

Attachment D-2:

Prior OSH Program Intervention Studies

Prior research has largely been limited to focusing narrowly on job task-level interventions and short term exposure or behavioral outcomes without addressing the multi-factorial nature of OSH programs (primary prevention through tertiary prevention) and the effect of supervisory and organizational level variables, or allowing sufficient timeframes to assess the full extent of disability or financial impact. Most OSH intervention effectiveness studies continue to be quasi-experimental (e.g. pre- and post- intervention studies without control groups or randomization). Although a randomized, controlled trial is often difficult to conduct in an OSH setting, the lack of such studies in the literature continues to be a perceived weakness of the OSH field. For example, recent and somewhat controversial literature reviews (Bigos et al. 2009; van Duijvenbode et al 2009; Sahar et al 2009; Tveito et al 2004) found few rigorous studies to support the efficacy of engineering ergonomic interventions designed to reduce low back pain (LBP).

There is some evidence that OSH control programs built on OSHA Voluntary Protection Program (VPP) and former OSHA ergonomic standard elements (management leadership, employee participation, hazard identification and control, medical management, training, and program evaluation) reduce losses (e.g. Hunt et al. 1993; Amick et al 2000; Brewer et al 2007). However, no evidence exists on the relative effectiveness of program elements compared to each other. For example, IWH (Brewer et al 2007) conducted a recent systematic review of injury/illness prevention and loss control programs and found strong evidence supporting the effectiveness of secondary and tertiary prevention (disability management / return- to-work programs), but relatively few studies supporting the efficacy of primary prevention. This study did not indicate that primary prevention was not effective, but pointed out that additional research especially on primary prevention is greatly needed. Additionally, there is no consensus on the most reliable and valid approach to measure each OSH program element. The evidence gap has been clearly illustrated by a 2009 General Accounting Office (GAO) review (US GAO-09-395) which concluded that OSHA's VPP program cannot be shown to be effective in part because valid performance goals and measures for such programs have not been developed. As a result, organizations have little published evidence to guide decision-making for the allocation of limited OSH resources among control program alternatives that range widely from prevention to disability management.

Clearly there is a need to conduct rigorous experimental research to define further the effectiveness and cost-benefit of OSH primary through tertiary prevention on both a macro level (Organization of Safety Management) and at the level of Technical/ Human Sub Systems. This need has become more imperative in the light of recent indications that OSHA may increase their focus on addressing MSD risk factors in the workplace and possibly revisit a safety program standard to require companies to establish programs modeled after VPP elements (Michaels, 2010).