

Proportion of Workers' Compensation Expenditures for  
Cumulative Trauma Disorders in the Meat Products Industries

Roger C. Jensen and Thomas G. Bobick

National Institute for Occupational Safety and Health  
Division of Safety Research  
944 Chestnut Ridge Road  
Morgantown, West Virginia 26505-2888, USA

Expenditures by the meat processing industries for cumulative trauma compensation claims were examined for one year using data from three U.S. states. Results indicated that 19.6 percent of workers' compensation expenditures were for cumulative trauma claims. The wrist was the affected part of body in 62 percent of the cumulative trauma cases.

INTRODUCTION

Meat processing industries in the United States have been reporting the highest injury and illness rate of any manufacturing industry, according to a recent report (Personick and Taylor-Shirley, 1989). The most frequent injuries are sprains/strains, lacerations, and contusions (Conroy, 1989). Of the occupational illnesses, the main category is the repeated trauma category.<sup>1</sup> The meat product manufacturing industry rate for repeated trauma increased from 167 to 469 per 10,000 employees between 1979 and 1988 (Bureau of Labor Statistics, 1990). By comparison, the rate of repeated trauma for all manufacturing industries in 1986 was 55 per 10,000 (Bureau of Labor Statistics, 1990).

During the late 1980s, the media started drawing public attention to the conditions in meat processing plants. A major focus of this attention has been cumulative trauma disorders (CTDs). The CTD problem, however, has been plaguing the industry for many years. For example, an assessment of workers' compensation data for the year 1979 revealed that the meat product manufacturing industry had the largest number of compensation claims for motion-related wrist disorders of any manufacturing industry (Jensen, Klein, and Sanderson, 1983). In the same paper, occupation-specific rates of compensation claims for motion-related wrist disorders were reported. The occupation "meatcutters and butchers in manufacturing" had the largest rate, a rate

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<sup>1</sup> Repeated trauma includes illnesses resulting from repeated motion, repeated pressure, vibration exposure, or noise exposure.

that was three times greater than the occupation with the second largest rate (Jensen, et al., 1983).

In the late 1980s, a number of meat processing plants were assessed major fines by the Occupational Safety and Health Administration (OSHA) for high rates of CTD cases, recordkeeping violations, and a failure to have meaningful ergonomic programs.

Recently, a number of red meat processing companies embarked upon a joint program with OSHA and the National Institute for Occupational Safety and Health (NIOSH) to develop model health, safety, and ergonomics programs for the industry. During the early stages of this undertaking, it became apparent that having some data on the cost of CTDs to the meat products industries could prove useful for drawing attention to the problem. No source of multi-employer data was found on the total cost of CTDs (direct and indirect expenditures) in the meat products industries. However, a source was identified with information on the expenditures for workers' compensation claims, the Supplementary Data System (SDS), a federal-state cooperative record system maintained by the U.S. Bureau of Labor Statistics based on workers' compensation data (Jensen, 1987). This investigation was undertaken to determine the proportion of workers' compensation expenditures for CTD cases within the meat product manufacturing industries.

#### METHODS

A search was conducted of SDS records for the year 1985. Included in the search were claims from workers employed in the meat products manufacturing industries -- Standard Industrial Classification (SIC) code 201 (Office of Management and Budget, 1972). This 3-digit SIC code includes employment establishments engaged primarily in one or more of the following production operations: Slaughtering and processing for sale cattle, hogs, sheep, lambs, or calves (SIC 2011); manufacturing sausages, cured meats, smoked meats, canned meats, frozen meats, and other prepared meats from purchased carcasses (SIC 2013); slaughtering and dressing poultry, rabbits, and small game (SIC 2016); and preparation of processed poultry products from purchased carcasses, or drying, freezing, or breaking of eggs (SIC 2017).

The search included the only three states that provided cost data for cases closed in the year 1985: Arkansas, North Carolina, and Oregon. Meat product industry records from these three states were searched to determine total expenditures for wage indemnification plus payments for medical care.

Total expenditures were also determined for a subset of these cases coded to suggest CTD. This was accomplished using a search strategy that selected cases coded to indicate the nature of the injury/illness was either;

code 230	hearing loss or impairment,
code 260	inflammation of joints as a result of repetitive activity, or
code 562	diseases of the nerves and peripheral ganglia, including carpal tunnel syndrome,

and the type of event/exposure most directly linked to the condition was one of the following:

code 083 rubbed or abraded by vibrating objects,  
 code 085 rubbed or abraded by repetition of pressure,  
 code 100 bodily reaction,  
 code 120 overexertion involving unspecified activity,  
 code 121 overexertion in lifting objects,  
 code 122 overexertion in pulling or pushing objects,  
 code 123 overexertion in holding, wielding, throwing, or carrying objects, or  
 code 129 overexertion not elsewhere classified, or  
 code 405 exposure to repeated noise.

## RESULTS

No cases were found in the meat products industries of hearing loss or impairment due to repeated noise exposure. Also, all cases coded as diseases of the nerves and peripheral ganglia involved the upper or lower extremities.

Results are summarized in Table 1. In the three states, there were 177 CTD cases out of 1,209 total cases, i.e., 14.6 percent. The percentage of total expenditures for CTD claims was very similar for Arkansas (21.3%) and Oregon (22.0%). Expenditures for CTD claims in North Carolina showed a much lower percentage (4.3%). The combined expenditure data shown in the last row of Table 1 indicate that CTD cases accounted for 19.6 percent of total expenditures for workers' compensation in the meat products industries.

Table 1. Frequency and expenditures for CTD and all compensation claims by state

State	Number Closed Cases		Expenditures(\$)		CTD Cost Percentage
	CTD	All	CTD	All	
Arkansas	122	637	791,410	3,718,634	21.3%
Oregon	47	248	254,020	1,157,098	22.0%
North Carolina	8	324	24,694	576,189	4.3%
Combined	177	1,209	1,070,124	5,451,921	19.6%

In the CTD subset of cases, the wrist was the part of body most frequently affected in all three states (Arkansas, 65%; North Carolina, 40%; and Oregon, 60%). For all three states combined, the wrist accounted for 62 percent of the CTD claims.

## DISCUSSION

The percentages reported reflect the search strategy used to select claims. The three nature of injury/illness

categories were clearly appropriate for selecting CTD cases. The type of event/exposure categories are more problematic for this application. State differences in coding appeared-- Oregon was the only state that made frequent use of the "bodily reaction" category for CTD claims involving the wrist. Of the CTD claims, Oregon coded 72.3 percent in the "bodily reaction" category; whereas, North Carolina had no cases in this category and Arkansas had only 3.2 percent.

A major group of claims not included in the CTD subset were those for which the nature of the condition was coded as a sprain or strain. The reason sprains and strains were not considered CTDs is that these injuries are typically the result of a single event rather than a prolonged exposure. With the information in the SDS data system, it is not possible to explore the possibility that some sprains and strains may have occurred after prolonged use of a muscle group which made the muscles and tendons more vulnerable to damage when stressed. Thus, the reported 19.6 percent of cost in the meat products industry being used to pay for CTD claims is probably an underestimate.

The expenditures for cases coded as sprains or strains contributed 24.8 percent of the total for the meat product industry in these three states. By combining the costs for these cases with those for CTD cases, it can be estimated that 44.4 percent of expenditures in meat products industries in these three states were for musculoskeletal disorders (i.e., sprained muscles, strained ligaments, inflamed joints, and peripheral nerve disorders caused by human activity).

These findings may be useful in two ways. First, meat products companies may compare their experiences with other companies in the same industry to help assess the relative effectiveness of their CTD prevention program. Second, the percentage of expenditures for CTD cases could be useful as a metric for monitoring trends in the industry. If the industry-OSHA-NIOSH joint undertaking has an impact, there should be a gradual decline in this metric.

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# ADVANCES IN INDUSTRIAL ERGONOMICS AND SAFETY III

Proceedings of the Annual International  
Industrial Ergonomics and Safety Conference  
held in Lake Tahoe, Nevada, 10-14 June 1991

The Official Conference of the International Foundation  
for Industrial Ergonomics and Safety Research

*Edited by*

**Waldemar KARWOWSKI**

*Center for Industrial Ergonomics  
University of Louisville  
Louisville, Kentucky 40292, U.S.A.*

and

**James W. YATES**

*Exercise Physiology Laboratory  
University of Louisville  
Louisville, Kentucky 40292, U.S.A.*



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**British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library.

ISBN 074840 006 0

**Library of Congress Cataloging-in-Publication Data  
is available**