



# SONOGRAPHER SAFETY ALERT



A high incidence of work related musculoskeletal disorders (WRMSDs) has been identified among sonographers. Employers should become familiar with the causes and costs of WRMSDs in sonographers and create a plan to reduce the incidence and impact of these disorders.

**90% of sonographers are scanning in pain due to WRMSDs.<sup>1</sup>**

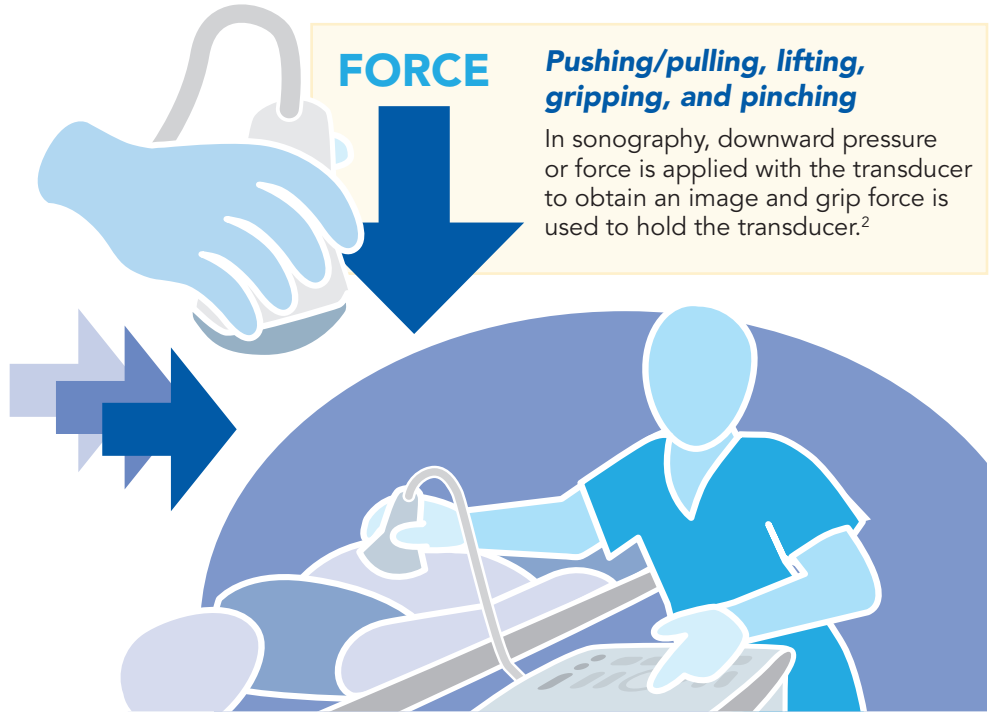
## How do WRMSDs occur?

*In sonography, the primary physical risks for WRMSDs include:*

### REPETITION

*Performing the same or similar tasks for an extended period of time without adequate recovery time<sup>2</sup>*

Research has shown that sonographers performing more than 100 studies per month are at risk for developing musculoskeletal disorders. If sonographers are scanning an average of ten patients per day, then over a one-month period excluding weekends and on-call, sonographers could be scanning roughly 230 patients, equivalent to more than double the risk each month.<sup>3,4</sup>



### FORCE

*Pushing/pulling, lifting, gripping, and pinching*

*In sonography, downward pressure or force is applied with the transducer to obtain an image and grip force is used to hold the transducer.<sup>2</sup>*

### AWKWARD OR SUSTAINED POSTURE

*When the region of interest is positioned away from the sonographer's neutral position*

*Sonographers often exhibit awkward postures during scanning in an effort to access the region of interest or as a result of insufficient adjustability of equipment.<sup>2</sup>*

### CONTACT PRESSURE

*Sustained pressure between a body part and an external object*

*In sonography, examples include resting the hip or forearm against the exam table while scanning.<sup>2</sup>*

## What are the costs to employers?

*The impact of WRMSDs for sonographers range from minor discomfort to career-ending injuries.<sup>2</sup>*

The direct and indirect costs to an employer of an injured sonographer are ~\$771,500. Direct costs are worker's compensation and medical expenses.<sup>5</sup> Indirect costs to employers include lost revenue, absenteeism, and costs related to hiring and training temporary or new employees as well as additional pressure placed on co-workers to meet scheduling demands which can lead to even more injuries.<sup>2</sup> In contrast, the cost to create an ergonomic sonographer work area is ~\$188,205.<sup>5</sup>



# Prevent Work Related Musculoskeletal Disorders in Sonographers

To ensure worker safety, management and employees must share a commitment to a culture of safety. In a positive culture, safety is a core value of the organization, even at the expense of production or efficiency.<sup>2</sup>

## EMPLOYER ACTION PLAN<sup>6</sup>

### Scheduling

- Ensure adequate time is allocated to each exam, including any prep/post-exam tasks
- Build schedules that allow for adequate rest breaks and meal periods
- Vary exam types whenever possible, particularly for physically demanding exams
- Maintain reasonable expectations regarding the limitations resulting from the patient's body habitus on the ability to obtain diagnostic imaging data
- Evaluate on-call and call-in policies<sup>7</sup>

### Equipment & Set-Up

- Provide adequate space for proper patient positioning, as well as workstation and ultrasound equipment optimization
- Evaluate the impact of patient bedside scanning on space requirements and equipment set-up
- Provide equipment with exam-specific features and adjustability for optimizing scanning posture (i.e., ultrasound system, exam tables, chairs, external monitors, and adaptive support devices)

### Prevention

- Provide a supportive culture with ongoing ergonomic training and coaching
- Conduct periodic (e.g., annual) audits or surveys to identify musculoskeletal disorders
- Consider requesting a workplace evaluation by the facility's risk management staff, its workers' compensation insurer, and/or state or federal OSHA agencies
- Offer exercise courses or equipment
- Limit portable/bedside exams to critical patients, with task rotation implemented to reduce exposure rate

### Monitoring

- Review facility history of injury to identify issues, trends, and solutions
- Encourage timely reporting of pain or injury and monitor ongoing impact of musculoskeletal disorders
- Monitor the impact of sonographer absence(s) on other sonographers

**For additional information and resources on how to prevent WRMSDs in sonographers, visit: [sdms.org/safetyalert](http://sdms.org/safetyalert)**

1. Evans K, Roll S, Baker J. Work-related musculoskeletal disorders (WRMSDs) among registered diagnostic medical sonographers and vascular technologists: a representative sample. *J Diagn Med Sonogr.* 2009;25(6):287-299. doi: 10.1177/8756479309351748.
2. Society of Diagnostic Medical Sonography. Work related musculoskeletal disorders in sonography white paper. <http://www.sdms.org/docs/default-source/Resources/work-related-musculoskeletal-disorders-in-sonography-white-paper.pdf>. Accessed September 6, 2018.
3. Gibbs V, Young P. A study of the experiences of participants following attendance at a workshop on methods to prevent or reduce work-related musculoskeletal disorders amongst sonographers. *Radiography.* 2011;17(3):223-9. doi:10.1016/j.radi.2011.02.003.
4. Smith A, Wolf J, Xie G, Smith M. Musculoskeletal pain in cardiac ultrasonographers: results of a random survey. *J Am So Echocardiog.* 1997;10(4):357-62. doi:10.1016/S0894-7317(97)70073-7.
5. Sound Ergonomics. Cost of injury. <https://www.soundergonomics.com/cost-of-injury.html>. Accessed September 6, 2018.
6. Society of Diagnostic Medical Sonography. Industry standards for the prevention of work related musculoskeletal disorders in sonography. <http://www.sdms.org/docs/default-source/Resources/industry-standards-for-the-prevention-of-work-related-musculoskeletal-disorders-in-sonography.pdf>. Accessed September 6, 2018.
7. Society of Diagnostic Medical Sonography. On-call and call back issues in sonography. <https://www.sdms.org/docs/default-source/Resources/on-call-and-callback-issues-in-sonography-white-paper.pdf>. Accessed September 13, 2018.

