

Kentucky FACE Program Annual Report

2002



KENTUCKY INJURY PREVENTION AND RESEARCH CENTER

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The Kentucky Fatality Assessment and Control Evaluation (KY FACE) Program is an occupational fatality surveillance project of the Kentucky Injury Prevention and Research Center (KIPRC)*. The goal of KY FACE is to prevent fatal work injuries by studying the worker, the work environment including the task being performed, the tools used, the energy exchange resulting in fatal injury, and the role of management in controlling the interaction of these factors. KY FACE investigators evaluate information from multiple sources including interviews of employers, coworkers, witnesses and other investigators; examination of the fatality site and equipment; and review of records such as Occupational Safety and Health Administration (OSHA), police, and medical examiner reports; and employer safety procedures; and training plans. The FACE program does not seek to determine fault or place blame on companies or individual workers. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future.

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EXECUTIVE SUMMARY

During 2002, KY FACE staff recorded 130 occupational fatalities. The categories designated by NIOSH as eligible for field investigation during this period were youth fatalities (<18 years old), highway work zone deaths, machinery-related incidents and Hispanic worker deaths. Nine on-site investigative case reports were completed (April 2002- March 2003) and disseminated to employers and others in a position to effect change in work practices.

In addition to investigative activities, the following are some notable accomplishments of the KY FACE Project during its ninth year:

- The following manuscript has been accepted for publication:

Bunn, TL, Struttman TW (2003). Characterization of Fatal Occupational vs. Nonoccupational Motor Vehicle Collisions (MVCs) in Kentucky (1998-2000). *Traffic Inj Prev* (in press).
- Four Hazard Alerts were published and distributed to over 16,000 employers through e-mailings and direct mailings in the past year (April 2002- March 2003).
- Two “FACE the Facts” newsletters were published. The October 2002 edition on “Occupational Homicides” was further developed and disseminated with a local radio interview and two local newspaper articles with summarized data on occupational homicides.
- A KY FACE program evaluation workgroup was established and the first meeting held March 12, 2003. The objectives of the evaluation are to measure the effect of the FACE program on the reduction of worker deaths, and evaluation of program efficiency and goals. The next meeting will be held on September 10, 2003.
- Timely notification of work-related deaths increased from 41% of total cases within 2 days of occurrence in 2001 to 61% of all cases in 2002.
- There were 951 “hits” and 1057 “views” on the FACE website for past year (April 2002- March 2003).
- Five oral presentations were delivered: the Governor’s Safety and Health Conference, the Kentucky Annual Coroners Conference, 2 Annual NIOSH FACE meetings, and an Occupational and Environmental Health class at the University of Kentucky.
- Two exhibit booths were manned at: the Annual Farm Bureau convention, and the Health Education through Extension Leadership conference.

INVESTIGATION PROGRAM

The KY FACE Project conducted on-site investigations of selected occupational fatalities during 2002 in the NIOSH-designated categories of machinery related incidents, highway work zones, youth workers (<18 years), and Hispanic workers.

Year 2002 final investigation reports included 3 machinery-related incidents, 1 construction-related fall, 2 youth incidents, 1 highway-construction incident and 2 Hispanic worker deaths. Following are case summaries for each of these incidents:

Case 1: A 44-year-old construction worker was killed when a 36-inch-wide bucket weighing more than 1000 pounds, detached from its quick release coupler and fell from an excavator, landing on him as he was working in a trench. The victim and another worker had been in the trench preparing it for a pre-formed concrete manhole that they were about to install. Their supervisor (the excavator operator) sat and waited in the excavator, with the engine running, and the bucket was raised a few feet above ground level so that it would be out of the way. The second man in the trench had just turned away from the victim when he heard a "click" and turned back to see the bucket fall. He attempted to move the bucket, but could not. He and the excavator operator used the excavator and a chain to remove the bucket and then called for help. The victim was pronounced dead at the scene upon arrival of emergency medical workers.

Case 2: On April 5, 2002, a 55 year-old male (company owner) died from injuries received when a backhoe he was operating overturned on its side. He and the job foreman were laying pipe for a water line. They were using a backhoe to carry the pipe from a trailer to a pipeline ditch. A portion of the ditch was not directly accessible with a backhoe. To access the ditch, the backhoe needed to be driven through a garden, and turned toward the ditch at a 90-degree angle. The decedent had placed the pipe in the ditch, then turned the machine around and tried to exit the area. He had the bucket and outriggers up in the air instead of close to the ground. Upon exiting the area, the right tire ran up on to a tree stump causing the backhoe to tip over on its left side. The operator fell out of the backhoe and was pinned underneath the left rear cab standard. Death was due to crushing injuries.

Case 3: Two 20 year-old laborers died after falling approximately 25 feet from suspension scaffolding while preparing the inside of a municipal water tank for painting. Neither laborer was wearing fall personal protection equipment (PPE) at the time of the fatal incident. The laborers were preparing the inside of a 200,000-gallon water tank for painting when one end of the scaffolding dropped after a support cable slipped. The job foreman arrived at the job site and entered the tank to check on the laborers. He found both laborers on the tank floor. Laborer 1 had respiratory vital signs but Laborer 2 did not. The foreman left the tank, called 911 then reentered the tank. Emergency medical services (EMS) arrived at the scene and administered cardio-pulmonary resuscitation to the laborers. Laborer 2 was declared dead at the scene. Laborer 1 died the next day in the hospital.

Case 4: A 62 year-old male brick mason died after he fell approximately 55 feet through masonry scaffolding. He worked for a masonry subcontracting company contracted to do the masonry work on a new building. The victim was performing ongoing work laying brick at the construction site. At approximately 7:15 am the victim entered the building he was bricking and

ascended to the fourth floor where he reached his workstation. He stepped out of an opening from the building onto the scaffolding outside. As he did so, he stepped over two mason boards (20 inches combined width), which were closest to the building and onto the first one of three material boards (10 inches wide) located in the middle of the scaffolding. The board he stepped onto broke and he fell 55 feet. He died approximately one hour later at a nearby hospital of multiple blunt force injuries.

Case 5: A 16-year-old female was killed after the tractor on which she was riding as a passenger overturned. She was a high school student; farmed on evenings and weekends. The tractor was driven by a 20-year-old friend while baling hay on a farm at dusk. The driver and the victim had been baling hay all day, and both were experienced farmers. The victim was seated on the fender to the left of the driver. The tractor was a 1969 tricycle-tired John Deere, which was well maintained but was not equipped with a Roll Over Protective Structure (ROPS) or a seatbelt. The tires were appropriately fluid filled. The driver was reversing the tractor down a slight slope in an open field in order to stab a bale of hay with an attached hayfork. The right rear wheel ran over the hay bale causing the tractor to overturn side-ways on top of the victim and the driver. The driver was pushed clear by one of the tractor's rotating wheels. The victim was pinned underneath the tractor's driver seat and died of compression asphyxiation.

Case 6: A fifteen-year-old golf course worker was killed when the utility golf cart he was operating overturned. The victim was employed by the golf club adjacent to which he and his family resided and had driven the utility golf cart to his home located at the top of a hill to change clothes. Before leaving work for his residence, he contacted a friend who then came to his house on a regular course golf cart (not a utility cart). After the victim changed clothes, he and his friend left the victim's home. Then on their respective carts, traveled downhill via public and golf course roadways, towards the clubhouse. As they descended the hill, they were reportedly racing when the victim lost control of his cart; it left the roadway and struck a pile of dirt. The vehicle became airborne over a small creek, rotated in the air, throwing the victim from the cart. The victim landed on his head on the opposite side of the creek. EMS was contacted. A physician on the course at the time arrived at the scene and assisted the EMS team. Efforts to revive the victim failed and he was pronounced dead at the scene.

Case 7: A 32-year-old woman was killed when the asphalt compactor she was operating slid over an embankment and dropped 17 feet to a roadway below. At the time she was pressing an asphalt joint joining a roadway and a shoulder/emergency lane. She was two miles behind the asphalt truck and 1000 feet in front of a flat bed truck. The location of the incident had been identified as a possible hazardous location and her supervisors had instructed her to use extra caution in that area. The decedent was trained and had several years of experience operating an asphalt compactor.

Case 8: On September 13, 2002, a 26 year-old male Hispanic migrant worker died when the tractor he was driving on a country roadway overturned. The decedent had experience driving the tractor in a field, but did not on a public roadway. On the afternoon of the incident, the decedent drove the tractor, pulling a wagonload of tobacco, from the farm where it had been harvested to the tobacco barn one mile away. The road was hilly and had a sharp curve to the right at the bottom of the hill. As the decedent drove the tractor pulling the wagon down the hill, the wagon jackknifed and broke loose from the tractor. The tractor slid sideways, flipped over,

slid around the curve and came to rest with the decedent underneath, but not pinned. The wagonload of tobacco also flipped, skidded and came to rest next to the tractor. The decedent's brother, along with other migrant workers who had followed the tractor in a van, retrieved the decedent from underneath the tractor and drove him to the area hospital where he was declared dead from blunt force injuries.

Case 9: On December 3, 2002, a 30-year old Hispanic laborer died when an unsupported 8-foot trench wall collapsed on him. Three laborers were working in an unsupported trench when one side caved in, burying one laborer (decedent) and partially burying another Hispanic worker. The third laborer managed to escape the trench unharmed. Two of the laborers were Hispanic; the third was a brother of the owner of the company digging the trench. The coroner pronounced the 30-year old laborer dead at the scene due to asphyxiation.

PREVENTION/ INTERVENTION EVALUATION

KY FACE gave an oral presentation on data dissemination at the Governor's Safety and Health conference in Louisville, KY on May 8, 2003. There were approximately 20 safety and health professionals in attendance at the session. The general objectives and goals of the KY FACE program were outlined in a Power Point presentation first, and then a discussion of 2 specific case investigations was mediated with the audience. Table 1 below includes results of those surveyed (11 out of 20 in attendance). Only 45% of those in attendance were aware of the KY FACE program before the talk but 73% said that they would be prompted to change work practices afterward.

Table 1. Survey of Kentucky Governor's Safety and Health Conference 2003.

Year	Valuable to my work?	Better understand the occupation fatality problem?	Easy to understand?	Prompted me to change work practices?	Aware of KY FACE before present.?	I would like more information.
2000	64%	95%	90%	60%	87%	n/a
2002	86%	95%	95%	80%	82%	27%
2003	82%	82%	91%	73%	45%	36%

¹ Numbers represent the percentage of those surveyed (n=33 in year 2000, n=22 in year 2002, 11 in year 2003) that either "strongly agreed" or "agreed" with the survey question asked.

QUANTITATIVE ANALYSIS

KY FACE identified 130 fatal occupational injuries during 2002. The following section provides a descriptive analysis of the KY FACE data.

Identification of Cases

Newspapers were the primary source of case identification in 2002 (Figure 1) in 61% of all cases. Vital Statistics (death certificates) and the Census of Fatal Occupational Injuries (CFOI) each identified 15% of the cases. KY FACE was informed of 61% of all occupational fatality cases within two days (Figure 2), compared to 41% in 2001.

Figure 1. Sources of Notification 2002.

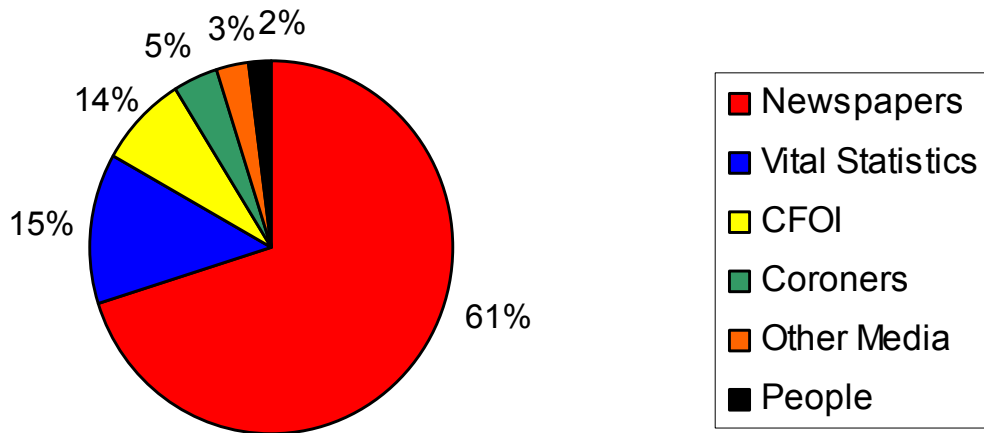


Figure 2. Time of Initial Notification of Occupational Fatalities in 2002.

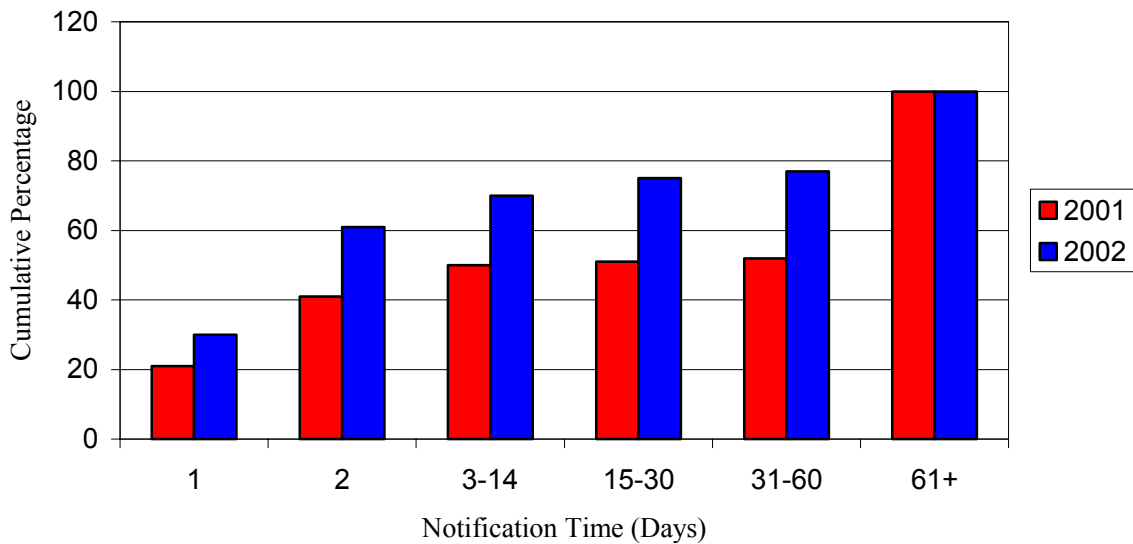
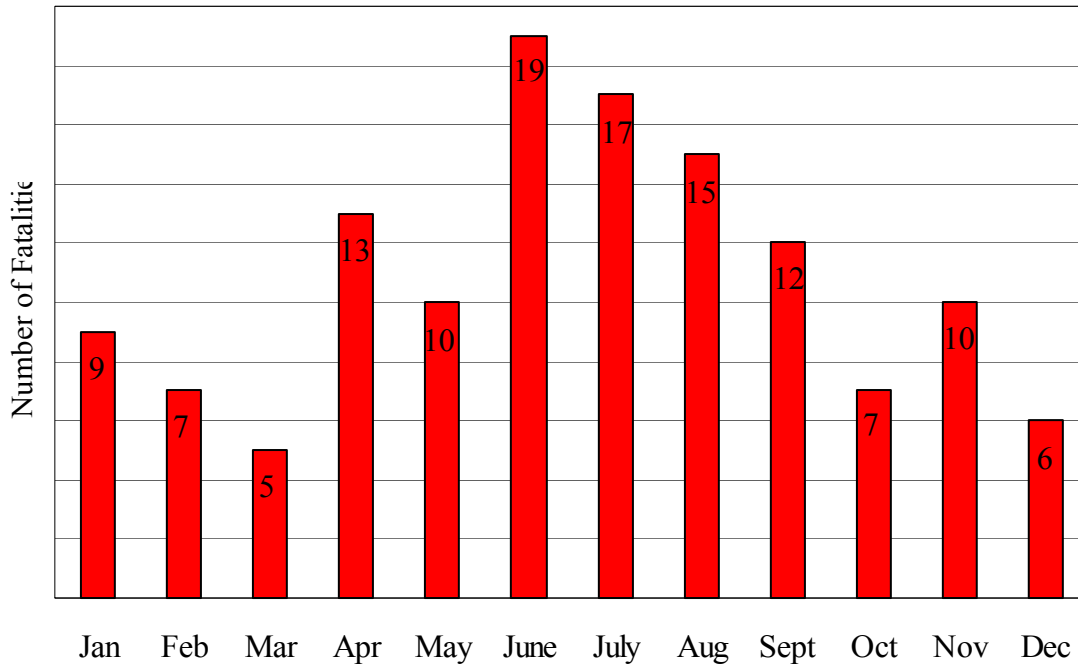
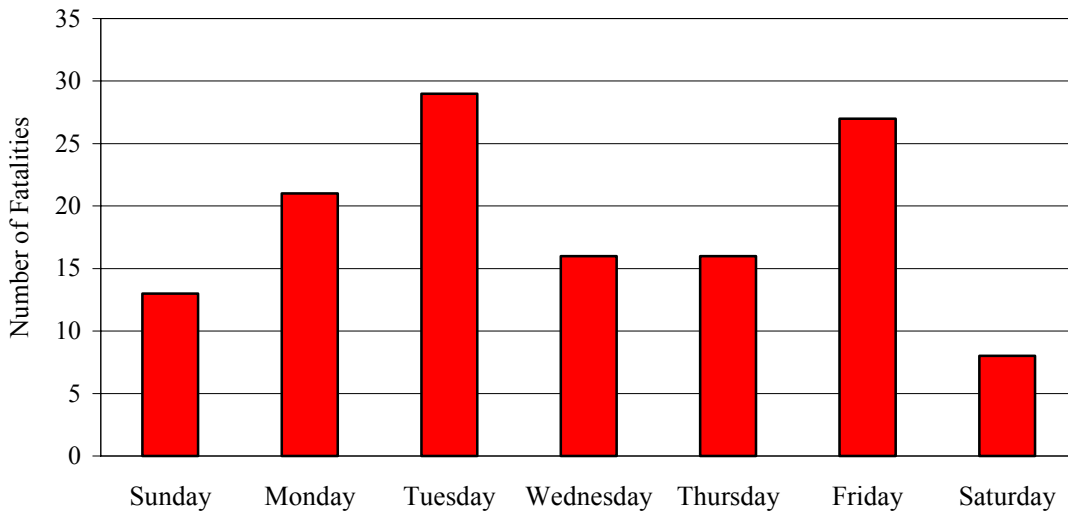


Figure 3. Kentucky Occupational Fatalities by Month-2002.



The fewest number of occupational fatalities during 2002 (n=5) was recorded in March (Fig. 3). Most worker deaths occurred during the summer months of June- August (n=51), which coincides with when most farming and construction work is performed. The days of the week when worker fatalities occurred is shown in Figure 4. Most workers died on either Tuesday (n=29) or Friday (n=27).

Figure 4. Occupational Fatalities by Day of Week-2002.



Most occupational fatalities occurred between 10am and 2pm (Figure 5), which is around lunchtime and workers may be more distracted at this time (Smith and Miles, 1986).

Figure 5. Occupational Fatalities by Time of Day-2002.

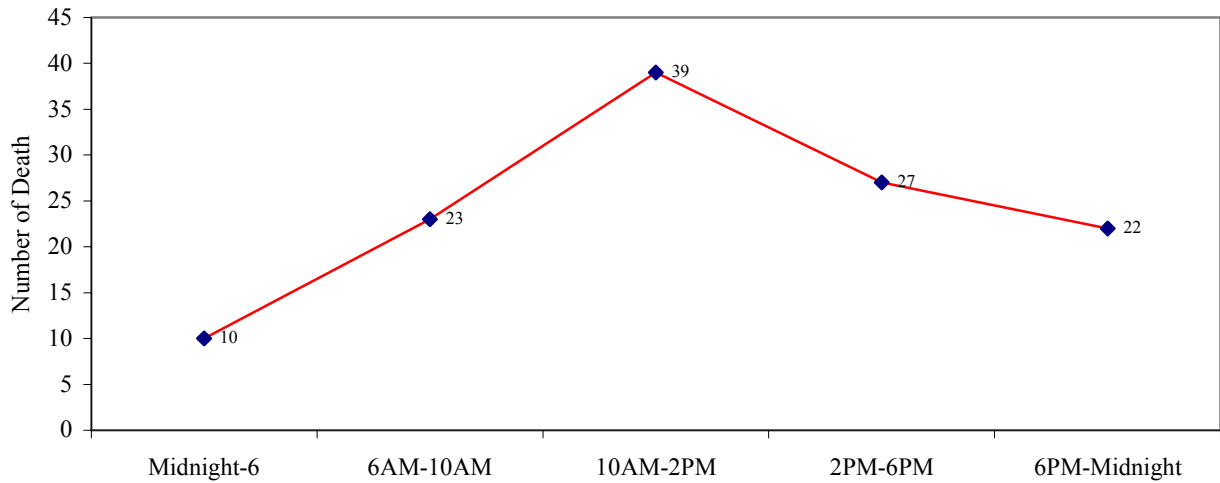
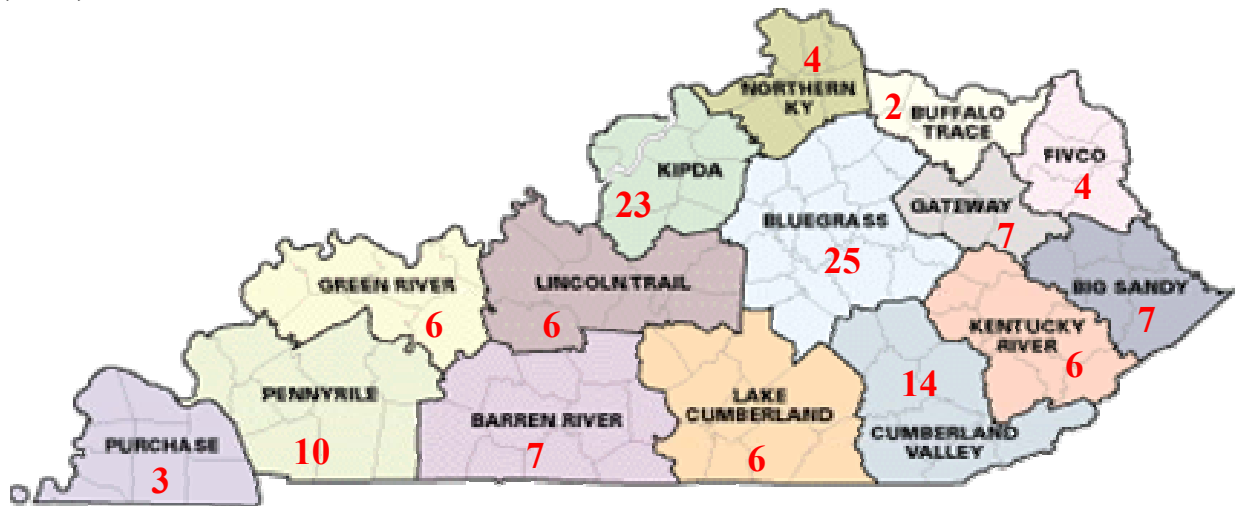


Figure 6 shows a map of Kentucky with the number of work-related fatalities that occurred in each Area Development District (ADD). ADD's are defined as partnerships of local governments, which provide for planned growth. The Bluegrass ADD (which includes Lexington-Fayette County) recorded the most fatalities with 25, followed by the KIPDA District (includes Louisville) with 23. The lowest number of occupational fatalities was recorded in the Buffalo Trace district (n= 2), which includes the city of Maysville.

Figure 6. Number of Occupational Fatalities in Kentucky per Area Development District (ADD).



Half of Kentucky's 120 counties had at least one occupational fatality during 2002. Jefferson County had the most fatalities with 20, followed by Fayette County with 7, and Hopkins County with 6. Pike, Madison, Montgomery, Pulaski, Taylor and Whitley counties each recorded 4 occupational fatalities. Table 2 shows the fatality rate per 100,000 workers for each of eight counties using employment estimates. Hopkins, Montgomery and Whitley counties had high fatality rates compared to Jefferson and Fayette counties and these rates are a product of the low number of employed workers in both counties.

Table 2. Fatality Rates for Counties with the Greatest Frequency of Occupational Fatalities in 2002.

County	Fatalities	Employment*	Rate per 100,000 Workers
Jefferson	20	378,510	5.3
Fayette	7	144,218	4.9
Hopkins	6	19,016	31.6
Pike	4	26,524	15.1
Madison	4	36,782	10.8
Montgomery	4	13,428	29.8
Pulaski	4	27,679	14.5
Whitley	4	14,791	27.0
All Other Counties	77	1,306,624	5.9
Total KY	130	1,967,572	6.5

*County employment estimates are from the 2001 Kentucky Deskbook of Economic Statistics. Kentucky Cabinet for Economic Development, Division of Research; Frankfort, KY.

Fatality numbers and occupational fatality rates were calculated for all counties experiencing a fatality in 2002 and are listed in Table 3. Fifty-one of Kentucky's 120 counties had fatality rates that exceeded the state average of 6.5 per 100,000 workers. Fatality rates were significantly higher than the nation's average in several counties, including Lee (43/100,000), and Lawrence and Morgan (38/100,000) counties, but are a reflection of the smaller number of workers within those counties.

Table 3. Fatality Rates* and Numbers for Kentucky Counties in 2002.

County	Fatality Rate	#	County	Fatality Rate	#	County	Fatality Rate	#
Jefferson	5	20	Anderson	10	1	Larue	16	1
Fayette	5	7	Barren	6	1	Lee	43	1
Hopkins	32	6	Bath	18	1	Leslie	24	1
Madison	11	4	Boyd	5	1	Letcher	14	1
Montgomery	30	4	Boyle	7	1	Lincoln	9	1
Pike	15	4	Bracken	26	1	Livingston	22	1
Pulaski	14	4	Breathitt	24	1	Logan	8	1
Whitley	27	4	Caldwell	16	1	Lyon	32	1
Laurel	18.	4	Carter	8	1	Marion	10	1
Franklin	12	3	Christian	3	1	Martin	33	1
Hardin	8	3	Clinton	16	1	Mercer	10	1
Boone	6	3	Estill	17	1	Metcalfe	22	1
Warren	6	3	Fleming	17	1	Oldham	4	1
Bell	19	2	Fulton	32	1	Perry	9	1
Bourbon	20	2	Harlan	12	1	Scott	6	1
Clay	27	2	Harrison	14	1	Shelby	6	1
Daviess	4	2	Hart	14	1	Spencer	18	1
Floyd	15	2	Henderson	4	1	Taylor	11	1
Graves	11	2	Jessamine	5	1	Union	19	1
Lawrence	38	2	Kenton	1	1	Washington	17	1
Morgan	38	2	Knott	19	1	Woodford	8	1
Ohio	21	2	Knox	9	1			

*Rates were calculated per 100,000 workers using county employment estimates from the 2001 Kentucky Deskbook of Economic Statistics, Kentucky Cabinet for Economic Development, Division of Research, KY; 2001.

Demographics

Demographic characteristics of all workers fatally injured on the job are shown in Table 4. Ninety-two percent of occupational workers killed were male, and the workers were primarily white (80%). The age of workers killed ranged from 18 to 92 years. The youngest workers killed were an 18-year-old mechanic and an 18-year-old soldier. The oldest worker killed was a 92-year-old farmer. Fifty-three percent of those killed were married, while 15% and 20%, respectively, were either unmarried or divorced. Half (51%) were high school graduates and 6% had a college degree. Twenty-one percent of workers killed had less than a high school education. The majority of deaths, as expected, involved people born in the United States, although 9 deaths involved workers born in other countries. Almost all of the decedents spoke English (87%). Three spoke Spanish. Two spoke Arabic and 1 each spoke French, Hindi, Mandarin, and Somali. The spoken language of 8 workers was not reported/known.

When in-state vs. out-of-state resident deaths were examined, only 4 (3%) of the 130 fatal incidents involved residents from 2 other states who died while working in Kentucky.

Table 4. Demographic Characteristics of Worker Deaths- 2002.

Characteristics	Number	Percent
Total Fatalities	130	100
Sex		
Male	120	92
Female	10	8
Race		
White	104	80
Black	6	5
Other	8	6
Unknown	14	11
Asian/Pacific Islander	2	2
Age		
<20	3	2
20-29	19	15
30-39	24	18
40-49	29	22
50-59	30	23
60-69	13	10
70-79	9	9
80-89	1	1
>90	1	1
Unknown	1	1
Marital Status		
Never married	20	15
Married	69	53
Divorced	26	20
Widowed	2	1
Unknown	13	10
Education		
Less than high school	27	21
High school graduate	66	51
Some college	11	6
College graduate	11	6
Unknown	15	12
Country of Origin		
United States	113	87
Mexico	3	2
Unknown	8	6
China	1	1
Haiti	1	1
India	1	1
Jordan	1	1
Mauritania	1	1
Somalia	1	1
Primary Language		
English	113	87
Spanish	3	2
Unknown	8	6
Arabic	2	2
French	1	1
Hindi	1	1
Mandarin	1	1
Somali	1	1

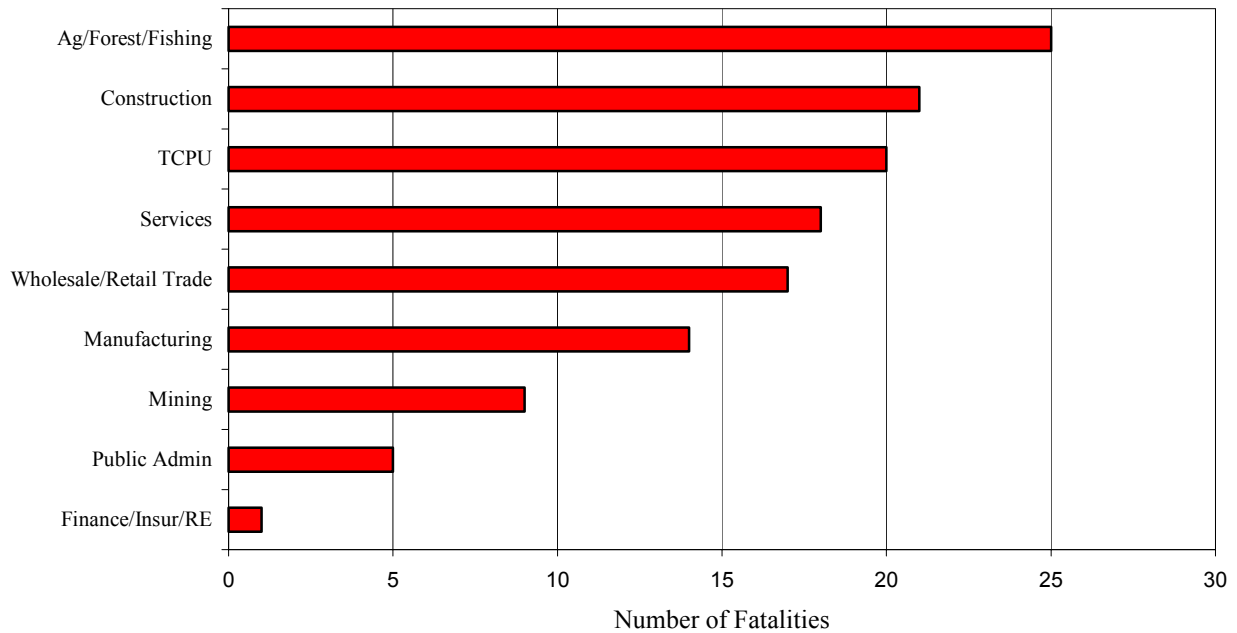
Industry

Figure 7 and Table 5 show the number of workers killed in each industry (as classified by the *Standard Industrial Classification Manual*), as well as a comparison of state and national occupational fatality rates. The Agriculture (Ag) /Forestry/Fishing industry recorded the majority of work-related deaths in Kentucky (n= 25, 19% of total) and the occupational fatality rate for this industry is about double the US fatality rate (40 deaths per 100,000 workers in Kentucky vs. 21 deaths per 100,000 workers nationwide). The national fatality rate for this industry is low because employment numbers for farmers include only full-time farmers, not those who farm part-time as is the case in Kentucky. Hence, the national number of those working in the Ag industry is underestimated. In addition, the Kentucky mining fatality rate is twice that of the U.S rate (59 vs. 30). Fatalities and fatality rates were also increased in the TCPU industry, and the construction industry.

The greatest number of workers employed is in the Services industry, followed by the Retail/Wholesale Trade industry and Public Administration. Public Administration has low fatality numbers and rates, which makes it the safest industry to work. In contrast, <1% of people are employed by the mining industry and <4% in the agricultural industry but their fatality numbers and occupational fatality rates are high, which makes both of those industries more dangerous to work in.

The cause of death for the top three industrial classifications is given in Figures 8-10. As expected, the majority of Transportation industry deaths was due to MVCs (60%). Ag machines (64%) and falls (33%) caused the greater number of Ag and Construction industry fatalities, respectively.

When you compare the fatality rates between 2001 and 2002, it is clear that more intervention and prevention measures need to be undertaken in order to reduce the overall high fatality rates in Kentucky. Areas of concentration and concern for this upcoming year include the Construction industry and the Manufacturing industries. As well, the factors that contributed to MVCs, falls and explosions need to be examined more thoroughly.

Figure 7. Fatalities By Industry-2002.**Table 5. Occupational Fatalities by Industry- 2002 (Rates calculated per 100,000 workers^a).**

Industry ^b	Number of Fatalities	% of Employment ^c	2001 KY Rate	2002 KY Rate	US Rate ^d
Agriculture/Forestry/Fishing	25 (19)	3.2	51	40	21
TCPU*	20 (15)	5.9	19	17	12
Construction	21 (16)	4.7	16	23	13
Mining	9 (7)	0.9	65	59	30
Manufacturing	14 (11)	14.8	3	5	3
Services	18 (14)	23.8	2	4	2
Public Administration	5 (4)	15.4	3	2	3
Retail/Wholesale Trade	17 (13)	19.8	2	4	3
Finance	1 (<1)	4.3	2	1	1
Totals	130 (100)	92.8	6	6.5	4

^a Percent distribution of employed persons obtained from 1) 2001, 2002 from *Geographic Profile of Employment and Unemployment*, US Department of Labor, Bureau of Labor Statistics; 2) U.S. DOE-EIA; Coal Industry Annual, 2002; 3) Kentucky FACE Project Annual Report 2001. Kentucky Injury Prevention and Research Center, 333 Waller Ave., Suite 202, Lexington, KY 40504-2915.

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

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

^dCensus of Fatal Occupational Injuries Summary. US Dept. of Labor, Bureau of Labor Statistics, National Census of Fatal Occupational Injuries in 2001.

*Transportation/Communications/Public Utilities

Figure 8. Construction Fatalities for the Year 2002.

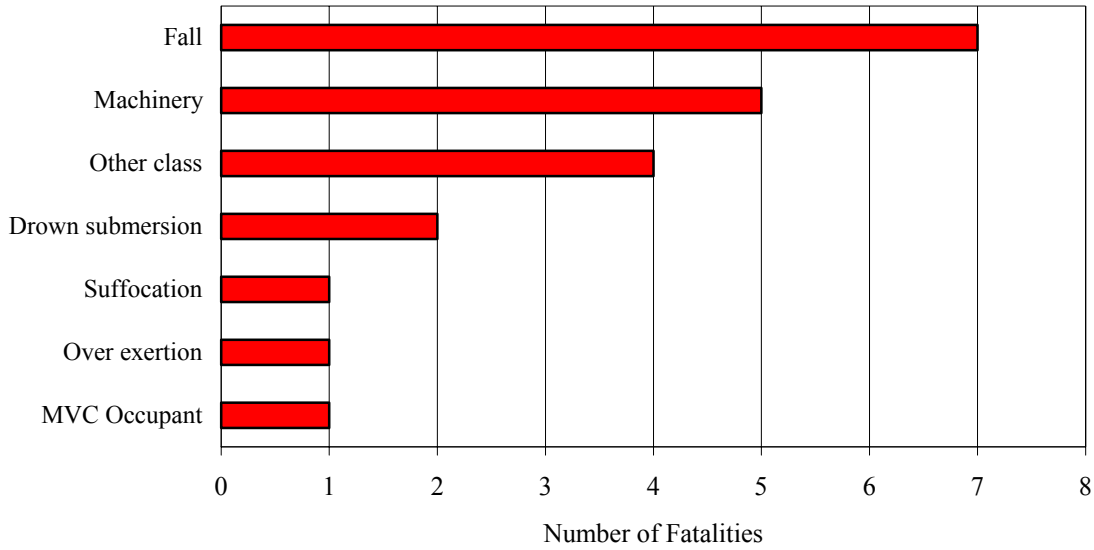


Figure 9. Agriculture/Forestry/Fishing Fatalities for Year 2002.

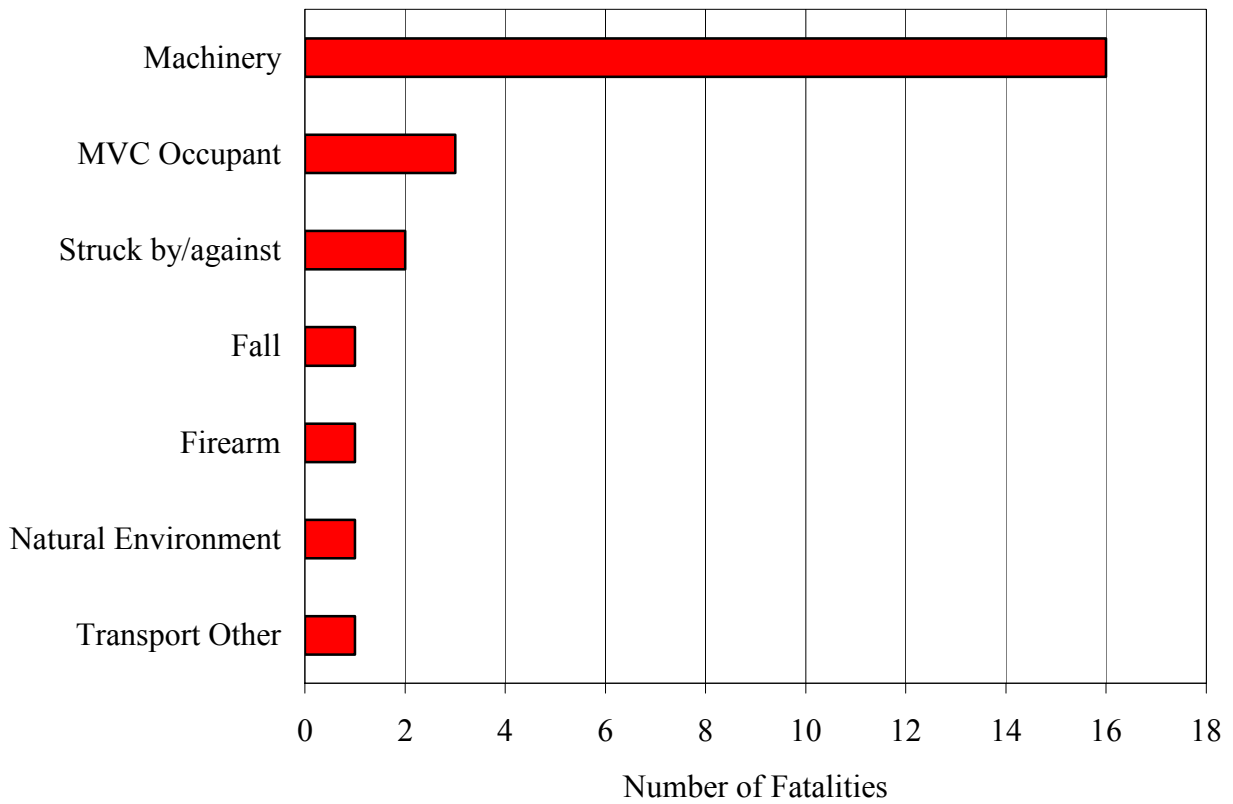
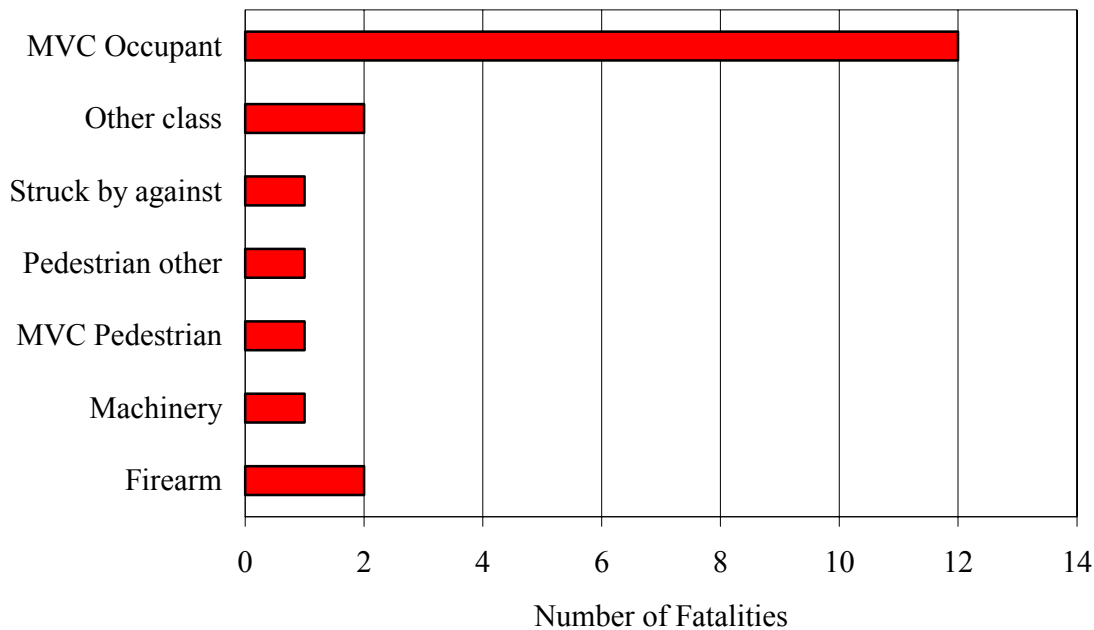


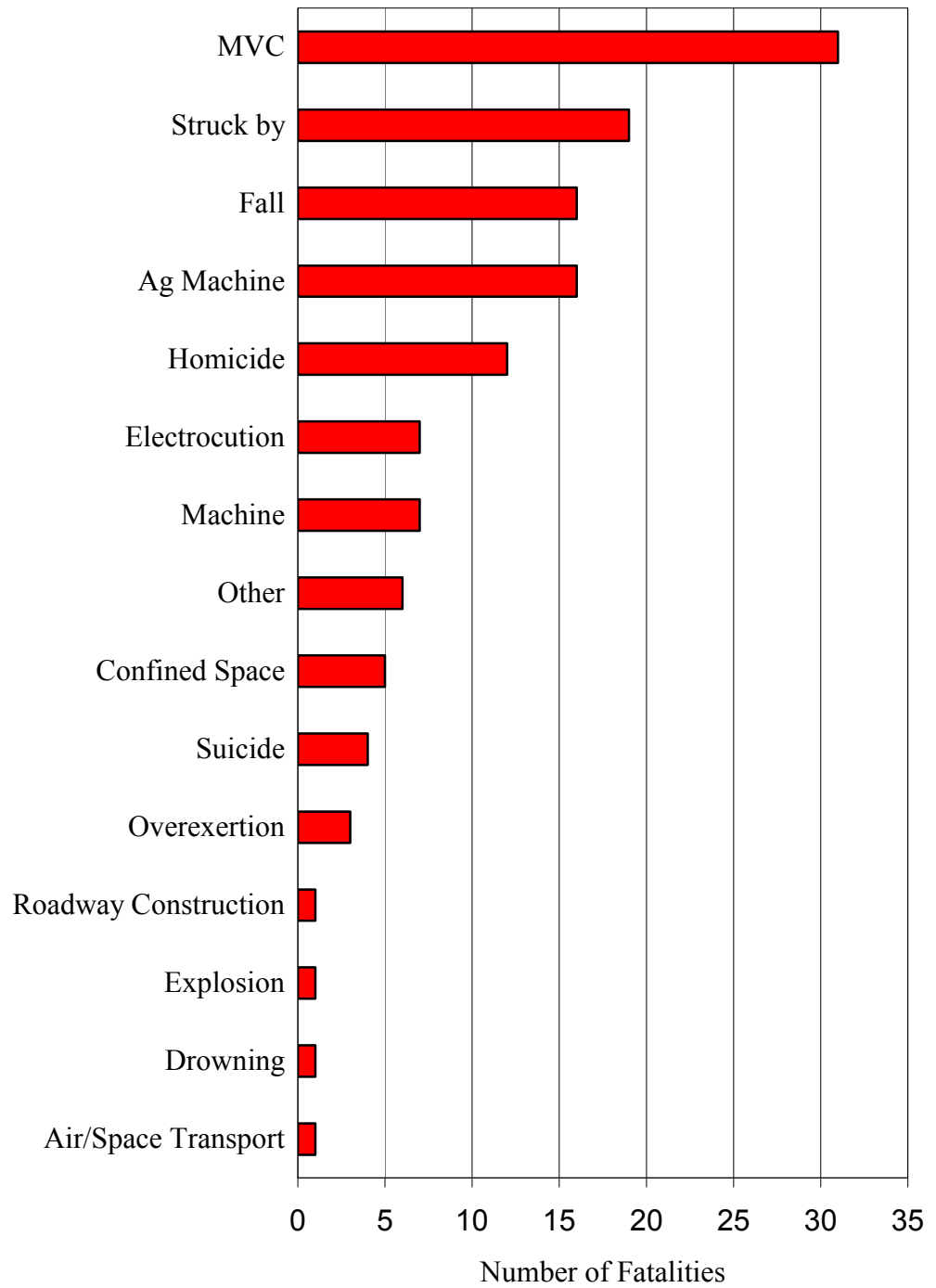
Figure 10. TCPU Industry Deaths in the Year 2002.

External Cause of Death

Figure 11 shows the external cause(s) of death for work-related fatalities as classified by E-code according to the *International Classification of Diseases, Tenth Revision (ICD-10)*. MVCs were the leading cause of occupational deaths (24%) in 2002 as in 2001. Being struck by an object (n= 19) and falls (n= 16) followed as being the second (15%) and third (12%) major causes of occupational deaths. Ag machine related fatalities (n= 16) still ranked among the principal external causes of death (12 %). Twelve occupational homicides and 7 electrocutions were recorded.

Targeted interventions aimed at MVCs are now being undertaken. A manuscript was written and accepted for academic journal publication which characterized occupational vs. nonoccupational fatal MVCs in Kentucky. It was found that semi trucks were more frequently involved in a fatal MVC. In addition, driver fatigue and driver distraction/inattention were involved in more occupational MVCs when compared to nonoccupational MVCs. A case control study examining commercial MVCs is currently underway and the hope is that the risk factors, which contribute to these fatalities, will be further identified and elucidated. The information from the manuscript will be included in a Hazard Alert to be distributed to the trucking industry and other industries and companies which employ drivers for training and education.

Figure 11. Fatalities by External Cause of Death- 2002.



Occupation

Table 6 represents Kentucky work-related fatalities by occupation, classified using the *Alphabetical Index of Industries and Occupations*. The Operators/Fabricators/Laborers occupations accounted for the majority of occupational deaths in Kentucky in 2002 (32%). The second highest number of deaths was observed in the Farming/Forestry/Fishing occupation (21%). The US fatality rate is given for each occupation but Kentucky fatality rates were not calculated because the Kentucky occupational category definitions differ from the national occupational category definitions.

The primary cause of death is listed for 3 of the major occupational classes (Fig. 13-15). The most frequent cause of death in the Operators/Fabricators/Laborers occupation was by MVCs (n= 15) or machinery (n= 8). Machinery (n= 16) accounted for the majority of deaths in the Farming/Forestry/Fishing occupation. A large number of deaths in the Precision Products/Craft/Repair occupation involved falls (n= 5).

Figure 12. Work-related Fatalities by Occupation in 2002.

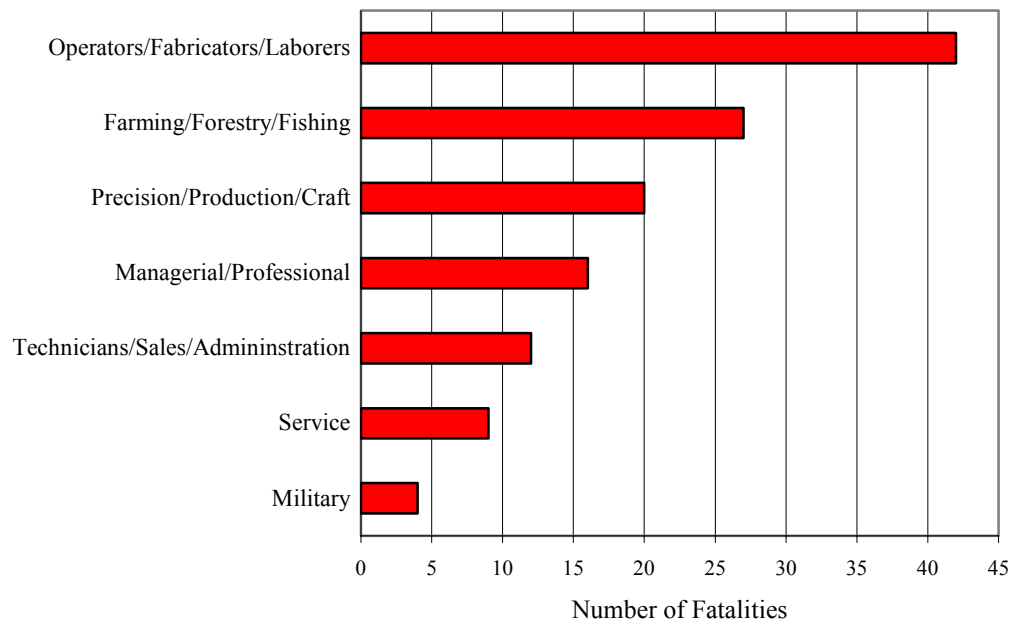


Table 6. Work-related Fatalities by Occupation- 2002.

Occupation	Number (%)	US Rate^a
Operators, fabricators, laborers	42 (32%)	10.6
Transportation, material moving	21 (16%)	20.0
Handlers, equipment cleaners, helpers, laborers	16 (12%)	11.0
Machine operators, assemblers, inspectors	4 (3%)	2.8
Farming, forestry, fishing	27 (21%)	23.0
Precision production, craft, repair	20 (15%)	
Technical, sales, administrative support	12 (9%)	1.6
Managerial, professional specialty	16 (12%)	1.5
Service	9 (7%)	2.6
Military	4 (3%)	

^a Employment figures and occupational fatalities obtained from *Census of Fatal Occupational Injuries- 2001 data*, US Department of Labor, Bureau of Labor Statistics, Washington, DC 20212-0001. Rates were calculated as the number of occupational fatalities per 100,000 workers.

Figure 13. Operators/Fabricators/Laborers Occupational Deaths in 2002.

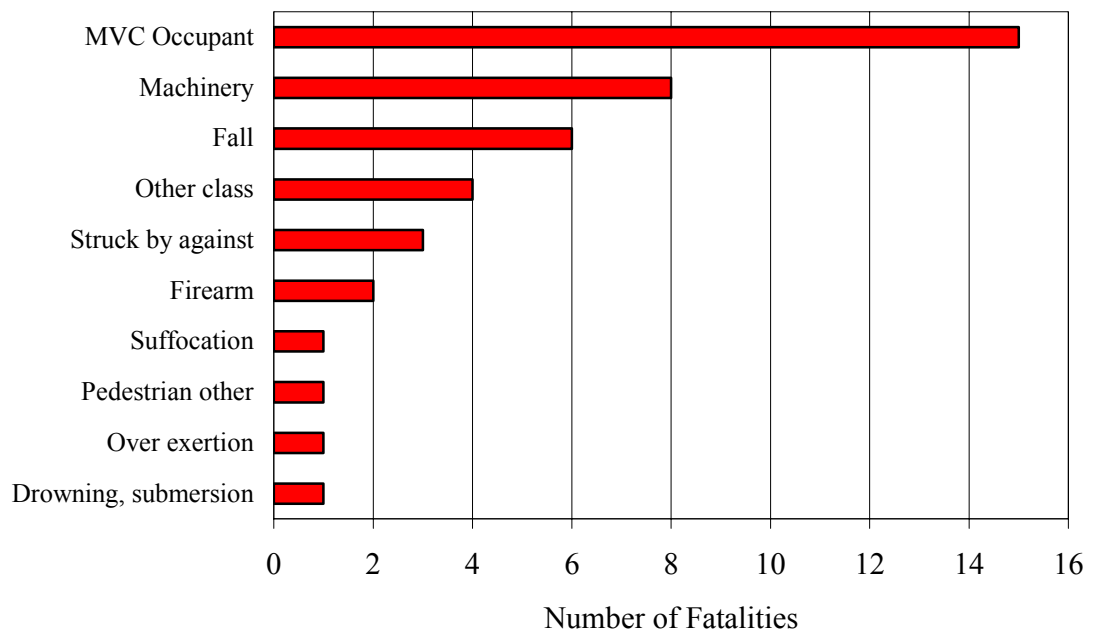


Figure 14. Farming/Forestry/Fishing Occupational Deaths in 2002.

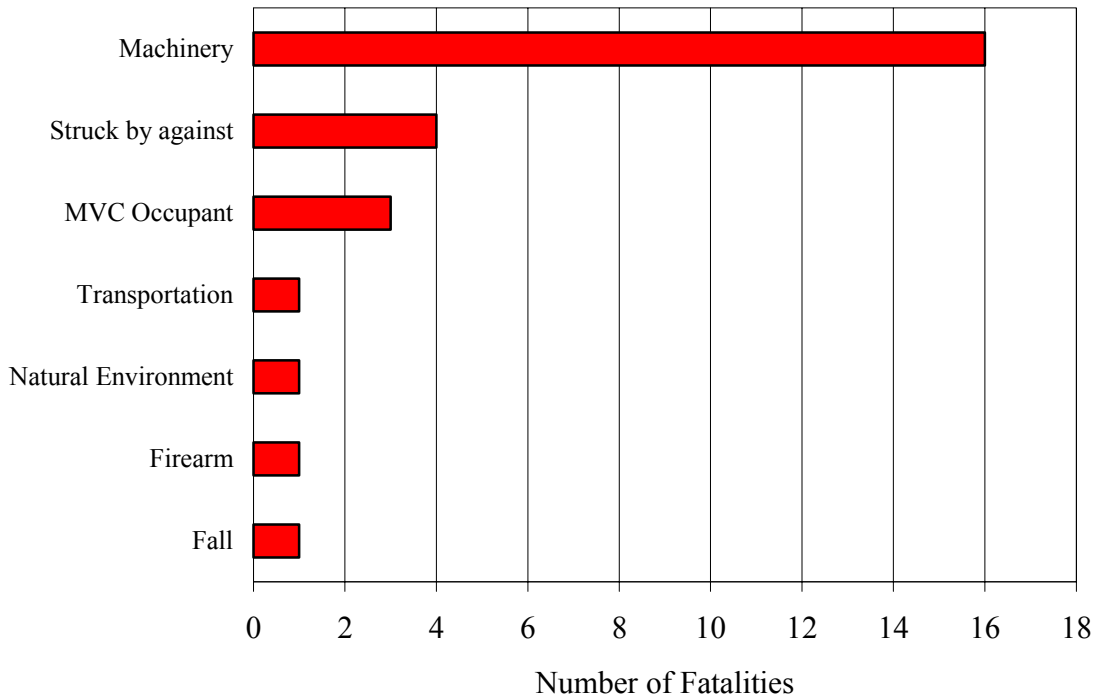
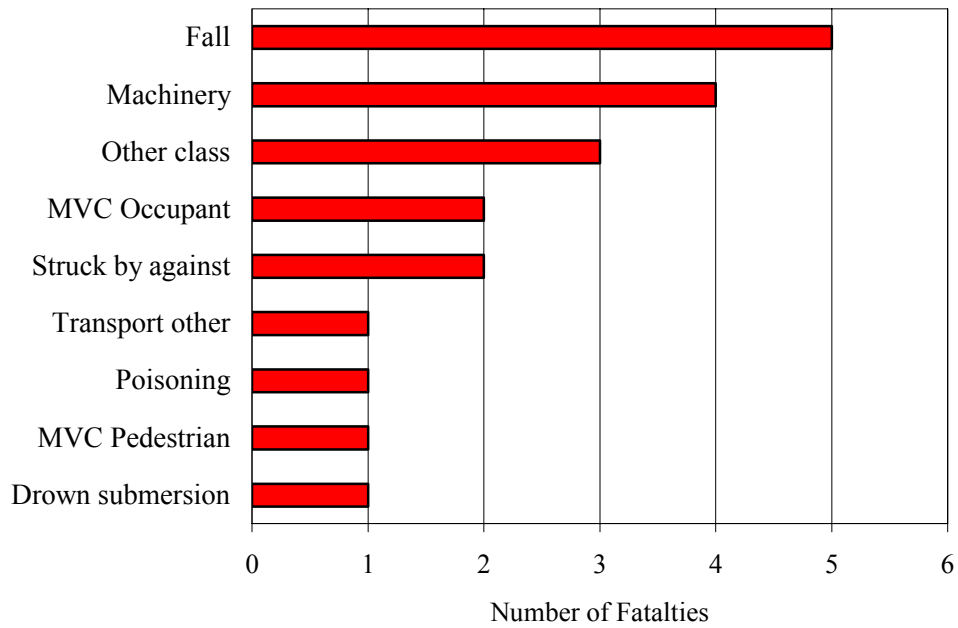


Figure 15. Precision Products/Craft/Repair Occupational Deaths in 2002.



Special Topics

Fatal Agricultural Injuries



Twenty-seven workers in the farming/fishery/forestry industry died in 2002 and 16 of those deaths involved Ag machinery (tractors). Tractor rollovers were the cause of 6 of the Ag machinery deaths, four were rollovers caused by attachments (mower, bush hog, etc.) and 4 were due to falls or being thrown from the tractor. Twenty of the 25 Ag worker deaths were tractor-related and 14 of those involved tractors which were not equipped with a ROPS. Most of the workers were older than those who died in other occupations. Most Ag workers who died were between 50 and 70 years old (Fig. 16). In addition, 80% of those killed had a high school education or less (Fig. 17).

Figure 16. Age at Death of Agricultural Workers- 2002.

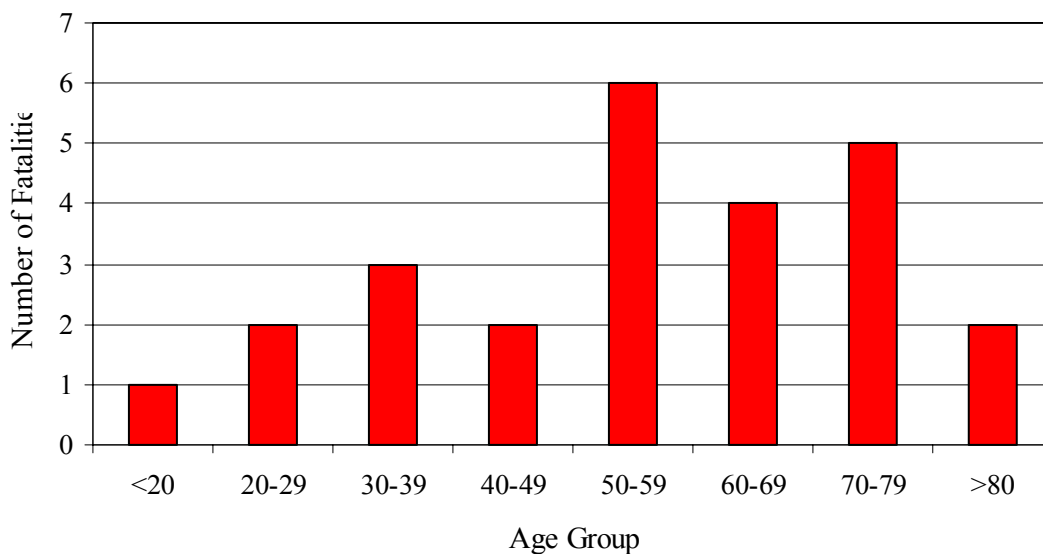
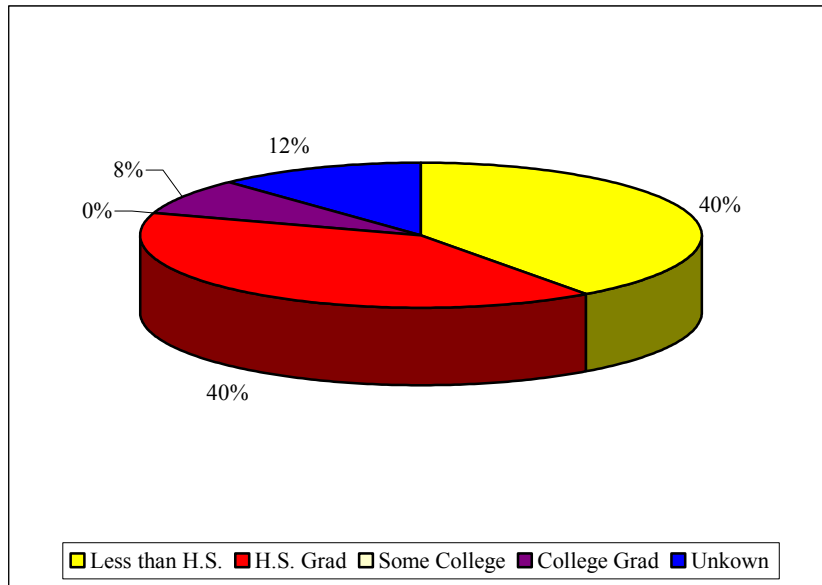


Figure 17. Level of Education for Deceased Agricultural Workers-2002.



Deaths Caused By Electrocution



In 2002, seven workers were electrocuted or fatally burned due to electricity on the job compared to 5 worker electrocutions in 2001. Five of the fatal electrocutions involved contact with electrical wires and 2 involved contact with overhead power lines. One incident involved contact with a 7200 volt power line during the building of a lateral ground line which was not grounded. The victim was not wearing protective gloves when the line became energized and was electrocuted. In the second incident, protective gloves were not worn by a worker who was performing troubleshooting on an energized battery charging station distribution box and was electrocuted with 480 volts. Unsafe work practices and testing equipment with inadequate specifications resulted in the death of a third worker. The worker joined “jumper” wires from a shuttle car to a receptacle to eliminate a short circuit. An electrical arc was created which resulted in an explosion in the receptacle. The victim received third-degree burns and died 35 days later. The fourth victim, a restaurant owner, died after performing his own electrical

work. The owner had spliced a stainless steel upright cooler with a piece of extension cord attached to the 10/2 wire. He then replugged the cord into the outlet. The cooler was then moved around quite a bit since the restaurant was being renovated. Everyone who touched it would receive a “tingle” but the owner did not check the wiring. The 10/2 wire and the ground had loosened with the wire touching the metal back on the cooler. The owner, who was shirtless and hot and sweaty, was cleaning and bent between the cooler and cook stove contacting the cooler with the front side of his body and the stove with the back side of his body, and he was electrocuted. A system technician, the fifth victim, was electrocuted with 240 volts when leads touched the uninsulated high voltage side of a transformer. The technician had a glove rated at 17000 volts on his left hand but was not wearing a glove on his right hand.

The first of the incidents involving high-voltage lines occurred when a highway construction laborer was installing guard rails on the side of a highway. A hydraulic post driver was being moved down the highway to install a new guardrail when the boom came into contact with a 7200 volt power line overhead. The six-foot post being held by the victim came into contact with the machine, which grounded the circuit and electrocuted the victim. The second incident involving overhead power lines occurred when the victim and two other employees were moving mobile scaffolding to a different location on a worksite and the scaffolding came into contact with a 7200 volt overhead power line. The victim was electrocuted and another employee was injured.

Prevention recommendations to reduce worker injuries when working with or near electricity (Occupational Health and Safety magazine, May 2003, Stevens Publishing Corp., 5151 Beltline Rd., 10th floor, Dallas, TX 75254) include: 1) a thorough hazard assessment of the work area before any work is commenced 2) appropriate and required use of PPE 3) employment of safe work practices 4) use of lock out/ tag out procedures during maintenance and repair 5) assurance that all circuits are appropriately grounded 6) availability of appropriate equipment and utilization for specific types of electrical work being performed on the jobsite 7) appropriate guarding of all electrical circuits and equipment and 8) working with a buddy when high voltage lines or equipment are being worked on.

Scaffolding Deaths



Six workers died in scaffolding deaths in 2002 compared to 2 in 2001. Three of the deaths involved equipment failure, 2 involved improper attachment or assembly and 1 involved an electrocution. The electrocution occurred when three employees were moving 26-foot tall mobile scaffolding from one area of a construction site to another and the scaffolding came into contact with a 7200 volt power line.

One equipment failure death was the result of a roller breaking from a 2-point roller stage scaffold. Two employees were painting the outside of a gasoline storage tank when one end of the scaffold fell after the roller broke. Both employees were tied to the scaffold. The victim was hit in the head by the broken roller and died. The other employee hit his head but was released from the hospital the next day. The second fatal incident involved two victims who were preparing the inside of a water tank for painting. The scaffold had been moved the day before and had been reassembled in a different location inside the water tank. The victims entered the tank the next day unsupervised and were found on the floor of the tank 45 minutes later by the supervisor. The scaffold had not been inspected by a competent person after relocation and a piece was determined to be missing. Neither worker was wearing PPE.

One fatal incident involved failure to lock scaffolding wheels after the scaffolding was moved. Two employees were chalking elevation lines on an overhead beam from mobile scaffolding when one employee started to dismount and the scaffolding began to move. One employee was able to grab the overhead beam and hang on while the other employee could not find anywhere to grab and rolled over the side of the open second floor of the office building being constructed. The victim fell approximately 35 feet to the ground and the scaffolding landed on top of him. He died later in the hospital. Neither employee was wearing PPE. Another incident involved a fall after improper assembly of homemade scaffolding in a barn. A farm laborer fell 12-15 feet to his death when he was erecting rafters in a barn and fell from the homemade scaffolding. He was not wearing PPE.

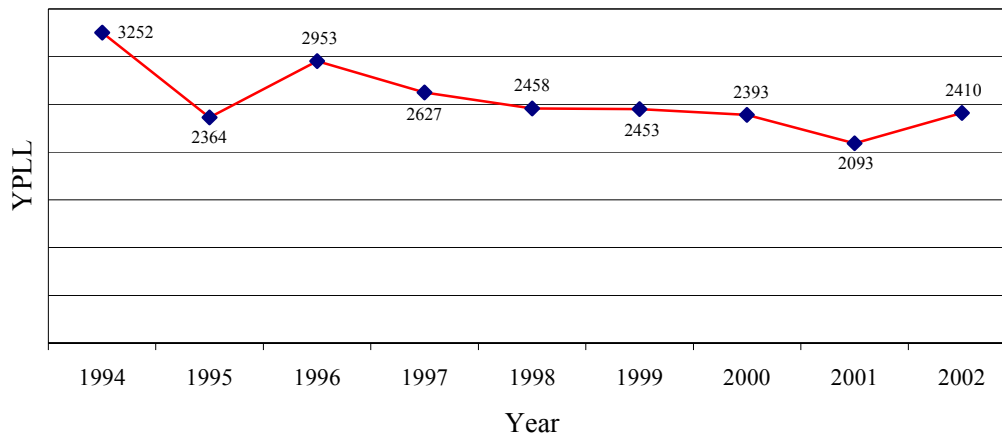
Prevention recommendations for these types of incidents include 1) conduct a thorough site hazard assessment whenever scaffolding is moved or erected (OSHA CFR 1926.451 (f) (6)) and 2) an employee should be trained by a competent person for moving and construction of scaffolding (OSHA CFR 1926.454(b)) and 3) ensure that maximum weight restrictions for scaffolding are adhered to and 4) appropriate use of PPE and tiebacks are required. Scaffolding deaths will be a priority of the FACE program this year for investigation to further examine root causes of this type of injury.

Years of Potential Life Lost (YPLL)

One hundred thirty Kentucky workers died in 2002 due to fatal occupational injuries with a total of 2410 YPLL (Fig. 18) based on age 65. YPLL was calculated as the age of the worker at death subtracted from the average lifespan. Age 65 is the cutoff age used for analysis here (U.S. Decennial Life Tables for 1989-1991, CDC/National Center for Health Statistics, 1997) since it is the average age at retirement so the YPLL is more aptly termed years of potential employment lost (Struttman *et al.* 1998). The YPLL increased this last year compared to the 2 years before which is a reflection of the higher number of occupational fatalities observed this year. The median age at time of death was 46 years of age which is the same as in 2001. This

may reflect the large number of baby boomers (born between 1946 and 1964) currently in the workforce. The median age of the labor force was 34.8 years in 1978, 38.7 in 1998 and is projected to be 40.7 years in 2008 (<http://stats.bls.gov/pub/ted/2001/june/wk4/art02.htm>).

Figure 18. Total Years of Potential Life Lost (YPLL) in Kentucky 1994-2002.



In Table 7, the total and average YPLL were calculated per industry division. The industries with the highest average YPLL were the mining and construction industries which indicate that people are dying at a younger age in these 2 industries and that additional worker safety training in young workers might be recommended. The industry with the greatest total number of YPLL, and thus potential employment lost was the Construction industry. When the future lost productivity was calculated for this industry (Table 8), it is estimated that the Construction industry could lose approximately \$18.2 million dollars. When all industries are combined, lost future productivity could total as much as \$82.7 million dollars for 2002 fatalities compared to \$73.4 million dollars of future lost productivity for 2001. This substantial total dollar amount is indicative of the continued need for targeted injury prevention strategies and interventions.

Table 7. Total and Average YPLL by Industry Classification for 2002.

Industry Division	Total Fatalities	2002 Total YPLL	Average YPLL per Fatality
Ag/Forestry/Fishing	25	221	8.8
Construction	21	555	26.4
TCPU	20	349	17.5
Services	18	438	24.3
Retail/Wholesale Trade	17	249	14.6
Manufacturing	14	228	16.3
Mining	9	243	27.0
Public Administration	5	102	20.4
Finance/Insurance/Real Estate	1	25	25.0

Table 8. Future Lost Wages Due to Work-related Fatalities by Industry-2002.

Industry Division	Average Salary^a	Total Earnings Lost (in million)	% of Total
Construction	\$35,781	\$18.2	22.0
TCPU	\$49,713	\$17.3	20.9
Mining	\$45,416	\$11.0	13.3
Services	\$24,608	\$10.8	13.1
Manufacturing	\$38,065	\$8.7	10.5
Retail-Wholesale Trade	\$29,654	\$7.4	9.0
Agriculture/Forestry/Fishing	\$24,422	\$5.4	6.5
Public Administration	\$30,450	\$3.1	3.7
Finance/Insurance/Real Estate	\$31,925	\$0.8	1.0
Total	\$34,448	\$82.7	100.0

^aAverage Salaries from *State and Industry Average Annual Pay-2001*. U.S. Bureau of Labor Statistics.

Future Aims of KY FACE Program

The objectives of the KY FACE program are to identify new and emerging risk factors contributing to fatalities on the job and to develop and disseminate information and interventions in order to prevent those fatalities containing the identified associated risk factors. In order to accomplish these objectives, the KY FACE program will perform timely and accurate case investigations of those fatalities which pertain to the research priorities established by NIOSH. Additionally, those incidents involving Ag injuries, electrocutions, falls including scaffolding, and explosions will be monitored, investigated and analyzed as specific research priorities in Kentucky. Also, more user-friendly prevention and intervention materials will be developed and distributed this next year to reach those identified target populations determined to be at greatest risk for occupational injury.

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