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Pamphlet 40-21**

Medical Services

Ergonomics Program

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SUMMARY of CHANGE

DA PAM 40–21
Ergonomics Program

This major revision, dated 30 August 2018—

- o Clarifies the procedures necessary to fulfill an installation ergonomics program (para 1–9).
- o Updates the technical assistance point of contact information for support in developing and implementing installation ergonomics programs (para 1–10).
- o Updates and expands problem identification procedures of systematic passive and active surveillance to identify jobs or worksites with work-related musculoskeletal disorder risk factors (para 3–1).
- o Updates detailed analysis guidance to include updated analysis techniques and resources (para 3–3).
- o Expands guidance for the intervention hierarchy of preventing and controlling exposure to work-related musculoskeletal disorder hazards (para 4–1).
- o Adds nonpermissible ergonomic interventions guidance to include orthotics, braces, or other medical devices (para 4–7).
- o Eliminates health care management procedures (formerly chap 5).
- o Decreases the minimum number of training hours for the ergonomics officer from 40 to 20 hours (para 5–2*a*).
- o Updates guidance on regular evaluation and review requirements (para 6–4).
- o Adds a new chapter on the management and oversight of safe patient handling and mobility programs at military treatment facilities (chap 7).

Medical Services Ergonomics Program

By Order of the Secretary of the Army:

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History. This pamphlet is a major revision.

Summary. This pamphlet provides guidance for establishing the ergonomics program component as an integral part of the Army Occupational Safety and Health Program at all facilities controlled by the Department of the Army.

Applicability. This pamphlet applies to all Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve. Also, it applies to civilian personnel and nonappropriated fund personnel employed the Army worldwide.

Proponent and exception authority. The proponent of this pamphlet is The Surgeon General. The proponent has the authority to approve exceptions or waivers to this pamphlet that are consistent with controlling law and regulations. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this regulation by providing justification that includes a full analysis of the expected benefits and must

include formal review by the activity's senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to AR 25–30 for specific guidance.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Headquarters, Department of the Army (DASG–HS), 7700 Arlington Boulevard, Falls Church, VA 22042–5143.

Distribution. This pamphlet is available in electronic media only and is intended for the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve.

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Glossary

Chapter 1 Introduction

1-1. Purpose

This pamphlet provides guidance for establishing the ergonomics program component as an integral part of the Army Safety and Occupational Health (SOH) Program at all facilities controlled by the Department of the Army (DA) as required in AR 385-10 and AR 40-5.

1-2. References

See appendix A.

1-3. Explanation of abbreviations and terms

See the glossary.

1-4. Background

a. An effective ergonomics program can—

- (1) Prevent workplace injuries.
- (2) Reduce medical and other associated costs of work-related musculoskeletal disorders (WMSDs).
- (3) Preserve the fighting strength of the Armed Forces.

b. Effects of WMSDs include—

(1) *Health effects.* Repeated biomechanical stress and microtrauma can cause or aggravate WMSDs. Over time, repeated microtrauma can evolve into a painful, debilitating state involving muscles, tendons, tendon sheaths, and nerves. Examples of WMSDs are tendinitis, tenosynovitis, bursitis, and nerve entrapment syndromes (for example, carpal tunnel syndrome).

(2) *Economic effects.* The expense associated with a poorly designed workplace is considerable and includes both direct and indirect costs.

(a) Direct costs include medical treatment, rehabilitation, and workers' compensation costs.

(b) Indirect costs include days away from work, days of restricted work, decreased productivity, decreased work quality, retraining costs, and diminished morale.

(c) The combined effect of several risk factors being present in a job or workstation may increase the probability that a WMSD will occur. Research identifies the following as occupational risk factors and specific workplace conditions that can contribute to the development of WMSDs:

1. Forceful exertions or heavy lifting (especially in non-neutral postures).
2. Repetitive motions (especially during prolonged activities).
3. Sustained static or non-neutral postures.
4. Continued elbow or shoulder elevation (for example, overhead work).
5. Excessive use of small muscle groups (for example, pinch grip).
6. High-velocity motions (for example, rapid assembly).
7. Vibration (segmental or whole-body), jolt or jerk.
8. Mechanical compression (for example, sharp edges on a desk, seat, or hand tool).
9. Restrictive workstations (for example, inadequate clearances).
10. Improper seating or postural support.
11. Poorly designed or maintained hand tools.
12. Machine-pacing and production-based incentives.
13. Extreme temperatures.
14. Extended exposure to hazardous or annoying noise.
15. Improper lighting.
16. Improper job or task design (for example, workflow inefficiencies).
17. Work organization and occupational psychosocial factors (for example, job stress).

(d) Ergonomics programs fall under—

1. General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health Act of 1970 (Public Law (PL) 91-596); Executive Order 12196, section 1-201; Title 29 Code of Federal Regulations (CFR), Part 1910; and 29 CFR 1960.8(a).

2. AR 40-5 and AR 385-10.

1–5. Program areas

a. This pamphlet applies to installation ergonomics programs, with respect to—

- (1) Worksite analysis.
- (2) Hazard prevention and control.
- (3) Education and training.
- (4) Program evaluation across all levels of the organization.

b. This section applies to all DA commands and should not be construed as to preclude non-installation commands (such as tenant organizations) from use of this pamphlet in implementing ergonomics programs specific to the needs of their organization in collaboration with installation-level ergonomic programs. Other commands within the Army use ergonomics principles in the process of developing and refining Army systems, specifically in Armywide initial equipment design, assessment, and related human performance research.

1–6. Minimum ergonomics program requirements

At a minimum, an ergonomics program should—

- a.* Be an integral component of a comprehensive SOH Program.
- b.* Include a written plan with goals and objectives.

c. Address the four critical program elements—workplace analysis, hazard prevention and control, education and training, and program evaluation. The degree of emphasis on each critical program element will vary according to the hazards and concerns at each installation and command.

- d.* Assist in procurement initiatives to ensure ergonomic design criteria are considered.

1–7. Goals

An emphasis on early identification and prevention of WMSDs and associated risk factors will preserve and protect our military and Civilian work force while decreasing related costs. The goals of the ergonomics program are to—

- a.* Prevent or control injuries and illness by eliminating or reducing worker exposure to WMSD risk factors.
- b.* Reduce the potential for fatigue, error, and unsafe acts by designing workstations, equipment, and jobs that match worker's capabilities.
- c.* Increase the overall productivity of the workforce.
- d.* Reduce workers' compensation claims and associated costs.
- e.* Improve overall unit readiness.

1–8. Organizational involvement

A collaborative partnership among all levels of the working community is essential in achieving the goals of the ergonomics program. Command emphasis and commitment by management with demonstrated visible involvement are imperative to provide the organizational resources and motivation needed to implement a sound ergonomics policy. All levels of DA personnel (manager, supervisor, worker, and Soldier) identify risk factors and reduce the incidence of WMSDs.

1–9. Procedures

The following procedures and activities are critical in the implementation and sustainment of an effective ergonomics program:

a. Installation commanders duties are to—

(1) Establish an ergonomics subcommittee under the Safety and Occupational Health Advisory Council (SOHAC) and integrate ergonomics into all phases of the SOH Program.

(2) Track and report WMSDs as a component of regularly reported injuries under the installation SOH Program.

(3) Approve the installation ergonomics policy and plan based on the recommendations of the SOHAC.

(4) Support the ergonomics program, demonstrate commitment, and provide necessary resources based on the magnitude of the WMSD problem and local priorities.

(5) Designate an ergonomics officer (EO) selected from the medical assets or, in the absence of medical assets, from the safety assets or other appropriate personnel.

(6) Ensure tenant units and subordinate activities receive services from the ergonomics program based on the installation SOHAC policy.

b. The supporting medical commander duties are to develop written installation healthcare management procedures with appropriate metrics for the early recognition, evaluation, treatment, and follow-up of WMSDs among military and Civilian personnel (see para 6–2).

c. The EO is a qualified health or safety professional who has received at least 20 hours of formal ergonomics training (see para 5–2a for training standards). The EO duties are to—

(1) Chair the ergonomics subcommittee and provide an interface between the ergonomics subcommittee and the SOHAC.

(2) Develop and implement the installation ergonomics policy and plan, with the assistance of the ergonomics subcommittee and approval of the SOHAC. Ensure ergonomics subcommittee members are trained and take action to identify, assess, control, and prevent WMSDs.

(3) Ensure accurate program recordkeeping and periodic evaluation and review of program objectives, and report results of the evaluation to the SOHAC.

d. Based on local personnel resources, the ergonomics subcommittee may consist of representatives from industrial hygiene (IH); safety; health care (physician, occupational health nurse, occupational and physical therapists, physician assistant); human resources; Federal Employee Compensation Act (FECA) claims management; tenant activities; the military chain of command; and local unions. Advisory members may include representatives from engineering and maintenance, contracting, logistics, and information management. The ergonomics subcommittee oversees and participates in—

(1) Identifying WMSD risk factors through workplace analyses that involve both active and passive surveillance.

(2) Setting abatement priorities based upon the presence of WMSD risk factors and the number of reported WMSDs in installation work areas.

(3) Identifying and implementing corrective actions.

(4) Evaluating effectiveness of corrective actions and documenting the results.

(5) Providing appropriate worker and supervisor training.

(6) Coordinating with medical personnel about high-risk work areas or work processes.

e. Key individuals in the military chain of command act as military representatives to the ergonomics subcommittee. The military representatives—

(1) Inform the ergonomics subcommittee about work areas with extremely high operational tempo or physically demanding work.

(2) Coordinate and participate in military work area assessments to identify WMSD risk factors and interventions (including training Soldiers) that reduce injury risk, enhance readiness, and decrease physical work demands that accommodate a wider range of Soldiers' physical capacities.

(3) Brief the military activity commander on WMSD risk factors that may negatively impact readiness.

f. The Director of Contracting Support, or equivalent, ensures the integration of ergonomic considerations and consults with trained ergonomics personnel concerning the purchase of new equipment.

g. The Director of Public Works, or equivalent, integrates ergonomic considerations and consults with trained ergonomics personnel concerning facility modifications and construction.

h. The Director of Logistics, or equivalent, ensures the integration of ergonomic considerations and consults with trained ergonomics personnel concerning the purchase of new equipment.

i. The Director of Information Management, or equivalent, ensures integration of ergonomic considerations and consults with trained ergonomics personnel concerning the purchase and installation of new information management equipment and technologies.

1–10. Technical assistance

Technical assistance and support in developing and implementing installation ergonomics programs may be requested through command channels from the appropriate U.S. Army Public Health Command Regional office or the U.S. Army Public Health Center (APHC) (MCHB–PH–ERG), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010–5403 (<http://phc.amedd.army.mil/topics/workplacehealth/ergo/pages/default.aspx>) and from the U.S. Army Combat Readiness Center (CSSC–OP), Building 4905, 5th Avenue, Fort Rucker, AL 36362 (<https://safety.army.mil/>).

Chapter 2 Installation Ergonomics Plan

2–1. Focus

The installation ergonomics plan focuses on identifying and mitigating improper workplace and work process designs to reduce exposures to risk factors that may cause WMSDs, as defined in paragraph 1–4b.

2–2. Practical effects

Implementing an effective installation ergonomics plan will help reduce WMSDs and workers' compensation claims, resulting in improved product quality, productivity, and personnel morale as well as decreased costs.

2–3. Development and approval

a. The EO and the ergonomics subcommittee will develop, document, and maintain the installation ergonomics plan. They may—

- (1) Develop the plan from injury data, previous survey results, and FECA data.
- (2) Solicit input from managers, supervisors, workers, and SOH personnel.
- (3) Solicit input to the plan from healthcare providers, including physicians, nurses, occupational therapists, physical therapists, and physician assistants.
- (4) Integrate the plan with the installation or activity health promotion and wellness program coordinator as appropriate.
- (5) Request technical assistance on plan development from APHC (see para 1–10).

b. The SOHAC recommends the ergonomics plan to the commander for approval and communicates the plan to all managers, supervisors, and workplace personnel.

2–4. Outline

a. The ergonomics plan should reflect the needs and requirements of the individual installation. The EO and the ergonomics subcommittee may use the structure and content provided in this pamphlet in developing an ergonomics plan that addresses each of the elements. At a minimum, the ergonomics plan should contain the following elements:

- (1) Program goals and objectives.
- (2) Ergonomics program interfaces with existing programs.
- (3) Membership and roles and responsibilities for members.
- (4) Specific critical program elements for ergonomic intervention, to include—
 - (a) Worksite analysis (chap 3).
 - (b) Hazard prevention and control (chap 4).
 - (c) Education and training (chap 5).
 - (d) Ergonomics program evaluation (chap 6).

b. The extent of involvement in each of the critical program elements in paragraph 2–4a(4) will vary according to the hazards and concerns at the individual installation; however, some degree of activity in each of the program elements is required for an effective program.

Chapter 3

Worksite Analysis

3–1. Problem identification

Use the following procedures of systematic passive and active surveillance to identify jobs or worksites with WMSD risk factors.

a. *Systematic active surveillance.* This procedure involves focused and active efforts to gather information about WMSD hazards at worksites and to identify workers or groups of workers at risk of developing WMSDs. Trained ergonomics personnel should perform active surveillance in conjunction with IH or safety surveys or regular training.

- (1) Examples of active surveillance procedures include—
 - (a) *Observation.* Trained ergonomics personnel can identify work processes that cause discomfort or identify risk factors by direct observation and interviews. For example, workers state the loads they are required to lift causes discomfort.
 - (b) *Case referrals.* A mechanism should be in place for healthcare providers to report work processes or shops that may be yielding suspected WMSDs to the EO or ergonomic subcommittee. For example, a primary care provider reports evaluating a dental laboratory technician who sought treatment for hand and wrist pain attributed to fabricating dentures.
 - (c) *Questionnaires and surveys.* Supervisor and worker questionnaires and symptom or body part discomfort surveys provide information about WMSD hazards, often before actual injuries occur. Trained ergonomics personnel can administer surveys during workplace assessments or as part of regular training.

(2) A report of a new or recurrent WMSD should trigger, at a minimum, a site walk-through and case referral. Additional surveillance using appropriate questionnaires or surveys may be indicated based on findings. Trained ergonomics personnel should perform systematic active surveillance at all worksites at least once per year. Also, trained ergonomics personnel should perform walk-through surveys for any new or significantly changed job, process, equipment, or method.

(3) In many cases, corrections to the WMSD hazards or risk factors are simple, quick, on-the-spot workplace changes. Trained ergonomics personnel conducting regular walk-through surveys can identify and implement solutions immediately. Chapter 4 provides information on hazard prevention and control. Problems that are more complex require prioritization and detailed analysis.

b. Systematic passive surveillance. This procedure involves the analysis of data provided in existing monthly or quarterly reports. This analysis can identify WMSD problems, set evaluation and intervention priorities, and organize the ergonomics effort. The office or organization responsible for maintaining the records, logs, or reports should perform the systematic passive surveillance and communicate the results to the EO and the ergonomics subcommittee. Sources of data may include but are not limited to—

- (1) Routine military and Civilian injury and illness reports.
- (2) Occupational Safety and Health Administration (OSHA) Form 300 (Log of Work-Related Injuries and Illnesses) (see 29 CFR 1904).
- (3) OSHA Form 300A (Summary of Work-Related Injuries and Illnesses) (see 29 CFR 1904).
- (4) OSHA Form 301 (Injury and Illness Incident Report) (see 29 CFR 1904).
- (5) FECA claims.
- (6) DA Form 285 (Technical Report of U.S. Army Ground Accident) and DA Form 285-AB (U.S. Army Abbreviated Ground Accident Report (AGAR)).
- (7) Safety records.
- (8) Related medical records.
- (9) Clinical workload reports (for example, Ambulatory Data System summaries).
- (10) Civilian and active-duty personnel and pay reports of lost duty time as a result of injury or illness.
- (11) Sentinel event or incident reporting. A report of a WMSD associated with work-related activity should be considered a sentinel event that provokes an investigation to identify risk factors that may be mitigated to prevent future WMSDs. A specific reporting procedure should be developed to handle these incidents and facilitate a resolution.

3-2. Prioritization

a. The ergonomics subcommittee or the appropriate subcommittee member (for example, IH, safety, health care) should prioritize worksites to identify targets for further detailed analyses or intervention using the passive and active surveillance information. One method for prioritization is to assign risk assessment codes (RACs). The RAC prioritization may be based on incidence rates, the number of workers affected, direct costs, days away from work, days of restricted work, or severity of cases. Calculate incidence, severity, and prevalence rates by unit, work section, or job series to identify high-risk areas (see glossary for definition of rate). An alternative method is to review data sources such as local injury logs, OSHA logs, FECA, Force Risk Reduction tool, Army SOH Enterprise Information System, or Defense Medical Surveillance System to identify high-cost injuries and high-risk work areas.

b. Results of worksite assessment, prioritization and subsequent hazard prevention and control, and training plans and activities should be communicated to affected supervisors and workers.

3-3. Detailed analyses

a. Analyses are conducted to achieve a detailed perspective of prioritized work processes or tasks.

b. Ergonomics evaluation tools and methods may be useful when constructing a detailed analysis. Task analysis techniques break down work activity to identify where risk factors reside to the lowest possible level (job, task, or subtask). Available evaluation tools include—

- (1) Revised National Institute for Occupational Safety and Health (NIOSH) Lifting Analysis.
- (2) Ergonomics checklists (OSHA computer workstation e-tools checklist, NIOSH hand tool checklist).
- (3) Videotape analysis.
- (4) American Conference of Governmental Industrial Hygienists Ergonomics Threshold Limit Values.
- (5) Biomechanical analyses (Utah Shoulder Moment Model, Utah Lifting Index, Biomechanical Link Segment Analysis).
- (6) Liberty Mutual Manual Material Handling Guidelines.
- (7) Qualitative ergonomics assessment tools (Washington State checklist).
- (8) Physiological assessment methodologies, to include—
 - (a)* Static and dynamic strength testing.
 - (b)* Metabolic (cardiopulmonary demand) estimates such as ratings of perceived exertion.
 - (c)* Physical demands analyses to quantify the ergonomics risk factors to which workers are exposed.
- (9) MIL-STD-1472G.

c. Each analysis should include—

- (1) Consideration of risk factor combinations that may confound results.
- (2) Trends that may include age, gender, task type (such as cognitive complexity, perceived importance and physical demand level), and chronicity (time of day and day of week that activity is performed).
- (3) Identification of problems, solutions, and mitigation strategies.

Chapter 4

Hazard Prevention and Control

4–1. Intervention hierarchy

The primary method of preventing and controlling exposure to WMSD hazards is through effective design (or redesign) of a job, job tasks, or worksite. Control methods entail numerous strategies that exist on a hierarchy corresponding to their effectiveness. Most effective strategies usually involve changing the hardware that supports the process, less effective strategies alter the procedures that the process uses, and the least effective strategies attempt to alter the individual techniques that workers use for the process. When control strategies are limited or unavailable, personal protective equipment (PPE) may be used to mitigate exposures.

4–2. Process elimination

Eliminating a physically demanding process eradicates the WMSD hazard. For example, repetitive motion associated with manual scanning can be eliminated by providing an automatic barcode scanner.

4–3. Engineering controls

Ergonomic engineering controls redesign the equipment or worksite to fit the limitations and capabilities of workers. Equipment or worksite redesign typically offers a permanent solution—for example, a computer workstation that can be adjusted to a wide range of anthropometric dimensions.

4–4. Substitution

Substituting a new work process or tool (without WMSD hazards) for a work process with identified WMSD hazards can effectively avoid the hazard. For example, hand tools that require awkward wrist positions (extreme wrist flexion, extension, or deviation) can be replaced with tools that allow a neutral wrist posture.

4–5. Administrative controls

Administrative controls involve changes in work procedures such as written safety policies, rules, supervision, schedules, adjustment and maintenance of tools and equipment, and training with the goal of reducing the duration, frequency, and severity of exposure to ergonomics risk factors. Examples of administrative controls used in ergonomics include—

a. Personnel practices.

- (1) Reducing the number and speed of repetitions by reducing line or production speed or by having worker input regarding production speed (that is, using worker-based rather than machine-based production speed).
- (2) Limiting overtime work and modifying production rate requirements to reduce the number of repetitions.
- (3) Providing rest breaks to relieve fatigued muscle-tendon groups. Determine the length of the rest break by the effort required, total cycle time, and the muscle-tendon group involved.
- (4) Increasing the number of personnel assigned to the task (for example, lifting in teams rather than individually).
- (5) Instituting job rotation as a preventive measure, with the goal of alleviating physical fatigue and stress to a particular set of muscles and tendons. Job rotation must not be used in response to symptoms of WMSD; this can contribute to symptom development in all personnel involved in the rotation schedule rather than preventing problems. Trained ergonomics and healthcare personnel should conduct an analysis of the jobs used in the rotation schedule.

b. Standard operating procedures. Standard operating procedures (SOPs) are step-by-step instructions that describe the sequence of activities that workers perform to carry out routine operations. SOPs are designed to guide the manner in which processes are executed to achieve consistent performance and production quality to meet or exceed prescribed goals. Implementing, changing, or enforcing SOPs may reduce WMSD hazards if they eliminate unnecessary motion, reduce exertion or minimize assumption of non-neutral postures.

c. Work practices. Work practices include maintenance programs that optimize equipment and tool functionality and the techniques that are not specifically included within SOPs that govern the way the workers move or position their bodies while performing tasks. Properly maintained equipment and tools may decrease exposures to vibration as well as the amount of exertion workers expend to perform a task. Using correct postures (body mechanics) and work techniques also reduce a WMSD hazard.

4–6. Personal protective equipment

PPE is typically items worn by workers that provide a barrier to a hazard. There is insufficient research to support the efficacy of most PPE advocated for ergonomics application. In the absence of more definitive research, the following is advised:

a. Back belts are not considered PPE and their use is not recommended by the NIOSH or the U.S. Army Surgeon General.

b. Knee and elbow pads can protect superficial soft tissues from mechanical insult or contact stress. Although workers may perceive reduced discomfort wearing these devices, research has not substantiated that they are able to reduce pressures inside the knee or elbow joints during weight bearing. For example, when a worker kneels on a hard surface while wearing a knee pad they may perceive less pain but the weight of the body transmitted to the flexed knee has not been eliminated and may represent a hazard. Therefore, the potential adverse health effects of bearing body weight on the knees or elbows while wearing these pads are not known.

c. Anti-vibration gloves must meet International Organization for Standardization (ISO) 10819:2013 standards. Hand-arm vibration should first be eliminated at the source or reduced to its lowest level that is practicable through the hazard abatement process. Anti-vibration gloves are to be used as a final resolution. Employers should not assume anti-vibration gloves will reduce vibration exposures.

4–7. Nonpermissible interventions

Some products and procedures are commonly inappropriately attributed as ergonomic interventions. While each may have appropriate uses they may lack evidence to support their efficacy and/or are not reducing or eliminating an ergonomic risk factor. Examples of products that are inappropriately attributed as ergonomic interventions include—

a. Orthotics, braces, or other medical devices should be prescribed by a properly credentialed healthcare provider and do not fall within the scope of practice for ergonomists.

b. Therapeutic (stretching and strengthening) exercises to prevent or treat WMSDs, movement therapies, and work-conditioning programs should be prescribed and supervised by properly credentialed healthcare providers and do not fall within the scope of practice for ergonomists.

c. Massage and other manipulative techniques should be prescribed and supervised by properly credentialed healthcare providers and do not fall within the scope of practice for ergonomists.

d. Exercise equipment such as ball chairs (in or out of support stands), stability balls, unstable seated or standing surfaces, and hand exercise devices should not be used in the workplace.

4–8. Communication and coordination

Communication and coordination of identified hazard prevention and control options with the affected supervisor and military and civilian personnel are essential. This communication and coordination ensures that the ergonomic intervention is appropriate and tailored for the work area. Local IH program offices are responsible for documenting information about the hazard prevention and controls for their ergonomics exposures into the Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS–IH).

4–9. Worksite followup analysis

Once controls are identified and implemented, the EO and the ergonomics subcommittee establish a schedule to conduct followup worksite analyses. The purpose of the followup analysis is to verify that controls are effective and being maintained. The number, frequency, and extent of followup analyses will be dependent on site conditions and the judgment of the EO and the ergonomics subcommittee.

Chapter 5

Education and Training

5–1. The "train the trainer" concept

Training programs should be administered in a pyramid fashion. Ergonomics experts provide face-to-face or online training to develop trained ergonomics personnel. Trained ergonomics personnel—

a. Train others at the leadership level, including supervisors and workers on general ergonomic principles.

b. May also train special assistants, who can help with recognizing risk factors for WMSDs. The special assistants may be representatives from each department or division who assist other department members in recognizing and reporting WMSDs.

5–2. Education requirements

a. The EO should have a minimum of 20 hours formal ergonomics training. Formal training may consist of a combination of online training, classroom instruction, supervised worksite assessment, and individual learning assignments. At a minimum, this formal training includes—

- (1) Defining ergonomics and determining how ergonomics affects a variety of workplace environments.
- (2) Identifying ergonomics risk factors and developing potential solutions to mediate or eliminate the risk factors.
- (3) Performing a basic ergonomic assessment to include potential interventions.

b. Trained ergonomics personnel should have—

- (1) A minimum of 20 hours formal ergonomics training.
- (2) Training and experience sufficient to identify WMSDs and risk factors. See paragraph 5–2e for training resources.

c. Core ergonomics subcommittee members, support and advisory ergonomics subcommittee members, and installation-level personnel providing assistance in recognizing WMSDs should have basic ergonomics training, to include elements listed in paragraph 5–2a, from trained ergonomics personnel.

d. Personnel responsible for administering the installation ergonomics program should receive appropriate general or specific training as described below. Training is necessary for the Regular Army, the Army National Guard/Army National Guard of the United States, the U.S. Army Reserve, and Civilian personnel at all levels to enable them to understand and recognize WMSD risk factors and actively participate in the ergonomics effort. The level of training required may vary based on position and job requirements.

(1) *General training.* Personnel who are exposed to WMSD risk factors should receive formal instruction on hazards associated with their jobs and equipment. Personnel should receive training at an initial orientation with annual refresher or information thereafter. This training should include the elements listed in paragraph 5–2d(2).

(2) *Specific training.* New and reassigned military and Civilian personnel who are exposed to WMSD risk factors should receive an initial orientation and hands-on training from trained ergonomics personnel and the immediate supervisor prior to being placed in a full-production position. An example of an initial orientation may include—

- (a) A demonstration of the proper use and care of all tools and equipment.
- (b) A demonstration on safe and proper work procedures, such as appropriate manual material handling equipment.
- (c) An overview of procedures for making recommendations to improve work processes to decrease or eliminate WMSD risk factors.

e. For information on available courses, assistance should be requested through command channels to APHC (MCHB–PH–ERG), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010–5403 (<https://phc.amedd.army.mil/topics/workplacehealth/ergo>). The U.S. Army Combat Readiness Center also offers information and training, contact U.S. Army Combat Readiness Center (CSSC–OP), Building 4905, 5th Avenue, Fort Rucker, AL 36362 (<https://safety.army.mil>).

Chapter 6 Ergonomics Program Evaluation

6–1. Evaluation requirements

Both internal and external sources should evaluate each installation ergonomics program to assess program effectiveness.

6–2. Internal evaluations

The EO ensures evaluation of the ergonomics effort regarding program participation and effectiveness. Examples of measuring both of these elements are listed below.

a. *Program participation.*

- (1) Number of requests for ergonomic assistance by management occurring during a specified period.
- (2) Number of personnel suggestions related to ergonomics during a specified period.
- (3) Number of educational programs in ergonomics offered or number of personnel attending educational programs.

b. *Program effectiveness.*

- (1) Number of general or systematic identifications of WMSD risk factors.
- (2) Number of detailed analyses conducted.
- (3) Number of high priority listings relating to ergonomics based on standard evaluation criteria, such as RAC.
- (4) Changes in the incidence and severity rates of WMSD illness or injury reports filed for military and civilian personnel (see glossary for definition of rate).
- (5) Changes in the incidence and severity rates of WMSD FECA claims or dollar amount of new FECA claims within a particular period.

- (6) Changes in the incidence and severity rates of WMSD illness or injury by department or unit.
- (7) Changes in the incidence and severity rates of days away from work, days of restricted work, or transfer to another job due to WMSD illness or injury.
- (8) Changes in the number of new job reassignments due to WMSD illness or injury.
- (9) Changes in productivity or production costs that can be attributed to ergonomic interventions. Note. In some cases, there may be an increase in illness or injury reporting at the start of an ergonomics program due to increased personnel and supervisor awareness. Although reporting may increase, the severity rate (days away from work, days of restricted work, or transfer to another job) should decrease, with more workers returning to work sooner. Eventually, the reporting rate will decrease as a well-managed, effective ergonomics program is integrated into the workplace.

6-3. External evaluations

- a. Ergonomics personnel at APHC, on request from the installation, can—
 - (1) Assist with development of an Army ergonomics program by developing standards and criteria.
 - (2) Evaluate elements of the ergonomics program.
 - (3) Conduct ergonomics surveys.
- b. Each organization should continue to use existing reporting guidelines in DA Pam 385-40.
- c. Commands with trained ergonomics personnel may provide assistance visits to subordinate commands.

6-4. Regular evaluation and review

- a. The chair of the ergonomics subcommittee, or a selected representative as appropriate—
 - (1) Includes results of ergonomic assessments in the standard Army safety and occupational health inspection (see AR 385-10) and/or other required regional and local reports.
 - (2) Prepares a semiannual summary of ergonomics subcommittee activities for the local SOHAC. As a minimum, these summaries include results of passive surveillance, active surveillance, implemented controls, and effects of controls.
 - (3) Communicates the results of the program evaluation and review to top management and all workplace personnel.
 - (4) Sends a copy of this report to U.S. Army Public Health Center Ergonomics Branch (MCHB-PH-IHFS), Aberdeen Proving Ground, MD 21010-5403 or email: usarmy.apg.medcom-aphc.mbx.army-ergonomics.
- b. The following information is used to develop the evaluation and review:
 - (1) Analysis of trends in injury or illness rates according to—
 - (a) OSHA Form 300 (or an equivalent log), OSHA Form 300A, and OSHA Form 301.
 - (b) The DOEHRS-IH ergonomic evaluations and assessments (found in DOEHRS-IH application within the Shop or similar exposure group of interest).
 - (c) Other available injury and illness data systems (for example, the Force Risk Reduction tool and the Risk Management Information System).
 - (2) Review of installation evaluation results.
 - (3) Review of worksite evaluations and improvements.
 - (4) Surveillance of work practices to identify risk factors.
 - (5) Personnel surveys or interviews conducted by department, job title, or work area to identify trends.
- c. The program evaluation assesses the implementation, progress, and effectiveness of the installation ergonomics plan. It should include—
 - (1) A progress summary or program update.
 - (2) A summary of results of program participation and effectiveness measures as defined in paragraph 6-2 and external evaluations as defined in paragraph 6-3.
 - (3) Plans, goals, and accomplishments for the program as a whole and for each of the critical program elements cited in paragraph 2-4a(4).
 - (4) Identification of trends, deficiencies, and corrective actions needed.
 - (5) New or revised program goals, priorities, and timelines.

Chapter 7

Safe Patient Handling and Mobility

7-1. Introduction

- a. This chapter provides guidance for the management and oversight of Safe Patient Handling and Mobility (SPHM) programs.

b. Injuries to staff and patients due to manually handling, repositioning, and transferring patients may contribute to a variety of negative outcomes such as staff injury, workers compensation, presenteeism, underreported pain and discomfort, lost time, recruiting and retention. For patients, SPHM can affect patient falls, skin integrity, and early mobilization opportunities.

c. SPHM programs and equipment are applicable in any location where the manual handling of patients occurs. An SPHM program will identify and mitigate risk during patient handling, movement, and mobility tasks through the use of SPHM practices, including use of appropriate technology, equipment, and technique. SPHM programs incorporate best practices and use of SPHM equipment to limit routine patient care, repositioning, and lifting tasks to the NIOSH-recommended patient lift limit of 35 pounds in “When is it safe to manually lift a patient?” (see American Journal of Nursing, Volume 107, 2007).

7–2. Procedures

The following procedures and activities are critical for the implementation and sustainment of an effective SPHM program.

a. The Commander, U.S. Army Military Treatment Facilities duties are—

(1) Designates/provides a commander’s SPHM program administrator responsible for planning, coordinating, implementing, maintaining, and evaluating the program.

(2) Identifies SPHM equipment and personnel requirements; provides such resource requirements to the regional health command, according to standard regional health command resource requirement reporting procedures. Establishes local oversight of SPHM program resourcing and resource execution.

b. APHC provides ergonomic and SPHM program consultative support, training, information products, and SPHM methods and tools.

c. Leadership of department designated to provide SPHM program administrator ensures and supports collaboration and coordination between services and entities (such as safety, patient safety, preventive medicine, occupational health, facilities management, biomedical, environmental services, contracting, logistics, nursing, rehabilitation, and so forth) that impact successful SPHM program implementation.

d. Local SPHM program administrator duties are—

(1) Coordinates, as needed, with APHC ergonomics for technical consultation to help with developing a tailored military treatment facility (MTF) SPHM program.

(2) Coordinates, implements, maintains, and monitors overall SPHM program within the MTF. This includes, but is not limited to, departments of nursing, safety, patient safety, occupational health, radiology, diagnostic and imaging areas, procedure areas, outpatient clinics, patient transport, environmental services and laundry, engineering, facilities, and rehabilitation.

(3) Establishes MTF-wide department/service/unit champions.

(4) Provides leadership, education, and training for department/service unit champions who act as liaison between program administrator and MTF staff.

(5) Trains, at a minimum, new staff at orientation and all staff annually on elements of the SPHM program and equipment to maintain competency.

(6) Investigates, reviews, and tracks, as appropriate, patient handling-related musculoskeletal injuries and near misses.

(7) Identifies requirements for safe patient handling equipment, personnel, and procedures.

(8) Provides oversight of maintenance and use of safe patient handling equipment and associated accessories such as batteries, slings, scales, and sling bars.

(9) Provides unit-based ergonomic assessments in all areas where patient handling and mobilization is expected in order to identify and address the identified hazards related to SPHM.

(10) Chairs the SPHM facility committee.

7–3. Guidance

a. The healthcare industry records some of the highest rates of work-related injuries causing employees to miss work. Furthermore, over half of these injuries result from manual patient handling and repositioning of patients. SPHM programs that include SPHM technology have been found to enhance nursing retention and recruitment, as well as improve the quality of patient care. The program elements presented in paragraph 7–3*b* are also the basis of the Veterans Health Administration SPHM program, the Occupational Safety and Health Administration (OSHA, 2015) inspection guidance for inpatient healthcare settings related to musculoskeletal disorders related to patient or resident handling, and OSHA Ergonomics Guidelines for Healthcare Facilities and the American Nurses Association “Handle with Care” Program and their subsequent SPHM Interprofessional National Standards.

b. SPHM program elements include—

(1) Program initiation and evaluation.

(a) In coordination with the APHC, identify actionable data elements describing program outcomes, including safe patient handling equipment, procedures, and activities as well as patient handling-related occupational health risk factors, related musculoskeletal disorders, injuries, and near misses in MTF staff who handle patients. These actionable data elements should be tracked and assessed by the SPHM program administrator and the MTF committee that provides SPHM program oversight.

(b) Assess areas where patient handling and mobilization occurs to identify hazards and provide strategies to address the hazards. This includes identification of ergonomic risk factors and patient handling and mobilization activities that require manual handling. Data elements collected during this assessment may include: patient census patterns and trends; unit-specific demographics; patient transfers; safe patient handling and mobility equipment; staff focus groups or surveys to identify perceived high-risk tasks and describe discomfort; staff injury and lost time data; and patient outcomes such as early mobilization, falls, and hospital-acquired pressure ulcers. Additional considerations may include assessment of space and structural limitations which may impact ceiling lift installation, and use and storage of patient handling equipment such as floor-based lifts and slings. These assessments may also include introduction of algorithms or care plans that assist clinicians in selecting appropriate techniques and equipment required for completing SPHM tasks.

(c) Document and track program resourcing, resource execution, unfunded equipment, personnel, and other program requirements.

(2) Policy—

(a) Publish a local MTF SPHM program policy outlining procedures, criteria, and implementing guidance. The policy should address roles and responsibilities, compliance, equipment use, program management, training, and risk assessment. An MTF policy should eliminate manual lifting to the extent feasible. However, individual facilities should tailor the policy to the local personnel roles, needs, and requirements. Appendix C provides an SPHM facility policy example.

(b) Patients and staff should be made aware of the SPHM policy through patient education materials and staff training. Policy should support staff's right to avoid manually handling patients in ways that might result in injury to themselves or their patients (<https://www.osha.gov/publications/osha3021.pdf>).

(3) SPHM equipment - SPHM equipment refers to medical supplies and equipment that are intended to facilitate safe patient transfers, repositioning, mobility, and transport. Traverse track ceiling lifts and their associated slings are preferred due to convenience and usability. Nevertheless, not all patient care facilities can install wall- or ceiling-mounted lift technology without significant facility modifications. SPHM equipment should be available in sufficient quantity and in locations convenient to staff as indicated by the program evaluation. SPHM equipment decreases the risk of injury from patient handling activities and includes but is not limited to—

(a) Lifting equipment – assists in lifting, transferring, repositioning, and ambulating patients. Examples include ceiling-mounted, wall-mounted, portable and floor-based designs and their accompanying sling bars and slings.

(b) Lateral transfer devices – provides assistance in moving patients horizontally from one surface to another (for example, transfers from bed to stretcher) for example, air assisted, mechanical, and friction-reducing types.

(c) Repositioning aids – provides assistance in turning patients and pulling patients up to the head of the bed and up in chairs.

(d) Equipment, bed, and wheelchair transport assistive devices – assists caregivers in pushing heavy equipment and patients.

(e) Powered height-adjustable exam tables – assists in transferring patients onto exam tables, bringing patients to sitting positions, and raising the table surface to a more ergonomically safe working level.

(f) SPHM equipment accessories—

1. Scales – they can be integrated with or an additional feature of SPHM equipment. Scales can be beneficial for the weighing of patients while using the equipment and, in a rehabilitative setting, may assist with quantifying weight bearing.

2. Slings – a wide variety of sling sizes and designs are available. Consider the census and demographics of the patient population to determine the design type, size, and quantity needed for each unit. The laundry cycle time for slings should be considered so that a sufficient quantity of slings is available at all times.

3. Sling bars – different tasks require different styles of sling bars. Consider the patient population and SPHM tasks when selecting sling bars. For example, a 2-point sling bar is used for a seated transfer and a 6- or 8-point sling bar would be used for a supine or reclined transfer.

(4) SPHM Unit Champion Program – assign unit staff from clinical areas where patient handling occurs to provide unit level expertise in the SPHM program as a collateral duty. Unit champion expertise is needed to advise co-workers, demonstrate equipment use, and champion the SPHM initiatives. Ideally, each unit where patients might be manually handled should identify at least one unit champion. These personnel should receive additional training from the equipment manufacturer and the SPHM program administrator.

(5) Education and training—

(a) All staff receives competency training on the use of new SPHM equipment and retraining at least annually.

(b) All staff is educated on the importance of SPHM programs, process for reporting SPHM-related concerns and injuries, and mobility assessment methods as needed.

(c) New employee orientation includes SPHM use of equipment and SPHM program elements.

(d) Patients and families are educated on facility SPHM policy and equipment.

(e) Unit champions receive additional training on equipment use and SPHM principles to develop and establish the SPHM program for their respective unit.

(f) Biomedical engineering staff may receive training on inspection and maintenance of SPHM equipment.

(6) SPHM committee – multidisciplinary group that oversees SPHM program activities. Committee members may include but are not limited to clinical staff, management staff, infection control, biomedical engineering, union representation, facilities, environmental services, logistics, contracting, safety, occupational health, rehabilitation, and patient safety. This committee may be a subcommittee of an existing independent committee such as the SOH committee or environment of care committee. Membership of the SPHM committee may change depending on the level of program maturity. The committee may review aggregate employee safety incidents, lost time, and patient safety incidents associated with SPHM. The committee may also evaluate equipment maintenance, logistics, and availability of supplies (such as slings, lateral transfer aids, or floor-based equipment). The committee may identify trends, successes, and opportunities for improvement for the SPHM program. The committee should meet on a regular basis. The frequency may decrease as a program's maturity increases. For example, monthly meetings may be required initially but may become quarterly as the program develops.

(7) MTF renovation planning—

(a) Ensure that an ergonomic patient handling and mobility analysis is conducted as part of the design requirements planning process for MTF new construction, renovation or facility major, minor and nonrecurring maintenance projects that involve units and clinical areas where patient handling occurs. Areas for inclusion of SPHM equipment may include but are not limited to inpatient rooms, outpatient clinics, imaging and diagnostics areas, emergency and operating departments, rehabilitation units and therapy clinics, hallway ambulation tracks, morgue, labor and delivery, procedure areas, patient transport, and points of patient access such as hospital entrances. Elements to be considered in the analysis will include—

1. Installation of ceiling- or wall-mounted traverse track lift systems, where necessary and feasible.

2. Adequate and accessible lift slings, storage space, and charging capabilities for portable or floor-based lifts and other patient handling equipment.

3. Adequate ceiling height to allow for lift clearance from patient bed surfaces.

4. Consideration of standard (550 pounds (lb)), compact bariatric (750 lb), and bariatric (1,000 lb) weight capacity SPHM equipment based on expected patient population.

(b) Include the MTF SPHM program administrator in MTF renovation or facility project planning. The MTF SPHM program administrator can coordinate with the Health Facility Planning Agency and the APHC for the ergonomic patient handling and movement analysis, and for the development of patient handling equipment and personnel requirements.

(c) Develop and implement a training plan for the proper use, storage, and maintenance of all new SPHM equipment installed as part of an MTF renovation or facility project.

Appendix A

References

Section I

Required Publications

AR 40–5

Preventive Medicine (Cited in para 1–1.)

AR 385–10

The Army Safety Program (Cited in para 1–1.)

DA Pam 385–40

Army Accident Investigations and Reporting (Cited in para 6–3*b*.)

Executive Order 12196

Occupational Safety and Health Programs for Federal Employees (Cited in para 1–4*b*(2)(*d*)1.) (Available at <https://www.archives.gov/federal-register/codification/executive-order/12196.html>)

PL 91–596

Occupational Safety and Health Act of 1970, as amended (29 USC 651 et seq.) (Cited in para 1–4*b*(2)(*d*)1.) (Available at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=oshact&p_id=2743)

29 CFR 1904

Recording and reporting occupational injuries and illnesses (Cited in para 3–1*b*(2).) (Available at https://www.ecfr.gov/cgi-bin/ecfr?page=browse_)

29 CFR 1910

Occupational Safety and Health Standards (Cited in para 1–4*b*(2)(*d*)1.) (Available at https://www.ecfr.gov/cgi-bin/ecfr?page=browse_)

29 CFR 1960.8(a)

Agency responsibilities (Cited in para 1–4*b*(2)(*d*)1.) (Available at https://www.ecfr.gov/cgi-bin/ecfr?page=browse_)

Section II

Related Publications

A related publication is a source of additional information. The user does not have to read it to understand this pamphlet.

American Industrial Hygiene Association

Position Statement: Safe Handling of Patients and Residents, June 30, 2009

American National Standards Institute/Human Factors and Ergonomics Society (HFES) 100–2007

Human Factors Engineering of Computer Workstations

American Nurses Association

Safe Patient Handling and Mobility: Interprofessional National Standards

American Physical Therapy Association

Position Statement: The Role of Physical Therapy in Safe Patient Handling

AR 25–30

Army Publishing Program

AR 40–10

Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process

AR 385–16

System Safety Engineering and Management

AR 602–2

Human Systems Integration in the System Acquisition Process

DA Pam 40–503

Industrial Hygiene Program

DODI 6055.01

DOD Safety and Occupational Health (SOH) Program

Facility Guidelines Institute

Guidelines for Design and Construction of Health Care Facilities, 2014 Edition. Section 1.2–3.3 Patient Handling and Movement Assessment (PHAMA), 1.2–5.4 Bariatric Design Considerations

International Organization for Standardization (ISO) 10819:2013

Mechanical vibration and shock – Hand-arm vibration – Measurement and evaluation of the vibration transmissibility of gloves at the palm of the hand

International Organization for Standardization (ISO) ISO/TR 12296:2012

Ergonomics – Manual handling of people in the healthcare sector

International Organization for Standardization (ISO) 9241–300:2008

Ergonomics of human-system interaction – Part 300: Introduction to electronic visual display requirements

MIL–STD–1472G

Human Engineering

Nelson, A.L. and A. Baptiste – 2004

Evidence-Based Practices for Safe Patient Handling and Movement. Online Journal of Issues in Nursing. 9(3), Manuscript 3

NIOSH 94–110

Applications Manual for the Revised NIOSH Lifting Equation. U.S. Department of Health and Human Services

NIOSH 97–117

Elements of Ergonomics Programs, A Primer Based on Workplace Evaluations of Musculoskeletal Disorders

Occupational Safety and Health Administration

Inspection Guidance for Inpatient Healthcare Settings

Occupational Safety and Health Administration

Safe Patient Handling Program Checklist. Worker Safety in Hospitals

OSHA 3123

Ergonomics Program Management Guidelines for Meatpacking Plants, U.S. Department of Labor, OSHA,

U.S. Department of Labor, Bureau of Labor Statistics

Nonfatal occupational injuries and illnesses requiring days away from work

Waters T.R. 2007

When is it safe to manually lift a patient? American Journal of Nursing 107(8):53–58

Section III**Prescribed Forms**

This section contains no entries.

Section IV**Referenced Forms**

Except where otherwise indicated DA forms are available on the Army Publishing Directorate website (<https://armypubs.army.mil/>) and OSHA forms are available at <https://www.osha.gov>.

DA Form 285

Technical Report of U.S. Army Ground Accident

DA Form 285–AB

U.S. Army Abbreviated Ground Accident Report (AGAR)

DA Form 2028

Recommended Changes to Publications and Blank Forms

OSHA Form 300

Log of Work-Related Injuries and Illnesses

OSHA Form 300A

Summary of Work-Related Injuries and Illnesses

OSHA Form 301

Injury and Illness Incident Report

Appendix B

Recommended Membership of the Ergonomics Subcommittee

B-1. Chairperson

The EO—

- a. Serves as chairperson of the ergonomics subcommittee.
- b. Should be the individual with the most experience, knowledge, and training in ergonomics—the chief, preventive medicine; occupational health physician; occupational health assistant; flight surgeon; industrial hygienist; occupational health nurse; occupational therapist; physical therapist; other healthcare professional; or safety manager—who has received at least 20 hours of formal training in ergonomics (see para 5-2a).

B-2. Membership

The ergonomics subcommittee should include, but need not be limited to, the following representatives:

- a. *Core membership.*
 - (1) Healthcare activity representative (for example, physician, nurse, occupational and physical therapists, physician assistant, and other trained medical personnel).
 - (2) Industrial hygienist.
 - (3) Safety professional.
 - (4) Key military chain of command representatives.
 - (5) Union representative(s).
 - (6) Human resources representative.
 - (7) FECA administrator (when a local asset is available).
- b. *Support and advisory membership.*
 - (1) Director of Contracting Support (or equivalent) representative.
 - (2) Director of Public Works (or equivalent) representative.
 - (3) Director of Logistics (or equivalent) representative.
 - (4) Director of Information Management (or equivalent) representative.

B-3. Training

All subcommittee members should receive appropriate ergonomics training as discussed in chapter 5.

Appendix C

Safe Patient Handling and Mobility Facility Policy Example

C–1. Safe Patient Handling and Mobility program policy

Installations should publish a local MTF SPHM program policy outlining procedures, criteria, and implementing guidance.

C–2. Safe Patient Handling and Mobility facility policy example

Figure C–1 provides a SPHM facility policy example.

Safe Patient Handling and Mobility

1. Purpose. This memorandum describes the safe transfer and movement of patients that prevents patient and caregiver injury. This military treatment facility (MTF) is a No Lift facility. This memorandum applies to all staff involved in the movement of patients.
2. References. Required and related publications and prescribed and referenced forms are listed in appendix A.
3. Abbreviations and terms. Abbreviations and special terms used in this memorandum are explained in the glossary.
4. Responsibilities
 - a. Safety program manager.
 - (1) Investigates staff injuries related to patient transfer and positioning procedures.
 - (2) Provides information to the command on staff injuries related to patient transfer and positioning procedures.
 - (3) Assists staff with program implementation and maintenance.
 - b. Department/service chiefs.
 - (1) Ensure staff members are aware of the potential for injury when transferring/moving patients and are knowledgeable about injury prevention.
 - (2) Ensure that all staff is empowered with the ability to refuse unsafe acts in patient movement activities.
 - (3) Ensure training for staff during all aspects of orientation (for example, unit-specific activities and equipment for safe lifting of patients).
 - (4) Ensure provision for initial and periodic training.
 - (5) Identify unit level champions to support the Safe Patient Handling Program and provide time to perform duties.
 - (6) Assure that the staff evaluation process addresses safety compliance in accordance with AR 385-10.
 - (7) Ensure that any/all staff injuries and near misses are reported to the safety office.
 - (8) Ensure that extended weight capacity equipment in their areas are clearly labeled with maximum weight capacity.
 - c. Nursing bed manager/charge nurse of receiving unit.
 - (1) Places high-risk patients in rooms with ceiling-mounted lift devices whenever possible.
 - (2) Arranges rental of appropriate portable lift equipment if no room with ceiling lift equipment is available.
 - (3) Communicates special lifting needs to the receiving unit's charge nurse for appropriate placement.
 - d. Unit champions.
 - (1) Attend training and unit champion meetings.
 - (2) Provide training to staff at unit level to include the staff's right to avoid manually handling patients in ways that might result in injury to themselves or their patients.
 - (3) Act as liaison between the safety office, program coordinator, and their unit.
 - e. Safe patient handling and mobility program coordinator.
 - (1) Provides and/or coordinates training for unit champions and other staff.
 - (2) Acts as liaison between unit champions and executive staff.
 - (3) Collects and compiles data on equipment usage, injuries, and so forth.

Figure C-1. Safe patient handling and mobility facility example

- (4) Oversees equipment acquisition and distribution.
- (5) Is the point of contact for external entities.
- (6) Represents the safe patient lifting program at clinical nurse officer in charge/noncommissioned officer in charge meeting, safety/environment of care committee and other committees, as needed.
- (7) Facilitates unit champion meetings.

f. All staff.

- (1) Comply with all parameters of this policy to include no lift and acknowledge that staff should avoid manually handling patients in ways that might result in injury to themselves or their patients.
- (2) Assess patient and use proper techniques, such as mechanical and assistive devices, during patient movement and transfer tasks.
- (3) Notify supervisor of any injury sustained while performing patient movement and transfer tasks and followup with occupational health.
- (4) Notify supervisor of need for training or retraining in use of lift equipment and devices.

5. Policies and procedures

a. Compliance.

- (1) It is the duty of employees to promote a culture of safety by taking reasonable care of their own health and safety as well as that of their co-workers and their patients during all patient handling activities.
- (2) All staff is empowered with the right to avoid manually handling patients in ways that might result in injury to themselves or their patients. An employee has the responsibility to refuse to perform or be involved in patient handling if he or she believes in good faith it would place an unacceptable risk of injury on either a hospital employee or a patient. When presented with the prospect of performing an unsafe patient handling activity, the employee should communicate with other staff involved to reassess the activity and use mechanical and/or other staff to safely move the patient.
- (3) This MTF is a no lift facility. Mechanical lifting devices and other approved patient handling aids are the approved primary method for repositioning and lifting patients. Mechanical devices and aids are to be used instead of manual lifting except when absolutely necessary, such as in a medical emergency.

b. Training.

- (1) Safe patient handling and movement training will be unit specific and included in initial unit orientation.
- (2) Conduct periodic training to correct improper techniques.
- (3) The program coordinator and/or safe patient handling instructor will conduct initial new employee training and will—
 - (a) Include no lift concept (that is, perform all patient lifts using mechanical devices or alternate lift devices).
 - (b) Include explanation of policy regarding support of staff's right to avoid manually handling patients in ways that might result in injury to themselves or their patients.
 - (c) Include the use of equipment and proper body mechanics.
 - (d) Document and maintain initial training in the competency assessment folder.
- (4) Staff qualified to conduct periodic unit level refresher training include unit champions, the program administrator, and the safe patient handling instructor.

c. Risk assessment.

- (1) Assess each patient lifting/movement/transfer task prior to execution to prohibit manual lifting. Take all necessary precautions to minimize risk to patients and staff.

Figure C-1. Safe patient handling and mobility facility example—Continued

(2) Factors of assessment will include, but are not limited to, identifying high-risk patients and tasks with regard to:

(a) Patient's condition (that is, weight, ability to assist, ability to cooperate and follow commands, mobility).

(b) Staff abilities (for example, height, weight, strength, knowledge, and experience).

(c) Environmental factors (for example, medical equipment such as lines and tubes, accessory equipment such as commodes and bedside tables, space constraints, floor conditions, and so forth).

d. Management. Each department will develop unit-specific procedures for safe patient movement and handling.

e. Equipment use.

(1) In accordance with the no lift policy, use mechanical patient lifting equipment and other approved patient handling aids for patient movement, lifting, and transfer activities.

(2) Expanded weight capacity equipment.

(a) Ensure expanded weight capacity/bariatric mechanical lifting devices are accessible to staff.

(b) Perform training on lifting devices at the unit level.

(c) Label all expanded weight capacity equipment with weight capacity clearly visible.

f. Interdepartmental communication. Interdepartmental communication will facilitate appropriate placement of high-risk patients within the facility and requests for borrowed lift equipment. For example—

(1) Pre-operative screening staff, during initial preoperative visit, will request specialty bed for patients at high risk for lifting and notify head nurse/ward master on receiving unit.

(2) Staff will communicate with receiving areas to coordinate the appropriate patient transfer mode (that is, air assisted lateral transfer device, wheelchair or gurney) for procedures and diagnostics (that is, radiology). This will facilitate performance of patient procedures while minimizing risk of injury to both patients and staff.

Figure C–1. Safe patient handling and mobility facility example—Continued

Glossary

Section I

Abbreviations

APHC

U.S. Army Public Health Center

AR

Army regulation

CFR

Code of Federal regulations

DA

Department of the Army

DA Pam

Department of the Army pamphlet

DODI

Department of Defense instruction

DOEHRS–IH

Defense Occupational and Environmental Health Readiness System - Industrial Hygiene

EO

ergonomics officer

FECA

Federal Employee Compensation Act

IH

industrial hygiene

ISO

International Organization for Standardization

MTF

military treatment facility

NIOSH

National Institute for Occupational Safety and Health

OSHA

Occupational Safety and Health Administration

PL

public law

PPE

personal protective equipment

RAC

risk assessment code

SOH

Safety and Occupational Health

SOHAC

Safety and Occupational Health Advisory Council

SOP

standard operating procedure

SPHM

safe patient handling and mobility

USC

United States Code

WMSD

work-related musculoskeletal disorder

Section II

Terms

Equivalent civilian training

A minimum of 20 hours training covering WMSDs; workstation and job design; hand-tool design; current regulatory requirements and issues; analysis and design of manual materials handling tasks; analysis and design of the office environment; and conducting, analyzing, documenting, and presenting an ergonomic worksite evaluation, including hands-on experience.

Ergonomics

A body of knowledge about human abilities, human limitations, and other human characteristics that are relevant to the design of tools, machines, systems, tasks, jobs, and environments for safe, comfortable, and effective human use. The aim of the discipline is to fit the job to the person in order to—

- a.* Prevent the development of occupational illness or injury.
- b.* Reduce the potential for fatigue, error, or unsafe acts.
- c.* Increase effective, efficient work.

Ergonomics expert

An individual who—

- a.* Possesses a recognized degree, professional credentials, and/or experience in ergonomics or human factors engineering.
- b.* Demonstrates the ability to identify and correct WMSDs in the workplace.
- c.* Teaches the 20-hour ergonomics course for trained ergonomics personnel.
- d.* Provides consultation in cases in which trained ergonomics personnel are unable to solve identified problems. In most cases, an ergonomics expert will not be available at each installation.

Ergonomics subcommittee

Those responsible for identifying and correcting occupational hazards in the workplace, including trained ergonomics personnel, healthcare providers, industrial hygienists, safety personnel, engineers, and other support personnel, managers, and supervisors.

Healthcare personnel

Physicians, chiropractic physicians, nurses, occupational therapists, physical therapists, physician assistants, and other healthcare professionals and their related, supervised technicians (for example, certified occupational therapy assistants and licensed practical nurses). Healthcare personnel participating in the ergonomics program should have training in basic ergonomics and epidemiology and be up-to-date in the systematic recognition, evaluation, treatment, and rehabilitation of WMSDs.

Microtrauma

A series of minor stresses to the body, each of which alone does not cause discernible damage; however, their accumulation over time can lead to WMSDs. These disorders (injuries or syndromes) are overuse disorders, repetitive motion injuries, repetitive strain injuries, and occupational motion-related injuries.

Occupational hazards

Workplace conditions that may harm the worker: improperly designed workstations; tools and equipment; improper work methods; and excessive tool or equipment vibration. Other examples include aspects of work flow, line speed, posture, force required, work and rest regimens, and repetition rates.

Occupational illness and injury

To be recorded as an occupational illness or injury, the condition must be diagnosed by a physician or other person who, by training or experience, is capable of making such a determination (such as an occupational therapist, physical therapist, physician assistant, registered nurse, or nurse practitioner). Note that the Department of Labor requires physician diagnosis for FECA claim submission. In order to be classified as an occupational injury or illness for FECA purposes, the condition must be accepted by the Department of Labor as causally related to work. To be classified as an occupational illness or injury, the condition must meet the following criteria:

- a. Either physical findings or subjective symptoms must exist, that is, at least one physical finding (for example, positive Tinel's, Phalen's, or Finkelstein's test; swelling, redness, or deformity; or loss of motion or strength) or at least one subjective symptom (for example, pain, numbness, tingling, aching, stiffness, or burning).
- b. At least one of the following response actions must occur: medical treatment (including self-administered treatment if made available to personnel by their employer), lost or restricted work activity, or transfer or rotation to another job.
- c. WMSDs must be associated with repeated trauma, and exposure at work must have caused or contributed to the onset of symptoms or aggravated existing symptoms.

Pinch grip

A grip that involves one or more fingers and the thumb.

Rate (incidence, severity, prevalence)

a. Incidence (new case) rate (per 100 worker-hours per year):

- (1) Number of new cases during the past 12 months x 200,000 hours
- (2) Number of work hours during the past 12 months

b. Severity (lost workdays rate (per 100 worker-hours per year)):

- (1) Number of lost workdays during the past 12 months x 200,000 hours
- (2) Number of work hours during the past 12 months

c. Prevalence (all cases during period) rate (per 100 worker-hours per year):

- (1) Total number of cases in the past 12 months x 200,000 hours
- (2) Number of work hours during the past 12 months

d. Calculating rates:

- (1) Use incidence rates, if possible, since the incidence rate measures new cases occurring over a period of time, while prevalence rates give a "snapshot" picture of the number of individuals affected at a specific point in time. Incidence rate and severity rate allow monitoring of changes over time, rather than recounting chronic problems throughout the duration of the illness or injury.
- (2) Consistency in reporting is important; therefore, one should use incidence, severity, or prevalence rates for purposes of comparison.
- (3) If the specific number of work hours during the past 12 months is not available, multiply the number of full-time equivalent employees in each area by 2,000 hours to obtain the denominator.

Sentinel event

The occurrence of one or more musculoskeletal disorders in which causation is suspected to be from exposure to ergonomic risk factors will be considered a sentinel event that requires investigation.

Trained ergonomics personnel

Healthcare, IH, environmental science, safety, or engineering personnel with approved training in ergonomics. Minimum acceptable training for installation-level trained ergonomics personnel is the basic 20-hour ergonomics course offered by APHC or equivalent civilian training.

Working community

All members of the work environment, at all levels of authority. It consists of installation commanders, major command commanders, commanders, medical commanders, the designated EO, identified ergonomics personnel, healthcare personnel, safety personnel, human resources personnel, contracting support personnel, public works personnel, logistics personnel, union representatives, unit commanders, supervisors, and active-duty military and civilian personnel. For the program to be successful, all members of the working community must be considered equal and must share the commitment to ergonomics.

Work-related musculoskeletal disorders

The range of health problems arising from repeated stress to the body encountered in the workplace. These health problems may also affect the nervous, neuromuscular, and neurovascular systems. WMSDs may include the various occupationally induced cumulative trauma injuries and repetitive motion disorders involving damage to tendons, tendon sheaths, synovial lubrication of the tendon sheaths, bones, muscles, and nerves of the hands, wrists, elbows, shoulders, neck, back, and legs. Some WMSDs that are reported include chronic back pain, carpal tunnel syndrome, DeQuervains disease, epicondylitis (tennis elbow), Raynaud's syndrome (white finger), synovitis, tenosynovitis, stenosing tenosynovitis crepitans (trigger finger), and tendinitis.

Worksite

A work area or work environment.

Workstation

An individual person's work area, such as a desk, chair, and computer terminal or an individual inspection station.

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