

Kentucky Occupational Safety & Health Surveillance (KOSHS) Program Report 2006



**KENTUCKY INJURY PREVENTION AND RESEARCH CENTER
Cooperative Agreement Number 1U60/OH008483-01**

The Kentucky KOSHS Program is an occupational injury and illness surveillance project of the Kentucky Injury Prevention and Research Center (KIPRC)*. The objectives of KOSHS are to identify worker populations and work environments with elevated risk for nonfatal and fatal worker injuries and illnesses, to identify risk factors for an occupational injury, and to develop strategies for dissemination of state occupational health data, with the ultimate goal of reducing the burden of occupational injuries in Kentucky and in the nation. The goals of the KOSHS program are to conduct comprehensive population-based surveillance of 14 occupational injury and illness indicators recommended by the Council of State and Territorial Epidemiologists (CSTE) in collaboration with the National Institute for Occupational Safety and Health (NIOSH) and to provide targeted worker and employer groups with a sound evidence basis for improved worker safety. For more detailed information concerning KOSHS, or to obtain additional copies of this report, contact:

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*Organizationally, KIPRC is part of the University of Kentucky College of Public Health. It maintains a contractual relationship with the Kentucky Department for Public Health (KDPH). Funding for the KOSHS Project is from a cooperative agreement between NIOSH and KDPH that is subcontracted to KIPRC.

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EXECUTIVE SUMMARY

- ❑ Kentucky's *nonfatal* work-related injury and illness rate (6400/100,000 full-time equivalents (FTEs)) is 28% above the national rate (5000/100,000 FTEs). The highest rates were in the beverage manufacturing and transportation equipment manufacturing industries.
- ❑ Kentucky's *fatal* work-related injury rate (7 deaths/100,000 workers) is 75% above the national fatality rate of 4/100,000 with the highest rates in the mining, and agriculture/forestry/fishing/hunting industries. The primary external cause of death was due to motor vehicle collisions.
- ❑ The Kentucky work-related hospitalization rate was 32% higher than the national rate in the year 2000. Hospitalizations were most frequently due to falls and motor vehicle collisions, and the highest aggregate costs were associated with intervertebral disc disorders.
- ❑ When compared to 10 other states, Kentucky had the 2nd highest rate of lost work time claims for amputations identified in Workers' Claims systems. The highest numbers of amputations were reported in the manufacturing and services industries.
- ❑ Kentucky had the 10th highest musculoskeletal disease (MSD) case rate involving days away from work in the nation in 2002. The highest rate was for MSDs of the back in the retail trade and manufacturing industries.
- ❑ In 2004, there were 12,573 occupational motor vehicle collisions in Kentucky and most involved semi-trucks. One hundred thirty-five people were killed and 3,194 were injured. Driver distraction/inattention was the primary contributing human factor for both occupational and nonoccupational collisions.
- ❑ Kentucky had the third highest coal workers' pneumoconiosis mortality rate in the nation (34.4 deaths per million residents) in 2002.
- ❑ Kentucky had the seventh highest incidence rate for occupational poisonings (0.7 per illnesses per 100 full-time workers compared to 0.3 for the nation) in 2002. The occupational pesticide exposures were due primarily to industrial cleaners and other or unknown disinfectants.
- ❑ The Kentucky adult blood lead level (>25µg/dL) prevalence rate was 17.82 cases per 100,000 employed persons, 76% above the average state rate of 10.1/100,000 employed persons in 2002 for all Adult Blood Lead Epidemiology Surveillance (ABLES) states. Major lead exposures occurred in the battery manufacturing industry.
- ❑ When compared to 12 other states, Kentucky had the highest percentage of workers in high-risk industries for occupational injuries and the third highest percentage in high-risk industries for mortality. The highest risk industries for morbidity were nursing care and scheduled air transportation. The high risk occupations for occupational morbidity were the truck driver and laborer occupations.

QUANTITATIVE ANALYSIS

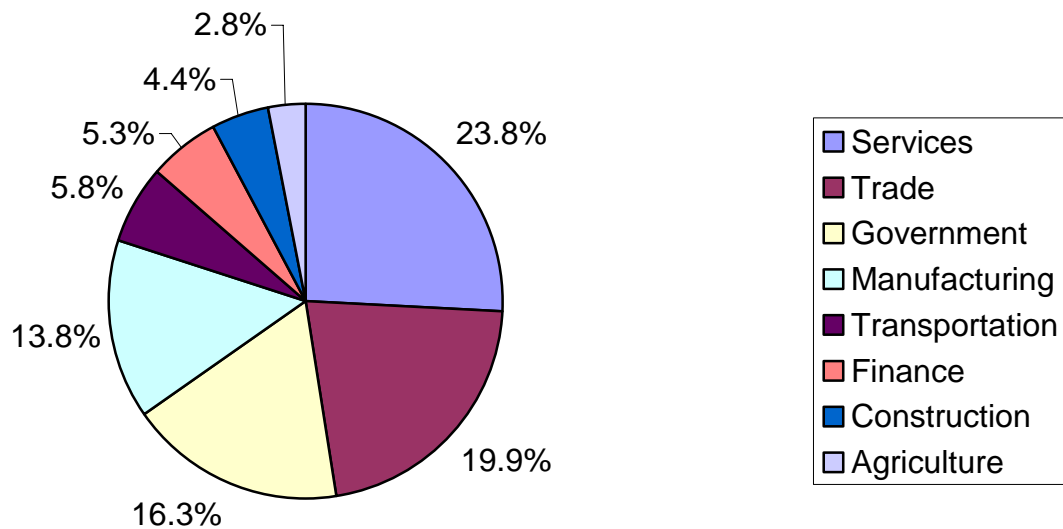
Demographics

Profile: Employment Demographics

In 2002, there were 1,857,000 people, aged 16 and older, employed in Kentucky (Bureau of Labor Statistics). Ninety-one percent were white, 7.8% were black, and 1.2% were other races. Hispanics accounted for 1.1% of the employed. Self-employed workers made up 7.2% of the workforce and 16.6% of all employed were employed part-time.

When examining worker employment by industry, 23.8% were employed in services, 19.9% in trade, 16.3% in government, 13.8% in manufacturing, 5.8% in transportation, 5.3% in finance, 4.4% in construction, and 2.8% in agriculture (Figure 1).

Figure 1. Kentucky Employment by Industry, 2002.



The most frequent occupations were in professional specialty (16%), executive/administrative (13.9%), administrative support (13.4%), service (13.2%), and sales (11.4%) occupations.

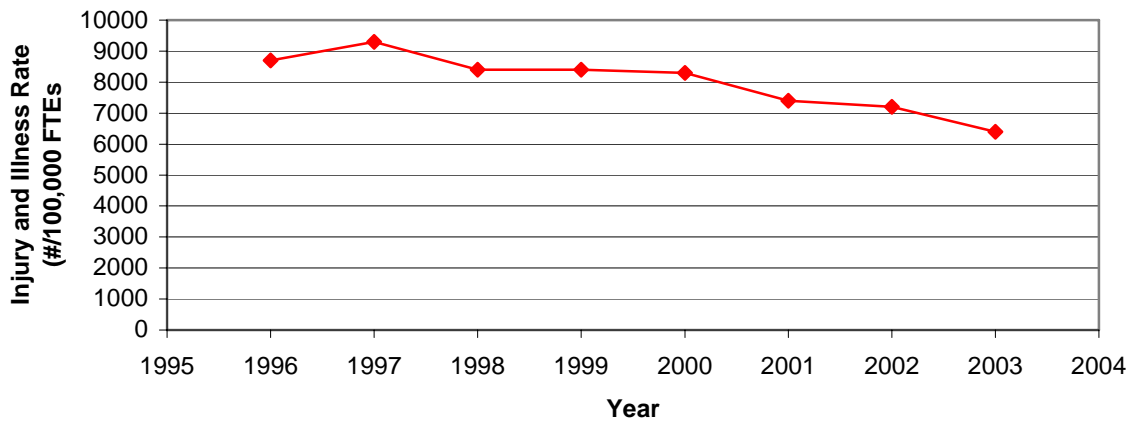
Data Source: Bureau of Labor Statistics (BLS) Geographic Profiles of Employment and Unemployment

Occupational Injuries and Illnesses Combined

Indicator #1: Non-Fatal Work Related Injuries and Illnesses Reported By Employers

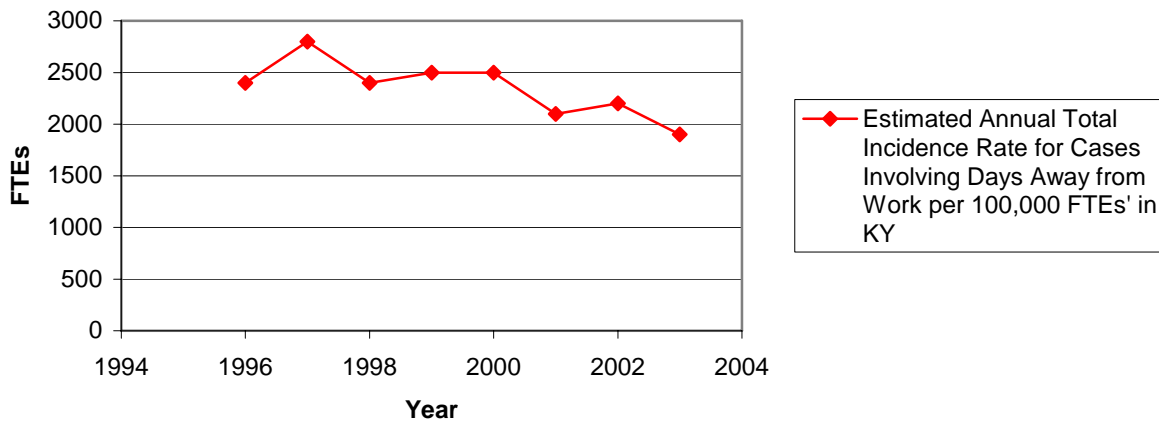
In 2003, there were 77,600 nonfatal work-related injuries and illnesses in Kentucky with an incidence rate of 6,400 injuries and illnesses per 100,000 full-time equivalent employees (FTEs), down 36% from the incidence rate of 8,700/100,000 recorded in 1996 (Figure 2). Kentucky’s rate is still 28% above the national incidence rate of 5,000/100,000 FTEs. The estimated annual total number of cases involving more than 10 days away from work was 9,350.

Figure 2. Estimated Annual Total Work-Related Injury And Illness Incidence Rates In Kentucky (1996-2003).



The estimated annual total number of cases involving days away from work in the year 2003 was 23,100 cases with an estimated annual total incidence rate of 1900/100,000 FTEs (Figure 3).

Figure 3. Annual Incidence Rates For Cases Involving Days Away From Work In Kentucky.



The industries with the highest nonfatal injury incidence rates in 2003 were beverage manufacturing (15.6 cases/100 FTE), transportation equipment manufacturing (14.2 cases/100 FTE), roofing contractors (12.2 cases/100 FTE), utility system construction (8.7 cases/100 FTE), and wood product manufacturing (10.5 cases/100 FTE).

Most of the nonfatal injuries involved sprains and strains (10,530 cases), bruises and contusions (2,090 cases), soreness and pain (1,960 cases), fractures (1,990 cases), and cuts, lacerations, and punctures (1,660 cases).

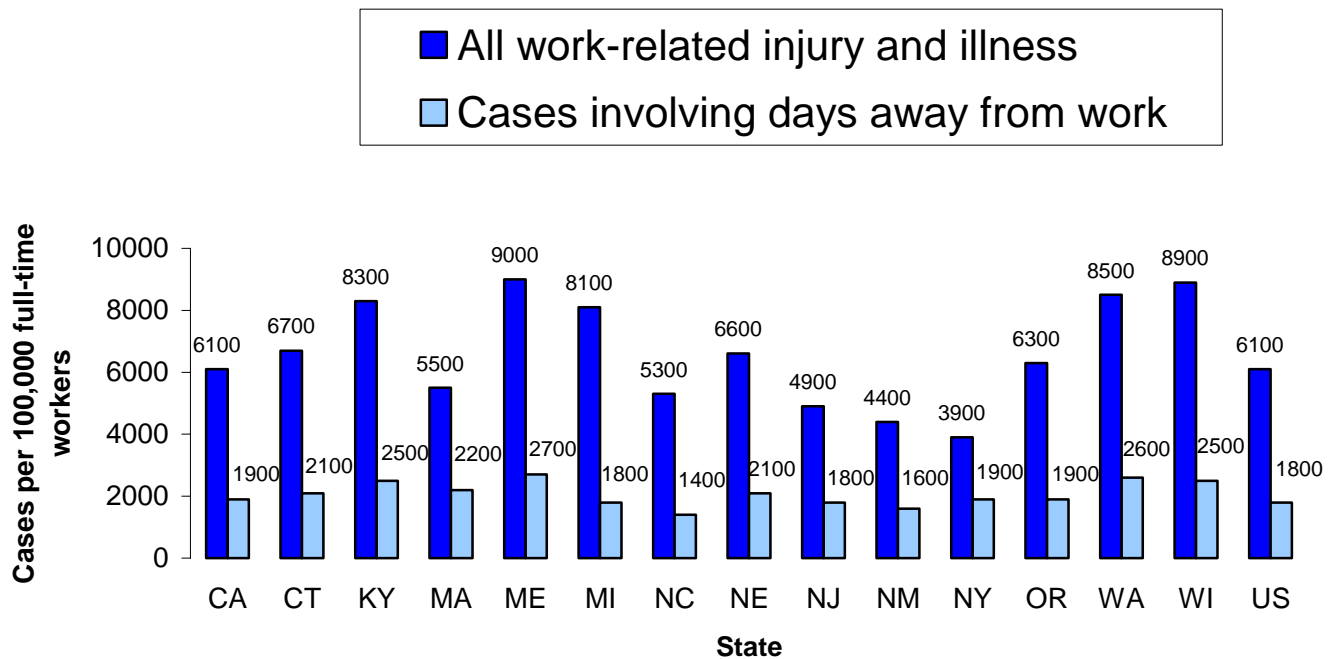
Table 1 shows the median earnings lost per worker due to nonfatal occupational injuries and illnesses. The industries with the highest lost median earnings per worker were mining (\$2,005), wholesale trade (\$1,102), and transportation/communications/public utilities (\$1,060).

Table 1. Lost Wages Due to Nonfatal Occupational Injuries and Illnesses Involving Days Away From Work by Industry Division in Year 2002.

Industry Division (SIC Code)	Average Salary for 2002	Salary Per Day	Number Of Cases With Days Away From Work	Median Days Away From Work	Median Earnings Lost Per Worker
Construction	\$33,271.00	\$91.15	2522	9	\$820
Manufacturing	\$26,393.00	\$72.31	6402	8	\$578
Transportation/Communications/ Public Utilities	\$38,691.00	\$106.00	2567	10	\$1,060
Retail Trade	\$19,713.00	\$54.01	4050	5	\$270
Services	\$21,808.00	\$59.75	6316	6	\$358
Agriculture/Forestry/Fishing	\$30,727.00	\$84.18	484	5	\$421
Wholesale Trade	\$57,478.00	\$157.47	2673	7	\$1,102
Mining	\$22,171.00	\$60.74	1096	33	\$2,005

Figure 4 compares the rate of non-fatal work-related injuries and illnesses between CSTE pilot health indicator states (CSTE, 2005), Kentucky, and the US. Kentucky has the 4th highest rate of non-fatal work-related injuries and illnesses, and the 3rd highest rate for cases involving days away from work compared to the pilot data states.

Figure 4. Rate of Non-Fatal Work-Related Injuries and Illnesses Reported by Private Sector Employers by State and U.S., 2000^a.



^a Figure adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

Data Source: Annual BLS Survey of Occupational Injuries and Illnesses (SOII)

Indicator #2: Work-Related Hospitalizations

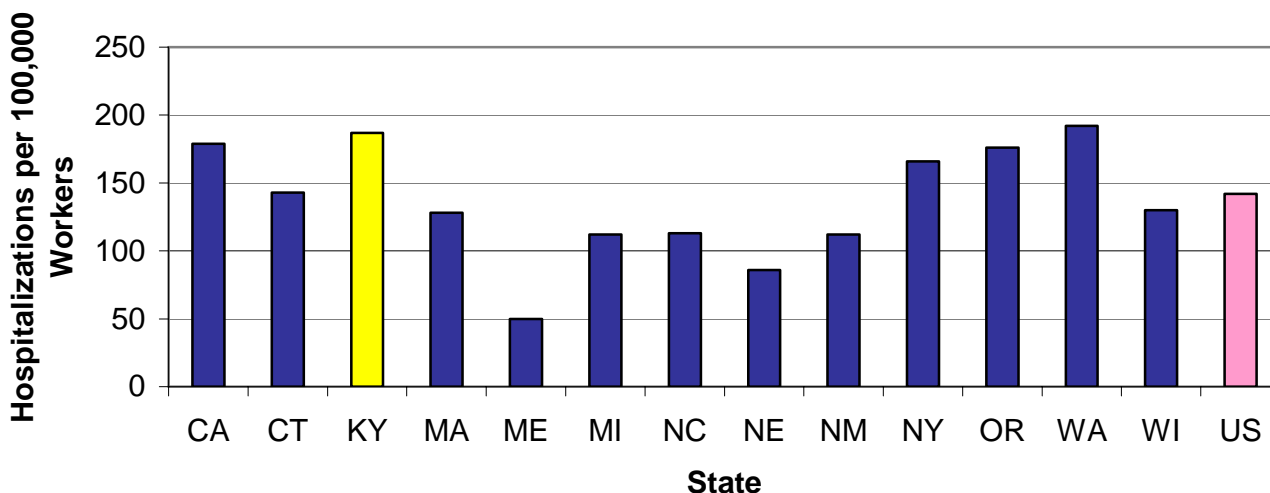
In 2002, there were 3,858 work-related hospitalizations with an annual crude rate of 208 per 100,000 employed persons age 16 years and older, increased from 187/100,000 in 2000. When comparing year 2000 work-related hospitalization rate with pilot states, Kentucky's rate is the second highest and 32% higher than the US rate of 142/100,000 (Figure 5). In 2004, there were 3,631 work-related hospitalizations. Three-quarters of the hospitalizations were of men (72.2%). The most common primary diagnoses in these hospitalizations were cellulitis and abscess (105 cases), osteoarthritis (76 cases), intervertebral disc disorders (454 cases), other and unspecified disorders of back (98 cases), or fractures of the tibia, fibia, or ankle (73 cases each). Most of the hospitalized workers were between 45-54 years of age (Table 2).

When total and average work-related hospitalization charges were examined by diagnosis, the highest total costs for work-related hospitalizations were for male workers with intervertebral disc disorders and the highest average costs were for 65 year old and older male workers with intervertebral disc disorders (Table 3).

The primary external cause for work-related injuries was falls (n= 289), motor vehicle collisions (n= 112) or being struck by/against (n= 77) in 2004 (Table 4). Total hospitalization costs were highest for male workers who experienced falls (\$5,175,365). The highest average hospitalization costs were for 25-34 year old

working women in motor vehicle collisions (\$101,458).

Figure 5. Rate of Work-Related Hospitalizations by State and U.S., 2000^a.



^a Figure adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

Table 2. Age of Hospitalized Workers with Injuries in 2004.

Age Category	Frequency	Percent
15-24	197	5
25-34	506	14
35-44	844	23
45-54	868	24
55-64	610	17
65-74	276	8
75-84	250	7
85+	80	2

Table 3. Total and Average Costs of Nonfatal Work-Related Hospitalizations by Diagnosis in 2004.

Males				Females			
	N	Avg Charges	Total Charges		N	Avg Charges	Total Charges
<i>Other Cellulitis and Abscess</i>				<i>Other Cellulitis and Abscess</i>			
Ages:				Ages:			
16-24	5	\$31,474	\$157,371	16-24	*		
25-34	13	\$13,914	\$180,880	25-34	*		
35-44	35	\$7,133	\$249,661	35-44	*		
45-54	19	\$9,641	\$183,169	45-54	*		
55-65	11	\$7,767	\$85,435	55-65	*		
65+	7	\$20,737	\$145,159	65+	*		
Total	90		\$1,001,676	Total	15		\$128,134
<i>Intervertebral Disc Disorders</i>				<i>Intervertebral Disc Disorders</i>			
Ages:				Ages:			
16-24	*			16-24	*		
25-34	68	\$24,661	\$1,676,972	25-34	**		
35-44	121	\$24,793	\$2,999,976	35-44	50	\$28,054	\$1,402,716
45-54	93	\$27,379	\$2,546,234	45-54	44	\$30,307	\$1,333,496
55-65	33	\$21,673	\$715,196	55-65	20	\$18,363	\$367,256
65+	**			65+	*		
Total	324		\$8,184,032	Total	130		\$3,492,422
<i>Other and Unspecified Disorders of the Back</i>				<i>Other and Unspecified Disorders of the Back</i>			
Ages:				Ages:			
16-24	*			16-24	*		
25-34	**			25-34	*		
35-44	21	\$13,579	\$285,148	35-44	**		
45-54	22	\$25,072	\$551,579	45-54	15	\$14,444	\$216,660
55-65	16	\$21,890	\$350,234	55-65	*		
65+	*			65+	*		
Total	68		\$1,383,223	Total	30		\$541,858

*: Value suppressed because it was at least one but less than four.

** : Value suppressed to prevent disclosure of another suppressed cell via subtraction.

Table 4. Total and Average Costs of Nonfatal Work-Related Hospitalizations by External Cause (e-code) in 2004.

Males				Females			
	N	Avg Charges	Total Charges		N	Avg Charges	Total Charges
<i>Motor Vehicle Collisions</i>				<i>Motor Vehicle Collisions</i>			
Ages:				Ages:			
16-24	10	\$27,241	\$272,409	16-24	*		
25-34	21	\$31,855	\$668,959	25-34	*		
35-44	22	\$32,458	\$714,074	35-44	*		
45-54	14	\$29,000	\$405,993	45-54	*		
55-65	22	\$29,464	\$648,204	55-65	*		
65+	6	\$25,444	\$152,661	65+	*		
Total	95		\$2,862,301	Total	17		\$905,909
<i>Falls</i>				<i>Falls</i>			
Ages:				Ages:			
16-24	17	\$32,650	\$555,045	16-24	*		
25-34	25	\$16,783	\$419,585	25-34	**		
35-44	56	\$28,809	\$1,613,320	35-44	11	\$11,572	\$127,292
45-54	49	\$31,182	\$1,527,920	45-54	21	\$27,271	\$572,695
55-65	30	\$19,251	\$577,521	55-65	33	\$16,024	\$528,794
65+	22	\$21,908	\$481,973	65+	16	\$17,977	\$287,638
Total	199		\$5,175,365	Total	90		\$1,597,639
<i>Struck by/Against</i>				<i>Struck By/Against</i>			
Ages:				Ages:			
16-24	9	\$32,463	\$292,168	16-24			
25-34	25	\$38,175	\$954,382	25-34			
35-44	17	\$19,248	\$327,209	35-44			
45-54	10	\$18,166	\$181,662	45-54			
55-65	12	\$22,408	\$268,900	55-65			
65+	0			65+			
Total	73		\$2,024,322	Total	*		

*: Value suppressed because it was at least one but less than four.

** : Value suppressed to prevent disclosure of another suppressed cell via subtraction.

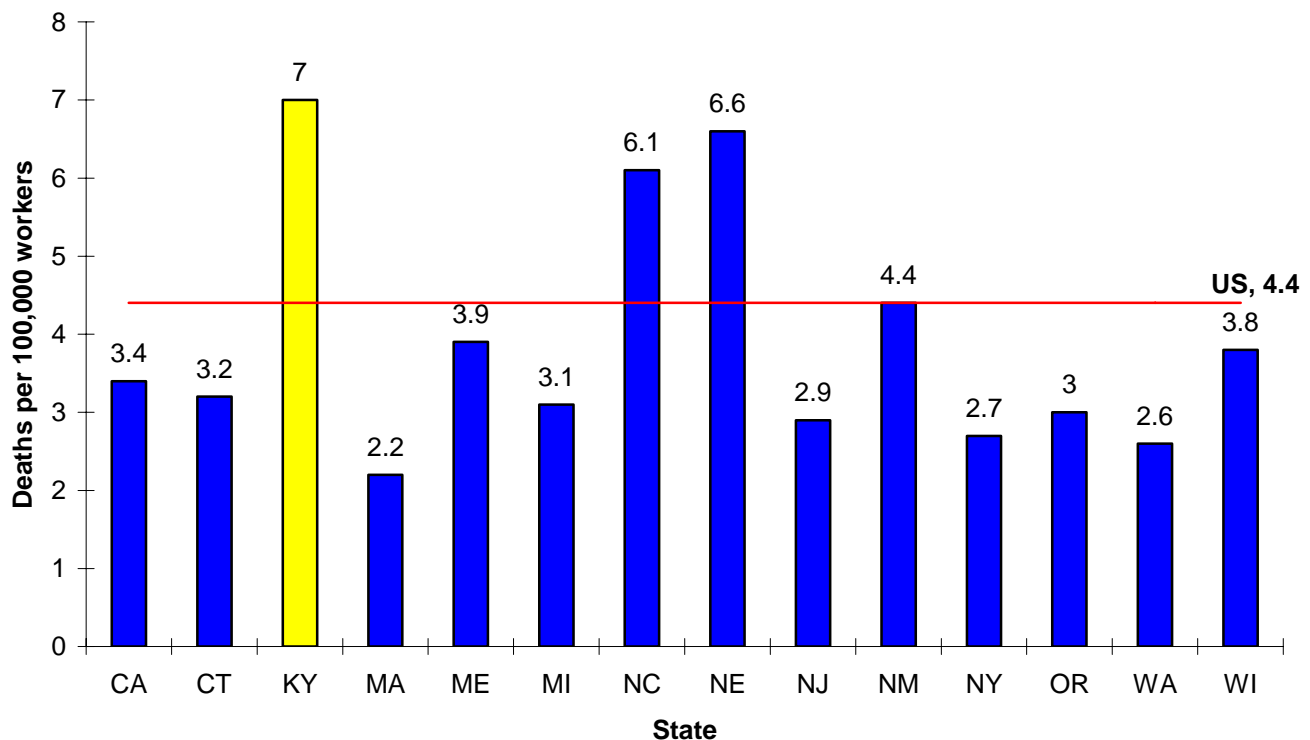
Data Source: Numerator data for work-related hospitalizations was obtained from the Kentucky Department for Public Health UB92 hospital discharge data set. Denominator data was obtained from BLS Current Population Survey data. Diagnosis coding of hospitalization data was performing according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)* coding standards.

Acute and Cumulative Occupational Injuries

Indicator #3: Fatal Work-Related Injuries

Fatal occupational injuries are reported to the National Census of Fatal Occupational Injuries program that records all worker deaths that occurred in Kentucky, regardless of the state where the injury occurred. The Fatality Assessment and Control Evaluation (FACE) program, a fatal occupational injury surveillance program funded by the National Institute for Occupational Safety and Health (NIOSH), records all fatal work-related injuries that occur within Kentucky's boundaries. The fatality rate for occupational injuries increased from 7 deaths/100,000 employed in the year 2000 to 7.9/100,000 in 2003 (CFOI data). Figure 6 compares 2000 fatality rates with fatality rates from 13 other pilot data states (CSTE, 2005). Kentucky has the highest occupational fatality rate when compared to the pilot states. In 2003, 145 worker deaths were recorded by CFOI and 131 worker deaths were recorded by the FACE program, a fatality rate of 7 deaths per 100,000 workers, almost double the national fatality rate of 4/100,000 (Table 5). Most of the worker fatalities occurred in the transportation industry and in the operators/fabricators/laborers occupational category. Motor vehicle collisions were the primary external cause of death for Kentucky workers (Figure 7).

Figure 6. Rate of Fatal Work-Related Injuries by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

Table 5. Occupational Fatality Rates^a by Industry (per 100,000 workers^b) in Year 2003.

Industry ^c	Number of Fatalities	2001 KY Rate ^d	2002 KY Rate	2003 KY Rate	US Rate ^e
Agriculture/Forestry/Fishing	24	51	40	46	22.7
TCPU*	26	19	17	24	11.3
Construction	25	16	23	31	12.2
Mining	12	65	59	70	23.5
Manufacturing	18	3	5	7	3.1
Services	11	2	4	2	1.7
Public Administration	7	3	2	2	2.7
Retail/Wholesale Trade	8	2	4	2	2.5
Finance	0	2	1	-	1.0
Totals	131	6.0	6.5	7.0	4.0

^aFACE surveillance data

^bPercent distribution of employed persons obtained from 1) *Geographic Profile of Employment and Unemployment*, Bureau of Labor Statistics; 2) US DOE-EIA; Coal Industry Annual; 3) KY FACE Program Annual Report, Kentucky Injury Prevention & Research Center, Lexington, KY.

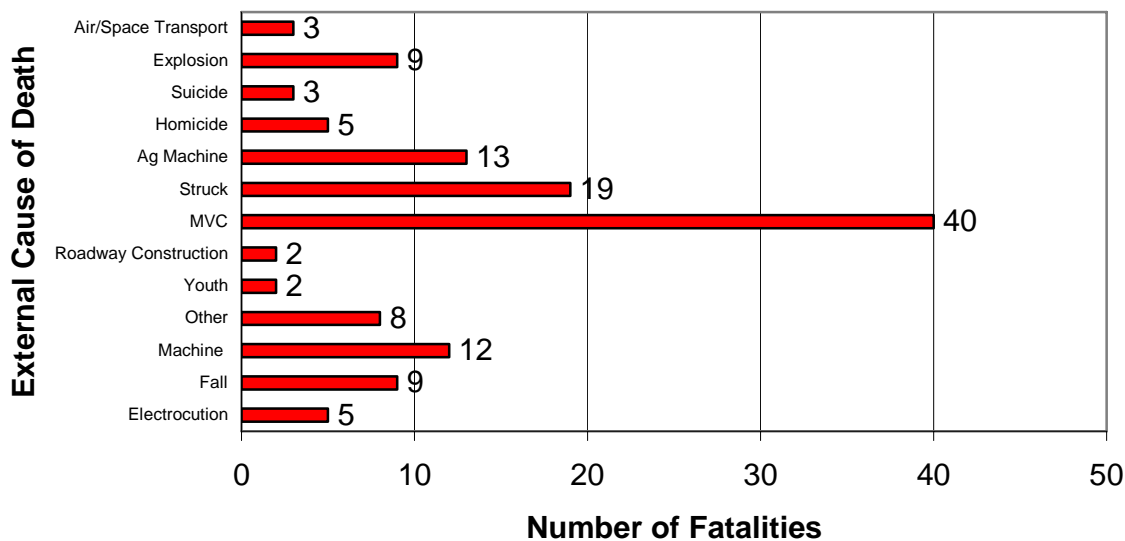
^cOffice of Management and Budget. Standard Industrial Classification Manual 1987. Springfield, VA: National Technical Information Service (NTIS No. PB 87-100012).

^dThe industries listed do not equal 100 percent of employed persons because of rounding and do not include private household workers, self-employed and unpaid family workers which comprise the remainder of employed persons (6 percent).

^eCensus of Fatal Occupational Injuries Summary. US Dept. of Labor, Bureau of Labor Statistics, National Census of Fatal Occupational Injuries Summary. NAICS coding for industry was used in 2003 so fatality rates may not be directly comparable to 2002 and 2003.

*Transportation/Communications/Public Utilities

Figure 7. Occupational Fatalities by External Cause of Death-2003.



Data Source: Census of Fatal Occupational Injuries (numerator), Kentucky FACE program data (numerator), BLS Current Population Survey data (denominator).

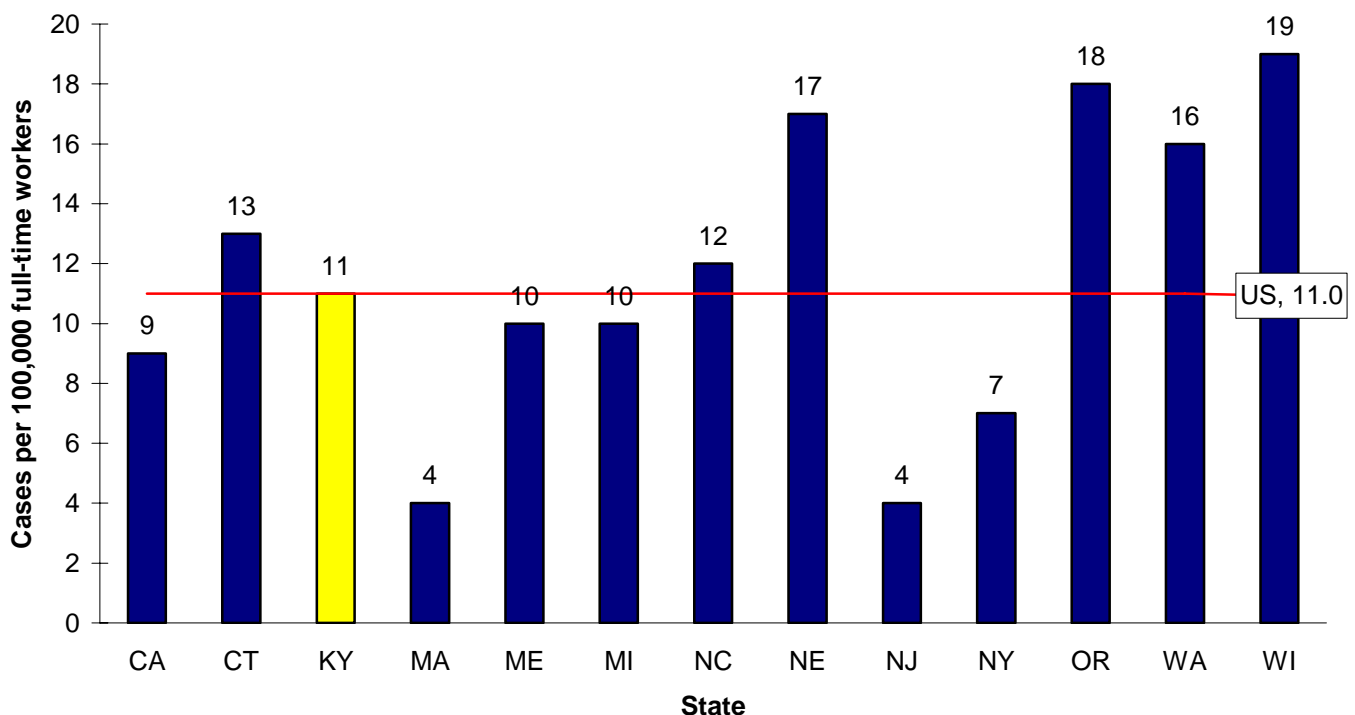
Indicator #4: Work-Related Amputations with Days Away From Work Reported By Employers

The annual number of amputation cases with days away from work was 130 in 2003, down from 139 in 2002 with an annual incidence rate of 11 cases per 100,000 FTEs, which is greater than the national amputation incidence rate of 9/100,000 (BLS SOII).

The industries where most of the amputations occurred were in manufacturing (30/100,000), and trade/transportation/utilities (16/100,000). Most of the amputees were 45-54 years of age (5/100,000). Worker amputations were more frequently reported in the production (5/100,000) and transportation and material moving occupations (4/100,000).

For the year 2000, the work-related amputation incidence rates of pilot states were compared with that of Kentucky (Figure 8). Kentucky’s work-related amputation rate was the 7th highest and equivalent to the national amputation rate.

Figure 8. Rate of Work-Related Amputations Involving Days Away From Work Reported by Private Sector Employers by State and U.S., 2000^a.



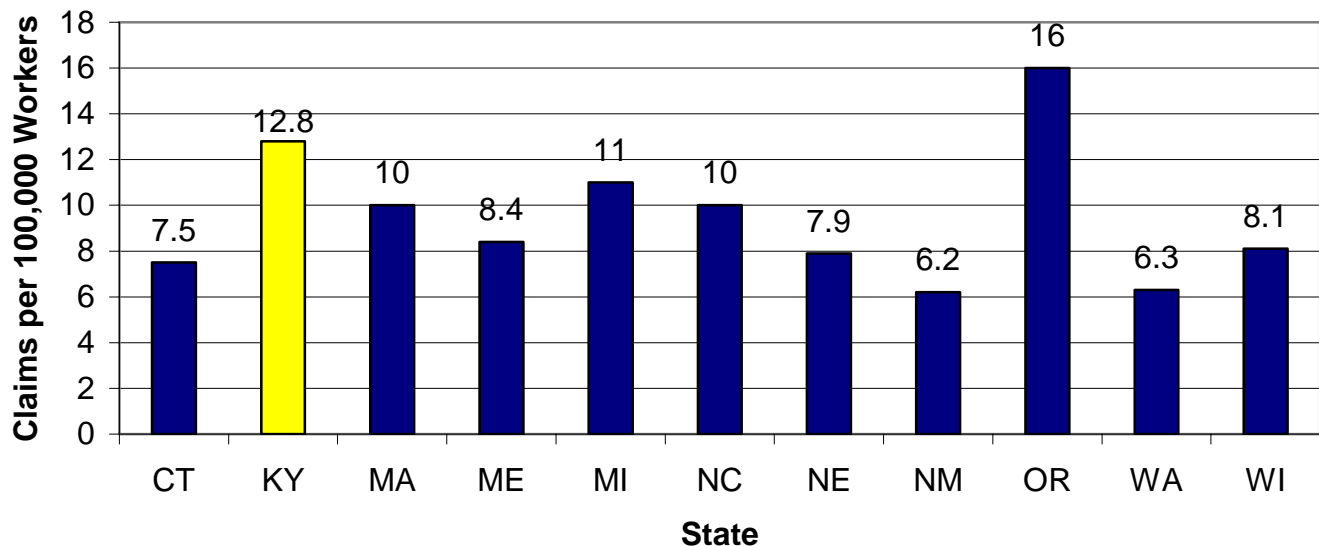
^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

Data Source: Annual BLS Survey of Occupational Injuries and Illnesses (SOII).

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

The number of first reports of amputation injury filed with the Kentucky Office of Workers' Claims was higher than the number reported in the BLS SOII. In the year 2000, there were 218 first reports of injury filed with the Office of Workers' Claims and the number has decreased every year: 208 reports in 2001, 186 reports in 2002, 181 reports in 2003, and 162 reports in 2004. The annual incidence rate for amputations decreased from 12.76 cases per 100,000 employees in 2000 to 9.48 cases/100,000 workers in 2004. When compared to other pilot states, Kentucky had the second highest incidence rate for amputations (Figure 9).

Figure 9. Rate of Lost Work Time Claims for Amputations Identified in Workers' Compensation Systems by State, 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

Using 2000-2004 data, the majority of the amputations occurred in the manufacturing industry (n=518), the services industry (n=115), and the construction industry (n=80). Most of the workers who experienced an amputation were 35-44 years of age (n=254), earned \$300-\$399 per week, and were male (83%). Fingers (n=768) and thumbs (n=116) were the body parts most frequently amputated.

Data Source: Work-related amputation surveillance data was provided by the Kentucky Office of Workers' Claims, Frankfort, KY.

Indicator #6: Hospitalization for Work-Related Burns

Work-related burn hospitalization cases numbered 44 in 2004, down from 60 in 2003 and 53 in 2002. The annual crude rate for work-related burn hospitalizations per 100,000 employed persons ages 16 and older

was 2.85 in 2002. The ages and gender of the burned workers are shown in Table 6. The largest percentage of burned workers was male and 35-44 years of age.

Table 6. Work-Related Burns By Age and Gender, 2000-2004.

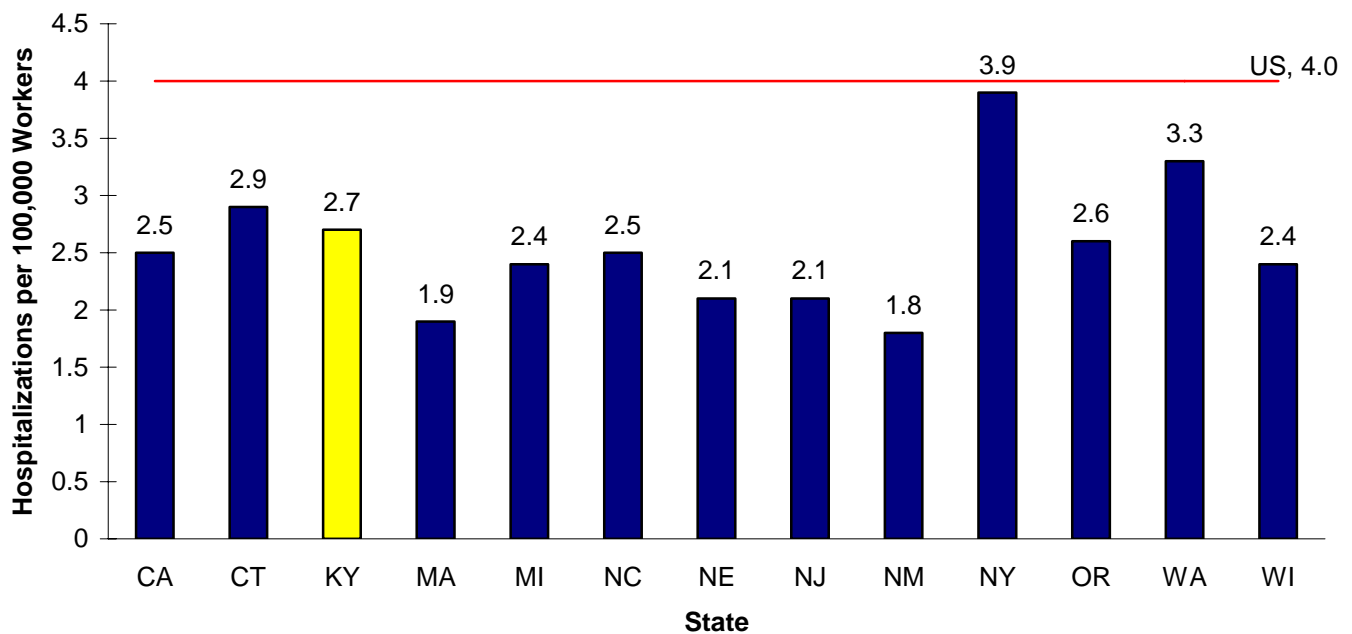
Gender	Age Category						Total
	16-24	25-34	35-44	45-54	55-64	65-74	
Female	**	6	8	7	*	*	31
Male	**	61	66	45	**	**	247
Total	52	67	74	52	20	13	278

*: Value suppressed because it was at least one but less than four.

** : Value suppressed to prevent disclosure of another suppressed cell via subtraction.

When Kentucky work-related burn hospitalization rates were compared with those of other pilot data states in the year 2000, Kentucky was 4th highest but still below the national rate of 4.0 hospitalizations per 100,000 workers (Figure 10).

Figure 10. Rate* of Hospitalizations for Work-Related Burns by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

*Rates were not calculated for states with fewer than five cases.

Data Source: Kentucky Department for Public Health UB92 hospital discharge data.

Indicator #7: Work-Related Musculoskeletal Disorders (MSDs) with Days Away From Work Reported By Employers

Kentucky has the 10th highest musculoskeletal disorder (MSD) incidence rate in the nation (NIOSH, 2004) with a total annual incidence rate of 814 cases/100,000 FTEs in 2001 (Table 7) compared to 575/100,000 for the US. The highest MSD rate by nature of injury involved sprains, strains, and tears (incidence rate of 687/100,000). The body part most affected was the trunk (incidence rate of 658/100,000).

Table 7. Numbers and Incidence Rates for Musculoskeletal Disorders (MSDs) in Kentucky Involving Days Away From Work.

Year	All Musculo-skeletal Disorders		MSDS of the Neck, Shoulder and Upper Extremities		Carpal Tunnel Syndrome Cases		MSDs of the Back	
	Number	Rate ^a	Number	Rate	Number	Rate	Number	Rate
2002	10,089	850	2,407	203	275	23	5,481	462
2001	9,912	814	3,011	247	407	33	4,982	409
2000	12,732	1026	3,460	279	331	27	7,053	568

^aIncidence rates are calculated as the number of cases per 100,000 full-time equivalents (FTEs).

Musculoskeletal disorder incidence rates and numbers were calculated according to the OSHA definition including nature codes: 1) sprains, strains, and tears; 2) back pain and hurt back; 3) soreness, pain, hurt, except the back; 4) carpal tunnel syndrome; 5) hernia; musculoskeletal system and connective tissue diseases and disorders and event codes: 1) bending, climbing, crawling, reaching, twisting; 2) overexertion and; 3) repetitive motion.

The number of nonfatal MSDs involving days away from work was calculated by age and gender (Table 8). Most of the neck, shoulder, and upper extremity MSDs occurred in 25-34 year-old workers who were employed as operators, fabricators, and laborers in the manufacturing industry. The most frequent carpal tunnel syndrome cases were in females 45-54 years old employed as operators, fabricators, and laborers, and employed in the manufacturing industry. MSDs involving the back occurred most often in males, 35-44 years of age, employed as operators, fabricators, and laborers in the services industry.

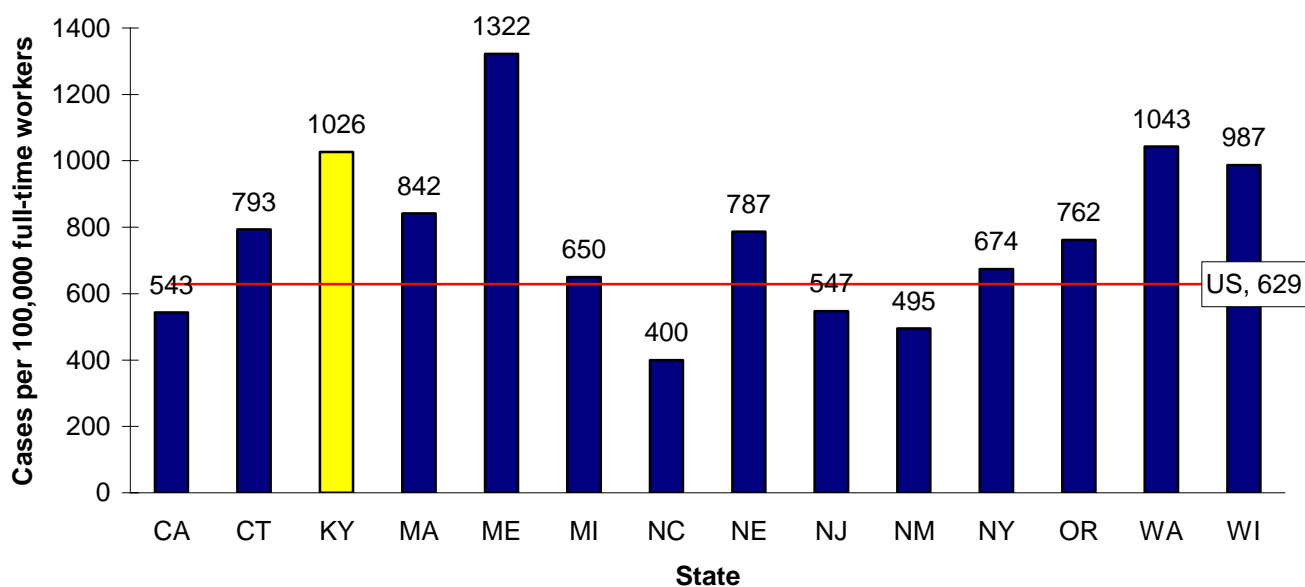
Table 8. Age and Gender of Kentucky MSD Cases Involving Days Away From Work, 2002.

	# of MSDs of the Neck, Shoulder, and Upper Extremities	# of Carpal Tunnel Syndrome Cases	# of MSDS of the Back
Gender:			
Male	4757	48	4674
Female	2879	227	2771
Age:			
16-19	276	*	152
20-24	953	14	867
25-34	2081	51	1776
35-44	2002	88	2500
45-54	1660	103	1458
55-64	606	17	674
≥65	48		29
Occupation:			
Managerial and Professional	293	*	361
Technical, Sales, and Administrative	1033	98	1208
Service	1093	*	1842
Farming, Forestry, Fishing	202	*	140
Precision Production, Craft, Repair	1024	*	982
Operators, Fabricators, Laborers	4007	154	2931
Industry:			
Agriculture, Forestry, Fishing	226	*	66
Mining	248	*	327
Construction	585	*	554
Manufacturing	2554	166	1357
Transportation, Public Utilities	827	50	722
Wholesale Trade	392	*	608
Retail Trade	1023	*	1369
Finance, Insurance, Real Estate	99	*	*
Services	1413	54	2434

*: Value was suppressed because it was at least one but less than four.

Compared to the other pilot data states for all musculoskeletal disorders in 2000, Kentucky had the 3rd highest rate at 1,026 cases/ 100,000 FTE workers, above the national rate of 629/100,000 (Figure 11).

Figure 11. Rate of all Work-Related Musculoskeletal Disorders Involving Days Away From Work Reported by Private Sector Employers by State and U.S., 2000^a.



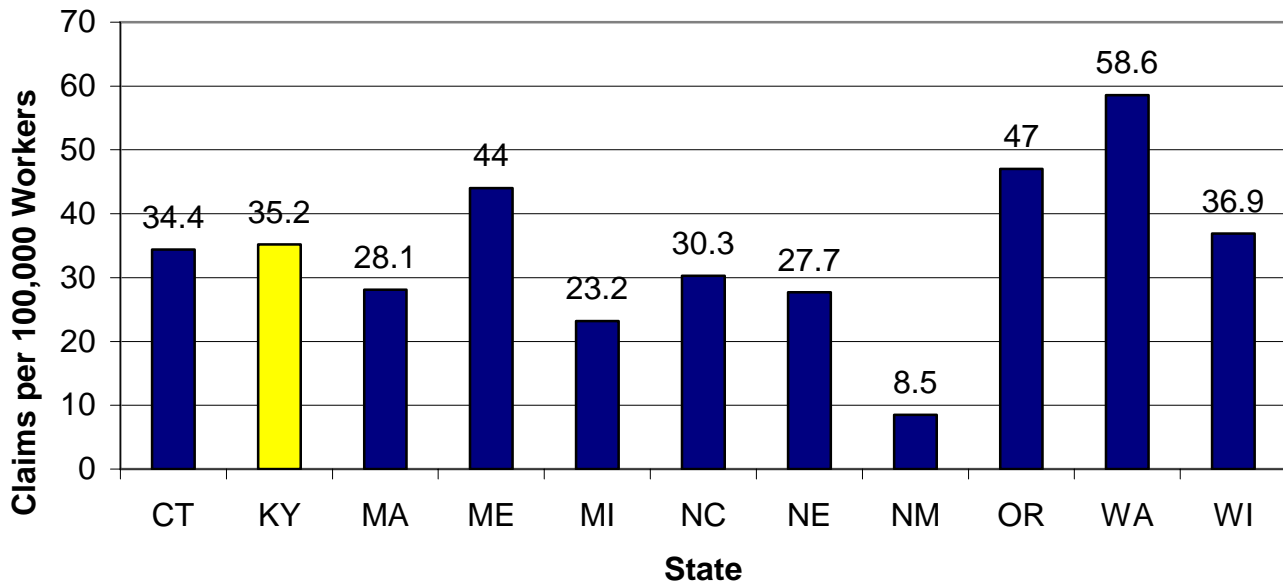
^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

Data Source: Annual Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII).

Indicator #8: Carpal Tunnel Syndrome Cases Filed with the State Workers’ Compensation System

Carpal tunnel syndrome (CTS) occurs when the median nerve is compressed at the wrist due to compression of the nerve at the carpal ligament. In workers, it results from awkward, repetitive hand movements and from the operation of vibrating tools (NIOSH Facts-Publication #705001, 1997). In 2004, there were 310 reported cases with an annual incidence rate of 18.2 CTS cases per 100,000 workers. For the year 2000, the Kentucky CTS incidence rate was 35.2 cases/100,000 workers, compared to 58.6/100,000 in Washington State, 28.1/100,000 in Massachusetts and 30.3/100,000 in North Carolina (Figure 12).

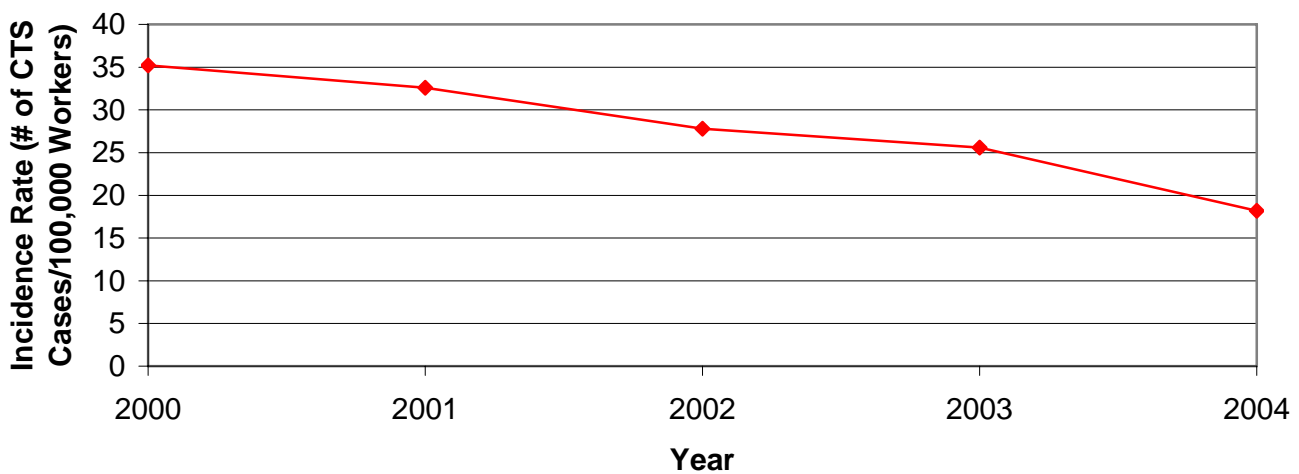
Figure 12. Rate of Lost Work-Time Claims for Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation systems by State, 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

Since the year 2000, the annual incidence for CTS has declined from 35.2 CTS cases/100,000 workers in the year 2000 to 18.2/100,000 in the year 2004 (Figure 13).

Figure 13. Kentucky Carpal Tunnel Syndrome Incidence Rate for the Years 2000-2004.



CTS cases occurred primarily in manufacturing (n= 131), in services (n=68), and retail trade (n=31) in the year 2004. CTS cases were diagnosed most frequently in 35-44 year olds (n=104), who earned \$400-\$499

per week and who were female (n=215).

Data Source: Carpal tunnel syndrome case data was provided by the Kentucky Office of Workers' Claims, Frankfort, KY.

Kentucky-Specific Indicator: Fatal and Non-Fatal Occupational Motor Vehicle Collision Injuries

In 2004, there were 12,573 occupational motor vehicle collisions (MVCs) in Kentucky involving 4,567 semi-trucks, 3,328 single trucks, and 1,533 trucks and trailers. This number is increased from the 11,459 MVCs in 2003, 11,129 in 2002, 11,514 in 2001 and 12,391 in 2000. Data for year 2000-2004 occupational MVCs are shown in Table 9. Cases were deemed work-related if a commercial-type vehicle was driven (based on NCIC vehicle type) or type of cargo was specified.

Table 9. Unit Type Involved in Occupational Driver Motor Vehicle Collisions, 2000-2004.

Vehicle Type	2004	2003	2002	2001	2000
Bus	600	508	459	493	531
Emergency Vehicle - In response	366	348	316	353	322
Emergency Vehicle - Non-response	851	785	789	753	735
Light truck	20	41	23	21	66
Military Vehicle	67	88	90	63	56
Other Publicly Owned Vehicle	523	374	311	294	540
Passenger Car	5	17	19	17	30
Railroad Train	*	*	*	0	0
School Bus	1014	963	977	1011	1019
Taxicab	218	224	267	281	322
Truck & Trailer	1533	1150	1026	979	1166
Truck-Single	3328	3124	3127	3334	3401
Truck Tractor & Semi-Trailer	4567	4268	4077	4276	4684
Truck - Other Combination	295	215	215	217	306
Total Number of Vehicles	13389	12106	11696	12092	13178

*: Value was suppressed because it was at least one but less than four.

** : Value was suppressed to prevent disclosure of another suppressed cell via subtraction.

There were 135 people (drivers or occupants) killed and 3,194 people injured in work-related MVCs in 2004 (Tables 10 and 11). The occupational motor vehicle fatality rate was 0.9/100,000 employed persons in 2002, nearly the same as in 2000, when the rate was 1.1/100,000 employed. This rate is comparable to the national rate of 1.02 deaths/100,000 employed persons in the year 2000 which was compiled using CFOI data (NIOSH, 2003). The nonfatal occupational motor vehicle injury rate was 21.5/100,000 employed persons in 2002 compared to 26/100,000 in 2000.

Table 10. Number of People Killed in Occupational Motor Vehicle Collisions, 2000-2004.

# of People Killed Per MVC	# of MVCs in 2004	# of MVCs in 2003		# of MVCs in 2002		# of MVCs in 2001		# of MVCs in 2000		Total
		Total	Total	Total	Total	Total	Total			
1	108	108	118	118	102	102	77	77	74	74
2	10	**	7	14	7	14	12	24	9	**
3	1	*	3	9	2	6	3	9	1	*
4	1	*	0	0	1	*	0	0	0	0
6	0	0	0	0	1	**	0	0	0	0
Total		135		141		132		110		95

*: Value was suppressed because it was at least one but less than four.

** : Value was suppressed to prevent disclosure of another suppressed cell via subtraction.

Table 11. Number of People Injured in Occupational Motor Vehicle Collisions, 2000-2004.

Number of People Injured Per MVC	# of MVCs in 2004	2004		# of MVCs in 2003		2003		# of MVCs in 2002		2002		# of MVCs in 2001		2001		# of MVCs in 2000		2000	
		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total					
1	1540	1540	1425	1425	1457	1457	1524	1524	1698	1698									
2	418	836	439	878	386	772	429	858	427	854									
3	115	354	109	327	131	393	117	351	165	495									
4	43	172	39	156	45	180	49	196	43	172									
5	14	70	19	95	11	55	16	80	15	75									
6	8	48	5	30	8	48	4	24	11	66									
7	5	35	5	35	2	14	4	28	2	14									
8	1	8	4	32	2	16	3	24	5	40									
9	2	18	0	0	3	27	2	181	0	0									
10	0	0	1	10	2	20	0	0	1	10									
11	0	0	0	0	0	0	0	0	1	11									
12	0	0	0	0	0	0	1	12	1	12									
13	0	0	0	0	1	13	0	0	1	13									
17	0	0	0	0	1	17	1	17	0	0									
18	1	18	0	0	0	0	1	18	0	0									
19	2	38	0	0	0	0	0	0	1	19									
20	0	0	0	0	1	20	0	0	0	0									
22	1	22	0	0	0	0	0	0	1	22									
24	0	0	1	24	0	0	0	0	0	0									
27	0	0	1	27	0	0	0	0	0	0									
44	1	44	0	0	0	0	0	0	0	0									
Total		3194		3039		3032		3150		3501									

When the severity of injuries in the drivers was examined in work-related MVCs, there were 26 deaths and 96 incapacitating injuries (Table 12) in 2004.

Table 12. Injury Severity of Occupational Driver Motor Vehicle Collisions, 2000-2004.

Injury Severity	2004	2003	2002	2001	2000
Fatal	25	23	16	8	20
Incapacitating	106	103	102	121	138
Non-Incapacitating	343	331	335	374	399
Possible Injury	337	317	308	316	381
None Detected	12509	11264	10620	11038	11485

Distraction/inattention was the primary contributing human factor in occupational motor vehicle collisions for both the working driver and nonworking driver (Table 13). Alcohol, drugs, and improper passing were contributing factors more often reported for the nonoccupational driver than for the occupational driver. Distraction/inattention, following too close, improper backing, misjudging clearance, not under proper control, overcorrecting/oversteering, and turning improperly were the human factors reported more often for occupational than for nonoccupational drivers involved in occupational MVCs. Nonuse of safety belts was recorded in approximately 5% of the collision reports for occupational drivers and in 7% of the collision reports for the nonoccupational drivers.

Table 13. Human Factors Involved in Occupational Motor Vehicle Collisions, 2000-2004.

Human Factor:	Non-Occupational Driver						Occupational Driver					
	2000	2001	2002	2003	2004	Total	2000	2001	2002	2003	2004	Total
Alcohol	137	143	157	135	157	729	50	33	36	46	35	200
Cell Phone	9	14	9	25	24	81	10	8	13	15	30	76
Disregard Traffic Control	144	135	117	122	136	654	152	144	114	102	96	608
Distraction/ Inattention	1164	1166	1132	1292	1404	6158	3214	2974	2769	2770	3113	14840
Drug Involvement	18	29	29	35	33	144	*	16	10	8	**	42
Emotional	*	9	11	9	11	44	11	**	7	7	*	34
Exceeded Stated Speed Limit	52	47	48	30	42	219	47	27	30	23	65	192
Failed To Yield Right of Way	545	555	578	564	538	2780	635	541	514	500	523	2713
Fatigue/ Fell Asleep	53	72	62	62	75	324	77	56	57	61	80	331
Following Too Close	186	161	138	141	193	819	325	248	246	241	246	1306
Improper Backing	20	18	13	26	23	100	250	233	215	180	233	1111
Improper Passing	98	93	92	97	87	467	62	41	28	39	41	211
Unconscious/ Fainted	9	6	13	7	6	41	29	14	13	24	12	92
Misjudge Clearance	130	142	139	152	161	724	1293	1299	1380	1393	1516	6881
Not Under Proper Control	158	197	226	273	299	1153	245	328	361	398	472	1804
Overcorrecting/ Oversteering	21	28	30	30	30	139	105	94	88	115	102	504
Sick	12	*	*	5	*	27	**	**	*	*	*	19
Too Fast For Conditions	158	119	136	177	144	734	141	120	138	148	124	671
Turning Improperly	66	48	46	45	46	251	186	143	162	117	126	734
Weaving in Traffic	8	**	8	*	7	31	16	*	*	6	25	54
Other	308	286	294	312	317	1517	675	547	602	656	676	3156
None Detected	4358	4157	3851	3947	4517	20830	5590	5173	4854	5217	5831	26665

*: Value suppressed because it was at least one but less than four.

** : Value suppressed to prevent disclosure of another suppressed cell via subtraction.

Data Source: Motor vehicle collision surveillance data was obtained from the Collision Report Analysis for Safer Highways (CRASH) database established and maintained by the Kentucky State Police

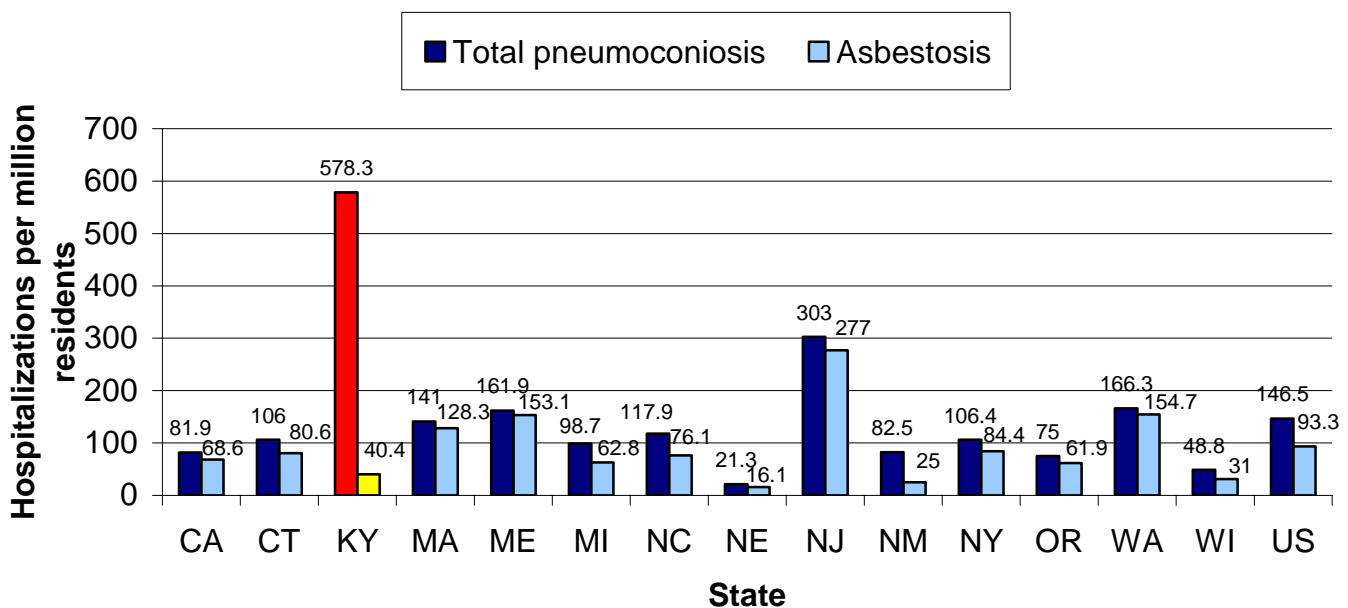
Occupational Illnesses

Indicator #9: Hospitalization From or With Pneumoconiosis

Pneumoconiosis is a condition in which there is a permanent deposit of excessive amounts of particulate matter in the lungs. It is usually related to occupational or environmental exposures. Coal workers' pneumoconiosis results in emphysema and is caused by the large deposition of coal dust in the lungs. Asbestosis is a form of pneumoconiosis characterized by interstitial lung fibrosis following inhalation of asbestos. Nodular fibrotic changes are characteristic of silicosis pneumoconiosis caused by the inhalation of stone, sand, or flint.

Kentucky has the second highest pneumoconiosis incidence rate (10.0-100.0 deaths per million (NIOSH, 2004) in the nation. The annual rate of pneumoconiosis hospitalizations per million residents is increasing every year, although not at a statistically significant rate ($p=0.25$), from an age-standardized rate of 578/million residents in 2000 to a rate of 626/million residents in 2004. The number of pneumoconiosis hospital discharges was 1,974 in 2004, a decrease from 2,110 in 2003. The age-standardized hospitalization rates for total pneumoconiosis and asbestosis were compared between Kentucky and other pilot data states in 2000. Kentucky had the highest total pneumoconiosis rate and the 4th lowest age-standardized asbestosis rates (Figure 14).

Figure 14. Age-Standardized Rate of Hospitalizations From or with Total Pneumoconiosis and Asbestosis by State and U.S., 2000^{ab}.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

^b The above rates are based on the number of hospitalizations and not the number of people who were hospitalized. The actual number of people hospitalized would be expected to be less.

Coal Workers' Pneumoconiosis

The crude hospitalization rate for coal workers' pneumoconiosis was 534 hospitalizations per million residents. Table 14 shows the number of hospitalizations and the annual age-adjusted coal workers' pneumoconiosis hospitalization rate per million residents in 2004. The age-adjusted rate was 545 hospitalizations/million residents in 2004 compared to 486/million in the year 2000. This rate is almost 10 times higher than the national rate of 44.9 and reflects the morbidity associated with the state's coal mining industry.

Table 14. Annual Age-Adjusted Coal Workers' Pneumoconiosis Hospitalization Rates Per Million Residents in Kentucky (2000-2004).

Year	Total # of Hospitalizations	Age-Adjusted Rate
2000	1528	486
2001	1576	499
2002	1740	553
2003	1824	578
2004	1718	545

Asbestosis

The asbestosis hospitalization rate increased from 40 per million residents in 2000 to 48 per million in 2004. The age-adjusted asbestosis hospitalization rates and numbers are shown in Table 15.

Table 15. Annual Age-Adjusted Asbestosis Hospitalization Rates Per Million Residents in Kentucky (2000-2004).

Year	Total # of Hospitalizations	Age-Adjusted Rate
2000	128	40
2001	153	48
2002	191	60
2003	160	50
2004	155	49

Silicosis

The crude silicosis hospitalization rate decreased from 15 hospitalizations per million residents in 2000 to 12 in 2004. Table 16 shows the age-adjusted rate and numbers for silicosis hospitalizations in 2004.

Table 16. Annual Age-Adjusted Silicosis Hospitalization Rates Per Million Residents in Kentucky (2000-2004).

Year	Total # of Hospitalizations	Age-Adjusted Rate
2000	49	15
2001	40	12
2002	54	17
2003	47	15
2004	38	12

Other and Unspecified Pneumoconiosis

The crude hospitalization rates for other and unspecified pneumoconiosis discharges decreased from 36 hospitalizations per million residents in 2000 to 22 in 2004. The age-adjusted rates and numbers are given in Table 17.

Table 17. Annual Age-Adjusted for Other and Unspecified Pneumoconiosis Hospitalization Rates Per Million Residents in Kentucky (2000-2004).

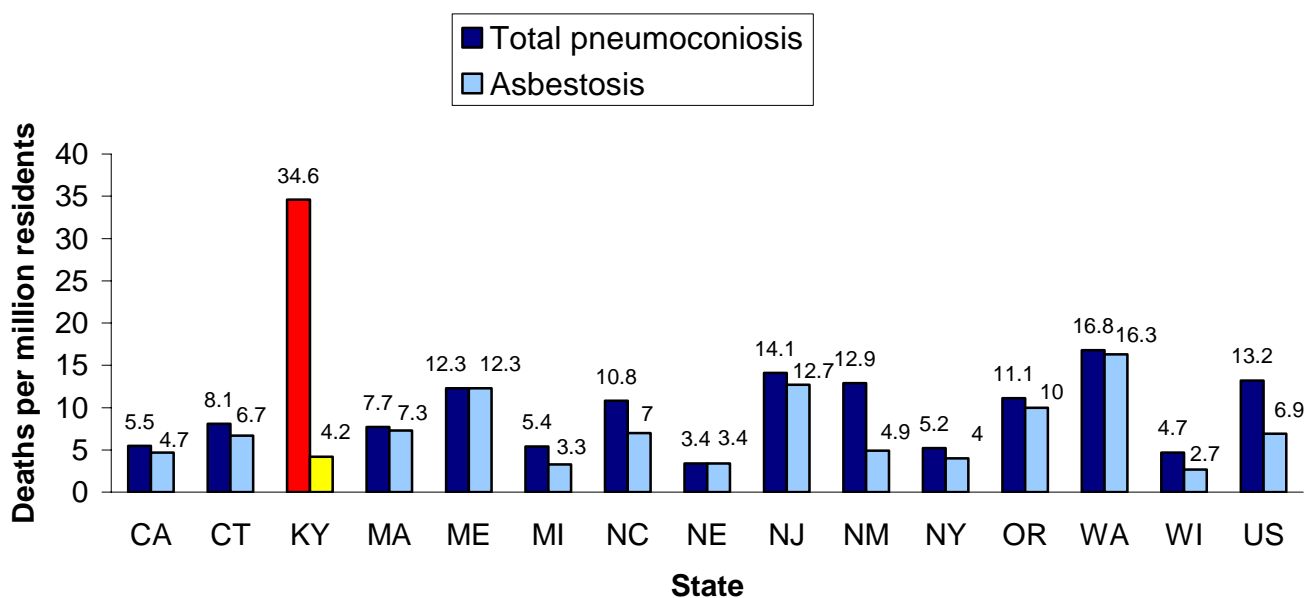
Year	Total # of Hospitalizations	Age-Adjusted Rate
2000	119	38
2001	136	43
2002	114	36
2003	90	28
2004	71	23

Data Source: Kentucky Department for Public Health UB92 hospital discharge data.

Indicator #10: Mortality From or With Pneumoconiosis

Deaths from pneumoconiosis numbered 67 in 2003, down from 107 in the year 2000. The crude total death rate for pneumoconiosis was 20.8 per million residents in 2003 and the age-adjusted total pneumoconiosis rate was 21.6. Most of the decedents were 75-84 years old. A comparison with pilot states' data shows that Kentucky had the highest total pneumoconiosis death rate (34.6 deaths/ million residents vs. 13.2 deaths/million residents for the nation) and one of the lowest for asbestosis (4.2 deaths/million residents) (Figure 15).

Figure 15. Age-Standardized Mortality Rate From or With Total Pneumoconiosis and Asbestosis by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

Coal Workers’ Pneumoconiosis Deaths

Kentucky had the third highest coal workers’ pneumoconiosis mortality rate in the nation (34.4 death per million residents), behind West Virginia and Pennsylvania (NIOSH, 2004), for the years 1990-1999. In 2003, coal workers’ pneumoconiosis accounted for 49 occupational deaths (crude death rate of 15.2 per million residents; age-adjusted rate of 15.8/million); most deaths were in the 75-84 year old range. This rate is decreased from the 73 deaths reported in 2000 (age-adjusted death rate of 23.6 per million residents).

Asbestosis Deaths

There were only 6 asbestosis deaths reported in 2003 with a crude death rate of 1.8 deaths per million residents and an age-adjusted rate of 1.9. Most decedents were 75-84 years of age. In the year 2000, there were 13 deaths reported (crude death rate of 4).

Silicosis Deaths

There were less than 5 events in 2003 so rates could not be calculated. In the year 2000, there were 6 cases with a crude death rate of 1.9 and an age-adjusted rate of 2.0.

Other and Unspecified Pneumoconiosis deaths

In 2003, there were 10 other and unspecified pneumoconiosis deaths with a crude death rate of 3.1 deaths per million residents compared to 15 deaths and a crude rate of 4.7 deaths/million residents in the year 2000. The

age-adjusted rate for 2003 was 3.2 deaths per million residents and the average age was 75-84 years.

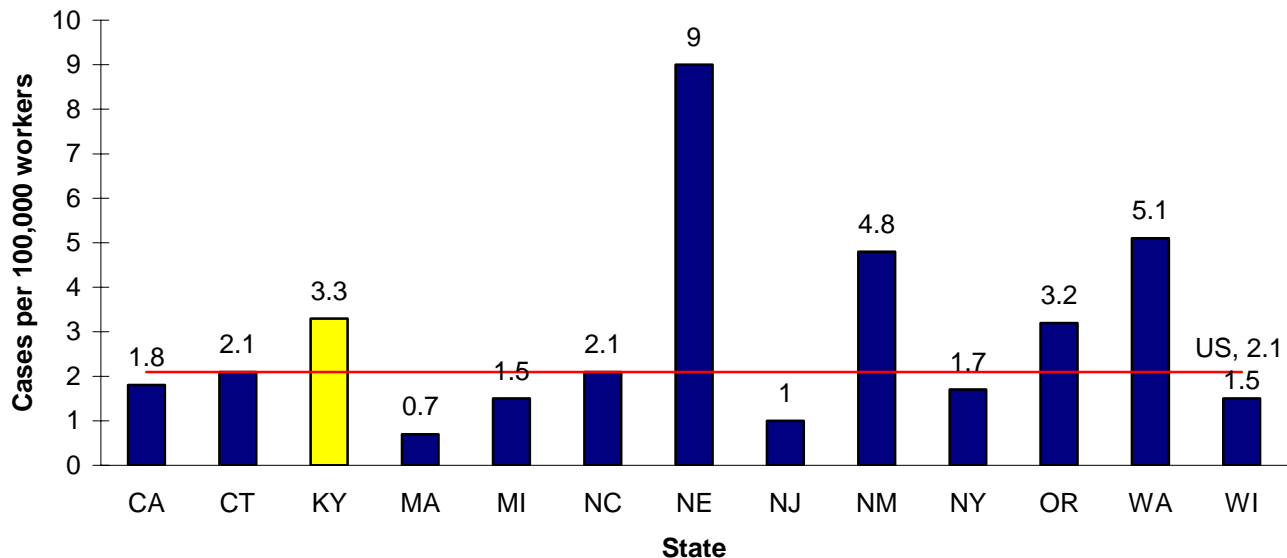
Data Source: Pneumoconiosis mortality data was obtained from the Kentucky Department for Public Health Office of Vital Statistics.

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

In 2004, 59 pesticide poisoning cases were reported to the Kentucky Regional Poison Control Center compared to 47 cases in 2003, 57 cases in 2002, 36 cases in 2001 and 63 cases in 2000. The annual incidence rate of reported work-related pesticide poisonings per 100,000 employed persons age 16 years or older in 2002 was 3.1. When examining 2004 reports, the primary pesticide exposures were due to disinfectant industrial cleaners (n=13, 22%), other/unknown disinfectants (n=9, 15%) and to other herbicides (n=5, 8%). Fifty-eight percent of the acute work-related pesticide-associated illnesses and injuries were in women. Most of the exposed workers were 20-29 years of age (n=13). Many of the pesticide-related illnesses and injuries resulted in a minor effect (n=31) when medical outcomes were determined. Six people had moderate effects. Twenty-four people were medically treated and released for pesticide-related illnesses and injuries.

The Kentucky acute work-related poisoning rate was determined for the year 2000 (3.3 cases per 100,000 workers). When compared to the pilot data states, Kentucky's rate is 4th highest and increased relative to the national rate of 2.1 cases per 100,000 (Figure 16).

Figure 16. Rate of Work-Related Pesticide-Associated Poisonings by State* and U.S., 2000.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

* Rates were not calculated for states with fewer than five cases.

The numbers reported by the Kentucky Regional Poison Control Center differ from the numbers reported by the American Association of Poison Control Centers. The numbers reported by the Kentucky Regional Poison Control Center exclude those cases when the exposure reason is suspected suicide, intentional abuse, intentional action but specific intention unknown, malicious, or unknown reason.

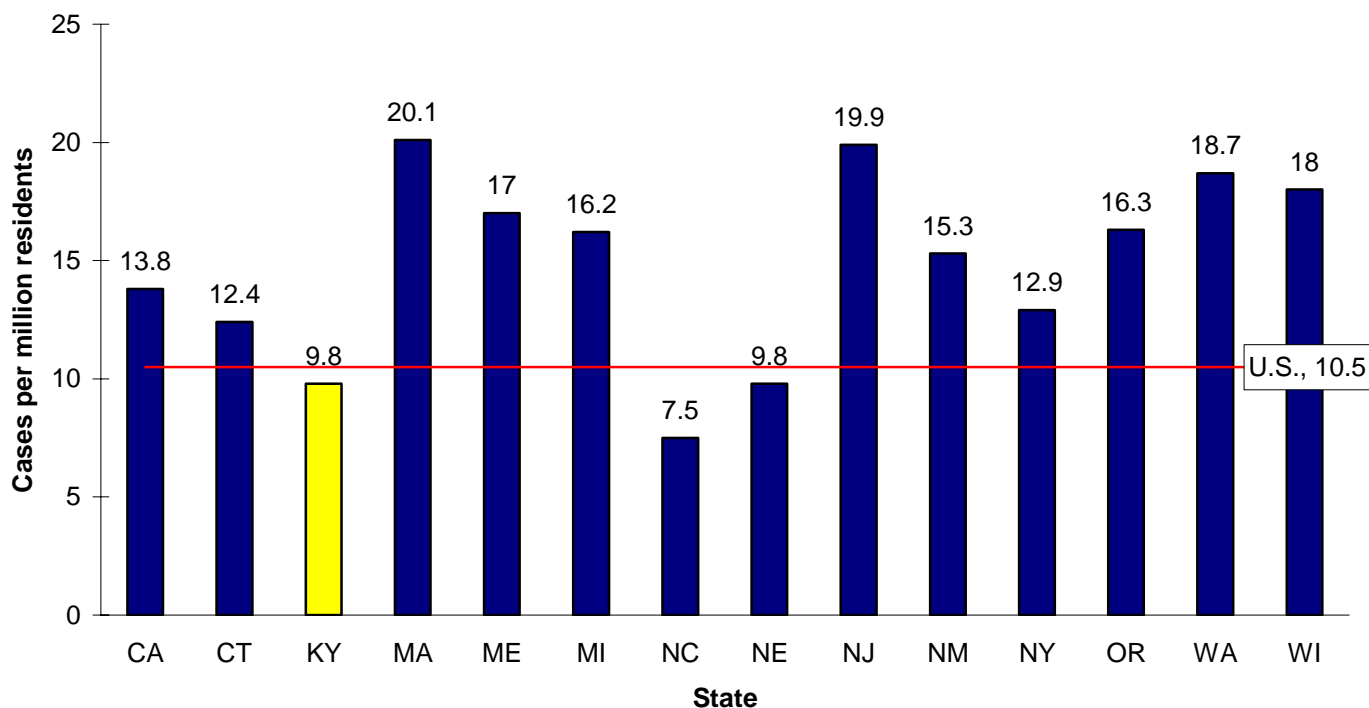
Data Source: Work-related pesticide poisoning data was obtained from the Kentucky Regional Poison Control Center, Louisville, KY

Indicator #12: Incidence of Malignant Mesothelioma

Malignant mesothelioma is a malignant tumor located in the pleura, peritoneum, or pericardium, and many of these tumors have been associated with a high exposure to asbestos.

Malignant mesothelioma annual incidence rates were determined for 2000-2003. The rate was 9.6 cases per million residents (31 cases) in 2000, 8.7 (28 cases) in 2001, 12.1 (39 cases) in 2002, and 9.9 (32 cases) in 2003. Correspondingly, the age-adjusted malignant mesothelioma rates were 9.8 in 2000, 8.8 in 2001, 12.3 in 2002, and 10.3 in 2003. The 2000 rate was below the national rate of 10.5 cases per million residents and was 12th in comparison to the pilot states (Figure 17).

Figure 17. Age-Standardized Incidence Rate of Malignant Mesothelioma by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

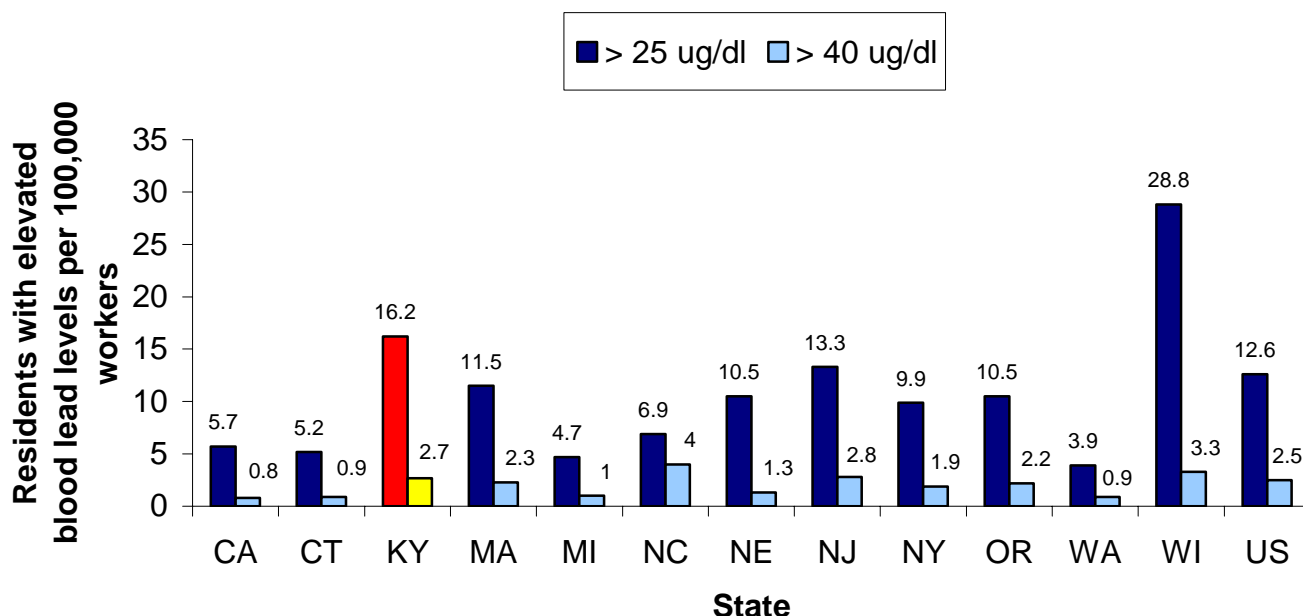
Data Source: Malignant mesothelioma case data was provided by the Kentucky Cancer Registry.

Occupational Exposures

Indicator # 13: Elevated Blood Lead Levels Among Adults

Exposure of adults to lead is primarily through occupational exposure, as with painters who remove old lead paint and plumbers who work with lead pipe and soldering materials. Lead affects the body’s hematological, renal, circulatory and immune systems. The monitoring of blood lead levels is one biologic marker to assess lead exposure. Lead exposure is considered elevated in the adult when it reaches 25 µg/dL. In 2001, Kentucky’s prevalence rate of persons with blood lead levels $\geq 25\mu\text{g/dL}$ was 18.6 cases per 100,000 workers and was 2.96 cases per 100,000 workers for $40\mu\text{g/dL}$ blood lead levels. The Kentucky adult blood lead level ($>25\mu\text{g/dL}$) prevalence rate was 17.82 cases per 100,000 employed persons, 76% above the average state rate of $10.1\mu\text{g/dL}$. Figure 18 shows Kentucky’s blood lead level rates in relation to the pilot states for the year 2000.

Figure 18. Prevalence Rate of Persons with Blood Lead Levels $\geq 25\mu\text{g}/\text{dl}$ and $\geq 40\mu\text{g}/\text{dl}$ of Persons Age 16 Years or Older by State* and U.S., 2000^a.



*Kentucky blood lead levels are not directly comparable because 2000 blood lead level data was not available. Kentucky 2001 blood lead level rates are included.

^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000".

Prevalent and incident blood lead level ($\geq 25\mu\text{g}/\text{dL}$ and $> 40\mu\text{g}/\text{dL}$) cases by age are shown in Tables 18 and 19. Blood lead levels $\geq 25\mu\text{g}/\text{dL}$ were most prevalent in 35-44 year-old workers in 2004 and in 35-44 year-old workers with $\geq 40\mu\text{g}/\text{dL}$ blood lead levels .

Table 18. Prevalent and Incident Blood Lead Level ($\geq 25\mu\text{g}/\text{dl}$) Cases by Age (2000-2004).

Ages:	Prevalence				Incidence		
	2001	2002	2003	2004	2002	2003	2004
16-24	39	24	26	15	15	19	8
25-34	98	83	85	56	46	49	32
35-44	96	81	77	60	45	33	26
45-54	62	51	58	45	26	34	25
55-65	18	20	21	16	11	7	8
>65	33	72	6	0	55	5	0
Total	346	331	275	192	198	147	99

Table 19. Prevalent and Incident Blood Lead Level ($\geq 40\mu\text{g}/\text{dl}$) Cases by Age (2000-2004).

Ages:	Prevalence				Incidence		
	2001	2002	2003	2004	2002	2003	2004
16-24	*	*	*	*	*	*	*
25-34	16	7	14	5	7	13	5
34-44	14	7	9	10	5	7	10
45-54	12	4	9	8	*	9	8
55-65	5	*	*	*	*	*	*
>65	5	6	*	*	5	*	*

*: Value was suppressed because it was at least one but less than four.

Lead exposures occurred in a number of industries in the year 2004: battery manufacturing (n=131), electrical equipment, electric lamp bulb and part manufacturing (n=5), and the fabricated metal product manufacturing (n=4) industry.

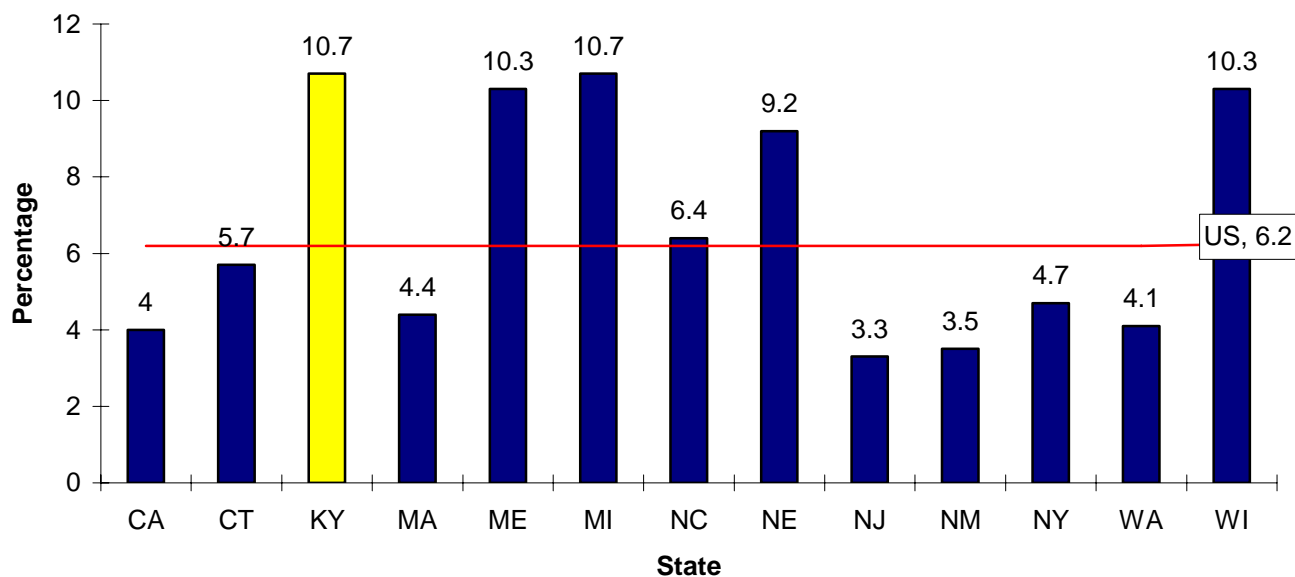
Data Source: Adult blood lead level data was obtained from the Kentucky Adult Blood Lead Epidemiology and Surveillance (ABLES) program located in the Kentucky Lead Poisoning Prevention Program, Division of Adult and Child Health, Frankfort, KY.

Occupational Hazards

Indicator #14: Percentage of Workers Employed in Industries at High Risk for Occupational Morbidity

The percentage of Kentucky workers employed in high risk industries was calculated for the year 2000 and compared to pilot data states. Kentucky and Michigan employed the largest percentage of workers in high-risk industries (Figure 19).

Figure 19. Percentage of Workers in Industries with High Risk for Occupational Morbidity by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

The Kentucky industries at greatest risk for an occupational injury were nursing care facilities, scheduled air transportation, and motor vehicle manufacturing (Table 20).

Table 20. Percentage of Workers Employed in Industries at High Risk for Occupational Morbidity.

Industry Code	Industry Code Description	Year					
		2002		2001		2000	
		Number	(%)	Number	(%)	Number	(%)
	Manufacturing						
3116	Animal slaughtering & processing	7369.0	0.5	8419.0	0.6	7437.0	0.5
321113	Sawmills	3130.0	0.2	3679.0	0.2	3843.0	0.3
321912	Cut stock, resawing lumber & planing	1755.0	0.1	1560.0	0.1	1774.0	0.1
321918	Other millwork (including flooring)	1277.0	0.1	1190.0	0.1	1198.0	0.1
32192	Wood container & pallet mfg	1876.0	0.1	2095.0	0.1	2091.0	0.1
321999	All other misc wood product mfg	727.0	0.0	896.0	0.1	975.0	0.1
327112	Vit china & other pottery product mfg	374.5	0.0	374.5	0.0	374.5	0.0
327113	Porcelain electrical supply mfg	60.0	0.0	0-20	0.0	0-20	0.0
3273	Cement & concrete product mfg	2836.0	0.2	3343.0	0.2	3513.0	0.2
3274	Lime & gypsum product mfg	749.5	0.1	749.5	0.1	749.5	0.0
327999	All oth misc nonmetal min prod mfg	303.0	0.0	319.0	0.0	399.0	0.0
331312	Primary aluminum production	1749.5	0.1	1749.5	0.1	1749.5	0.1
331314	2nd smelting & alloying of aluminum	323.0	0.0	352.0	0.0	362.0	0.0
33141	Nonferr (exc aluminum) smelt & refin	174.5	0.0	174.5	0.0	174.5	0.0
331492	Oth nonferr 2nd smelt,refine,alloying	299.0	0.0	374.5	0.0	374.5	0.0
33151	Ferrous metal foundries	609.0	0.0	749.5	0.1	808.0	0.1
33152	Nonferrous metal foundries	3910.0	0.3	3749.5	0.3	3749.5	0.2
332111	Iron & steel forging	856.0	0.1	726.0	0.0	889.0	0.1
332114	Custom roll forming	515.0	0.0	503.0	0.0	444.0	0.0
332115	Crown & closure mfg	374.5	0.0	205.0	0.0	196.0	0.0
332116	Metal stamping	1568.0	0.1	1977.0	0.1	2037.0	0.1
33221	Cutlery & handtool mfg	1337.0	0.1	1381.0	0.1	1551.0	0.1
33231	Plate work & fabric struct prod mfg	1905.0	0.1	2165.0	0.1	2109.0	0.1
33232	Ornam & architectural metal prod mfg	2388.0	0.2		0.0	2697.0	0.2
33241	Power boiler & heat exchanger mfg	228.0	0.0	409.0	0.0	408.0	0.0
33242	Metal tank (heavy gauge) mfg	947.0	0.1	809.0	0.1	837.0	0.1
332439	Other metal container mfg	374.0	0.0	165.0	0.0	174.5	0.0
33251	Hardware mfg	2350.0	0.2	2416.0	0.2	2584.0	0.2
332722	Bolt, nut, screw, rivet & washer mfg	791.0	0.1	592.0	0.0	2584.0	0.2
332999	All other misc fabric metal product mfg	1801.0	0.1	1843.0	0.1	2584.0	0.2
33312	Construction machinery mfg	935.0	0.1	1113.0	0.1	1749.5	0.1
33313	Mining & oil & gas field machinery mfg	435.0	0.0	513.0	0.0	749.5	0.0
333311	Automatic vending machine mfg	9.5	0.0	9.5	0.0	9.5	0.0
333312	Comm laun,dryclean&press mach mfg	174.5	0.0	374.5	0.0	374.5	0.0
333319	Oth comm, serv ind machinery mfg	733.0	0.1	762.0	0.1	630.0	0.0
333414	Heat equip (exc warm air furnaces)mfg	750.0	0.1	700.0	0.0	813.0	0.1

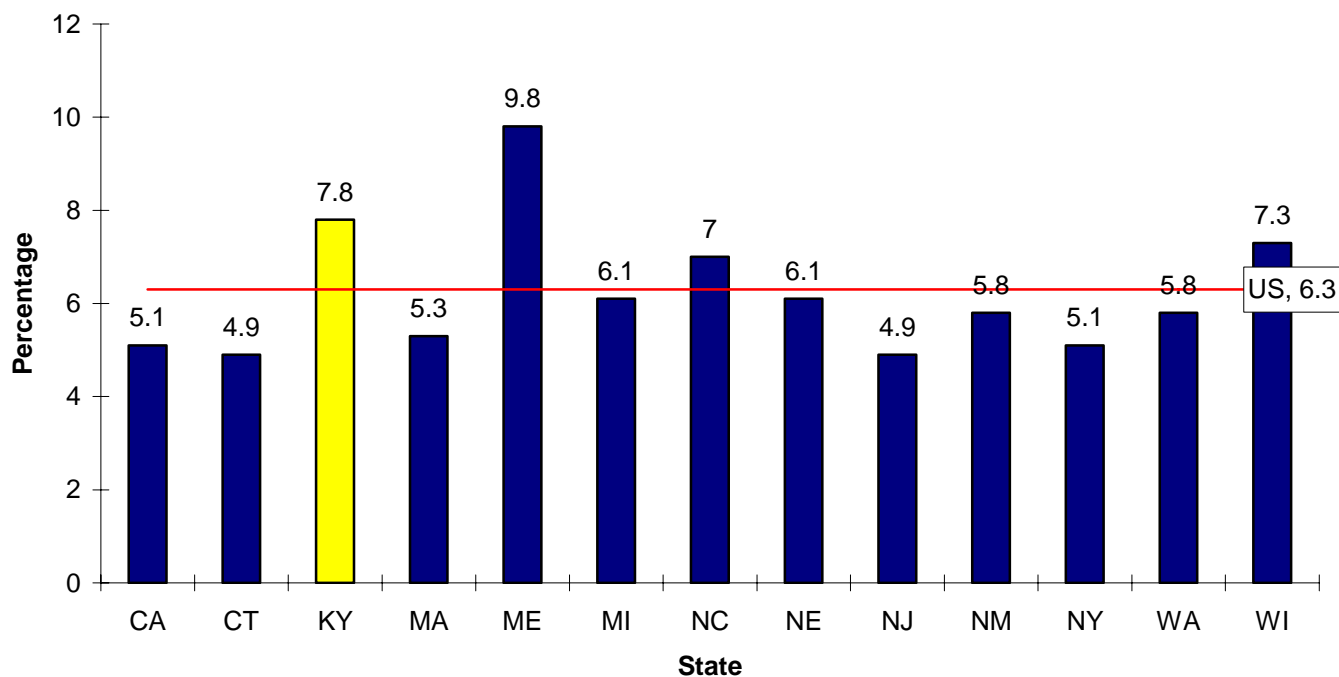
333415	AC, htg & commercial refrig equip mfg	2209.0	0.2		0.0	3288.0	0.2
33392	Material handling equipment mfg	2888.0	0.2	3530.0	0.2	3663.0	0.2
3361	Motor vehicle mfg	19216.0	1.3	19564.0	1.3	20273.0	1.3
3362	Motor vehicle body & trailer mfg	749.5	0.1	1749.5	0.1	1749.5	0.1
336312	Gasoline engine & engine parts mfg	1749.5	0.1	1749.5	0.1	1749.5	0.1
336322	Other MV elect & electronic equip mfg	1749.5	0.1	2863.0	0.2	3749.5	0.2
33633	Motor veh steering & suspn parts mfg	2195.0	0.2	1970.0	0.1	1734.0	0.1
33634	Motor vehicle brake system mfg	4300.0	0.3	4465.0	0.3	4743.0	0.3
33635	MV trans & power train parts mfg	1754.0	0.1	1619.0	0.1	1749.5	0.1
33637	Motor vehicle metal stamping	4366.0	0.3	4974.0	0.3	4479.0	0.3
336399	All other motor vehicle parts mfg	5468.0	0.4	6187.0	0.4	6019.0	0.4
3365	Railroad rolling stock mfg	9.5	0.0	9.5	0.0	59.5	0.0
33661	Ship & boat building	968.0	0.1	1749.5	0.1	1749.5	0.1
33699	Other transportation equipment mfg	175.0	0.0	174.5	0.0	174.5	0.0
337127	Institutional furniture mfg	399.0	0.0	334.0	0.0	328.0	0.0
337212	Cust archit woodwork & millwork mfg	370.0	0.0	374.5	0.0	374.5	0.0
337215	Showcase, part, shelving & locker mfg	617.0	0.0	726.0	0.0	727.0	0.0
4215	Metal & min (except petroleum) whsle	2469.0	0.2	2828.0	0.2	2876.0	0.2
48111	Scheduled air transportation	17499.5	1.2	17499.5	1.2	17499.5	1.2
48839	Other water transp support activities	175.0	0.0	374.5	0.0	374.5	0.0
62311	Nursing care facilities	29804.0	2.0	27824.0	1.9	28340.0	1.9
62321	Residential mental retardation facilities	2875.0	0.2	2521.0	0.2	2117.0	0.1
623311	Continuing care retire comm	1814.0	0.1	1722.0	0.1	1511.0	0.1
71213	Zoos & botanical gardens	175.0	0.0	174.5	0.0	174.5	0.0
71219	Nature parks & other similar instit	10.0	0.0	59.5	0.0	9.5	0.0
Total	Number of workers employed in high-risk industries	149,998		151,480		162,505	
Total	Number of employees for week including March 12	1,462,517		1,497,466		1,513,722	
	Percentage of employed persons in high morbidity risk industries	10.3		10.1		10.7	

Data Source: Bureau of the Census County Business Patterns (CBP)

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

Kentucky had 7.8% of its workers employed in occupations at increased risk for an occupational injury and/or illness in 2000. This percentage was second to Maine when Kentucky was compared to the other pilot states (Figure 20).

Figure 20. Percentage of Workers in Occupations with High Risk for Occupational Morbidity by State and U.S., 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. “Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000”.

The two occupations that were at highest risk for occupational injuries and illnesses in Kentucky were truck drivers and laborers (Table 21).

Table 21. Percentage of Workers Employed in Occupations at High Risk for Occupational Morbidity in Kentucky.

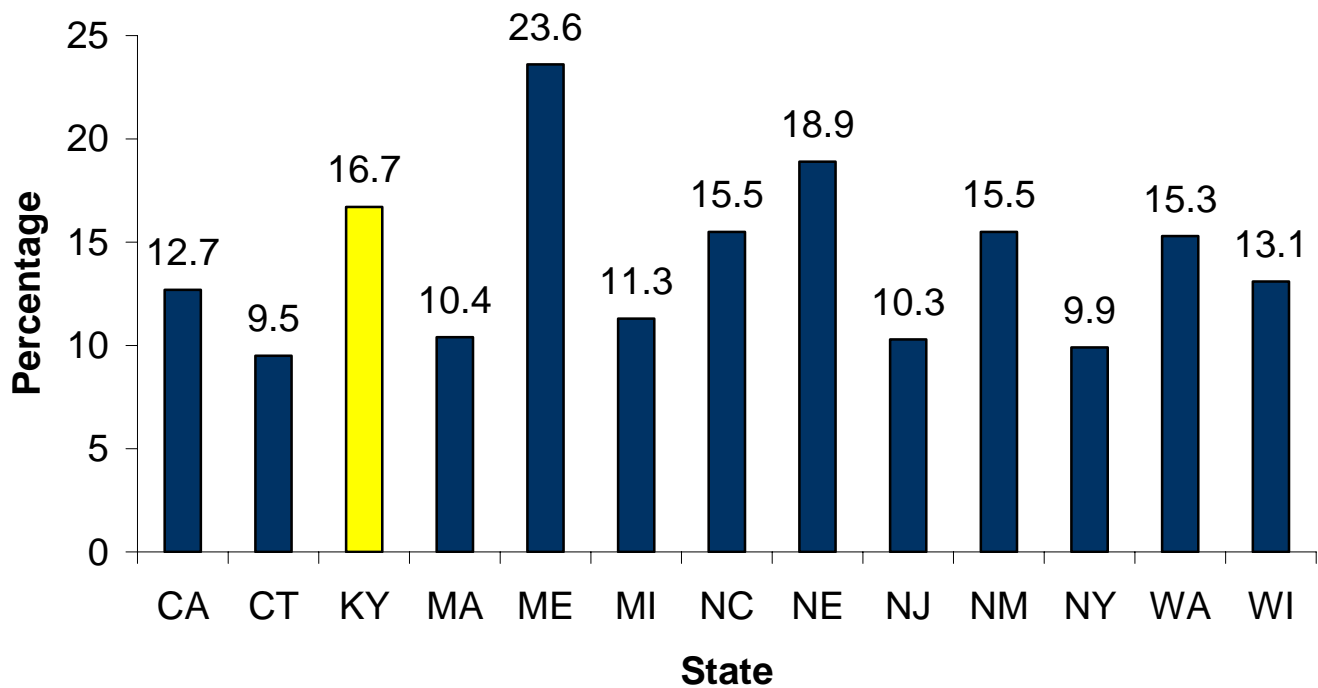
	Average number of employed persons in high morbidity risk occupations			Percentage of workers employed in occupations at high risk for occupational morbidity		
	2000	2001	2002	2000	2001	2002
Industry and Occupation	149,890	136,978	132,272	7.82	7.42	7.21
Technicians, n.e.c. (399)	1,554	1,094	2,231	0.08	0.06	0.12
Miscellaneous food preparation occupations (5219)	5,694	5,079	7,244	0.30	0.28	0.39
Public transportation attendants (5257)	843	0	0	0.04	0.00	0.00
Timber cutting and logging occupations (573, 579)	2,437	617	1,487	0.13	0.03	0.08
Telephone line installers and repairers (6157)	0	705	0	0.00	0.04	0.00
Electrician apprentices (part 6432)	0	896	198	0.00	0.05	0.01
Sheetmetal duct installers (6472)	0	1,318	1,464	0.00	0.07	0.08
Structural metal workers (6473)	1,450	165	699	0.08	0.01	0.04
Punching and stamping press machine operators	400	3,012	2,264	0.02	0.16	0.12
Grinding/abrading/buffing/polishing machine operators	932	578	2,053	0.05	0.03	0.11
Sawing machine operators (7433, 7633)	2,337	4,313	1,221	0.12	0.23	0.07
Extruding and forming machine operators (7463, 7663)	202	831	667	0.01	0.05	0.04
Furnace, kiln, and oven operators, except food (7675)	1,818	577	1,656	0.09	0.03	0.09
Crushing and grinding machine operators	0	1,554	0	0.00	0.08	0.00
Truck drivers (8212-8214)	60,199	60,205	53,870	3.14	3.26	2.94
Driver-sales workers (8218)	3,163	2,983	1,873	0.17	0.16	0.10
Excavating and loading machine operators (8316)	2,460	2,675	3,547	0.13	0.14	0.19
Misc material moving equipment operators (8319)	1,209	2,755	4,360	0.06	0.15	0.24
Helpers, construction trades (8641-8645, 8648)	0	163	2,275	0.00	0.01	0.12
Construction laborers (871)	20,710	12,568	7,075	1.08	0.68	0.39
Production helpers (861, 862)	2,049	171	1,114	0.11	0.01	0.06
Freight, stock, and material handlers, n.e.c. (8726)	17,322	14,638	12,505	0.90	0.79	0.68
Laborers, except construction (8769)	25,111	20,081	24,467	1.31	1.09	1.33
Total				7.82	7.42	7.21
	Average annual number employed persons					
	2000	2001	2002			
Total Labor Force	1,916,113	1,846,593	1,835,163			
Employed-At Work	1,812,479	1,752,907	1,759,246			
Employed-Absent	103,634	93,686	75,917			

Data Source: Bureau of Labor Statistics Current Population Survey (CPS).

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

Almost 17% of Kentucky's workers were employed in high mortality-risk industries and this percentage was 3rd highest when compared to pilot states (Figure 21).

Figure 21. Percentage of Workers employed in Industries with high Risk for Occupational Mortality by State, 2000^a.



^a Figure was adapted from CSTE, NIOSH, 2005. "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000.

The occupations with the highest risk of occupational mortality were the truck driver occupation and farming and farm worker occupations (BLS Current Population Survey).

Data Source: Bureau of Labor Statistics (BLS) Current Population Survey (CPS)

CONCLUSIONS

While definite strides have been made in Kentucky regarding worker injuries and illnesses, critical target areas need to be addressed regarding amputations at work, musculoskeletal diseases, occupational motor vehicle collisions, coal workers' pneumoconiosis, occupational pesticide poisonings, and lead exposures. Ongoing surveillance and the targeting of prevention resources at the local and state levels are necessary to address these critical areas and to bring Kentucky more in line with national rates. Based on these initial findings, state-wide priorities for the top 5 occupational injury and illness indicators should be established to develop targeted cohesive occupational injury and illness prevention strategies and to identify research opportunities in order to reduce the burden of occupational injuries and illnesses in Kentucky.

REFERENCES

Bureau of Labor Statistics, Geographic Profiles of Employment and Unemployment- 2002, Washington, DC.

Council of State and Territorial Epidemiologists. *Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000*. September 2005.

National Institute for Occupational Safety and Health, Work-related Roadway Crashes. DHHS (NIOSH) Publication No. 2003-119. Cincinnati, OH.

National Institute for Occupational Safety and Health, 2004. Worker Health Chartbook, 2004. Atlanta, GA. US Department of Health and Human Services.