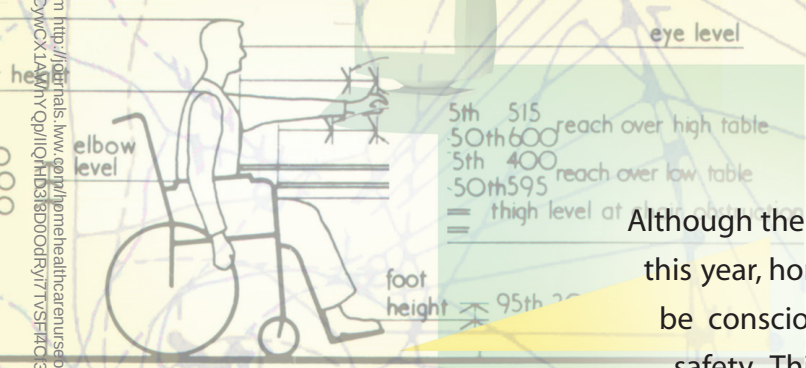
# Creative Use of Ergonomic Principles in Home Care






Although the OSHA Ergonomics Standard was repealed this year, home care agencies and visiting staff should be conscious of the issues surrounding workplace safety. This article explains ergonomic terms and applies them to situations home care staff encounter daily. Helpful ideas to prevent these injuries support thinking in new ways to prevent injuries.

Ergonomics became a prominent concern for home care when the Occupational Safety and Health Administration (OSHA) began exploring the need for formal ergonomic standards to be applied to all general industry in 1992. A formal ergonomic standard was promulgated and then later repealed this year; however, ergonomic issues remain important because many home care job activities involve ergonomic risk factors that could result in pain or injury. Knowledge and application of basic ergonomic principles can decrease the risk of injury.

## What Exactly Is Ergonomics?

The word ergonomics is derived from the Greek words *erg* (work) and *nomus* (the natural laws of or the study of). Thus, ergonomics is the study of the natural laws of work. One might view it as the study of the relationship between the human and the environment. Ergonomics is the study of the physical relationship between the worker and the workplace.

## What Do Ergonomists Do?

Workplace ergonomists are professionals who assess whether work tasks are properly fitted to the worker's physical capabilities. If physical requirements of job activities and the capacity of the worker to perform those requirements are mismatched, pain and injury may result. Therefore, the goal of an ergonomist is to optimally fit the job to the worker. Ergonomists work in a wide va-

Kathy Sitzman, MS, RN, and Donald Bloswick, PhD, PE, CPE

riety of industries ranging from heavy industries (e.g., mining and heavy equipment/automobile manufacture) to service industries (e.g. data processing, telemarketing, and healthcare).

Any work setting that involves an interface between a person and a job task is an appropriate place for an ergonomist to assess and propose improvements that decrease the likelihood of worker discomfort or injury. Different industries have unique risk factors for different types of ergonomic concerns; however, basic ergonomic principles can be applied in any work setting.

## Professionals as Ergonomists

Many healthcare professionals, such as occupational health nurses, physicians, and physical therapists, receive training in ergonomics and can perform basic workplace assessments, propose improvements, institute interventions, and evaluate results. Professional ergonomists have received extensive training and have the skills to perform these same services comprehensively. Whether an ergonomist or a trained healthcare professional performs an assessment, the goals are the same:

- recognition of hazard;
- analysis of risk and possible improvements;
- intervention with effective and practical education, work practices, and equipment; and
- evaluation of intervention effectiveness.

Prevention of current and future hazards is the ultimate goal of any ergonomic assessment.

## Ergonomics Overview

Ergonomics is not a new concern, and has been discussed in occupational health circles for over 20 years. OSHA hired its first ergonomist in 1979 and in the mid-1980s began issuing citations for failure to respond to ergonomic hazards under the general duty clause or section 5A1 of the OSHA Act (OSHA, 1979), which is a guideline requiring employers to provide a safe working environment for all employees. In August of 1990 OSHA published the *Ergonomics Program Management Guidelines for Meatpacking Plants,* outlining the elements required for an effective ergonomics program.

In January 1992 OSHA began a special inspection program focusing on ergonomic hazards in the meatpacking industry that resulted in several large fines. In August 1992 OSHA published an advance notice of proposed rulemaking on ergonomics, indicating ergonomics standards would be created for all work environments, not just meatpacking. On November 23, 1999, OSHA published a proposed ergonomics program standard. In March-May of 2000, OSHA held 9 weeks of public hearings and received over 18,000 pages of testimony from more than 700 witnesses who described ergonomic concerns in various work environments, and who outlined the human and monetary costs and benefits if ergonomics standards were enforced.

- Between November 1999 and August of 2000 OSHA received numerous comments and legal briefs with regard to the ergonomics rulemaking process.
- On November 14, 2000, OSHA published the Ergonomics Program Final Rule in the *Federal Register*. There was considerable support for the standard because it would have 1. improved working conditions and 2. reduced pain

### Main Points of the OSHA Ergonomics Program Standard

Clarified the relationship between musculoskeletal disorders (MSDs)—such as carpal tunnel syndrome, thoracic outlet syndrome, and low back pain—with ergonomic stressors.

Defined MSDs to include disorders of muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels, or spinal discs due to exposure, repetition, static postures, quick motions, force, awkward postures, contact stress, cold temperatures, and vibration.

Identified that the parts of the body affected by MSDs include neck, shoulders, fingers, legs, hands, wrists, arms, and back.

Clarified the MSDs not related to ergonomic hazards would include injuries caused by slips, trips, and falls; vehicle accidents; or similar incidents (U.S. Department of Labor, Occupational Health Administration, 2000, pp. 2–3).

The home care industry is covered by the OSHA Act's general duty clause which requires employers to provide a safe working environment, including consideration of ergonomic issues.

and injuries associated with ergonomic stresses in many working environments.

- The American Nurses Association publicly supported the standard, stating that it could lead to fewer back injuries for nurses (Stewart, 1999, p. 13.).
- Business owners and managers also resisted the standard, primarily because of the perceived potential cost to employers in terms of program management expense and expenditures for equipment purchases or modifications.
- Work Restriction Protection (WRP) requirements of the standard directed that, when limitations were placed on employees' work activities due to injury resulting from ergonomic risk factors, employees must maintain their employment rights and benefits and 100% of their earnings.
- When employees were required to take time off from work, they must maintain their employment rights and benefits and 90% of earnings.

The Ergonomics Program Standard became effective on January 16, 2001, and by October 15, 2001, employers were required to have the program elements implemented. However, in March of 2001, the ergonomics standard was repealed under the Congressional Review Act (CRA). Under the CRA, OSHA is prohibited from issuing a similar standard. How the word "similar" is interpreted by lawmakers will determine the fate of future attempts at issuing an ergonomics standard.

*Kathy Sitzman, MS, RN, is Assistant Professor, Weber State University, Ogden, UT. Correspondence via e-mail: sitzmank@webpipe.net.*

*Donald Bloswick, PhD, PE, CPE, is an Associate Professor, Department of Mechanical Engineering, and Director, Ergonomics and Safety Program, University of Utah, Rocky Mountain Center for Occupational and Environmental Health.*

Even though the OSHA ergonomics standard has been repealed, it provides practical information that can be used by employers and employees in establishing an ergonomic program and quantifying job stresses. Many of the program elements are desirable components of any ergonomics program. In addition, the "basic screening tools" presented in the OSHA standard indicate job characteristics that suggest ergonomic risk and are excellent for use in identifying and quantifying levels of ergonomic risk. Detailed ergonomic guidelines and information and a complete copy of the repealed ergonomic standard is available at OSHA's Web site: **www.osha.gov/**.

The standard required that employers provide to each current and new employee basic information about:

- common musculoskeletal disorders (MSDs) and their signs and symptoms;
- the importance of reporting and how to report these MSD symptoms;
- the risk factors, jobs, and work activities associated with MSDs; and
- a short description of the requirements of the OSHA Ergonomics Program Standard.

Employers who choose to apply the information and follow the steps in the repealed standard would be 1. instituting a simple and effective ergonomics program that would protect workers from injury and 2. demonstrating commitment to providing a safe working environment.

## Home Care Ergonomics

Many activities associated with home care are classified into ergonomic risk categories described by OSHA and other ergonomic professionals. Examples of risk activities include moving clients; carrying nursing bags, medical equipment, and other items; driving; and entering/exiting a motor vehicle. It is important that ergonomic safety be addressed in the home care setting in order to provide the safest possible working environment. Also, the home care industry is covered by the OSHA Act's general duty clause. This requires that employers provide a safe working environment, including consideration of ergonomic issues. Historically, home care workers have had difficulty establishing that musculoskeletal injuries were the result of occupational activities. This is partially due to the fact that many home care employees work alone and have no witnesses

or proof that their musculoskeletal disorder may be work related.

However, home care workers are at risk for ergonomically related musculoskeletal disorders. In 1998 the Bureau of Labor Statistics (**www.bls.gov**) noted that the rate of lost-time injuries for home care workers was 4.7 per 100 full-time equivalent employees versus 3.1 for other healthcare workers in hospital and clinical settings. Nearly 40% of these lost-time injuries resulted from overexertion. Most were related to lifting. Falls comprised 25%, and 16% resulted from motor vehicle accidents. All of these musculoskeletal disorders negatively affect the injured employee and can result in reduction of services to in-home clients. Ergonomics must be adequately addressed in the home care setting.

## Areas of Ergonomic Concern in Home Care

Ergonomic concerns in home care that could result in MSDs include client contact, loading and unloading, driving, and entering/exiting a motor vehicle. Although not all inclusive, specific conditions include:

- repetition and static postures associated with driving,
- force associated with lifting and pushing/pulling clients and equipment,
- overexertion due to multiple physical demands, and
- awkward postures associated with various work activities in home care.

## Ergonomic Issues

Client contact is of concern due to several factors including overexertion from daily lifting, multiple lifts, lifting alone, and transferring and repositioning clients with inadequate assistive devices. Injuries are more likely to occur when lifting is performed in an awkward posture. The physical layout of individual home environments and confused, unilaterally weakened, or comatose clients all contribute to awkward lifting situations. Although it is not always possible to fully resolve client contact concerns, it is possible to minimize risk with simple interventions.

**Example:** *At risk is the nurse who attempts to assist a weakened and slightly confused client to a standing position, from a seated position on a bath stool, and then out of the tub, in a confined bathroom. In this older home, the toilet is positioned close to the tub; a vanity located opposite the tub occupies most of the available maneuvering space. The nurse, in an attempt to protect the client from possible injury while exiting the tub, is forced into an awkward position during the lift and transfer. Installation of handrails, removal of the vanity, or substitution of a thorough bed bath may be options for protecting the nurse from injury. Although clients and their families may resist these options, the reality of possible permanent injury to the nurse is such that ergonomic issues must be a priority.*

### Suggested Guidelines for Client Handling

1. Require a safe lifting and transferring program be completed by all patient care employees. Include planning and problem-solving techniques applied to situations where lifting is required. Provide resource personnel and equipment to be used when initiating services for clients who present ergonomic challenges.
2. Create a policy outlining criteria that necessitate a two-person lift, or assistive device (e.g., shower chair, mechanical lift, slide board, wheelchair, hospital bed) so that lifting/handling practices within the agency are clear, uniform, and as safe as current "best practice" permits.

## Further Information on Ergonomics

One of the best resources is the OSHA Web site: **www.osha.gov**. Click on the *ergonomics* link to obtain additional information about ergonomics. A complete copy of the repealed standard can be obtained by clicking on *archives* and then *ergonomic standard*.

The NIOSH home page can be found at **www.cdc.gov/niosh**. On the NIOSH home page users can click on *publications* and then search for ergonomics publications (over 500 publications are presently available).

There are 16 NIOSH education and research centers located throughout the United States. Ergonomic training information may be obtained at these centers which can be accessed through the NIOSH Web site: **www.niosh-erc.org**.

3. Require documentation and uniform work practices regarding client handling:
   - Require case managers to formally educate family caregivers in safe lifting practices. Clarify that personnel providing care in the home are *required* to follow agency-established safe lifting guidelines.
   - Require clients to obtain necessary safe lifting aids. Provide necessary assistance and/or a resource list including funding options and suppliers of lifting aids.
   - Require initial and periodic assessment, evaluation, and planning to address lifting/handling effectiveness for the client, caregivers, and agency personnel.

Loading and unloading is a concern because of the necessity of carrying nursing bags, durable medical equipment, and other supplies to and from the office, car, and client residences.

**Example:** *At risk is the nurse who has an extremely heavy nursing bag that causes minor strain or injury every time the he or she twists and removes the bag from the back seat of his or her vehicle. Multiple minor strains may eventually result in an injury. Separating items into two bags, eliminating supplies that are infrequently used (place those items in a closed box in the automobile's trunk), and removing the bag from the back seat through the passenger door after exiting the vehicle are all simple interventions to decrease the risk of ergonomic injury in this situation.*

### Suggested Guidelines

While a policy and procedure may be unnecessary, it is helpful to address this issue through employee education relative to the following guidelines:

1. Learn about safe loading and unloading practices:
   - Plan ahead to determine when a lifting/carrying aid such as a hand cart or ergonomically designed bag would be indicated.
   - Identify and practice safe loading/unloading techniques as outlined by OSHA (**www.osha.gov/**) or proposed by agency personnel trained in ergonomics. Identify and access contacts within the agency who can help facilitate safe loading and unloading.
2. Consciously support and practice safe loading/unloading techniques. Assist, support, and educate coworkers.

## Driving

Daily driving is required of home care workers. Driving conditions vary depending on time of day, weather, and road conditions. If a worker consistently uses suboptimal static positioning or repetitive movement while driving, discomfort or injury may result.

**Example:** *At risk is the worker whose vehicle has a small-grip steering wheel and who grasps the wheel firmly while driving. The worker experiences hand cramping due to this suboptimal static posturing. Driving practices could be compromised due to focus on cramping and pain rather than driving. A simple intervention would be to apply a padded, large-width steering wheel cover and aim the heater vents toward hand positions during colder weather in an attempt to decrease pain and cramping.*

Suggestions for decreasing ergonomic risks associated with daily driving:

1. Practice ergonomically correct techniques such as:
   - stepping out of the car to stretch every 2 hours,
   - using a lumbar support pillow if low back discomfort is present,
   - changing hand and arm positions frequently while driving,
   - positioning car mirrors so that neck twisting and/or bending is kept to a minimum and neutral neck positioning (straight-ahead or level turning from side to side) is achieved, and
   - refraining from eating, smoking, or using a cell phone while driving; these are unsafe practices that may encourage incorrect positioning while driving, leading to discomfort and injury.
2. Avoid overscheduling. Fatigue can cause overall unsafe driving technique and poor positioning resulting in overexertion in the neck, upper extremities, and the upper, middle, and lower back while driving. This may lead to discomfort and eventual injury.
3. Explore the use of simple, economical devices such as steering-wheel covers and lumbar pillows that will enhance ergonomically comfortable and safe positioning while driving.

Entering and exiting a motor vehicle is of concern because most full-time home care workers must enter and exit a motor vehicle more than 12 times per day. Surfaces immediately outside the vehicle may be icy, wet, slippery, sloped, uneven, or unstable. Also, most vehicles are not naturally conducive to optimal entry/exit due to tight enclosure, seat angles, and proximity of

the seat to the ground. Education regarding possible risks and interventions may be useful in raising awareness and decreasing discomfort and injury resulting from problematic vehicle entry/exit habits.

### Suggested Guidelines

- Develop the habit of looking at the surface onto which you will be exiting before actually exiting.
- Assess whether the surface poses any slip, twist, or fall hazards.
- Do not attempt to exit upon a surface that is obviously slick or unstable.
- If a surface was fine during exit but looks slippery upon return, consider entering through a passenger door where the surface may look safer.
- It may be helpful to carry sand in the trunk where it is readily accessible. Sprinkling sand on a slippery surface will increase traction and decrease the likelihood of injury.
- Do not try to enter/exit while carrying a nurse bag, equipment, or supplies. Keep hands free for balance and gripping should you begin to slip, twist, trip, or fall. Retrieve or reload necessary items when feet are firmly planted upon solid ground.
- When exiting a vehicle, it is sometimes helpful to pivot in the seat while moving both legs toward the open car door in one smooth motion. Not all vehicles have adequate room for this maneuver; however, if space and individual strength and flexibility permit, this movement may ease low-back, knee, and hip pain. Twisting the lower back and then moving the legs separately may strain the back and lower extremities, and increase the chances of twisting the back, hip, knee, or ankle. At the very least, mindfully exit with attention to body position, balance, and surface conditions.

## Summary

The repealed OSHA ergonomic standard contains useful, readily available information for those who wish to address ergonomic concerns in the home care setting. The study and use of ergonomic principles is necessary to protect the professional longevity of home care professionals. Many improvements may be accomplished through education, heightened awareness, and simple, economical equipment. Further study is needed to adequately describe ergonomic concerns and improvements related to home care activities. Until more formal study can be completed, application of general ergonomic principles will enhance the comfort, safety, and health of the invaluable home care worker. ⌂

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