



Building a Bridge to Better Health, Better Care and Better Value



About IBM® MarketScan® Research Databases and analytic notes: IBM MarketScan Research Databases are a family of data sets that fully integrate many types of data for healthcare research. This data analysis summarizes findings for the Commonwealth of Kentucky compared to the US National rates that were pulled from all contributing commercial payers for calendar years 2016 to 2018. All claims were de-identified during the consolidation process to protect patient privacy.

Of the two million members with commercial insurance in the State of Kentucky in 2018 (according to the Kaiser Family Foundation), MarketScan includes about 22% of their data. We further limited our data to only active, self-insured members, Ages 18 - 64.

Index
Enrollment & Expenditures
Opioid Utilization
Opioid Utilization - Gender
Opioid Utilization - Salary
Opioid Utilization - Relationship
Opioid Utilization - Health Plan
Opioid Utilization - SA vs LA
Opioid Utilization - Annual Days Supply
Top Opioid Products
Top Conditions for Opioid Use
High Dose Opioids
Multiple Pharmacies
Overlapping Benzodiazepines
Opioid Addiction Risk
Opioid Overdose
Opioid Naloxone Rescue
Substance Abuse Treatment
Opioid MAT

Key Findings:

1. KY members make up about 2.3% of National MarketScan membership in 2018
2. KY members had lower medical PMPY allowed spend, but higher rx PMPY allowed spend for all year (2016 - 2018) when compared to national rates
3. Both KY and National opioid users are slightly older and a larger % female compared with total membership
4. Both KY and National opioid users cost significantly more in total medical and rx allowed PMPY spend compared with total membership

Enrollment & Expenditure Data

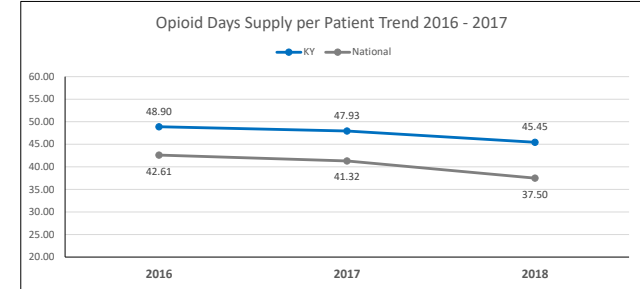
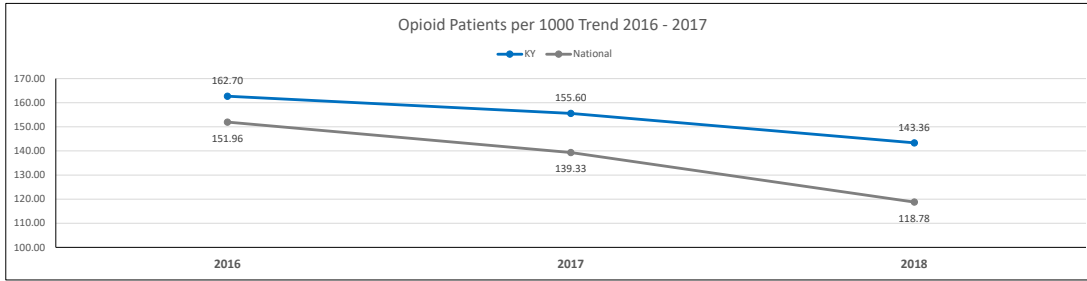
Data Type Age Group Rollup Medstat Employee Status Group Medstat Time Period: Incurred Year State Code	Commercial Fee for Service					
	Ages 18-64					
	Active					
	2018		2017		2016	
	KY	National	KY	National	KY	National
MarketScan Membership						
Members Med	347,099	15,061,984	328,997	13,203,555	337,614	14,279,012
Members Rx	344,820	14,659,073	326,340	13,040,851	327,113	13,828,620
% Male						
Members % Male	45.0%	48.8%	45.2%	48.3%	44.4%	48.1%
Employees % Male	45.0%	54.5%	45.8%	53.4%	43.4%	53.1%
Average Age						
Members Avg Age	40.4	40.5	40.4	40.5	40.6	40.5
Employees Avg Age	43.4	43.2	43.3	43.2	43.4	43.2
Average Family Size	1.55	1.63	1.55	1.65	1.53	1.66
Allowed Spend						
Allowed Amount PMPY Med	\$4,601.48	\$5,093.25	\$4,272.73	\$4,848.99	\$4,189.58	\$4,745.72
Allowed Amount PMPY Rx	\$1,767.28	\$1,516.57	\$1,594.53	\$1,427.76	\$1,463.10	\$1,350.44

Enrollment & Expenditure Data - Prescription Opioid Users

Data Type Age Group Rollup Medstat Employee Status Group Medstat Time Period: Incurred Year State Code	Commercial Fee for Service					
	Ages 18-64					
	Active					
	2018		2017		2016	
	KY	National	KY	National	KY	National
Full Opioid Patients¹	49,432	1,741,042	50,777	1,816,963	53,220	2,101,430
% Male						
Members % Male	39.0%	42.2%	39.6%	42.0%	38.7%	41.9%
Employees % Male	39.1%	47.5%	40.3%	46.6%	37.3%	46.2%
Average Age						
Members Avg Age	42.6	42.8	42.4	42.6	42.6	42.4
Employees Avg Age	44.9	45.0	44.7	44.9	44.8	44.7
Average Family Size	1.54	1.62	1.53	1.64	1.50	1.65
Allowed Spend						
Allowed Amount PMPY Med	\$12,202.93	\$14,359.99	\$11,330.72	\$12,981.11	\$10,776.83	\$12,249.92
Allowed Amount PMPY Rx	\$2,910.43	\$2,813.46	\$2,636.52	\$2,577.47	\$2,445.56	\$2,408.89
Allowed Amount PMPY Opioid Rx	\$65.99	\$88.36	\$79.60	\$102.84	\$93.94	\$118.88

Key Findings:

1. KY has a 21% higher opioid utilization rate compared to national average in 2018 - up 9 percentage points from 2017
2. KY opioid utilization decreased -11.9% from 2016 to 2018. National rates decreased -21.8%
3. KY annual average opioid supply per patient is 21% higher than national average in 2018
4. KY annual average opioid supply per patient decreased -7.0% from 2016 to 2018. National rates decreased -12.0%



Opioid Utilization

State Code	Full Opioid Patients w/ Cancer or Chemo or Hospice																				
	2018							2017							2016						
	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply Per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply Per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx				
KY	143.36	0.038	7.58	45.45	49,432	133,856	2,246,733	155.60	0.042	8.60	47.93	50,777	142,581	2,433,943	162.70	0.045	9.38	48.90	53,220	151,474	2,602,220
National	118.78	0.030	5.31	37.50	1,741,232	4,377,586	65,290,491	139.33	0.036	6.73	41.32	1,816,967	4,838,623	75,080,707	151.96	0.041	7.62	42.61	2,101,430	5,746,727	89,545,684
KY % of National Rate	+ 21%	+ 27%	+ 43%	+ 21%				+ 12%	+ 16%	+ 28%	+ 16%				+ 7%	+ 12%	+ 23%	+ 15%			

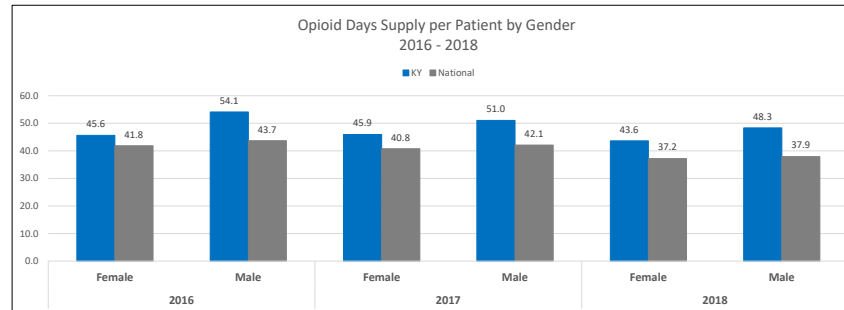
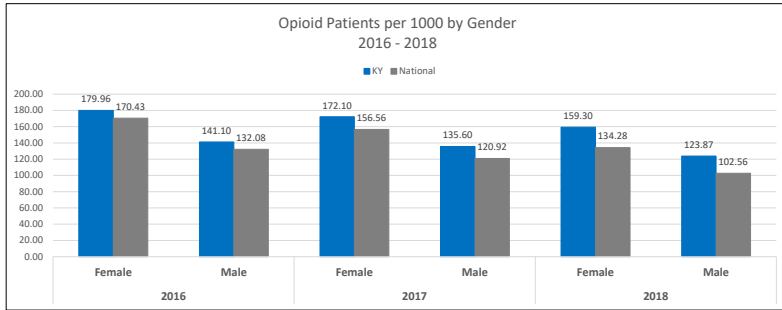
Analytic Notes

1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

Key Findings:

1. KY females had 19% higher utilization and 17% higher average annual supply of opioids compared to national rates in 2018
2. KY males had 21% higher utilization and 27% higher average annual supply of opioids compared to national rates in 2018
3. KY females had 28.6% higher opioid utilization than KY males in 2018, but -9.7% lower average annual supply of opioids
4. KY female opioid utilization decreased -11.5% from 2016 to 2018, while KY male opioid utilization decreased -12.2%. National rates decreased -21.2% for females and -22.3% for males during this same time period



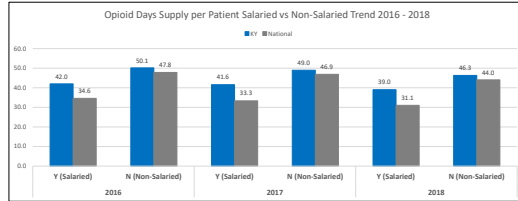
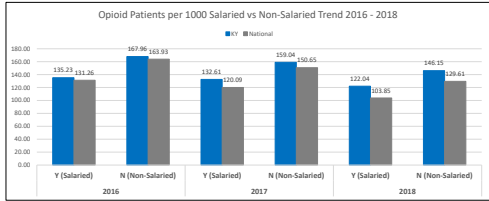
Opioid Utilization - Gender

Data Type	Commercial Fee for Service																																			
	Ages 18-64																																			
	Active																																			
	Full Opiate Patients w/o Cancer or Chemo or Hospice																																			
Time Period: Incurred Year	2018													2017																						
	KY						National						KY						National																	
State Code	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx								
Gender																																				
Female	159.30	0.04	8.04	43.6	30,210	80,141	1,317,722	134.28	0.03	5.96	37.2	1,005,763	2,533,572	37,402,972	172.10	0.05	9.07	45.9	30,766	84,775	1,412,665	156.56	0.04	7.47	40.8	1,054,636	2,807,019	43,009,210								
Male	123.87	0.03	7.01	48.3	19,222	53,715	929,011	102.56	0.03	4.64	37.9	735,282	1,843,554	27,881,907	135.60	0.04	8.03	51.0	20,011	57,806	1,021,278	120.92	0.03	5.95	42.1	762,329	2,031,585	32,071,303								
Aggregate(Gender)	143.36	0.04	7.58	45.5	49,432	133,856	2,246,733	118.77	0.03	5.31	37.5	1,741,045	4,377,126	65,284,879	155.60	0.04	8.60	47.9	50,777	142,581	2,433,943	139.33	0.04	6.73	41.3	1,816,965	4,838,604	75,080,513								
KY % of National Rate - 2018																																				
Female	+ 19%	+ 21%	+ 35%	+ 17%	Key																															
Male	+ 21%	+ 32%	+ 51%	+ 27%	KY -6% or lower than National Rate																															
					KY within -5% or +5% of National Rate																															
					KY +6% or higher than National Rate																															
KY % of National Rate - 2017																																				
Female	+ 10%	+ 12%	+ 21%	+ 13%																																
Male	+ 12%	+ 21%	+ 35%	+ 21%																																
KY % of National Rate - 2016																																				
Female																																				
Male																																				

Analytic Notes

1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

Key Findings:
 1. KY hourly (non-salaried) members had 19.8% higher opioid utilization in 2018 compared to KY salaried members. Nationally, hourly (non-salaried) members had 25% higher opioid utilization than salaried members.
 2. KY salaried members have 18% higher opioid utilization and 26% higher average annual opioid supply compared to national salaried members in 2018.
 3. KY hourly members have 13% higher opioid utilization and 5% higher average annual opioid supply compared to national hourly members in 2018.
 4. KY salaried opioid utilization is down -10% to 122.04 and KY hourly (non-salaried) opioid utilization is down -13% to 146.15 from 2016 to 2018. Both hourly (non-salaried) and salaried national opioid utilization rates are down -21% during that same time period.



Opioid Utilization - Salary

Data Type Age Group Rollup Medstat Employee Status Group Medstat Subsets Time Period: Incurred Year State Code	2018												2017												2016																	
	KY						National						KY						National						KY						National											
	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx	Pats Per 1000 Rx	Scripts PMPM Rx	Days Supply PMPY Rx	Days Supply per Patient	Patients Rx	Scripts Rx	Days Supply Rx
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N		
Salaried Indicator	122.04	0.03	5.69	39.0	4,584	11,366	178,714	103.85	0.02	3.80	31.1	491,706	1,121,977	15,227,851	132.61	0.03	6.55	41.6	5,326	13,812	221,507	120.09	0.03	4.67	33.3	549,489	1,297,221	18,303,729	135.23	0.04	7.08	42.0	5,364	13,880	226,157	131.26	0.03	5.33	34.6	604,367	1,470,410	20,923,261
Assealer (Salaried Indicator)	143.36	0.04	7.58	45.5	49,432	133,856	2,246,733	118.77	0.03	5.31	37.5	1,741,042	4,377,126	65,284,879	155.60	0.04	8.60	47.9	50,777	142,581	2,433,943	139.33	0.04	6.73	41.3	1,816,963	4,838,604	75,080,513	162.70	0.05	9.38	48.9	53,220	151,474	2,602,220	151.96	0.04	7.62	42.6	699,021	1,756,951	25,556,092

KY % of National Rate - 2018				Key			
Y (Salaried)	+18%	+30%	+50%	+26%	KY <6% or lower than National Rate		
N (Non-Salaried)	+13%	+6%	+11%	+5%	KY within -5% or +5% of National Rate		
					KY >6% or higher than National Rate		

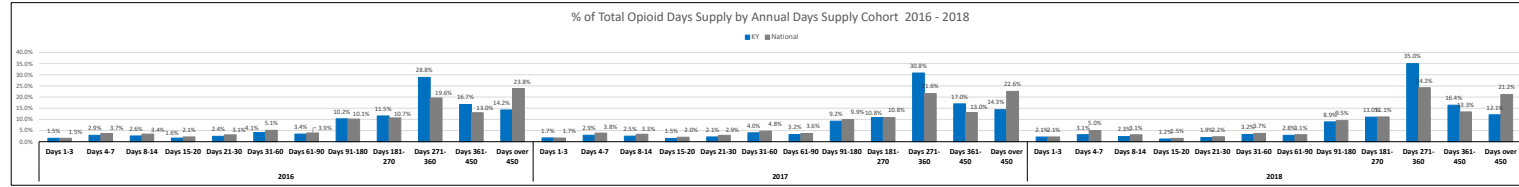
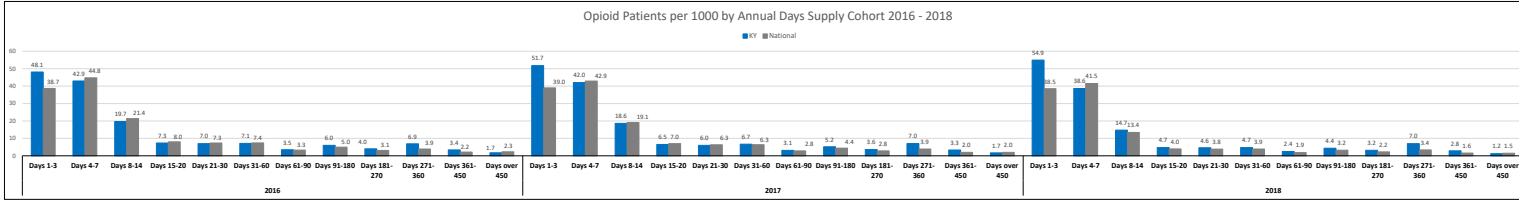
KY % of National Rate - 2017			
Y (Salaried)	+10%	+24%	+25%
N (Non-Salaried)	+6%	-1%	+4%

KY % of National Rate - 2016			
Y (Salaried)	+3%	+17%	+21%
N (Non-Salaried)	+2%	-2%	+5%

Analytic Notes

- Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.
- The Salaried Indicator references whether the member is paid an annual salary (Y) or an hourly wage (N). Some payers do not collect this information, therefore these members are indicated as missing (-).

Key Findings:
 1. 13.0% of KY opioid users have over 90 days supply in 2017 compared to 10.0% of national opioid users
 2. 35.0% of KY's total opioid supply in 2018 was distributed to 4.9% of opioid users (2,410 users with annual days supply between 271 - 360 days)
 3. 2.8% of KY opioid users had over 360 days supply in 2018 (meaning they had multiple overlapping prescriptions) - this is higher than the national rate of 2.5%, but down from 3.2% in 2016
 4. Less than 1% of KY opioid users were prescribed 12.1% of KY's total opioid supply in 2018 (428 users with annual days supply over 450 days)



Opioid Utilization - Annual Days Supply Cohort

Data Type Age Group Rollup Medstat Employee Status Group Medstat Subsets Time Period: Incurred Year	2018																2017																2016															
	KY				National				KY				National				KY				National				KY				National																			
	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	Days Supply per Patient	% of Total Days Supply	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	Days Supply per Patient	% of Total Days Supply	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	Days Supply per Patient	% of Total Days Supply	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	Days Supply per Patient	% of Total Days Supply																				
Annual Days Supply Cohorts																																																
Days 1-3	18,446	54.94	38.3%	19,477	46,786	2.5	2.1%	564,378	38.50	32.4%	579,693	1,382,580	2.4	2.1%	16,887	51.75	33.3%	17,106	41,486	2.5	1.7%	508,114	38.06	28.1%	514,215	1,259,403	2.5	1.7%	16,242	48.11	39.5%	16,418	40,063	2.5	1.5%	552,208	38.67	26.3%	557,201	1,369,069	2.5	1.4%						
Days 4-7	13,326	38.95	27.0%	17,827	70,695	5.3	31.1%	468,585	31.40	34.5%	249,783	3,288,186	5.3	4.6%	17,214	42.83	22.0%	17,436	70,695	5.2	2.4%	553,881	42.87	31.0%	651,120	2,885,391	5.2	4.8%	45,579	44.50	24.7%	18,098	24,750	5.2	2.8%	629,018	48.75	38.4%	781,997	3,455,303	5.4	3.7%						
Days 8-14	9,079	26.71	19.3%	10,365	51,616	10.2	17.3%	358,648	15.41	11.3%	414,638	2,619,792	10.2	3.1%	6,068	18.99	12.0%	11,465	61,017	10.1	2.5%	849,167	19.11	15.8%	961,860	3,501,543	10.0	3.9%	6,665	16.68	19.5%	19,392	67,168	10.1	2.6%	398,951	21.36	14.5%	588,664	3,065,290	10.1	3.4%						
Days 15-20	1,622	4.70	3.3%	2,053	27,322	16.8	1.2%	58,013	3.56	1.3%	155,583	866,988	16.7	1.5%	2,170	6.53	4.2%	4,267	15,454	16.7	1.5%	30,848	6.02	5.0%	396,425	1,512,662	16.7	2.0%	2,471	7.13	4.6%	5,484	41,554	16.6	1.6%	114,568	8.02	5.5%	292,596	1,915,101	16.7	2.1%						
Days 21-30	1,589	4.61	3.2%	1,869	41,864	26.3	1.2%	56,362	3.84	1.3%	156,582	1,446,800	25.7	2.7%	1,954	5.99	3.9%	4,601	52,024	26.6	2.1%	81,844	6.20	4.5%	159,497	2,149,722	26.2	2.9%	1,353	6.98	4.4%	5,361	42,589	26.5	2.4%	104,451	7.21	5.0%	253,464	2,740,271	26.2	3.1%						
Days 31-60	1,620	4.70	3.3%	6,931	72,846	45.0	3.2%	56,200	3.87	1.3%	223,332	2,446,365	43.1	3.7%	1,279	6.68	4.3%	7,764	97,050	46.5	4.0%	82,251	6.35	4.6%	306,083	3,570,289	43.1	4.8%	2,407	7.13	4.3%	8,392	106,855	44.4	4.1%	106,327	7.38	5.0%	388,228	4,554,610	43.2	5.1%						
Days 61-90	872	2.43	1.7%	1,750	19,816	26.2	0.8%	14,656	1.86	0.5%	135,724	817,594	14.8	1.1%	1,816	3.11	2.0%	4,616	18,018	26.6	3.7%	36,811	4.82	2.0%	129,427	2,235,364	15.1	1.6%	1,129	3.40	4.7%	936	49,184	25.7	3.0%	47,882	339.2	2.4%	233,599	3,464,907	15.1	3.0%						
Days 91-180	1,090	3.05	2.0%	6,211	199,491	132.6	0.9%	47,227	3.22	2.7%	310,861	6,121,152	130.7	1.9%	1,651	4.94	3.1%	10,547	223,783	132.1	9.2%	57,649	4.92	3.2%	381,075	7,426,454	128.8	6.9%	2,005	6.00	3.8%	12,492	266,118	131.4	10.2%	26,811	4.95	4.4%	45,756	9,069,180	128.3	10.1%						
Days 181-270	1,091	3.12	2.2%	9,720	247,641	226.4	11.0%	32,610	2.22	1.9%	300,802	7,216,966	221.2	11.5%	1,171	3.60	2.3%	10,551	216,968	224.1	10.8%	36,798	2.82	2.0%	342,428	8,114,706	220.5	10.8%	1,348	3.99	2.3%	12,065	299,242	222.4	11.2%	43,565	3,105	2.1%	410,921	9,439,812	219.9	10.7%						
Days 271-360	2,410	6.99	4.9%	27,627	796,931	336.4	35.0%	491,594	3.30	2.9%	571,881	15,708,141	331.1	25.2%	3,001	7.03	4.5%	26,546	799,061	329.7	39.3%	50,668	3.89	2.8%	591,411	14,114,763	319.6	21.6%	2,181	6.87	4.4%	29,931	749,300	323.1	28.8%	55,461	3,388	2.6%	647,494	17,546,860	316.4	19.6%						
Days 361-450	480	2.84	2.0%	13,424	362,552	375.1	16.4%	22,961	1.57	1.3%	319,318	8,203,152	379.0	13.3%	1,092	3.35	2.2%	14,804	41,486	378.1	17.0%	15,804	1.98	1.4%	36,514	9,292,244	379.7	13.0%	1,148	3.40	2.2%	15,595	434,068	378.1	16.2%	30,752	2,415	1.5%	411,693	11,614,903	377.7	13.0%						
Days over 450	428	1.23	0.3%	6,633	272,104	631.8	12.1%	21,092	1.50	1.2%	491,161	3,842,451	665.7	21.2%	581	1.66	1.1%	13,281	39,270	643.2	15.1%	36,151	2.01	1.4%	610,107	14,519,788	647.7	24.6%	580	1.72	1.4%	13,161	30,155	638.0	14.2%	2,298	2,201	1.6%	788,191	11,630,904	639.0	24.6%						
Aggregate(Annual Days Supply)	49,431	143.35	100.0%	133,897	2,246,736	48.5	100.0%	1,749,018	118.76	100.0%	4,377,051	65,285,082	37.5	100.0%	59,754	155.52	1.00	142,852	2,432,943	48.0	1.0	1,899,421	138.47	1.00	4,218,619.0	75,080,798	41.6	1.0	53,219	157.63	1.00	151,473.0	2,602,230	48.0	1.0	2,109,879	147.14	1.00	5,746,343.0	89,245,946	42.6	1.0						

KY % of National Rate - 2017	Pats Per 1000 Rx	% of Total Patients	Days Supply per Patient	% of Total Days Supply
Days 1-3	+43%	-6%	+1%	0%
Days 4-7	-7%	-8%	-2%	-2%
Days 8-14	+10%	-1%	-1%	-1%
Days 15-20	+19%	0%	+1%	0%
Days 21-30	+20%	0%	+3%	0%
Days 31-60	+21%	+0%	+4%	-1%
Days 61-90	+31%	+0%	+2%	0%
Days 91-180	+3%	0%	+2%	-1%
Days 181-270	+43%	+0%	+2%	0%
Days 271-360	+188%	+2%	+2%	+11%
Days 361-450	+81%	+1%	-1%	+3%
Days over 450	-15%	0%	-2%	-9%

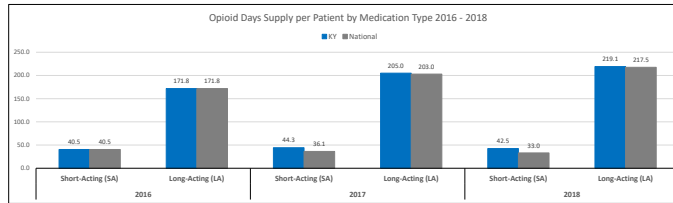
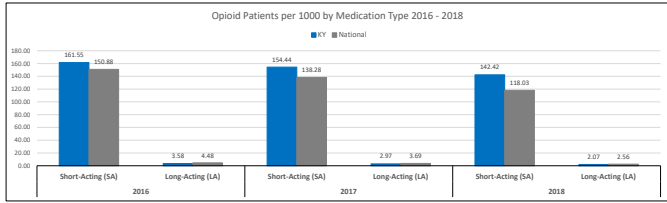
KY % of National Rate - 2017	Pats Per 1000 Rx	% of Total Patients	Days Supply per Patient	% of Total Days Supply
Days 1-3	+33%	+5%	0%	+0%
Days 4-7	-2%	-4%	0%	-1%
Days 8-14	-3%	-2%	+0%	-1%
Days 15-20	-6%	-1%	+1%	-1%
Days 21-30	-5%	-1%	+1%	-1%
Days 31-60	+5%	0%	+3%	-1%
Days 61-90	+10%	0%	+3%	0%
Days 91-180	+17%	+0%	+3%	-1%
Days 181-270	+27%	+0%	+2%	+0%
Days 271-360	+81%	+2%	+2%	+9%
Days 361-450	+69%	+1%	0%	+3%
Days over 450	-17%	0%	-1%	-8%

KY % of National Rate - 2016	Pats Per 1000 Rx	% of Total Patients	Days Supply per Patient	% of Total Days Supply
Days 1-3	+24%	+4%	-1%	+0%
Days 4-7	-4%	-3%	0%	-1%
Days 8-14	-8%	-2%	+1%	-1%
Days 15-20	-9%	-1%	+1%	-1%
Days 21-30	-5%	-1%	+1%	-1%
Days 31-60	-3%	0%	+3%	-1%
Days 61-90	+6%	0%	+2%	0%
Days 91-180	+11%	+0%	+2%	+0%
Days 181-270	+31%	+0%	+2%	+1%
Days 271-360	+77%	+2%	+2%	+9%
Days 361-450	+38%	+1%	-0%	+3%
Days over 450	-25%	0%	-2%	-10%

Analytic Notes

- Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.
- Annual Days Supply Cohort divides members by the amount of days supply of an opioid they receive during the reporting year. The member may receive more than one script, type, or amount of the opioid(s) that contribute to their total days supply. Additionally, members may be prescribed multiple cohorts at once therefore days supply amounts may exceed the number of calendar days in a year.

Key Findings:
 1. A lower percentage of KY opioid users are utilizing long-acting (LA) opioids compared to national in 2016, 2017, and 2018
 2. Long-acting (LA) opioid utilization decreased over ~40% for both KY and National from 2016 to 2018
 3. KY utilization of short-acting (SA) opioids is 21% higher than National in 2018 (142.42 vs 118.03)
 4. KY average annual supply of short-acting (SA) opioids is 29% higher than National in 2018 (42.5 vs 33.0)



Opioid Utilization - Short Acting (SA) vs Long Acting (LA)

Medication Type	State Code	2018														2017														2016													
		KY							National							KY							National							KY							National						
		Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	% of Total Days Supply	Days Supply per Patient	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	% of Total Days Supply	Days Supply per Patient	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	% of Total Days Supply	Days Supply per Patient	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	% of Total Days Supply	Days Supply per Patient	Patients Rx	Pats Per 1000 Rx	% of Total Patients	Scripts Rx	Days Supply Rx	% of Total Days Supply	Days Supply per Patient							
Short-Acting (SA)		49,110	142.42	99%	128,024	2,087,200	93%	42.5	1,720,246	118.03	99%	4,084,310	57,022,032	87%	33.0	50,999	154.44	99%	135,310	2,241,261	92%	44.3	1,893,315	138.28	99%	4,480,202	65,172,460	87%	36.1	52,844	161.55	99%	143,530	2,381,243	92%	40.5	2,086,413	150.88	99%	5,314,569	77,355,838	86%	40.5
Long-Acting (LA)		714	2.07	1%	5,428	154,426	7%	215.1	37,549	2.56	2%	292,783	8,166,935	13%	217.5	869	2.97	2%	6,823	198,617	8%	205.0	48,103	3.69	2%	339,321	9,765,717	13%	203.0	1,172	3.59	2%	2,528	212,301	8%	171.8	61,898	4.48	3%	412,727	11,931,280	13%	171.8
Aggregate (Medication Type)		49,432	143.36		133,856	2,246,733		45.5	1,741,042	118.77		4,377,126	65,284,879		37.5	50,777	155.60		142,581	2,433,943		47.9	1,816,963	139.33		4,838,604	75,080,513		41.3	53,220	162.70		151,474	2,602,220		47.9	2,101,430	151.96		5,746,727	89,545,664		47.9

Medication Type	KY % of National Rate - 2018	Pats Per 1000 Rx	% of Total Patients	% of Total Days Supply	Days Supply per Patient
Short-Acting (SA)	+ 21%	0%	+ 6%	+ 29%	+ 1%
Long-Acting (LA)	- 19%	- 1%	- 6%	- 4%	+ 1%

Medication Type	KY % of National Rate - 2017	Pats Per 1000 Rx	% of Total Patients	% of Total Days Supply	Days Supply per Patient
Short-Acting (SA)	+ 12%	+ 0%	+ 5%	+ 23%	+ 1%
Long-Acting (LA)	- 19%	- 1%	- 5%	- 5%	+ 1%

Medication Type	KY % of National Rate - 2016	Pats Per 1000 Rx	% of Total Patients	% of Total Days Supply	Days Supply per Patient
Short-Acting (SA)	+ 7%	+ 0%	+ 5%	0%	0%
Long-Acting (LA)	- 20%	- 1%	- 5%	- 5%	0%

Analytic Notes

1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

Key Findings:
 1. Hydrocodone Bitartrate-Acetaminophen (generic Vicodin) is the top product both in KY and nationally - 64% of KY opioid users had a script for this product in 2018 compared to only 52% of National opioid users
 2. KY has a higher average annual supply than National for four of the top five products and seven of the top ten in 2018
 3. Many of the top products also contain acetaminophen, which in large doses can cause significant liver damage

Top 20 Opioid Products

Product Name	Data Type		Commercial Fee for Service		Age Group Rollup Medstat		Subsets		Full Opioid Patients who Cancer or Chemo or Hospice		Employee Status Group Medstat		Active		Time Period: Incurred Year		State Code																
	2018 KY Rank	Patients Rx	% of Total Opioid Patients	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	2018 National Rank	Patients Rx	% of Total Opioid Patients	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	2017 KY Rank	Patients Rx	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	2017 National Rank	Patients Rx	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	2016 KY Rank	Patients Rx	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	2016 National Rank	Patients Rx	Scripts Rx	Days Supply Rx	Days Supply Per Pat Rx	
	HYDROCODONE BITARTRATE-ACETAMINOPHEN	1	31,821	64%	70,400	1,095,885	34.94	1	905,520	52%	1,755,849	22,941,992	25.34	1	32,796	74,394	1,176,361.00	33.87	1	977,621	1,971,708	26,590,380	27.19	1	34,566	79,468	1,281,637	37.98	1	1,158,004	2,381,054	32,457,804	28.03
	HYDROCODONE HCL-ACETAMINOPHEN	2	12,745	26%	24,992	351,637	27.58	2	372,011	21%	715,448	9,596,454	25.80	2	13,758	27,257	377,414.00	27.43	2	410,857	798,690	10,633,174	25.88	2	14,252	28,650	390,733	27.42	2	460,539	949,611	12,281,013	25.03
TRAMADOL HCL	3	6,956	14%	20,386	451,793	65.13	3	344,498	20%	807,235	14,333,140	41.61	3	7,267	20,522	461,314.00	65.48	3	362,669	852,215	16,207,921	44.51	3	7,702	21,251	467,276	60.73	3	414,754	977,698	18,854,383	45.96	
ACETAMINOPHEN COCAINE PHOSPHATE	4	2,528	5%	4,902	46,362	18.29	4	251,853	15%	337,967	2,297,393	9.13	4	3,095	4,969	46,666.00	15.52	4	232,252	344,956	2,525,246	10.01	4	3,462	5,397	54,671	25.74	4	388,412	353,492	2,934,668	33.17	
HYDROCODONE HCL	5	2,381	5%	6,087	114,209	47.73	5	128,366	7%	333,221	5,927,943	45.82	5	2,030	6,265	124,712.00	61.43	5	117,882	347,963	6,676,461	56.65	5	1,943	6,300	131,302	67.47	5	122,378	381,202	7,567,721	61.84	
HYDROCODONE HCL	6	298	1%	527	7,137	24.15	6	28,940	1%	49,857	834,288	40.62	6	314	644	11,067.00	35.25	6	23,234	57,406	960,355	41.33	7	339	717	12,448	36.72	6	28,032	69,061	1,143,535	41.49	
MORPHINE SULFATE	7	222	0%	3,382	39,352	177.26	8	13,694	1%	42,612	2,433,471	176.87	7	395	1,837	12,131.00	179.33	8	16,362	100,377	2,793,338	173.61	6	414	2,058	58,238	141.86	9	15,548	120,164	3,354,190	171.59	
OXICONTIN	8	160	0%	1,121	32,000	200.00	10	5,175	1%	60,946	1,726,430	338.17	8	228	1,421	40,505.00	177.00	10	12,715	72,412	2,035,783	160.11	9	200	1,411	45,932	171.31	10	17,722	94,452	2,654,278	149.35	
TRAMADOL HCL-ACETAMINOPHEN	9	160	0%	386	6,578	41.13	7	16,900	1%	26,362	308,830	18.27	9	225	643	13,927.00	61.90	7	18,738	31,065	442,426	23.62	8	301	781	15,865	52.71	7	23,003	39,605	594,090	25.83	
HYDROCODONE BITARTRATE/BUPROPION	10	139	0%	238	3,330	33.63	9	4,903	1%	17,384	224,440	22.67	10	137	265	6,291.00	39.76	9	11,499	24,873	352,139	25.94	11	219	425	6,800	31.46	8	18,528	25,513	504,038	25.73	
PENTAMYL TRANSDERMAL SYSTEM	11	111	0%	811	23,098	33.90	13	3,621	0%	21,873	692,038	191.12	11	127	1,007	30,029.00	236.48	14	4,851	31,817	927,911	191.28	13	194	1,069	32,010	207.86	16	6,479	39,704	1,175,081	181.37	
BUTALFALAN-APAP-CAFFEINE COCAINE	12	97	0%	346	5,877	68.99	11	5,005	0%	16,514	251,975	50.34	15	92	328	5,940.00	64.57	13	5,518	17,890	271,371	49.18	18	80	328	5,032	62.90	14	6,701	21,206	322,629	48.15	
METHADONE HCL	13	94	0%	704	19,303	204.29	14	3,111	0%	24,819	699,400	211.24	13	103	962	25,765.00	295.15	16	3,986	32,426	913,397	230.40	15	123	1,010	29,111	238.84	17	5,508	40,691	1,163,490	230.03	
MAKORTA	14	76	0%	343	8,900	108.89	12	4,462	0%	19,168	492,212	110.81	12	101	406	11,897.00	113.30	12	6,245	22,662	573,332	91.81	16	101	366	9,844	97.47	11	7,137	24,521	609,476	85.27	
Z-TRUSS AC	15	67	0%	72	481	7.18	50	70	0%	75	505	7.21	14	100	110	811.00	8.11	47	305	115	838	7.98	14	149	163	1,069	7.17	30	181	1,200	881.55		
ENDOCET	16	54	0%	152	3,739	69.24	21	1,282	0%	49,017	694.44	16	91	230	4,995.00	54.89	20	2,367	6,132	133,419	51.97	10	253	469	8,829	34.90	12	7,143	13,488	253,105	35.34		
PERYDIN	17	44	0%	206	6,034	136.81	15	2,997	0%	18,260	536,468	179.00	19	45	373	8,283.00	184.07	17	3,510	21,758	603,877	185.24	20	265	7,664	182.48	19	4,014	29,077	869,363	176.90		
LOXCEP	18	30	0%	32	173	5.77	33	265	0%	309	2,671	10.08	53	33	216	6,272.00	190.06	21	2,413	16,435	460,248	190.74	21	36	265	6,994	191.00	21	2,983	19,181	539,756	180.94	
OXYMPHONE HCL	19	29	0%	231	6,897	237.83	19	1,529	0%	12,831	361,934	236.71	23	33	216	6,272.00	190.06	22	2,413	16,435	460,248	190.74	21	36	265	6,994	191.00	21	2,983	19,181	539,756	180.94	
ORFEDA ER	20	29	0%	119	3,234	27.19	18	1,425	0%	6,732	250,688	154.26	27	13	36	1,037.00	79.77	28	851	3,144	89,975	108.73	31	0	0	0.00	30	130	277	7,992	57.61		
Total - All Products		49,452		133,856	2,346,733	45.45		1,741,042	100%	4,377,136	65,286,879	37.90		50,777	142,581	2,433,943.00	47.93		1,616,963	4,838,904	75,080,513	43.32		53,220	151,474	2,602,220	48.90		2,101,433	5,746,727	89,546,641	42.61	

Analytic Notes

1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

Key Findings
 1. In 2018, the average annual amount prescribed for KY opioid users was 17.5% higher than National for
 Low Back patients (69.4 vs 59.1), 11.6% higher than National for Osteoarthritis (82.0 vs 73.4), and
 1. In 2018, the average annual amount prescribed for KY opioid users was higher than National for nine
 of

Top 20 Conditions for Opioid Use

		Data Type		Commercial Fee for Service																					
		Age Group Rollup Medstat		Ages 18-64																					
		Subsets		Full Opiate Patients w/o Cancer or Chemo or Hospice																					
		Employee Status Group Medstat		Active																					
		Time Period: Incurred Year																							
		State Code																							
		2018				2017				2016															
Episode Summary Group Code	Episode Summary Group	KY			National			KY			National			KY			National								
		2018 KY Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx	2018 National Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx	2017 KY Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx	2017 National Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx	2016 KY Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx	2016 National Rank	Patients	% of Total Condition Patients	Days Supply Per Pat Rx
1685	Spinal/Back Disord, Low Back	1	3,271	12%	69.44	1	127,176	11%	59.10	1	4,080	13%	82.26	1	157,078	12%	69.30	1	4,816	14%	85.59	1	195,436	13%	68.84
1639	Osteoarthritis	2	3,249	12%	81.99	3	116,097	10%	73.45	2	3,579	11%	92.35	3	127,206	10%	82.15	2	3,763	11%	91.20	3	146,814	10%	84.38
1489	Prevent/Admin Hlth Encounters	3	2,943	11%	22.20	2	125,916	11%	18.04	3	3,350	11%	22.05	2	151,151	12%	18.98	3	3,317	10%	24.12	2	163,060	11%	20.06
1640	Arthropathies/Joint Disord NEC	4	1,910	7%	38.21	4	92,342	8%	30.50	4	2,296	7%	42.00	4	112,534	9%	34.88	4	2,644	8%	39.40	4	138,426	9%	34.59
581	Diabetes	5	1,697	6%	59.28	5	67,300	6%	47.61	5	1,894	6%	59.28	6	75,063	6%	51.22	6	2,041	6%	63.89	6	86,462	6%	52.25
1686	Spinal/Back Disord, Ex Low	6	1,431	5%	50.15	6	61,491	5%	44.27	7	1,839	6%	59.06	5	76,287	6%	50.74	5	2,078	6%	59.02	5	96,064	6%	50.16
285	Hypertension, Essential	7	1,427	5%	58.84	7	50,014	4%	44.52	9	1,335	4%	57.83	8	47,581	4%	45.47	12	1,112	3%	64.26	12	44,931	3%	48.12
610	Infections - ENT Ex Otitis Med	8	1,394	5%	30.85	8	45,144	4%	22.69	6	1,885	6%	30.17	7	57,709	5%	24.34	7	1,990	6%	30.96	7	70,012	5%	23.49
2385	Urinary Tract Calculus	9	1,368	5%	7.70	11	35,504	3%	7.84	8	1,406	4%	9.66	12	38,533	3%	9.78	8	1,459	4%	9.22	11	45,102	3%	10.15
1460	Condition Rel to Tx - Med/Surg	10	1,072	4%	21.88	14	27,910	2%	20.69	14	949	3%	24.13	19	25,554	2%	23.91	16	910	3%	23.01	21	27,089	2%	25.11
1657	Fracture/Disloc - Upper Extrem	11	938	3%	15.50	9	41,312	4%	13.05	10	1,108	3%	17.56	9	46,383	4%	15.78	9	1,161	3%	17.92	8	56,400	4%	16.59
1637	Bursitis	12	834	3%	35.09	10	36,074	3%	28.04	12	1,060	3%	36.86	10	45,076	4%	32.38	11	1,117	3%	35.65	9	55,135	4%	32.41
383	Headache, Migraine/Muscle Tens	13	823	3%	46.50	12	34,738	3%	37.11	13	952	3%	50.09	11	42,055	3%	40.22	13	1,103	3%	45.61	10	53,941	4%	39.45
1081	Cholecystitis/Cholelithiasis	14	786	3%	8.20	19	21,301	2%	7.80	15	834	3%	9.24	21	23,028	2%	9.31	14	933	3%	10.01	22	26,675	2%	10.14
891	Pregnancy w Cesarean Section	15	721	3%	4.34	22	18,837	2%	5.31	11	1,099	3%	4.95	16	29,317	2%	6.13	10	1,148	3%	5.15	18	33,347	2%	6.57
880	Dysfunctional Uterine Bleeding	16	701	3%	8.45	23	18,485	2%	9.25	16	774	2%	9.86	24	21,073	2%	10.56	18	777	2%	9.61	23	25,933	2%	11.06
799	Gastroint Disord, NEC	17	629	2%	18.74	13	28,275	2%	16.71	18	722	2%	20.84	13	33,600	3%	18.62	17	809	2%	18.17	13	42,324	3%	18.62
1661	Injury - Knee	18	574	2%	12.26	16	26,785	2%	10.63	19	679	2%	14.24	15	30,483	2%	12.43	21	705	2%	12.68	15	36,422	2%	13.56
1650	Fracture/Disloc - Ankle/Foot	19	550	2%	15.08	18	23,798	2%	13.44	20	661	2%	18.68	17	27,910	2%	15.78	20	760	2%	16.80	17	34,823	2%	15.80
1662	Injury - Musculoskeletal, NEC	20	548	2%	16.59	15	27,202	2%	13.20	21	659	2%	17.18	14	33,416	3%	14.55	19	767	2%	15.82	14	42,168	3%	14.19
Total - All Conditions			49,432		45.45		1,741,042		37.50		50,777		47.93		1,816,963		41.32		53,220		48.90		2,101,433		42.61

Analytic Notes

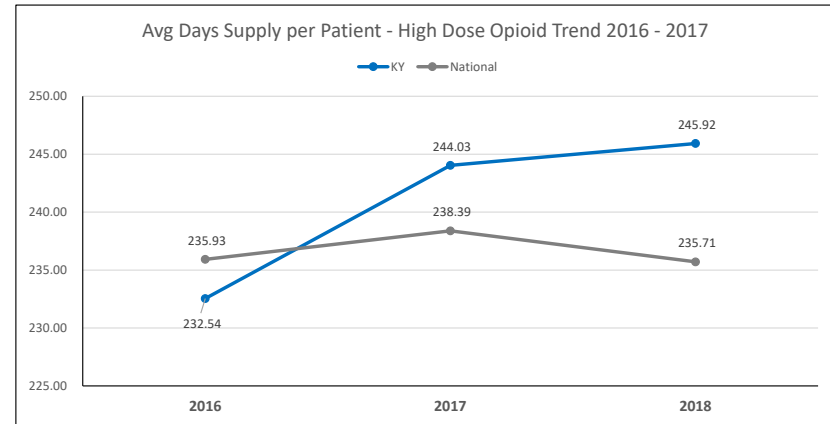
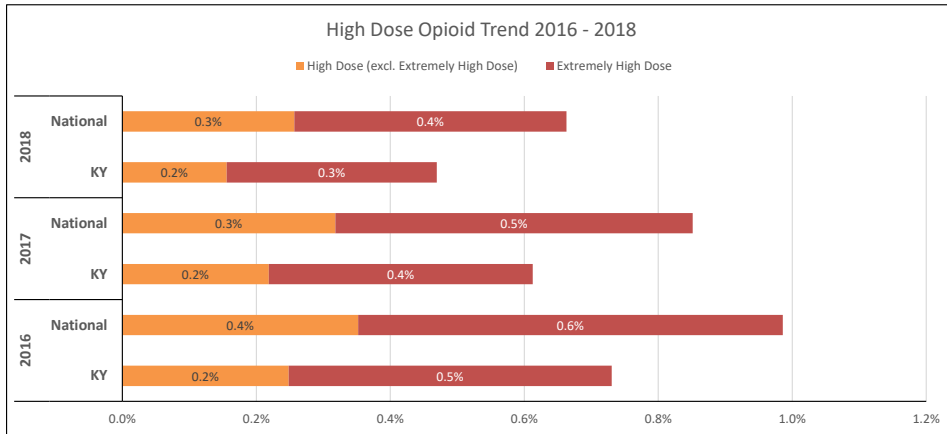
1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

2. Unlike medical claims, drug claims do not have diagnosis code on the claim to identify the condition for which the treatment was provided. IBM Watson Health's proprietary Medical Episode Grouper (MEG) has been designed to incorporate drug claims into an episode of care using sophisticated logic to determine why the drug was prescribed and assign the prescription to a medical episode group based on clinical appropriateness.

Key	
	KY -6% or lower than National Rate
	KY within -5% or +5% of National Rate
	KY +6% or higher than National Rate

Key Findings:

1. A lower percentage of KY opioid users are utilizing high dose opioids compared to National in 2016, 2017, and 2018
2. KY's average annual opioid supply for high dose opioids was five-times higher than the average for all KY opioid users
3. The percentage of opioid users utilizing high dose opioids dropped from 2016 to 2018 for both KY and National
4. KY's average annual opioid supply for high dose opioids rose 4.2% from 2016 to 2018 while National rates were flat (despite a small increase in 2017)



High Dose Rx

Subsets	Data Type		Commercial Fee for Service		Age Group Rollup Medstat		Ages 18-64		Employee Status Group Medstat		Active		Time Period: Incurred Year					
	State Code		2018		2017		2016		KY		National		KY		National			
	Patients Rx	% of Opioid Patients	Days Supply per Patient	Patients Rx	% of Opioid Patients	Days Supply per Patient	Patients Rx	% of Opioid Patients	Days Supply per Patient	Patients Rx	% of Opioid Patients	Days Supply per Patient	Patients Rx	% of Opioid Patients	Days Supply per Patient			
	High Dose Opioids	232	0.5%	245.92	11,543	0.7%	235.71	311	0.6%	244.03	15,471	0.9%	238.39	388	0.7%	232.54	20,678	1.0%
Extremely High Dose Opioids	155	0.3%	248.58	7,075	0.4%	233.11	200	0.4%	255.21	9,691	0.5%	235.25	259	0.5%	236.33	13,295	0.6%	233.66
Full Opioid Patients wo Cancer or Chemo or Hospice	49,432		45.45	1,741,042		37.50	50,777		47.93	1,816,963		41.32	53,220		48.90	2,101,430		42.61

	% of Opioid Patients	Days Supply per Patient
High Dose Opioids	-29%	+ 4%
Extremely High Dose Opioids	-23%	+ 7%

	% of Opioid Patients	Days Supply per Patient
High Dose Opioids	-28%	+ 2%
Extremely High Dose Opioids	-26%	+ 8%

	% of Opioid Patients	Days Supply per Patient
High Dose Opioids	-26%	-1%
Extremely High Dose Opioids	-24%	+ 1%

Analytic Notes

1. Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.

2. High Dose Opioids are any prescription opioid where a single dose (unit / mL / pill) exceeds 50 MME. Extremely High Dose Opioids are any prescription opioid where a single dose (unit / mL / pill / etc) exceeds 90 MME. Extremely High Dose Opioids are included in High Dose Opioids (unless otherwise noted).

KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

Key Findings:
1. A lower percentage of KY opioid users received opioids from 3+ pharmacies compared to National in 2016, 2017, and 2018

Multiple Rx Providers - Pharmacies

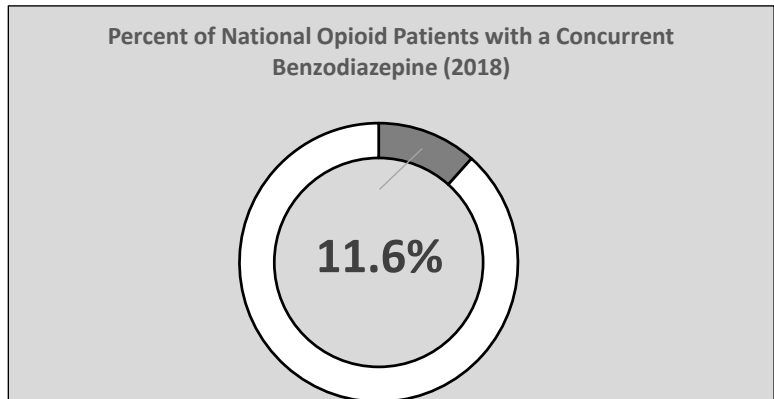
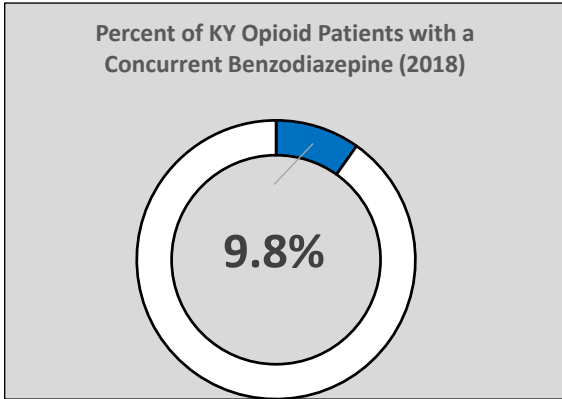
Time Period: Incurred Year	KY			National		
	Number of Providers	Patients Rx	% of Total	Number of Providers	Patients Rx	% of Total
2018	1 Pharmacy	42,301	85.6%	1 Pharmacy	1,510,844	86.8%
	2 Pharmacies	5,664	11.5%	2 Pharmacies	181,873	10.4%
	3 Pharmacies	1,068	2.2%	3 Pharmacies	34,308	2.0%
	4 Pharmacies	399	0.8%	4 Pharmacies	14,017	0.8%
	Sum	49,432	100.0%	Sum	1,741,042	100.0%
2017	1 Pharmacy	43,562	85.8%	1 Pharmacy	1,548,019	85.2%
	2 Pharmacies	5,649	11.1%	2 Pharmacies	206,188	11.3%
	3 Pharmacies	1,128	2.2%	3 Pharmacies	42,088	2.3%
	4 Pharmacies	438	0.9%	4 Pharmacies	20,668	1.1%
	Sum	50,777	100.0%	Sum	1,816,963	100.0%
2016	1 Pharmacy	45,489	85.5%	1 Pharmacy	1,769,834	84.2%
	2 Pharmacies	6,077	11.4%	2 Pharmacies	250,218	11.9%
	3 Pharmacies	1,171	2.2%	3 Pharmacies	53,313	2.5%
	4 Pharmacies	483	0.9%	4 Pharmacies	28,065	1.3%
	Sum	53,220	100.0%	Sum	2,101,430	100.0%

Analytic Notes

- Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.
- Number of pharmacies calculated by the average number of National Pharmacy ID numbers at patient receives their opioid prescriptions from that year

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

Key Findings
1. A lower percentage of KY opioid users had an overlapping Benzodiazepine prescription compared to National in 2016, 2017, and 2018



Concurrent Opioid & Benzodiazepine

Data Type	Commercial Fee for Service					
	Ages 18-64					
Age Group Rollup Medstat	Active					
Employee Status Group Medstat	Active					
Time Period: Incurred Year	2018		2017		2016	
	State Code	KY	National	KY	National	KY
Subsets						
Members Rx	344,820	14,659,073	326,340	13,040,851	327,113	13,828,620
Full Opioid Patients wo Cancer or Chemo or Hospice	49,432	1,741,042	50,777	1,816,963	53,220	2,101,430
Concurrent Opioid & Benzodiazepine Patients	4,852	202,151	5,223	220,584	5,670	267,151
Concurrent Opioid & Benzodiazepine Patients per 1000	14.07	13.79	16.00	16.91	17.33	19.32
% of Full Opioid Patients	9.8%	11.6%	10.3%	12.1%	10.7%	12.7%

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

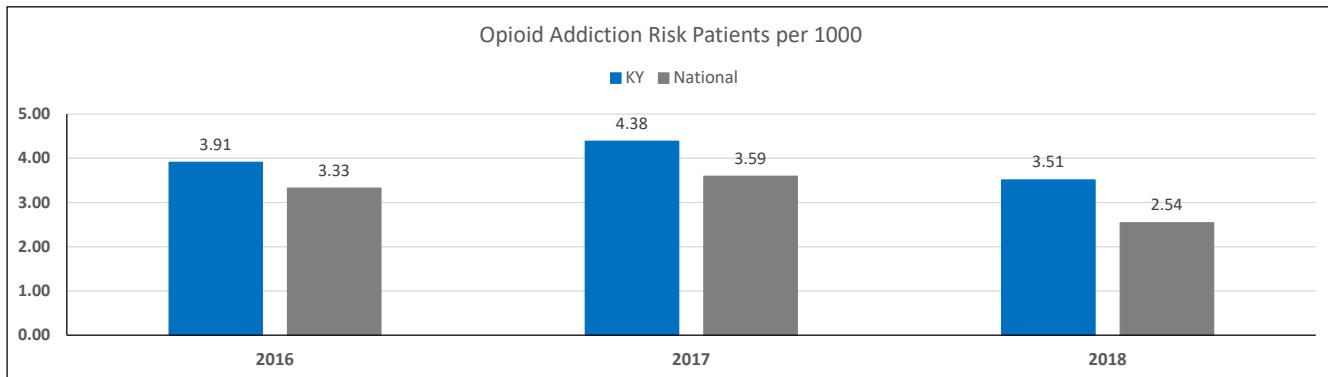
KY vs National	2018	2017	2016
Concurrent Opioid & Benzodiazepine Patients per 1000	+ 2%	-5%	-10%
% of Full Opioid Patients	-15%	-15%	-16%

Analytic Notes

- Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.
- Overlapping Benzodiazepine identify as any Benzodiazepine prescription within either 30 days before or 30 days after the start of an Opioid prescription.

Key Findings

- 59% of KY opioid overdose patients in 2018 received another prescription opioid within 12 months (93 patients out of 157 on Opioid Overdose tab)
- 2.5% of KY opioid patients and 2.2% of National opioid patients in 2018 had a history of opioid overdose, substance abuse treatment, or Naloxone rescue in the



Opioid Addiction Risk

Subsets	Data Type Age Group Rollup Medstat Employee Status Group Medstat Time Period: Incurred Year State Code	Commercial Fee for Service					
		Ages 18-64					
		Active					
		2018		2017		2016	
		KY	National	KY	National	KY	National
Members Med or Rx		347,099	15,062,780	328,997	13,203,568	337,614	14,279,012
Full Opioid Patients wo Cancer or Chemo or Hospice		49,432	1,741,042	50,777	1,816,963	53,220	2,101,430
Patients with Addiction Risk - Overdose History	Patients	93	2,760	151	3,948	147	4,608
	% of Total Addiction Risk Patients	7.6%	7.2%	10.5%	8.3%	11.1%	9.7%
	% of Full Opioid Patients	0.2%	0.2%	0.3%	0.2%	0.3%	0.2%
	Days Supply per Patient	172.08	116.65	152.72	131.11	158.59	120.20
Patients with Addiction Risk - Substance Abuse Treatment History	Patients	955	27,908	1,173	36,963	1,081	39,064
	% of Total Addiction Risk Patients	78.4%	73.0%	81.3%	77.9%	81.9%	82.3%
	% of Full Opioid Patients	1.9%	1.6%	2.3%	2.0%	2.0%	1.9%
	Days Supply per Patient	98.54	81.49	86.64	86.63	83.06	87.92
Patients with Addiction Risk - Naloxone History	Patients	207	9,234	176	8,922	150	6,060
	% of Total Addiction Risk Patients	17.0%	24.1%	12.2%	18.8%	11.4%	12.8%
	% of Full Opioid Patients	0.4%	0.5%	0.3%	0.5%	0.3%	0.3%
	Days Supply per Patient	225.59	221.06	170.18	209.69	190.77	206.38
Patients with Addiction Risk - Total	Patients	1,218	38,246	1,442	47,441	1,320	47,489
	Patients per 1000	3.51	2.54	4.38	3.59	3.91	3.33
	% of Full Opioid Patients	2.5%	2.2%	2.8%	2.6%	2.5%	2.3%
	Days Supply per Patient	124.92	114.92	101.92	110.85	102.88	104.83

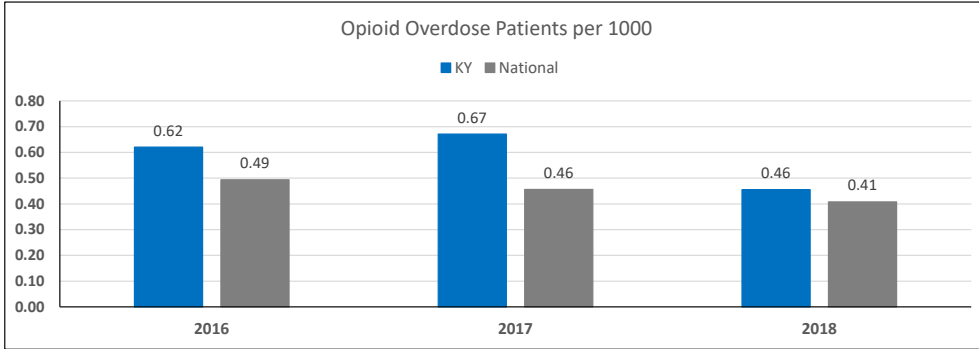
KY vs National		2018	2017	2016
Overdose History	% of Total Addiction Risk Patients	+ 0%	+ 2%	+ 1%
	% of Full Opioid Patients	+ 0%	+ 0%	+ 0%
	Days Supply per Patient	+ 48%	+ 16%	+ 32%
Substance Abuse Treatment History	% of Total Addiction Risk Patients	+ 7%	+ 4%	0%
	% of Full Opioid Patients	+ 21%	+ 14%	+ 9%
	Days Supply per Patient	+ 21%	+ 0%	-6%
Naloxone Rescue History	% of Total Addiction Risk Patients	-30%	-35%	-11%
	% of Full Opioid Patients	-21%	-29%	-2%
	Days Supply per Patient	+ 2%	-19%	-8%
Total Addiction Risk	Patients per 1000	+ 38%	+ 22%	+ 18%
	% of Full Opioid Patients	+ 12%	+ 9%	+ 10%
	Days Supply per Patient	+ 9%	-8%	-2%

Analytic Notes

- Opioid patients include any patient, ages 18 - 64, using a full agonist opioid in the reporting time period, excluding patients with either cancer treatment, chemotherapy, or hospice claims. Opioid partial agonists, such as those used for Opioid Use Disorder treatment, are not included in this report.
- Opioid patients with Addiction Risk are any patients with a current opioid prescription who has had either an opioid overdose, opioid rescue medication (such as Narcan), or any substance use disorder treatment in the 12 months prior to the opioid prescription. Patients can have multiple factors for addition risk (e.g. history of both overdose AND substance abuse treatment). This excludes patients with either cancer treatment, chemotherapy, or hospice claims.

Key Findings:

1. KY had an opioid overdose patient rate 12% higher than the National rate in 2018
2. KY's opioid overdose patient rate decreased significantly from 2017 to 2018 (down -32%) while the National rate decreased -11%
3. A higher percentage of KY overdoses were treated outpatient and a lower percentage treated inpatient when compared with National rates in 2016, 2017, and 2018



Opioid Overdose Events

Data Type		Commercial Fee for Service					
Age Group Rollup Medstat		Ages 18-64					
Employee Status Group Medstat		Active					
Time Period: Incurred Year		2018		2017		2016	
State Code		KY	National	KY	National	KY	National
Subsets							
Members Med		344,820	14,659,073	326,340	13,040,851	327,113	13,828,620
Opioid Overdose Events	Patients	157	5,979	219	5,950	203	6,822
	Patients per 1000	0.46	0.41	0.67	0.46	0.62	0.49
	Visits	250	9,648	326	9,281	296	10,578
	Visits per 1000	0.73	0.66	1.00	0.71	0.90	0.76
	Visits per Patient	1.59	1.61	1.49	1.56	1.46	1.55

KY vs National	2018	2017	2016
Patients per 1000	+ 12%	+ 47%	+ 26%
Visits per 1000	+ 10%	+ 40%	+ 18%
Visits per Patient	-1%	-5%	-6%

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

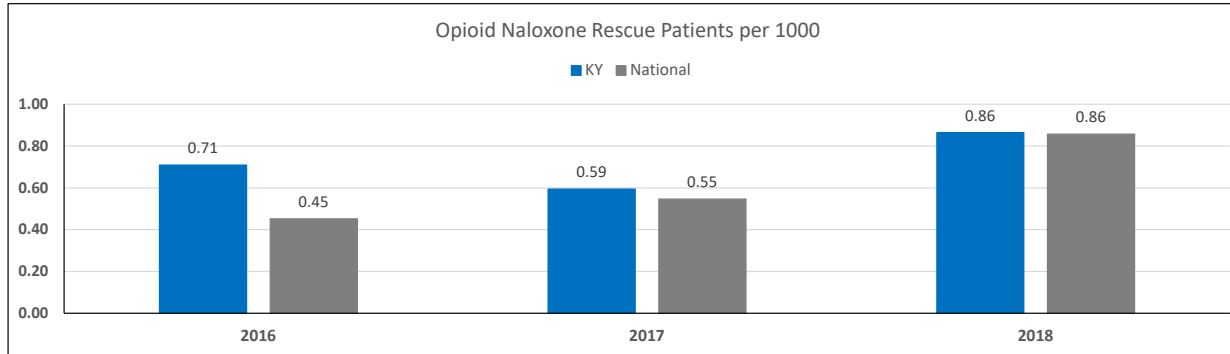
Opioid Overdose Visits by Place of Service

Data Type		Commercial Fee for Service					
Age Group Rollup Medstat		Ages 18-64					
Employee Status Group Medstat		Active					
Subsets		Overdose Dx					
Time Period: Incurred Year		2018		2017		2016	
State Code		KY	National	KY	National	KY	National
Place of Service Medstat w Code		Visits Patient	Visits Patient	Visits Patient	Visits Patient	Visits Patient	Visits Patient
22	Outpatient Hospital-On Campus	59.2%	42.5%	61.7%	45.4%	49.0%	39.7%
23	Emergency Room - Hospital	27.6%	34.3%	32.5%	37.0%	34.8%	37.1%
21	Inpatient Hospital	19.2%	34.9%	23.6%	32.4%	25.7%	39.1%
11	Office	15.6%	12.2%	14.7%	10.2%	13.2%	8.7%
41	Ambulance (land)	4.0%	2.9%	2.8%	3.0%	1.0%	2.1%
81	Independent Laboratory	1.2%	0.7%	0.3%	0.5%	0.7%	0.8%
12	Patient Home	0.4%	0.7%	0.3%	1.9%	0.0%	0.6%
31	Skilled Nursing Facility	0.4%	0.2%	0.0%	0.1%	0.7%	0.2%
99	~Missing/Other	0.4%	1.0%	0.0%	1.2%	0.3%	1.3%
01	Pharmacy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	Outpatient Hospital-Off Campus	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%
20	Urgent Care Facility	0.0%	0.2%	0.0%	0.2%	0.0%	0.2%
24	Ambulatory Surgical Center	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
25	Birthing Center	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
26	Military Treatment Facility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
32	Nursing Facility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
34	Hospice	0.0%	1.3%	0.0%	2.0%	0.0%	0.0%
42	Ambulance (air or water)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
49	Independent Clinic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50	Federally Qualified Health Ctr	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
51	Inpatient Psychiatric Facility	0.0%	0.2%	0.0%	0.1%	0.0%	0.1%
61	Comprehensive Inpt Rehab Fac	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%

Analytic Notes

1. Opioid Overdose patients include any patient with a primary or secondary diagnosis code of T40.0* - T40.4*, or T40.6* regardless if they had a prescription opioid during the year or not.

Key Findings:
1. The rate of KY patients with naloxone rescue increased 45% from 2017 to 2018 - similar to National rates, which rose 57%



Opioid Naloxone Rescue

		Data Type		Commercial Fee for Service			
		Age Group Rollup Medstat		Ages 18-64			
		Employee Status Group Medstat		Active			
Time Period: Incurred Year		2018		2017		2016	
State Code		KY	National	KY	National	KY	National
Subsets							
Members Med or Rx		344,820	14,659,073	326,340	13,040,851	327,113	13,828,620
Opioid Naloxone Rescue	Patients Med or Rx	298	12,566	194	7,127	232	6,248
	Patients per 1000	0.86	0.86	0.59	0.55	0.71	0.45
	Patients Rx	187	10,103	89	4,743	121	3,547
	Scripts Rx	193	10,625	94	5,087	122	3,884
	Scripts per 1000	0.56	0.72	0.29	0.39	0.37	0.28
	Scripts per Patient	1.03	1.05	1.06	1.07	1.01	1.10
	Patients Med	111	2,524	108	2,418	112	2,728
	Visits Med	308	13,212	204	7,576	252	6,780
	Visits per 1000	0.89	0.90	0.63	0.58	0.77	0.49
	Visits per Patient	2.77	5.23	1.89	3.13	2.25	2.49

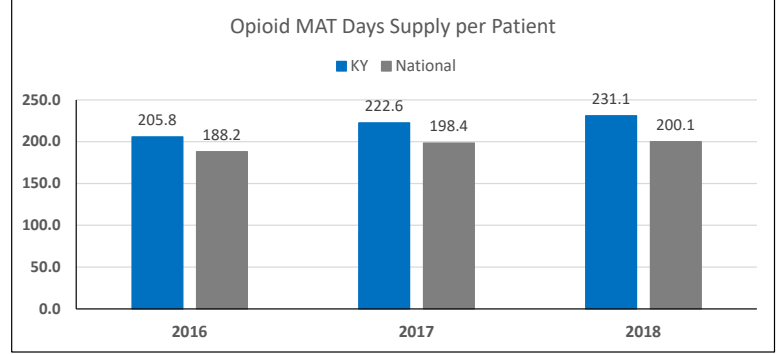
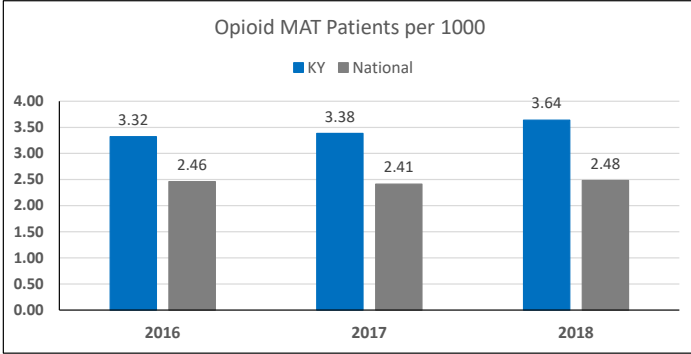
KY vs National	2018	2017	2016
Patients per 1000	+ 1%	+ 9%	+ 57%
Scripts per 1000	-23%	-26%	+ 33%
Scripts per Patient	-2%	-2%	-8%
Visits per 1000	-1%	+ 8%	+ 57%
Visits per Patient	-47%	-40%	-9%

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

Analytic Notes

- Opioid Naloxone Rescue includes any patient with either a prescription for an overdose rescue medication (e.g. Naloxone, Narcan) or a medical procedure for the administration of an opioid antagonist in an emergency situation.
- Patients could have both a prescription and medical procedure for Naloxone rescue therefore the sum of medical and rx patient counts will not total the aggregate.

Key Findings:
 1. A higher rate of KY patients use MAT treatment, with also higher average annual supply per patient compared to National in both 2016, 2017, and 2018



Opioid Medication Assisted Treatment (MAT)

Subsets	2018		2017		2016		
	KY	National	KY	National	KY	National	
	MAT Patients Rx	1,254	36,405	1,104	31,475	1,085	34,047
	MAT Patients per 1000 Rx	3.64	2.48	3.38	2.41	3.32	2.46
MAT Scripts per Patient	12.2	8.7	11.2	8.5	10.3	8.0	
MAT Days Supply per Patient	231.1	200.1	222.6	198.4	205.8	188.2	
Allowed Amount MAT per Patient	\$2,523.61	\$2,193.30	\$2,531.50	\$2,131.07	\$2,369.74	\$1,998.16	

Key
KY -6% or lower than National Rate
KY within -5% or +5% of National Rate
KY +6% or higher than National Rate

KY vs National	2018	2017	2016
MAT Patients per 1000 Rx	+ 46%	+ 40%	+ 35%
MAT Scripts per Patient	+ 40%	+ 31%	+ 29%
MAT Days Supply per Patient	+ 15%	+ 12%	+ 9%
Allowed Amount MAT per Patient	+ 15%	+ 19%	+ 19%

Analytic Notes

1. Medication Assisted Treatment (MAT) is determined by the utilization of partial opioid agonists, such as Buprenorphine or Suboxone. Utilization of these products may be higher than Opioid Abuse treatment episodes due to billing of opioid abuse a secondary diagnosis, if a non-opioid abuse (e.g. general substance abuse) diagnosis is used on the claim, and/or carrier-masked substance abuse medical claims.