

### **Comprehensive Company-Based Injury Surveillance System**

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Employers need to better understand the magnitude and rates of injuries and illnesses occurring in their operations. With the installation of a comprehensive injury surveillance system in 1994 The Ford Motor Company has integrated the use of injury surveillance data in nearly all of their injury prevention/intervention activities. This data system contains detailed information for all initial occupation visits to plant medical departments. It permits the calculation of injury rates by type of injury, by body part affected, department or sub-department unit, and by job class. It also links Workers Compensation data to injury clusters. The Company's ergonomic process at the plant-level uses the injury data to prioritize the activities to modify or re-design manufacturing processes. The groups involved with acute injury prevention regularly use the data system to track trends and to identify safety failures. Recently, studies at Ford have been completed which identified serious injury risk of acute injuries from robots and which documented the failure of work conditioning programs to reduce injuries. These and other examples of how injury data can be used in a manufacturing setting will be presented.

### **Ergonomic Solutions for Transferring Residents in Nursing Homes**

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The Bureau of Labor Statistics data indicates that nursing homes have the highest incidence rate for nonfatal injuries for industries with 100,000 or more injury cases. The National Institute for Occupational Safety and Health (NIOSH) is conducting research to identify strategies to reduce the risk of musculoskeletal injuries to nursing home workers. NIOSH funded a laboratory study to evaluate the biomechanical stress placed on nursing

personnel, the safety and comfort of the residents, and the time efficiency of 12 methods of transferring residents. The full-body lifts and overhead lift devices significantly reduced the biomechanical loading on the nursing assistants' backs when transferring totally dependent residents. The stand-up lifts and walking belt were shown to reduce the perceived stress on the lower back and whole body of nursing assistants. A NIOSH field study was developed to evaluate the effectiveness of these lab-tested methods in the context of an ergonomics program (patient lifting equipment, lifting training, and medical management of injured workers) in a study population of 1,000 nursing home workers over a six-year period. Results will be presented on the process of implementing the program and the programs impact on reducing the incidence, disability, and injury-related costs associated with back and other injuries among nursing staff in nursing homes.

### **The Role of Epidemiology In Demonstrating Effectiveness of Ergonomic Improvements**

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There is a clear need to demonstrate that ergonomic improvements are effective and efficient in preventing the occurrence of musculoskeletal disorders. Epidemiologic studies may contribute to establishing this evidence, but its usefulness is limited to interventions aimed at well-known associations between risk factors and musculoskeletal complaints, musculoskeletal sickness absence, and return to work. Appropriate study designs vary from pre-and-post-intervention assessments and cross-over designs to randomized controlled trials and community intervention trials. The choice for a particular design has strong implications for the intervention effect (i.e. health effect) to be addressed. For example, a cross-over design is not suitable to evaluate the effect of a new keyboard on the incidence of carpal tunnel syndrome. A randomized trial on a back school should not assess its effect on the prevalence of back pain but rather study changes in incidence and



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