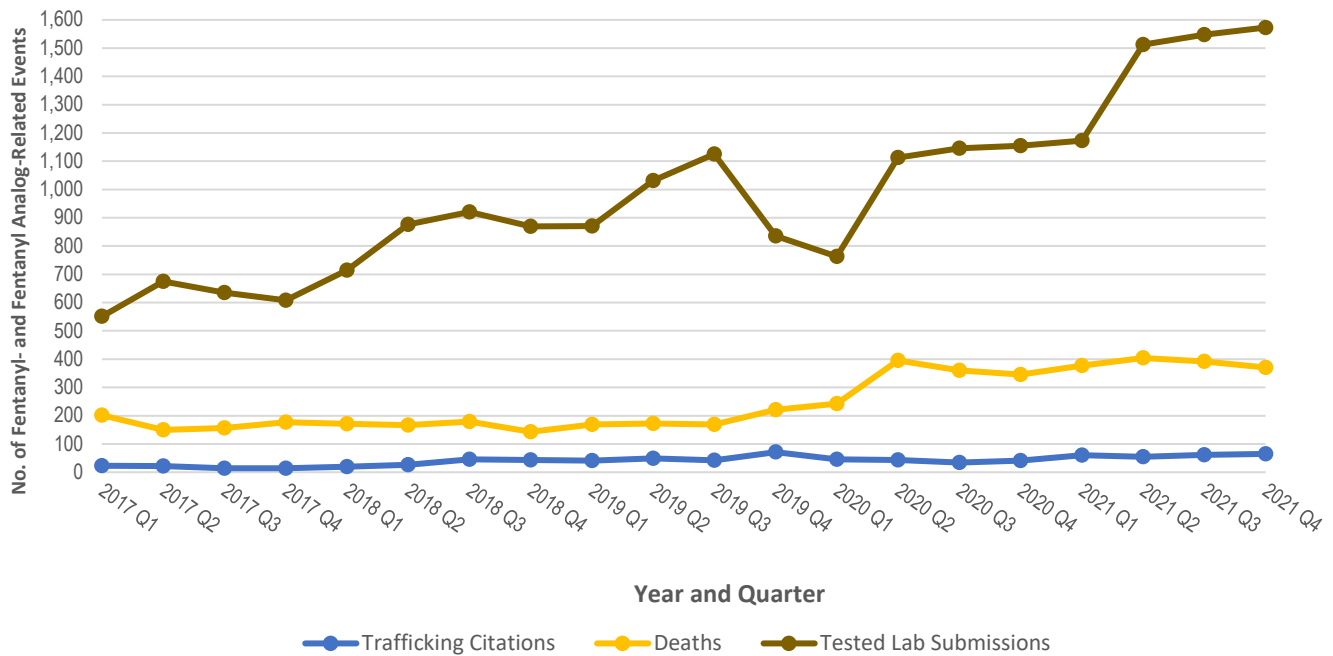
Data sources: Kentucky Open Portal System; Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky State Police Crime Laboratory.

### Key Findings:

- Statewide cocaine possession and trafficking citations decreased (by 49.6% and 70.1%, respectively) from Q1 2017 through Q4 2021. Notably, possession citations decreased by 9.1% from Q3 2021 through Q4 2021, while trafficking citations increased by 1.3% during that same time period.
- Cocaine-related deaths increased by 11.5% from Q1 2017 through Q4 2021; a 5.5% increase was observed from Q3 2021 through Q4 2021.
- Cocaine-related emergency department visits declined from Q1 2017 through Q4 2021 and from Q3 2021 through Q4 2021 (by 51.7% and 44%, respectively).
- Cocaine-related inpatient hospitalizations declined by 60% from Q1 2017 through Q4 2021 and by 33.3% from Q3 2021 through Q4 2021.
- Tested lab submissions positively identifying cocaine decreased by 46.9% from Q1 2017 to Q3 2021; a 5.4% decrease occurred from Q3 2021 through Q4 2021. Cocaine accounted for 7% of the total tested lab submissions from Q1 2017 through Q4 2021 (data not shown).
- Overall, cocaine-related events decreased by 50.3% from Q1 2017 through Q4 2021, and a 7.7% decline was observed from Q3 2021 through Q4 2021.



## Fentanyl- and Fentanyl Analog-Related Events

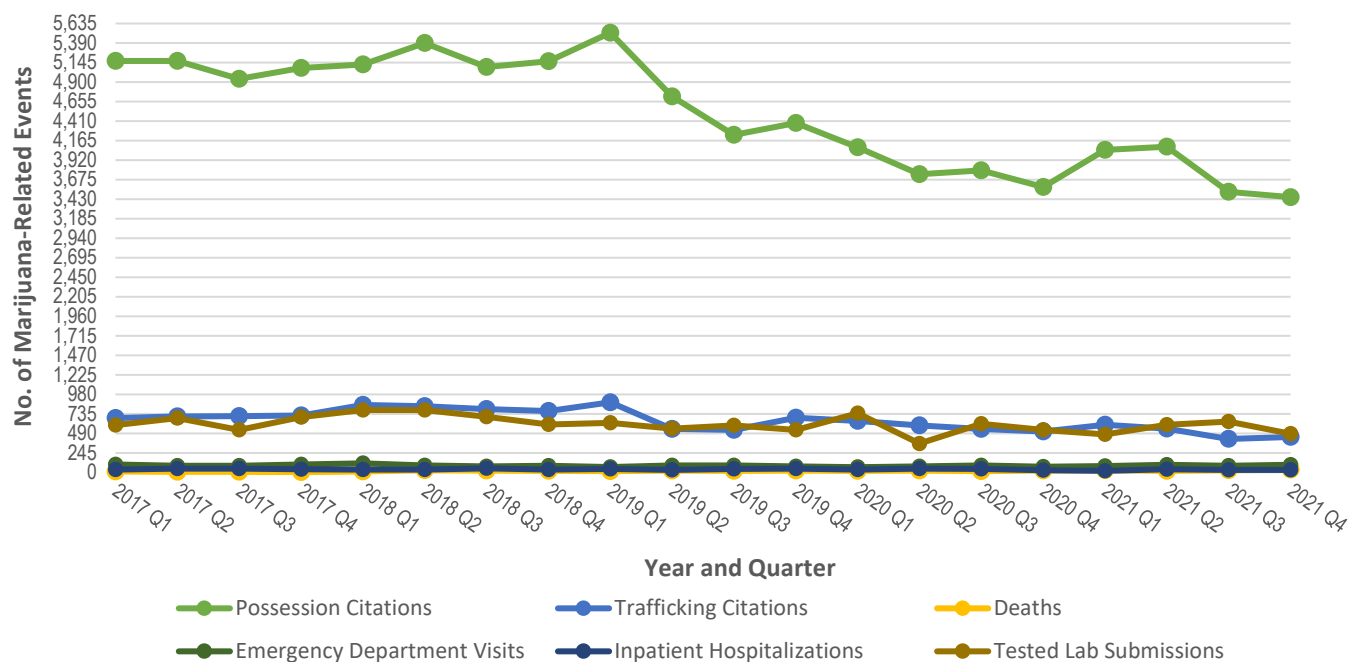


Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. There are no Kentucky Revised Statute codes for fentanyl possession. Deaths are based on drug overdose-related deaths among Kentucky residents. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s). Data sources: Kentucky Open Portal System; Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky State Police Crime Laboratory.

### Key Findings:

- Fentanyl and fentanyl analog trafficking citations increased 182.6% from Q1 2017 through Q4 2021 and by 6.6% from Q3 2021 through Q4 2021. Citations related to fentanyl and its related analogs may be underestimated, as fentanyl is often associated with polydrug use and laboratory testing is often needed to confirm its presence.
- Fentanyl- and fentanyl analog-related deaths increased by 83.2% from Q1 2017 through Q4 2021 and decreased by 5.6% from Q3 2021 through Q4 2021.
- Tested lab submissions positively identifying fentanyl and fentanyl analogs increased by 185.5% from Q1 2017 through Q4 2021 and by 1.6% from Q3 2021 through Q4 2021. KSP Laboratories see several different fentanyl derivatives, along with polydrug mixtures such as heroin/fentanyl, cocaine/fentanyl, and methamphetamine/fentanyl, making up 13.2% of total tested lab submissions from Q1 2017 through Q4 2021.
- Fentanyl and fentanyl analogs are pervasive in Kentucky—increasing the risk of overdose and exposure to individuals, families, communities, and public safety—as fentanyl- and fentanyl analog-related events across Kentucky increased 158.8% from Q1 2017 through Q4 2021 and no change was observed from Q3 2021 through Q4 2021.

## Marijuana-Related Events



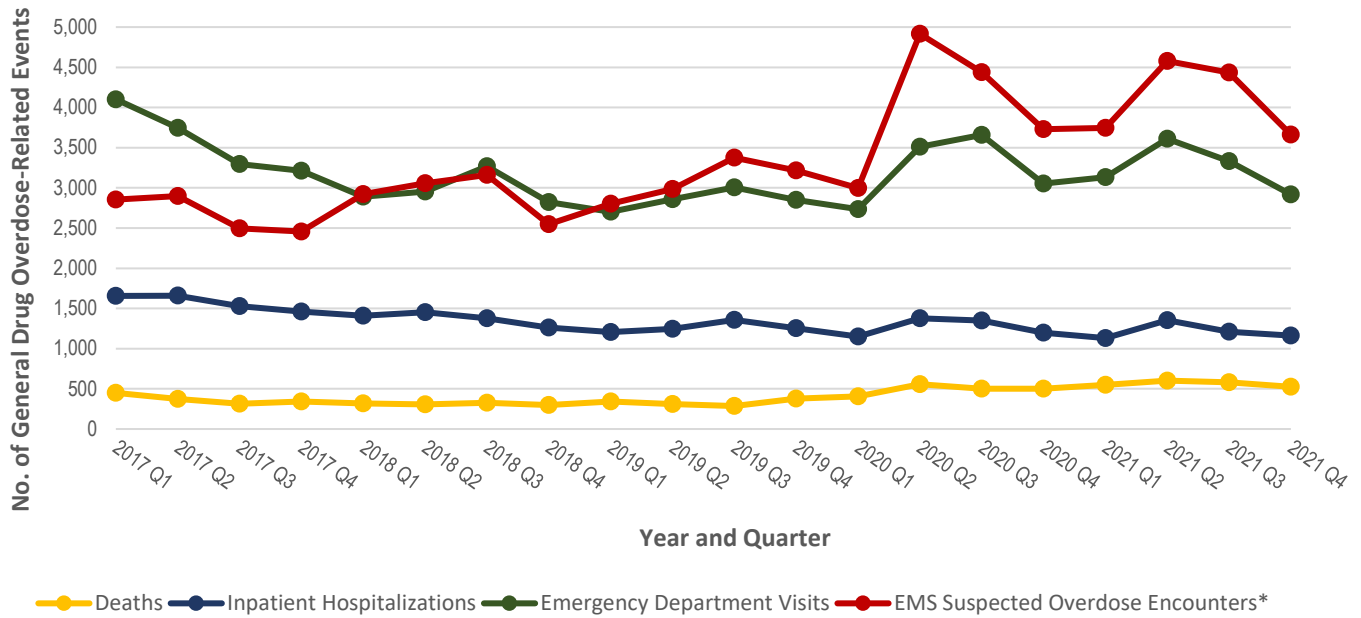
Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Tested lab submission data represent those substances submitted to the lab for identification purposes; quantity is not reflected. Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s).

Data sources: Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services.

### Key Findings:

- Marijuana possession citations declined by 33.1% from Q1 2017 through Q4 2021 and by 1.9% from Q3 2021 through Q4 2021.
- Marijuana trafficking citations declined by 34.4% from Q1 2017 through Q4 2021 and increased by 6.4% from Q3 2021 through Q4 2021.
- Marijuana (cannabis)-related deaths increased by 175% from Q1 2017 through Q4 2021 and by 22.2% from Q3 2021 through Q4 2021; all involved polydrug use.
- Marijuana-related emergency department visits decreased by 6.1% from Q1 2017 through Q4 2021 and rose by 14.8% from Q3 2021 through Q4 2021.
- Marijuana-related inpatient hospitalizations declined 12.1% from Q1 2017 through Q4 2021 and no change was observed from Q3 2021 through Q4 2021.
- Tested lab submissions positively identifying marijuana decreased 18.2% from Q1 2017 through Q4 2021 and 23.9% from Q3 2021 through Q4 2021. Marijuana accounted for 8.1% of the total tested submissions from Q1 2017 through Q4 2021 (data not shown).
- Marijuana use and distribution are prevalent across Kentucky, even as declines were observed in marijuana-related events from the beginning of 2017 through Q3 2021 as well as from Q3 2021 through Q4 2021 (31% and 3.7%, respectively).

## General Drug Overdose-Related Events



\*A large emergency medical services (EMS) agency began reporting to the Kentucky State Ambulance Reporting System in January 2018. Data are provisional and subject to change. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Drug overdose-related emergency department visits represent encounters of care among Kentucky residents and could be greater than the number of individual patients treated. EMS suspected overdose encounters, which represent encounters of care and could be greater than the number of individual patients treated, are based on scans of free-text fields and medication fields (for naloxone/Narcan administration with indicated positive response) and on state of incident (Kentucky). Data sources: Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services; Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services; Kentucky State Ambulance Reporting System, Kentucky Board of Emergency Medical Services.

### Key Findings:

- Statewide drug overdose-related deaths increased by 17% from Q1 2017 through Q4 2020; a 9.8% decline was observed from Q3 2021 through Q4 2021.
- Drug overdose-related hospitalizations declined by 29.7% from Q1 2017 through Q4 2021 and by 3.8% from Q3 2021 through Q4 2021.
- Drug overdose-related ED visits declined by 28.9% from Q1 2017 through Q4 2021 and by 12.5% from Q3 2021 through Q4 2021.
- Emergency medical services (EMS) suspected drug overdose-related encounters increased by 28.3% from Q1 2017 through Q4 2021. A 17.3% decrease in EMS encounters occurred from Q3 2021 through Q4 2021.
- Among the law enforcement agencies currently reporting, 1,786 naloxone doses were administered from December 12, 2018, through December 31, 2021 (data not shown).
- Drug use, misuse, and distribution are still affecting Kentuckians, even as an 8.8% decrease in general drug overdose-related events was observed from Q1 2017 through Q4 2021; a 13.5% decrease occurred from Q3 2021 through Q4 2021.

## K-SURE Data Matrix

	<b>Emergency Department (ED) Visits</b>	<b>Inpatient Hospitalizations</b>	<b>Deaths</b>	<b>Possession Citations</b>	<b>Trafficking Citations</b>	<b>Crime Lab Submissions</b>
<b>Heroin</b>	T401	T401	T401	KRS: 35120, 35121, 42195, 42196, 42205, 42206	KRS: 35100, 35101, 42105, 42106, 42376, 42377, 42378, 42379, 42466, 42468, 42470, 42480, 42483, 42486	Tested lab submissions represent those substances submitted to the lab for identification purposes; quantity is not reflected.
<b>Opioids</b>	T400, T402, T403, T404, T4060, T4069	T400, T402, T403, T404, T4060, T4069	T400, T402, T403, T404, T406	KRS: 35220, 35221, 42197, 42198, 42209, 42210, 42237, 42238, 42246	KRS: 35200, 35201, 42109, 42110, 42372, 42373, 42374, 42375, 42435, 42436, 42437, 42438, 42137, 42138	
<b>Methamphetamine</b>			Text scan	KRS: 42187, 42188, 42215, 42216	KRS: 42113, 42114, 42290, 42291, 42364, 42365, 42366, 42367	
<b>Cocaine</b>	T405	T405	T405	KRS: 35320, 35321, 42193, 42194, 42203, 42204	KRS: 35300, 35301, 42103, 42104, 42368, 42369, 42370, 42371	
<b>Fentanyl and Fentanyl Analogs</b>			T404 and text scan; Fentanyl Analogs: Methylfentanyl, Methoxybutyrylfentanyl, Acetylfentanyl, Acrylfentanyl, Hydroxythiofentanyl, Butyrylfentanyl, Carfentanil, Furanylfentanyl, Para_1, Para_2, U47700		KRS: 42465, 42472, 42474, 42476, 42478, 42590, 42593, 42596, 42599	

<b>Marijuana</b>	T407X1, T407X2, T407X3, T407X4, T407X5	T407X1, T407X2, T407X3, T407X4, T407X5	T407	KRS: 42330	KRS: 42301, 42302, 42311, 42312, 42321, 42322	
<b>General Drug Overdoses</b>	T36-T50, T369, T379, T399, T414, T427, T439, T459, T479, T499	T36-T50, T369, T379, T399, T414, T427, T439, T459, T479, T499	X40-X44, X60-X64, X85, Y10-Y14			
<b>Data Sources</b>	Kentucky Outpatient Services Database Files, Office of Health Data and Analytics, Cabinet for Health and Family Services: Frankfort, Kentucky	Kentucky Inpatient Hospitalization Claims Files, Kentucky Office of Health Data and Analytics, Cabinet for Health and Family Services: Frankfort, Kentucky	Kentucky Death Certificate Database, Office of Vital Statistics, Cabinet for Health and Family Services: Frankfort, Kentucky	Kentucky Open Portal System, Kentucky State Police: Frankfort, Kentucky	Kentucky Open Portal System, Kentucky State Police: Frankfort, Kentucky	Kentucky State Police Crime Laboratory: Frankfort, Kentucky
<b>Notes</b>	The codes listed above are relevant ICD-10-CM codes. Drug overdose-related emergency department visits represent initial encounters of care among Kentucky residents and could be greater than the number of individual patients treated. Data are provisional and subject to change.	The codes listed above are relevant ICD-10-CM codes. Drug overdose-related hospitalizations represent initial encounters of care among Kentucky residents and could be greater than the number of individual patients treated in acute care facilities. Data are provisional and subject to change.	The codes listed above are relevant ICD-10 codes. Deaths are based on drug overdose-related deaths among Kentucky residents. Deaths may involve more than one drug. Data are provisional and subject to change.	Possession citations reflect violations of Kentucky Revised Statutes. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. data are provisional and subject to change.	Trafficking citations reflect violations of Kentucky Revised Statutes. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Data are provisional and subject to change.	Lab data represent submissions tested within the corresponding time frame; submission date is not reflected. Testing of submissions is based on those items supporting the highest-tier charge(s). Data are provisional and subject to change.
	<b>Emergency Department (ED) Visits</b>	<b>Inpatient Hospitalizations</b>	<b>Deaths</b>	<b>Possession Citations</b>	<b>Trafficking Citations</b>	<b>Crime Lab Submissions</b>

