

# **Railroad-Related Occupational Fatalities, Illinois, 1992-2002**

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## **NARRATIVE**

Many of the nation's largest railroads converge on Chicago, East St. Louis and points in between. Illinois' 7,261 miles of track – more than any other state except Texas – handle more railroad cars than those of any state. Illinois' rail corridors include approximately 8,500 crossings. While these crossing are marked, nearly 3,000 of them lack warning lights and bells.

As automotive traffic at railroad crossing has increased, so, too, have the opportunities for accidents. From 1992-2002, there were 60 fatal occupational incidents involving trains in Illinois. Many were train versus workman while the remainder was train versus automotive vehicle. This report identifies the various data elements related to these occupational fatalities.

## **DATA SOURCE**

All 1992 through 2002 occupational fatalities involving railroad equipment occurring in Illinois were identified through the U.S. Department of Labor, Bureau of Labor Statistics' (BLS) public data set. Illinois data were collected for the BLS administered Census of Fatal Occupational Injuries (CFOI) program by the Illinois Department of Public Health which participates in this federal-state collaboration. The CFOI program uses two or more source documents for data collection to identify and verify a reported fatality as work-related. Source documents include death certificates, coroner/medical examiner reports, worker's compensation claims and police reports among other sources.

For this report, CFOI data were examined, and those related to railroad fatalities were isolated. Where appropriate and when the denominator was known, rates were determined when the denominator was known. Fatality rates are expressed as number of fatalities per 100,000 or 1 million full-time equivalent employees. A full-time equivalent is defined as an individual working 2,000 hours per year (eight hours per day, five days per week and 50 weeks per year).

Denominator numbers for the workforce in Illinois were obtained from Illinois Department of Labor.

### **Case Definition for an Occupational Fatality**

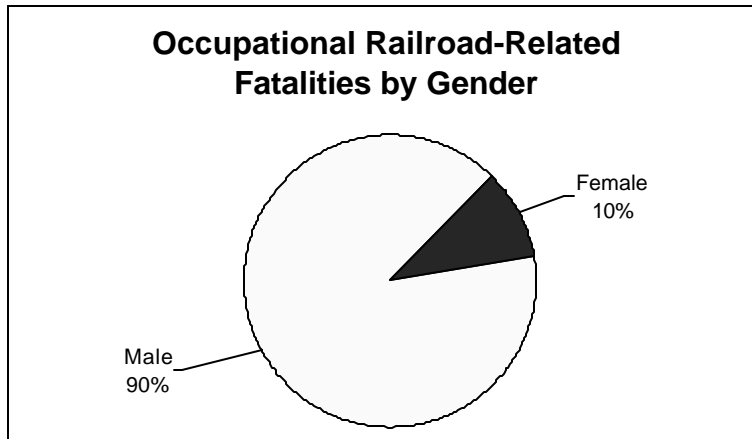
A work relationship must be established for all occupational fatalities, and is defined as an event or exposure resulting in a fatal injury to a person on an employer's premises when the person was there to work; off the employer's premises when the person was there to work; or off the premises but the event or exposure was related to the person's work or status as an employee. Volunteer workers exposed to the same work hazards and performing the same duties or functions as paid employees are included in the case definition. Fatal injuries or illnesses occurring to institutionalized persons employed off the premises of their institutions (e.g., homes for the aged, mentally impaired or needy) are included if the work relationship criterion is met.

### **RESULTS**

Railroad equipment accounted for 60 fatalities (2.4 percent) of the total occupational fatalities in Illinois during the period studied. When individuals or transportation equipment are hit by railroad equipment, the injuries are almost always fatal. Most fatalities between railroad equipment and transportation equipment occur at intersections between roadways and railroad tracks.

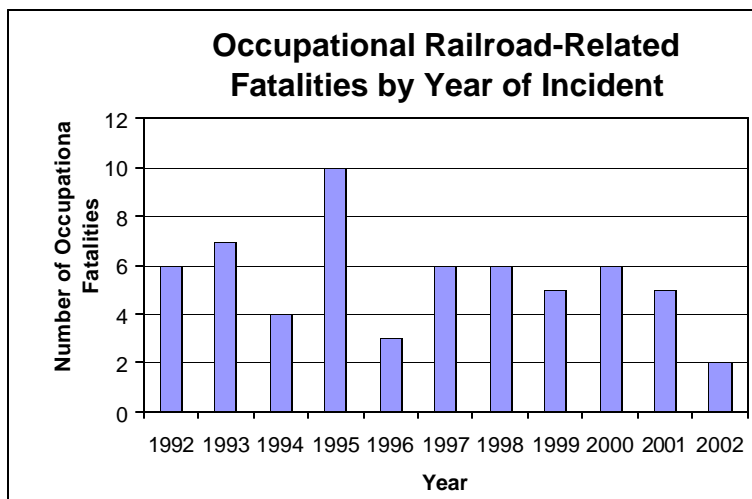
Men suffered almost 90 percent (n=54) of the occupational fatalities while women suffered the remaining 10 percent (n=6) (Figure 1) even though the percentage of men and women in Illinois workforce is 53.5 and 46.5 respectively. During the time period examined, fatalities ranged from less than three in 2002 to 10 in 1995 (Figure 2); the average was 5.5 railroad incidents per year.

**Figure 1.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

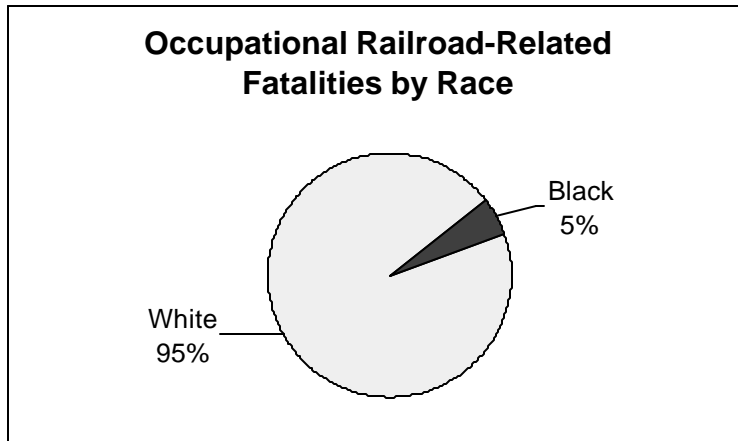
**Figure 2.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

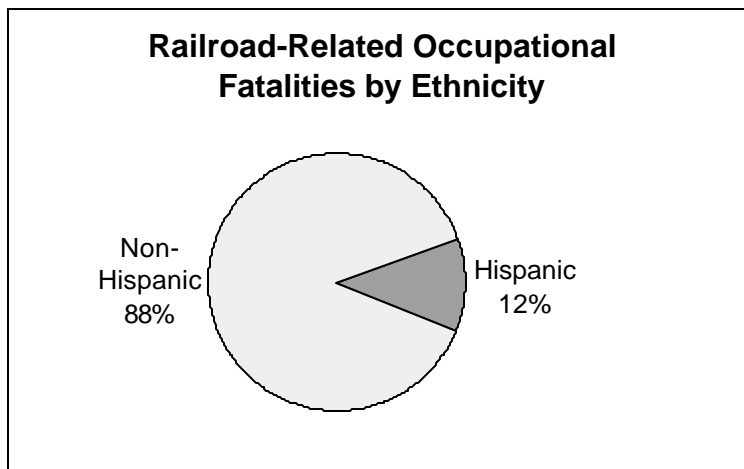
Of the total occupational railroad fatalities in Illinois, 95 percent (n=57) were white. This contrasts with the 78 percent of total Illinois workers who are white (Figure 3). Blacks account for five percent (n=3) of the occupational fatalities, compared to the approximate 12 percent representation in the total workforce. Hispanics make up about 11.1 percent of the Illinois workforce, and they made up 12 percent (n=7) of the railroad-related occupational fatalities (Figure 4).

**Figure 3.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health  
Source: [www.state.il.us/agency/idol/wm/2004/wmbook04.pdf](http://www.state.il.us/agency/idol/wm/2004/wmbook04.pdf)

**Figure 4.**



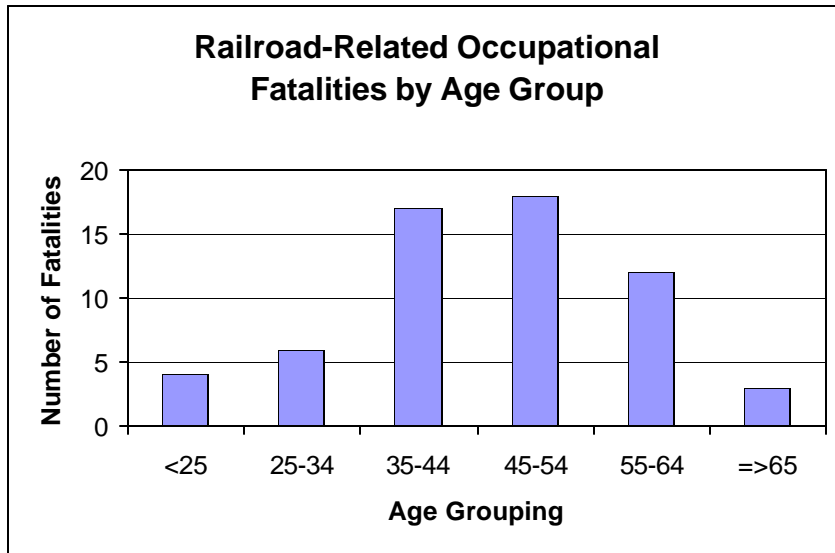
Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

While not always the case, counties with high numbers of railroad crossing and large populations tend to be those with high numbers of fatalities (Figure 5). Cook County, including Chicago, has the state's largest population. It also has 826 railroad-vehicular crossings. During the study period, there were 16 fatalities in Cook County, representing 26.7 of the state's total. On the other hand rural Effingham County has 87 crossings, or 1.1 percent of the Illinois total crossings but had three fatalities. Three fatalities also occurred in Champaign, Will, DuPage and



Occupational railroad fatalities affected all age groups with those aged between 45 and 54 years having the most fatalities (Figure 6). The age range for these fatalities was from 15 years of age to 77 years of age. The average age at death was 46 years.

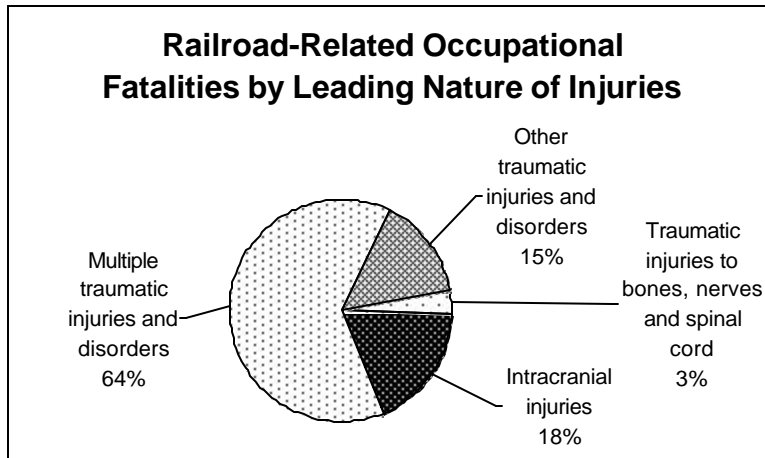
**Figure 6.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

The Bureau of Labor Statistics requires states to codify five elements of the death: nature of the death, body part affected, the source of the injury, event and, if available, the secondary source. The nature of an injury identifies the principal physical characteristics of the fatal injury. During 1992-2002 in Illinois, the leading nature was multiple traumatic injuries and accounts for 63 percent (n=38) of the fatal injuries. Intracranial injuries accounted for 18 percent (n=11) of the fatalities (Figure 7).

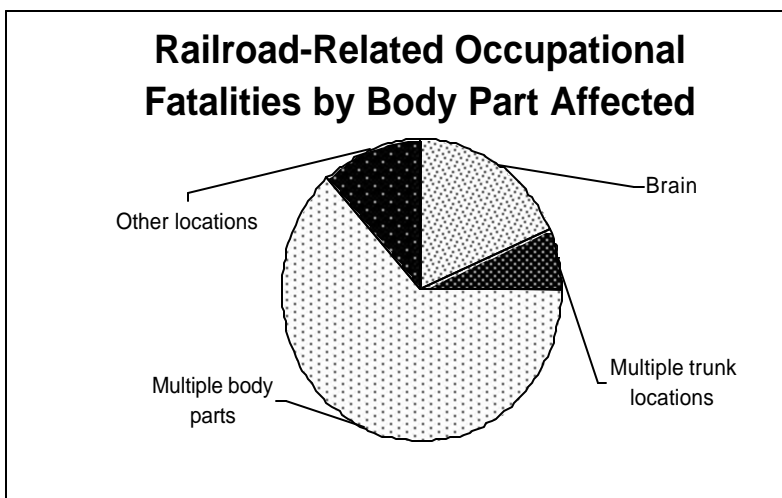
**Figure 7.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

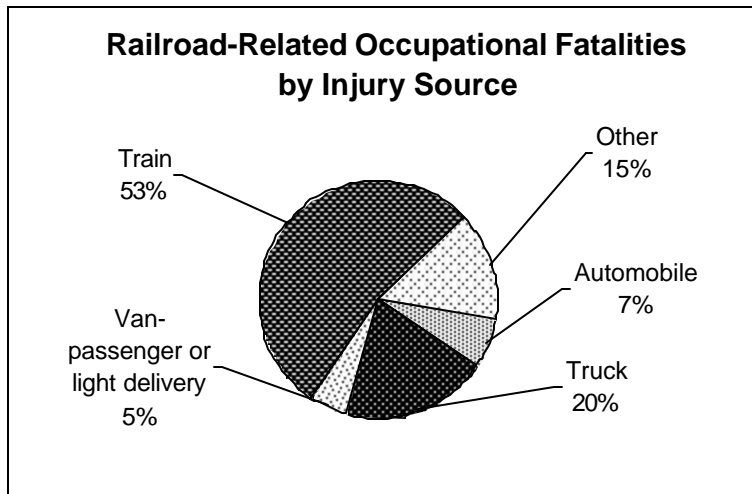
Multiple parts of the body (n=38) and the brain (n=11) were the leading part of the body involved in railroad fatalities, accounting for 63 percent and 18 percent of the fatalities, respectively (Figure 8). Collisions between railroad equipment and other transportation equipment were the leading sources of fatal injuries (Figure 9). No one type of truck was responsible for a majority of the fatalities.

**Figure 8.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

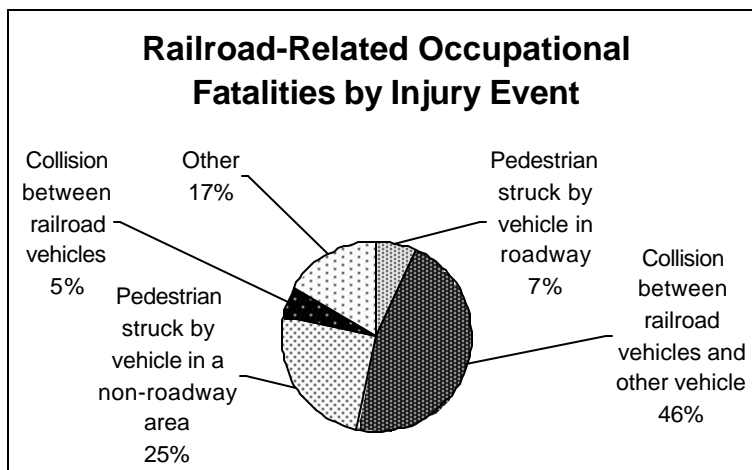
**Figure 9.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

The major cause of occupational fatalities was a collision between railroad equipment and other vehicles with 28 fatalities or 46 percent of the total. Collisions between railroad equipment caused only three fatalities. Some of the fatal events listed under “other” include struck by a falling object; compressed or pinched by rolling, sliding or shifting objects; or fall from a non-moving vehicle (figure 10).

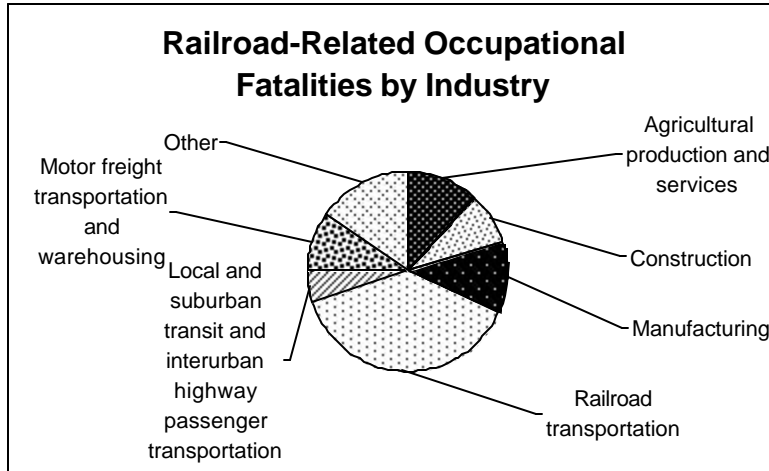
**Figure 10.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

The three leading industries in which railroad fatalities occurred were railroad transportation, agriculture and manufacturing (Figure 11).

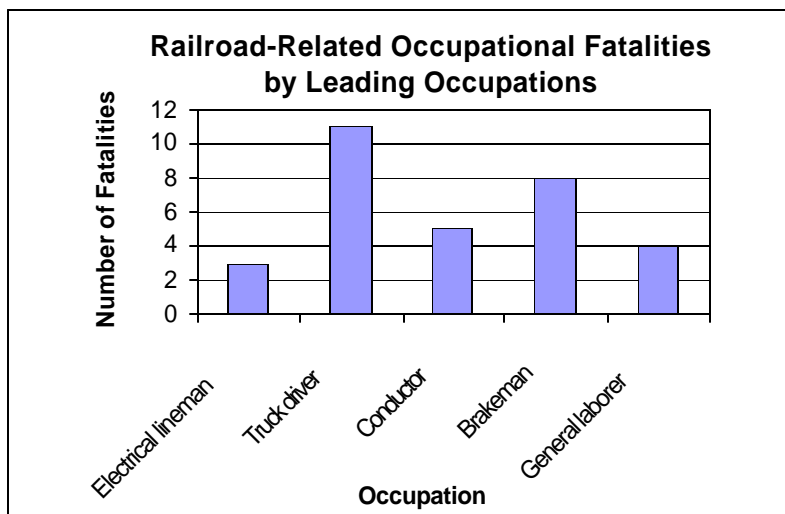
**Figure 11.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

Truck drivers were the leading occupation involved in railroad incidents. Train brakeman were the second leading occupation. Among the 60 fatalities, no other occupation had more than five fatalities in the eleven-year period (figure 12).

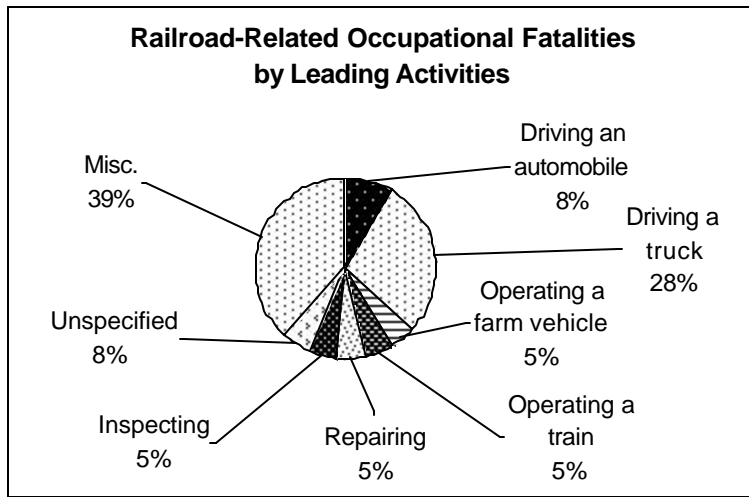
**Figure 12.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

Of the 60 occupational fatalities, 47 percent (n=28) occurred while driving or operating a vehicle or equipment. Driving a truck that collided with a train resulted in the most fatalities (n=17); automobile incidents were a distant second (n=5). Inspecting railroad property, repairing railroad equipment and train operation caused a total of nine deaths (Figure 13).

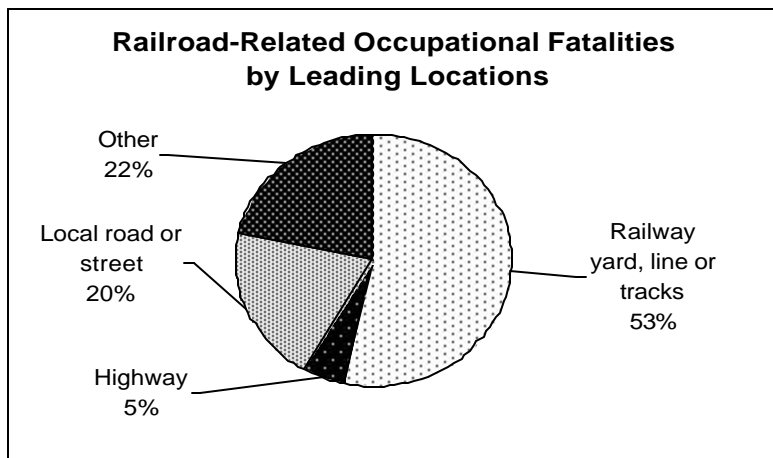
**Figure 13.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

More than half of the railroad incidents happened within railway yards, lines or tracks; 25 percent of the incidents happened at street or highway crossings (Figure 14).

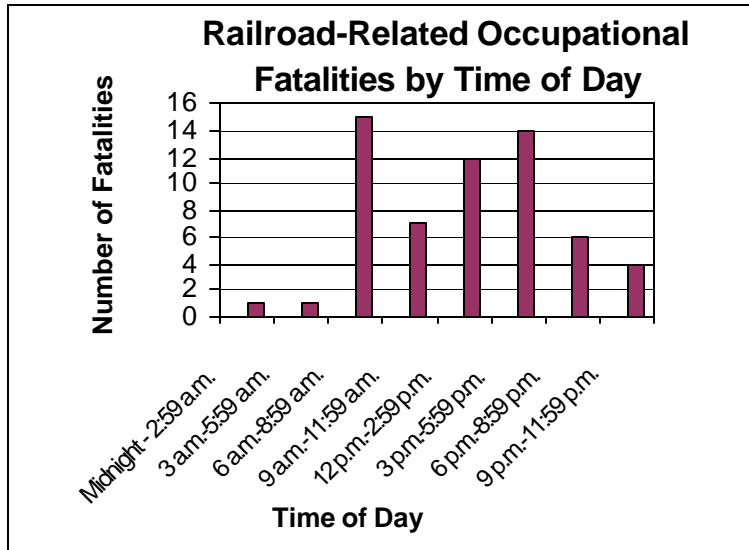
**Figure 14.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

Fifteen deaths occurred between 6 a.m. and 9 a.m., fourteen fatalities occurred between 3 p.m. and 6 p.m. Five of the six females involved in train incidents were killed between the hours of 6 a.m. and 11 a.m. (Figure 15).

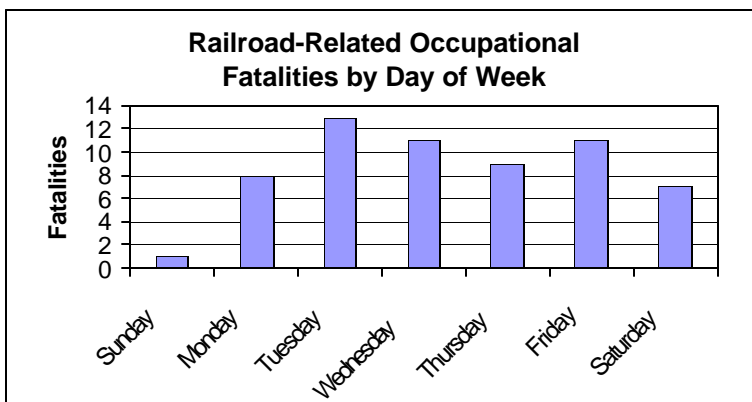
**Figure 15.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

As expected, Sunday had the lowest fatalities. However, no one day of the week could be singled out as having a clear majority of fatalities (Figure 16).

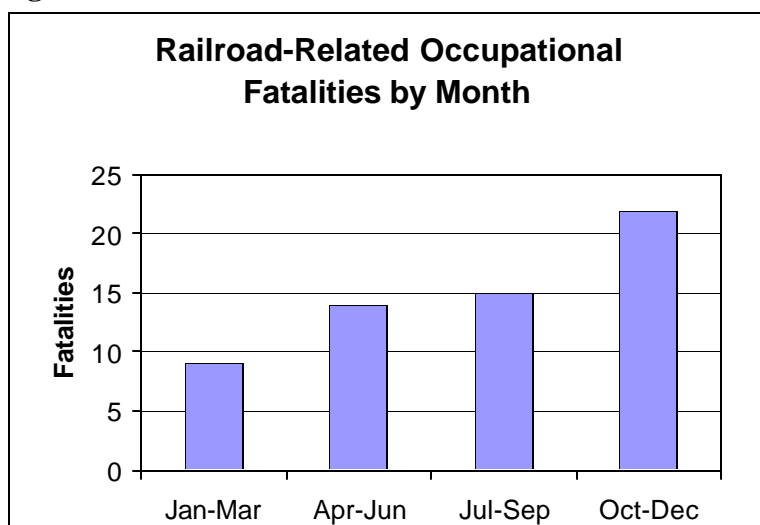
**Figure 16.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

Of the 60 railroad-related fatalities, 62 percent occurred in the second half of the year. The last quarter of the year, October through December, contain 36.7 percent of the fatalities. Fatalities occurring in the last quarter of the year totaled 11 in the railroad industry, three in agriculture and three in manufacturing. Truck drivers had three fatalities in the last quarter; no other occupation had three fatalities (Figure 17).

**Figure 17.**



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, in cooperation with the Illinois Department of Public Health

## CONCLUSION

This study of Illinois occupational fatalities due to railroad incidents shows that white males whose occupation is truck driving have the most fatalities. Other than the railroad industry, the largest industries affected by railroad-related fatalities were agriculture and manufacturing. Collisions between railroad equipment and vehicles cause a majority of the occupational fatalities. The number of railroad crossings in a county and the county's population could generally be used to predict the number of fatal railroad-related occupational fatalities.

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<http://www.state.il.us/agency/idol/wm/2003/ch3.htm>

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