# Drug Overdose Inpatient Hospitalizations among Kentucky Residents, 2000-2016



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Prepared by David Akers MA, MS Peter Rock, MPH Svetla Slavova, PhD Terry L. Bunn, PhD

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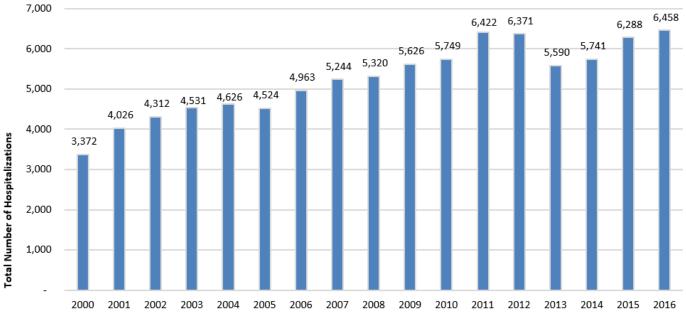
Kentucky Injury Prevention and Research Center (KIPRC), bona fide agent of the Kentucky Department for Public Health 333 Waller Avenue, Suite 242 Lexington, Kentucky 40504

> For more information contact David Akers E-mail: daak222@uky.edu

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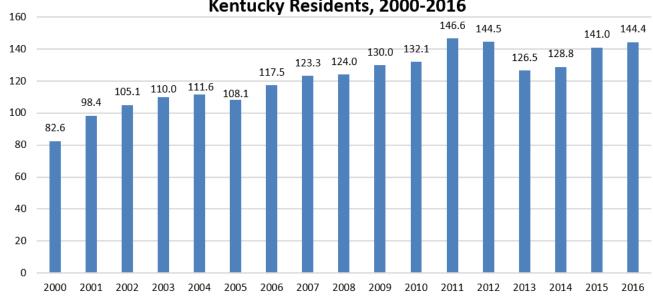
## **Executive Summary**

- 1. In 2016, there were 6,458 Kentucky resident inpatient hospitalizations (IH) for drug overdoses. This is an increase of 2.7% from the 6,288 drug overdose inpatient hospitalizations registered in 2015, following the drop from 2012. *Note:* The number of drug overdose inpatient hospitalizations represent instances of care rather than distinct patients. The state inpatient discharge data do not contain personal identifiers like names, addresses, or social security numbers in order to protect patient privacy. Thus, our counts do not necessarily correspond to the number of people who overdosed in a given year: a patient who had two overdose episodes during a given year would have two distinct inpatient hospitalizations. The counts of inpatient hospitalizations describe the burden of the drug overdose epidemic on the health care facilities and the insurers and allow for better capacity planning.
- 2. The 2016 Kentucky resident age-adjusted drug overdose inpatient hospitalization rate was 144.4 hospitalizations per 100,000 Kentucky residents, up from the 141.0/100,000 rate in 2015, and from 128.8/100,000 in 2014.
- 3. With a drug overdose inpatient hospitalization rate of 160.6/100,000, females had higher rates of inpatient hospitalizations than males (127.9/100,000).
- 4. Of all age groups 15 years of age and older, adults aged 35-44 years old and 45-54 years old were at highest risk for overdose inpatient hospitalizations (215/100,000) in 2016.
- 5. In 2016, there were 3,724 inpatient hospitalizations for unintentional (accidental) drug overdoses and 2,452 inpatient hospitalizations for intentional (self harm) drug overdoses.
- 6. The total charges associated with the ED visits for Kentucky resident drug overdoses in 2016 were \$173.9 million dollars, a 14.2% increase from the \$152.3 million dollar total in 2015. The \$173.9 million total included \$83.6 million billed to Medicaid, \$58.5 million billed to Medicare, \$24.7 million billed to commercial insurance, and \$3.9 million billed to charity or self-paid.
- 7. In 2016, opioids other than heroin were involved in the most inpatient hospitalizations. In 2016, there were 1,329 drug overdose inpatient hospitalizations involving opioids other than heroin, 1,123 involving benzodiazepines, and 528 involving heroin. When a drug overdose involved two or more drugs, the drugs were counted under each relevant drug category. From 2014-2016, heroin-related overdose inpatient hospitalizations were more frequent among the 25-34 age group. Opioids other than heroin were most often registered in drug overdose inpatient hospitalizations for Kentucky residents 55 years of age and older.
- 8. The highest rates of drug overdose inpatient hospitalizations involving opioids other than heroin were observed in the Kentucky counties in the Appalachian region. The highest rates of drug overdose ED visits involving heroin were observed in Jefferson County, Fayette County, and the northern Kentucky counties.
- The highest number of inpatient hospitalizations for drug overdoses in 2016 were reported by the following facilities: University of Kentucky Hospital (380), UK healthcare Good Samaritan Hospital (328), Owensboro Health Regional Hospital (298), University of Louisville Hospital (273), St. Elizabeth Edgewood (264), and St. Elizabeth Florence (253).



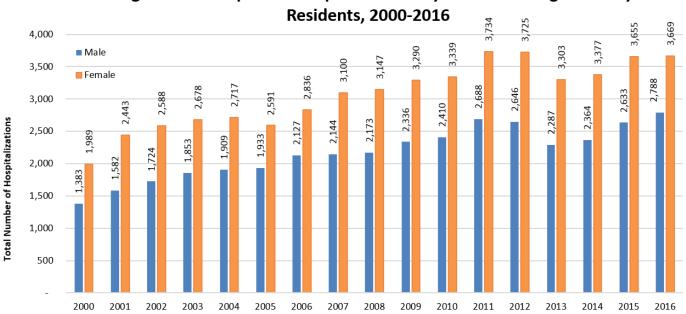
Drug Overdose Inpatient Hospitalizations among Kentucky Residents, 2000-2016

Produced by the Kentucky Injury Prevention and Research Center, a bona fide agent for the Kentucky Department for Public Health. October 2017. Data source: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Service, Office of Health Policy. Data are provisional and subject to change. Counts represent encounters of care and could be greater than the number of individual patients treated.



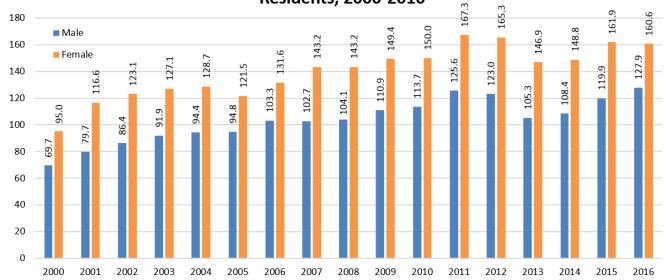
#### Age-Adjusted Drug Overdose Inpatient Hospitalization Rates among Kentucky Residents, 2000-2016

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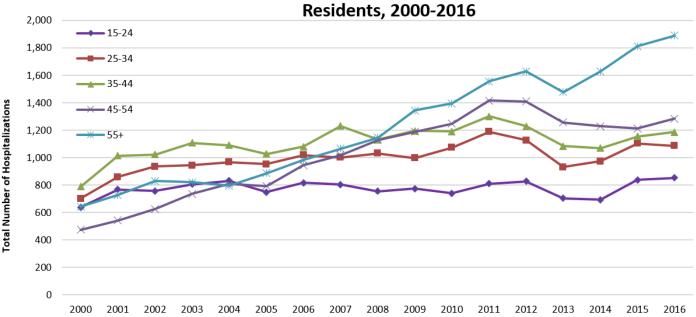
Drug Overdose Inpatient Hospitalizations by Gender among Kentucky

Produced by the Kentucky Injury Prevention and Research Center, a bona fide agent for the Kentucky Department for Public Health. October 2017. Data source: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Service, Office of Health Policy. Data are provisional and subject to change. Counts represent encounters of care and could be greater than the number of individual patients treated.



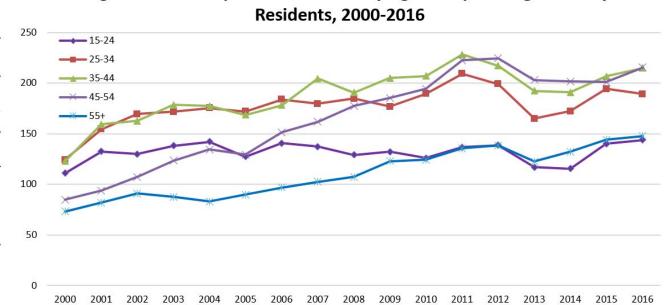
Drug Overdose Inpatient Hospitalization Rates by Gender among Kentucky Residents, 2000-2016

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Drug Overdose Inpatient Hospitalizations by Age Group among Kentucky

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Drug Overdose Hospitalization Rates by Age Group among Kentucky

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#### Drug Overdose Hospitalizations by Age Group among Kentucky Residents,

Year	Age Groups								
Tear	15-24	25-34	35-44	45-54	55+				
2007	805	1,003	1,232	1,020	1,067				
2008	755	1,032	1,133	1,131	1,148				
2009	775	998	1,196	1,189	1,344				
2010	742	1,075	1,191	1,249	1,396				
2011	811	1,190	1,302	1,418	1,558				
2012	828	1,128	1,231	1,411	1,631				
2013	704	932	1,086	1,257	1,478				
2014	694	976	1,070	1,230	1,629				
2015	839	1,105	1,155	1,212	1,812				
2016	853	1,088	1,188	1,286	1,891				
Produced by the K	antucky Iniury I	Provention and	Research Cent	er a hona fide	agent for				

#### 2007-2016

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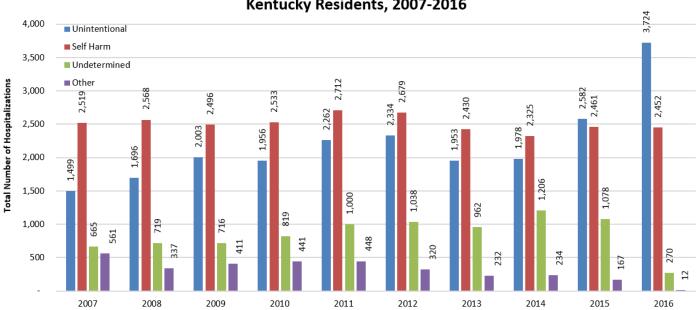
#### Drug Overdose Hospitalization Rates by Age Group among Kentucky Residents,

#### 2007-2016

Year	Age Groups								
. cui	15-24	25-34	35-44	45-54	55+				
2007	137.3	189.7	204.4	161.7	102.5				
2008	129.1	184.6	190.7	177.3	107.4				
2009	132.3	176.9	205.0	185.3	122.7				
2010	125.8	189.5	206.9	194.4	124.2				
2011	136.7	209.4	228.3	222.4	135.5				
2012	138.7	199.2	217.1	224.5	138.4				
2013	117.1	164.9	192.4	203.1	122.7				
2014	115.4	172.3	190.8	201.6	132.3				
2015	140.2	194.2	206.9	201.0	144.1				
2016	143.7	189.1	214.8	215.5	147.6				
Produced by the the Kentucky De tient Hospitaliza Policy. Data are	partment for P tion Claims File	ublic Health. O s; Cabinet for H	ctober 2017. Da lealth and Fam	ata source: Ker ily Service, Offi	ntucky Inpa- ice of Health				

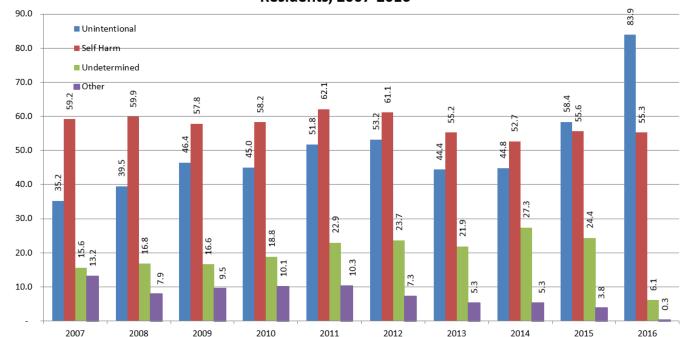
#### (Rate per 100,000 Kentucky Residents)

and could be greater than the number of individual patients treated.



Drug Overdose Inpatient Hospitalizations by Intent among Kentucky Residents, 2007-2016

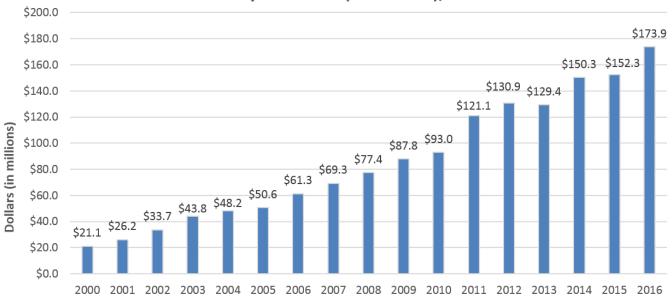
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Drug Overdose Inpatient Hospitalization Rates by Intent among Kentucky Residents, 2007-2016

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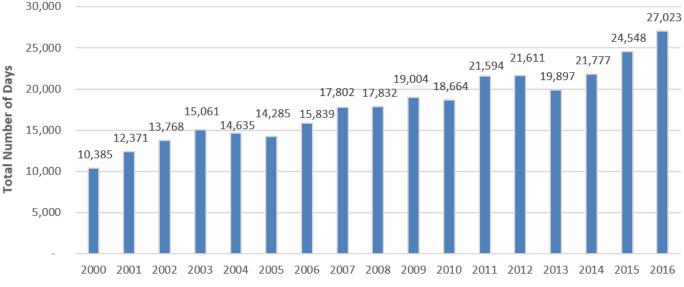
Hospitalization Rate (# hospitalizations/100,000 population)



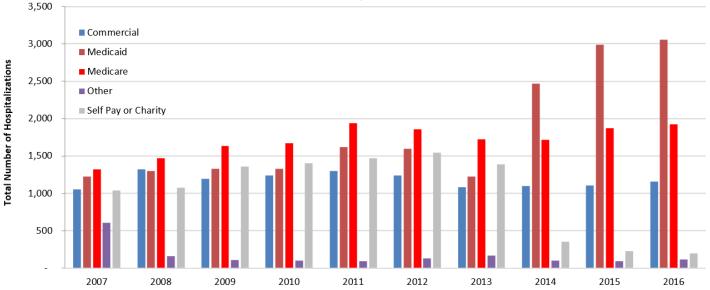
#### Total Charges for Drug Overdose Inpatient Hospitalizations among Kentucky Residents (in millions), 2000-2016

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Total Length of Stay for Drug Overdose Inpatient Hospitalizations Among Kentucky Residents, 2000-2016

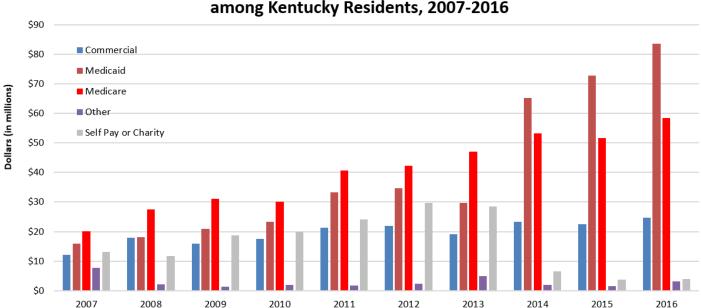


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#### Drug Overdose Inpatient Hospitalizations by Expected Payer among Kentucky Residents, 2007-2016

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Total Drug Overdose Inpatient Hospitalization Charges by Expected Payer among Kentucky Residents, 2007-2016

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	Residents, 2007-2010								
_		-							
Year	Commercial	Medicaid	Medicare	Other	Self Pay or Charity				
2007	1,057	1,226	1,318	607	1,036				
2008	1,319	1,296	1,468	158	1,079				
2009	1,197	1,330	1,633	105	1,361				
2010	1,242	1,328	1,675	100	1,404				
2011	1,302	1,616	1,941	92	1,471				
2012	1,243	1,599	1,855	129	1,545				
2013	1,082	1,227	1,724	165	1,392				
2014	1,100	2,471	1,718	100	352				
2015	1,107	2,988	1,873	96	224				
2016	1,161	3,056	1,924	116	201				

### Drug Overdose Inpatient Hospitalizations by Expected Payer among Kentucky Residents, 2007-2016

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#### Drug Overdose Inpatient Hospitalization Total Charges (in Millions) by Expected Payer among Kentucky Residents, 2007-2016

	Expected Payer									
Year	Commercial	Medicaid	Medicare	Other	Self Pay or Charity					
2007	\$12.21	\$16.02	\$20.10	\$7.83	\$13.17					
2008	\$17.95	\$18.17	\$27.46	\$2.11	\$11.70					
2009	\$15.83	\$20.82	\$31.13	\$1.27	\$18.76					
2010	\$17.48	\$23.40	\$30.08	\$2.02	\$19.99					
2011	\$21.36	\$33.36	\$40.61	\$1.78	\$24.02					
2012	\$21.98	\$34.61	\$42.26	\$2.28	\$29.75					
2013	\$19.19	\$29.77	\$47.06	\$4.93	\$28.48					
2014	\$23.40	\$65.16	\$53.27	\$1.99	\$6.52					
2015	\$22.57	\$72.67	\$51.72	\$1.58	\$3.78					
2016	\$24.74	\$83.62	\$58.46	\$3.18	\$3.87					

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#### Kentucky Residents, 2012-2016 Male Female Heroin Opioids other than Hero-Drug Type (not mutu-in ally exclusive, see below) Benzodiazepines 1,030 Cocaine Heroin & Another Opioid Heroin & Benzodiaze-pines Heroin & Cocaine Opioids other than Hero-Drug Combinations in & Benzodiazepines Opioids other than Hero-in & Cocaine Benzodiazepines & Co-

# Drug Overdose Inpatient Hospitalizations by Drug Type, Gender, and Year among

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caine

## Drug Overdose Inpatient Hospitalizations by Drug Type and Quarter

#### among Kentucky Residents,

		-	-		
	2015Q4	2016Q1	2016Q2	2016Q3	2016Q4
All Drug overdose	1,708	1,607	1,703	1,644	1,504
Heroin	121	112	132	139	145
Methadone	30	32	22	25	18
Synthetic Opioids	22	29	48	51	36
Benzodiazepines	306	312	291	272	248
Cocaine	42	50	60	58	54

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# Drug Overdose Inpatient Hospitalizations by Drug Type and Age Group among Kentucky Residents, 2014-2016 Combined

			Age Group						
	Drug Type (not mutually exclusive, see below)	15-24	25-34	35-44	45-54	55+			
	Heroin	200	496	288	205	87			
Drug Type (not mutually	Pharmaceutical Opioids	190	443	609	856	1,468			
exclusive, see below)	Benzodiazepines	276	625	792	897	1,019			
	Cocaine	56	169	144	151	120			
	Heroin & Pharmaceutical Opioids	10	14	19	12	*			
	Heroin & Benzodiazepines	23	41	31	17	*			
<b>Drug Combinations</b> (not mutually exclusive, see	Heroin & Cocaine	14	32	22	20	*			
below)	Pharmaceutical Opioids & Benzodiazepines	47	175	233	289	352			
·	Pharmaceutical Opioids & Cocaine	9	43	43	35	24			
	Benzodiazepines & Cocaine	12	49	43	31	24			

\* indicates a count less than 5 suppressed in accordance with the state data release policy.

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#### **Drug Overdose Inpatient Hospitalizations among**

#### Kentucky Residents, 2014-2016 Combined

		7	D Visits						
Age Group	Intent	by Payer Source							
Age Gloup	intent				Self-Pay		Total		
		Commercial	Medicaid	Medicare	or Charity	Other			
15-24	Self-Harm	634	777	22	87	26	1,546		
15-24	Unintentional	153	333	11	41	9	547		
25.24	Self-Harm	249	868	115	98	36	1,366		
25-34	Unintentional	146	860	86	23	91	1,206		
25.44	Self-Harm	324	846	249	83	25	1,527		
35-44	Unintentional	161	813	229	67	18	1,288		
AF FA	Self-Harm	336	660	360	56	30	1,442		
45-54	Unintentional	226	806	546	45	19	1,642		
FF.	Self-Harm	210	255	592	18	22	1,097		
55+	Unintentional	360	585	2,404	29	56	3,434		

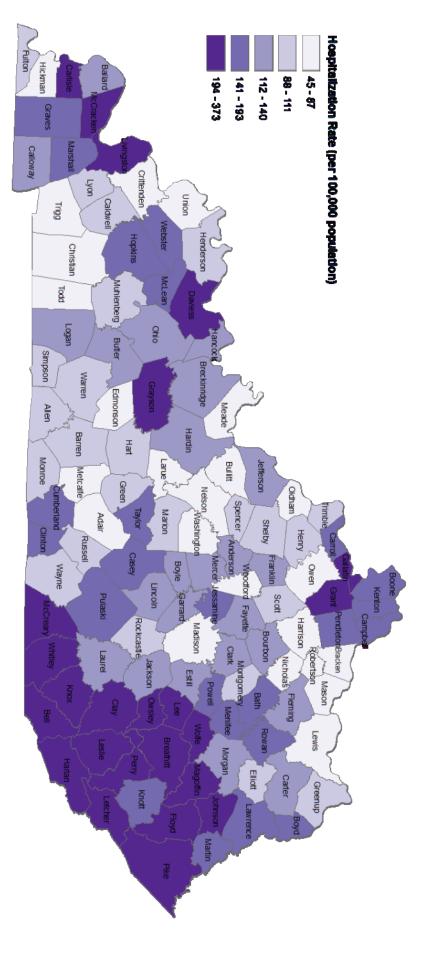
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# Annual Rate of Drug Overdose Inpatient Hospitalizations among Kentucky Residents, 2012-2016





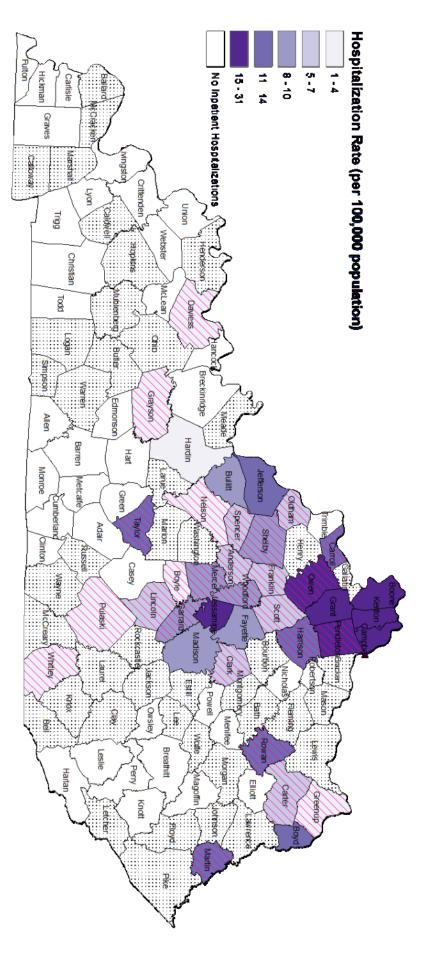


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Annual Rate of Drug Overdose Inpatient Hospitalizations involving Heroin among Kentucky Residents, 2012-2016





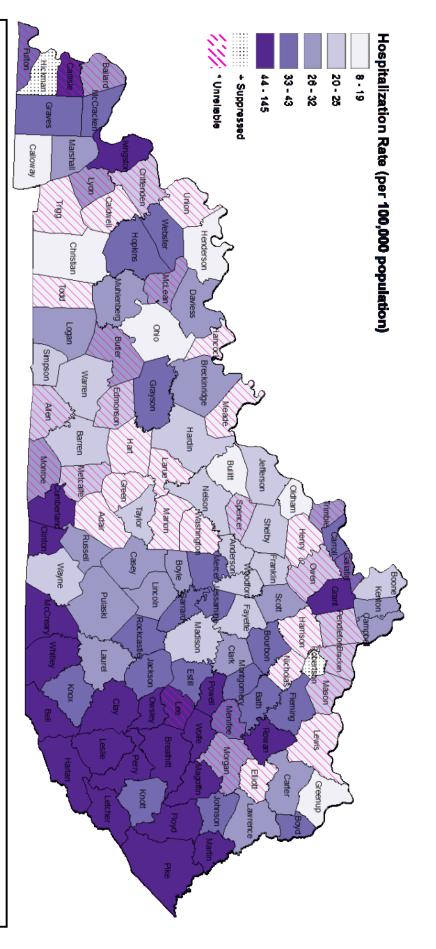
\* Rates based on counts less then 20 are unreliable, and should be interpreted with caution. + Rates based on counts less than 5 were suppressed according to the state data release policy.

the number of individual patients treated. Kentucky Inpatient Services Database, Office of Health Policy. Data are provisional and subject to change. Counts represent encounters of care and could be greater than Note: Produced by the Kentucky Injury Prevention and Research Center. a bona fide agent for the Kentucky Department for Public Health. October 2017. Data source:



Annual Rate of Drug Overdose Inpatient Hospitalizations involving Opioids other than Heroin among Kentucky Residents, 2012-2016





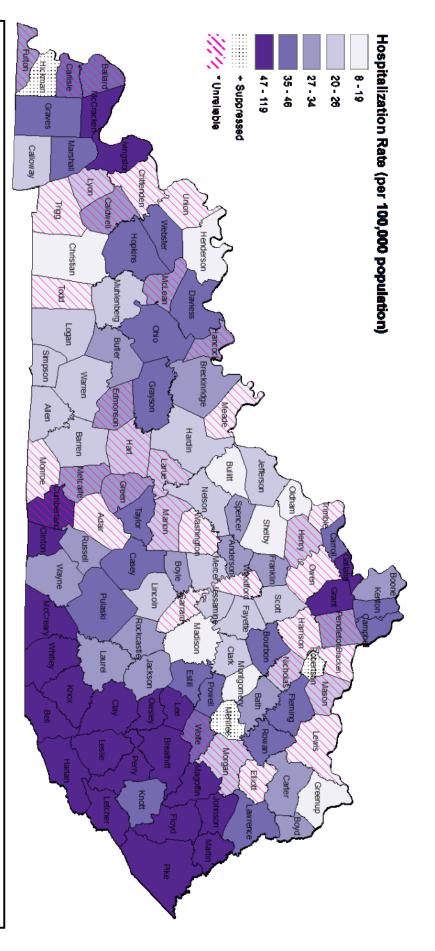
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Annual Rate of Drug Overdose Inpatient Hospitalizations involving Benzodiazepines among Kentucky Residents, 2012-2016





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Country	All Drugs		Heroin		Pharmaceutical Opioids		Benzodiazepines	
County	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Adair	77	80.39	0	0.00	15	15.66+	15	15.66+
Allen	97	95.00	0	0.00	19	18.61+	22	21.55
Anderson	132	120.73	6	5.49+	27	24.69	29	26.52
Ballard	53	129.02	<5	*	13	31.65+	14	34.08+
Barren	198	91.48	0	0.00	51	23.56	47	21.72
Bath	95	156.85	<5	*	26	42.93	20	33.02
Bell	305	220.41	<5	*	114	82.38	102	73.71
Boone	913	145.32	98	15.60	150	23.87	201	31.99
Bourbon	140	139.97	<5	*	33	32.99	35	34.99
Boyd	430	176.53	35	14.37	83	34.08	65	26.69
Boyle	189	127.49	6	4.05+	38	25.63	45	30.35
Bracken	34	80.91	<5	*	10	23.80+	6	14.28+
Breathitt	173	256.75	0	0.00	61	90.53	42	62.33
Breckinridge	124	124.00	0	0.00	26	26.00	30	30.00
Bullitt	328	84.40	27	6.95	55	14.15	62	15.95
Butler	82	127.85	<5	*	17	26.51+	22	34.30
Caldwell	63	98.76	<5	*	10	15.68+	17	26.65+
Calloway	224	116.97	<5	*	25	13.05	45	23.50
Campbell	684	149.58	130	28.43	126	27.55	162	35.43
Carlisle	51	205.91	0	0.00	11	44.41+	9	36.34+
Carroll	98	181.89	6	11.14+	20	37.12	24	44.55
Carter	163	119.45	8	5.86+	40	29.31	36	26.38
Casey	125	156.96	0	0.00	25	31.39	27	33.90
Christian	184	49.77	0	0.00	35	9.47	46	12.44
Clark	210	117.63	10	5.60+	48	26.89	46	25.77
Clay	300	283.56	<5	*	124	117.20	122	115.31
Clinton	82	161.22	0	0.00	28	55.05	31	60.95
Crittenden	38	82.51	0	0.00	11	23.88+	8	17.37+
Cumberland	63	185.85	0	0.00	21	61.95	19	56.05+
Daviess	956	193.67	5	1.01+	127	25.73	211	42.75
Edmonson	50	82.74	0	0.00	12	19.86+	18	29.79+
Elliott	34	88.76	0	0.00	7	18.27+	6	15.66+
Estill	98	136.05	<5	*	28	38.87	28	38.87
Fayette	1960	125.83	153	9.82	343	22.02	383	24.59
Fleming	95	130.65	<5	*	25	34.38	27	37.13

	All Drugs	All Drugs		Heroin		Pharmaceutical Opioids		Benzodiazepines	
County	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Floyd	410	214.98	<5	*	162	84.94	140	73.41	
Franklin	348	139.25	17	6.80+	52	20.81	65	26.01	
Fulton	34	107.54	0	0.00	13	41.12+	10	31.63+	
Gallatin	85	198.99	<5	*	14	32.78+	29	67.89	
Garrard	107	125.51	7	8.21+	31	36.36	16	18.77+	
Grant	290	234.77	31	25.10	54	43.72	60	48.57	
Graves	280	149.82	0	0.00	63	33.71	66	35.31	
Grayson	256	196.23	5	3.83+	52	39.86	44	33.73	
Green	54	97.10	0	0.00	10	17.98+	15	26.97+	
Greenup	190	104.81	8	4.41+	32	17.65	28	15.45	
Hancock	51	117.03	0	0.00	5	11.47+	13	29.83+	
Hardin	621	115.46	20	3.72	106	19.71	125	23.24	
Harlan	345	246.15	0	0.00	89	63.50	102	72.78	
Harrison	76	81.59	13	13.96+	12	12.88+	15	16.10+	
Hart	83	89.68	0	0.00	14	15.13+	19	20.53+	
Henderson	228	98.36	<5	*	43	18.55	38	16.39	
Henry	78	100.47	<5	*	14	18.03+	15	19.32+	
Hickman	11	46.90+	0	0.00	<5	*	<5	*	
Hopkins	415	179.04	<5	*	94	40.55	107	46.16	
Jackson	80	119.79	<5	*	22	32.94	21	31.44	
Jefferson	5097	134.18	549	14.45	886	23.32	899	23.67	
Jessamine	358	140.35	38	14.90	88	34.50	66	25.87	
Johnson	238	204.47	<5	*	41	35.22	61	52.41	
Kenton	1556	190.46	253	30.97	253	30.97	326	39.90	
Knott	153	192.65	0	0.00	31	39.03	30	37.77	
Knox	430	270.95	<5	*	55	34.66	81	51.04	
Larue	56	79.28	<5	*	13	18.40+	18	25.48+	
Laurel	367	122.44	<5	*	94	31.36	85	28.36	
Lawrence	115	144.93	<5	*	22	27.72	29	36.55	
Lee	69	200.12	<5	*	17	49.30+	21	60.90	
Leslie	120	220.82	0	0.00	38	69.93	35	64.41	
Letcher	303	259.18	<5	*	55	47.05	56	47.90	
Lewis	33	48.37	<5	*	7	10.26+	6	8.79+	
Lincoln	142	116.28	7	5.73+	37	30.30	30	24.57	

<b>_</b>	All Drugs	All Drugs		Heroin		Pharmaceutical Opioids		Benzodiazepines	
County	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Livingston	94	201.01	0	0.00	22	47.04	29	62.01	
Logan	150	112.12	<5	*	36	26.91	31	23.17	
Lyon	42	100.90	0	0.00	12	28.83+	10	24.02+	
McCracken	747	228.82	<5	*	134	41.05	185	56.67	
McCreary	174	194.96	<5	*	43	48.18	45	50.42	
McLean	68	143.27	0	0.00	12	25.28+	16	33.71+	
Madison	357	81.76	34	7.79	86	19.70	58	13.28	
Magoffin	165	256.08	0	0.00	31	48.11	45	69.84	
Marion	86	88.22	<5	*	12	12.31+	19	19.49+	
Marshall	242	155.07	<5	*	43	27.55	71	45.49	
Martin	119	190.73	7	11.22+	38	60.91	33	52.89	
Mason	66	76.62	<5	*	17	19.73+	18	20.90+	
Meade	78	54.26	<5	*	17	11.83+	12	8.35+	
Menifee	45	141.85	0	0.00	12	37.83+	<5	*	
Mercer	122	113.96	8	7.47+	39	36.43	26	24.29	
Metcalfe	43	86.14	0	0.00	11	22.04+	14	28.05+	
Monroe	53	99.14	0	0.00	14	26.19+	10	18.71+	
Montgomery	138	100.76	<5	*	47	34.32	23	16.79	
Morgan	86	128.56	<5	*	17	25.41+	16	23.92+	
Muhlenberg	174	111.48	<5	*	49	31.39	38	24.35	
Nelson	196	87.35	9	4.01+	43	19.16	45	20.06	
Nicholas	27	76.47	0	0.00	6	16.99+	8	22.66+	
Ohio	157	130.01	<5	*	22	18.22	44	36.44	
Oldham	231	72.33	17	5.32+	31	9.71	42	13.15	
Owen	44	82.45	9	16.86+	10	18.74+	9	16.86+	
Owsley	85	373.46	0	0.00	33	144.99	27	118.63	
Pendleton	104	143.36	14	19.30+	15	20.68+	19	26.19+	
Perry	457	328.57	0	0.00	71	51.05	69	49.61	
Pike	626	199.39	<5	*	189	60.20	199	63.39	
Powell	101	163.08	0	0.00	33	53.28	22	35.52	
Pulaski	468	146.77	8	2.51+	91	28.54	131	41.08	
Robertson	9	82.17+	0	0.00	<5	*	<5	*	
Rockcastle	92	108.92	<5	*	30	35.52	22	26.05	
Rowan	228	187.64	15	12.34+	57	46.91	50	41.15	
Russell	94	106.31	<5	*	26	29.41	24	27.14	

<b>a</b> .	All Drugs	All Drugs		Heroin		Pharmaceutical Opioids		Benzodiazepines	
County	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Scott	275	107.11	16	6.23+	72	28.04	59	22.98	
Shelby	221	98.29	17	7.56+	44	19.57	32	14.23	
Simpson	92	103.05	<5	*	20	22.40	19	21.28+	
Spencer	94	105.63	6	6.74+	19	21.35+	24	26.97	
Taylor	182	143.79	14	11.06+	29	22.91	53	41.87	
Todd	35	56.16	0	0.00	8	12.84+	7	11.23+	
Trigg	37	51.87	0	0.00	8	11.22+	7	9.81+	
Trimble	40	91.42	0	0.00	13	29.71+	7	16.00+	
Union	34	45.14	0	0.00	6	7.97+	6	7.97+	
Warren	660	109.03	<5	*	121	19.99	144	23.79	
Washington	46	76.56	<5	*	8	13.31+	9	14.98+	
Wayne	110	107.02	<5	*	20	19.46	31	30.16	
Webster	98	147.02	0	0.00	25	37.51	29	43.51	
Whitley	449	250.54	7	3.91+	127	70.87	104	58.03	
Wolfe	72	199.41	<5	*	20	55.39	16	44.31+	
Woodford	108	84.40	9	7.03+	29	22.66	19	14.85+	

\* Rates based on counts <5 were suppressed according to the state data release policy.

+ Rates based on counts less than 20 are unreliable, and should be interpreted with caution.

Produced by the Kentucky Injury Prevention and Research Center, a bona fide agent for the Kentucky Department for Public Health. October 2017. Data source: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Service, Office of Health Policy. Data are provisional and subject to change. Counts represent encounters of care and could be greater than the number of individual patients treated.

# Discharge Status for Drug Overdose Inpatient Hospitalizations by Year

among Kentucky Residents,	2012-2016
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Discharge Status	Year					
	2012	2013	2014	2015	2016	Total
Routine discharge (home/self care)	3,995	3,484	3,652	3,922	3,964	19,017
Inpatient-other short-term hospital	129	121	160	223	201	834
Skilled nursing facility (SNF)	165	182	188	228	211	974
Intermediate care facility (ICF)	29	12	10	14	15	80
Designated cancer center or children's hospital	89	65	52	52	36	294
Home health	275	227	279	298	324	1,403
Left/discontinued care against medical advice	338	261	274	357	436	1,666
Expired/did not recover	104	110	126	164	195	699
Discharge/transfer to court/law enforcement	115	72	56	80	209	853
Discharge/transfer to a federal hospital	16	9	11	5	9	50
Discharge/transfer to a rehab facility or a hospital unit	60	69	68	80	109	386
Discharge/transfer to a psychiatric hospital or a psychi- atric unit of a hospital	961	889	720	741	697	4,008
Other	95	89	145	124	52	184
Total	6,371	5,590	5,741	6,288	6,458	30,448

represent encounters of care and could be greater than the number of individual patients treated.

Drug Overdose Inpatient Hospi	talizations b	y Hospita	l among l	Kentucky		
Residents, 2012-2016						
Hospital	2012	2013	2014	2015	2016	
Baptist Health Corbin	123	93	103	106	92	
Baptist Health La Grange	21	21	13	18	12	
Baptist Health Lexington	99	83	96	114	108	
Baptist Health Louisville	229	219	223	247	251	
Baptist Health Madisonville	119	98	95	111	136	
Baptist Health Paducah	100	56	57	65	64	
Baptist Health Richmond	0	29	45	42	39	
Barbourville ARH Hospital	88	43	77	59	39	
Bluegrass Community Hospital	*	*	0	*	*	
Bourbon Community Hospital	19	23	19	18	19	
Breckinridge Memorial Hospital	*	5	*	*	*	
Caldwell Medical Center	*	*	*	*	*	
Carroll County Memorial Hospital	*	5	*	0	*	
Casey County Hospital	10	*	*	*	*	
Clark Regional Medical Center	46	30	33	27	31	
Commonwealth Regional Specialty Hospital	0	*	0	0	*	
ContinueCARE Hospital at Baptist Health Corbin	0	0	0	*	*	
ContinueCARE Hospital at Baptist Health Madisonville	0	0	0	0	*	
Continuing Care Hospital	0	0	0	*	0	
Crittenden Health System	5	*	*	*	*	
Cumberland County Hospital	16	6	6	7	12	
Ephraim McDowell Fort Logan Hospital	*	0	0	*	0	
Ephraim McDowell Regional Medical Center	98	88	93	102	121	
Flaget Memorial Hospital	22	25	19	16	12	
Fleming County Hospital	6	9	12	10	6	
Frankfort Regional Medical Center	63	75	71	66	76	
Georgetown Community Hospital	36	36	39	36	28	
Hardin Memorial Health	139	136	148	161	154	
Harlan ARH Hospital	69	46	64	71	76	
Harrison Memorial Hospital	13	6	*	*	7	
Hazard ARH Regional Medical Center	172	123	143	157	165	
Highlands Regional Medical Center	51	40	72	46	38	
Jackson Purchase Medical Center	68	34	38	48	45	
Jane Todd Crawford Memorial Hospital	*	6	*	*	*	

#### Drug Overdose Inpatient Hospitalizations by Hospital among Kentucky Residents, 2012-2016 Hospital Jennie Stuart Medical Center Inc. Jewish Hospital Shelbyville Jewish Hospital and St. Mary's Healthcare Kentucky River Medical Center King's Daughters Medical Center Kosair Children's Hospital Lake Cumberland Regional Hospital \* \* \* \* \* Livingston Hospital and Healthcare Services \* Logan Memorial Hospital Lourdes Hospital \* \* \* Marcum and Wallace Memorial Hospital Marshall County Hospital \* \* \* \* Mary Breckinridge ARH Hospital \* McDowell ARH Hospital Meadowview Regional Medical Center Memorial Hospital Inc. Methodist Hospital \* \* Methodist Hospital Union County Middlesboro ARH Hospital \* \* Monroe County Medical Center \* \* \* Morgan County ARH Hospital Murray Calloway County Hospital \* \* Nicholas County Hospital Norton Audubon Hospital Norton Brownsboro Hospital Norton Hospital Norton Suburban Hospital \* \* \* Ohio County Hospital Our Lady Of Bellefonte Hospital Owensboro Health Muhlenberg Community Hospital **Owensboro Health Regional Hospital** \* Parkway Regional Hospital Paul B. Hall Regional Medical Center Pikeville Medical Center

# Drug Overdose Inpatient Hospitalizations by Hospital among Kentucky Residents, 2012-2016

Hospital	2012	2013	2014	2015	2016
Pineville Community Hospital	19	12	10	25	15
Rockcastle Regional Hospital and Respiratory Care Center	7	17	10	7	9
Russell County Hospital	12	7	*	6	*
Saint Joseph Berea	7	11	8	10	5
Saint Joseph East	69	68	57	56	61
Saint Joseph Hospital	106	103	75	93	95
Saint Joseph Hospital London	72	66	54	69	82
Saint Joseph Hospital Martin	*	*	*	0	*
Saint Joseph Mount Sterling	8	15	12	13	7
Select Specialty Hospital Northern Kentucky	*	*	0	0	0
Spring View Hospital	18	17	9	12	6
St. Claire Regional Medical Center	83	100	79	107	130
St. Elizabeth Edgewood	353	339	299	335	264
St. Elizabeth Florence	313	311	308	321	253
St. Elizabeth Fort Thomas	136	123	120	131	115
St. Elizabeth Grant	5	0	*	*	0
St. Elizabeth Owen	0	0	*	0	0
Sts. Mary and Elizabeth Hospital	125	161	158	147	179
T. J. Samson Community Hospital	60	45	39	55	50
T. J. Health Columbia	8	*	*	*	*
Taylor Regional Hospital	48	47	25	23	12
The James B. Haggin Memorial Hospital	*	0	*	*	6
The Medical Center at Albany	16	20	12	*	*
The Medical Center at Bowling Green	227	201	205	228	233
The Medical Center at Caverna	*	5	*	0	*
The Medical Center at Franklin	*	*	*	*	0
The Medical Center at Scottsville	*	*	*	0	*
Three Rivers Medical Center	34	21	22	26	30
Tri-Star Greenview Regional Hospital	18	15	20	22	23
Trigg County Hospital Inc.	0	0	0	*	0
Tug Valley ARH Regional Medical Center	15	19	29	25	24
Twin Lakes Regional Medical Center	47	33	37	24	31
UK Healthcare Good Samaritan Hospital	279	253	270	303	328
University of Kentucky Hospital	290	215	239	326	380

# Drug Overdose Inpatient Hospitalizations by Hospital among Kentucky Residents, 2012-2016

Hospital	2012	2013	2014	2015	2016
University of Louisville Hospital	358	302	262	260	273
Wayne County Hospital Inc.	*	0	0	*	*
Whitesburg ARH Hospital	40	41	37	53	38

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# **About This Report**

This report presents drug overdose inpatient hospitalization data among Kentucky residents treated in Kentucky facilities. The data source is the Kentucky Inpatient Hospitalization Claims Files, Cabinet for Health and Family Services, Office of Health Policy, 2000-2016 (data are provisional and subject to change). Data prior to October 1st, 2015 were coded according to the International Classification of Disease, 9<sup>th</sup> revision, Clinical Modification (ICD-9-CM, http://www.cdc.gov/nchs/icd/icd9cm.htm). The ICD-9-CM system describes a drug overdose using diagnosis codes and E-codes. The Kentucky data system includes up to 25 diagnosis code fields for each hospitalization. ICD-9-CM diagnosis codes describing drug poisonings are in the range 960-979. Drug overdose (drug poisoning) diagnoses should be supplemented (when circumstances of the overdose are known) with additional codes called external-cause-of-injury codes (E-codes). Based on the external-cause-of-injury code, a drug poisoning can be classified by intent as accidental (unintentional, E850-E858), intentional (self-harm, E950.0-E950.5; or assault, E962.0), or undetermined (E980.0-E980.5, when there is insufficient documentation in the medical chart to determine whether the drug overdose was accidental or intentional). Some drug overdose hospitalization records, however, do not list any E-codes. We treat such records as a separate category ("No E-code") when reporting the intent of the overdose. On average, 90 to 95 percent of the Kentucky drug overdose hospitalization records listed valid external-cause-ofinjury codes describing the intent of the overdose.

Starting October 1st, 2015, coding switched to International Classification of Disease, 10<sup>th</sup> revision, Clinical Modification (ICD-10-CM, https://www.cdc.gov/nchs/icd/icd10cm.htm). Diagnosis codes describing drug overdose are in the range T36-T50. Codes in the ICD-10-CM coding system have an internal structure for coding intent. Only encounters with unintentional, self-harm, assault, and undetermined intent were considered drug overdoses. Guidelines for coding intent also changed with the transition. Since the ICD-10-CM coding system does not require additional codes for intent there are no drug overdose encounters with missing intent. Also, the ICD-10-CM guidelines suggest using the undetermined intent codes less than in the previous coding system. The ICD-10-CM coding guidelines state that if the intent of the poisoning is unknown or unspecified, the intent should be coded as unintentional. The undetermined intent is only for use if the documentation in the record specifies that the intent cannot be determined.

In addition, only encounters with 7th characters A (initial encounter) and D (subsequent encounter) were considered drug overdose. Encounters with 7th character S (sequela) were excluded from the definition.

**Definition**: An inpatient hospitalization was considered a drug overdose visit if:

1) any of the ICD-9-CM codes in the range 960-979 were listed in any diagnosis; or

2) any of the ICD-9-CM codes in the range E850-E858, E950.0-E950.5, E962.0, or E980.0-E980.5 were listed in the E-code fields; or

3) any of the ICD-10-CM codes in the range T36-T50 were listed in any diagnosis, with unintentional, self-harm, assault, or undetermined intent and encounter character A or D.

Starting in 2014, Kentucky expanded Medicaid. This may account for the changes in expected payer over the time period represented in this report.

Specific drug definitions				
Type of Poison	ICD-9-CM codes	ICD-10-CM codes		
DRUG	E850-E858, E950(.05), E962.0,	T36-T50		
	E980(.05), 960-979			
-Opiates/opioids	E850(.02), 965.0	T40.1-T40.4, T40.6		
Heroin	E850.0, 965.01	T40.1		
Opioids other than heroin	E850(.12), 965(.00,.0209)	T40.2-T40.4		
—Methadone	E850.1,965.02	T40.3		
—Synthetic opioids other than methadone	No specific code	T40.4		
-Cocaine	E854.3, E855.2, 968.5, 970.81	T40.5, T41.3		
-Benzodiazepines	E853.2, 969.4	T42.4		

Limitations:

- 1. Only records for Kentucky residents treated in Kentucky hospitals were included in this report. Data for Kentucky residents treated in neighboring states were not available. Therefore, the counts and rates presented likely underestimate the full extent of drug overdoses in Kentucky.
- 2. Reported counts reflect the number of inpatient hospitalizations or encounters of care for drug overdoses, rather than number of distinct patients. The IH discharge data received by the Kentucky Injury Prevention & Research Center do not include personal identifiers such as names, addresses, or social security numbers in order to protect patient privacy. Thus, our counts do not necessarily correspond to the number of people who were treated for an overdose in a given year: a patient who had two overdose episodes requiring inpatient treatment during a given year would have two distinct in patient discharge records. The counts of hospital admissions better describe the burden of the drug overdose epidemic on the health care facilities and the insurers and allow for better capacity planning.