r 8

Occupational Fatilities In Kentucky - 1994

Contributed by: Tim W. Struttmann, MSPH, Ellyn Moon, MA, Amy Scheerer, MSPH, and Carl Spurlock, PhD, Kentucky Injury Prevention and Research Center, and Susan H. Pollack, MD, Departments of Pediatrics and Preventive Medicine, University of Kentucky College of Medicine.

Excerpted, with permission, from the *Journal of the Kentucky Medical Association,* Volume 94, September 1996, pp. 395-400.

In Kentucky, 166 workers were killed on the job in 1994. That year, Kentucky's agriculture/forestry/fishing industry fatality rate of 80/100,000 was more than three times the national rate (see Table 1). Our occupational fatality rate exceeds all contiguous states except West Virginia (NIOSH 1993). This paper describes the occupational fatality data collected during the first year of operation of the Fatality Assessment and Control Evaluation (FACE) Project* in Kentucky.

Table 1. Occupational Fatalities in Kentucky by Industry, 1994.
(Rates calculated per 100,000 workers[a])

Industry[b]	(n)		KY Rate[d]	US Rate[c]
Agriculture/Forestry/Fishing	47	(28.3%)	80	26
Construction	25	(15.0%)	26	14
Manufacturing	22	(13.3%)	7	4
Transportation/Public Utilities	22	(13.3%)	22	13
Services	16	(9.6%)	5	2
Retail/Wholesale Trade	12	(7.2%)	4	5
Mining	11	(6.6%)	32	26
Public Administration	8	(4.8%)	3	3
Finance/Insurance/Real Estate	3	(1.8%)	4	2
Totals	**166**	**(100.0%)**	**9**	**5**

[a]Labor force census obtained from Geographic Profile of Employment and Unemployment, 1993 US Department of Labor Statistics, September 1994, Bulletin 2446.
[b] Office of Management and Budget. Standard Industrial Classification Manual. 1987. Springfield VA: National Technical Information Service. (NTIS No. PB 87-100012.)
[c]Monthly Labor Review, October 1994, Fatal Occupational Injuries by Industry and Event or Exposure, 1993. Census of Fatal Occupational Injuries, 1993.
[d]Occupational fatalities identified by the Kentucky Fatality Assessment and Control Evaluation (FACE) Project of the Kentucky Injury Prevention and Research Center.

In 1994, KY FACE identified 166 occupational fatalities, an average of more than three per week. Ninety-two percent of these deaths were males (n=153), although men make up only 58% of the part- and full-time work force (Bureau of Labor Statistics 1993). Of the 13 females (8%) killed on the job, eight (62%) worked in a service industry, two in agriculture, and one each in construction, retail trade, and manufacturing. The median age of females (29) was significantly lower than that of males (47). Females made up 54% of the work-related homicide fatalities in Kentucky.

The decedents were primarily white (93.3%) and ranged in age from 15 to 86. Age groups accounting for the most fatalities were 30-39 years (25.3%) and 50-59 years (22.8%) (See Figure 1); nearly half of all deaths of those over age 50 were among farmers. Over one-third of the deaths occurred in July, August and September; on a per-day basis, April had the lowest rate.

The industry for each worker at the time of death was classified using the Standard Industrial Classification (SIC) Manual. The number of fatalities per industry and industry-specific death rates are shown in Table 1. As shown in Figure 2, the highest number of fatalities occurred in the agriculture/forestry/fishing industry (n=47). Further industry division reveals that 45 of those deaths occurred in agricultural incidents, accounting for 27.1% of the total number of fatalities in Kentucky. Of the 22 deaths in the manufacturing industry, over half (54.5%) occurred in logging operations.

With respect to occupations, farming/forestry/fishing, which includes both agricultural and logging occupations (see Figure 3), accounted for more than one-third (34.9%) of all work-related deaths in 1994. Twenty-four workers were killed while doing work that was not their usual occupation. Of those, 17 were fatally injured while engaged in farming activities.

Worker distribution by external cause is shown in Figure 4. Motor vehicle incidents were the most frequent cause (28.3%), followed by machine-related incidents (24.1%). It is important to note that the motor vehicle category includes farmers killed while traveling during the course of their work, but that, for this analysis, all incidents involving tractors were classified as machine-related. Of the 40 machine-related incidents, 29 (72.5%) involved agricultural machinery, with the most common type being tractors. Of the 28 tractor-related deaths, 23 were caused by tractor rollovers.

Fig.1. Fatalities by Age Group.

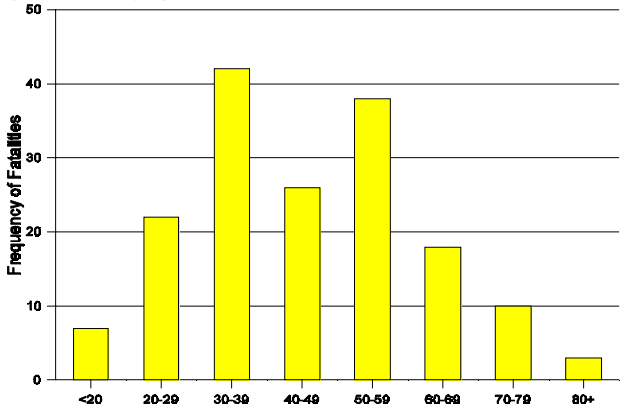


Fig.2. Fatalities by Industry.

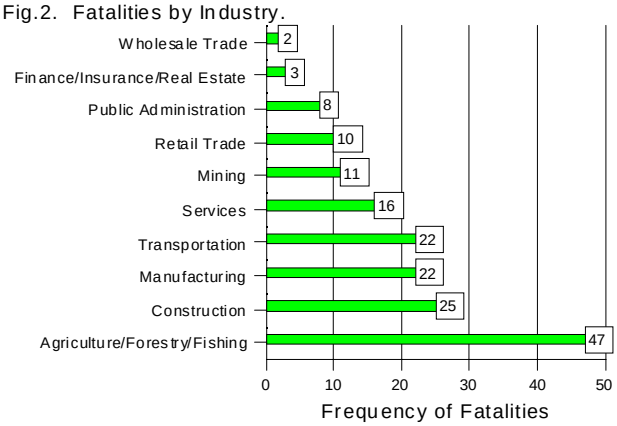


Fig.3. Fatalities by Occupation.

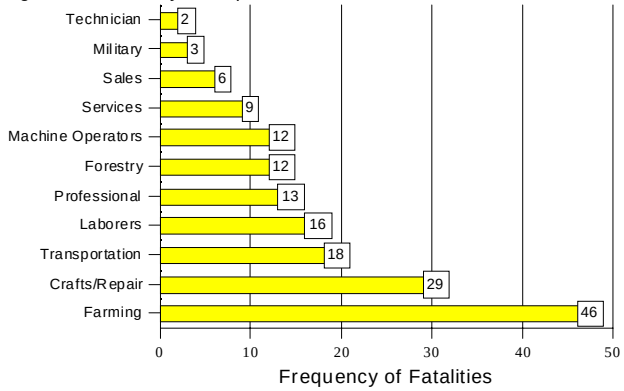
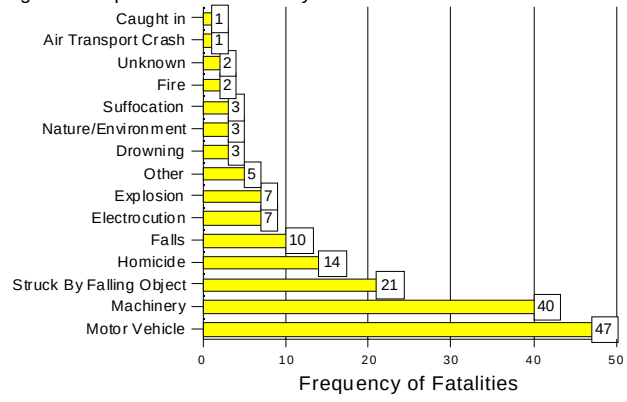


Fig.4. Occupational Fatalities by Cause



Investigators analyzed information from 153 completed death certificates. When available, education, marital status, whether an autopsy was performed, and the "injury at work" response were recorded. Of the 109 which included education information, education ranged from 3 to 17 years; 70 (64%) of the 109 had a high school education or more. Of the 152 with marital status recorded, 70% were married, 14% never married, 12% divorced, and the remaining widowed. Of the 152 with autopsy information, 48% indicated that an autopsy had been performed. Fifteen percent (n=23) erroneously indicated that death was not the result of an injury at work; six were left blank.

When compared to US rates, Kentucky has a higher death rate in seven of nine industry classifications as well as a higher total rate for all workers (see Table 1). Most striking is the rate found in the industry of agriculture/forestry/fishing where there were 80 deaths per 100,000 workers, which is three times higher than the US rate of 26/100,000. FACE data suggest three likely reasons for this. First, bivocational farmers (those who work other jobs in addition to farming) accounted for one-third of the agricultural deaths. Individuals who identify an industry other than agriculture as their primary one might not be included in an agricultural census count. As well, such individuals may be at higher risk due to longer working hours, lack of experience and/or training, and the increased stress that results from time constraints. Second, the median age of the 42 agricultural workers was 60.5, whereas the median age in all other industries was 39, suggesting an older workforce and consequent increased risk (Murphy et al. 1990). Third, investigators found a number of older model tractors with minimally operable brakes. Average tractor age involved in the incidents was 25 years, whereas for the US the average tractor age was 22.8 years (Myers et al. 1993). In 23 tractor rollover cases, the fatalities might have been prevented if the tractors had been fitted with rollover protective structures (ROPS) and seatbelts (Struttmann et al. 1995).

Alternatively, it is possible that some portion of Kentucky's high agricultural fatality rate could be accounted for by differences in case identification and reporting. For example, FACE investigators confirmed an occupational relationship in 23 cases where the death certificates had negative responses to the "injury at work" question. Seventy percent of these were in the agriculture industry. This is higher than found by other researchers in farming (Murphy et al. 1990). Of the 70%, nine held other jobs in addition to farming, three were retired but continued to farm, and four were full-time farmers.

Kentucky's second-highest rate for 1994 was in the construction industry. This rate also exceeded the national. Causes included motor vehicles (n=6), falls (n=6) and electrocutions (n=4). The manufacturing industry rate, nearly double the national rate, was largely due to the inclusion of logging operations, where 12 workers were killed. The transportation, communications and public utilities industries' death rate exceeded the national rate as well; 64% of these resulted from motor vehicle incidents.

This study has a number of limitations. First, resources were not available to complete on-site investigations of all occupational fatalities. Only 38.6% of those identified as electrocutions, falls, machine-related and confined-space deaths were investigated; this represents only 13.3% of all 1994 occupational fatalities. Second, the difficulty of calculating an exposure period in order to determine risk factors, particularly in the agricultural setting where work hours are not clearly defined, limits more definitive conclusions. Third, long-term behaviors, attitudes, and cultural patterns were not addressed in determining causal factors.

With ongoing and systematic collection, analysis, and interpretation of statewide occupational fatality data, researchers and public health practitioners can plan, implement and evaluate public health interventions. FACE investigations go beyond this traditional surveillance system. Using the host, energy agent, and environment model in a time sequence (pre-event, event, post-event), FACE findings not only illuminate who is being killed, by what means and where, but offer specific recommendations for preventing similar types of fatalities.

The effort to reduce Kentucky's high occupational fatality rate can and should involve the medical community. Toward this end, three recommendations are suggested. First, all physicians need to be aware of the high occupational fatality rate in Kentucky and use every opportunity to advocate safe work practices with their patients. Second, primary care physicians should take an occupational history from all patients. Third, physicians should offer prevention information such as a suggestion to install ROPS and seatbelts when an occupational history reveals tractor operation.

REFERENCES available upon request.

*KY FACE is located at the Kentucky Injury Prevention and Research Center (KIPRC) (606-257-4955). KIPRC is a partnership of the Kentucky Department for Public Health and the University of Kentucky, which is located at the UK Chandler Medical Center. Kentucky is one of 14 states participating in the FACE Project, which is funded by the National Institute for Occupational Safety and Health (NIOSH).

KENTUCKY EPIDEMIOLOGIC NOTES & REPORTS
Printed With State Funds
by the
COMMONWEALTH OF KENTUCKY
CABINET FOR HEALTH SERVICES
DEPARTMENT FOR PUBLIC HEALTH
275 EAST MAIN STREET
FRANKFORT, KENTUCKY 40621

Kentucky Epidemiologic Notes and Reports is a free, monthly publication of the Kentucky Department for Public Health. Materials may be reproduced without permission. For more information call 502-564-3418.

In This Issue . . . .

Syphilis (continued from page 1)

Congenital syphilis, the syphilis stage that is passed from an infected mother to her newborn, is also declining. In 1996, 2 babies were diagnosed with congenital syphilis infection compared to 8 in 1993. Congenital syphilis infection in newborns is completely preventable if a woman receives comprehensive prenatal care throughout her pregnancy. Kentucky law requires a syphilis test be done at the time of the diagnosis of pregnancy. Physicians and clinicians should also carefully monitor patients for syphilis infection when there is evidence or concern that the patient is at increased risk of infection. Increased risk should include factors such as having multiple sexual partners and/or having a history of being treated for a sexually transmitted disease. Pregnant females at risk of syphilis infection should have a serologic test for syphilis late in the second trimester or early in the third trimester of pregnancy. Provision of treatment to the infected mother, even late in pregnancy, often is sufficient to prevent the baby from developing disease.

The recommended therapy for syphilis is benzathine penicillin-G, given in a 2.4 million unit single dose for early syphilis infection, and three doses totaling 7.2 million units at one week intervals for late latent disease. The *Treponema pallidum*, causative organism for syphilis, has not become resistant to penicillin. Fortunately, care givers are provided with a reasonably safe, effective and inexpensive means of therapy. Penicillin-allergic patients can be effectively treated with a two- to four-week regimen of doxycycline or tetracycline, depending on the duration of the syphilis infection. The CDC currently recommends, however, that pregnant women infected with syphilis who are allergic to penicillin be desensitized and then treated with penicillin rather than with other antibiotics. The same recommendation is made for patients who are allergic to penicillin who have concomitant syphilis and HIV infections.

Copies of the CDC publication 1993 Sexually Transmitted Disease Treatment Guidelines and additional information about syphilis and other sexually transmitted diseases may be obtained by contacting the Kentucky Sexually Transmitted Disease Control Program, 275 East Main Street, Frankfort, KY 40621 or by calling (502) 564-4804.

Upcoming Teleconferences Available

A Public Health Training Network Satellite Broadcast

Continuing Education Credits are available to professionals.
For more information contact Mary Sanderson, Division of Epidemiology,
phone (502) 564-4478 or fax (502) 564-4553.

Immunization Update 1997
September 11, 1997
Three Broadcasts - 8:00-10:30 AM - 11:00 AM - 1:30 PM - 2:00-4:30 PM EDT

This live interactive program will provide updates on: new vaccines and vaccine combinations; polio vaccine and global polio eradication; rotavirus vaccine; new recommendations from the Advisory Committee on Immunization Practices (ACIP) for measles, hepatitis B, pneumococcal, and influenza vaccines; and why and how to assess the immunization levels in your practice. Each 2.5 hour broadcast will feature a question and answer session in which participants nationwide can interact with the course instructor via toll-free telephones lines.

Target Group: Physicians, nurses, physician assistants, nurse practitioners, pharmacists, medical students, others who give immunizations or established immunization policy.

Hepatitis C:
Diagnosis Clinical Management Prevention
November 22, 1997
Two Broadcasts - 8:00-11:00 AM - 12:00-2:30 PM EST

This course will feature practical information for making patient care decisions and counseling to patients. Course participants will be able to interact with experts from private practice, the CDC, the National Institutes for Health, the University of California at San Francisco, the Veterans Administration Medical Center, and Columbia West Metropolitan Hospital of Framingham, Massachusetts via toll-free phone, FAX, and TTY lines. An additional course on hepatitis B and hepatitis A is planned for next spring.

Target Group: Primary care physicians, infectious disease specialists, staff of blood banks, public health professionals, other health care professionals.

Surveillance of Vaccine-Preventable Disease
December 4, 1997
One Broadcast - 12 Noon-3:30 PM ET

This live, interactive satellite broadcast will provide guidelines for vaccine-preventable disease (VPD) surveillance, case investigation, and outbreak control. The 3.5 hour broadcast will feature a question and answer session in which participants nationwide can address questions to the course instructors on toll free telephone lines. A comprehensive manual for VPD surveillance will be included with the training course.

Target Group: Physicians, infection control practitioners, nurses, epidemiologists, laboratorians, sanitarians, disease reporters, and others who are involved in surveillance and reporting of VPDs.