

## THE INCREASING OCCUPATIONAL INJURY RATE IN NURSING HOMES

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This investigation was undertaken to learn more about the kinds of injuries that contributed to the 44 percent increase in the lost-workday case rate for nursing and personal care facilities between 1980 and 1987. Using workers' compensation data from 22 states it was determined that the most apparent reason was an increase in sprain/strain cases. Of all claims from this industry, sprains/strains constituted 59.6 percent in 1980. By 1986 these cases had increased to 67.9 percent. Over half of the sprain/strain injuries involved the worker's back.

### INTRODUCTION

In the United States during 1988, employees working in the industry category "nursing and personal care facilities" experienced 151,000 reportable injuries and illnesses (Personick, 1990). Only five industries had more cases. The large number of cases in the nursing and personal care industry is attributable to a combination of a large number of employees and high injury rates (Personick, 1990).

The most recent published injury rate data from the Bureau of Labor Statistics (BLS) indicate that in 1987 the nursing and personal care industry had an average injury rate of 13.9 injuries per 100 full time equivalent (FTE) employees (BLS, 1989). By comparison, the average for all industries was 8.0 injuries per 100 FTE.

The figures noted above are based on the BLS Annual Survey of employers. The injury rate is one of four industry-specific rates routinely reported by BLS from their Annual Survey (BLS, 1982). The four rates are: 1) injury rate, 2) illness rate, 3) combined injury and illness rate, 4) and lost-workday case rate. Each rate has some utility for monitoring industry-specific trends in occupational injury and illness experience.

From these published rates, other indices may be computed. To see how the rate of one industry is doing compared to that of others, any of these four rates may be used for calculating an index reflecting either a ratio or a difference in the respective rates. For example, to compare injury rates of nursing and personal care facilities with the entire private sector, the ratio of the injury rate for nursing and personal care facilities (IR nursing homes) to the injury rate of all industry combined (IR all industry) may be used. This Ratio of Injury Rates (RIR) is therefore

$$RIR = \frac{IR \text{ nursing homes}}{IR \text{ all industry}} .$$

This ratio provides an indication of how nursing and personal care facilities have been doing relative to other industries; a value greater than 1.0 indicates that the injury rate of the nursing and personal care industry exceeded the average injury rate for all industries during the year.

For the years 1980 through 1987, Table 1 lists the four rates from the Annual Survey data and the RIR. Columns 2 through 6 are rates expressed as cases per 100 FTE. Column 2 gives the injury rate. Between 1980 and 1987 the injury rate for nursing and personal care facilities increased 31 percent (from 10.6 cases to 13.9 cases per 100 FTE). During this same period the injury rate for all private industry remained relatively stable (see column 6).

Column 3 lists the illness rate. Column 4 lists the combined injury and illness rate. In the average year, the combined rate consisted of 98.5 percent injuries and 1.5 percent illnesses.

Column 5 shows the lost-workday case rate. Between 1980 and 1987 the lost-workday case rate increased 43.6 percent.

Column 6 lists the all industry injury rate. It fluctuated between 7.5 and 8.5 cases per 100 FTE. Column 7 shows the RIR as defined above (column 2 divided by column 6). The RIR values increased steadily since 1980 from 1.25 to 1.74. This indicates that the injury rate of the nursing and personal care industry has been getting worse relative to all industry. A similar pattern has been reported for the state of Ohio based on workers' compensation records (Valles-Pankratz, 1989).

Table 1. Yearly trends for injuries and illnesses in nursing homes and other personal care facilities.<sup>(a)</sup>

1	2	3	4	5	6	7
Year	Injury Rate	Illness Rate	Combined Rate	LWC Rate (b)	All Indus. Injury Rate	RIR
1987	13.9	0.3	14.2	7.9	8.0	1.74
1986	13.3	0.2	13.5	7.7	7.7	1.73
1985	13.0	0.3	13.3	7.2	7.7	1.69
1984	11.4	0.2	11.6	6.4	7.8	1.46
1983	10.9	0.1	11.0	6.0	7.5	1.45
1982	9.9	0.2	10.1	5.6	7.6	1.30
1981	10.4	0.1	10.5	5.6	8.1	1.28
1980	10.6	0.1	10.7	5.5	8.5	1.25

(a) Nursing homes and other personal care facilities have 4-digit Standard Industrial Classification (SIC) numbers 8051 and 8059, respectively. Data reported are for the 3-digit SIC 805 which consists of the two 4-digit industry classifications.

(b) LWC Rate is the rate of lost-workday cases per 100 FTE.

The BLS Annual Survey has been designed to provide a representative picture of the annual injury and illness rate for private sector employers with more than ten employees (BLS, 1982). Employers selected for the survey report cases of illness using seven sub-categories. Injuries are reported using only one category even though injuries

constitute 98.5 percent of the cases! Consequently, the contributions of various types of injuries to the increasing trend in injury rate is not explainable from Annual Survey data.

This investigation was undertaken to learn more about the kinds of injuries that contributed to the 31 percent increase in injury rate and the 44 percent increase in lost-workday case rate for nursing and personal care facilities between 1980 and 1987. The best available source of information for this purpose is workers' compensation claim data.

#### METHOD

The Supplementary Data System, or SDS, is a record system maintained by BLS (BLS, 1982; Jensen, 1987). It uses workers' compensation records from states that elect to participate. Each state codes their cases according to a uniform format. The most recent available data are for calendar year 1986. During the years covered by this analysis, 1980-1986, there were 22 states that provided consistent records each year. These states were: Alaska, Arkansas, Arizona, California, Colorado, Delaware, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Missouri, Mississippi, North Carolina, Nebraska, New Mexico, New York, Ohio, Tennessee, Washington, and Wisconsin.

The records of these states were searched for each of the years 1980 through 1986. The search strategy was to select, for each year, all cases in the three digit Standard Industrial Classification (SIC) code 805 (this includes SIC 8051, nursing homes, and SIC 8059, other personal care facilities). A complete description of these SIC codes is provided in a manual (Office of Management and Budget, 1972). Cases selected were from the "current case" files, which means the claim was received or coded by the state agency during the year.

Cases in the SDS records have been coded to indicate, among other descriptors, the part of body affected and the nature of the injury or illness (Jensen, 1987). The cases from the nursing and personal care industry were examined to determine how the cases were distributed with respect to these characteristics.

For each part of body the percentage of all claims in the nursing and personal care industry was determined for each of the years 1980 through 1986. The difference between the 1986 and 1980 percentages was determined for each part of body. These difference values were examined to identify changes in the distribution of claims among body parts that may help explain the increase in injury rates for SIC 805 during the 1980s. A corresponding approach was used for examining the change in distribution of claims according to nature of injury or illness categories.

#### RESULTS

In 1980 the total number of claims reported by the 22 states for the nursing and personal care industry was 26,613. In 1986 the corresponding total was 34,572. The increase of 7,959 claims amounted to a 29.9 percent increase from the 1980 level.

Table 2 shows the percentage of claims by part of body for the years 1980 and 1986. Body part categories with more than one percent of claims in either 1980 or 1986 are listed. The remaining body parts are grouped together in the category "other". The right column shows the change in percentage. The back was the part of body which increased most, from 38.5 percent to 41.2 percent. This increase was not an abrupt jump, the percentage increased gradually between 1980 and 1986. There were also increases in the percentage of claims for shoulder, multiple body parts,

and the trunk. No other part of body increased as much as a half percentage point. The most notable decreases were in the fingers (-1.7%) and "other" body parts (-3.5%).

Table 2. Distribution of claims for nursing and personal care facilities according to the part of body affected.

Body Part	Percentage of Claims		Change in Percentage
	1980	1986	
BACK	38.48	41.16	2.68
SHOULDER	3.57	5.15	1.59
MULTIPLE PARTS	9.30	10.86	1.56
TRUNK (multiple)	1.95	2.90	0.95
NECK	1.50	1.98	0.48
ARM	0.71	1.09	0.38
WRIST	3.80	4.08	0.28
UPPER EXTREMITY	0.93	1.07	0.14
FOOT	2.03	2.05	0.02
KNEE	4.58	4.53	- 0.05
ANKLE	3.07	2.99	- 0.08
HIPS	1.72	1.57	- 0.15
ELBOW	1.18	1.03	- 0.15
FOREARM	1.06	0.75	- 0.31
CHEST	2.15	1.79	- 0.36
ABDOMEN	2.36	1.93	- 0.43
EYE	1.50	0.86	- 0.64
HAND	3.02	2.31	- 0.72
FINGER	6.09	4.37	- 1.72
OTHER PARTS	11.00	7.53	- 3.47
TOTAL	100.00	100.00	0.00

Table 3 shows the change in distribution of claims between 1980 and 1986 according to the nature of the injury or illness. Only those categories with at least one percent of the claims in either 1980 or 1986 are listed; all those less than one percent are combined into the "other" category. The sprain/strain category increased from 59.6 percent to 67.9 percent of all claims in the industry. This rise of 8.3 percentage points far exceeded the change for any other category.

The sprain/strain category constituted about 68 percent of all claims in 1986. This category also contributed most of the increase in claims, changing from 15,849 to 23,469 claims in the years 1980 and 1986, respectively. The total increase in claims for all categories was 7,959 claims; the sprain/strain category alone increased by 7,620 claims. Thus, in comparison to the increase in the sprain/strain injuries, changes in the other categories were minor. This change in the sprain/strain frequency was a 48 percent increase over the 1980 frequency, whereas the industry increase for non-sprain/strain claims was 3.1 percent.

Table 3. Changes in claims for nursing and personal care facilities according to the nature of the injury or illness.

Nature of Injury or Illness	Percentage of Claims		Change in Percentage
	1980	1986	
SPRAIN/STRAIN	59.55	67.88	8.33
MULTIPLE INJURIES	1.98	2.71	0.73
DISLOCATION	1.44	1.87	0.43
FRACTURE	4.26	4.30	0.05
BURN FROM HEAT	2.11	1.15	- 0.96
CUT, LACERATION	5.63	3.16	- 2.47
CONTUSION	10.84	8.14	- 2.69
OTHER (a)	14.20	10.78	- 3.42
TOTAL	100.01 (b)	99.99 (b)	0.00

- (a) The "other" group includes many categories. Among these are the following, with corresponding percentages of the 1986 claims: hernia, 0.55%; abrasion, 0.49%; inflamed joints, 0.48%; dermatologic conditions, 0.47%; concussions, 0.32%; infectious diseases, 0.28%; conjunctivitis and other eye diseases, 0.26%; peripheral nerves, 0.20%; mental disorders, 0.09%; and amputations, 0.08%.
- (b) Totals differ from 100.00 due to rounding.

Since the increase in sprain/strain claims was such an important part of the industry's increase in total claims between 1980 and 1986, the sprain/strain claims were examined further. Of the sprain/strain claims, the back was the part of body most frequently affected (55.6% in 1986). Other body parts with frequent sprain/strain claims, according to the 1986 data, were: multiple body parts, 9.4%; shoulders, 6.5%; lower extremities, 6.3%; upper extremities, 6.0%; and the neck, 2.7%.

The trend for the sprain/strain claims between 1980 and 1986 is plotted in Figure 1. Also shown is the trend for back sprain/strain claims. It can be seen that the proportion of claims coded as sprains/strains followed an increasing trend throughout the period 1980 to 1986. The proportion of claims coded as back sprains/strains also tended to increase, but the rise was not as pronounced as for the more general sprain/strain category. The greatest year-to-year increase occurred between 1984 and 1985.

#### DISCUSSION

An explanation for part of the increasing trend in sprain/strain claims may be a change in the Medicare payment system in 1983. The new system established payment schedules based on diagnosis related groups (Guterman, et al., 1988). During 1984 hospitals began to find that the Medicare payment schedules for some patient groups were inadequate to cover the hospital's cost of care. A portion of these patients were transferred from hospitals to nursing homes. These patients tended to be individuals who were unable to provide any help to the NAs while being moved about for routine care. Some data supporting this hypothesis come from the National Nursing Home Surveys conducted in 1977 and 1985. In 1985 the percentage of nursing home residents who were

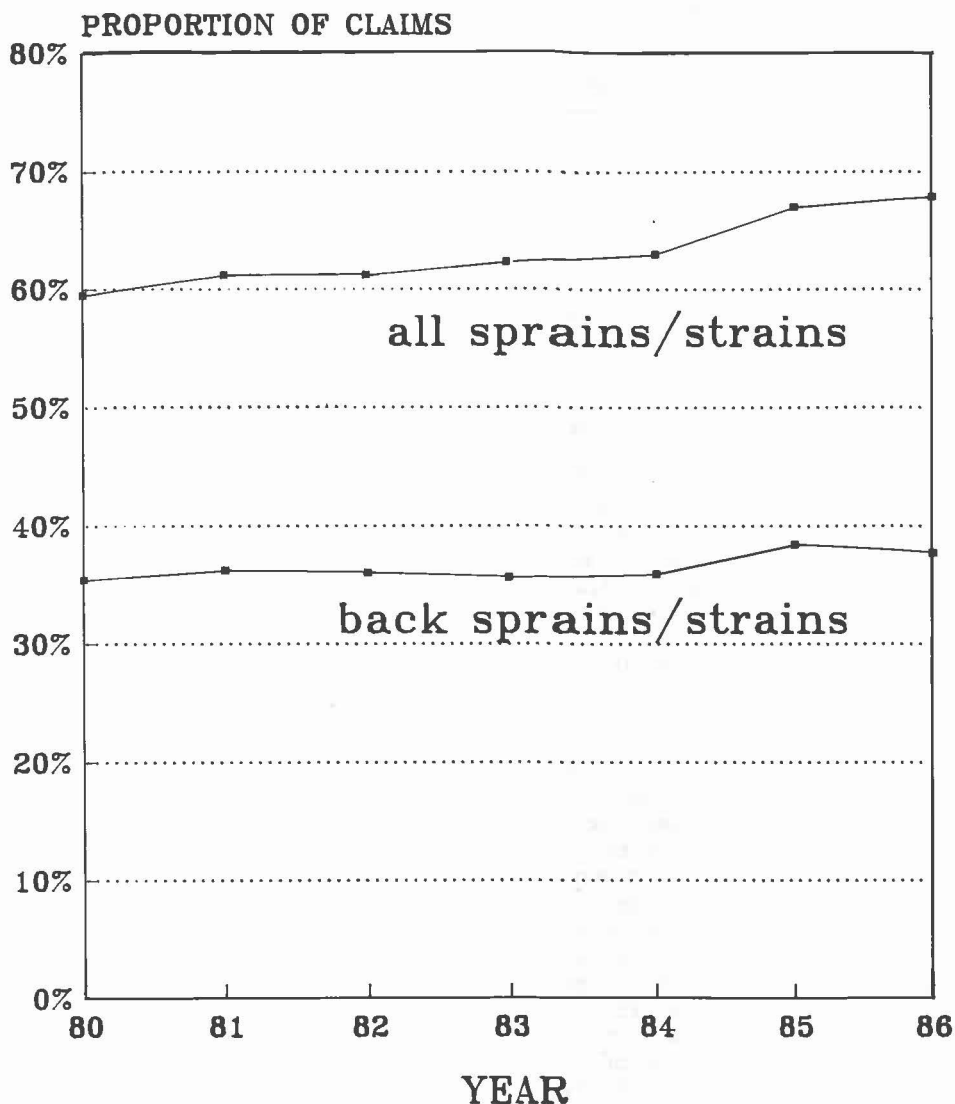


Figure 1. Yearly trend in sprain/strain claims, and back sprain/strain claims, as a percentage of all workers' compensation claims within the nursing and personal care industry in 22 states.

bedfast or chairfast was 46 percent, as contrasted to 38 percent in 1977 (Van Nostrand, et al., 1979, Hing, et al., 1989). Thus, it appears likely that the exposure of NAs to stressful patient-handling tasks increased during the 1980s, especially between 1984 and 1985.

More frequent exposure to stressful patient-handling tasks was recently shown to be associated with increased prevalence of back problems among nursing staff (Jensen, 1990). Thus, the increase in back

sprain/strain claims shown in Figure 1 between 1984 and 1985 may be a result of the influx of more helpless patients into nursing homes. Other factors besides the changed patient-care demands may have contributed to the generally increasing trend in injury rates for nursing and personal care facilities throughout the 1980 to 1986 period. As a next step it would be useful to further explore the possible reasons behind the gradually increasing trends shown in Figure 1.

This paper reports data from two occupational injury and illness information systems--the BLS Annual Survey data and the SDS records. Some discussion of the strengths and weaknesses of each record system is appropriate.

The greatest strength of the Annual Survey is its' utility as a tool for monitoring industry-specific trends in injury and/or illness rate. However; it has some limitations. First, it is limited to employers with more than 10 employees. Thus, the rates from the Annual Survey may not be representative of the rates for small nursing homes. Second, the sample size of the Annual Survey is not large enough to provide accurate rates for the 4-digit industry classification. Consequently, nursing homes (SIC 8051) cannot be differentiated from "other personal care facilities" (SIC 8059). Finally, the survey instrument only asks employers to report incidence of injuries, with no more specific description of the types of injuries. Consequently, the Annual Survey is useful for tracking industry-specific trends, but it provides no clues about the possible reasons for changes in injury rates.

As this investigation illustrates, one strength of the SDS is in supplementing the Annual Survey data. In this role, however, the differences in cases must be kept in mind. The information contained in SDS comes from workers' compensation claim records. The criteria for including a case in the SDS records differ from the criteria for including a case as a "reportable injury" or a "lost-workday case" as defined for the Annual Survey. The states also differ in their respective case-inclusion criteria for workers' compensation claims. Also, not all states participate in SDS. Thus, using the SDS data set to supplement the Annual Survey is not straightforward.

Further discussion of these occupational injury surveillance systems may be found in Coleman (1984), Jensen (1987), and Hanrahan and Moll (1989). As these authors indicate, the SDS data is not ideal, but it is the only occupational injury surveillance system providing information about the injured worker, the circumstances, and the injury.

The Bureau of Labor Statistics has tentatively planned to discontinue the SDS program in the early 1990s. Because of its' value as a supplement to the Annual Survey, it is recommended that the SDS data system be continued. The SDS record system is the only available source of data for estimating the distribution of occupational injuries within an industry (e.g., the percentage of all claims affecting a certain part of body). Such measures may be helpful in assessing changes that occur following the introduction of prevention programs. For example, if a comprehensive set of recommendations were to be developed for back injury prevention programs in the nursing home industry, the percentage of cases involving the back could be used to monitor changes that might take place after disseminating the recommendations.

#### SUMMARY

This investigation was undertaken to learn more about the kinds of injuries that contributed to the 31 percent increase in injury rate and 44 percent increase in lost-workday case rate for nursing and personal care facilities between 1980 and 1987. Since the BLS Annual Survey



provided no information on the types of injuries, it was necessary to examine another source of data. Workers' Compensation claim data in the SDS records were examined for 22 states which participated in SDS between 1980 and 1986.

The part of body most frequently affected was the back. Back cases constituted 38.5 percent of all claims in 1980. This percentage increased to 41.2 percent by 1986.

The most frequent nature of injury was the sprain/strain category. These cases constituted 59.6 percent of all claims in 1980, increasing to 67.9 percent by 1986. Over half of the sprain/strain claims had the back as the part of body.

The total claims reported by the 22 states for nursing and personal care facilities increased by 7,959 between 1980 and 1986. Sprain/strain cases alone increased by 7,620 claims during this period. Thus, it appears that a major contribution to the increase in compensation claims is the increase in sprain/strain claims.

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