RESEARCH IN PROGRESS

Characteristics and Risk Factors of Non-Fatal Farm Operator Injuries:
Non-Fatal Agriculture Injury Surveillance in the Central States Region

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Purpose/Objective:
Systematic non-fatal injury surveillance data on person- and farm-level attributes is vital for guiding prevention strategies. Since there is no existing data source providing this information, the NIOSH-funded Central States Center for Agricultural Safety and Health with the National Agriculture Statistics Service (NASS) conducts non-fatal agriculture injury surveillance in the seven Central States (IA, KS, MN, MO, NE, ND, and SD) since 2012. This study will characterize the non-fatal injuries and identify factors associated with non-fatal injuries among farm operators in the Central States region using the 2012 and 2013 surveillance data.

Methods/Efforts:
In 2012 and 2013, NASS conducted a cross-sectional, self-administered mail survey to collect data on non-fatal injuries in the previous calendar year. The survey used a disproportionate stratified random sample of farms/ranches who responded to the 2007 US Census of Agriculture from each state. A total of 13865 surveys (6953 in 2012) and (6912 in 2013) were sent out with overall response rate of 33.8% (33.1% and 34.6%). The survey included questions on operator demographics, location and cause of injury, body part injured, lost work time, and cost. Individual responses were linked to farm-level attributes such as farm size, gross sales, commodities produced, and type of tractors from the 2007 agriculture census data. We estimated injury incidence by individual and farm attributes, body part injured, and location and cause of injury. Univariate and multivariate logistic regressions were be used to evaluate factors associated with non-fatal injuries.

Results/Findings:
Farm operator respondents were mainly males (81%) and spent more than 50% of their time on farm (48%). There were total 374 injuries with cumulative injury incidence of 6.1 per 100 farm operators. Fifty nine percent needed doctor visit and 11% required hospitalization. Most serious injuries occurred while working in farm yard (37%) and field/pasture (34%). Most common cause of injury was exposures to livestock (29%), and machinery (12%). Frequently injured body parts were leg/knee/hip (19%), back (17%), and arm/shoulder (16%). Univariable analysis of the 2012 data showed significant associations (p<0.03) for injuries with time spent working on farm, farm size, cattle and calves farming, hay and forage, and tractors ≥100 horsepower; and the risk of back injuries was higher in operators <55 vs. ≥55 years old (OR=1.9, 95% CI: 1.0–3.7); lower in those who spent <50% of their time working on farm vs. ≥50% time on farm (OR=0.3, 95% CI: 0.1–0.6).

Application to Field Research:
The cumulative incidence of non-fatal farm operator injuries in our study region was higher than the 2011 Bureau Labor Statistics non-fatal injury rate estimates in hired farm-workers (6.1 vs 5.5). Our findings suggest influence of operator and work environment on occurrence of farm injuries. The study findings will provide comprehensive information on cause, location, body parts injured, cost of injury and influence of changing farm demographics on non-fatal injuries in the Central States region. These details are imperative to identify emerging problems, priority areas for interventions and monitoring trends.