



Kentucky Occupational Injury and Illness Surveillance Programs (KOSHS)

Terry Bunn
Svetla Slavova
Medearis Robertson



KOSHS

- 13 states funded by CDC/NIOSH to conduct surveillance of 19 indicators of occupational injuries and illnesses
- State-specific indicator for occupational motor vehicle collision injuries




- Goal:

- Unite resources from existing health surveillance systems to establish a state-wide population-based occupational safety and health surveillance program

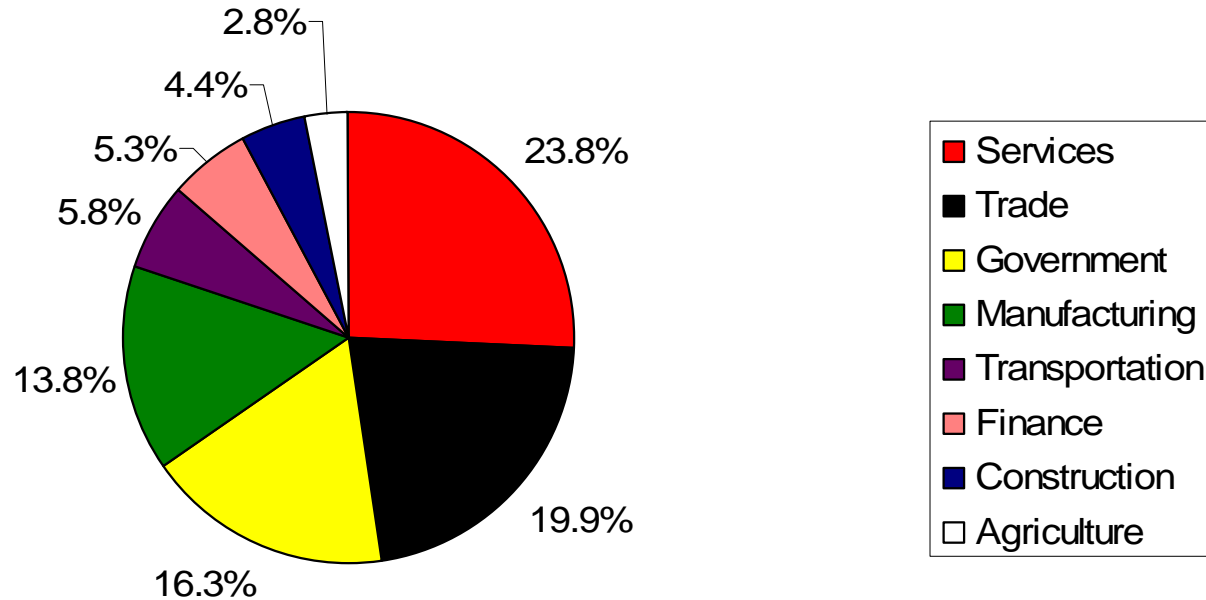
- Objectives:

- Identify worker populations and environments at risk for occupational injuries and illnesses
- Identify risk factors for an occupational injury
- Develop strategies for dissemination of state occupational health data



Public Resources	Authorized Resources
BLS Survey of Occupational Injuries and Illnesses	Kentucky Hospital Discharge Data
BLS Current Population Survey	Vital Statistics data (death certificates)
YEAR 2000 US Standard Population	Workers' Compensation system
US Census State Population Data	Kentucky Adult Blood Lead Epidemiology Surveillance (ABLES)
National Academy of Social Insurance Worker (NASI) estimate	FACE data
CFOI	CRASH data
	Kentucky Cancer Registry data
	Poison Control Center data

Employment Demographics, 2002: 1,857,000 people aged 16 and older employed in Kentucky



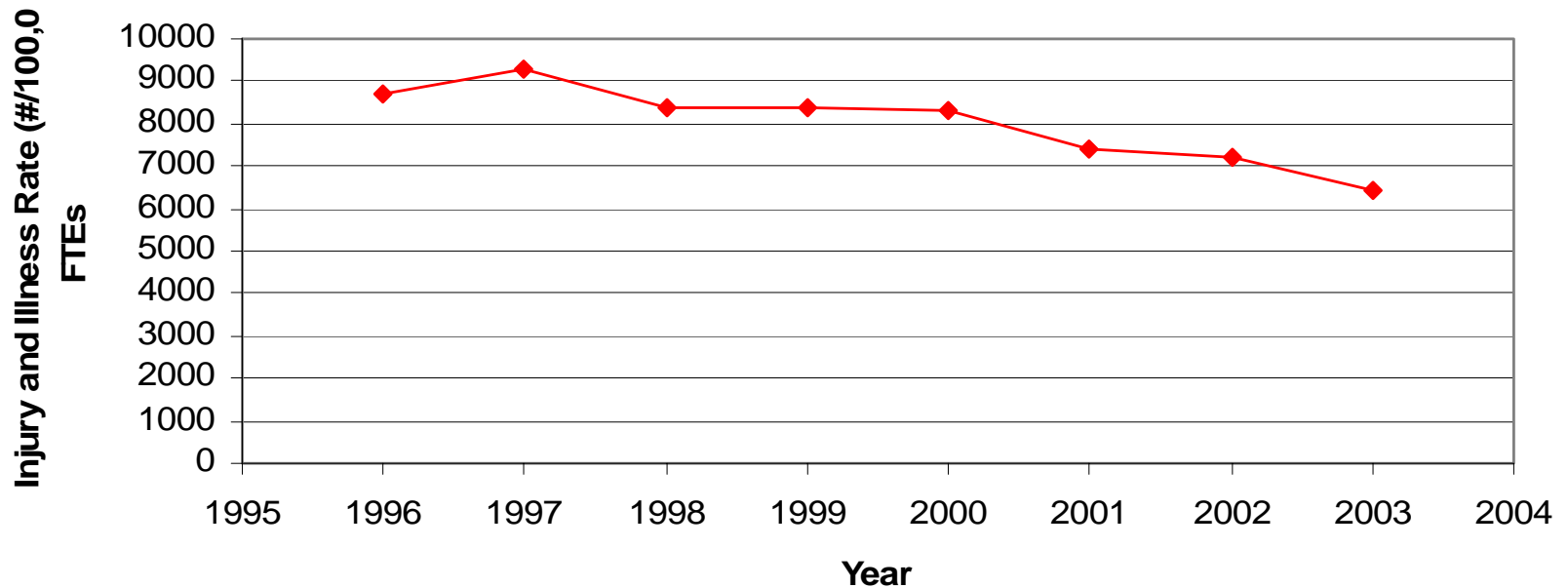
Data Source: Bureau of Labor Statistics (BLS) Geographic Profiles of Employment and Unemployment





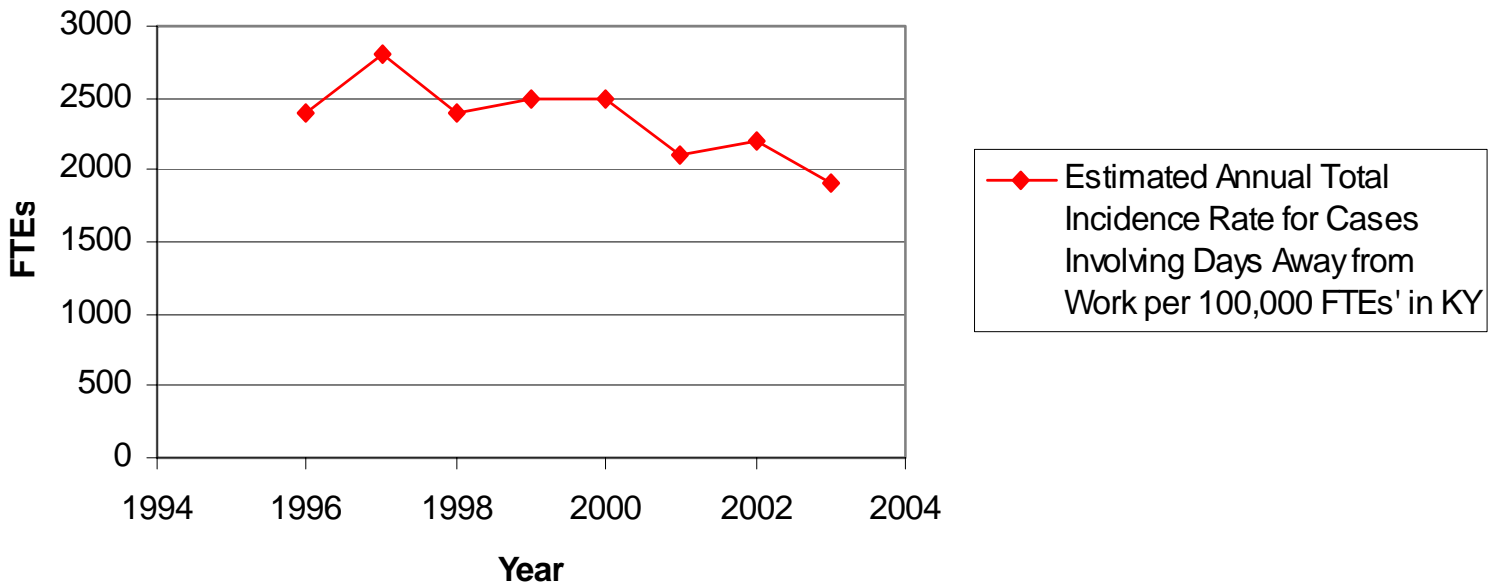
Indicator #1: Non-fatal Work-related Injuries and Illnesses Reported by Employers

Estimated Annual Total Work-related Injury and Illness Incidence Rates (1996-2003)



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

Annual Incidence Rates for Cases Involving Days Away From Work



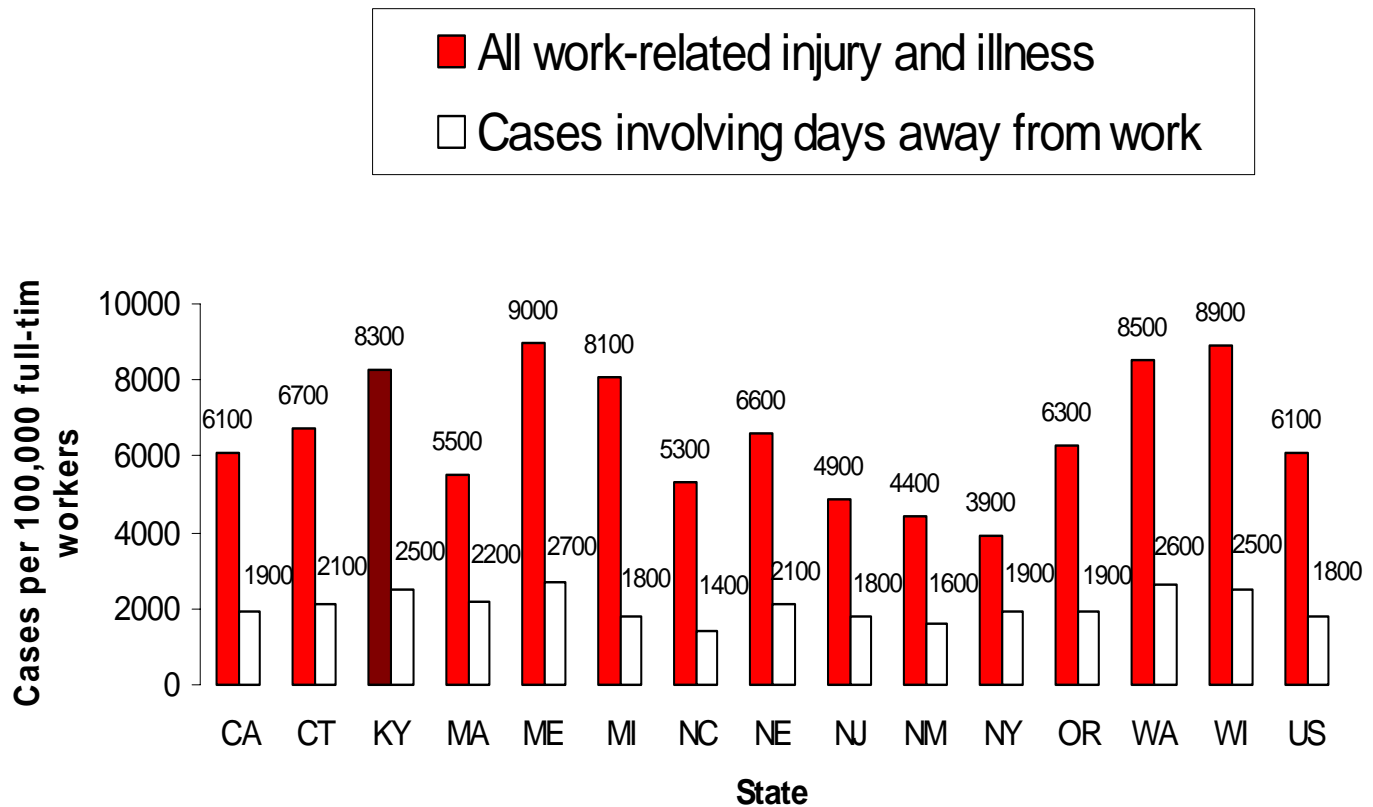
Data Source: Annual BLS Survey of Occupational Injuries and Illnesses (SOII)

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

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

Rate of Non-fatal Work-related Injuries and Illnesses Reported by Private Sector Employers by State and US, 2000.



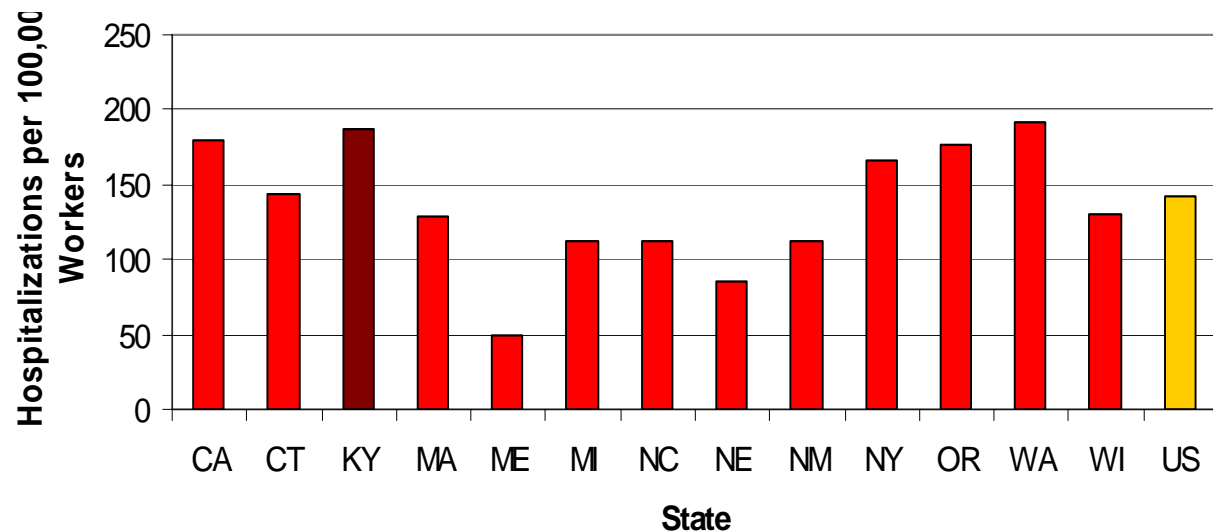




Indicator 2: Work-related Hospitalizations

- 3858 work-related hospitalizations in 2002
- Annual hospitalization rate of 208/100,000
 - ↑ from 187/100,000 in year 2000

Rate of Work-related Hospitalizations by State and US, 2000.



Most Common Primary Diagnoses

- Intervertebral Disc Disorders- 454 cases
- Cellulitis and Abscess- 105 cases
- Unspecified Disorders of Back- 98 cases
- Osteoarthritis- 76 cases
- Fractures of Tibia, Fibula, or Ankle- 73 cases



Hospitalization Costs in Year 2004

- Highest total costs were for male workers with intervertebral disc disorders- \$8,184,032
- Highest average costs were for 16-24 year old male workers with cellulitis and/or abscesses- \$31,474



Primary External Cause of Work-related Hospitalizations

- Falls- 289 cases (highest total hospitalization costs: male workers suffering falls- \$5,175,365)
- Motor Vehicle Collisions- 112 cases (highest average hospitalization costs: 25-34 year old women in MVCs- \$101,458)

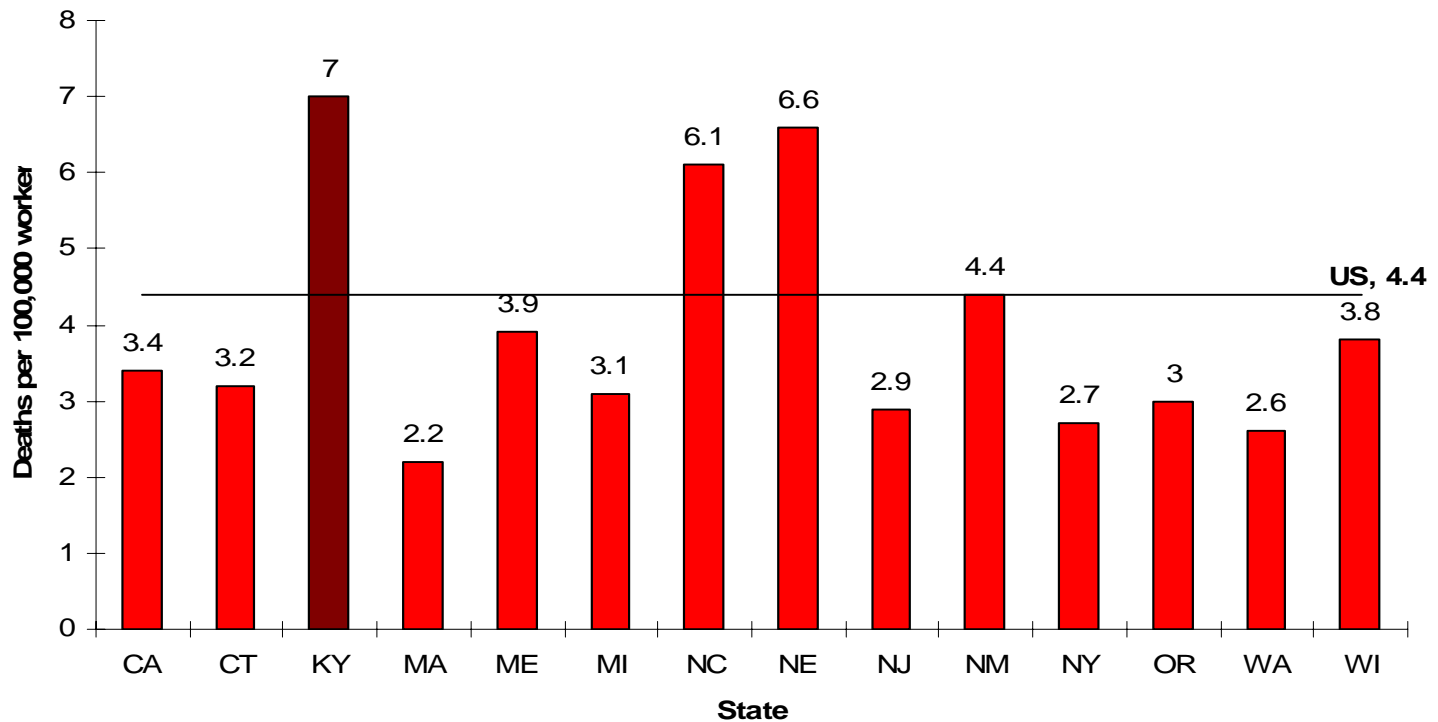




Indicator #3- Fatal Work-Related Injuries

- 117 work-related fatalities in 2005
- 128 in 2005

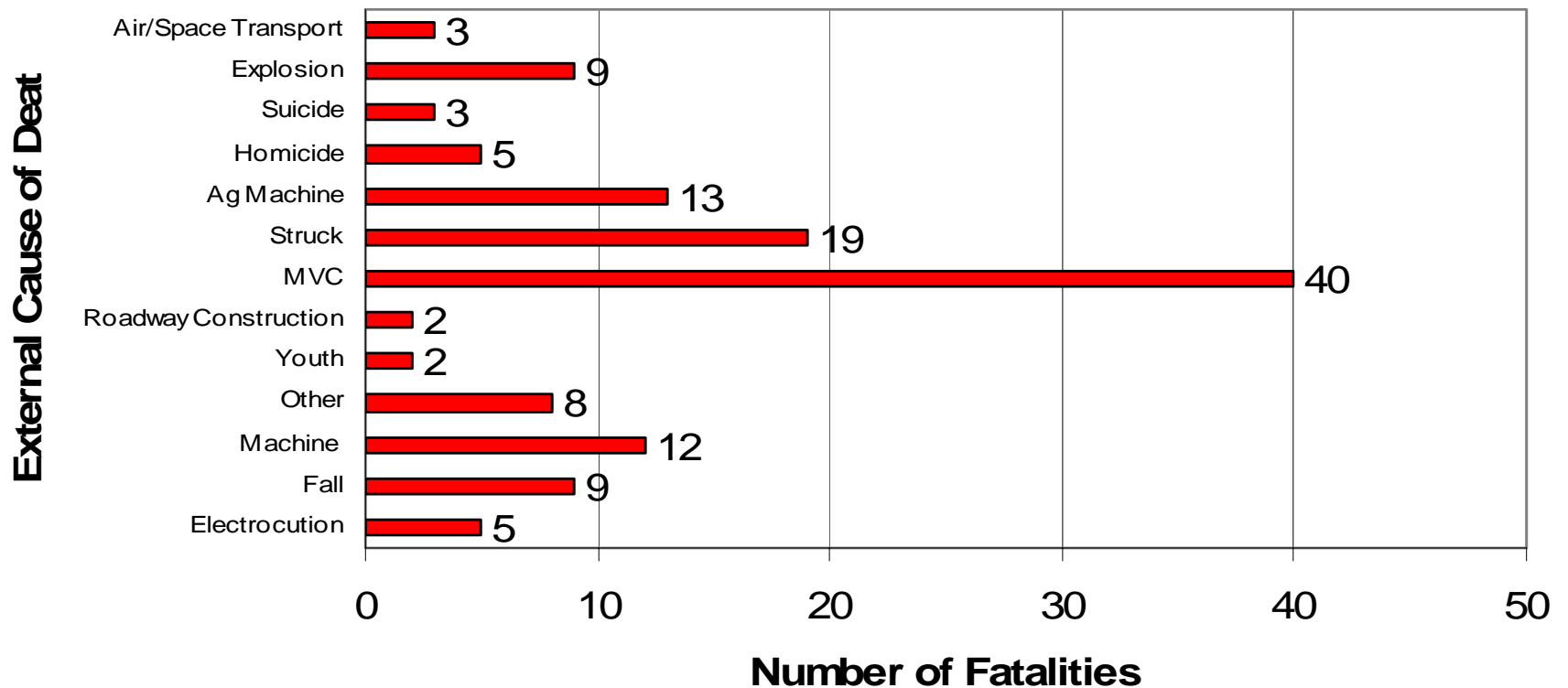
Rate of Fatal Work-Related Injuries by State and U.S., 2000.



Occupational Fatality Rates by Industry (per 100,000 workers) in Year 2003.

Industry	Number of Fatalities	2001 KY Rate ^d	2002 KY Rate	2003 KY Rate	US Rate
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

Occupational Fatalities by External Cause of Death- 2003

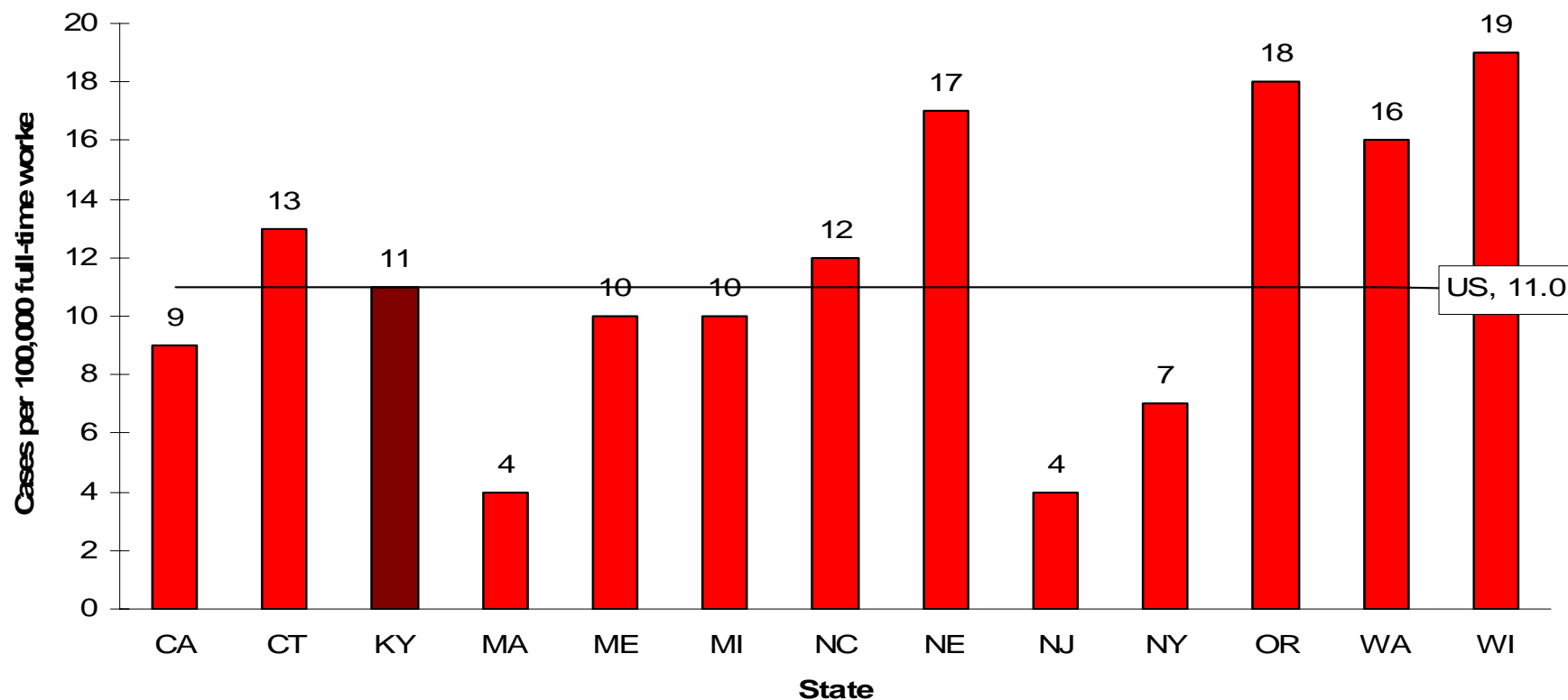






Indicator # 4: Work-related Amputations With Days Away From Work Reported by Employers

Rate of Work-related Amputations Involving Days Away From Work Reported By Private Sector Employers by State and U.S., 2000.

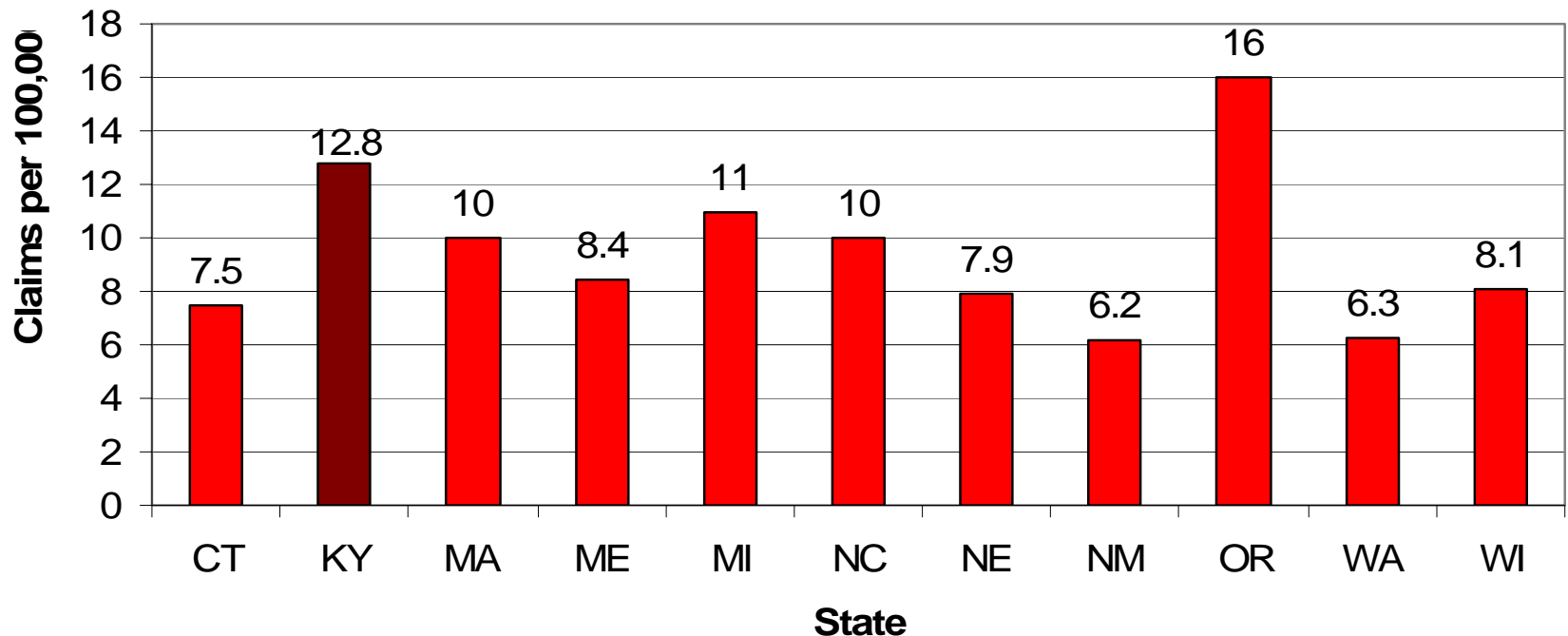






Indicator #5: Amputations Filed With the State Workers' Compensation System

Rate of Lost Work Time Claims for Amputations Identified in Workers' Compensation Systems y State, 2000.



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

Major Industries With Amputations, 2000-2004

- Bituminous coal underground mining (n=50)
- Help supply service (n=48)
- Motor vehicle parts and accessories (n=35)
- Sawmills and planing mills (n=25)
- Plastic products (n=22)

Occupations with Amputations, 2000-2004

- Machine operators (n=177)
- Assemblers (n=32)
- Freight stock material handlers (n=22)
- Mechanics and Repairers (n=22)
- Truck drivers (n=21)



Most Common Amputations

- Fingers (n=768)
- Thumbs (n=116)

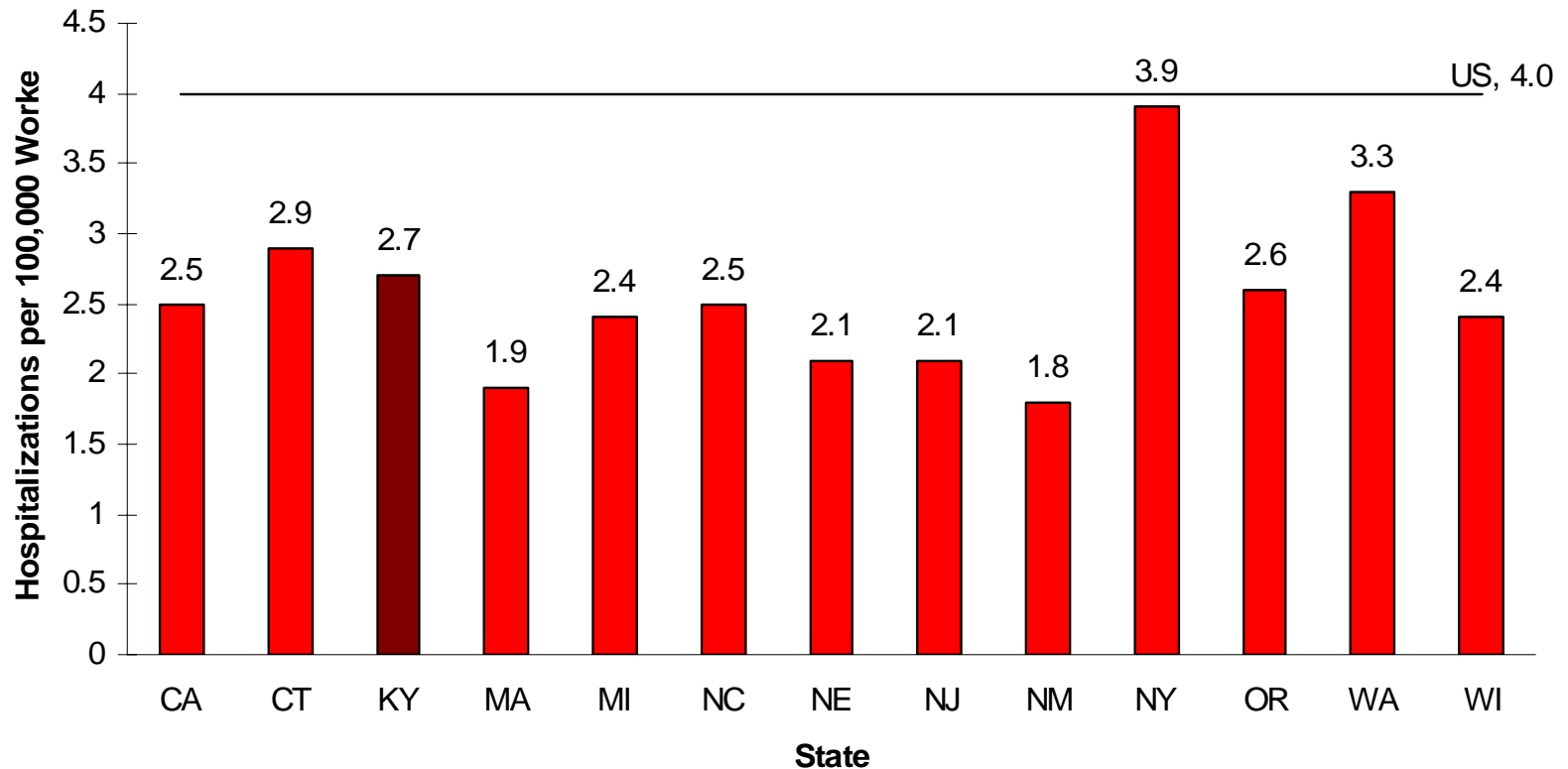




Indicator #6: Hospitalization for Work-Related Burns

44 cases in 2004

Rate of Hospitalizations for Work-related Burns by State and U.S., 2000.



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

Numbers and Incidence Rates for 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	
	<i>Number</i>	<i>Rate^a</i>	<i>Number</i>	<i>Rate</i>	<i>Number</i>	<i>Rate</i>	<i>Number</i>	<i>Rate</i>
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



High-Risk Occupations for MSDs

- Operators, Fabricators, Laborers- Highest number of MSDs (4007 MSDs-neck, shoulder, upper extremities; 2931 MSDs-back, 154 CTS cases)
- Service- 1842 MSDs- back; 1093 MSDs-neck, shoulder, upper extremities)

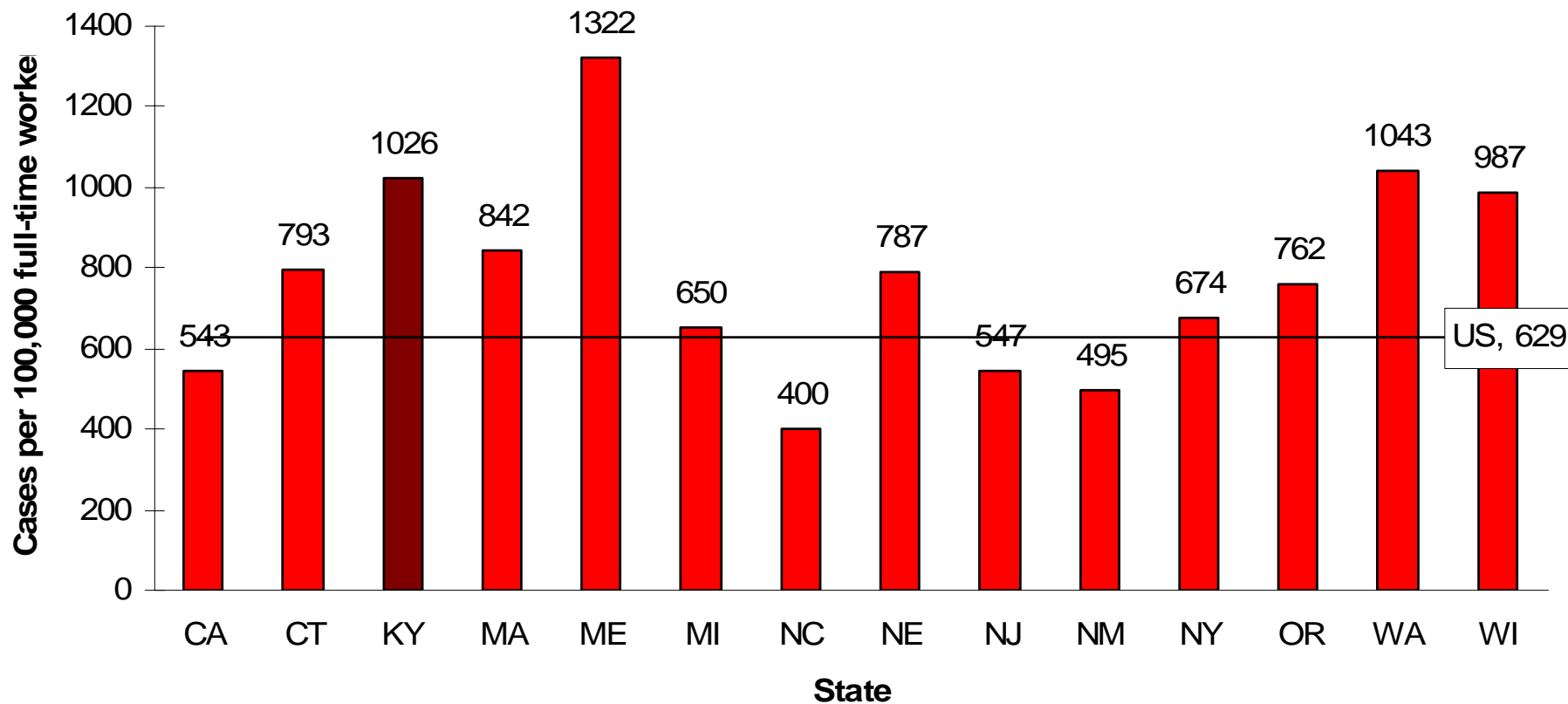
Data Source: Annual Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII).



High-Risk Industries For MSDs

- Manufacturing- 2554 MSDs- neck, shoulder, and upper extremities; 1357 MSDs- back; 166 CTS cases
- Services- 2434 MSDs- back; 1413 MSDs- neck, shoulder, upper extremities; 54 CTS cases

Rate of All Work-Related MSDs Involving Days Away From Work Reported by Private Sector Employers by State and U.S., 2000.

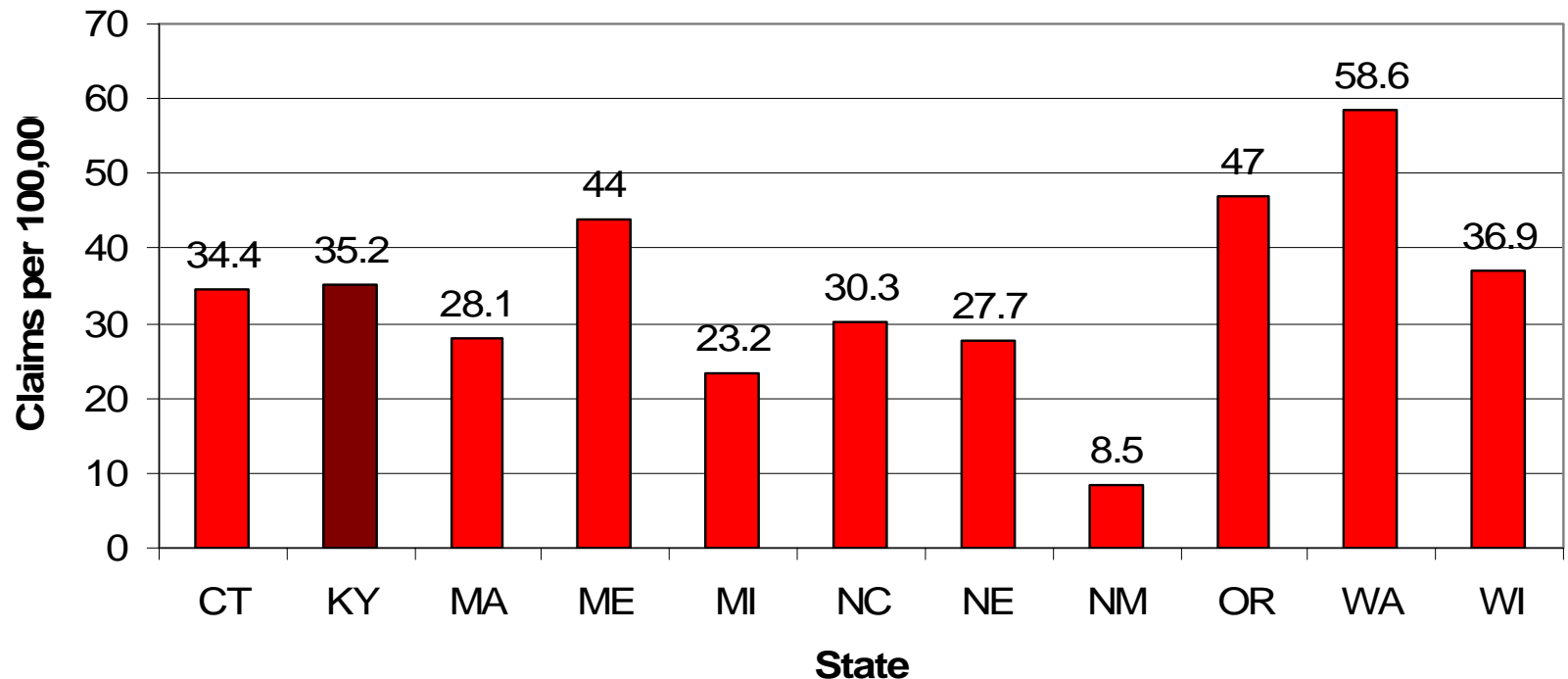




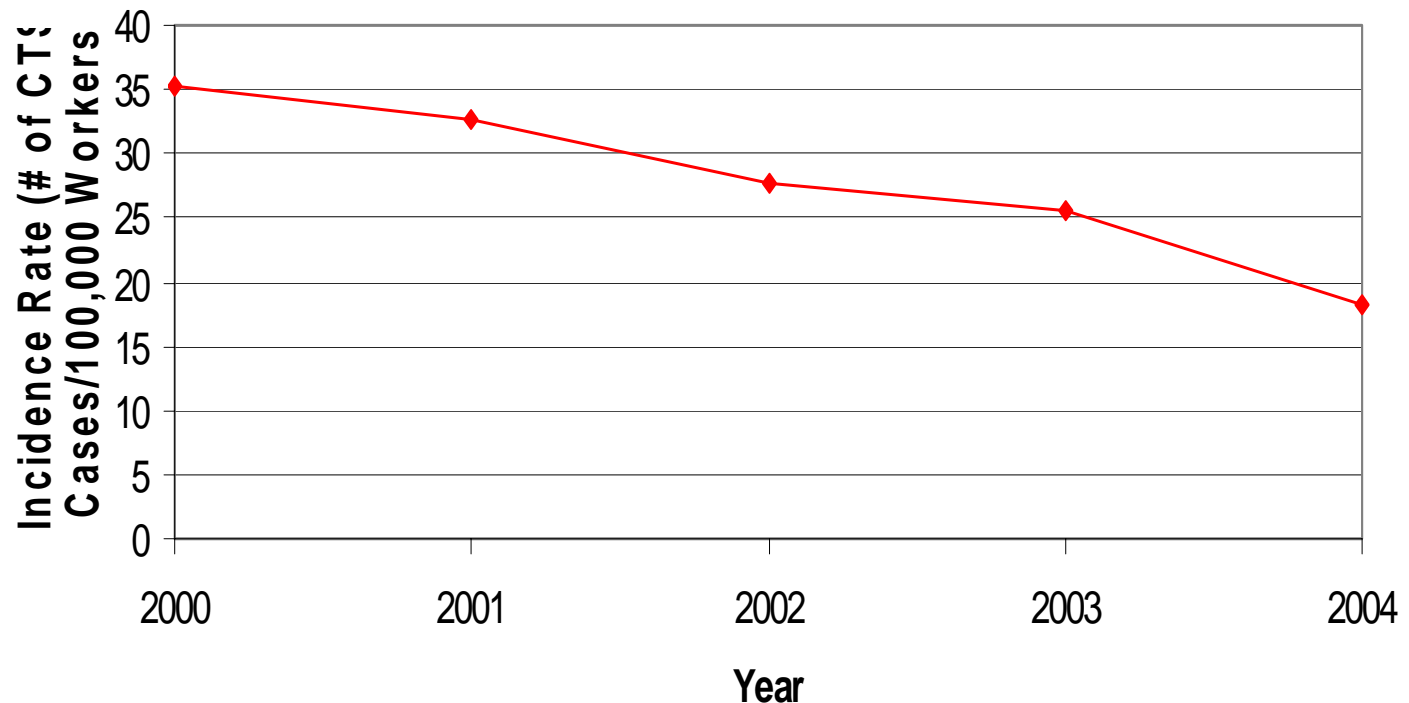


Indicator #8: Carpal Tunnel Syndrome Cases Filed with the State Workers' Compensation System

Rate of Lost Work-Time Claims for CTS Cases Identified in State Workers' Compensation Systems, 2000.



Kentucky Carpal Tunnel Syndrome Incidence Rates for Years 2000-2004.



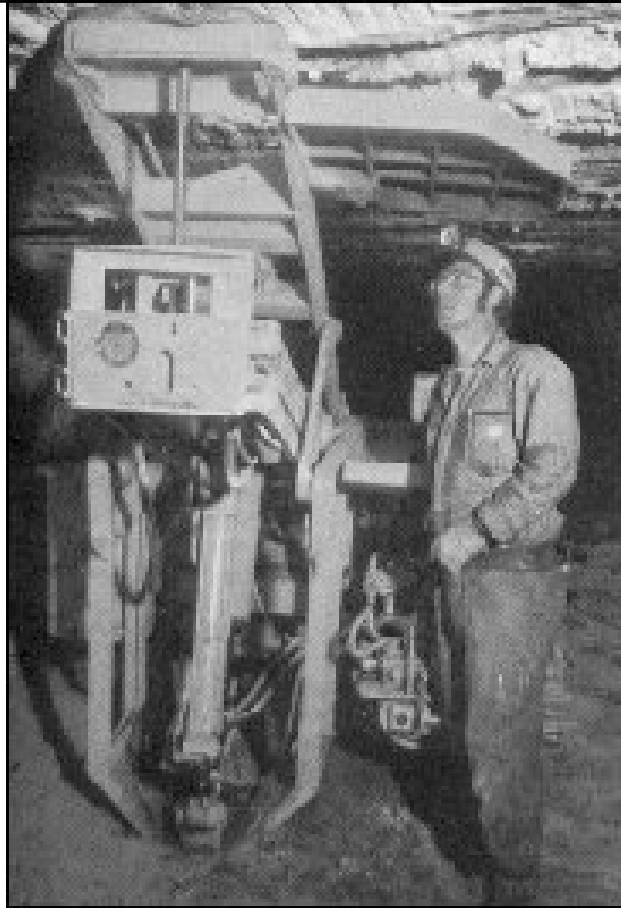
Data Source: Carpal tunnel syndrome case data was provided by the Kentucky Office of Workers' Claims, Frankfort, KY.

Industries with Carpal Tunnel Syndrome, 2000-2004.

- Motor vehicle parts and accessories (n=119)
- General medical and surgical hospitals (n=105)
- Elementary and secondary schools (n=89)
- Motor vehicles and car bodies (n=81)
- Grocery stores (n=77)

Occupations with Carpal Tunnel Syndrome, 2000-2004

- Machine operators (n=326)
- Assemblers (n=201)
- Textile sewing machine operators (n=116)
- Administrative support (n=83)
- General office clerks (n=79)

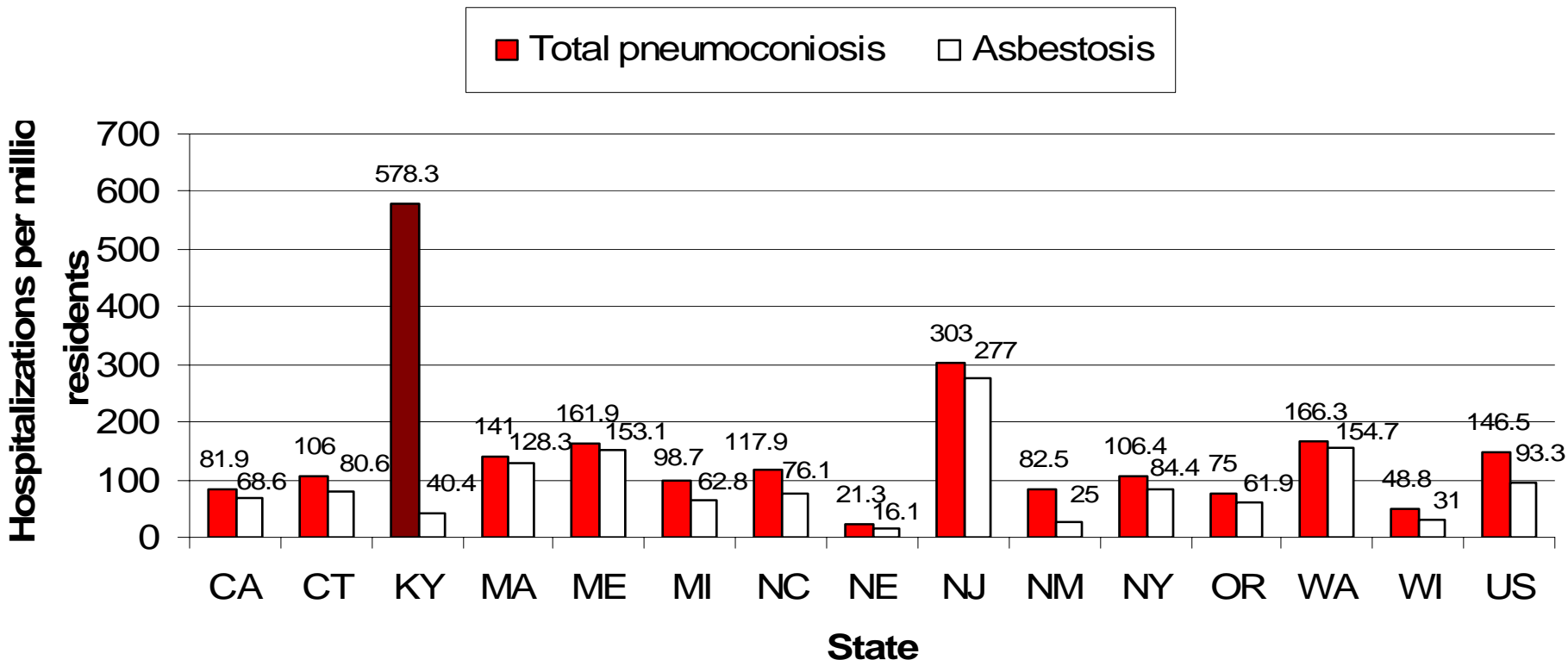




Indicator #9: Hospitalization From or With Pneumoconiosis

- 1,974 pneumoconiosis hospitalization discharges in 2004

Age-Standardized Rate of Hospitalizations From or With Total Pneumoconiosis and Asbestosis by State and U.S., 2000.



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

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

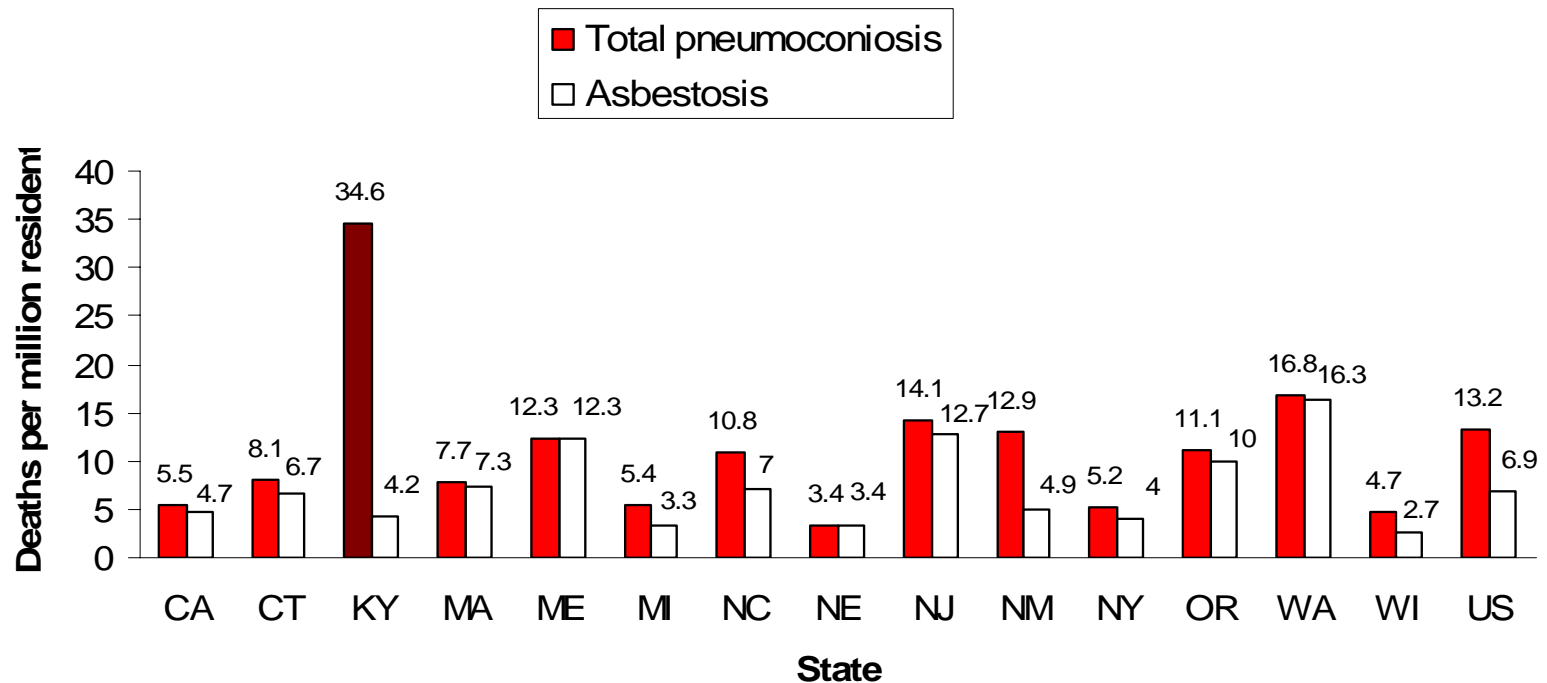





Indicator #10: Mortality From or With Pneumoconiosis

- 67 cases in 2003, down from 107 in 2000.
- Crude death rate was 20.8 per million residents and age-adjusted death rate was 21.6 in 2003.

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



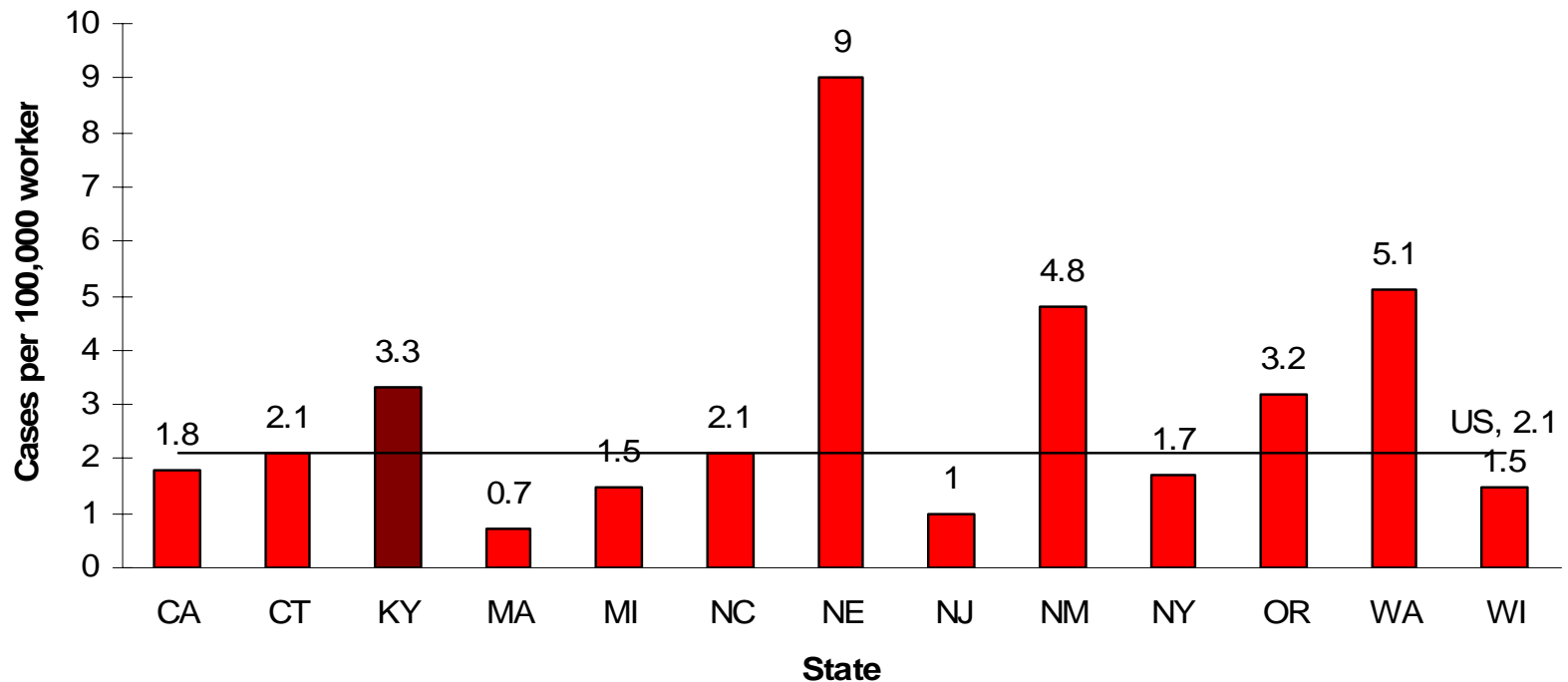




Indicator #11: Acute Work-Related Pesticide-Associated Illness and Injury Cases Reported to Poison Control Centers

- 59 Pesticide poisoning cases reported in 2004, 47 in 2003.
- Annual incidence rate of 3.1/100,000 employed in 2002.

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

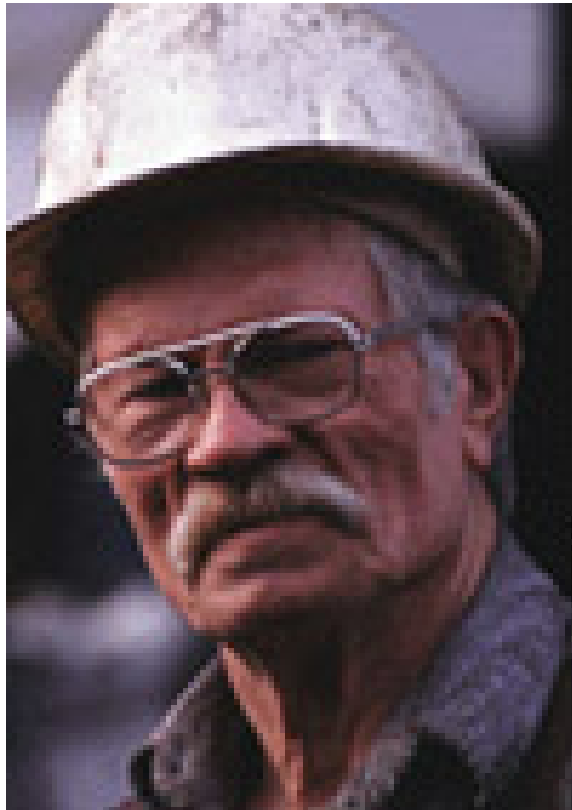




Primary Pesticide Exposures

- Disinfectant industrial cleaners (22%)
- Other/unknown disinfectants (15%)
- Other herbicides (8%)

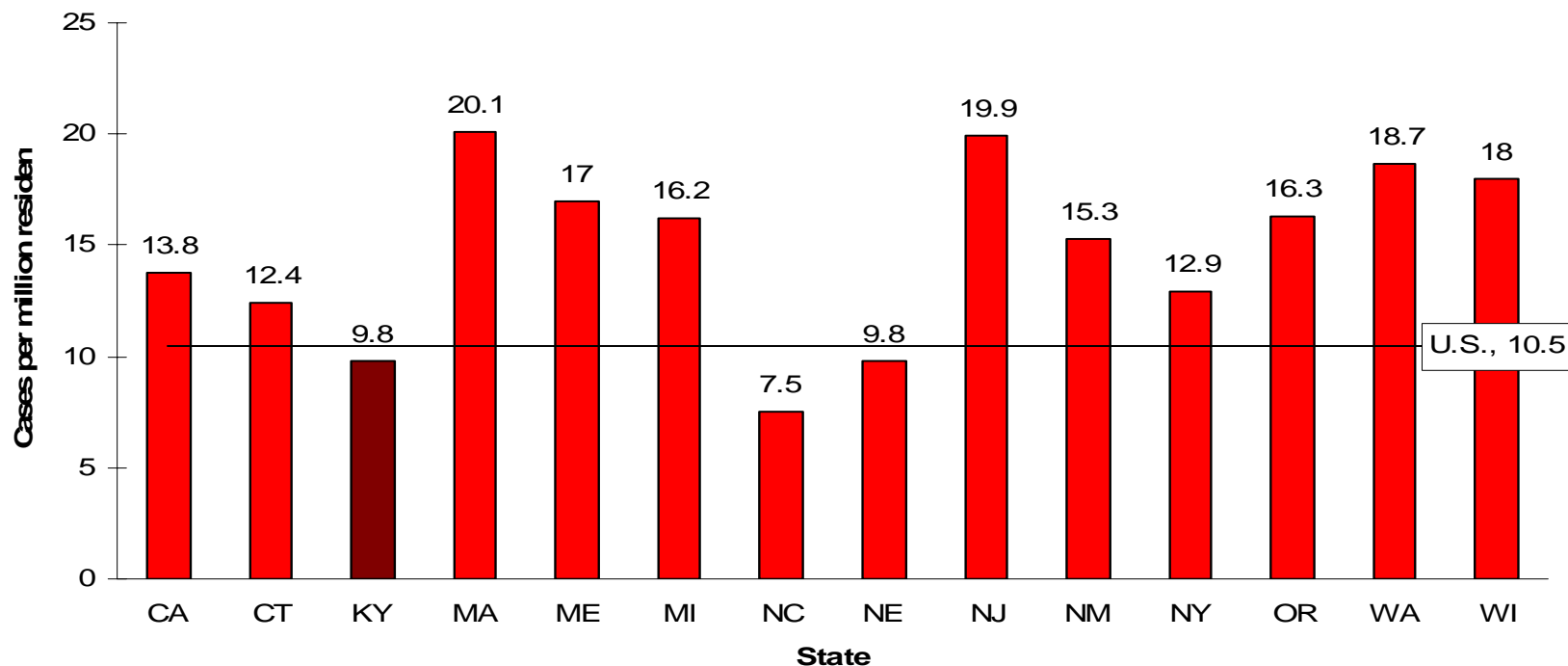
Data Source: Work-related pesticide poisoning data was obtained from the Kentucky Regional Poison Control Center, Louisville, KY






Indicator #12: Incidence of Malignant Mesothelioma

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



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

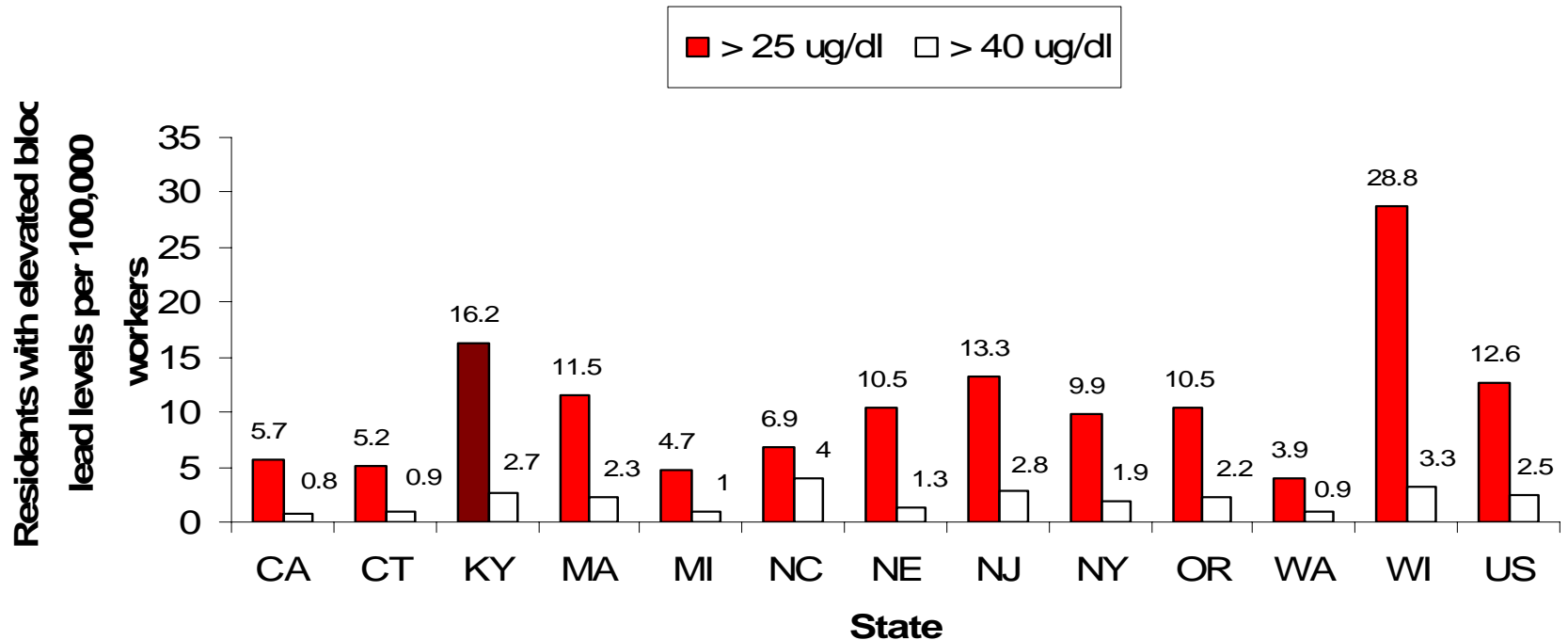





Indicator #13: Elevated Blood Lead Levels Among Adults

- Adult blood lead level ($>25\mu\text{g}/\text{dL}$) prevalence rate- 17.82 cases per 100,000 employed persons, 76% above average state rate of $10.1\mu\text{g}/\text{dL}$ in 2001.

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.





Industries Where Most Lead Exposures Occurred in 2004

- Battery manufacturing (n=131)
- Electrical equipment, electric lamp bulb and part manufacturing (n=5)
- Fabricated metal product manufacturing (n=4)

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



AUTOMOTIVE INDUSTRY:
CO2 BLAST CLEANING A MAN-FAN

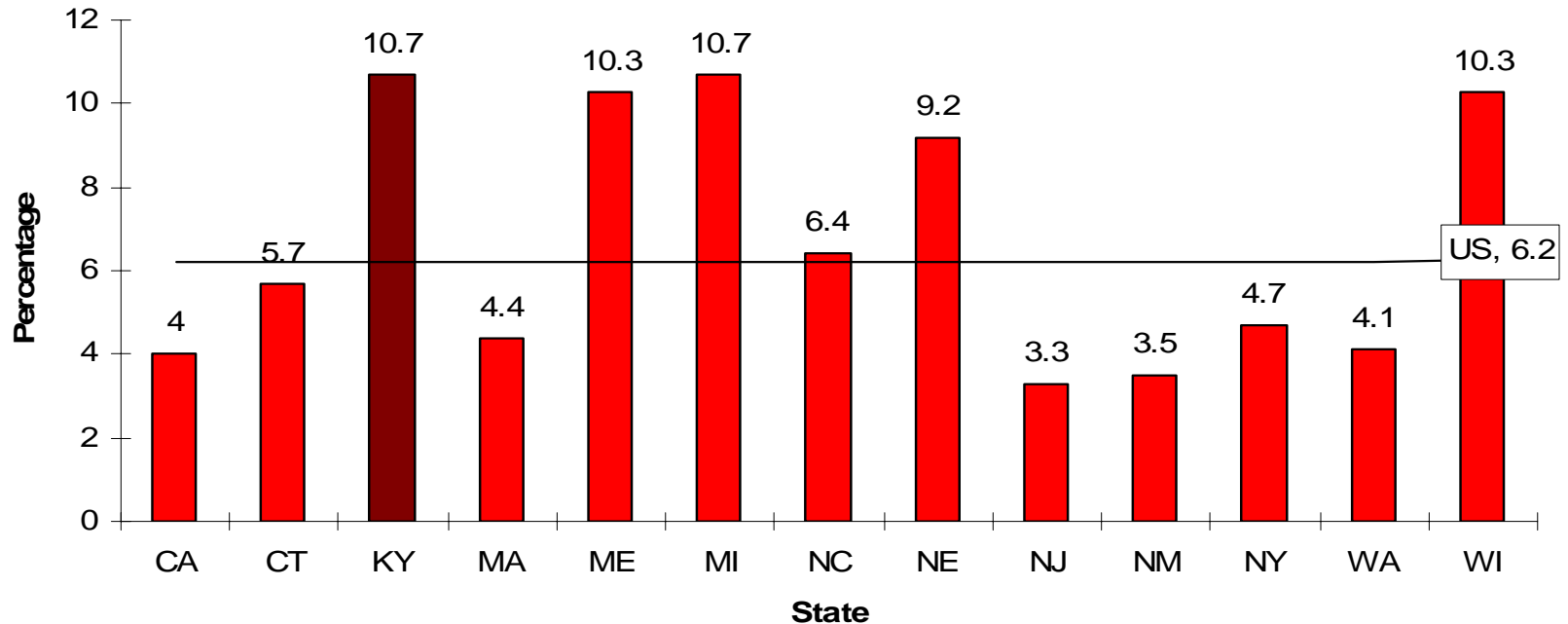
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Indicator #14: Percentage of Workers Employed in Industries at High Risk for Occupational Morbidity

- Kentucky and Michigan employed the largest percentage of workers in high-risk industries

Percentage of Workers in Industries With High Risk for Occupational Morbidity by State and U.S., 2000.





Kentucky Industries at Great Risk for Occupational Injuries

- Nursing care facilities
- Scheduled air transportation
- Motor vehicle manufacturing

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

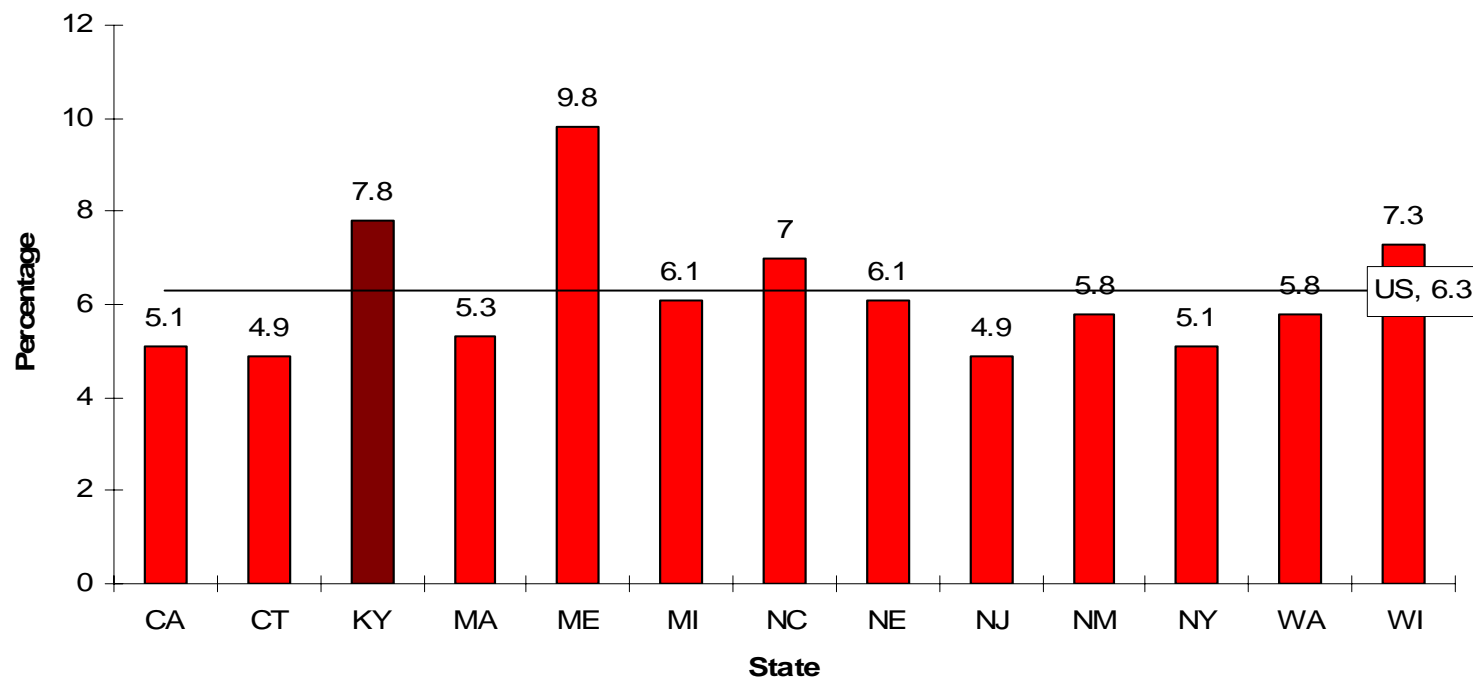




Indicator #15: Percentage of Workers Employed in Occupations at High Risk for Occupational Morbidity

- 7.8% of Kentucky workers employed in occupations at increased risk for an occupational injury, 2nd after Maine.

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





Occupations at Highest Risk for Occupational Injuries

- Truck drivers
- Laborers

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

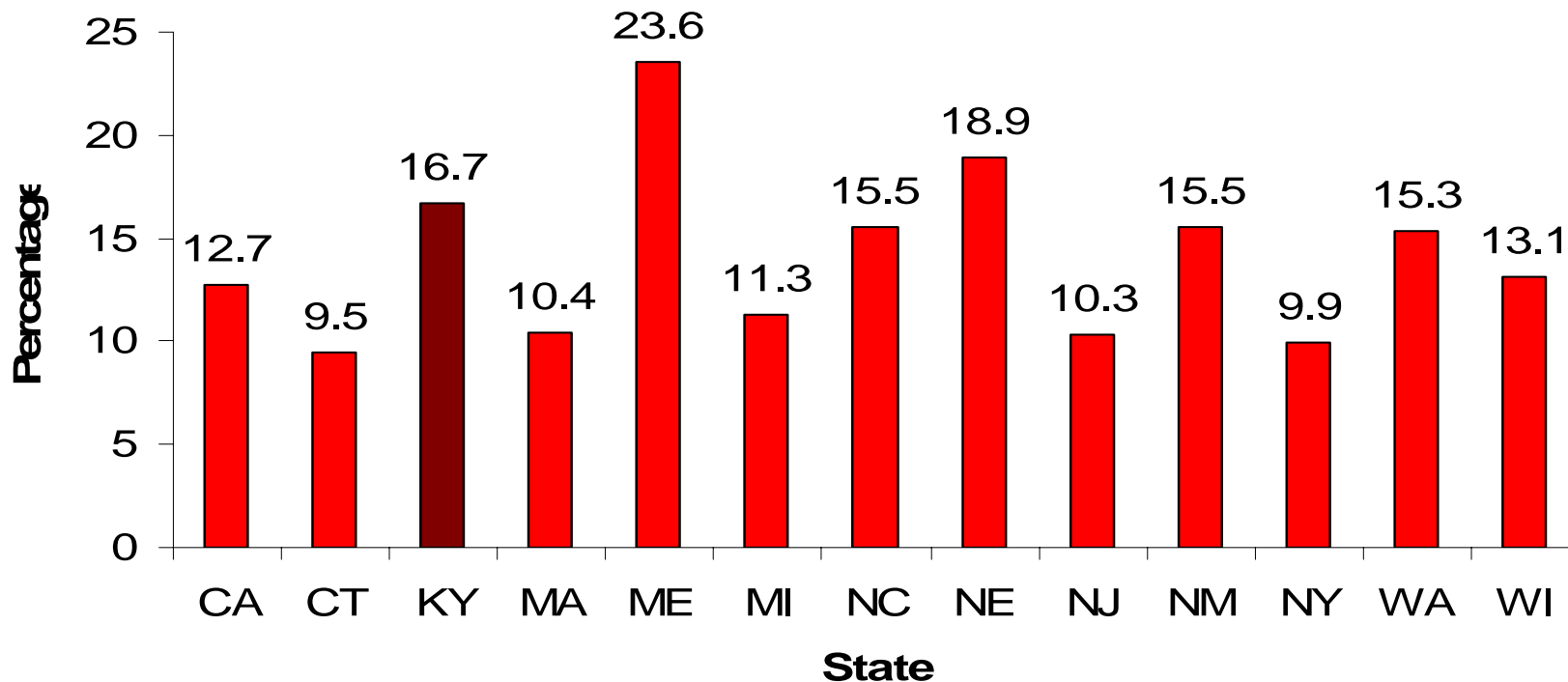




Indicator #16: Percentage of Workers Employed in Industries and Occupations at High Risk for Occupational Mortality.

- 17% of Kentucky's workers were employed in high mortality-risk industries

Percentage of Workers Employed in Industries with High Risk for Occupational Mortality by State, 2000.





Occupations With the Highest Risk of Occupational Mortality


- Truck drivers
- Farming and farm worker occupations

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





State-Specific Indicator: Occupational Motor Vehicle Collisions



- 12,573 occupational motor vehicle collisions (MVCs) in 2004

- 4,567 semi-trucks
- 3,328 single trucks
- 1,533 trucks and trailers

- Increased from 11,459 occupational MVCs in 2003.



Work-Related MVCs

- 3,194 people injured in occupational MVCs in 2004
- 135 people (drivers and occupants) killed in 2004
- Occupational MVC fatality rate- 0.9/100,000 in 2002.
- Nonfatal occupational MVC injury rate- 21.5/100,000 in 2002.

Injury Severity of Occupational Driver MVCs, 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

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.

Human Factors Involved in Occupational MVCs

	Non-Occupational Driver							Occupational Driver						
Human Factor:	2000	2001	2002	2003	2004	Total	2000	2001	2002	2003	2004	Total		
Distraction/ Inattention	1164	1166	1132	1292	1404	6158	3214	2974	2769	2770	3113	14840		
Failed To Yield Right of Way	545	555	578	564	538	2780	635	541	514	500	523	2713		
Following Too Close	186	161	138	141	193	819	325	248	246	241	246	1306		
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		

Summary I

- Fatal work injury rate- 75% above national fatality rate.
- Worker hospitalization rate-32% higher than national rate in 2002.
- 2nd highest rate of lost work time claims for amputations (WC) compared to other pilot states

Summary II

- 10th highest MSD case rate involving days away from work in the nation in 2002.
- 12,573 occupational MVCs- 3,194 injured and 135 killed in 2004
- 3rd highest coal workers' pneumoconiosis mortality rate in the nation in 2002.

Summary III

- 7th highest occupational poisoning incidence rate in 2002.
- Adult blood lead level prevalence rate- 76% above average state rate in 2002.
- Highest and 3rd highest percentages of workers in high-risk industries for nonfatal and fatal occupational injuries compared to the pilot states.



Where do we go from here?

- Establishment of consortium to develop state-wide priorities for the prevention of occupational injuries and illnesses.



Occupational Motor Vehicle Fatality Investigations

Passenger Dies When Semi-Truck Trailer Hits Cow In Roadway





Summary

On November 8, 2005, a 26-year-old male laborer who was a passenger in a semi-truck died when the driver swerved to avoid hitting a cow that was standing in the parkway lane. The two employees had been traveling westbound for approximately one hour when the driver noticed a cow in his lane. He swerved to avoid hitting the cow but hit it anyway. The tractor and two trailers jack-knifed, traveled through the median with the cab and trailers flipped onto their right sides, slid across the eastbound lanes, then the cab slammed through the guardrail.

The cab came to rest on the steep embankment of the shoulder. A passing motorist called emergency services. Emergency personnel arrived, climbed down the steep embankment and found the top of the cab crushed. Both driver and passenger were thought to be alive. However, because of the steep slope and the condition of the cab, rescue personnel could not administer first aid to the two men in the cab. Tow trucks were called to the scene to move the two trailers and pull the cab up the slope and onto the pavement. Using torches, rescuers cut away the metal of the cab to reach the two men. Both men were wearing seatbelts which needed to be cut in order to free them. Emergency personnel assessed both men. The driver was found to be alive and was transported to the nearest hospital. However, the passenger did not have vital signs. The local coroner was contacted; he arrived and declared the passenger dead at the scene.



Recommendation No. 1: Livestock owners should ensure boundary fences are appropriate for the animal type and regularly maintained to ensure both animal and public safety.

The cow did not have identifying marks and the police were unable to trace the cow's owner. However, it is believed that the cow escaped through a hole in the fence of a nearby farm and onto the parkway. Adequate fencing such as woven wire, no-climb or electric should be used to contain livestock on farms. Fencing should be routinely checked and maintained to ensure breaks, holes, or gaps are repaired in a timely manner.




Recommendation No. 2: Police should warn motorists when errant farm animals are on interstate highways.

- Police departments should use citizen band radios and temporary roadside signs to warn motorists of errant farm animals lose on the highway. Alerts should be implemented immediately upon notification of a potentially dangerous situation in the area. The alerts should be kept in place until the animal(s) have been removed from the roadways and removal has been verified.



Recommendation No. 3: Companies should provide professional training for company truck drivers.

- Company truck drivers should receive formal professional driver training. This training should include defensive driving techniques, driving in adverse weather and road conditions, as well as dealing with the general motoring public. According to two truck driver training schools, defensive driving techniques would include looking eight to ten seconds ahead of the truck and how to deal with animals such as cows in the roadway. Companies should also require truck drivers to receive driver training during night time hours.



Recommendation No. 4: Parkway medians should be designed and constructed with median barriers to deter crossover median crashes.

- Parkway medians are designed and constructed to drain water away from road surfaces, give errant drivers space to regain control of their vehicles, provide space for emergencies, and help prevent crossover median crashes. Crossover median crashes result in higher fatality rates than non-crossover crashes (Federal Highway Administration). To help prevent crossover median crashes, installation of barriers in medians less than 60 feet wide should be considered. The median in this incident was 30 to 40 feet wide. Use of continuous, cast-in-place concrete median barriers that are at least 42 inches tall should be considered in parkway medians that are less than 60 feet in width. Also, according to the Federal Highway Administration, this type of barrier is able to contain large trucks and help prevent median crossover crashes of large, heavy semi-tractor trailers.