

Work Site Assessments: A Tool for Reducing Risk Exposure for Work Related Injury and for Improving Productivity

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Work-related musculoskeletal disorders (WRMSD) are one of the most prevalent and costly safety concerns in the workplace today¹. In sonography, work-related injury poses a serious threat to the health and safety of the worker. WRMSDs can decrease productivity and affect the quality of patient care when workers are performing their jobs in chronic pain. Furthermore, patient safety can be directly affected by the safety and health of the worker through the known affect of WRMSD on quality of work. There is growing interest among clinical managers to be able to maintain the injured employee in order to retain skilled staff. In addition, complaints of injury are being expressed in the physician workforce, particularly among perinatal specialists who perform ultrasound exams and radiologists utilizing PACS workstations. Identification of ergonomic hazards through ergonomic workplace assessment provides the opportunity for developing a proactive approach to work safety. The key to a worthwhile site evaluation is for the evaluator to have industry-specific knowledge in the profession for which the workplace evaluation is being performed. In health care settings in particular, it is often assumed that the specific training required is minimal due to the 'industry knowledge' that comes from working in the field. But this is not the case in today's complex workplaces. The training for various professionals often performing site evaluations does not necessarily include ergonomic workplace evaluations. Unless these professionals have pursued training outside their line of work, they may not necessarily have the skills to adequately

evaluate a work site. Even with additional training, they still may lack the 'industry specific knowledge' about sonography. An evaluation that is considered 'participatory' ergonomics is critical to an effective work site assessment. The primary elements of an effective worksite assessment should include the following²:

- Identification of a potential WRMSD problem
- Management commitment in the problem solving process
- Worker and management training in WRMSD risk identification
- Identification of at-risk jobs or work conditions
- Implementation of effective control measures for at-risk workers
- Development of a medical management program for early diagnosis and effective treatment of injuries.
- Inclusion of ergonomic principles when planning new work processes, equipment purchases or work environment design.

It has been widely established that there is an alarming rate of work-related musculoskeletal disorders (WRMSDs) among sonographers. Research shows that 84% of clinical sonographers experience pain related to their profession. Of those, twenty percent suffer career-ending injuries.⁵ Workforce shortages are affecting productivity, patient care and reimbursement revenue. Literature describing symptoms of WRMSD goes back as far as the early 1980's, however, little has been done to address the work structure in an effort to break the established paradigm that we now know leads to high rates of WRMSD.

Ergonomic modifications to work practices and work environments have been shown to be effective, but how does an institution convince both staff and management to willingly participate? Too often the division between staff and management has occurred long before the discussion of implementing work safety changes takes place.

Management is faced with the challenge of running a fiscally sound department, and staff is resolved to protecting the sanctity of their workday from being overrun with schedules that are out of control and job tasks that create chronic pain.

The reality is that issues of productivity have increasingly influenced health care in recent years. The focus of the health care industry has expanded to not only providing patient care, but running a successful business- the business of health care. Although frustrating at times, it is a reality that in order to run a successful business providing health care, institutions must pay attention to their bottom line, a bottom line that is ultimately affected by productivity. Maintaining a highly skilled workforce is an integral part of that bottom line.

The Psychology of Pain

An integral, yet often overlooked, aspect of risk for occupational injury is the psychosocial component. There are, in fact, both psychosocial and physical risk factors for work-related injury and multiple related health and productivity outcomes. Breaking the pattern of WRMSDs in sonography requires an understanding by organizations on how they either create or protect against injury risk based on work environments and the worker's perception of their required work tasks. Passive worker participation often occurs as a result of staff feeling they have no control over their work environment. In

sonography, this is particularly seen related to issues of staffing and scheduling of patients. For example, the simple act of providing daily add-on slots in the schedule and giving sonographers absolute authority over filling those spots can significantly affect the sonographer's impression of workload. Additionally, by giving sonographers the right to reschedule late arrivals, improperly prepped or incorrectly schedule patients according to the time constraints of the present schedule has an important psychosocial impact to their overall impression of their work environment.

The practice of sonography requires highly skilled workers with a high degree of self-motivation and responsibility. Effective efforts to improve productivity while addressing risk for WRMSD must allow for the active involvement of the sonographers. Workers that are directly involved in the job tasks are the crucial element of the work process and must be motivated to carry out their job with the level of skill and expertise required³. Efforts to increase demands on productivity in diagnostic medical sonography require sonographers who are highly qualified, widely skilled, flexible, greatly motivated and self-regulated. Often this is most readily found in the seasoned sonographer who has developed a high level of expertise through years of clinical practice. Unfortunately, these are also often the staff members that experience symptoms of WRMSD due to years of chronic exposure to injury producing work environments.

Protecting staff before they become injured is the most effective means for addressing the risk for injury and maintaining fiscal continuity. Creating a productive and non-threatening atmosphere where staff is motivated is dependent on how administrators make use of the expertise and skills of their workers. Staff should feel they have the ability to not only provide input, but also ultimately influence decision-

making and the implementation of work processes. This balance of practical and psychosocial aspects of the work atmosphere involves creating an environment where department goals and individual responsibilities are understood so that workers can fully utilize their professional skills, yet also have the authority to carry out changes necessary to maintain a safe work environment.

Defining Productivity

Productivity can be described as a measurement of efficiency, with efficiency relating to how well an organization utilizes their resources. Therefore, if we consider productivity in the diagnostic imaging setting, we would take into account the efficiency of the department in terms of output as compared with the number of man-hours and other related costs expended to achieve that output. In sonography, the costly issues related to WRMSD must be addressed in the development of a program to improve productivity and efficiency. Implementing a program of working smarter, not harder holds the key to improving productivity, staff retention and morale, while decreasing time loss and Worker's Compensation expenses through a reduction in WRMSDs.

How do WRMSDs affect productivity?

Numerous studies have demonstrated the correlation between the development of WRMSDs and working conditions that involve awkward postures and muscular strain. Workers whose job duties require constant muscle strain on specific muscles in the neck and shoulder region are shown to have a high rate of sick time related to WRMSD. It is also widely accepted that pain is the primary symptom of WRMSD⁴. Furthermore, pain

inhibits the workers ability to work efficiently and accurately. The highest rate of WRMSDs among sonographers is related to the neck and shoulder.⁵ According to the American Academy of Orthopedic Surgeons, 80% of people with shoulder disorders are still symptomatic six months after seeking treatment with more than half reporting pain significant enough to interfere with their work as much as three years later. Thirty percent of individuals with shoulder injuries ultimately end up leaving their jobs.⁶ Other events impacting productivity as a result of WRMSD are staff turnover, job dissatisfaction and staff morale.

How can ergonomics enhance productivity?

A study on the relationship between ergonomic work environments & productivity from a broad cross-section across North America found that absenteeism fell from 4% to 1% after workstation design changes and employee productivity was subjectively judged as “much improved”. Blue Cross Blue Shield found that after implementing ergonomic designs in employee workstations, there was a 4.4% improvement in productivity. A comprehensive ergonomics program at Johns Hopkins Hospital resulted in an 80% reduction in MSDs over a 6-year period. Intel reported a 72% reduction in MSDs over a 4-year period after implementing an ergonomics program. One high-tech manufacturer had a 5% improvement in productivity by implementing ergonomic improvements in the employees’ workstation. This increased productivity resulted in a net reduction in staff. Taking into consideration inflation, taxes and cost of invested capital, it is estimated that the difference between ergonomic and non-ergonomic furnishings for a first-time purchaser will be recovered in less than 8 months.⁷

Furthermore, the investment stands to have positive effects on productivity and cost containment for many years following.

Ultimately, the manager or employer makes the decision on which approach to take in preventing injuries, supporting the injured worker and determining the most suitable management of the return to work process. However, there are a number of examples of companies who ultimately decided that their workers were valuable, injured or not, and have taken the steps to include a strong focus on prevention and early intervention in order to protect their staff. Regarding employees as an investment and taking steps to protect that investment offers not only opportunity for improved productivity, but also employee well-being and morale. Ergonomics provides the foundation for effective management and well-trained workers to perform at their best level, thus supporting optimum patient care, work efficiency and employee retention.

¹ Bureau of Labor Statistics 1995, 1996

² Cohen A. et al; Elements of Ergonomics Programs. A Primer Based on Workplace Evaluations of Musculoskeletal Disorders. U.S. Department of Health and Human Services, Public Health Service Centers for Disease Control and Prevention National Institute for Occupational Safety and Health. March 1997

³ Gontijo L.A., Santana A.M.C. *Measuring and Enhancing Productivity*. Proceedings of the IEA 2000/HFES 2000 Congress.

⁴ Westgaard R, Aaras A Postural muscle strain as a causal factor in the development of musculo-skeletal illnesses. *Applied Ergonomics* 1984, 15.3, 162-174

⁵ Pike I, Russo A, Berkowitz J, Baker J, Lessoway V. The prevalence of musculoskeletal disorders among diagnostic medical sonographers; *JDMS*; 13(5); Sept.-Oct. 1997: 219-27.

⁶ Abella H.A., Imaging of shoulder opens new turf fight for radiologists; *Diagnostic Imaging*; March 2006: 37-42

⁷ Good ergonomics is good economics. Online:

http://www.aflcio.org/issues/safety/ergo/ergo_infopack_goodergo.cfm