

Livestock Handling Injuries in the United States

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Abstract

Studies have demonstrated that nonfatal injury rates are elevated on farms with animals, especially beef and dairy farms. Additionally, in the U.S. livestock-related injuries account for the highest rate of lost work days. Few studies have addressed specifically animal-related injuries on farms. The objectives of this study were to analyze U.S. workers' compensation data to determine the costs, consequences and contributing factors associated with livestock-handling injuries. Methods: Workers' compensation injury claims data from the State of Colorado in the United States were used to analyze livestock-handling injuries. A ten-year (1997-2006) claim history was used for analysis. Results: A total of 1,114 livestock-handling claims were analyzed. Riding horseback, sorting/penning cattle and livestock-handling equipment represented higher proportions of livestock-handling injuries among cattle/livestock raisers and cattle dealers. Among dairy farms, 31.1% were caused by livestock. Among all injury causes that were classified as high cost (\$5,000 USD), livestock -handling injuries represented the highest proportion in all three sectors. Livestock-handling injuries also represented the highest percentage of high severity injury claims. Milking parlor tasks represented nearly 50% of injuries among dairy workers. More specifically, 21% involved the worker being kicked while performing a milking task and 10% involved the worker attaching a milking unit to a cow's udder when he/she was kicked. In addition, 8% of claims indicated the worker was stepped on while performing a milking task.

Keywords: livestock handling, dairy, injury costs

Introduction

Because of the increasing mechanization of farms over the past half century, and the high fatality rate associated with injuries due to machinery and tractors (Cole et al., 2006; Carlson et al., 2005; Bernhart and Langley, 1999; Lee et al., 1996; Etherton et al., 1991; Hopkins, 1989; McKnight and Hetzel, 1985), most studies of agricultural injuries have focused on those related to interactions with machinery or tractors. Animal-related injuries are also an important occupational hazard in agriculture. Animals may bite, kick, scratch, trample, crush, gore, buck or throw, or drag the livestock-handler. Studies demonstrated non-fatal injury rates are elevated on operations with livestock, especially beef and dairy cattle (Nordstrom et al., 1995; Zhou and Roseman, 1994; Brison and Pickett, 1992; Pratt et al., 1992). Researchers have reported that up to 33% of injuries on the farm are caused by animals (Sprince et al., 2003; Lewis et al., 1998; Layde et al., 1995; Nordstrom et al., 1995; Pickett et al., 1995; Zhou and Roseman, 1994; Brison and Pickett, 1992; Pratt et al., 1992; Myers, 1990; Hoskin et al., 1988) and livestock-related injuries account for the highest rate of lost work days (Thu et al.,

1997). The purpose of this study was to determine the costs, consequences and contributing factors associated with workers' compensation (WC) livestock-handling injury claims among dairy farm, cattle/livestock, and cattle dealer workers in the U.S. State of Colorado.

Methods

Colorado's largest WC insurer, provided the data used in this study. Colorado statute requires any business with one or more employees to maintain a policy of workers' compensation insurance. According to the Colorado Workers' Compensation Act, injured workers must make a written report to the employer within four days of the injury event. Within the next 10 days the employer must submit a First Report of Injury to the WC provider. According to the 2002 Census of Agriculture (NASS, 2002), there were 31,369 farms in Colorado.

Workers' compensation benefits include payment for medical expenses, wage-replacement, permanent impairment or disfigurement, and death benefits. Medical benefits include payment for all expenses associated with physician visits, hospital treatments, rehabilitation, diagnostic testing, and prescription medications. Wage-replacement benefits (indemnity) include payment for lost wages, up to two-thirds of the injured worker's normal hourly wage earnings. An injured worker is eligible for indemnity benefits after three lost days of work due to injury.

A ten-year claim history of injuries occurring from the period January 1, 1997 through December 31, 2006 was analyzed. All 12-month policies were included in the dataset, including those that did and did not have reported injuries. All injury claims were closed. Claims data represented Colorado dairy farm, cattle dealer, and cattle/livestock raising occupations. The claim dataset included details concerning each injury: the nature of injury; body part(s) affected; source of injury; cause of injury; demographic characteristics of the employee (age, gender, work experience); policy holder payroll; risk classification code; medical expense; indemnity paid (if any); days of paid indemnity; and a narrative description of the injury event. Claims data were taken from the First Report of Injury for each injury claim. The First Report of Injury may be completed by the injured worker or by the foreman, supervisor, or business owner.

Agricultural work was defined in the study as agricultural production, including crops, livestock, and animal specialties, and agricultural services. A livestock-handling injury claim was defined as any unintentional work-related injury resulting from the performance of any livestock-handling related job task. Only claims accepted by the WC provider were analyzed. Injury severity was based on data provided for each injury claim; therefore no minimum level of injury severity was required for inclusion in the analysis.

Results

A total of 4,421 injury claims, representing 8,493 12-month policies were included in this study. The data set included 605 dairy farm policies, 7,083 cattle/livestock raiser policies and 805 cattle dealer policies in the 10-year sample period. The 2002 U.S. Census of Agriculture was referenced to provide an indication of the number of farms represented in the three class codes. According to the 2002 Census of Agriculture, 130 dairy farm, 306 cattle feedlot, and 2,386 beef cattle farm operators reported hired labor expense (NASS, 2002). The injury claim dataset included 67 dairy farm, 149 cattle dealer, and 730 cattle raising operation distinct policies for the same year.

The number of claims included 988 from dairy farms, 2,168 from cattle/livestock raisers, and 1,265 from cattle dealers. A total of 1,114 livestock handling claims were identified. Average annual claim incidence rates (injury claims per 100 workers) were highest for cattle

dealers (10.3), followed by dairy farms (9.4) and cattle/livestock raisers (8.4). Livestock-handling claim rates were highest among all injury causes in all three sectors (2.9 for dairy farms, 2.7 for cattle dealers, and 1.8 for cattle/livestock raisers).

Livestock-Handling Injury Characteristics

Livestock was responsible for the highest percentage of claims in all sectors. Of total claims among dairy farms, 31.1% were caused by livestock. Livestock was responsible for 21.7 % and 26.6% of claims among cattle/livestock raisers and cattle dealers respectively. Falls or slips and strains represented the second and third highest proportion of injury causes among all three sectors. Contusions and injuries to the wrist, hand and fingers represented the highest percentages of injuries in all three sectors.

The average age of livestock-handling injury claimants among dairy farm workers was 32.2 years (range 18 to 67 years), and the average employment duration at the time of injury claim was 2.4 years. The majority of livestock-handling claims were made by males (88%), and by employees on farms employing 11 or more workers (87%). Ninety-eight percent of total dairy employment was represented by farms that employed 11 or more full-time equivalents. Workers between 25 and 34 years of age were 29% more likely to report a livestock-handling injury claim than all other injuries, and workers between 45 and 54 years of age were 58% less likely to report a livestock-handling claim than all other injuries.

The average age of livestock-handling claims among cattle/livestock raisers was 36.3 years (range 17 to 77 years), and the average employment duration at the time of injury claim was 2.5 years (range 0 months to 40.9 years). Female workers reported 44% more livestock-handling injury claims than all other injury causes. Workers between 25 and 34 years of age were 29% more likely to report a livestock-handling injury claim than all other injuries, and workers between 55 and 64 years of age were 45% less likely to report a livestock-handling claim than all other injuries.

The average age of livestock-handling injury claims among cattle dealers was 38.6 years (range 16 to 78 years), and the average employment duration at the time of injury claim was 3.4 years (range 0 months to 61.9 years). The majority of livestock-handling claims were made by males (92%), and by employees on farms employing 11 or more employees (67%). Ninety-six percent of cattle dealer total employment was represented by farms that employed 11 or more full-time equivalents. Workers employed by small operations reported 39% more livestock-handling claims than all other injury causes.

Claim Cost and Severity

One measure of injury severity is if the injury claim involved paid lost time (indemnity). Approximately 85% of dairy farm injury claims involved medical expenses only, while 71% and 75% of injury claims involved medical expenses only among cattle/livestock raisers and cattle dealers, respectively. Cattle/livestock raisers had the highest median paid days off work, followed by cattle dealers and dairy farm workers. On a per claim basis, median medical and indemnity costs per injury were lowest for dairy farm workers, and highest for cattle/livestock raisers. Median total (medical plus indemnity) cost per injury was lowest for dairy farm workers, and highest for cattle/livestock raisers.

Injuries were stratified by total cost (<\$5,000 USD versus \geq \$5,000 USD) and injury cause. Among all injury causes that were classified as high cost (\geq \$5,000 USD), livestock-handling injuries represented the highest proportion in all three sectors. Nearly 30% of dairy farm high cost injuries were livestock-handling related, while 23.7% and 27.3% injury claims were related to livestock-handling among cattle/livestock raisers and cattle dealers, respectively.

Injuries were also stratified by severity (<28 days of paid disability versus ≥28 days of paid disability), and injury cause. Livestock-handling injuries represented the highest percentage of high severity injury claims in all three sectors.

Contributing Factors

Narrative injury event descriptions were analyzed to further understand additional factors contributing to livestock-handling injuries. Of the 307 total livestock-handling injury claims among dairy farm workers, all event descriptions contained at least one identifiable factor. On average, event descriptions contained 3.2 contributing factors. Forty-eight percent of livestock-handling claims involved a milking task. More specifically, 21.2% of claims involved the worker being kicked while performing a milking task and 10.1% of claims involved the claimant being kicked while attaching a milking unit. In addition, 8.1% of claims involved the worker being stepped on while performing a milking task.

Thirty-eight percent of the claims among cattle/livestock raisers involved the worker riding a horse. Numerous work tasks were identified at the time of injury such as branding, ear tagging, horse training, calf birthing, hoof trimming, and vaccinating. More than 50% of descriptions mentioned a horse being responsible for worker injury. Nearly 20% of descriptions indicated the worker was injured when he/she was bucked or thrown off a horse and 15% of the event descriptions mentioned the worker was injured when the horse they were riding fell.

Twenty-seven percent of claims among cattle dealers involved horseback riding. Twelve percent of claims involved sorting/pinning cattle while on horseback. Nearly 12% of claims involved the worker being bucked or thrown off a horse. Pushing cattle, vaccinating, loading cattle into a trailer, processing cattle, birthing, and trimming hooves were among the more frequently mentioned job tasks. Nearly 38% of claims indicated a cow or calf was responsible for the worker's injury. Livestock-handling claims indicated various cow actions led to worker injury such as the cow kicked, stepped on, pushed, charged, or had run over the worker. Nearly 17% of claims mentioned a corral gate being involved in the injury event, and 9% of claims involved a cow kicking a gate into the worker. Five percent of claims involved a cow chute.

Conclusions

These data from one U.S. state WC provider provide unique descriptive information specific to dairy farms, cattle/livestock raisers, and cattle dealers in the state of Colorado that would not be found in national injury databases. Workers' compensation data has been used for analysis of work-related injuries and illnesses in previous studies (Doughrate et al., 2006; Hofmann et al., 2006; Villarejo, 1998; Cooper and Rothstein, 1995). Unlike previous studies of WC claims among agricultural workers, the present analysis focused on livestock-handling operations. This focus allowed for the investigation of workplace hazards that were specific to the livestock industry which may differ from the risk factors in other agricultural operations. The present study is the first to utilize WC data to specifically investigate agricultural livestock-handling injuries.

Nearly 50% of dairy farm livestock-handling injuries took place in the milking parlor. More focused research should investigate milking practices and parlor designs as they relate to worker safety and health. Additional dairy-related injury research is vital given the trend towards large industrial milking operations. Large-herd and “mega-herd” dairy operations will present new and challenging opportunities for developing effective safety interventions. Among cattle/livestock raisers and cattle dealers, livestock-handling injury prevention efforts

should be directed at livestock-handling facility and equipment design. Livestock equipment and facilities should be designed to minimize worker exposures to livestock. All workers in agriculture who handle livestock should be knowledgeable of livestock-behavior and proper handling techniques. The present study determined that livestock-handling work injuries are a significant problem, more costly, and result in more time off work than other agricultural injury causes. Increased attention should be focused on livestock-handling injuries via continued research and safety intervention development.

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