

Introductory Note to Part 2 of the Intervention Research Workshop: Case Studies in Occupational Health and Safety

Linda M. Goldenhar, PhD, Paul K. Henneberger, ScD, Bradley S. Joseph, PhD,
and Anthony LaMontagne, ScD, MA, MEd

KEY WORDS: *intervention research, disease prevention, occupational health**

In the following papers, authors conducting intervention research in the agricultural, manufacturing, health care, or construction industries present case studies to exemplify a number of methodological issues that are of concern during the preintervention planning and post-intervention follow-up phase of research projects. Below we have briefly reviewed the papers within the context of each industry.

The agricultural sector has been identified as one of the main areas for targeting prevention-intervention projects. This is due to the high risk of injury and illness among farmers and the difficulty applying occupational safety and health control measures. The desire to conduct intervention research with farmers is clearly there, but how to do it efficiently and effectively remains, in many ways, a mystery.

Ferguson and Scharf present a case study of swine confinement workers. They discuss the advantages and disadvantages of using different data collection techniques, specifically qualitative and quantitative methodologies. Murphy, Kiernan, and Chapman also present important dilemmas which exist when attempting to develop and implement educational types of interventions in the agricultural arena. These authors argue that typical farm safety and health education programs might not be very effective in reducing farm work injury risk. They then present a number of options which may provide greater potential for long-term risk reduction.

The manufacturing sector clearly provides another arena within which prevention-focused interventions and evaluations are needed. By its very nature, the industrial

workplace is not easily studied. The complexity of the industrial system and changes in processes lead to a less than ideal situation for conducting controlled intervention research. This lack of control can lead to "noise" in the data which, if left unchecked, may lead to erroneous conclusions about the effectiveness or ineffectiveness of an intervention. In an effort to bring forth some important issues in need of consideration when attempting to conduct interventions research in manufacturing settings, three case studies are presented.

The first manufacturing paper presents a case describing interventions designed to reduce worker exposure to machining fluid. In this paper, Wegman expresses the need for researchers to consider both technical (i.e., the selection of machining fluid, the selection of specific controls) and nontechnical (i.e., labor-management health and safety committees, training on how to use the control) issues when designing interventions. Moore characterizes a relatively new but critical approach to conducting research in industry. He describes how participatory (labor-management) approaches to designing and conducting interventions can be used to address musculoskeletal hazards in the meat packing industry. Finally, Leviton and Sheehy discuss a number of issues related to implementing control technology interventions in small businesses, specifically radiator repair shops.

A number of issues must be addressed when attempting to conduct intervention-prevention study efforts in health care settings. A major concern is related to the complex and hierarchical nature of the health care workplace. To deal with this concern, researchers will likely have to design interventions to target multiple occupational categories and multiple levels of the organization (e.g., nurses, doctors, phlebotomists, housekeepers, hospital administration). Another difficult issue is that employee health protection in the health care industry presents a conflict of interest for many who feel that taking time and attention for themselves (the

Address reprint requests to Dr. Goldenhar, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226-1998.

Accepted for publication August 25, 1995

employee) is depriving patients of optimal care. These and other issues are discussed in the papers by Hersey, Gershon, and Collins and Owen.

Hersey's paper briefly reviews four intervention case studies from the health care industry and then uses the framework developed and presented by Mark Lipsey (see this issue) to describe the methodologic challenges faced by researchers attempting to conduct intervention research in the health care industry. Gershon has conducted studies in health care settings which focus on employee use of universal protection procedures to prevent needlestick injuries. In her paper, she discusses the fact that not only are health care workers focused on providing care to others and not to themselves, this care is also often provided in an urgent manner, thereby leaving little or no time for the worker to think of her/his own safety. Another important issue which she presents is how perceived safety climate at the worksite may help explain health-protective behavior among the employees. Collins and Owen describe an ergonomics intervention designed to reduce the frequency, severity, and cost of musculoskeletal injuries to nursing staff employed in a nursing home.

The final industry covered in the case study reports is construction. The construction industry presents interven-

tion researchers with a number of unique challenges. Some of these challenges are addressed by Moir and Buchholz in one paper and Wolford in a second. Moir and Buchholz describe the importance of using a participatory approach in developing intervention projects designed to address ergonomic concerns for construction workers. The authors describe a number of ongoing studies being conducted by the Construction Occupational Health Project of the Work Environment Department at the University of Massachusetts at Lowell. Wolford briefly describes a case study focusing on painters' exposure to solvents and then presents a number of specific issues to consider when attempting to conduct intervention research in the construction industry.

In addition to industry-specific concerns, a number of common themes emerged from the discussion sessions involving these case studies. These include the need to use a variety of data collection techniques in an effort to obtain the best data possible (quantitative and qualitative); that focusing on safety climate is important; that the sense of work urgency among employees across some industries (health care, construction) may influence health and safety behaviors; and that although it may not be easy, there is a need to use interdisciplinary teams when conducting occupational health and safety intervention research.