manual include: Establishing Safety policies and Procedures; Identifying and assessing Hazards and Risks; Preventing and Controlling Hazards and Risks; Educating and Training Employees; and Evaluating Training Program and Resources. The manual provides several examples and forms that help users adapt and implement a safety and health management plan that matches their operation. The safety and health management plan also helps farm and ranch owners be aware of safety and health regulations that their operation may be under.

Conclusions The *Safety and Health Management Planning for General Farm and Ranch Operations* has been well accepted by the agricultural community. The manual is in its second printing and has been used as part of an Agricultural Safety and Health Certificate course for safety professionals and insurers loss control specialist offered by the International Society of Agricultural Safety and health. It is also serving as a basis to develop companion manuals for specific types of farming operations such as biomass producers and dairy producers.

146 INJURY SURVEILLANCE IN A DECENTRALISED U.S. SYSTEM: INNOVATIVE APPROACH TO FIND NEW HAZARDS, 2015

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Background Identifying emergent themes in safety begins with data that illustrate changes in rates of injury and illness. Oftentimes, these data are borne from surveillance systems. Dairy farming is a useful case study, as it is among the most hazardous domestic jobs and increasingly technology-driven. Thus, surveillance of injury and illness on dairy farms is a chore ripe with challenge as well as necessity. Located in the second largest dairy producing state and with electronic health records covering over 90% of the healthcare service population, the study provides a valuable example in surveillance.

Description of the problem The agricultural and healthcare industries in the U.S. are as decentralised and fragmented as the data sources that track them. Prior and current agricultural injury surveillance systems suffer from a dearth of data and difficulty determining farm exposures from existing resources. Response rates on injury surveys tend to be low, thus combining data from different sources and with different operationalizations is necessary but provides an additional problem to effective surveillance.

Results A surveillance program is built by first leveraging the grounded knowledge of agriculturalists. Relationship-building is imperative in accessing the best data available and appropriately linking disparate data sets. Dairy license information, farm vehicle registrations, and federal farm subsidy recipients are used to enumerate a sample of dairy farmers. This information is then linked to electronic health records, health payer claims, and mail surveys in order to cull injury and illness events, as well as current safety practices. Rates of injury and illness are examined at regular intervals.

Conclusions The current project may serve as a model for creatively overcoming the unique challenges of passive, ongoing surveillance in a decentralised system, with broader implication for public health safety surveillance programs in other world regions.

147 EFFECTIVENESS OF OPERATOR PROTECTION DEVICES TO MITIGATE INJURIES ASSOCIATED WITH QUAD-BIKE (ATV) ROLLOVERS

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Background There is growing concern regarding the number of serious injuries and fatalities related to quad bikes (All-Terrain Vehicle or ATV) in many countries of the world related to the farming sector. There have been over 150 quad bike fatalities in Australia since 2000, many of which involve the rider losing control at a low speed with the vehicle subsequently rolling on top of the rider and crushing or asphyxiating them. Operator Protection Devices (OPDs) developed in Australia and New Zealand are designed to reduce the potential of such incidents. Manufacturers, however, claim that OPDs have the potential to increase the incidence of injuries and deaths during a rollover event. Currently, there are around 3000 OPDs fitted to quad bikes in Australia and are now being sold in the USA.

Methods 300 farmers and other users who have a Quadbar OPD fitted to their quad bike will be surveyed about the performance of the quadbar in a rollover event. Participants will be asked about their quad bike usage patterns and history of rollover events before and after the fitment of a Quadbar. Participants will be interviewed face to face and via telephone.

Results Information on rider demographics, usage for work (mustering, carrying loads, transporting, etc.) and other purposes (recreational), terrain over which the quad bikes are ridden, direct information relating to incidents involving quad bikes with and without an OPD, injuries resulting from an OPD, and other safety relevant information, will be collected.

Conclusions The study will provide real world recorded evidence determining whether indeed the injury risk when using an OPD on a quad bike (ATV) increases or instead reduces crush related injury and asphyxia fatality potential and related to purpose of task.

148 ROAD ACCIDENTS AS AN OCCUPATIONAL SAFETY PROBLEM

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Background Finland currently uses two parallel preventive accident investigation systems. Fatal accidents occurring at work are investigated as **occupational accidents**. Fatal accidents occurring in traffic are investigated as **road accidents**.

In professional driving, fatal road accidents are road and occupational accidents at the same time, but the accident investigation method used is the same as in road accidents. However, the

authorities and researchers of occupational accidents are interested in learning about the investigation methods of road accidents, and vice versa. The aim of this study was to analyse past road accidents as occupational accidents, in the hope of gaining a better understanding of the work-related risks involved.

Methods The data collected from the Finnish Motor Insurer's Centre's databases. One quantitative analysis was performed using data from fatal heavy traffic accidents from 1991 to 2011. Two qualitative analyses were performed: the first used data from fatal accidents from 2010 to 2012, while the second covered accidents which led to the death of the driver of a heavy vehicle from 2011 to 2013.

Results Both qualitative analyses indicated that there were a number of work-related risks contributing to the accidents, for example poor planning, excessive work hours and tight timetables. The quantitative analysis contained some indications of driver-related risks that, in the qualitative analyses, might also be seen as work-related risks. For example, one reason for an accident was the driver's fatigue, while the underlying reason might have been poor logistical planning.

Conclusions The qualitative results give more information about work-related risks and verify a new point of view for improving the safety of professional driving in heavy traffic. The work-related risks indicate that safety information is important to include in educational material, not only for drivers, but also for all planners and other people in the logistics chain.

149 IMPROVING SAFETY AWARENESS IN WASTE TRANSPORT WORK

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Background Improving resilience in waste transport is essential for the successful management of operations despite the changes and disruptions that take place during the working day. Waste transfers are an example of work in which unpredictable events occasionally occur, and workers need to make quick decisions on how to operate in order to perform all their work in the given time. Being prepared for disruptions and changes helps workers react and continue working without causing extra delays, and this preparedness increases their safety, health and well-being.

Methods The outcome of the study is a tool for workplaces. This tool was developed after gathering and analysing data from participating companies by present state analysis. Participants also answered a questionnaire on undesired events and waste transport workers' reactions to sudden changes and outcomes.

Results The significance of management for safety in a waste transport worker's everyday work seems substantial. The tool created for improving the safety of waste transport workers requires managers of waste transport companies to present safety issues monthly. These monthly brief information packages include questions to activate waste transport workers to think about, for example, how to handle excessively heavy waste cans, or guidance on working in high temperatures.

Conclusions The importance of safety is appreciated by both foremen and workers. However, the need to perform one's job in a given time may often surpass safety requirements. This is why safety issues need to be regularly addressed and practically communicated to workers. This tool for directly addressing safety issues on a monthly basis among a particular occupational group was created in order to improve workers' safety.

150 USING LOCAL CONTEXT TO INFORM ROAD TRAFFIC INJURY PREVENTION IN GLOBAL EMPLOYEE WELLNESS PROGRAMS

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Background Multinational corporations (MNCs) can contribute to their employees' wellness through global interventions aimed at road traffic injury prevention, particularly in high risk settings. The purpose of this study was to understand the road use experiences of employees of a large U.S. MNC in India to inform a globally enacted and locally relevant employee road safety platform.

Methods Surveys and focus group interviews were used to elicit road safety perceptions, attitudes and behaviours of employees in MNC offices in the cities of Bangalore and Pune. Survey responses were analysed to describe demographic, vehicular, and behavioural features of a representative sample of employees. Focus group transcripts were coded to develop a thematic framework that described the road traffic experiences of employees in their local environment and perceptions of interventions that would enhance their safety.

Results Seventy-five employees completed surveys and participated in one of six focus group interviews. Participants considered daily road use to be a dangerous and stressful experience. Roadway danger was attributed to vehicle mix, non-adherence to traffic laws, and transportation infrastructure unequipped for the rate of population and commercial growth. Focus groups identified inconsistencies between employee knowledge of safety strategies and their road use behaviours, and policy-level actions that could be instituted.

Conclusions This study uncovered that an employee road safety intervention for MNC employees in the context of urban India should focus on behaviour change and structural interventions that take into account roadway infrastructure, traffic patterns, and enforcement of traffic policies. It further demonstrates how simple strategies can be used to elicit important contextual road safety factors amoung MNC employees globally in order to identify locally relevant interventions for employee injury prevention.

151 NATIONAL OCCUPATIONAL INJURIES IN THE PHILIPPINES: IMPLICATIONS FOR SAFETY PROGRAMS

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Background This study aimed to review and assess the prevalence and incidence of occupational injuries in the Philippines. The study collated and analysed available data from national and international sources. Hospital-based and population-based data on types of injury such as motor vehicle crashes, falls, burns, drowning, poisoning, and suicides were included in the study in order to get a comparative statistics for occupationally related injuries compared to overall injuries in the country.