



Kentucky Substance Use Research & Enforcement

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

Brief 25: Six Major Overdose-Related Substances and General Overdose-Related Events in Kentucky, January 1, 2017–March 31, 2022

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



Released November 2022

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.

This report is supported by: Centers for Disease Control and Prevention grant NU17CE924971. Report contents are solely the responsibility of the authors and do not necessarily represent the official views of the funders.

Suggested citation:

Kentucky Substance Use Research & Enforcement. Six Major Overdose-Related Substances and General Overdose-Related Events in Kentucky, January 1, 2017–March 31, 2022. *K-SURE Brief (No.25)*, November 2022.



Table of Contents

| | |
|---|-----------|
| Data Evaluation Survey | 4 |
| Heroin-Related Events | 5 |
| Opioid-Related Events | 6 |
| Methamphetamine-Related Events | 7 |
| Cocaine-Related Events | 8 |
| Fentanyl- and Fentanyl Analog-Related Events | 9 |
| Marijuana-Related Events | 10 |
| General Drug Overdose-Related Events | 11 |
| K-SURE Data Matrix | 12 |

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:

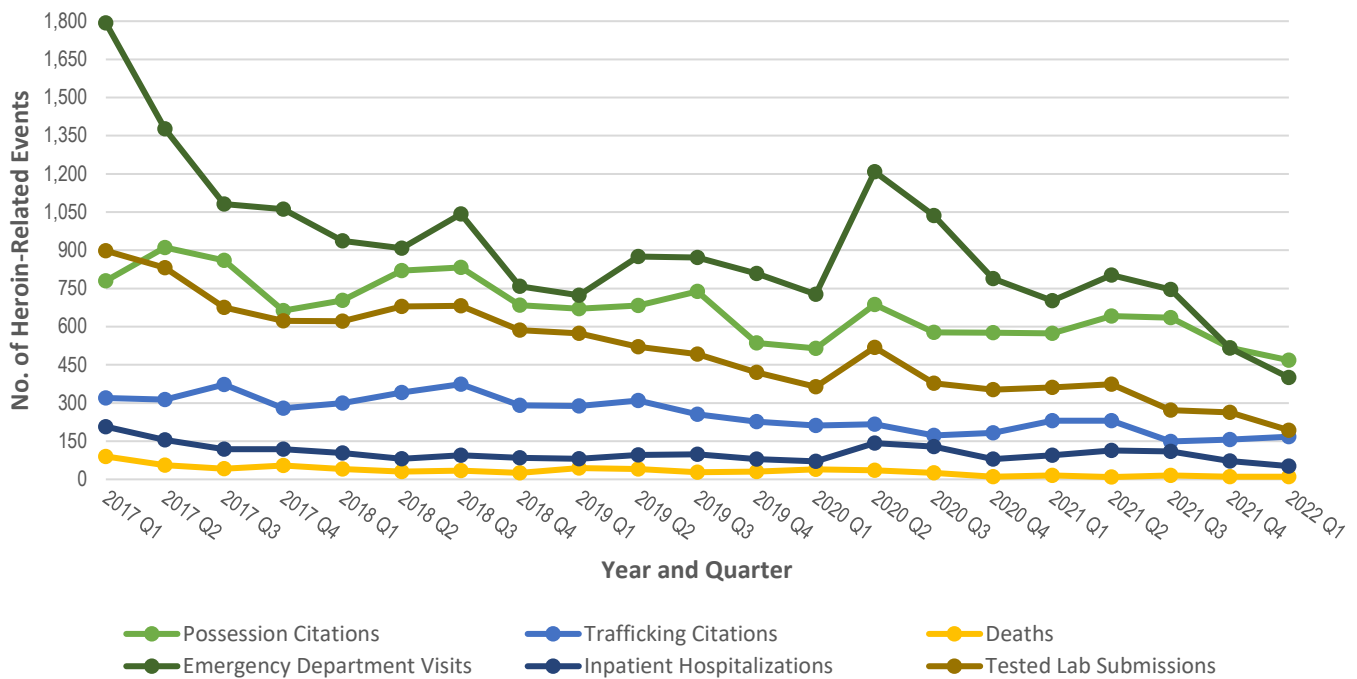
https://uky.az1.qualtrics.com/jfe/form/SV_bDzBAIOXZprzO85



Thank you in advance!

- The K-SURE Team -

Heroin-Related Events



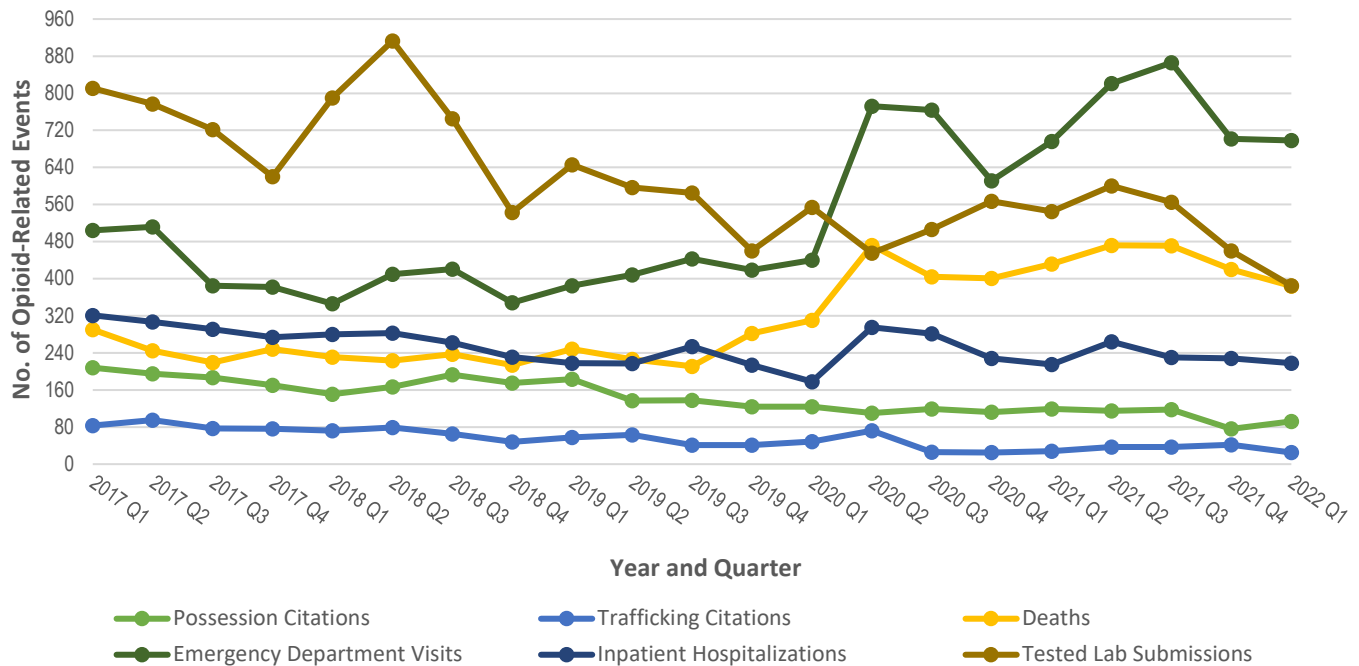
Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations 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 40% from January 2017 through March 2022 and by 9.5% from Q4 2021 through Q1 2022.
- Heroin trafficking citations decreased by 47.8% from January 2017 through March 2022 and increased by 7.1% from Q4 2021 through Q1 2022.
- Kentucky resident heroin-related deaths declined by 87.8% from January 2017 through March 2022, and there was no change in heroin-related deaths from Q4 2021 through Q1 2022.
- Both heroin-related emergency department (ED) visits and inpatient hospitalizations declined from January 2017 through March 2022 (by 77.7% and 74.9%, respectively) and from Q4 2021 through Q1 2022 (by 22.5% and 27.8%, respectively).
- Heroin-related tested lab submissions decreased 78.5% from January 2017 through March 2022 (heroin accounted for 7.6% of the total tested submissions from January 2017 through March 2022 [data not shown]) and decreased 26.6% from Q4 2021 through Q1 2022.
- Overall, total heroin-related events (possession and trafficking citations, deaths, ED visits, hospitalizations, and tested lab submissions) decreased by 68.4% from the beginning of 2017 through the end of March 2022. Heroin-related events decreased by 15.9% from Q4 2021 through Q1 2022.

Opioid-Related Events

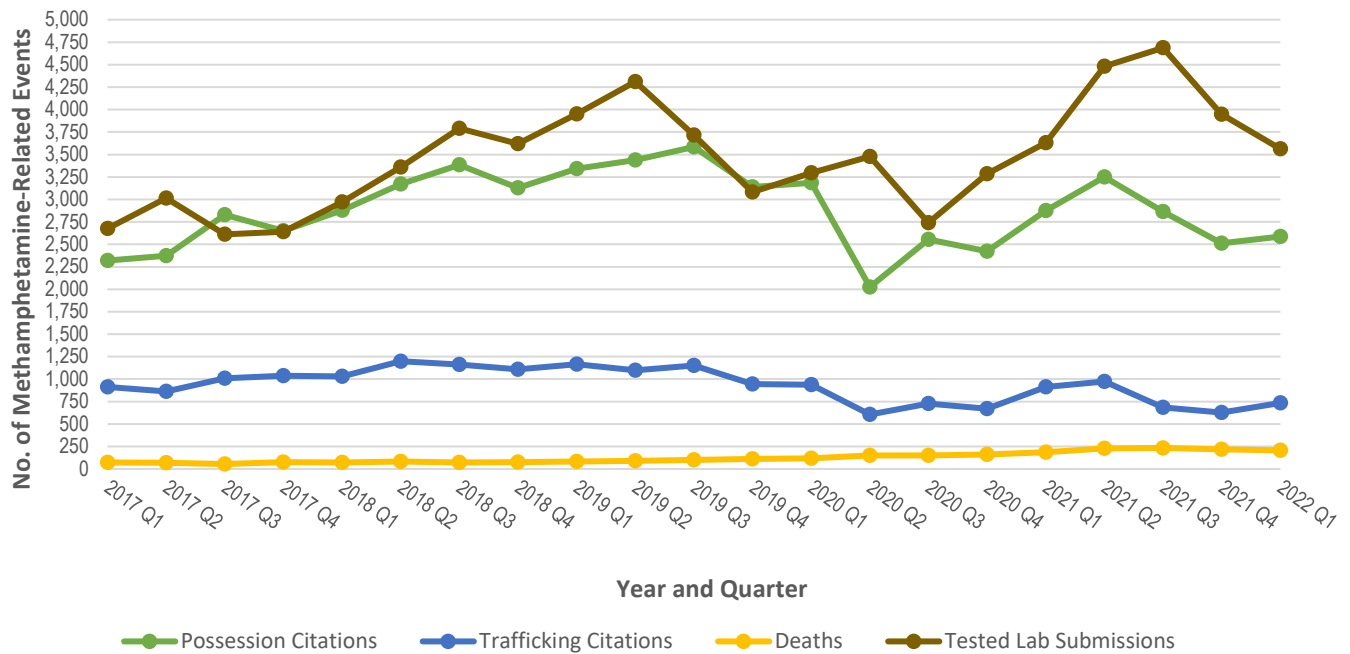


Data are provisional and subject to change. Opioid-related events reflect non-heroin- and non-fentanyl-related opioids. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related 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 55.8% from Q1 2017 through Q1 2022 and increased by 21.1% from Q4 2021 through Q1 2022.
- Opioid trafficking citations decreased by 69.9% from Q1 2017 through Q1 2022 and by 40.5% from Q4 2021 through Q1 2022.
- Kentucky resident opioid-related deaths increased by 32.4% from Q1 2017 through Q1 2022 and decreased by 8.6% from Q4 2021 through Q1 2022.
- Opioid-related ED visits increased by 38.5% from Q1 2017 through Q1 2022 and decreased by 0.6% from Q4 2021 through Q1 2022.
- Opioid-related inpatient hospitalizations declined by 32.1% from Q1 2017 through Q1 2022 and by 4.4% from Q4 2021 through Q1 2022.
- Tested lab submissions that positively identified opioids decreased by 52.5% from 2017 through Q1 2022 and by 16.3% from Q4 2021 through Q1 2022. Opioids accounted for 9.1% of the total tested submissions from Q1 2017 through Q1 2022 (data not shown).
- Opioids and their devastating effects remain prevalent throughout the Commonwealth. An 18.7% and 6.5% reduction in opioid-related events were observed from Q1 2017 through Q1 2022 and from Q4 2021 through Q1 2022, respectively.

Methamphetamine-Related Events

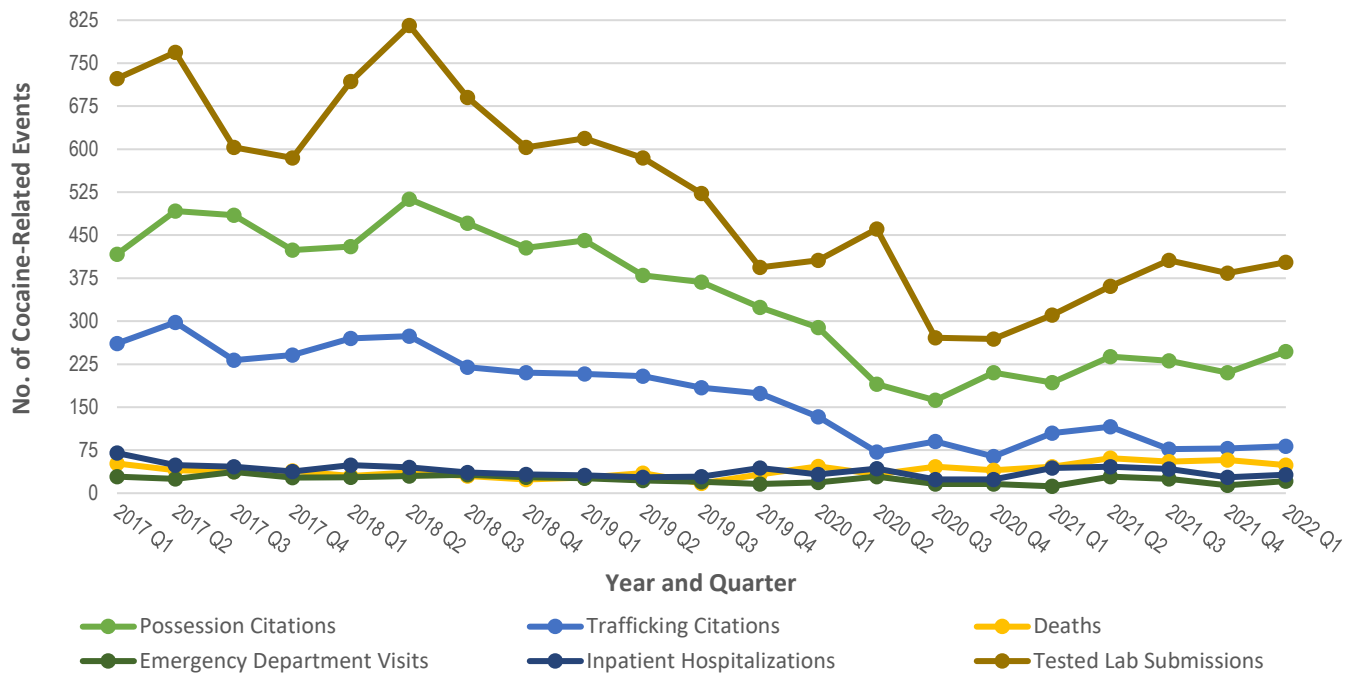


Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations 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 11.6% and trafficking citations decreased by 19.7% from Q1 2017 through Q1 2022.
- Both methamphetamine possession and trafficking citations increased from Q4 2021 through Q1 2022 (by 3% and 16.9%, respectively).
- A 187.5% increase in methamphetamine-related overdose deaths was observed among Kentucky residents from Q1 2017 through Q1 2022; all involved the use of more than one drug (polydrug use). A 5% decline in deaths occurred from Q4 2021 through Q1 2022.
- Tested lab submissions positively identifying methamphetamine increased by 33% from Q1 2017 through Q1 2022 and decreased by 9.8% from Q4 2021 through Q1 2022. Methamphetamine remains the most common drug submitted to Kentucky State Police Laboratories, accounting for 51.8% of the total tested submissions from Q1 2017 through Q1 2022 (data not shown).
- Methamphetamine use and distribution continue to threaten the Commonwealth’s safety and health, as methamphetamine-related events increased by 18.5% from Q1 2017 through Q1 2022; however, from Q4 2021 through Q1 2022 methamphetamine-related events decreased by 3%.

Cocaine-Related Events



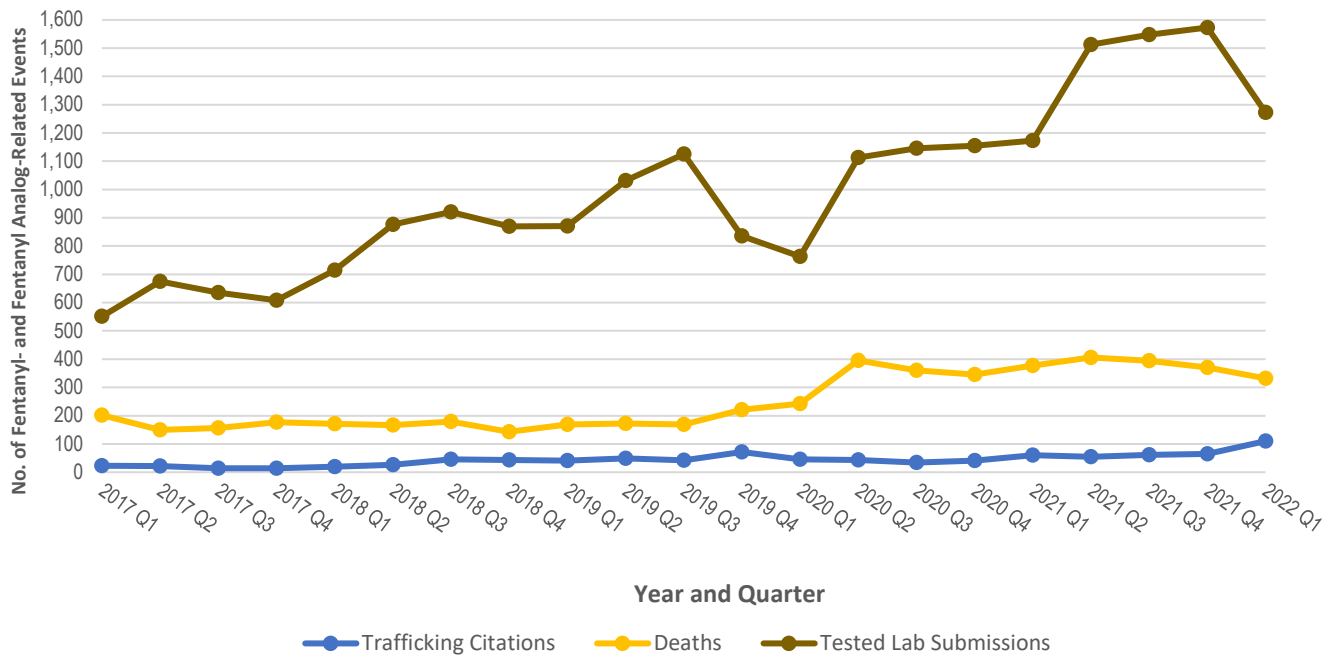
Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations 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 40.8% and 68.6%, respectively) from Q1 2017 through Q1 2022.
- Cocaine possession citations increased by 17.6% from Q4 2021 through Q1 2022, while trafficking citations increased by 5.1% during that same time period.
- Cocaine-related deaths decreased 5.8% from Q1 2017 through Q1 2022 and by 15.5% from Q4 2021 through Q1 2022.
- Cocaine-related emergency department visits declined by 27.6% from Q1 2017 through Q1 2022; an increase of 50% in emergency department visits was observed from Q4 2021 through Q1 2022.
- Cocaine-related inpatient hospitalizations declined by 54.3% from Q1 2017 through Q1 2022 and increased by 14.3% from Q4 2021 through Q1 2022.
- Tested lab submissions positively identifying cocaine decreased by 44.3% from Q1 2017 to Q1 2022; a 4.9% increase occurred from Q4 2021 through Q1 2022. Cocaine accounted for 7.7% of the total tested lab submissions from Q1 2017 through Q1 2022 (data not shown).
- Overall, cocaine-related events decreased by 46.3% from Q1 2017 through Q1 2022, and an 8% increase was observed from Q4 2021 through Q1 2022.

Fentanyl- and Fentanyl Analog-Related Events

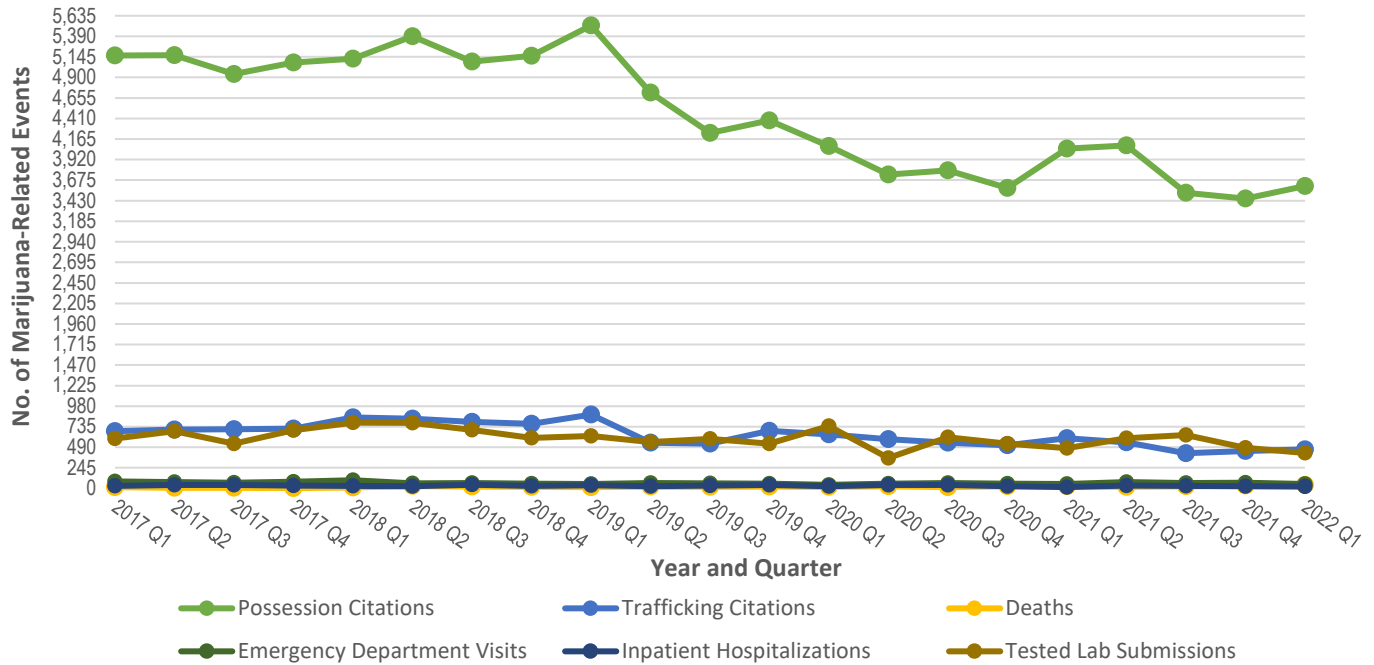


Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. There are no Kentucky Revised Statute codes for fentanyl possession. Deaths are based on drug overdose-related 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:

- Notably, fentanyl and fentanyl analog trafficking citations increased 378.3% from Q1 2017 through Q1 2022 and by 69.2% from Q4 2021 through Q1 2022. 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 64.4% from Q1 2017 through Q1 2022 and decreased by 10.3% from Q4 2021 through Q1 2022.
- Tested lab submissions positively identifying fentanyl and fentanyl analogs increased by 131% from Q1 2017 through Q1 2022 and decreased by 19.1% from Q4 2021 through Q1 2022. KSP Laboratories see several different fentanyl derivatives, along with polydrug mixtures such as heroin/fentanyl, cocaine/fentanyl, and methamphetamine/fentanyl, making up 14.9% of total tested lab submissions from Q1 2017 through Q1 2022.
- 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 121% from Q1 2017 through Q1 2022; a 14.6% decline was observed from Q4 2021 through Q1 2022.

Marijuana-Related Events



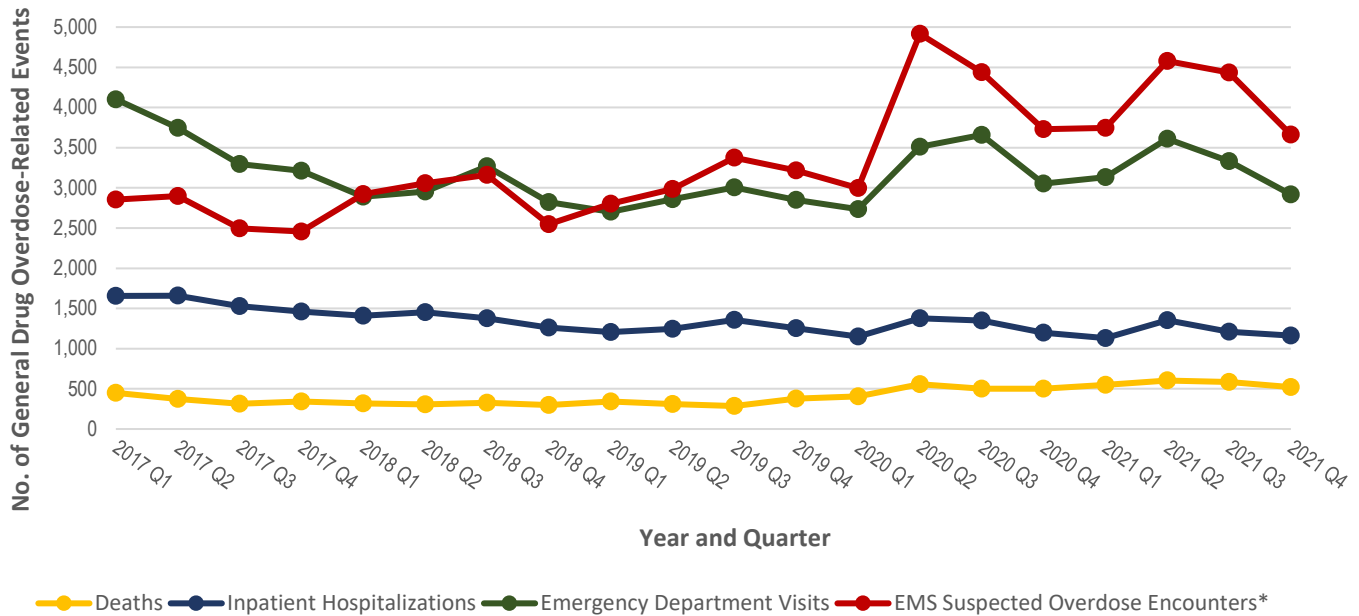
Data are provisional and subject to change. The number of citations could be greater than the number of individuals cited; citations are with over 90% of law enforcement agencies reporting. Deaths are based on drug overdose-related deaths among Kentucky residents. Drug overdose-related hospitalizations 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 30.2% from Q1 2017 through Q1 2022 and increased by 4.3% from Q4 2021 through Q1 2022.
- Marijuana trafficking citations declined by 31.6% from Q1 2017 through Q1 2022 and increased by 4.3% from Q4 2021 through Q1 2022.
- Marijuana (cannabis)-related deaths increased by 241.7% from Q1 2017 through Q1 2022 and by 24.2% from Q4 2021 through Q1 2022; all involved polydrug use.
- Marijuana-related emergency department visits decreased 34.6% from Q1 2017 through Q1 2022 and by 20.9% from Q4 2021 through Q1 2022.
- Marijuana-related inpatient hospitalizations declined 20.7% from Q1 2017 through Q1 2022 and by 4.2% from Q4 2021 through Q1 2022.
- Tested lab submissions positively identifying marijuana decreased 28.7% from Q1 2017 through Q1 2022 and 12.8% from Q4 2021 through Q1 2022. Marijuana accounted for 8.9% of the total tested submissions from Q1 2017 through Q1 2022 (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 Q1 2022 as well as from Q4 2021 through Q1 2022 (36.21% and 7.2%, 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 14.7% from Q1 2017 through Q1 2022; a 1.7% decline was observed from Q4 2021 through Q1 2022.
- Drug overdose-related hospitalizations declined by 36.2% from Q1 2017 through Q1 2022 and by 9.1% from Q4 2021 through Q1 2022.
- Drug overdose-related ED visits declined by 35.3% from Q1 2017 through Q1 2022 and by 9% from Q4 2021 through Q1 2022.
- Emergency medical services (EMS) suspected drug overdose-related encounters increased by 12.7% from Q1 2017 through Q1 2022. A 12.2% decrease in EMS encounters occurred from Q4 2021 through Q1 2022.
- Among the law enforcement agencies currently reporting, 2,028 naloxone doses were administered from December 12, 2018, through March 31, 2022 (data not shown).
- Drug use, misuse, and distribution are still affecting Kentuckians, even as a 17.9% decrease in general drug overdose-related events was observed from Q1 2017 through Q1 2022; a 10% decrease occurred from Q4 2021 through Q1 2022.

K-SURE Data Matrix

| | Emergency Department (ED) Visits | Inpatient Hospitalizations | Deaths | Possession Citations | Trafficking Citations | Crime Lab Submissions |
|--------------------------------------|---|--------------------------------------|--|--|---|--|
| Heroin | 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. |
| Opioids | 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 | |
| Methamphetamine | | | Text scan | KRS: 42187, 42188, 42215, 42216 | KRS: 42113, 42114, 42290, 42291, 42364, 42365, 42366, 42367 | |
| Cocaine | T405 | T405 | T405 | KRS: 35320, 35321, 42193, 42194, 42203, 42204 | KRS: 35300, 35301, 42103, 42104, 42368, 42369, 42370, 42371 | |
| Fentanyl and Fentanyl Analogs | | | 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 | |

| | | | | | | |
|-------------------------------|---|---|---|---|--|--|
| Marijuana | T407X1, T407X2, T407X3, T407X4, T407X5 | T407X1, T407X2, T407X3, T407X4, T407X5 | T407 | KRS: 42330 | KRS: 42301, 42302, 42311, 42312, 42321, 42322 | |
| General Drug Overdoses | 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 | | | |
| Data Sources | 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 |
| Notes | 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. |

