

Preventing Occupational Injury Among Diagnostic Medical Sonographers

To many people, it's simply sound. But to knowledgeable medical professionals, high-frequency sound and sonography skill can be the difference between a faulty diagnosis and outstanding patient care. Medical professionals known as diagnostic medical sonographers (or sonographers) are responsible for producing ultrasound images used to diagnose a variety of maladies, diseases, and conditions. Sonography is now commonly used in most medical specialties. More than 80% of sonographers who perform these vital diagnostic scans work in pain as a result of work-related musculoskeletal injury (MSI), and 20% of these health care professionals eventually experience an injury that ends their career.*

The Occupational Safety and Health Administration (OSHA) requires employers to provide for the safety of all workers, and the Joint Commission underscores this for health care workers. Joint Commission Management of the Environment of Care standard EC.1.10 requires health care organizations to manage safety risks; furthermore, element of performance 5 (EP) mandates that health care organizations implement control measures to achieve the lowest potential for adverse impact based on the risks identified to the safety and health of staff.

Jerry Gervais, C.H.S.P., C.H.F.M., associate director, Standards Interpretation Group, Joint Commission, points out that each hospital's safety committee is responsible for evaluating the employer's OSHA injury log, analyzing and assessing those injuries, and recommending to the governing board how the hospital can prevent or mitigate recurrence of such injuries. "So many experienced sonographers are incurring injuries and dropping out of the work force that it's having a negative impact on the field of medical sonography," he says. "There's a personnel shortage to begin with, and it's getting critical as more and more sonographers are unable to continue working. Hospitals must do

whatever they can to make sure that workers don't continue experiencing these injuries."

OSHA and the Society of Diagnostic Medical Sonography (SDMS) signed a formal alliance in Washington, DC, in October 2004 to reduce and prevent work-related musculoskeletal disorders (WRMSD). The goal of this alliance is to provide SDMS members and others within the medical community the tools and resources they need to reduce and prevent exposure to risks related to work-related musculoskeletal disorders.

Diagnostic Medical Sonographers: How Do They Get Hurt?

Sonographers must have full use of hands, wrists, and shoulders, and they face a daunting list of physical demands in their typically full patient schedules. They must be able to routinely do the following:

- Lift more than 30 pounds
- Push and pull
- Bend and stoop
- Work standing on their feet at least 80% of the time
- Assist patients on and off examining tables

In addition, sonographers must be able to do the following:

- Organize and accurately perform the individual steps in a sonographic procedure in the proper sequence
- Distinguish subtle sounds
- Adequately view sonograms, including color distinctions
- Apply ultrasound transducers at angles and pressure appropriate to produce optimal images of patient anatomy
- Interact compassionately and effectively with sick and injured patients
- Communicate effectively with patients and other health care professionals

The requirements of their work mean that sonographers are exposed to a variety of environmental factors that are associated with increased risk of

* Notes from Consensus Conference on Work-Related Musculoskeletal Disorders (WRMSD) in Sonography on May 13-14, 2003, in Dallas, TX. <http://www.sdms.org/msi/default.asp>.

musculoskeletal injuries. Among the injuries sonographers face are the following:

- Carpal tunnel syndrome can result from gripping the transducer too firmly or in an awkward position as they hold it against the patient to obtain an image. Other common conditions of the hand and wrist include trigger finger, along with pain, swelling, and inflammation of the tendons at the base of the thumb, a condition known as deQuervain's syndrome.
- Pain and strain in the neck, back, and shoulder can be caused by reaching with either or both arms and/or twisting of the neck and trunk while attempting to reach the patient. These awkward postures result in tenosynovitis, shoulder bursitis, tennis or golfer's elbow, rotator cuff tears, degenerative disc disease, and a variety of other conditions. Another common injury is thoracic outlet syndrome, a collection of syndromes brought about by abnormal compression of the neurovascular bundle.
- Cubital tunnel syndrome is often the result of extrinsic pressure on the cubital tunnel region of the elbow from faulty workstation equipment.
- Eye strain can result from defective workstation equipment or improper use of workstation equipment.

Recommendations from an Expert

The founder of the SDMS is Joan P. Baker, M.S.R., R.D.M.S., R.D.C.S., F.S.D.M.S. Baker is also director of marketing and a founding partner of Sound Ergonomics, LLC, in Kenmore, Washington. She has worked in the field of ultrasound since 1961 and has 39 years' experience within the profession. She served as the first chair of the American Registry of Diagnostic Medical Sonographers, the largest national registry for sonographers, and is a leading expert in the expanding field of sonographer MSI.

In the following paragraphs, Baker offers several recommendations on ways health care organizations can work to reduce the number of injuries sustained by diagnostic medical sonographers.

The training that new sonographers get should be revised to include ergonomics. "We must include newer techniques of sonography in schools," says Baker. "And we're also working to help experienced sonographers realize that some of the techniques they learned in school will result in injuries. Without this retraining, seasoned sonographers will pass on those same injury-producing techniques to new students." Joint Commission Management of Human Resources standard HR.2.10 requires that organizations provide initial job training and information. During orientation, an organization should cover the following information:

- Organization mission and goals (HR.2.10, EP 1)
- Policies and procedures, including those related to safety and infection control (HR.2.10, EP 2)
- Specific job duties and responsibilities (HR.2.10, EP 3)

"For sonographers, information about musculoskeletal injury risk, prevention strategies, and administration support would certainly be required safety information," says Baker.

Baker notes that many health care organizations have not yet equipped sonographers with the tools they need to work without injuring themselves. A variety of ergonomic support and educational items are available to protect sonographers. "The field of sonography must find a better way to communicate with hospital and departmental administrators and let them know which tools and equipment will help prevent injuries," she says. As an example, Baker cites the need for tables on which sonographers can make almost any kind of height adjustment. "A well-made adjustable table costs approximately \$7,000," says Baker. "While that might seem expensive, one week's work by a sonographer can more than pay for that outlay, which is a one-time capital investment. It's really not expensive compared to the revenue-generating capability of approximately \$33,000 per month for one sonographer."

Sonographers themselves must assume responsibility for staying informed about the risks they face as sonographers, and they must use the ergonomic equipment that is provided for them. "All the latest and greatest equipment in the world won't do them any good if they don't use it," says Baker.

Sonography supervisors need to increase their awareness of the potential MSI injuries to which sonographers are exposed. They must respond by tailoring work schedules, case loads, workstations, and policies within the laboratory that address these ergonomic issues.

Equipment manufacturers must work to improve the design of their equipment. Baker cites the international Consensus Conference on Work-Related Musculoskeletal Sonography Disorders hosted by the SDMS in May 2003. During that conference, sonographers and manufacturers collaborated to produce the industry standards for ultrasound equipment. Since the industry standards that were generated from this meeting were published, manufacturers have redesigned their equipment with ergonomic considerations in mind. Says Baker, "It takes time to integrate this state-of-the-art equipment into the ultrasound departments so that staff members can benefit from the new designs."

Baker recommends that sonographers work closely with other alliance partners such as the Association of Occupational Health Professionals in Healthcare (AOHP) and the Joint Commission, which champions the cause of the safety of care that patients receive.

Baker notes that the well-being of sonographers is important to everyone involved—from sonographers to health care administrators to patients. "Sonographers who are working in pain can't provide the same level of patient care as those who are pain-free," she says.

For more information on the ergonomics of medical sonography, please see the case study on the following pages. 