

KENTUCKY OCCUPATIONAL HEALTH INDICATORS REPORT

An Annual Report by the Kentucky Injury Prevention and Research Center

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EXECUTIVE SUMMARY

Key findings:

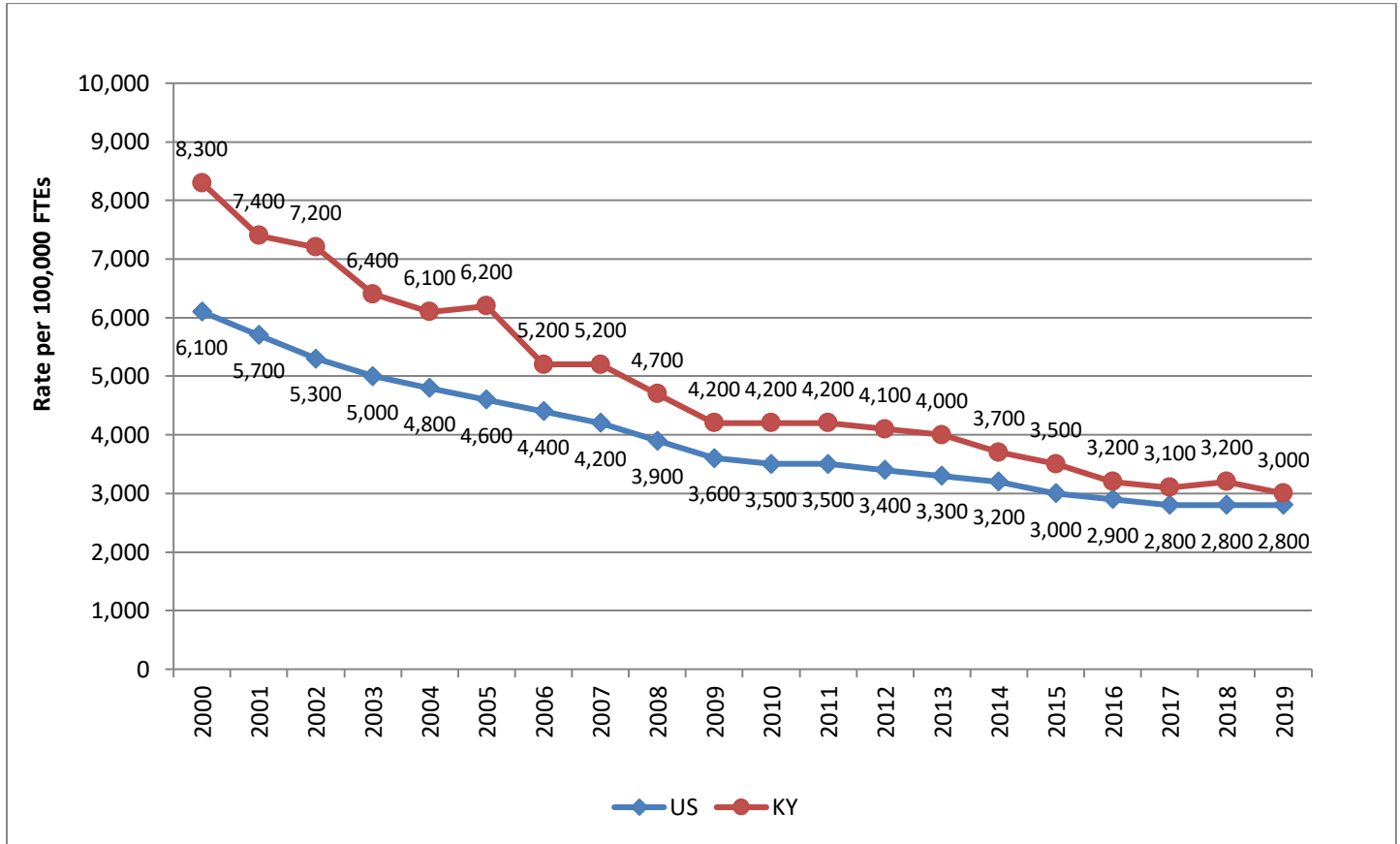
- ❑ Kentucky's 2019 *nonfatal* work-related injury and illness rate remained above the national rate (3,000 vs 2,800 per 100,000 full-time equivalents), as seen in the previous 20 years.
- ❑ The 2019 Kentucky work-related *fatality* rate was 4.1 per 100,000, about 16% above the 2019 national rate of 3.5 per 100,000.
- ❑ Kentucky's work-related hospitalization rate remained stable over the last several years (66 per 100,000 employed persons in 2019).
- ❑ The average amount of workers' compensation benefits paid to Kentucky workers increased from \$327 in 2017 to \$345 in 2018.
- ❑ The rate of first reports of injury for amputation injuries reported to the Kentucky Department of Workers' Claims has steadily declined since a high of 11.7 reports per 100,000 covered workers in 2000, to a low of 4.9 in 2019.
- ❑ The percentage of Kentucky hospital care personnel with an influenza vaccination continued to increase. In the 2018–2019 flu season, 92.2% personnel were vaccinated, above the U.S. rate of 90%.
- ❑ Kentucky saw five motor vehicle collisions resulting in commercial driver fatalities in 2019, the lowest number in the past decade.
- ❑ The number of occupational heat-related emergency department visits fell in 2020 to 96 visits, compared to 162 and 169 visits in 2019 and 2018, respectively.
- ❑ There were 473 work-related injuries reported by the Kentucky Trauma Registry in 2019, representing more than 3% of all reported injuries. Over 85% of the 473 reported injuries were male.
- ❑ The most common mechanism among 2019 work-related trauma registry records was falls (34%), down from over 40% in 2018. The next most common mechanism was struck by/against type incidents at 12%.
- ❑ New Kentucky-specific indicators will be introduced in 2021 that address specific vehicle types, work-related drug overdoses, and the use of novel data sources, including emergency medical services data.

Note: Definitions and a standardized methodology for the indicator calculations can be found in "[OHI: A Guide for Tracking Occupational Health Conditions and Their Determinants](#)", April 2019.

Indicator #1: Nonfatal Work-Related Injuries and Illnesses Reported by Employers

In 2019, there were 36,600 non-fatal work-related injuries and illnesses in Kentucky private industry, with an incidence rate of 3,000 per 100,000 full-time equivalents (FTEs). This is nearly 5,000 cases less than reported in 2018 (41,200). The Kentucky rate remains slightly above the U.S. rate in 2019 (Figure 1).

Figure 1. Non-Fatal Work-Related Injury and Illness Incidence Rates in Private Industry, 2000–2019



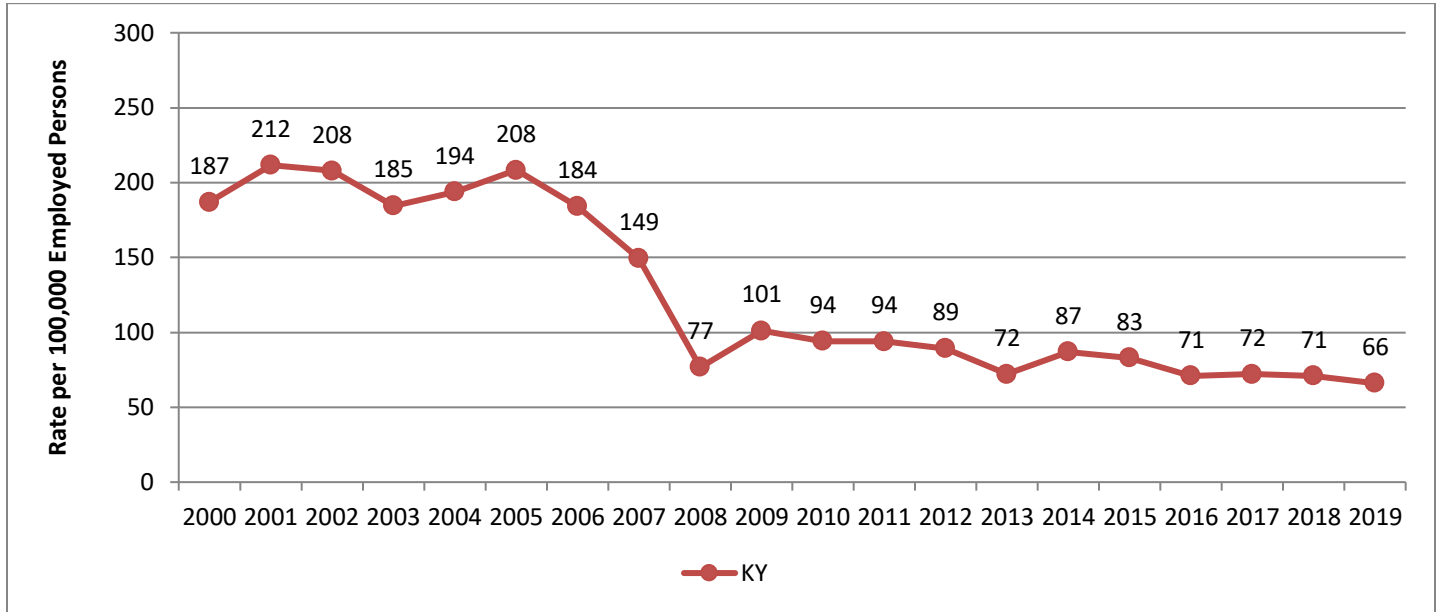
Data Source:

Annual Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

Indicator #2: Work-Related Hospitalizations

In 2019, there were 1,446 work-related hospitalizations among Kentucky residents, with an annual crude rate of 66 per 100,000 employed persons age 16 years and older, the lowest work-related hospitalization rate in the previous 20 years (Figure 2).

Figure 2. Work-Related Hospitalization Rates, 2000–2019



Data Source:

Numerator: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Services, Office of Health Policy.

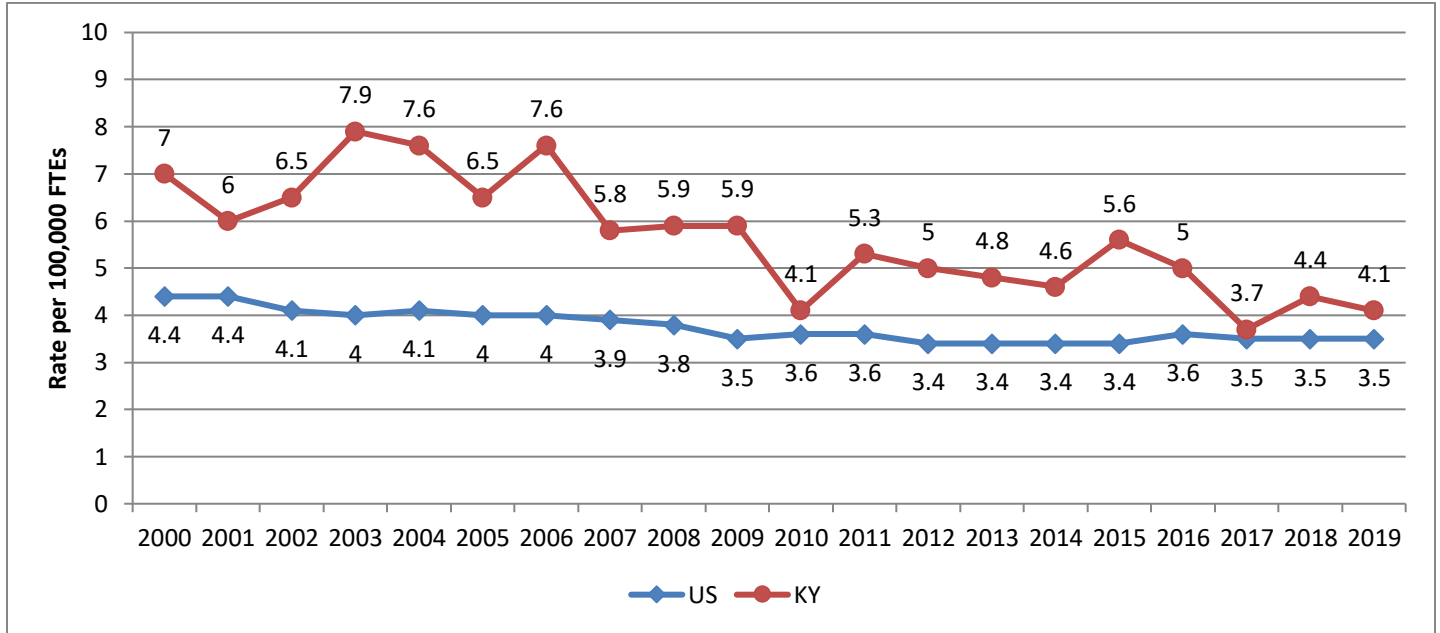
Denominator: Bureau of Labor Statistics Current Population Survey data.

Kentucky Inpatient Hospitalization Claims Files counts represent encounters of care and could be greater than the number of individual patients treated. Starting October 1, 2015, coding switched from ICD-9-CM to ICD-10-CM. As there is not a one-to-one correspondence between ICD-9-CM and ICD-10-CM codes, the coding system transition should be considered when interpreting the data. Data are provisional.

Indicator #3: Fatal Work-Related Injuries

In 2019, there were 78 fatal occupational injuries in Kentucky, a decrease from the 83 reported fatal work-related injuries in 2018. The 2019 Kentucky rate was 4.1 per 100,000, about 16% above the 2019 national rate of 3.5 per 100,000.

Figure 3. Fatal Work-Related Injury Rates, 2000–2019



Data Source:

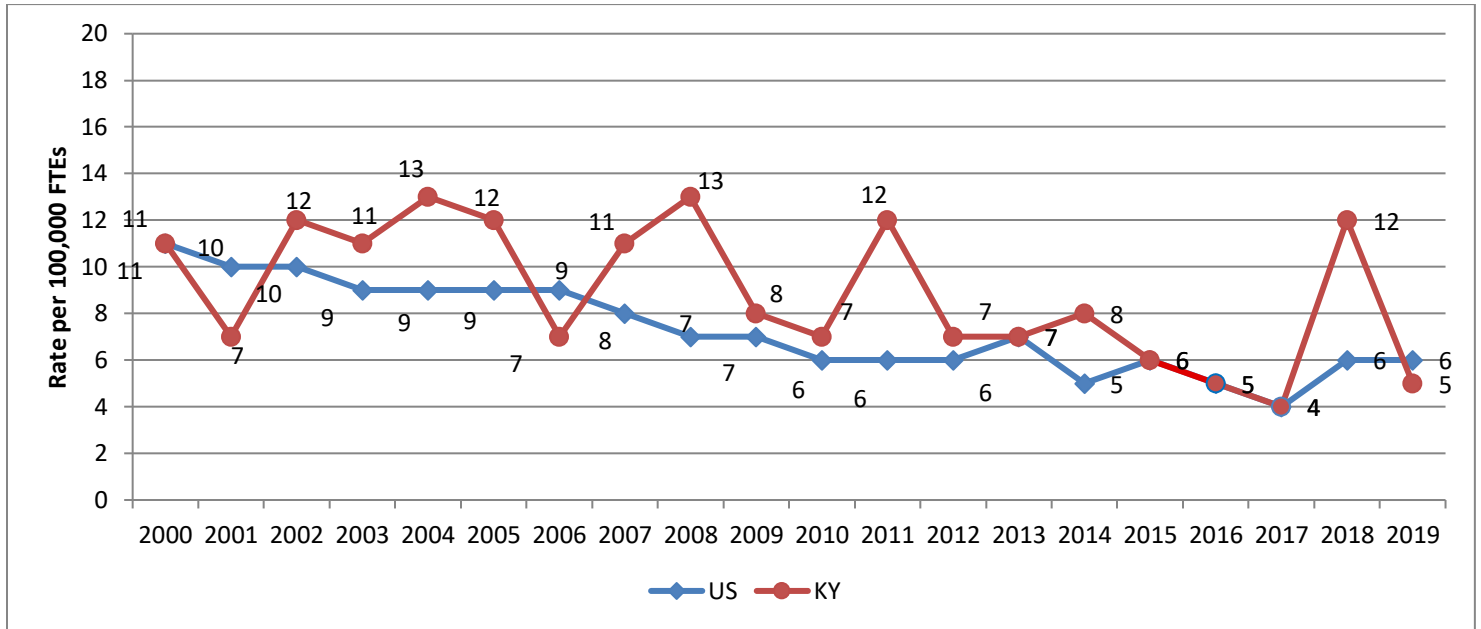
Numerator: Census of Fatal Occupational Injuries.

Denominator: Bureau of Labor Statistics Current Population Survey data.

Indicator #4: Work-Related Amputations with Days Away from Work

There were 60 amputation cases with days away from work in 2019. The annual incidence rate of cases per 100,000 FTEs was close to the US rate in 2019 (Figure 4).

Figure 4. Work-Related Amputation Rates, 2000–2019



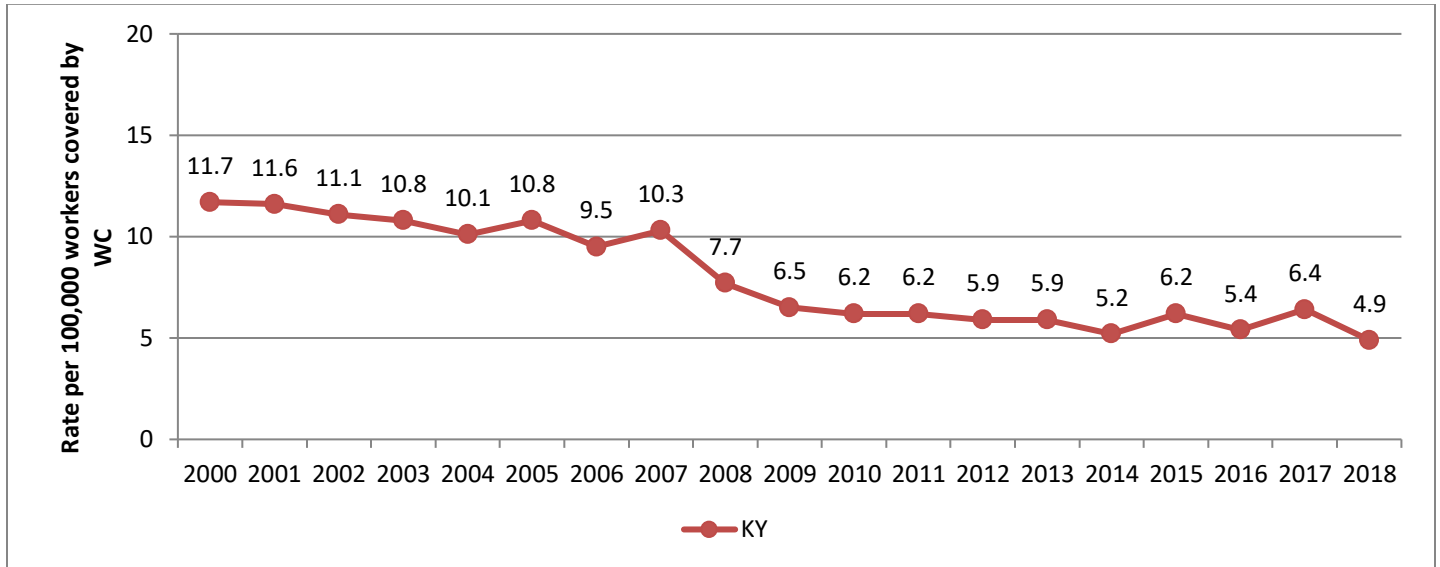
Data Source:

Annual Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

Indicator #5: Amputations Filed with the State Workers' Compensation System

There were 85 amputations reported to the Kentucky Department of Workers' Claims that occurred in 2019 (not shown). The 2018 incidence rate was 4.9 amputations per 100,000 covered by the state workers' compensation system, continuing the downward trend in the previous 20 years (Figure 5).

Figure 5. Amputation Work-Related Rates, 2000–2018



Data Source:

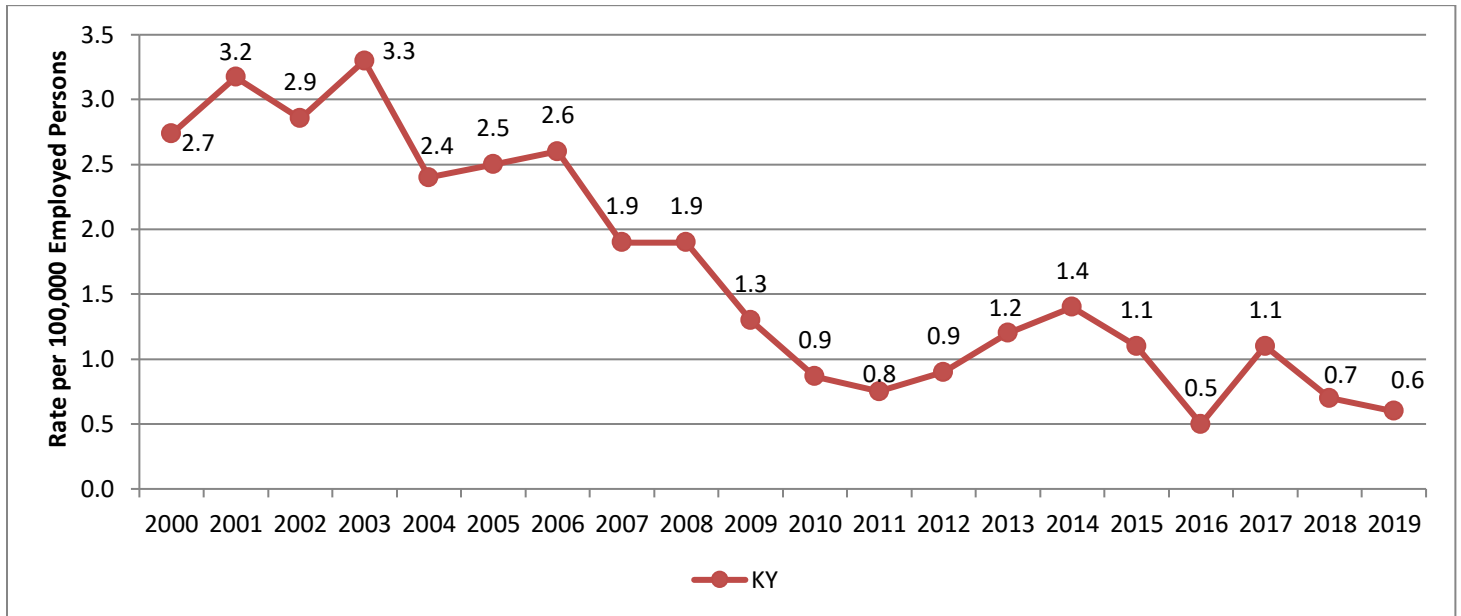
Numerator: Kentucky Department of Workers' Claims.
Denominator: National Academy of Social Insurance.

First reports of injury are provisional, as information may be updated or new for previous years. Denominator data for 2019 not available for rate calculation.

Indicator #6: Work-Related Burn Hospitalizations

There were 13 work-related burn hospitalizations in 2019, with an annual crude rate for work-related burn hospitalizations of 0.6 per 100,000 employed persons age 16 years or older (Figure 6). There were 12 work-related burn hospitalizations among Kentucky residents in 2020 (not shown).

Figure 6. Burn Hospitalizations, 2000–2019*



Data Source:

Numerator: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Services, Office of Health Policy.

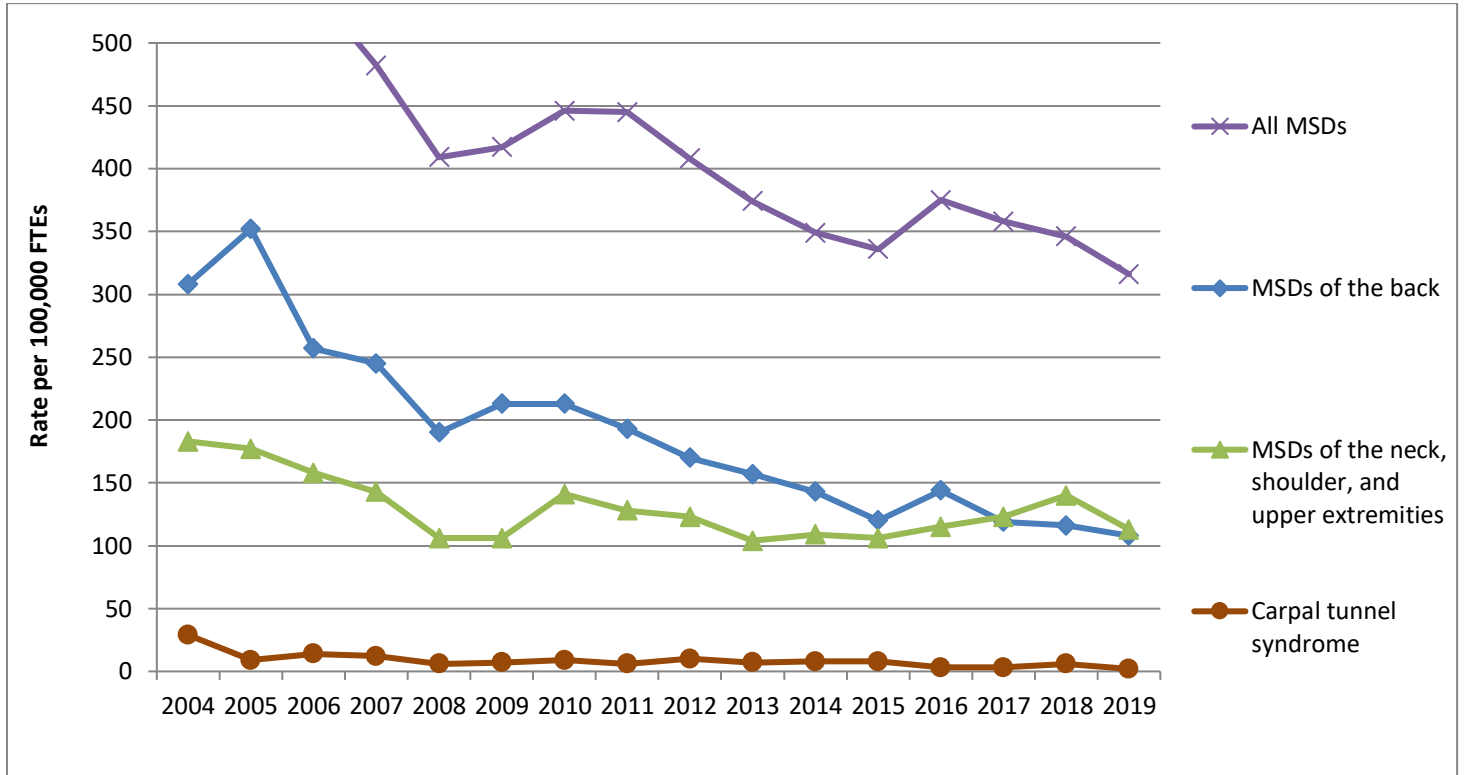
Denominator: Bureau of Labor Statistics Current Population Survey data.

Kentucky Inpatient Hospitalization Claims Files counts represent encounters of care and could be greater than the number of individual patients treated. Starting October 1, 2015, coding switched from ICD-9-CM to ICD-10-CM. As there is not a one-to-one correspondence between ICD-9-CM and ICD-10-CM codes, the coding system transition should be considered when interpreting the data. Data are provisional. *Rates based on low counts may be unstable.

Indicator #7: Work-Related Musculoskeletal Disorders (MSDs) with Days Away from Work

Kentucky had a total annual MSD incidence rate of 316 cases per 100,000 FTEs in 2019, due primarily to MSDs of the Back, Neck, Shoulder, and Upper Extremities. While the rate of total MSDs has steadily decreased, the incidence rate of carpal tunnel syndrome remained similar to previous years (Figure 7).

Figure 7. Musculoskeletal Disorders Incidence Rates Involving Days Away from Work, 2004–2019



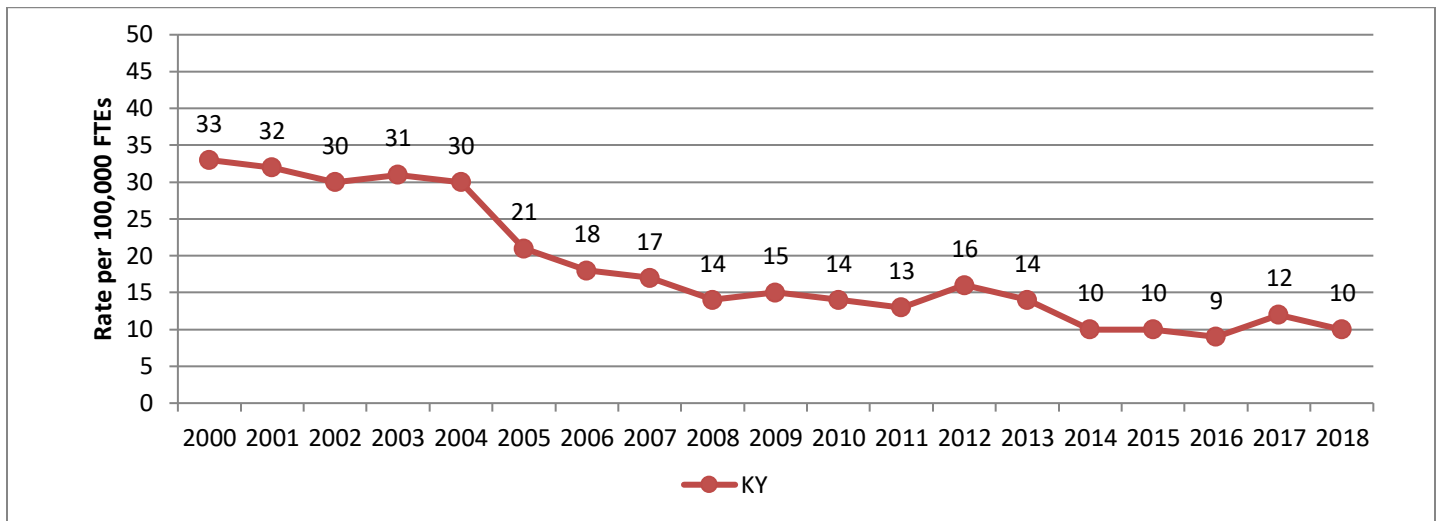
Data Source:

Annual Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

Indicator #8: Carpal Tunnel Syndrome First Reports of Injury Filed with the State Workers' Compensation System

There were 97 carpal tunnel syndrome cases reported in 2019 (not shown). The 2018 incidence rate was 10 per 100,000 covered workers, similar to the previous five years (Figure 8).

Figure 8. Lost-Time First Report of Injury Rates for Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation System, 2000–2018



Data Source:

Numerator: Kentucky Department of Workers' Claims.

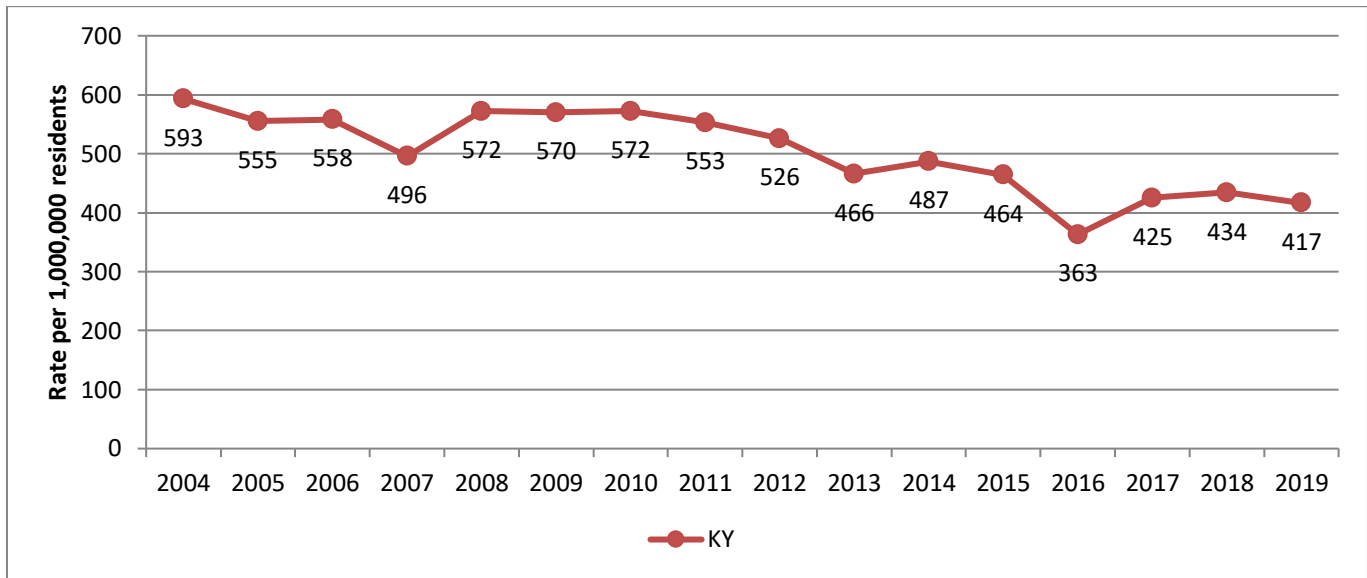
Denominator: National Academy of Social Insurance.

First reports of injury are provisional, as information may be updated or new for previous years. Denominator data for 2019 not available for rate calculation.

Indicator #9: Hospitalization from or with Pneumoconiosis

The annual age-standardized rate of pneumoconiosis hospitalizations per million residents in Kentucky decreased from 434 per 100,000 in 2018 to 417 per 100,000 in 2019 (Figure 9). There were 1,767 hospitalizations from or with pneumoconiosis among Kentucky residents in 2020 (not shown).

Figure 9. Age-Standardized Hospitalization Rates from or with Total Pneumoconiosis, 2004–2019



Data Source:

Numerator: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Services, Office of Health Policy.

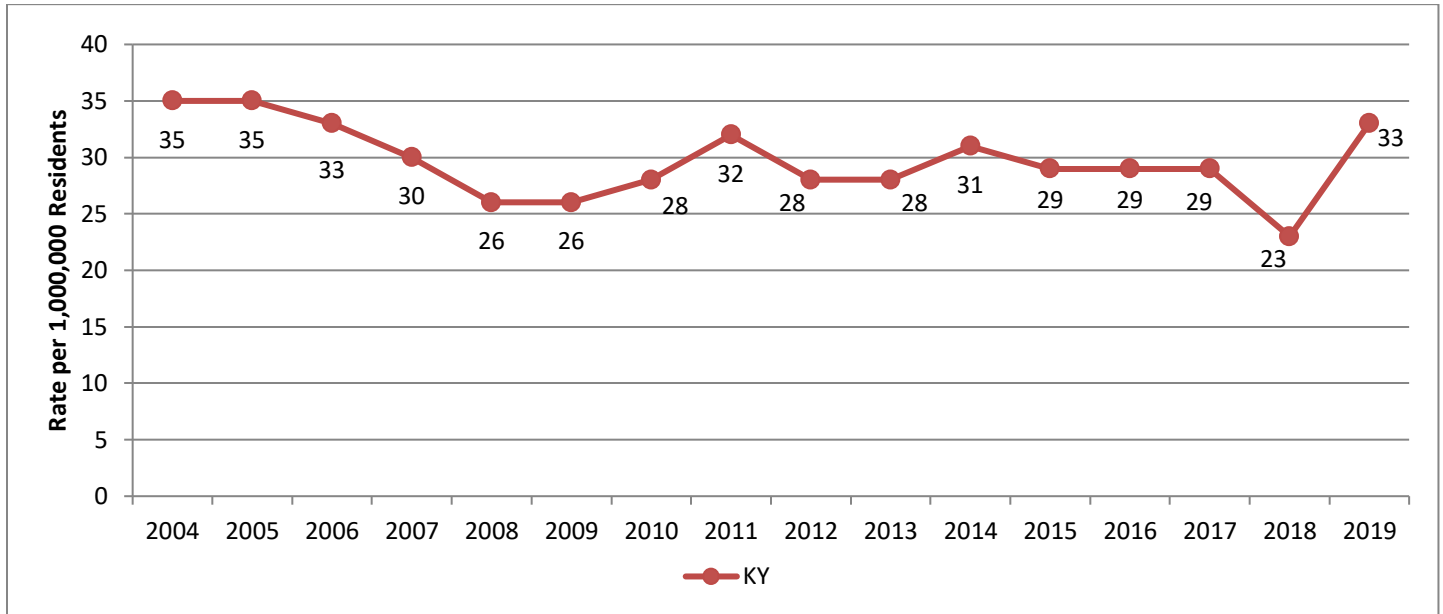
Denominator: Bureau of Labor Statistics Current Population Survey data.

Kentucky Inpatient Hospitalization Claims Files counts represent encounters of care and could be greater than the number of individual patients treated. Starting October 1, 2015, coding switched from ICD-9-CM to ICD-10-CM. As there is not a one-to-one correspondence between ICD-9-CM and ICD-10-CM codes, the coding system transition should be considered when interpreting the data. Data are provisional.

Indicator #10: Mortality from or with Pneumoconiosis

There were 129 deaths among Kentucky residents who died from or with pneumoconiosis in 2020 (not shown). The 2019 Kentucky age-adjusted death rate from or with pneumoconiosis is 33 per one million residents, about five times the U.S. rate of 6 per one million residents in 2016 (Figure 10).

Figure 10. Age-Adjusted Mortality Rate from or with Pneumoconiosis, 2004–2019



Data Source:

Numerator: Kentucky Office of Vital Statistics.

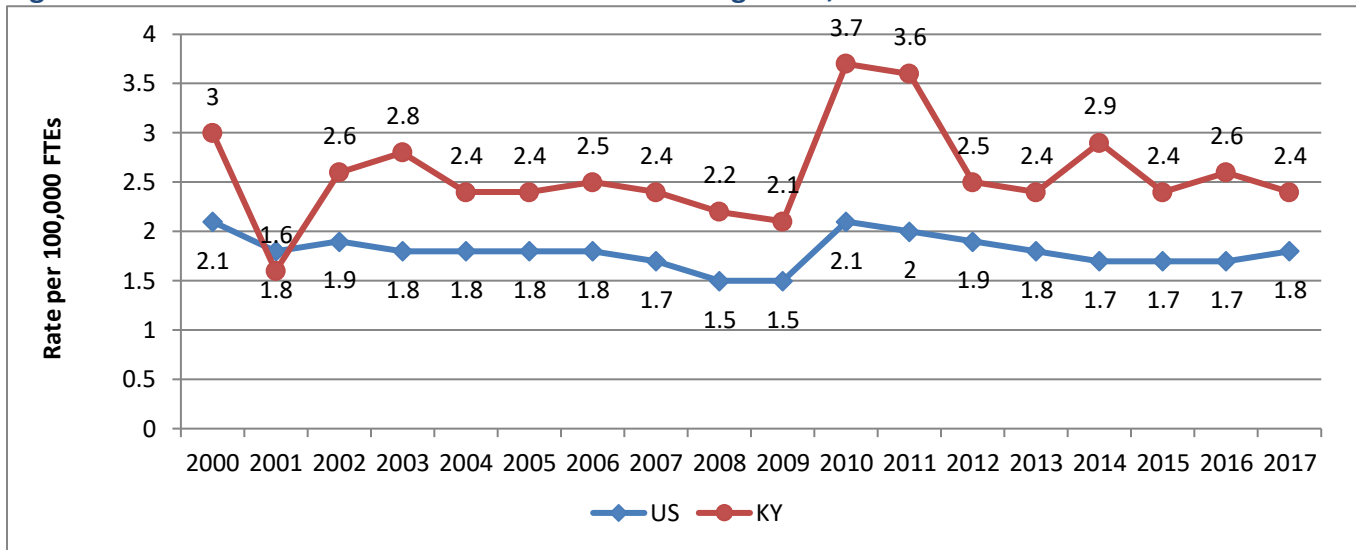
Denominator: Bureau of Labor Statistics Current Population Survey data.

Kentucky mortality data provided by Kentucky Office of Vital Statistics are provisional and subject to change.

Indicator #11: Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers

The annual incidence rate of reported work-related pesticide poisonings in Kentucky remains consistently above the national rate. The 2017 Kentucky rate was 2.4 per 100,000 FTEs, compared to a national rate of 1.8 per 100,000 FTEs (Figure 11).

Figure 11. Work-Related Pesticide-Associated Poisoning Rates, 2000–2017



Data Source:

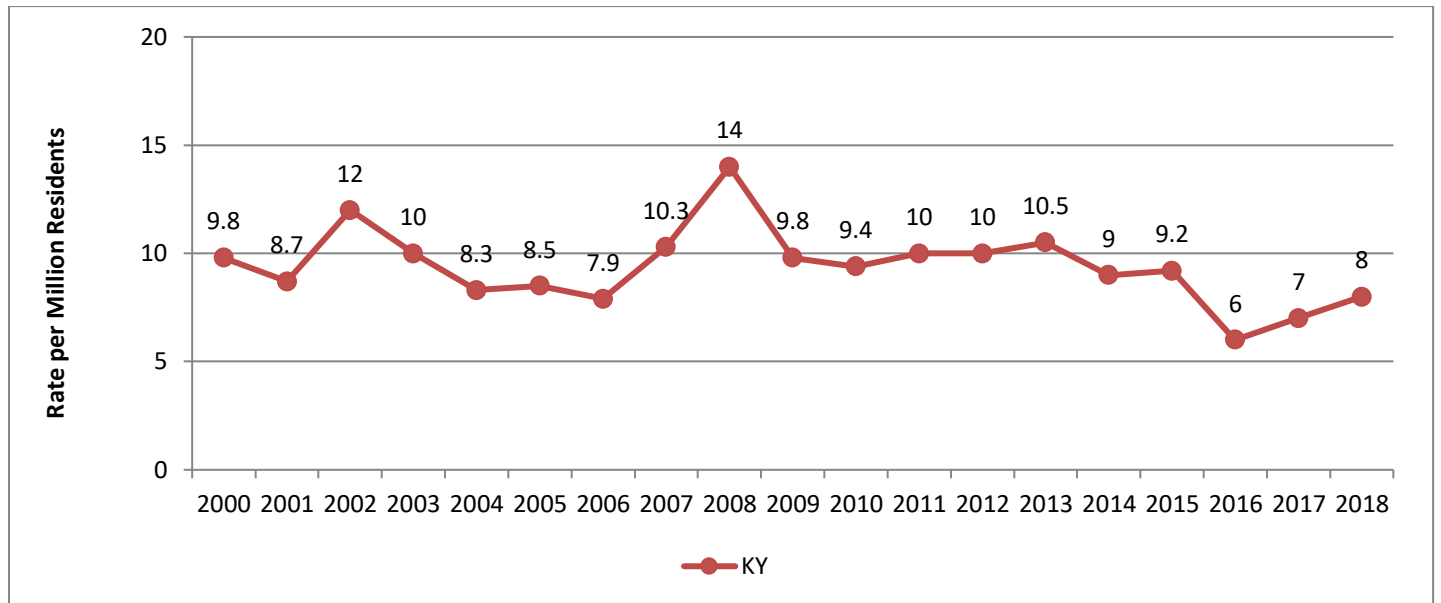
American Association of Poison Control Centers.

Data for 2018 and later not available.

Indicator #12: Incidence of Malignant Mesothelioma

The 2018 age-adjusted rate of malignant mesothelioma was 8 per one million residents age 15 years or older; 33 cases were reported to the state cancer registry in 2018 (Figure 12).

Figure 12. Age-Standardized Incidence Rate of Malignant Mesothelioma, Kentucky, 2000–2018



Data Source:

Kentucky Cancer Registry.

Data for 2019 and later not available.

Indicator #13: Elevated Blood Lead Levels (BLL) among Adults

The 2018 Kentucky annual prevalence rate of persons age 16 years or older with elevated BLL $\geq 10\mu\text{g}/\text{dL}$ was 22.9 per 100,000 (Figure 13). The 2018 Kentucky annual prevalence rate for elevated BLL $\geq 25\mu\text{g}/\text{dL}$ was similar to the previous five years at 2.0 per 100,000 (Figure 14).

Figure 13. Annual Prevalence Rates of Elevated BLL $\geq 10\mu\text{g}/\text{dL}$ among Persons Age 16 Years and Older, 2009–2018

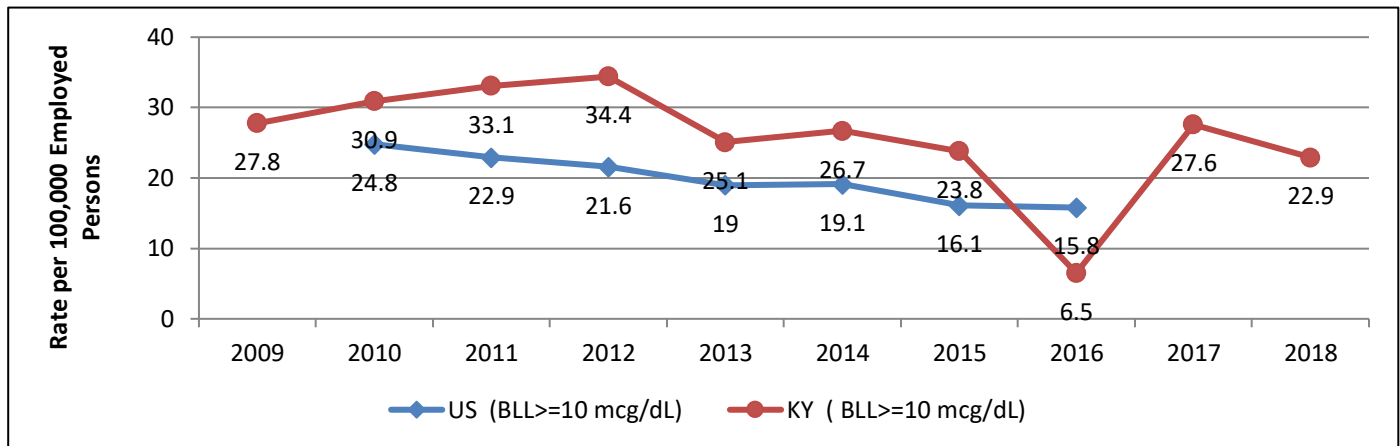
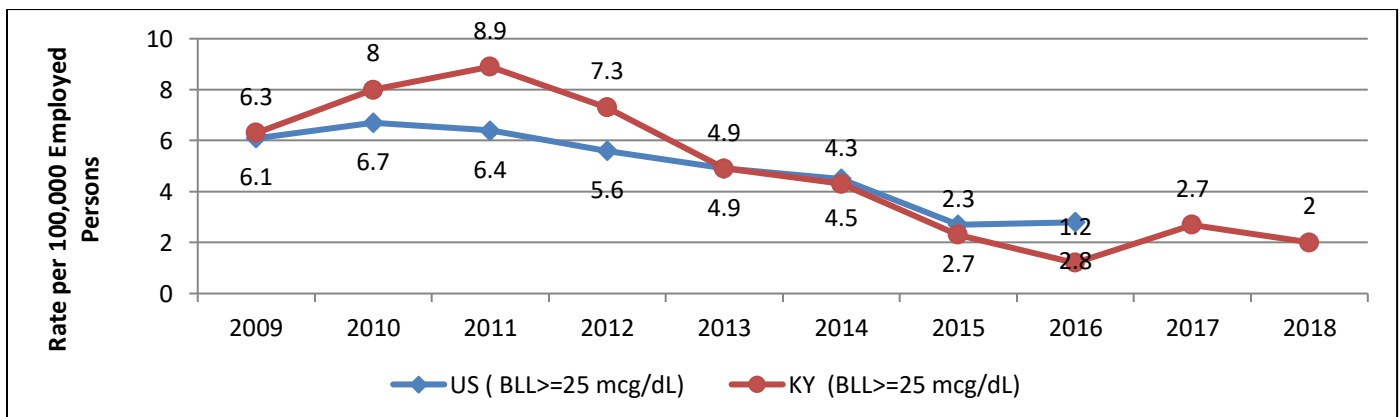


Figure 14. Annual Prevalence Rates of Elevated BLL $\geq 25\mu\text{g}/\text{dL}$ among Persons Age 16 Years and Older, 2009–2018



Data Source:

Numerator: Kentucky Lead Poisoning Prevention Program, Division of Adult and Child Health, Cabinet for Health and Family Services (Kentucky 2016 data collected were impacted by administrative changes and may not reflect true prevalence).

Denominator: Bureau of Labor Statistics Current Population Survey data.

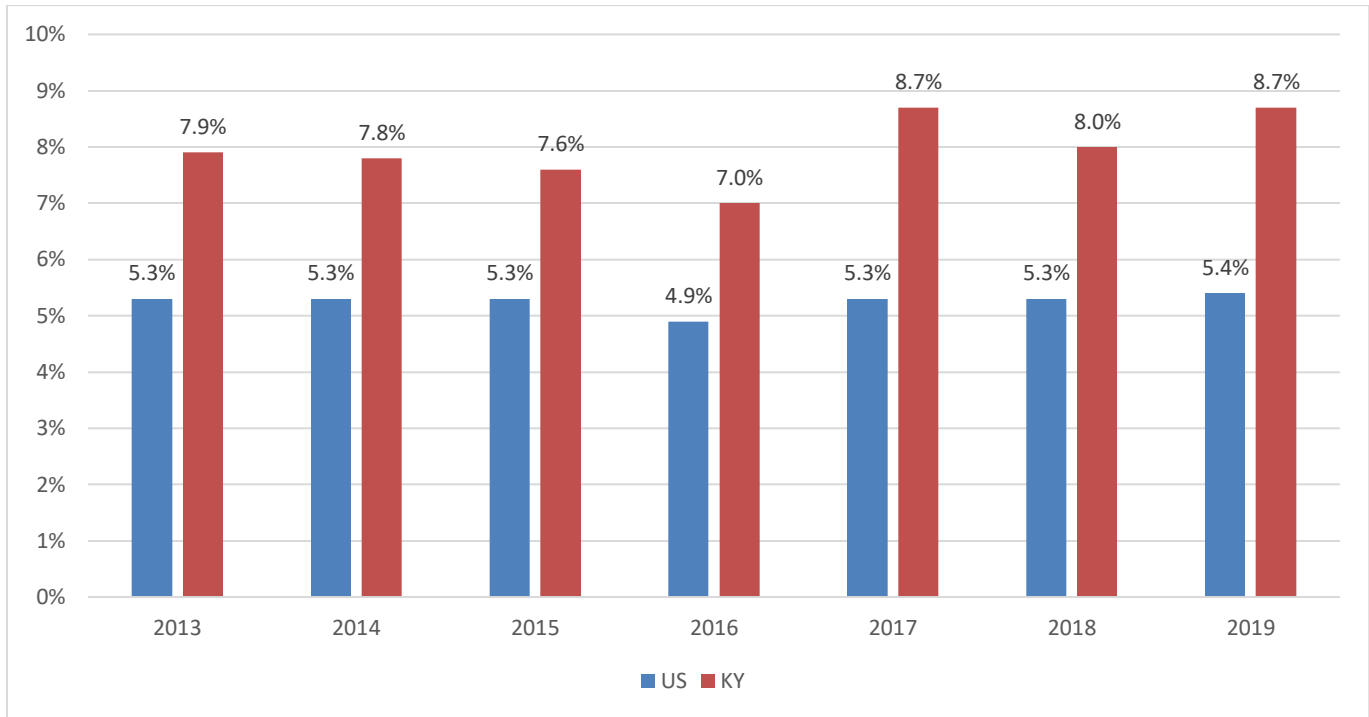
U.S. rates obtained from the NIOSH ABLES program and not available beyond 2016.

Data for 2019 and later not available.

Indicator #14: Workers Employed in Industries with High Risk for Occupational Morbidity

In 2019, the percentage of Kentucky workers employed in high-risk morbidity industries was more than 40% higher than the average annual percentage for U.S. workers (Figure 15).

Figure 15. Percentage of Workers in High-Risk Industries for Occupational Morbidity, 2013–2019



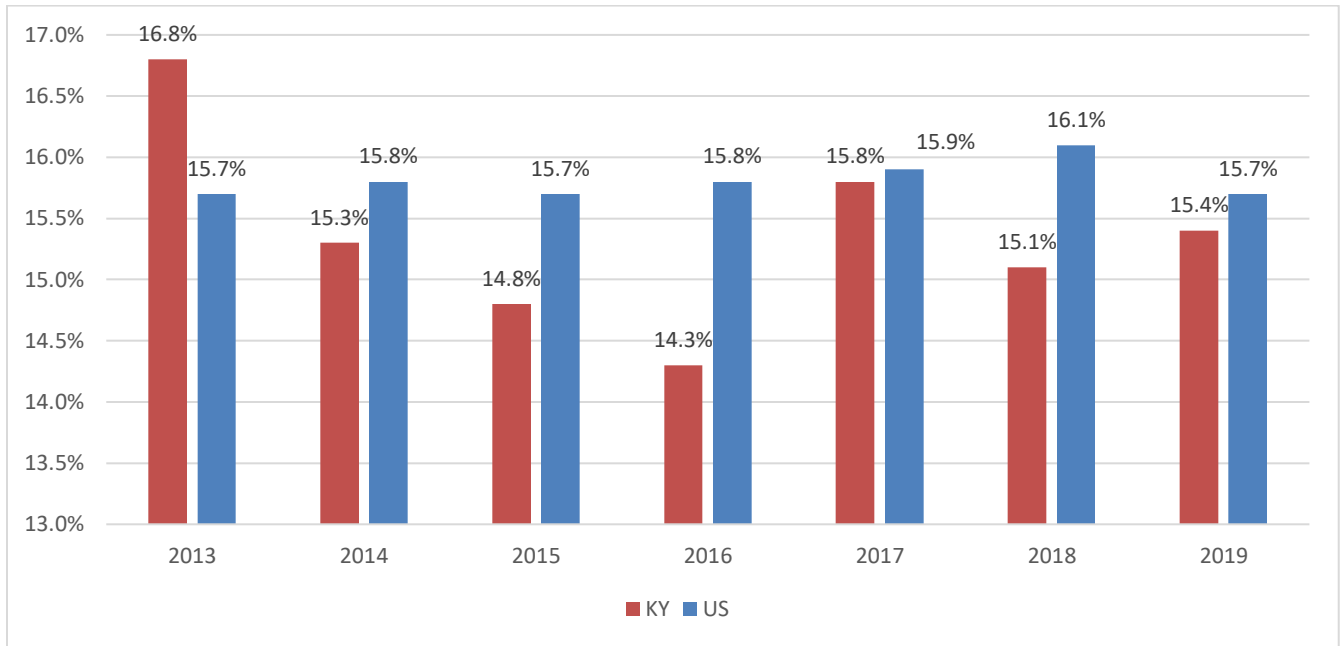
Data Source:

U.S. Census Bureau, Population Division.

Indicator #15: Percentage of Workers Employed in Occupations at High Risk for Occupational Morbidity

The percentage of Kentucky workers employed in occupations at high risk for occupational morbidity has varied in the past several years from a high of 16.8% in 2013 to a low of 14.3% in 2016. The percentage of U.S. workers employed in occupations at high risk for occupational morbidity remained stable (Figure 16).

Figure 16. Percentage of Kentucky Workers in Occupations with High Risk for Occupational Morbidity, 2013–2019

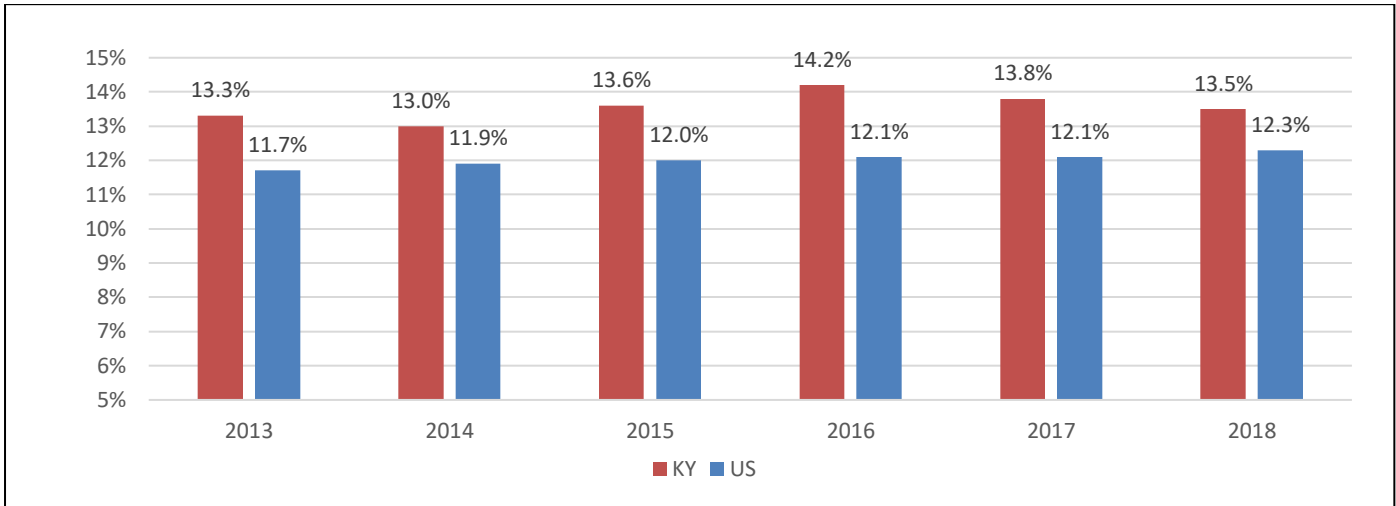


Data Source:
Bureau of Labor Statistics Current Population Survey.

Indicator #16: Percentage of Workers Employed in Occupations at High Risk for Occupational Mortality

The percentage of Kentucky workers employed in occupations at high risk for occupational mortality has remained relatively stable in recent years and continues to be slightly higher than the U.S. rate (Figure 17).

Figure 17. Percentage of Workers Employed in Occupations at High Risk for Occupational Mortality, 2013–2018



Data Source:

Bureau of Labor Statistics Current Population Survey.

Indicator #18: Occupational Safety and Health Administration (OSHA) Enforcement Activities

In 2017, 760 employer establishments were inspected by KY OSHA, 0.6% of the establishments eligible for inspections and 229 establishments less than were inspected in 2016. The percentage of eligible establishments and employees inspected by OSHA has declined steadily since 2012 (Table 1).

Table 1. OSHA Enforcement Activities, 2012–2017

	2012	2013	2014	2015	2016	2017
Number of Employer Establishments Inspected by OSHA	1,062	842	1,027	964	989	760
Number of OSHA-Covered Establishments Eligible for OSHA Inspection	109,955	116,838	119,868	121,109	122,388	120,323
Percentage of Establishments Eligible for Inspection that Were Inspected by OSHA	1.0	0.7	0.9	0.8	0.8	0.6
Number of Employees Whose Work Areas Were Inspected by OSHA	78,923	66,279	59,379	59,854	60,626	47,448
Number of OSHA-Covered Employees	1,737,291	1,758,737	1,786,636	1,817,585	1,846,342	1,859,896
Percentage of Employees Eligible for Inspection Whose Work Areas Were Inspected by OSHA	4.5	3.8	3.3	3.3	3.3	2.6

Data Sources:

OSHA annual reports, Bureau of Labor Statistics data on covered employers and wages.

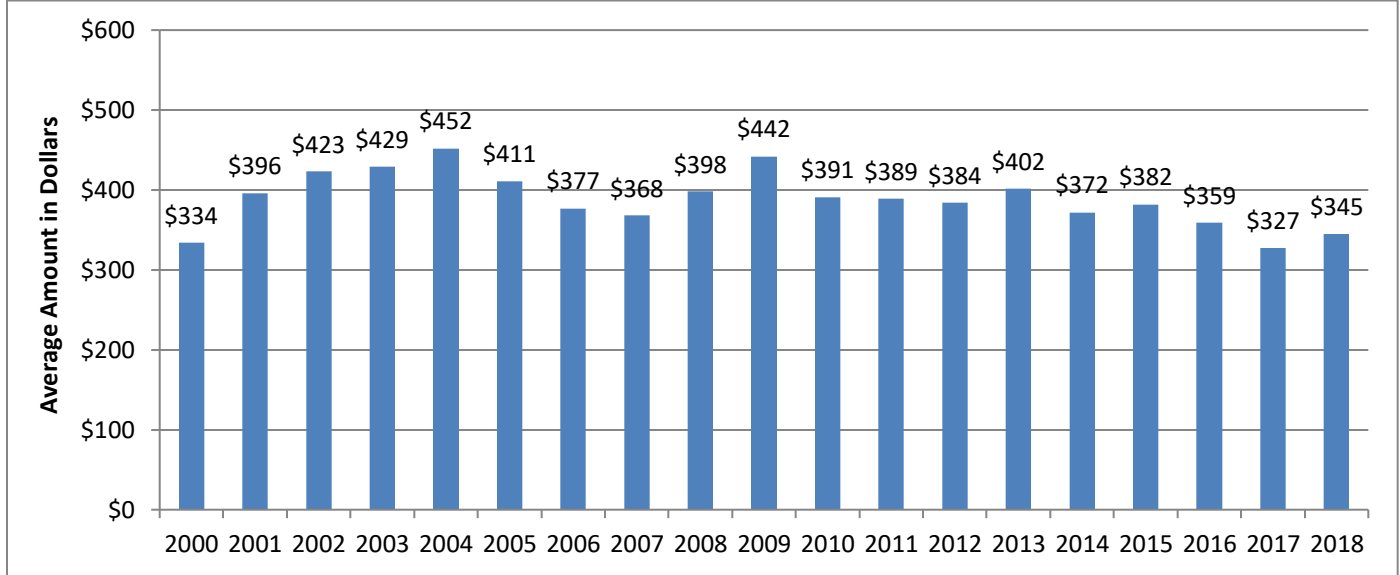
Note: Mines and farms are not typically covered by OSHA and are not included in the table above.

Data for 2018 and later not available.

Indicator #19: Workers' Compensation Awards

The total amount of workers' compensation awards paid in Kentucky in 2018 was \$637 million. The average amount of workers' compensation awards paid per covered worker in Kentucky in 2018 was \$345 (Figure 18).

Figure 18. Average Amount of Workers' Compensation Awards Paid Per Worker in Kentucky, 2000–2018



Data Source:

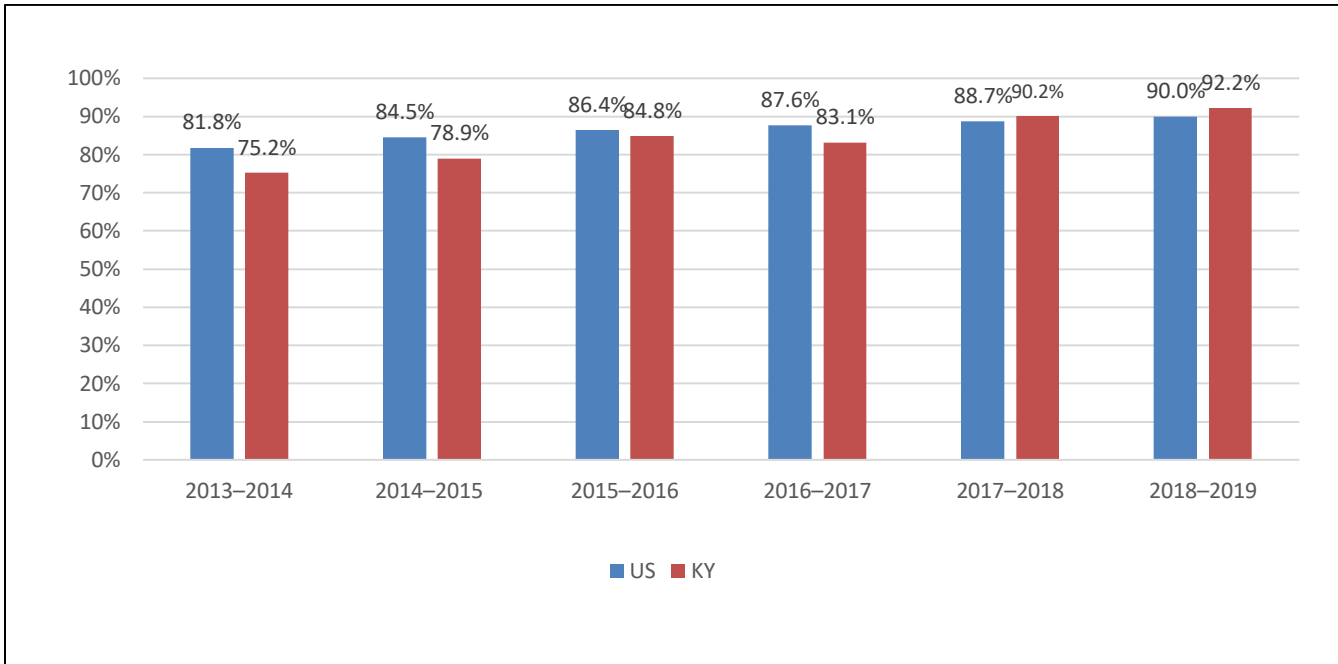
National Academy of Social Insurance.

Data for 2019 and later not available.

Indicator #23: Influenza Vaccination Coverage among Hospital Care Personnel

In the 2018–2019 influenza season, 92.2% of Kentucky hospital care personnel had an influenza vaccination. The percentage has increased over the last several years and was slightly higher than the U.S. percentage of vaccinated hospital care personnel in the last two influenza seasons (Figure 19).

Figure 19. Pooled Proportion of Hospital Care Personnel Influenza Vaccination Coverage in Acute Care Hospitals, 2013–2019



Data Source:

National Healthcare Safety Network, Centers for Disease Control and Prevention.

Data for 2019–2020 influenza season and beyond not available.

Indicator #24: Occupational Heat-Related Emergency Department (ED) Visits

The number of identified occupational heat-related ED visits in 2020 was 96 (not shown). The annual rate of ED visits for occupational heat-related illness in 2019 was 7.4 per 100,000 employed persons (Table 2).

Table 2. Occupational Heat-Related Emergency Department (ED) Visits, 2013–2019

	2013	2014	2015*	2016	2017	2018	2019
Number of ED Visits for Occupational Heat-Related Illness	68	141	151	160	104	169	162
Rate of ED Visits for Occupational Heat-Related Illness (per 100,000 employed persons)	3.6	7.5	8.2	8.4	5.3	8.6	7.4

Data Source:

Numerator data: Kentucky Outpatient Services Database, Office of Health Data and Analytics.

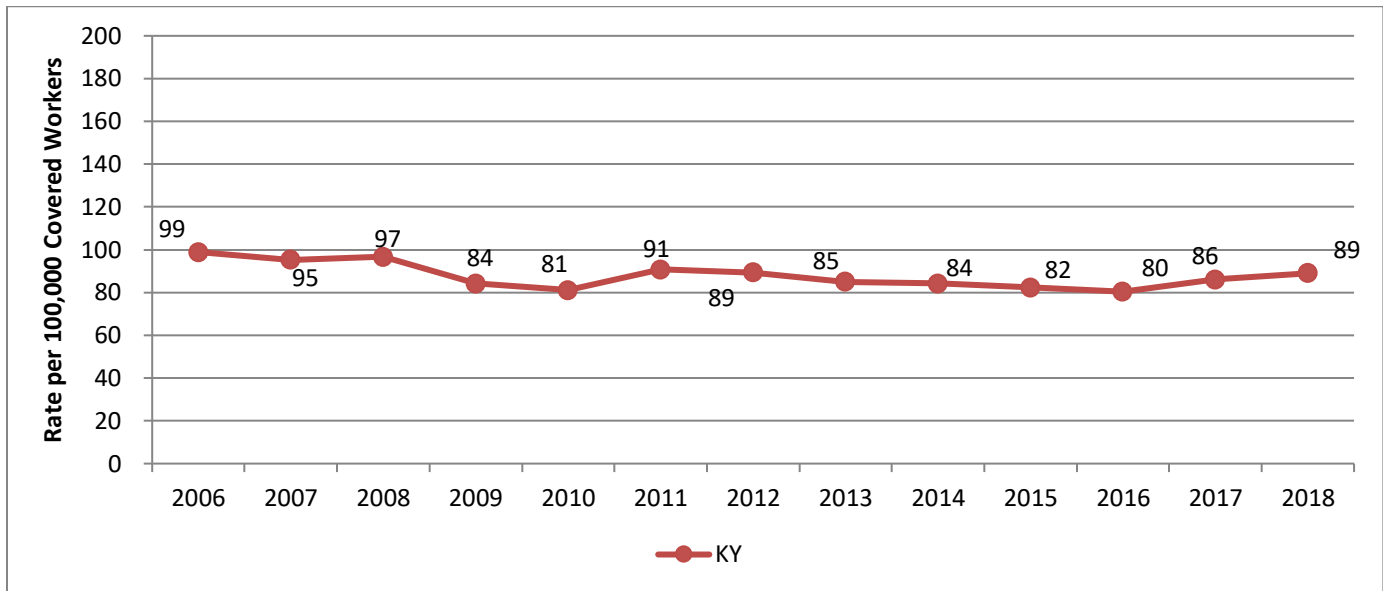
Denominator data: Bureau of Labor Statistics Current Population Survey data.

*Kentucky Outpatient Services Database counts represent encounters of care and could be greater than the number of individual patients treated. Starting October 1, 2015, coding switched from ICD-9-CM to ICD-10-CM and there is not a one-to-one correspondence between ICD-9-CM and ICD-10-CM codes. The coding system transition should be considered when interpreting the data. The 2015 number and rate are estimates based on available data due to ICD-9-CM to ICD-10-CM coding change. Data are provisional.

Indicator #25 (Kentucky-Specific): Occupational Motor Vehicle Collisions First Reports of Injury Filed by Injury Year

There were 1,382 occupational motor vehicle collision first reports of injury filed with the Kentucky Department of Workers’ Claims for injuries during 2019 (not shown). Rates of motor vehicle collision first reports of injury have remained relatively stable in the previous several years (Figure 20).

Figure 20. Occupational Motor Vehicle Collision Injury Rates, 2006–2018



Data Source:

Numerator: Kentucky Department of Workers’ Claims.

Denominator: National Academy of Social Insurance.

First reports of injury are provisional, as information may be updated or new for previous years. Denominator data for 2019 not available for rate calculation.

Indicator #26 (Kentucky-Specific): Fatal and Nonfatal Commercial Motor Vehicle Collision Injuries

Kentucky saw five motor vehicle collisions resulting in commercial driver fatalities injuries in 2019, the lowest number in the past decade. The total number of commercial vehicles involved in collisions in 2019 remained similar to recent years (Table 3).

Table 3. Kentucky Commercial Vehicle Collisions, 2010–2019

	Year									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total number of commercial vehicles involved in collisions in Kentucky	5,984	6,395	6,122	6,296	7,281	7,765	7,433	7,085	7,378	7,276
Unit at fault according to police	3,840	4,166	3,951	4,097	4,755	4,890	4,665	4,470	4,643	4,612
Commercial vehicle driver's injury										
Fatal	9	13	10	9	8	9	9	7	9	5
Incapacitating	31	48	37	37	40	44	32	35	36	33
Non-incapacitating	145	116	110	125	142	145	107	135	129	106
Possible injury	139	143	150	139	155	154	136	147	121	145
Vehicle fire	33	20	31	25	32	31	30	26	31	28
Kentucky license	3,466	3,080	2,848	2,909	3,323	3,384	3,902	3,251	3,333	3,376
Total number of fatalities in collisions involving a commercial vehicle	99	83	81	72	64	104	86	75	90	72
Total number of injuries in collisions involving a commercial vehicle	1,438	1,438	1,392	1,399	1,396	1,700	1,448	1,425	1,424	1,299
Single vehicle collision	1,316	1,475	1,407	1,440	1,614	1,626	1,474	1,523	1,552	1,484
Unit type										
Bus	148	136	143	156	171	168	170	217	227	264
School bus	59	75	69	71	82	104	81	65	46	39
Truck and trailer	1,018	1,125	1,083	1,094	1,313	1,454	1,250	883	753	637
Truck – single unit	1,498	1,385	1,419	1,484	1,697	1,704	1,716	1,579	1,590	1,745
Truck tractor & semi-trailer	3,111	3,491	3,279	3,358	3,884	4,142	4,053	4,164	4,561	4,381
Truck – other combination	122	138	109	106	110	159	136	144	149	150
Other	28	44	20	26	24	33	27	7	10	5
Hazard cargo present	171	151	133	136	180	189	140	183	187	167

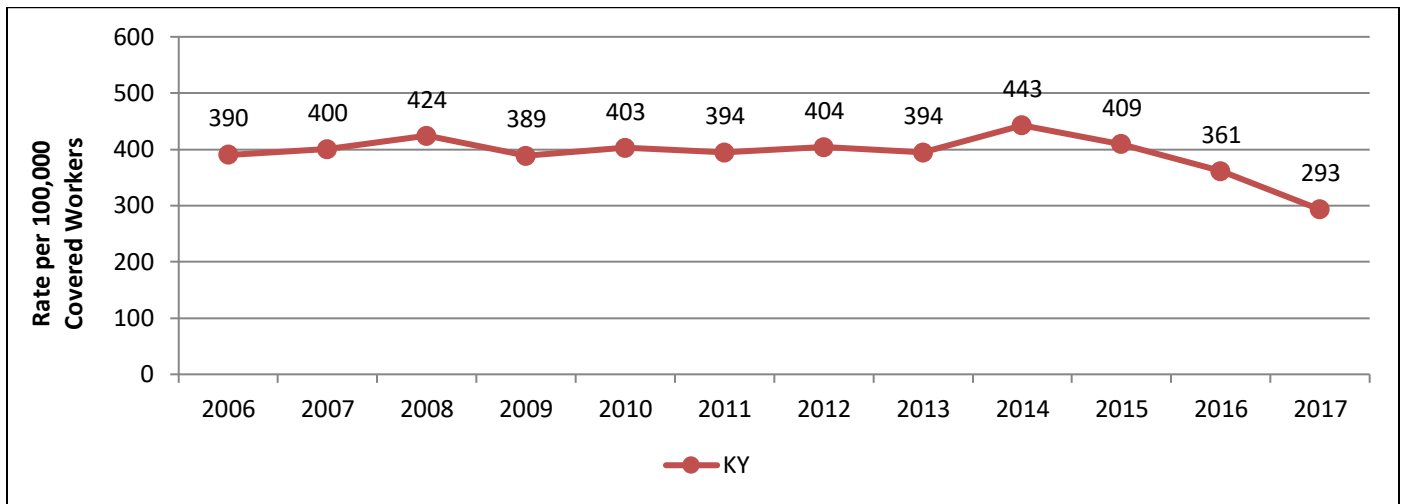
Data Source:

Kentucky State Police Collision Report Analysis for Safer Highways database.

Indicator #27 (Kentucky-Specific): Occupational Falls First Reports of Injury Filed with Kentucky Department of Workers' Claims by Injury Year

In 2018, more than 6,000 first reports of injury were associated with occupational fall injuries (not shown). In 2017, the fall incidence rate was 293 per 100,000 covered workers, a decrease from 2016 and the lowest rate in recent years (Figure 21).

Figure 21. Occupational Fall Injury Incidence Rates, 2006–2017



Data Source:

Numerator: Kentucky Department of Workers' Claims.

Denominator: National Academy of Social Insurance.

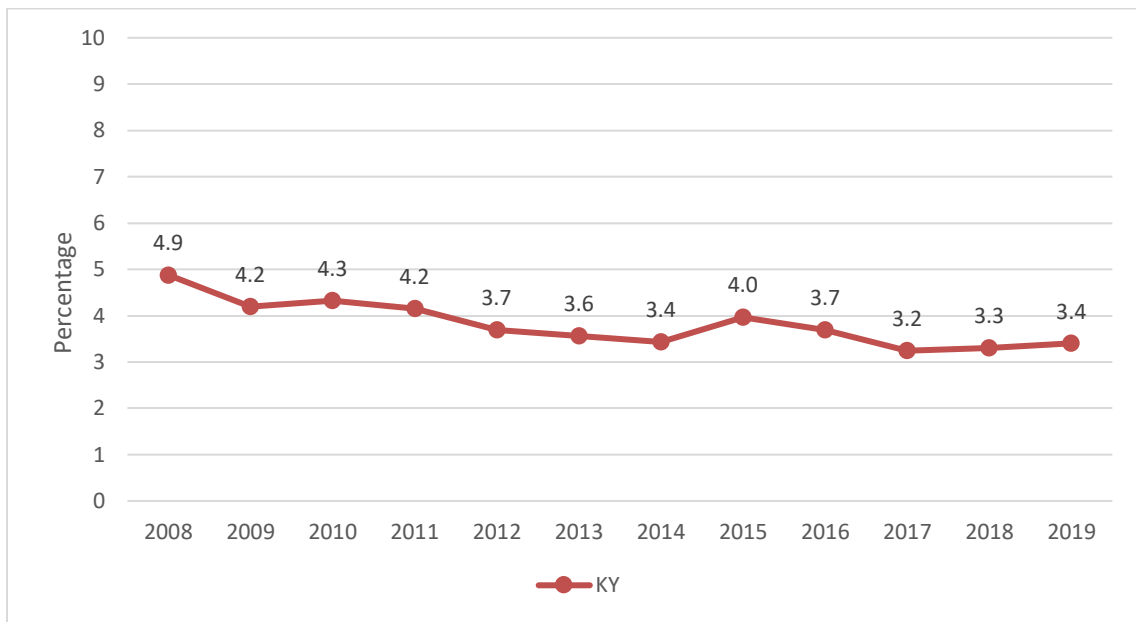
First reports of injury are provisional, as information may be updated or new for previous years. Denominator data for 2019 not available for rate calculation.

Indicator #28 (Kentucky-Specific): Work-Related Traumatic Injuries Treated in Kentucky Trauma Hospitals

In 2008 there were 324 work-related traumatic injuries, comprising 4.9% of all traumatic injuries treated in the three verified trauma centers providing data to the Kentucky Trauma Registry. In 2019, 473 work-related injuries were treated at the 29 reporting trauma facilities, comprising 3.4% of all traumatic injuries reported to the state trauma registry (Figure 22).

The most common injury mechanism among 2019 work-related trauma registry records was falls (34%), followed by struck by/against type incidents (12%). Over 85% of reported injuries were suffered by men (not shown).

Figure 22. Work-Related Traumatic Injuries as a Percentage of All Traumatic Injuries Reported to the State Trauma Registry, 2008–2019



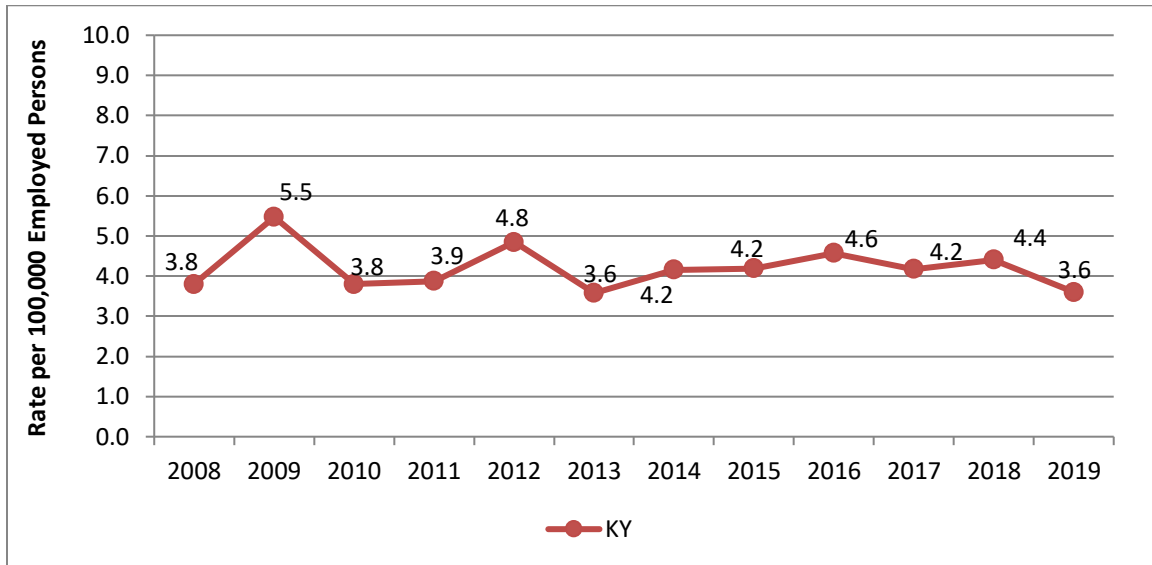
Data Source:
Kentucky Trauma Registry.

Kentucky Trauma Registry data reflects the most severe traumatic injuries treated in Kentucky acute care hospitals that are verified trauma hospitals, levels I to IV, or are in the process of applying for designation status. In 2008 there were three verified trauma hospitals in the state, but by 2018, there were 29 verified (or in a process of verification) facilities submitting data; the increased number of traumatic cases largely reflect the expansion of the system. Data are provisional.

Indicator #29 (Kentucky-Specific): Work-Related Traumatic Brain Injuries (TBIs) Treated in Kentucky Acute Care Hospitals

From 2008 to 2019, the rate of work-related TBIs remained relatively stable, fluctuating between 3.6 per 100,000 and 5.5 per 100,000 employed persons (Figure 23). There were 55 work-related TBIs treated in Kentucky acute care hospitals in 2020 (not shown).

Figure 23. Rate of Work-Related Traumatic Brain Injuries Treated in Kentucky Acute Care Hospitals, 2008–2019



Data Source:

Numerator: Kentucky Inpatient Hospitalization Claims Files; Cabinet for Health and Family Services, Office of Health Policy.

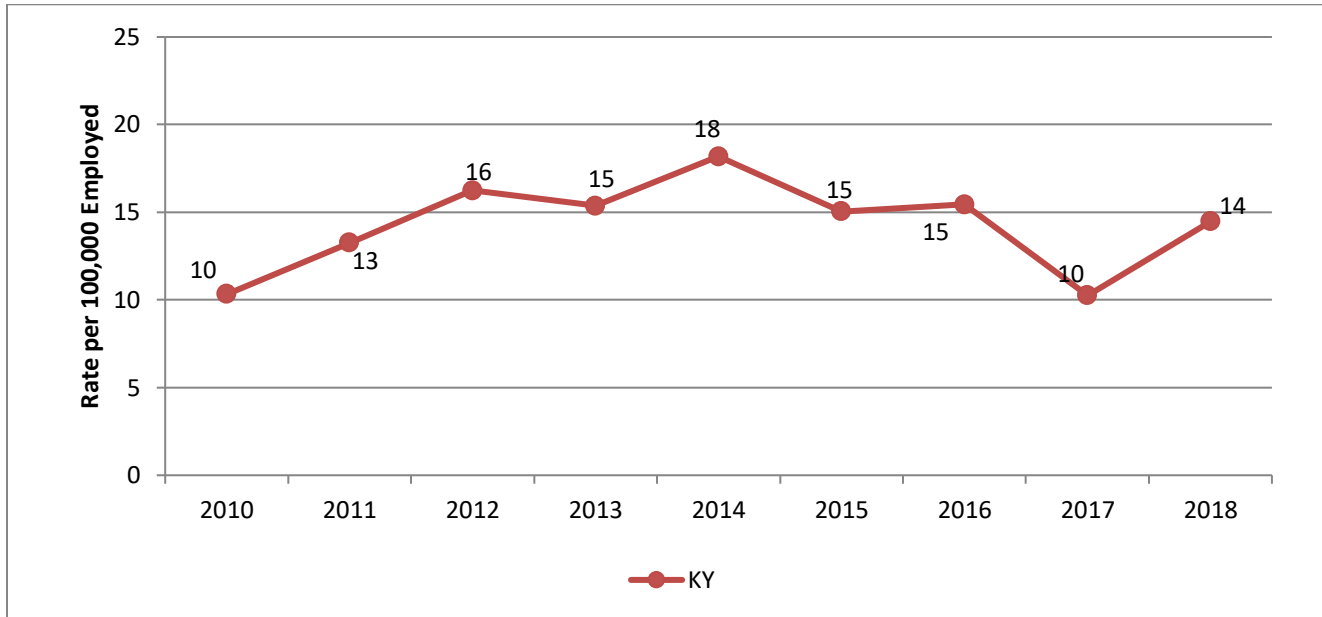
Denominator: Bureau of Labor Statistics Current Population Survey data.

Kentucky Inpatient Hospitalization Claims Files counts represent encounters of care and could be greater than the number of individual patients treated. Starting October 1, 2015, coding switched from ICD-9-CM to ICD-10-CM. As there is not a one-to-one correspondence between ICD-9-CM and ICD-10-CM codes, the coding system transition should be considered when interpreting the data. Data are provisional.

Indicator #30 (Kentucky-Specific): Work-Related Concussions Reported to the State Workers' Compensation (WC) System

In 2019, there were 267 first reports of injury associated with concussions (not shown). Ten concussions were reported per 100,000 covered workers in 2017, a decrease from previous years and the lowest rate since 2009 (Figure 24).

Figure 24. Rate of Work-Related Concussions Reported to the Kentucky Workers' Compensation System, 2008–2018



Data Source:

Numerator: Kentucky Department of Workers' Claims.

Denominator: National Academy of Social Insurance.

First reports of injury are provisional, as information may be updated or new for previous years. Denominator data for 2019 not available for rate calculation.



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The Kentucky Injury Prevention and Research Center is a partnership between the Kentucky Department for Public Health and the University of Kentucky's College of Public Health that combines academic investigation with practical public health initiatives.

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