

Occupational Injuries in the Meatpacking Industry, United States, 1976-1981

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Introduction

For the years 1977-1981, the meatpacking industry (Standard Industrial Classification [SIC] 2011) had the third highest injury rate among all U.S. manufacturing industries. Data from the annual survey of the Bureau of Labor Statistics (BLS) indicate that the meatpacking industry, which employed an average of 161,700 workers during that period, had an average incidence rate for all injuries of 31.4/100 workers. This contrasts with an average of 12.2 injuries/100 workers in all manufacturing industries. In the same period, the average rate for lost workday cases in the meatpacking industry was 15.0/100 workers employed. This was also one of the highest among manufacturing industries, where the mean rate for lost workday cases was 5.2/100 workers (1). The meatpacking industry ranked third in a severity index developed from 1977-1981 BLS data by the National Institute for Occupational Safety and Health (NIOSH) (1).

The annual survey of the BLS is based on a randomly selected sample of firms from all industrial classifications. The survey provides national incidence rates of total injuries and illnesses, total lost workday cases, and lost workdays/100 full-time-equivalent employees in these industries. However, it does not provide detailed information on these injuries by occupation or by any other variable.

Because of these rankings, NIOSH undertook an analysis of injuries in the meatpacking industry as a continuation of its investigation of traumatic injuries (2).

Materials and Methods

For this analysis, NIOSH used a second source of data, the Supplementary Data System (SDS) of the BLS (3). The SDS, begun in 1976, is based on workers' compensation cases reported from states voluntarily participating in the program. The number of states participating varies from year to year. Information gathered for each injury includes state, date of injury, age and sex of worker, time of day, duration of employment prior to injury, nature of injury (e.g. cut/laceration, sprain/strain, contusion, abrasion, amputation, etc.), occupation, source of injury (e.g. knives/saws, containers, bodily motion, meat and meat products, etc.), type of injury (e.g. struck by object, lifting object, stationary object, pulling object, overexertion, etc.), and part of body injured. The SDS does not enumerate the total number of persons at risk and, therefore, cannot be used to develop injury rates.

Because SDS data are based on reports from only 33 states and thus result in fewer cases than occur nationally, the entire data base for the years 1976-1981 was used to provide a larger sample population from which to draw trends. A number of tables were prepared using one or two variables at a time. These were examined to see what hypotheses or inferences might be drawn in the absence of rates.

Results

Ten specific occupations accounted for 83% of the injuries in the meatpacking industry, with meatcutters, laborers, material handlers, and miscellaneous operators accounting for 70% (Table 1). The most frequently injured workers were meatcutters (40.8%) and laborers (20.3%).

The largest proportion of injuries involved knives and saws, meat products, and containers (Table 2). Knives and saws were associated with 22.6% of all injuries and meat products with 11.7%. Knives and saws caused 52% of the injuries to meatcutters and 22% to laborers. Sprains and strains, cuts and lacerations, and contusions were the most frequent types of injuries, constituting nearly 75% of all injuries. Sprains and strains were involved in 31.1% of all injuries, while cuts and lacerations made up another 30.5%. Finger injuries accounted for 24%, back injuries for 15.7%, and hand, arm, and wrist injuries for 22.5%.

Discussion

Surveillance is an essential element in the conduct of public health programs, both for determining the extent of the problems and for measuring progress in combating these problems. Unfortunately the occupational injury and illness data systems now available lack both sensitivity and completeness of national coverage. These systems were designed for purposes other than surveillance of occupational health; each system measures a different aspect, covers a different population of workers, and may even have different definitions of recordable injuries or diseases.

For example, the annual survey of the BLS is based on a randomly selected sample of firms from all industrial classifications. It provides national incidence rates of total injuries and illnesses in various industries, total lost workday cases, and lost workdays/100 full-time-equivalent employees in these industries. It does not, however, provide detailed information on injuries by occupation or any other variable. NIOSH uses it to rank industries by rate of injury. The SDS is based on workers' compensation cases reported from 33 states. Since the workers' compensation laws may vary from state to state, the criteria for admission of a report also vary. At one extreme, some states collect information on first reports of injuries, irrespective of the duration of disability or whether the injuries are ultimately adjudicated to be

TABLE 1. Injuries in the meatpacking industry, by occupation, 1976-1981*

| Occupation | Number of injuries | Percentage |
|-----------------------|--------------------|-------------|
| Meat cutter, butcher | 42,758 | 40.8 |
| Laborer | 21,241 | 20.3 |
| Material handler | 4,892 | 4.7 |
| Operator | 4,846 | 4.6 |
| Meat packer | 3,397 | 3.2 |
| Machinist | 2,954 | 2.8 |
| Truck driver | 2,449 | 2.3 |
| Mechanical worker | 1,937 | 1.8 |
| Foreman | 1,635 | 1.6 |
| Janitor | 1,103 | 1.1 |
| Other classifications | 10,870 | 10.4 |
| Not coded | 6,619 | 6.3 |
| Total | 104,701 | 99.9 |

*Adapted from BLS/SDS data; not all 33 SDS states were represented all years.

work-related. At the other extreme, some states require a full week of missed work before the injury incident enters the reports. The latter system would, by excluding short-term disabilities, result in a lower count of injuries.

The SDS provides only the frequency-of-case information: it does not state the total number of persons at risk and, therefore, cannot be used to develop injury rates. Other BLS data systems do state total workers in each SIC code by occupation, but the data presently

TABLE 2. Profile of principal injuries in the meatpacking industry, 1976-1981*

| | Number of injuries | Percentage |
|---|-----------------------|--------------|
| Source of injury | | |
| Knives/saws | 23,654 | 22.6 |
| Meat products | 12,234 | 11.7 |
| Containers | 6,928 | 6.6 |
| Bodily motion | 6,651 | 6.4 |
| Animals/related products (except meat) [†] | 5,637 | 5.4 |
| Other classifications | 45,851 | 43.8 |
| Not coded | 3,746 | 3.6 |
| Total | 104,701 | 100.1 |
| Type of injury | | |
| Struck by object | 25,979 | 24.8 |
| Lifting object | 9,090 | 8.7 |
| Stationary object | 7,398 | 7.1 |
| Pulling object | 5,969 | 5.7 |
| Overexertion | 5,901 | 5.6 |
| Other classifications | 47,630 | 45.5 |
| Not coded | 2,734 | 2.6 |
| Total | 104,701 | 100.0 |
| Nature of injury | | |
| Sprain/strain | 32,525 | 31.1 |
| Cut/laceration | 31,894 | 30.5 |
| Contusion | 12,840 | 12.3 |
| Inflamed joint | 4,979 | 4.8 |
| Fracture | 4,089 | 3.9 |
| Other classifications | 13,927 | 13.3 |
| Not coded | 4,447 | 4.2 |
| Total | 104,701 | 100.1 |
| Part of body injured | | |
| Finger | 25,107 | 24.0 |
| Back | 16,428 | 15.7 |
| Hand (excluding fingers) | 9,167 | 8.8 |
| Arm (elbow, forearm, etc.) | 8,804 | 8.4 |
| Wrist | 5,554 | 5.3 |
| Other classifications | 39,071 | 37.3 |
| Not coded | 570 | 0.5 |
| Total | 104,701 | 100.0 |

*Adapted from BLS/SDS data; not all 33 SDS states were represented all years.

[†]Includes categories: animal, animals, animal products, bones, fur, hair, wool, hides, leather, and animal products not elsewhere classified.

are not available at the finest aggregation level (4-digit SIC), and care is required in interpretation, since different coding systems are used.

For occupational health surveillance, two or more data systems must often be used together, combining information where possible and bridging the gaps where necessary. The present study illustrates the use of BLS Annual Survey data to identify a high injury rate in the meatpacking industry for the years 1977-1981. NIOSH then analyzed SDS data for injuries within the meatpacking industry. Analyses such as these can be used to identify future areas for research. As a result of this analysis, NIOSH is developing recommendations for specific research projects to determine the risk factors for injuries in the meatpacking industry and to develop strategies for controlling them.

References

1. Pezaro A. Critical Review Analysis for Injury Related Research in the Meatpacking Industry (SIC 2011), NIOSH, 1984.
2. CDC. Leading work-related diseases and injuries—United States. *MMWR* 1984;33:213-5.
3. Bureau of Labor Statistics, Supplementary Data System, SIC 2011, U.S.-DOL, 1976, 1977, 1978, 1979, 1980, 1981.