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Surveillance of Agriculture, Forestry, and Fishing Injury, Illness, and Economic Impacts

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Surveillance involves the ongoing systematic collection, analysis, and interpretation of health data and timely dissemination of the findings to those who need to know. Understanding the changing nature of farming, forestry, and fishing; populations at risk; exposures; risk factors; and characteristics of injuries is essential for successful prevention. Surveillance of injuries and illnesses in these populations is challenging, however. There is no single system that identifies these incidents comprehensively. The large number, small size, and geographic dispersal of operations, and the diversity of the populations at risk pose challenges. Different approaches for surveillance were discussed in six presentations, followed by a panel discussion. The presentations are summarized below.

Monitoring agricultural injuries from media reports

Dr Bryan Weichelt, National Children's Center for Rural and Agricultural Health and Safety, described monitoring of agricultural injuries from media reports. The AgInjuryNews.org media monitoring was established in 2015. The purpose of this online database is to enable storing, searching, and reporting injury case information in a timely fashion. Data are derived from publicly available reports, such as news media, social media, and obituaries for incidents in agriculture, commercial fishing, and forestry. Intentional and unintentional as well as occupational and non-occupational (e.g. visitors, agritourism) cases are included. Recreational cases may be included as there are gray areas for ATV riding, horseback riding, etc. Active users include public and private organizations, producers, and workers in the US and abroad. Users can set up an account, browse the dataset, ask for consultation for specific information needs for a topic, region, time period, etc. Data are also published in peer-reviewed literature.[1]

Analyses of agricultural injury data from administrative databases

Dr Erika Scott, Northeast Center for Occupational Health and Safety, highlighted her work on analyses of agricultural injury data from administrative databases. The project aims to develop a method to identify cases by taking advantage of free text searches and machine learning to enhance speed and reduce cost. Data sources include prehospital care reports and hospital data. The surveillance includes the agriculture, forestry, fishing, and hunting sector. Data from 2008 forward have been explored, based on individual data use agreements with state entities. The work involves refining keywords, building algorithms, and using machine learning for case determination, and applying established classification methods to categorize and present data.[2] Future work involves testing if free text search algorithms can be optimized for other health data, e.g. EMR case reports.

Injury and illness surveys to self-employed farmers and ranchers

Dr. Risto Rautiainen, University of Nebraska Medical Center and Central States Center for Agricultural Safety and Health (CS-CASH), discussed injury surveys of self-employed farmers

and ranchers in the Center's seven-state region (ND, SD, MN, IA, NE, KS, and MO). Annual mail surveys were first (2011–2015) administered by USDA National Agricultural Statistics Service (NASS) and later (2016-) by CS-CASH with contact and farm production data from Farm Market iD. The NASS surveys had a 32% average response rate and 7% injury rate.[3] The first CS-CASH in-house survey had a 19% response rate and 14% injury rate. This surveillance enables identifying injury counts, rates, consequences (cost, lost time), risk factors, and trends associated with injuries and work-related illnesses to farm and ranch operators in the region. Respondent and non-respondent characteristics can be compared to identify potential biases. The results indicate that the injury rate among self-employed operators is much higher than the published rates for hired agricultural workers.

Improving fatality surveillance for the US fishing industry

Ms Samantha Case, NIOSH Western States Division, discussed the development of the NIOSH Commercial Fishing Incident Database (CFID) and identification of specific hazards in the fishing industry.[4] The surveillance is primarily based on the United States Coast Guard (USCG) – NIOSH partnership defined in a Memorandum of Agreement (MOA). NIOSH scientist who have been granted USCG credentials as federal affiliate to access and review cases from the USCG MISLE database conduct statistical analyses of the data and identify causes of hazards leading to deaths and injuries. This is a National database for fatalities due to traumatic injury involving a variety of fishing vessels, and all fishing industry workers. The results indicate that the most common sources of incidents are vessel disaster, fall overboard, onboard injury, onshore injury, and diving injury. The hazards vary by region and fleet. Detailed fatality, injury, and event data can be used to understand hazards, examine trends over time, inform research priorities.

Bureau of labor statistics injury surveillance

Dr Marika Litras, US Bureau of Labor Statistics, discussed Bureau of Labor Statistics (BLS) injury surveillance, as it applies to agriculture, forestry, and fishing.[5] The Census of Fatal Occupational Injuries (CFOI) produces comprehensive counts of fatal work injuries in the US. The census uses multiple sources to identify, verify, and profile fatal worker injuries, such as death certificates, workers' compensation reports, and Federal and State agency administrative reports. To ensure that fatal injuries are work-related, cases are substantiated with two or more independent sources. The Survey of Occupational Injuries and Illnesses (SOII) program publishes estimates on nonfatal occupational injuries and illnesses. Each year, approximately 200,000 employers report for establishments in private industry and the public sector (state and local government). In-scope cases include work-related injuries or illnesses to workers who require medical care beyond first aid, based on the Occupational Safety and Health Administration (OSHA) recordkeeping guidelines. The SOII excludes injuries and illnesses to the self-employed; to workers on farms with 10 or fewer employees; to private household workers; to volunteers; and to federal government workers.

Migrant and seasonal farmworker enumeration methodology

Dr. Alice Larson, Larson Assistance Services, discussed migrant and seasonal farmworker enumeration methodologies. Obtaining population data on migrant and seasonal workers in agriculture is difficult due to population movement, different definitions, lack of sampling frame, constant change in agriculture and workers, missing population segments, duplicate counts, and different numbers from different methodologies. The Migrant and Seasonal Farmworker Enumeration Profiles Study (EPS) aims to obtain numbers at the county level, including estimates of non-farmworking household members. State-level estimates are also produced for children and youth. Agricultural worker categories include crops, nursery/greenhouse, reforestation, food processing, and forest products gathering. During 2000–2013, EPS published 20 reports covering data from 17 states. Each report is state-specific, and the methodology is based on the local situation, triangulating component estimates using a variety of methods.

Panel: smart surveillance – developing sustainable, cost-effective systems for the surveillance of injury and illness in agriculture

Panelists composed of previous speakers

The goal of this panel was to discuss strategies to develop sustainable, cost-effective systems for the surveillance of injuries and illnesses in agriculture, forestry, and fishing. The panelists discussed innovative methods including analyses of "big and small data" from existing administrative databases, automated online surveys, and media tracking services.

Future directions and strategies for comprehensive, cost-effective smart surveillance of injury and illness in agriculture, forestry, and fishing sector were discussed. The panel concluded that there is a need a national agricultural, forestry, and fishing injury surveillance program that includes all working populations in this sector, also self-employed farmers and ranchers. A coordinated system that incorporates the methods described in the presentations, as well as other methods (such as workers' compensation data) should be developed to capture essential occupational injury data for this important sector.

References

1. Weichelt B, Salzwedel M, Heiberger S, Lee BC. Establishing a publicly available national database of US news articles reporting agriculture-related injuries and fatalities. *Am J Ind Med*. 2018;61:667–674. doi:10.1002/ajim.22860.
2. Scott E, Hirabayashi L, Krupa N, Jenkins P. Emergency medical services pre-hospital care reports as a data source for logging injury surveillance. *J Agromedicine*. 2019 Apr;24(2):133–137. Epub 2019 Feb 11. doi:10.1080/1059924X.2019.1572558.
3. Jadhav R, Achutan C, Haynatzki G, Rajaram S, Rautiainen R. Injury risk factors to farm and ranch operators in the Central United States. *Am J Ind Med*. 2017;60:889–899. doi:10.1002/ajim.22757.
4. Case SL, Lincoln JM, Lucas DL. Fatal falls overboard in commercial fishing - United States, 2000-2016 [published correction appears in MMWR Morb Mortal Wkly Rep. 2018 Jun 01;67(21):613]. *MMWR Morb Mortal Wkly Rep*. 2018;67(16):465-469.Published 2018 Apr 27. doi:10.15585/mmwr.mm6716a2.
5. Injuries, illnesses and fatalities. Bureau of labor statistics. https://www.bls.gov/iif/. Accessed May 12, 2020.