KENTUCKY OCCUPATIONAL HEALTH INDICATORS REPORT

An Annual Report by the Kentucky Injury Prevention and Research Center

Authored by

Terry Bunn
Michael Turner
Ashley Bush
Madison Liford
May 2020

KIPRC
KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

EXECUTIVE SUMMARY

Key findings:

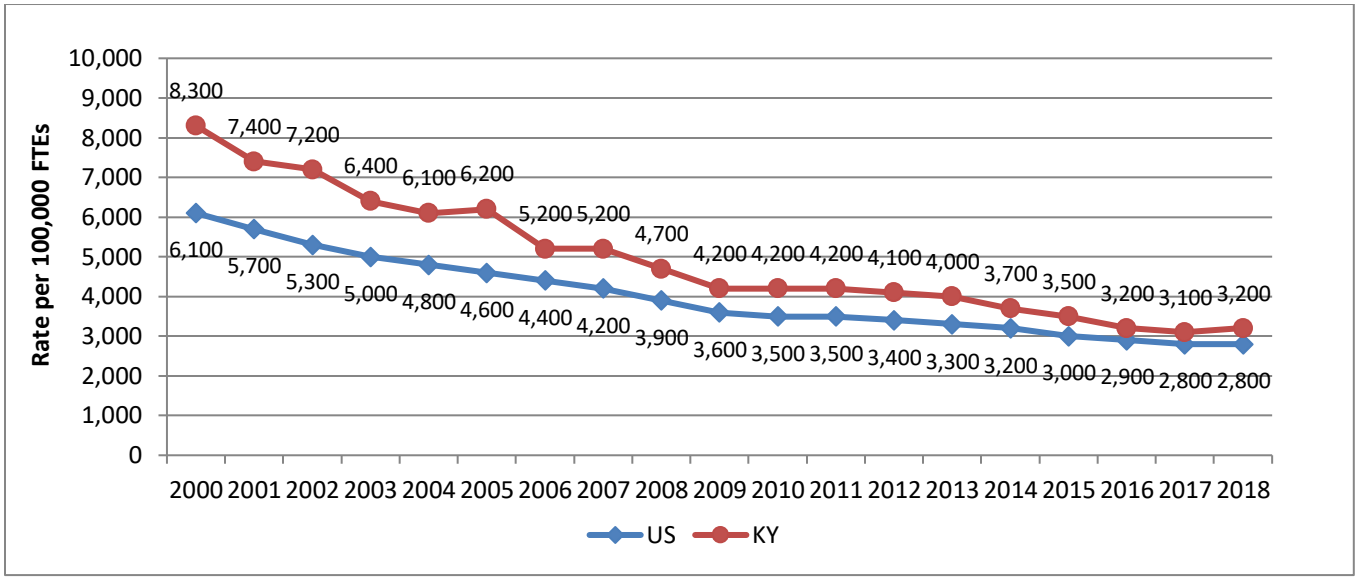
- Kentucky's 2018 *nonfatal* work-related injury and illness rate remained above the national rate (3,200 vs 2,800/100,000 full-time equivalents [FTEs]).
- Kentucky's 2018 work-related *fatality* rate was 4.4 deaths/100,000 workers, nearly 26% above the U.S. rate of 3.5/100,000 workers.
- Kentucky's work-related hospitalization rate for 2018 remained stable over the last several years (71/100,000 employed persons).
- The 2018 age-adjusted pneumoconiosis mortality rate was 23 deaths/million residents, a decrease from the 2017 rate of 29 deaths/million residents.
- The 2016 acute work-related pesticide-associated injury and illness rate was 2.6/100,000 FTEs, compared with the U.S. rate of 1.7/100,000 FTEs.
- In 2018, 13.5% of Kentucky workers were employed in high-risk industries for occupational mortality. The U.S. percentage was 12.3%.
- In 2018, 7,378 commercial vehicles were involved in collisions in Kentucky, compared to 7,085 in 2017.
- In 2018, 3.3% of visits reported to the Kentucky Trauma Registry were for work-related traumatic injuries. Over 40% of these work-related visits were due to falls.
- Work-related amputations with days away from work increased from 4 per 100,000 FTEs in 2017 to 12 per 100,000 FTEs in 2018.
- The average amount of workers' compensation benefits per covered worker in Kentucky was $327 in 2017, a decrease compared to 2016 ($359).
- The number of buses (any type) involved in motor vehicle collisions increased from 217 in 2017 to 227 in the year 2018.
- There were 46 school bus collisions in 2018, about a 30% decrease from 2017.
- The percentage of Kentucky hospital care personnel with an influenza vaccination continues to increase. Over 90% of personnel were vaccinated in the 2018–2019 flu season.

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

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

In 2018, there were 41,200 nonfatal work-related injuries and illnesses in Kentucky private industries, with an incidence rate of 3,200/100,000 full-time equivalents (FTEs). The Kentucky rate is about 14% above the national incidence rate of 2,800/100,000 FTEs in 2018. Overall, Kentucky and U.S. rates have slowly declined since 2000 (Figure 1).

Figure 1. Nonfatal Work-Related Injury and Illness Incidence Rates in Private Industries, 2000–2018

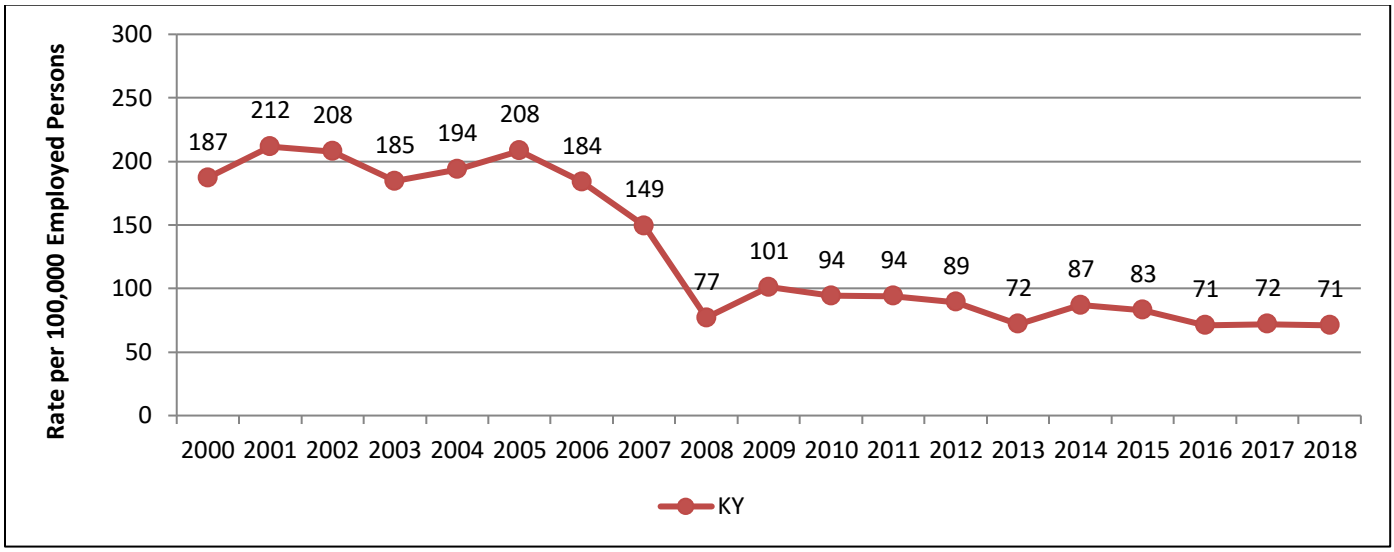


Data Source:
Annual U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

Indicator #2: Work-Related Hospitalizations

In 2018, there were 1,407 work-related hospitalizations in Kentucky. The rate of work-related hospitalizations has remained relatively constant in recent years, fluctuating between 71 and 101 per 100,000 employed persons age 16 and older since 2008 (Figure 2).

Figure 2. Work-Related Hospitalization Rates, 2000–2018



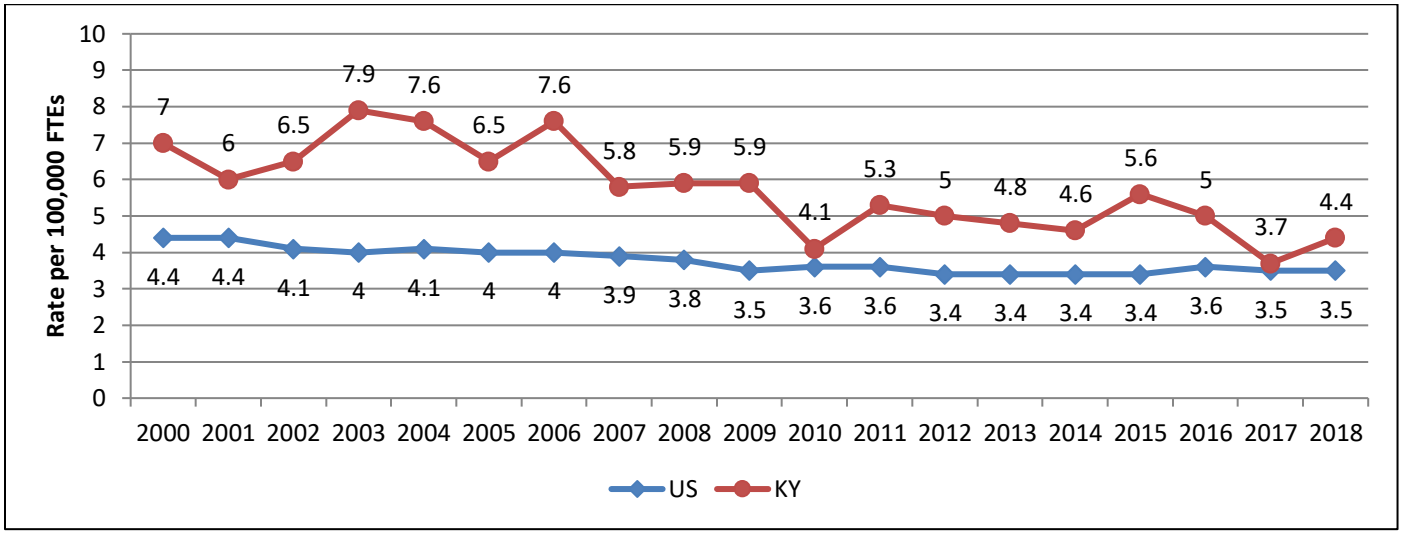
Data Sources:
Numerator: Kentucky inpatient hospitalization claims files, Kentucky Cabinet for Health and Family Services, Office of Health Policy.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

Kentucky inpatient hospitalization claim 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.

Indicator #3: Fatal Work-Related Injuries

In 2018 there were 83 fatal occupational injuries in Kentucky, an increase from the 70 reported in 2017. The Kentucky fatal work-related injury rate has fluctuated in recent years, remaining consistently above the U.S. rate (3.5/100,000) (Figure 3).

Figure 3. Fatal Work-Related Injury Rates, 2000–2018

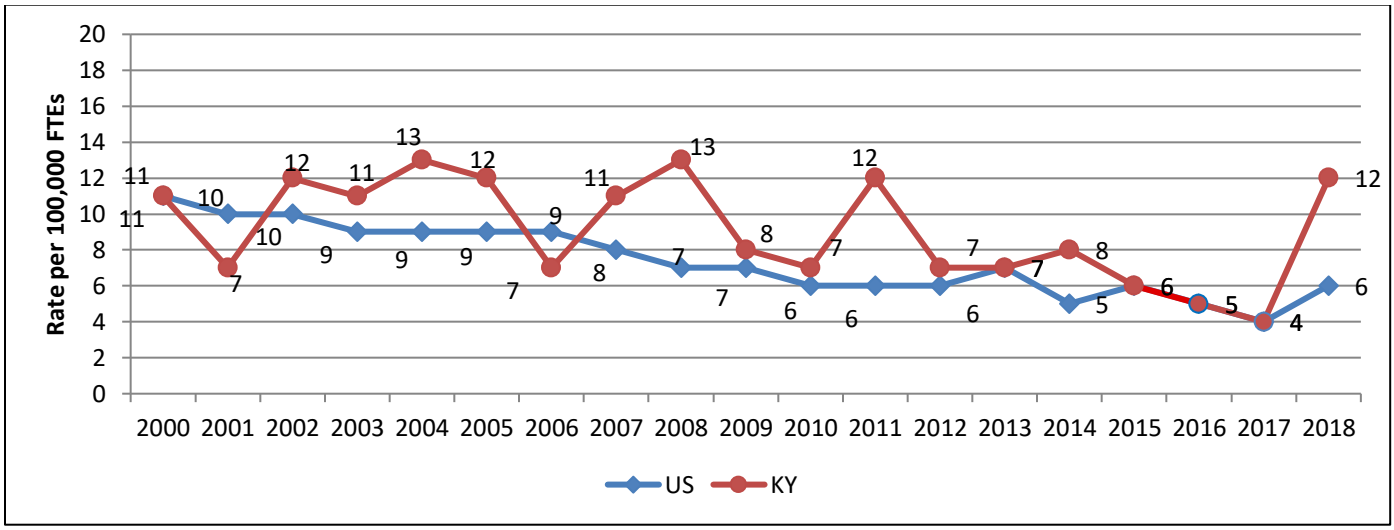


Data Sources:
Numerator: Census of Fatal Occupational Injuries.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

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

There were 150 Kentucky amputation cases with days away from work in 2018, three times the number of cases in 2017. Additionally, Kentucky's 2018 incidence rate (12 cases per 100,000 FTEs) was twice the U.S. rate in 2018 (six cases per 100,000 FTEs) (Figure 4).

Figure 4. Work-Related Amputation Rates, 2000–2018

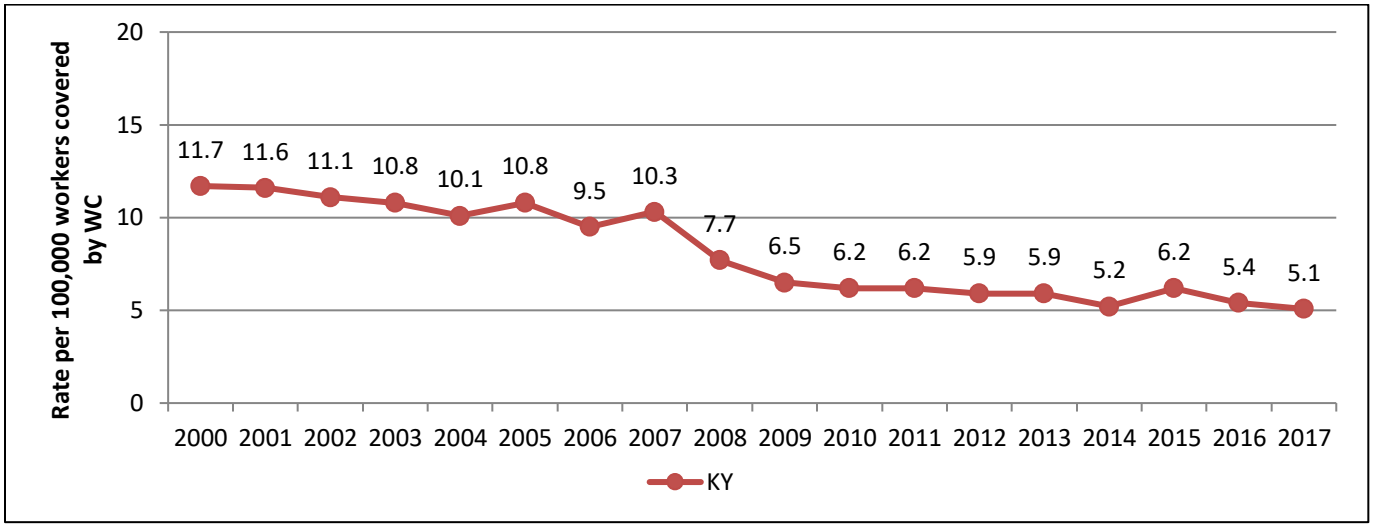


Data Source:
Annual U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

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

There were 75 amputations reported to the Kentucky Department of Workers' Compensation that occurred in year 2018. The rate of amputations per 100,000 covered by the state workers' compensation system has remained relatively stable in the last several years, with a slight, steady decline since 2000 (Figure 5).

Figure 5. Work-Related Amputation Rates, 2000–2017



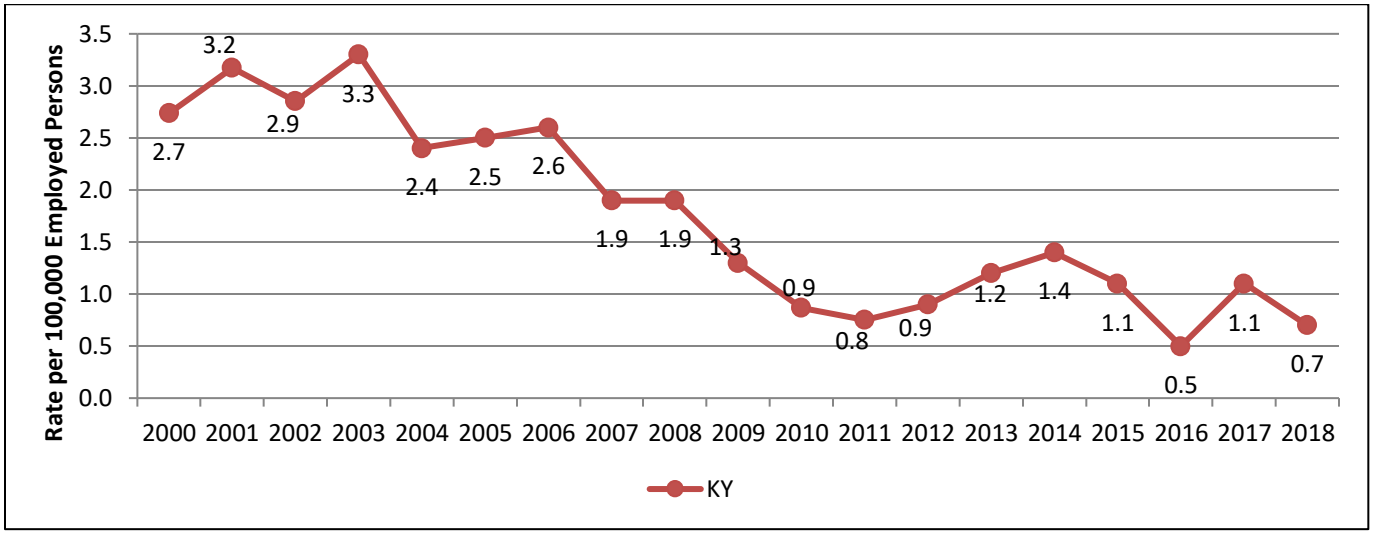
Data Sources:
Numerator: Kentucky Department of Workers' Claims.
Denominator: National Academy of Social Insurance.

Workers' compensation claims are provisional as information may be updated or new for previous years. Denominator data not available for 2018 rate calculation.

Indicator #6: Work-Related Burn Hospitalizations

There were 14 work-related burn hospitalizations in 2018, with an annual crude rate for work-related burn hospitalizations of 0.7/100,000* employed persons age 16 years or older. Overall, the rate of work-related burn hospitalizations in Kentucky has declined since 2000, with a peak in 2003 and a low in 2016 (Figure 6).

Figure 6. Burn Hospitalizations, 2000–2018



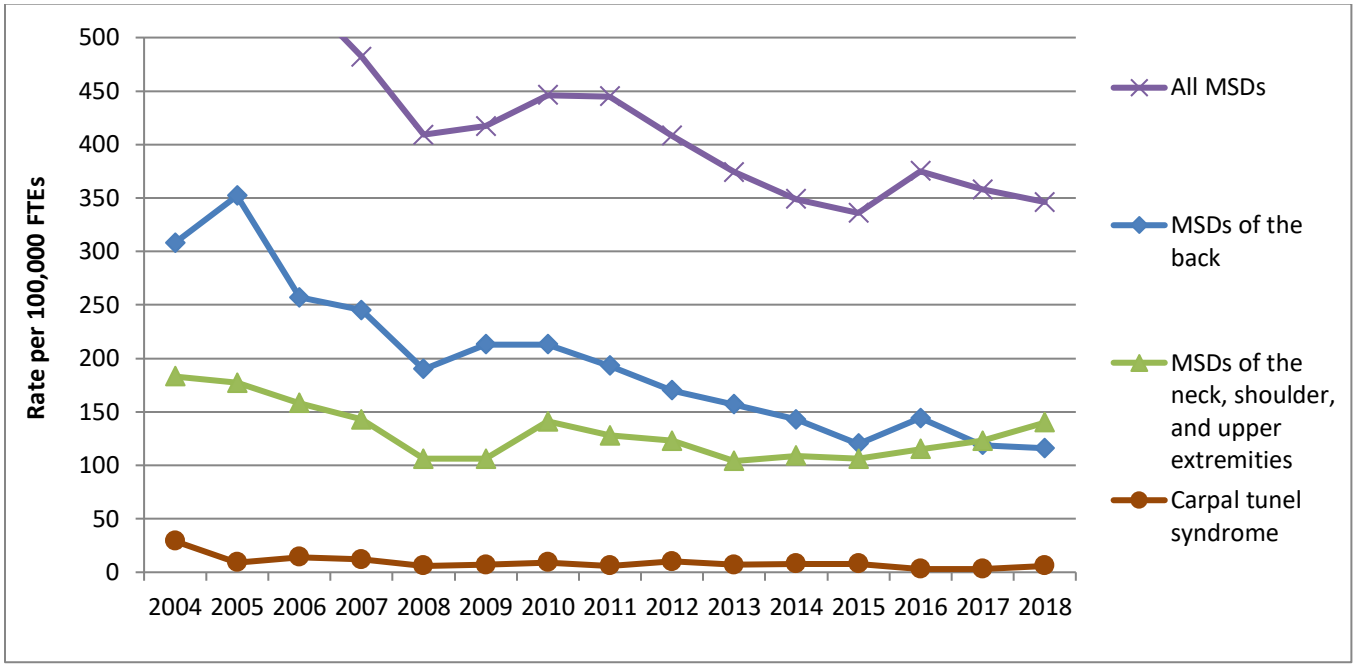
Data Sources:
Numerator: Kentucky inpatient hospitalization claims files, Cabinet for Health and Family Services, Office of Health Policy.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

Kentucky inpatient hospitalization claim 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. *Rates based on low counts may be unstable.

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

Kentucky had a total annual musculoskeletal disorder (MSD) incidence rate of 346 cases/100,000 FTEs in 2018 (Figure 7), due primarily to MSDs of the neck, shoulder, and upper extremities (140/100,000 FTEs). The incidence rates of the MSDs of the back and carpal tunnel were similar to previous years (Table7).

Figure 7. Musculoskeletal Disorder Incidence Rates Involving Days Away from Work, 2007–2018

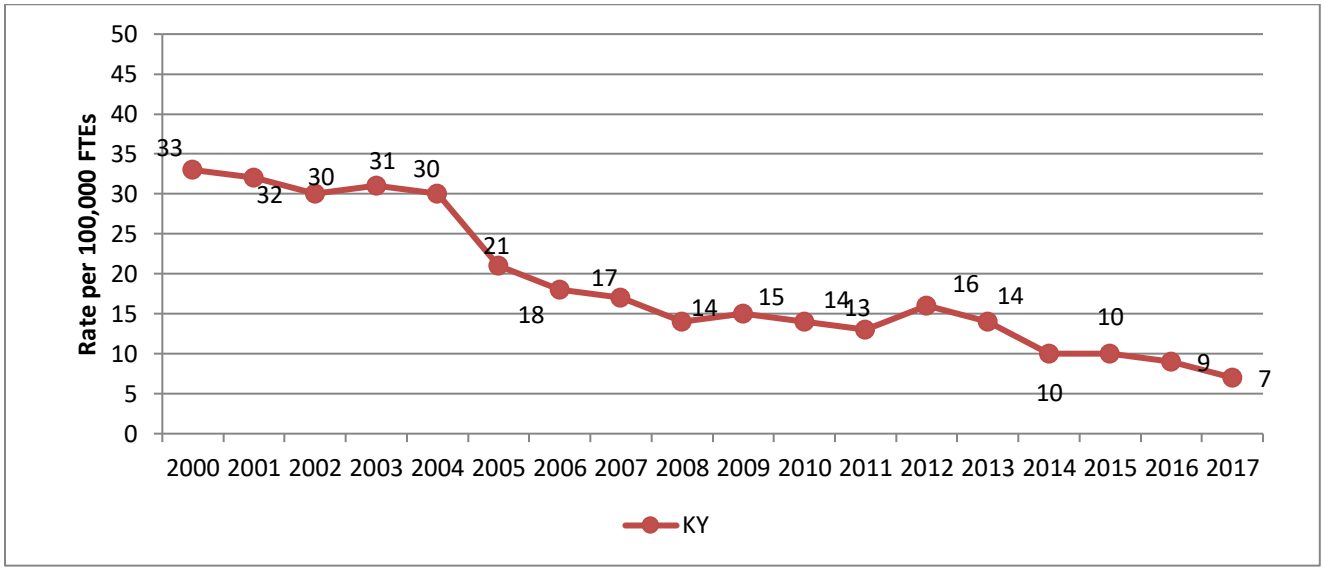


Data Source:
Annual U.S. Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses.

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

There were seven carpal tunnel syndrome cases reported in 2017 per 100,000 covered workers in Kentucky, continuing a steady decline since a peak of 33 cases per 100,000 covered workers in 2000 (Figure 8).

Figure 8. Lost Work Claim Rates for Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation Systems, 2000–2017



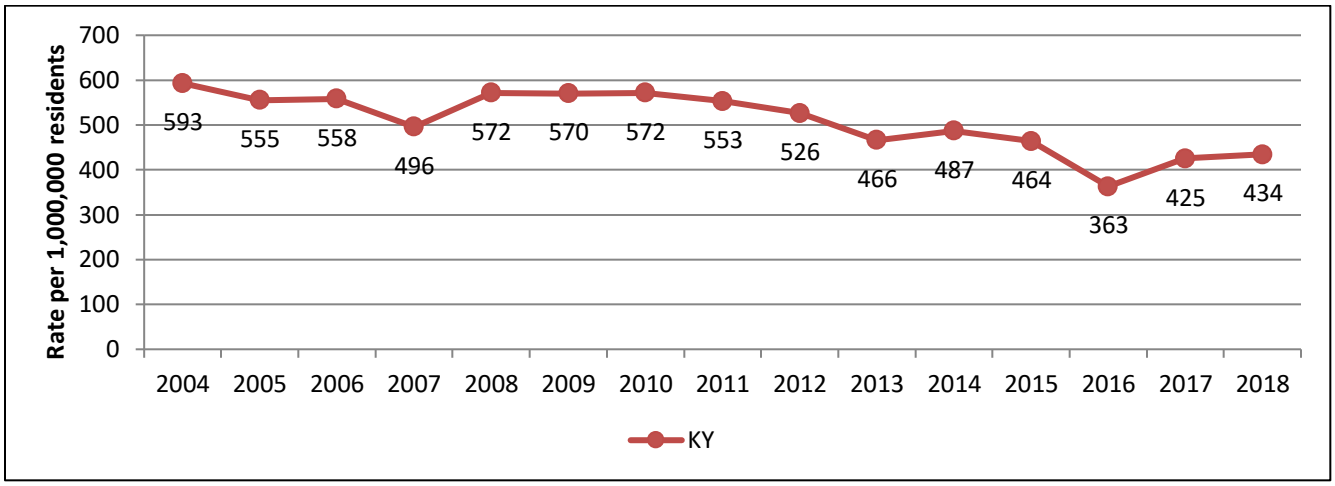
Data Sources:
Numerator: Kentucky Department of Workers' Claims.
Denominator: National Academy of Social Insurance.

Workers' compensation claims are provisional as information may be updated or new for previous years. Denominator data not available for 2018 rate calculation.

Indicator #9: Hospitalization from or with Pneumoconiosis

The annual age-standardized rate of pneumoconiosis hospitalizations in Kentucky increased slightly in 2017 and 2018 since a low of 363 hospitalizations per million residents in 2016 (Figure 9).

Figure 9. Age-Standardized Hospitalization Rates from or with Total Pneumoconiosis, 2004–2018



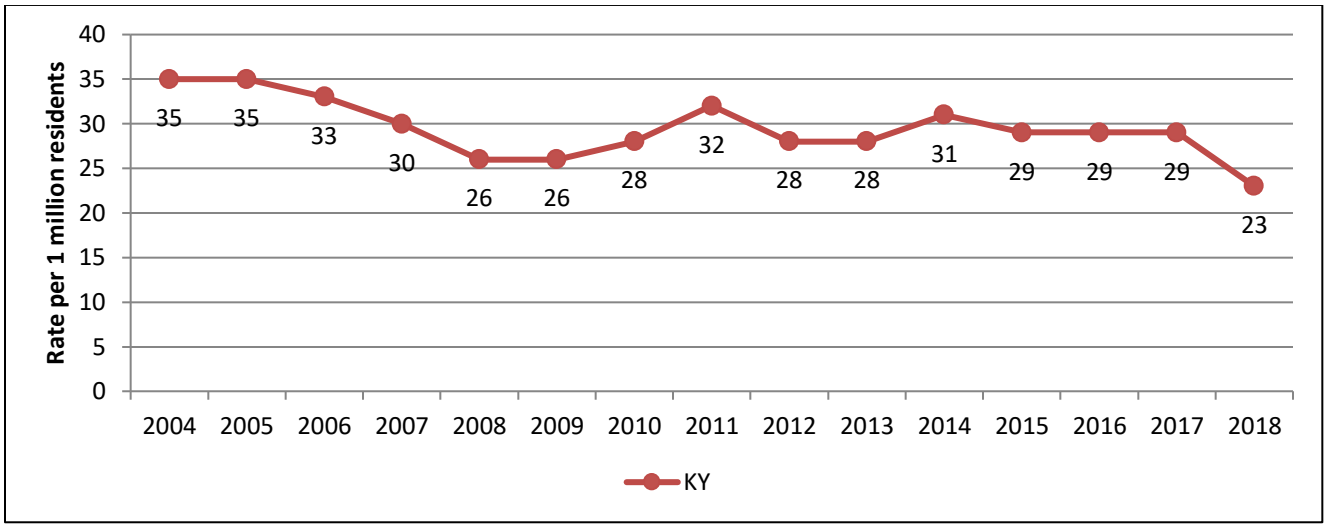
Data Sources:
Numerator: Kentucky inpatient hospitalization claims files, Kentucky Cabinet for Health and Family Services, Office of Health Policy.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

Kentucky inpatient hospitalization claim 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.

Indicator #10: Mortality from or with Pneumoconiosis

There were 102 Kentucky residents ages 16 years or older, who died from or with pneumoconiosis in 2018. The 2018 age-adjusted death rate from or with pneumoconiosis for residents 16 years of age or older was 23 per one million residents, about a 20% decrease from 2017 (Figure 10).

Figure 10. Age-Adjusted Mortality Rate from or with Pneumoconiosis, 2004-2018



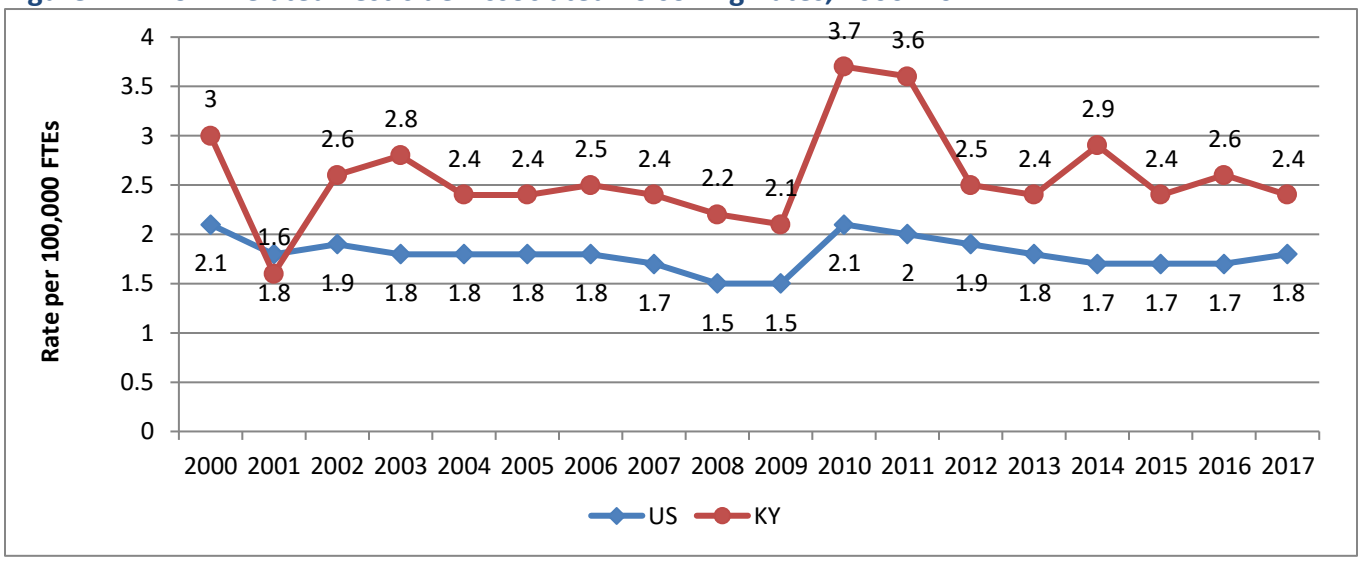
Data Sources:
Numerator: Kentucky Office of Vital Statistics.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

Kentucky mortality data provided by the 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 in recent years. The 2017 Kentucky rate was 2.4/100,000 FTEs, compared to a national rate of 1.8/100,000 FTEs (Figure 11).

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



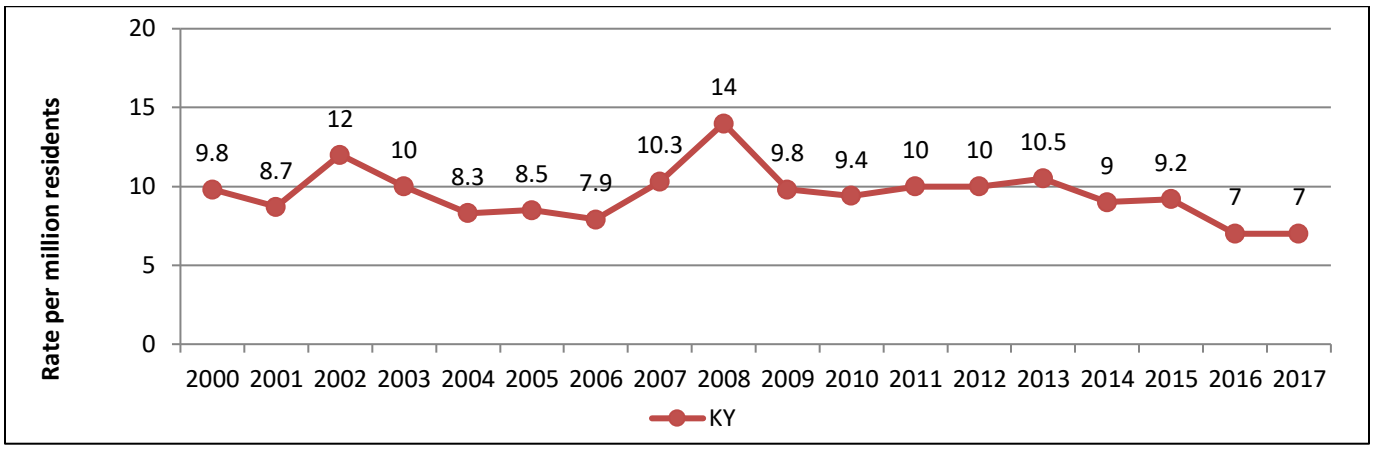
Data Sources:
American Association of Poison Control Centers.

Data for year 2018 and later not available.

Indicator #12: Incidence of Malignant Mesothelioma

The 2017 age-adjusted rate of malignant mesothelioma was the same as the 2016 rate at seven per one million residents age 15 years or older. The 2016 and 2017 malignant mesothelioma rates are the lowest since 2000 (Figure 12).

Figure 12. Age-Standardized Incidence Rate of Malignant Mesothelioma, Kentucky, 2000–2017



Data Source:
Kentucky Cancer Registry.

Indicator #13: Elevated Blood Lead Levels among Adults

The 2018 Kentucky annual prevalence rate of persons age 16 years or older with elevated blood lead levels (BLL) ≥ 10µg/dL was 22.9/100,000 (Figure 13). The 2018 Kentucky annual prevalence rate for elevated BLL ≥ 25µg/dL was similar to the previous five years at 2.0/100,000 (Figure 14).

Figure 13. Annual Prevalence Rates of Elevated BLL ≥10 µg/dL among Persons Age 16 Years and Older, 2009–2018

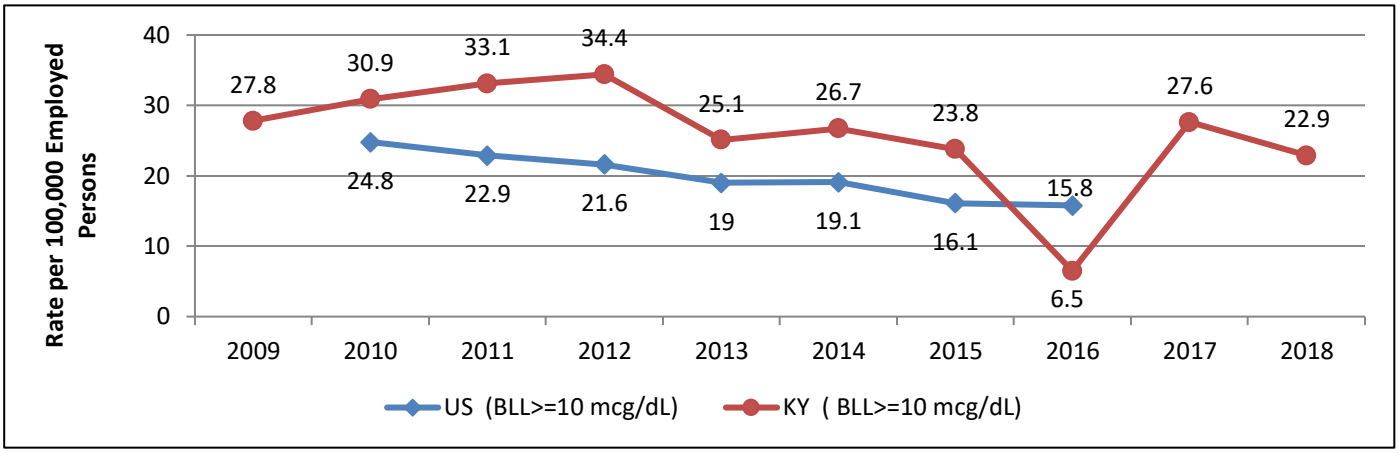
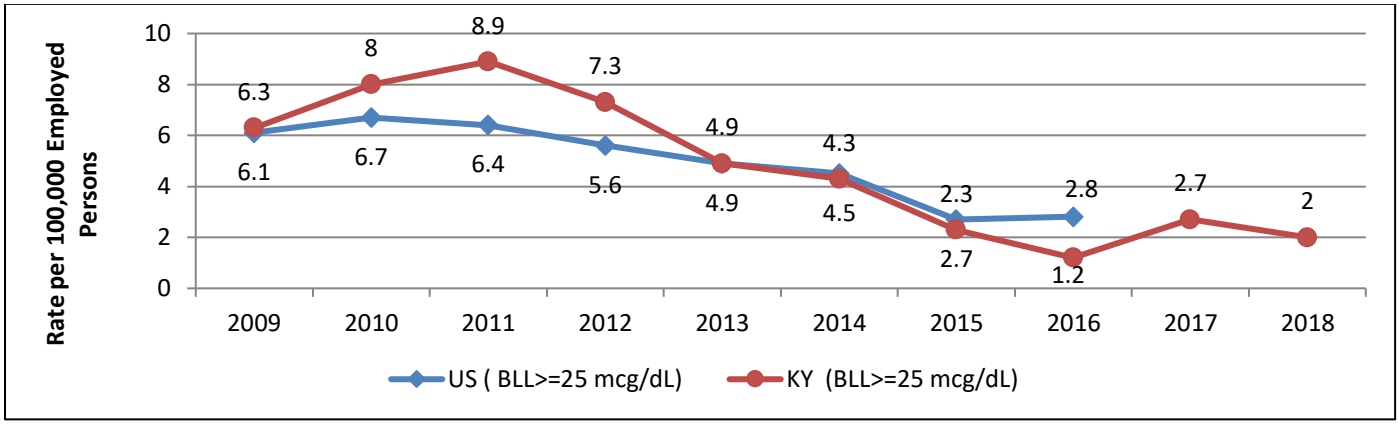


Figure 14. Annual Prevalence Rates of Elevated BLL ≥25 µg/dL among Persons Age 16 Years and Older, 2009–2018



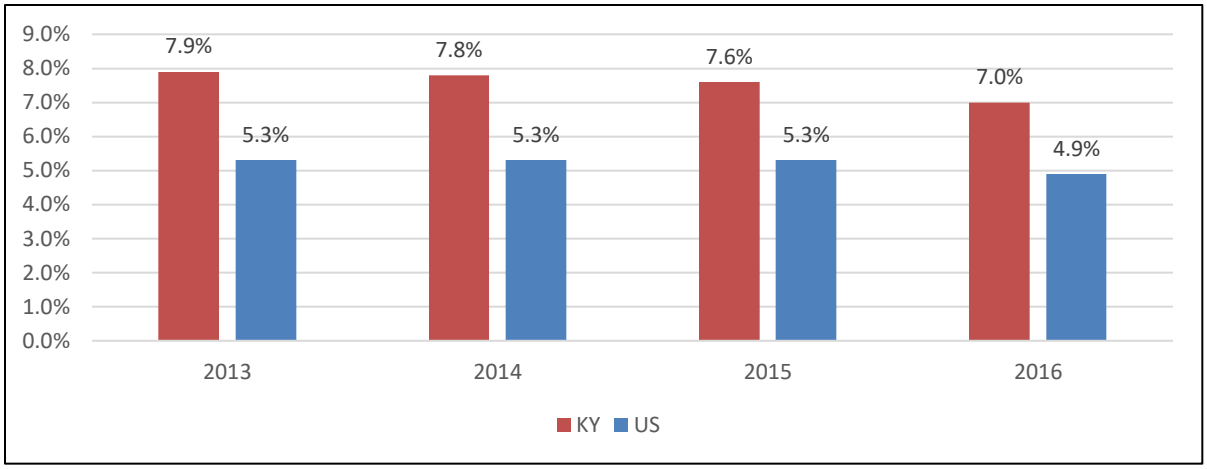
Data Sources:
Numerator: Kentucky Lead Poisoning Prevention Program, Division of Adult and Child Health, Cabinet for Health and Family Services.*
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.
U.S. rates were obtained from the National Institute for Occupational Safety and Health Adult Blood Lead Epidemiology and Surveillance program and not available beyond 2016.

*Kentucky 2016 data collection was impacted by administrative changes and may not reflect true prevalence.

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

The percentage of Kentucky workers employed in high-risk morbidity industries was almost 30% higher than the average annual percentage for the U.S. workers in 2016 and in years prior (Figure 15).

Figure 15. Percentage of Workers in High-Risk Industries for Occupational Morbidity, 2013–2016

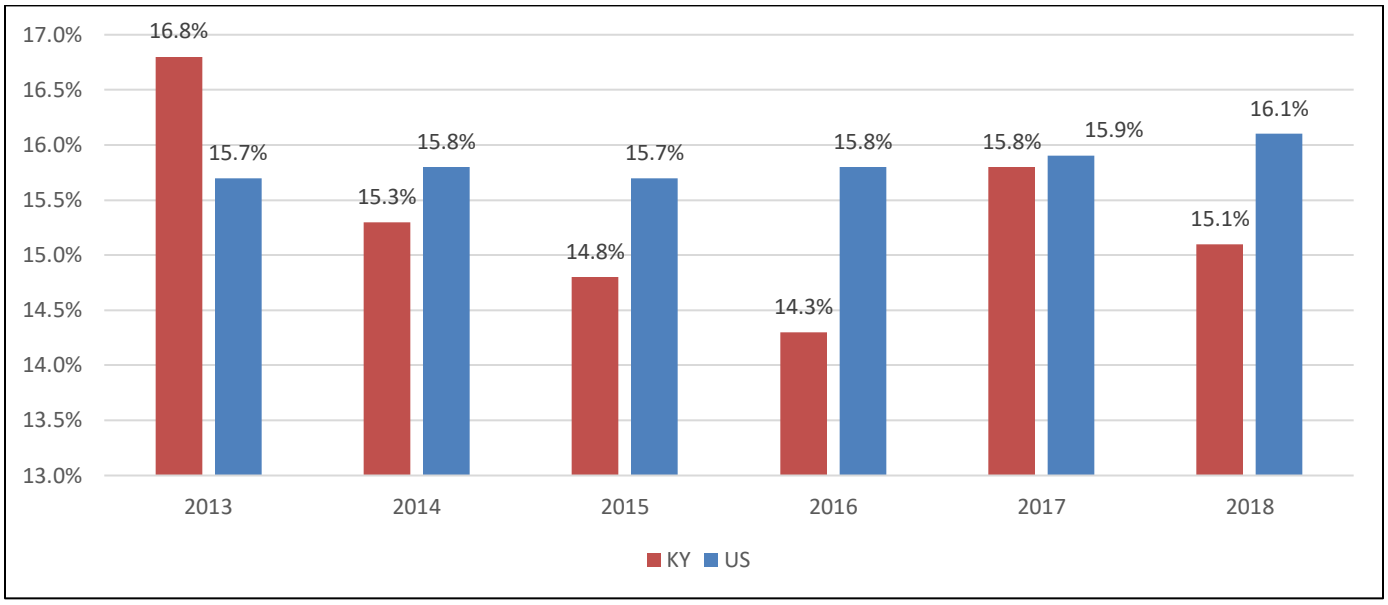


Data Source:
U.S. Census Bureau, Population Division.

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, peaking at 16.1% in 2018 (Figure 16).

Figure 16. Percentage of Kentucky Workers in Occupations with High Risk for Occupational Morbidity, 2013–2018

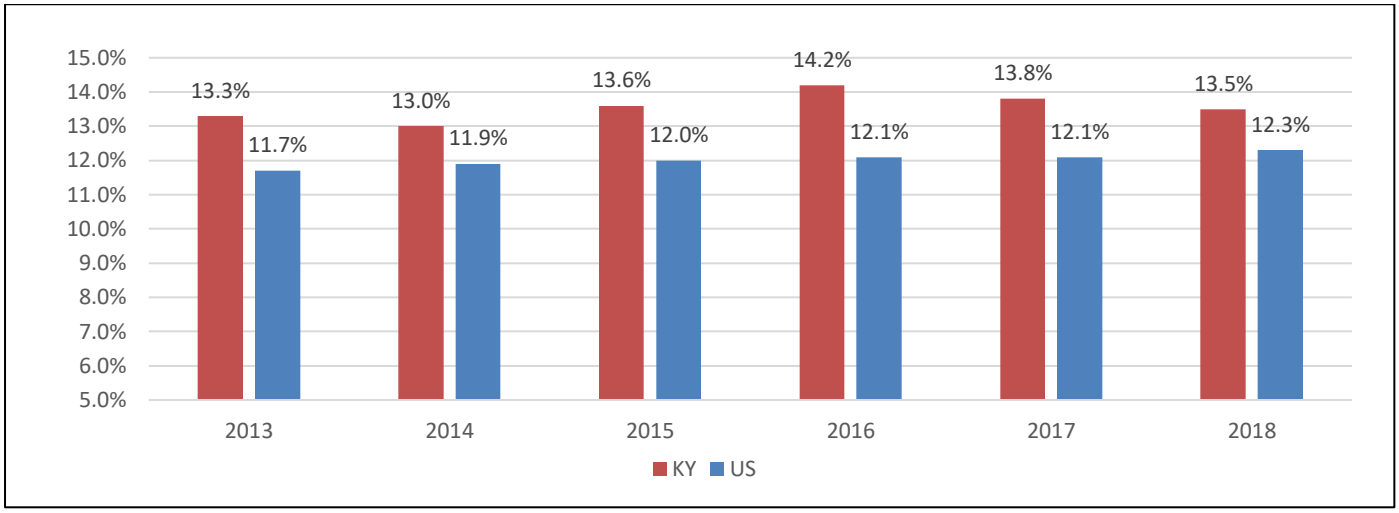


Data Source:
U.S. Bureau of Labor Statistics Current Population Survey.

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:
U.S. Bureau of Labor Statistics Current Population Survey.

Indicator #18: Occupational Safety and Health Administration Enforcement Activities

In 2017, there were 760 employer establishments inspected by Kentucky Occupational Safety and Health Administration (OSHA), which was 0.6% of the establishments that were eligible for inspections and 229 establishments less than in 2016. The percentage of eligible establishments and employees inspected by OSHA has declined steadily since 2012 (Table 1).

Table 1. Occupational Safety and Health Administration (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

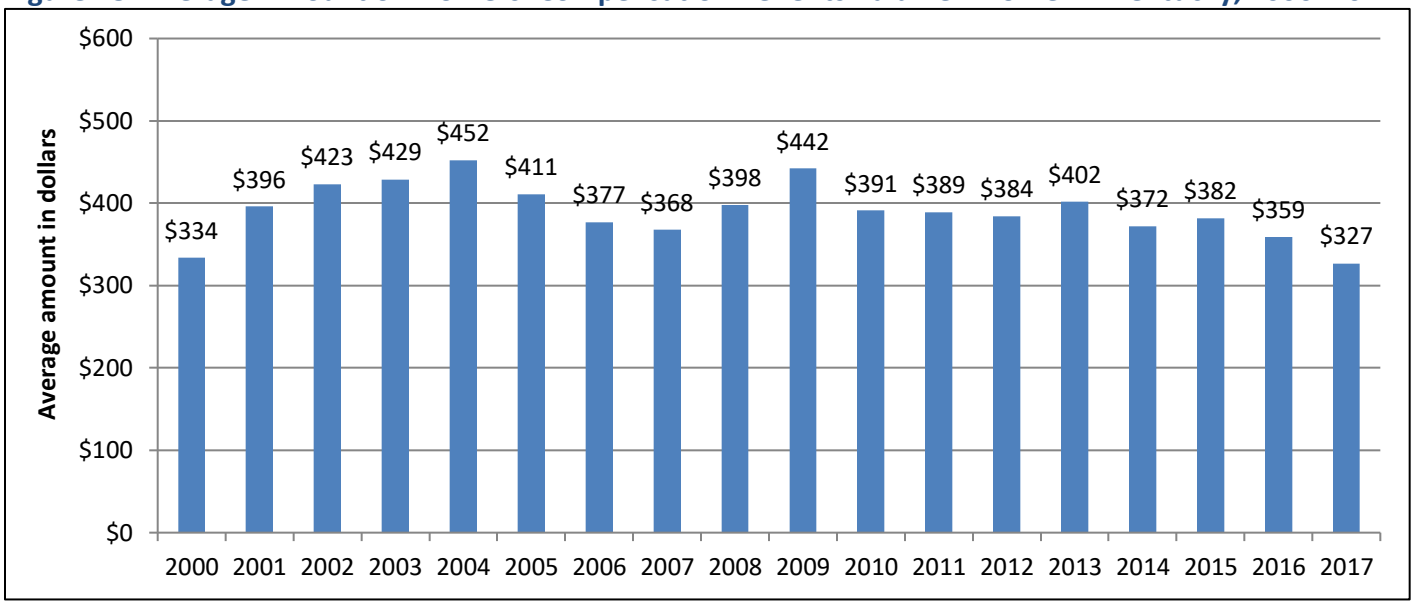
Data Sources:
OSHA annual reports, U.S. Bureau of Labor Statistics) statistics on covered employers and wages.

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

Indicator #19: Workers' Compensation Awards

The total amount of workers' compensation benefits paid in Kentucky in 2017 was $598.6 million. The average amount of benefits paid per covered worker was the lowest in several years at $327 (Figure 18).

Figure 18. Average Amount of Workers' Compensation Benefits Paid Per Worker in Kentucky, 2000–2017



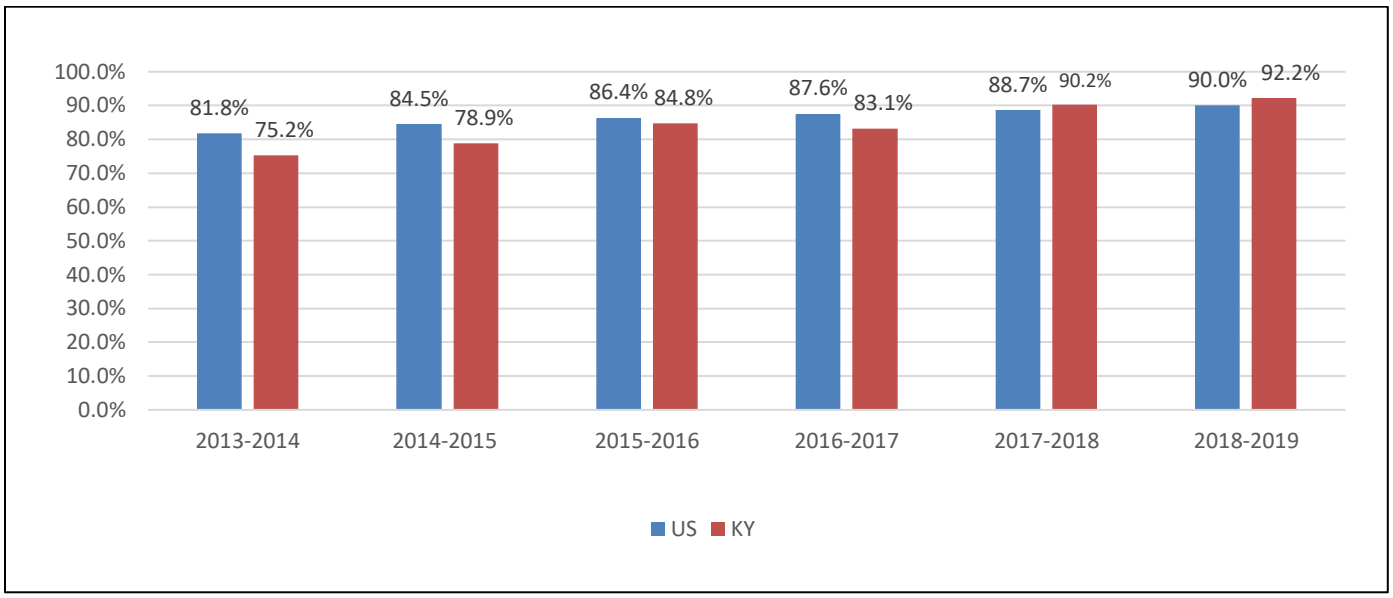
Data Source:
National Academy of Social Insurance.

Data beyond 2017 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



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

Indicator #24: Occupational Heat-Related Emergency Department Visits

In 2018, the rate of Kentucky emergency department (ED) visits for occupational heat-related illness was 8.6 per 100,000 employed persons, the highest since the same rate occurred in 2012 (Table 2).

Table 2. Occupational Heat-Related Emergency Department (ED) Visits, 2012–2018

	2012	2013	2014	2015*	2016	2017	2018
Number of ED Visits for Occupational Heat-Related Illness	164	68	141	151	160	104	169
Rate of ED Visits for Occupational Heat-Related Illness (per 100,000 employed persons)	8.6	3.6	7.5	8.2	8.4	5.3	8.6

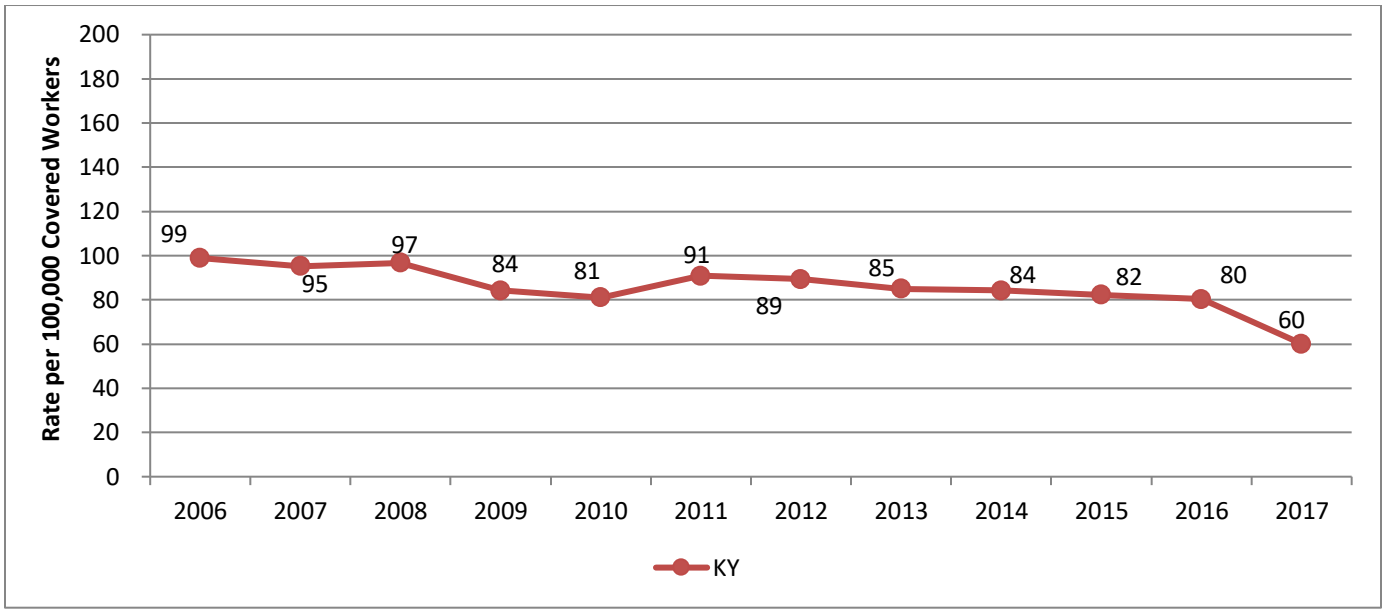
Data Sources:
Numerator data: Kentucky Outpatient Services Database, Office of Health Data and Analytics.
Denominator data: U.S. Bureau of Labor Statistics Current Population Survey data.

*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. 2015 number and rate are estimates based on available data due to ICD-9-CM to ICD-10-CM coding change.

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

There were 1,179 occupational motor vehicle collision claims or first reports of injury filed with the Kentucky Department of Workers' Claims for injuries during 2018 (not shown). The 2017 rate of motor vehicle collision claims or first reports of injury was the lowest in recent years at 60 per 100,000 covered workers (Figure 20).

Figure 20. Occupational Motor Vehicle Collision Injury Rates, 2006–2017



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

Workers' compensation claims are provisional as information may be updated or new for previous years. Denominator data not available for 2018 rate calculation.

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

From 2017 to 2018, there was a 4% increase in the total number of commercial vehicles involved in collisions in Kentucky (7,085 versus 7,378). Additionally, there were 90 fatalities in 2018 related to commercial vehicle collisions in Kentucky (Table 3).

Table 3. Kentucky Commercial Vehicle Collisions, 2010–2018

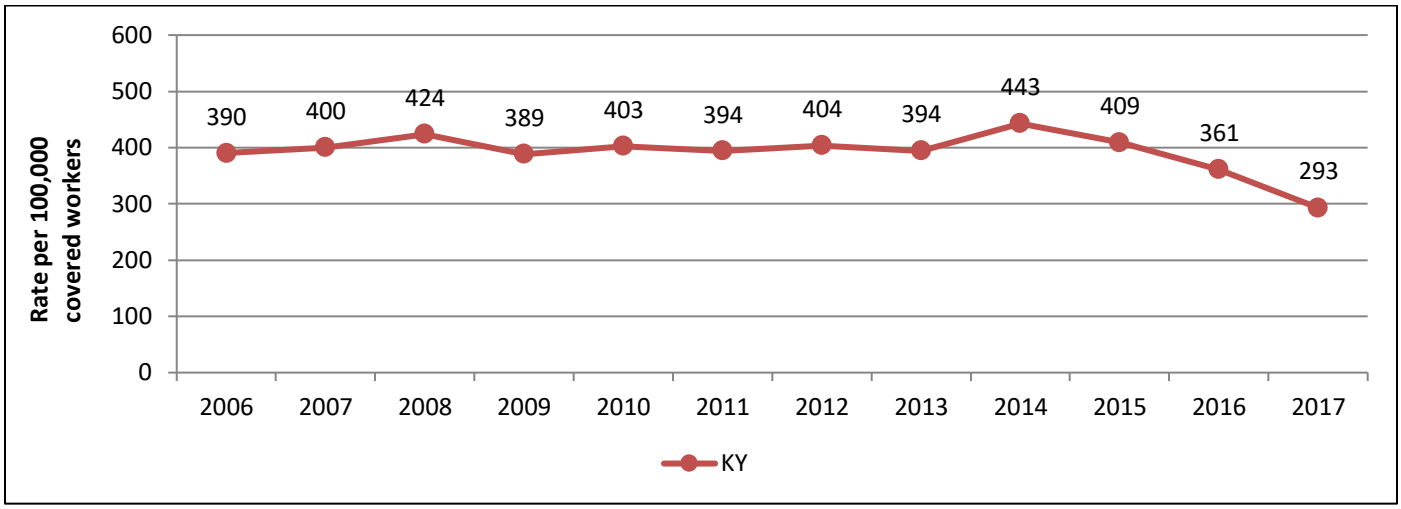
	Year								
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Total number of commercial vehicles involved in collisions	5,984	6,395	6,122	6,296	7,281	7,765	7,433	7,085	7,378
Unit at fault according to police	3,840	4,166	3,951	4,097	4,755	4,890	4,665	4,470	4,643
Commercial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

Data Source:
Kentucky State Police Collision Report Analysis for Safer Highways database.

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

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

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



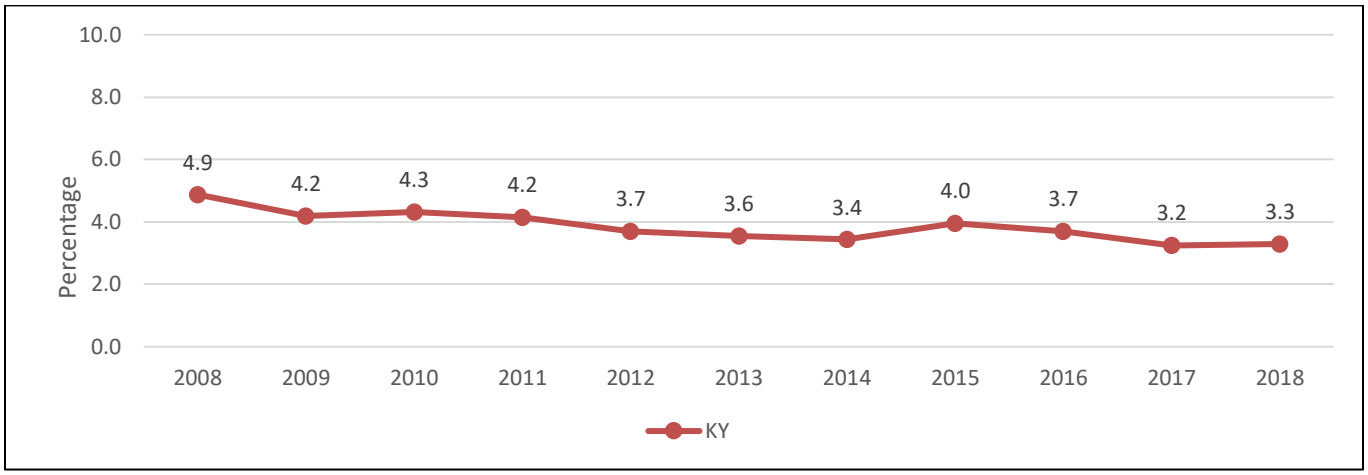
Data Sources:
Numerator: Kentucky Department of Workers' Claims.
Denominator: National Academy of Social Insurance.

Workers' compensation claims are provisional as information may be updated or new for previous years. Denominator data not available for 2018 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 2018, there were 427 work-related injuries treated in the 29 reporting trauma facilities, comprising 3.3% of all traumatic injuries reported to the state trauma registry. Approximately 40% of these work-related traumatic injuries in 2018 were fall-related.

Figure 22. Work-Related Traumatic Injuries as a Percentage of All Traumatic Injuries Reported to the State Trauma Registry, 2008–2018



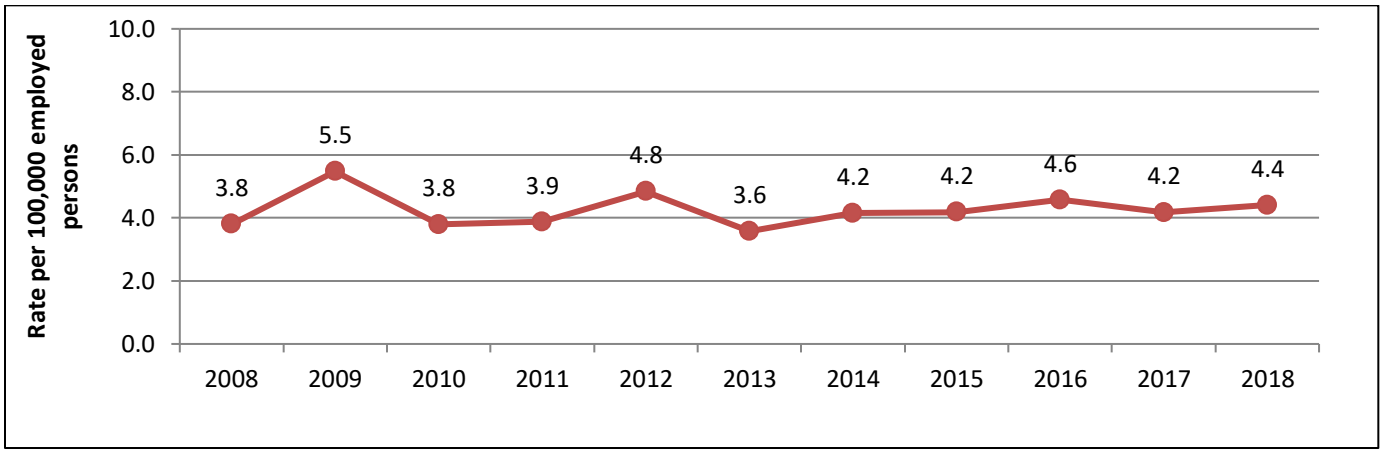
Data Source:
Kentucky Trauma Registry.

Kentucky Trauma Registry data reflect 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 reflects the expansion of the system.

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

From 2008 to 2018, the rate of work-related traumatic brain injuries (TBIs) remained relatively stable, fluctuating between 3.6/100,000 and 5.5/100,000 employed persons.

Figure 23. Rate of Work-Related Traumatic Brain Injuries Treated in Kentucky Acute Care Hospitals, 2008–2018



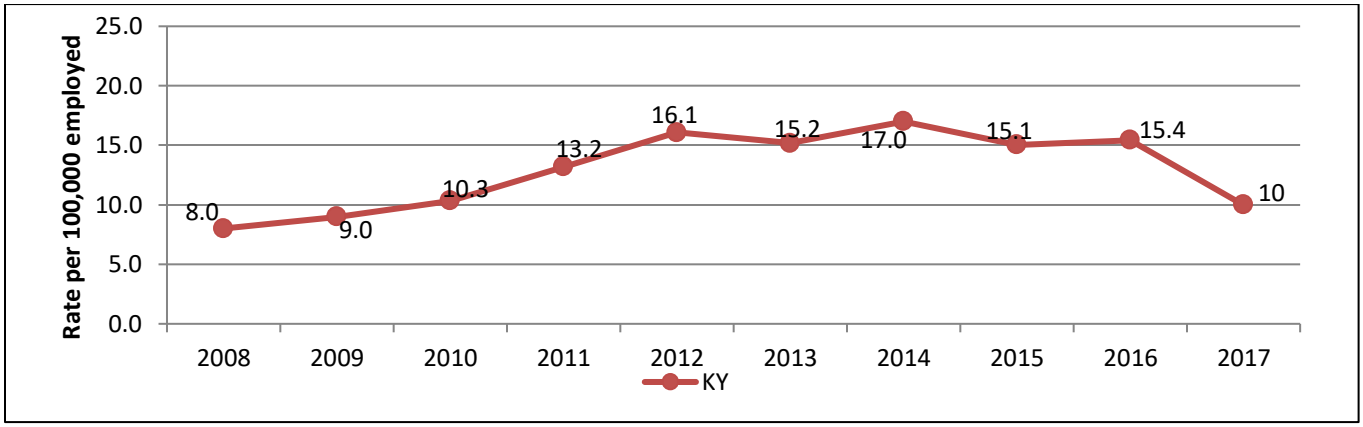
Data Sources:
Numerator: Kentucky inpatient hospitalization claims files, Kentucky Cabinet for Health and Family Services, Office of Health Policy.
Denominator: U.S. Bureau of Labor Statistics Current Population Survey data.

Kentucky inpatient hospitalization claim 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.

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

In 2018 there were 266 first reports of injury associated with concussions (not shown). There were 10 concussions 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, 2008–2017



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

Workers' compensation claims are provisional as information may be updated or new for previous years. Denominator data not available for 2018 rate calculation.

This publication was supported by grant number 5U60/OH008483-15 from CDC-NIOSH. Its contents are solely the responsibility of the Kentucky Injury Prevention and Research Center and do not necessarily represent the official views of NIOSH.

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.

Inquiries should be directed to:

Kentucky Injury Prevention and Research Center
333 Waller Avenue, Suite 242
Lexington, Kentucky 40504
(859) 257-4954 office
(859) 257-3909 fax
http://www.kiprc.uky.edu