



Healthcare Recipient
Sling and Lift Hanger Bar
Compatibility
Guidelines



American Association for
Safe Patient Handling & Movement

Healthcare Recipient Sling and Lift Hanger Bar Compatibility Guidelines

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I. INTRODUCTION

Purpose

The goal of these guidelines is to provide information and recommendations about the compatibility of healthcare recipient* slings and lift hanger bars. These will assist healthcare facilities and organizations, healthcare workers, sling and lift manufacturers, and retailers to facilitate safe use of slings and lift hanger bars in any setting where healthcare recipients are lifted, moved and mobilized.

These guidelines offer a framework for reducing the risk of incorrect use of slings and lift hanger bars by healthcare workers through standardization of the design, inspection practices, use, and care of healthcare recipient slings.

The AASPHM Sling Safety Committee envisions these guidelines will be utilized by healthcare organizations, regulators, sling and lift manufacturers, professional associations and end users to improve the quality and safety of care, and prevent injuries among healthcare workers and healthcare recipients in the United States.

It is the responsibility of individual health care organizations to determine how the information contained in these guidelines is adopted. Requirements of state safe patient handling laws or regulations if applicable must also be considered when using these guidelines. Contact the sling and lift manufacturer for additional information about use of healthcare recipient lift hanger bars and slings.

These guidelines are based upon:

- 1) Existing international standards for design of healthcare recipient slings and lifts; i.e., the International Organization for Standardization (ISO) 10535:2006 Hoists for the transfer of disabled persons -- Requirements; and test methods, and design requirements for healthcare recipient lifts by the Food and Drug Administration (FDA); ¹⁻³
- 2) Guidelines and standards from government bodies, healthcare planning, design and construction organizations such as the Facility Guidelines Institute(FGI), equipment manufacturers, and professional organizations such as the American Nurses Association (ANA); ⁴⁻²⁴
- 3) Review of mandatory reports to the FDA via the Manufacturer and User Facility Device Experience (MAUDE) database; ²⁵
- 4) Articles published in peer reviewed journals; ²⁶⁻³⁵
- 5) Expert opinion based upon safe patient handling and mobility practices; ³⁶⁻⁴⁶

- 6) A survey of sling and lift manufacturers, retailers and users of healthcare recipient slings and lifts that was conducted by the AASPHM Sling Safety committee from 2013 to 2014. ^{Appendix III}

* In the context of this document a healthcare recipient is an individual who is receiving healthcare in any healthcare facility or setting such as a hospital, rehabilitation, long & short term care, assisted living facility, or home environment.

Refer to the Glossary for more information about terms used in this document.

Background

As the design of healthcare recipient lift equipment and slings has evolved and potential for use has increased in healthcare settings across the continuum, there is an increasing concern related to the unintended misapplication of lifts and slings by healthcare workers. This unintended misapplication may result in incompatibility and thus unsafe use of a lift with a healthcare recipient.

One unintended application is the use of a sling that may not be compatible with a lift hanger bar, creating an unsafe situation.

In 2012, in an effort to provide guidance related to safe use of healthcare recipient lifts and slings, the Food and Drug Administration (FDA) published a list of best practices to their [Medical Devices webpage](#).⁴³

However, based on questions fielded from its members, lift and sling vendors, and other safe patient handling professionals, the AASPHM concluded that the FDA guidance document created confusion with its statement, “A sling must be approved for use by the healthcare recipient lift manufacturer.” This statement does not state that the sling must be made by the same manufacturer as the lift. In addition, the FDA guidance is not a ‘standard’ or a ‘regulation’. The FDA oversees the safety of medical devices such as patient lifts and their associated slings.

As a result of a 2013 AASPHM stakeholder meeting ‘Lifts and Slings: Can You Mix and Match?’ at the National Safe Patient Handling and Movement Conference, a collaborative interdisciplinary workgroup of key stakeholders, that is the Sling Safety committee was organized. The committee conducted a review of existing U.S. and International standards, guidelines and medical device reports related to the compatibility and safe use of healthcare recipient slings with lifts to develop the industry guidelines on sling and lift hanger bar compatibility in the U.S.

A second stakeholder meeting was conducted at the National Safe Patient Handling and Movement Conference in Orlando, FL in March 2014. The initial research findings and preliminary recommendations of the workgroup were presented and feedback was solicited from attendees. The committee continued to refine the draft ‘*Healthcare Recipient Sling and Lift Hanger Bar Compatibility Guidelines*’ document after this meeting.

The draft guidelines were published for public comment from June to September 2015.

Public comment was received from individuals from a wide variety of health care environments including acute and long term care, rehabilitation, home care, outpatient services and other community settings. These individuals included safe patient handling programs champions or managers, organization leaders, and employees who use safe patient handling equipment. Public comments were also provided by manufacturers and vendors of safe patient handling equipment and/or slings.

Following the public comment period, the Sling Safety committee thoroughly reviewed all comments submitted and finalized the 'Healthcare Recipient Sling and Lift Hanger Bar Compatibility Guidelines' document.

II. DEFINING SLINGS AND HANGER BARS 4, 13, 30, 37, 39

This section describes common types of healthcare recipient slings and hanger bars. Drawings included in this section are provided as examples of slings and hanger bars described. The list and drawings of slings and hanger bars is not all inclusive. Types of slings and names for slings may differ among sling manufacturers and healthcare settings.

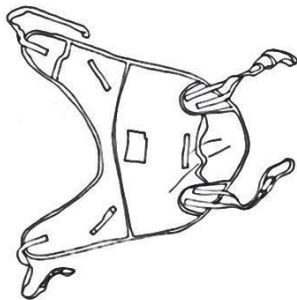
A. Slings

Sling: A device that is manufactured from flexible materials such as fabric, which adapts to the shape of the body, or from rigid materials such as plastic or stainless steel. Slings are used with mechanical lifting equipment to temporarily lift or suspend a body or body part in order to transfer, lift, turn, reposition or ambulate a healthcare recipient, or perform other similar direct care tasks. Slings may be laundered between uses with different healthcare recipients; may be disposable and designed for use with only a single healthcare recipient; or may be designed to be wiped cleaned between use with different healthcare recipients.

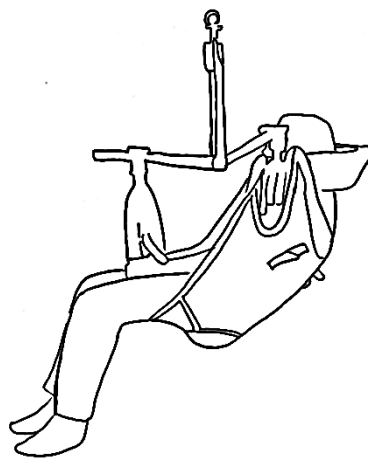
B. Sling styles

1) Seated slings (sometimes called universal slings or transfer/chair slings):

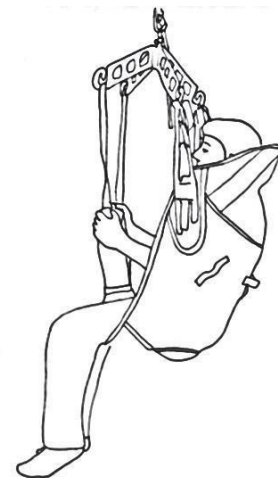
Seated slings transfer healthcare recipients in a seated position; e.g., bed to/from commode, wheelchair or chair or stretcher. This type of task is sometimes called a *vertical transfer* because the lift and sling are used to raise and lower a healthcare recipient who is in a seated position. Seated slings may or may not have an opening to allow for toileting of a healthcare recipient. Seated slings that have an opening to allow for toileting are typically referred to as hygiene slings. Seated slings may or may not provide head support for the healthcare recipient.



Seated or universal sling



Seated sling with opening for toileting a healthcare recipient attached to a three-point hanger

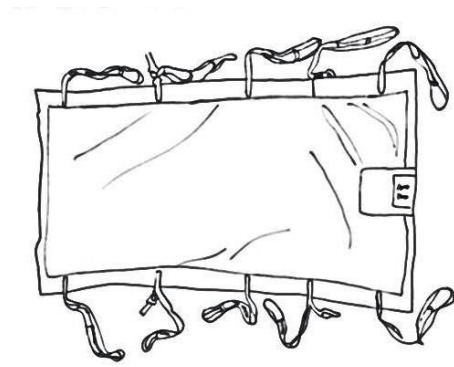


Seated sling with opening for toileting a healthcare recipient attached to a four-point hanger bar

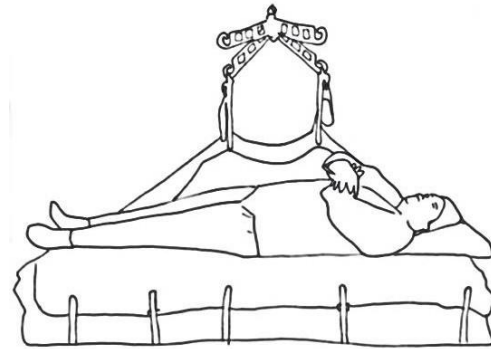
2) Repositioning/supine slings:

Repositioning slings are used to reposition and transfer healthcare recipients who are lying in a supine position. Repositioning may occur when moving a healthcare recipient from side to side or rolling to a side lying position for pressure relief, skin care and/or bathing; moving or boosting toward the head of the bed, and moving from surface to surface (such as bed to/from stretcher) as a lateral transfer.

Some repositioning/supine slings are designed for use with a special hanger bar configuration when used to lift a healthcare recipient from the floor or perform a transfer from surface to surface when the healthcare recipient's back or spine must remain as immobile as possible.



Repositioning sling



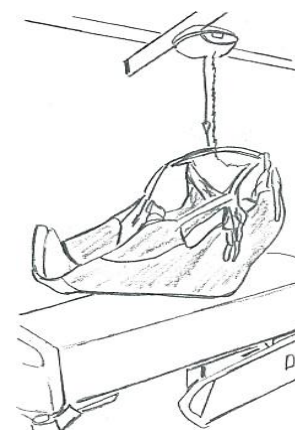
Repositioning sling attached to a lift hanger bar and used to turn a healthcare recipient in bed



Repositioning sling attached to a lift hanger bar and used to turn a healthcare recipient on an exam table



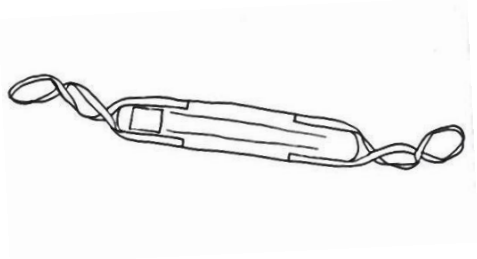
Repositioning sling attached to a lift hanger bar and used to turn a healthcare recipient in bed



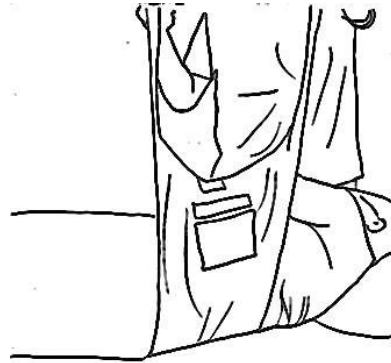
Repositioning sling attached to a lift hanger bar and used to move or 'boost' a healthcare recipient up in bed

3) Limb slings and turning bands:

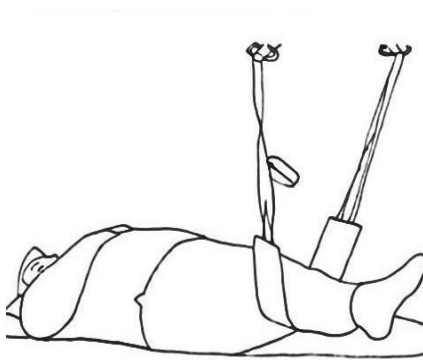
Limb slings and turning bands assist with tasks such as supporting limbs during dressing changes and foot care, and when turning a healthcare recipient to view their back or bottom and to provide care.



A Limb sling



A turning band being used to turn a healthcare recipient



Limb sling supporting a healthcare recipient's leg



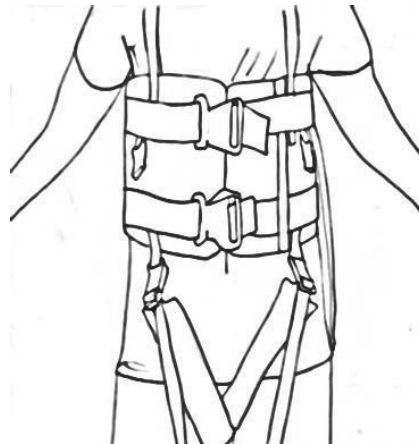
Limb slings supporting a healthcare recipient's legs using an overhead lift

4) Walking/ambulating harnesses/gait trainers:

These slings assist healthcare recipients with walking (ambulation).



Ambulating harness



Ambulating harness positioned on a healthcare recipient



Ambulating harness attached to overhead lift



Ambulating harness attached to floor lift

5) Sit-to-stand – belts or slings:

These slings are used with powered and non-powered Sit-to-Stand or Stand Assist equipment.



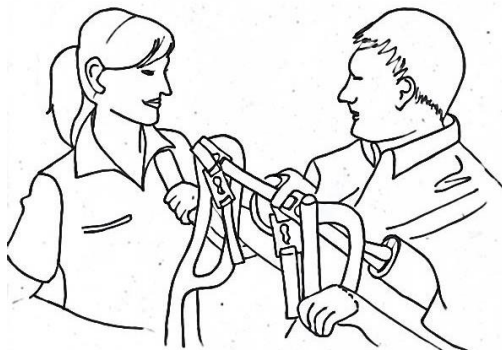
Sit-to-stand belt or sling



Sit-to-stand belt or sling attached to a powered sit-to-stand assist device and supporting the health care recipient in the device



Sit-to-stand belt or sling attached to a powered sit-to-stand assist device and supporting the health care recipient in the device



Sit-to-stand belt or sling attached to a powered sit-to-stand assist device and supporting the health care recipient in the device



Sit-to-stand belt or sling with seat support attached to a powered sit-to-stand assist device using rope attachments supporting the health care recipient in the device

6) Specialty slings:

Include but are not limited to Amputee, Pannus, Hygiene, Toileting, Shower and Bathing, Bariatric, Pediatric, Morgue, and a sling to apply a Continuous Passive Motion (CPM) device.

7) Rigid body slings:

These slings are manufactured from rigid materials such as plastic (which may or may not be padded) or from flexible materials encased by a frame. A rigid sling is shaped to allow the healthcare recipient to be in seated, recumbent/reclined, or supine positions. A rigid sling may also be used in other applications including the morgue.

C. Sling – fabrics

1) Reusable:

- a. **Fabric** – Should be laundered when soiled and before use with another healthcare recipient. May be made of solid or mesh material and/or may be padded.
- b. **Wipeable** – Does not need to be laundered between use with healthcare recipients. Should be wiped down with appropriate sanitizer/disinfectant that is approved by the facility and sling manufacturer before use with each healthcare recipient.

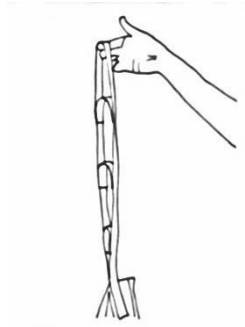
2) Disposable:

Disposable or single ‘patient’ (healthcare recipient) use slings are designed to be used by only one healthcare recipient and disposed of once soiled, damaged or no longer needed by the healthcare recipient. Disposable slings are designed never to be laundered and then reused.

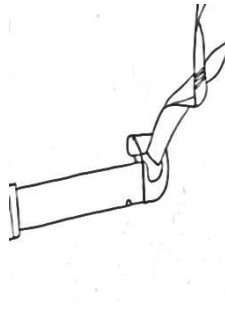
D. Sling attachment points

A sling can have loop, clip or key attachment points (the parts of the sling that attach to a hanger bar).

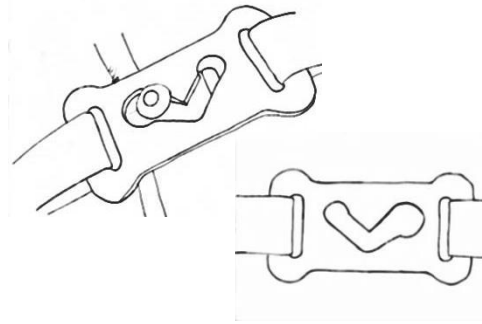
Loop attachments can be fabric, or plastic or synthetic materials. Clip or key attachments are typically made of plastic.



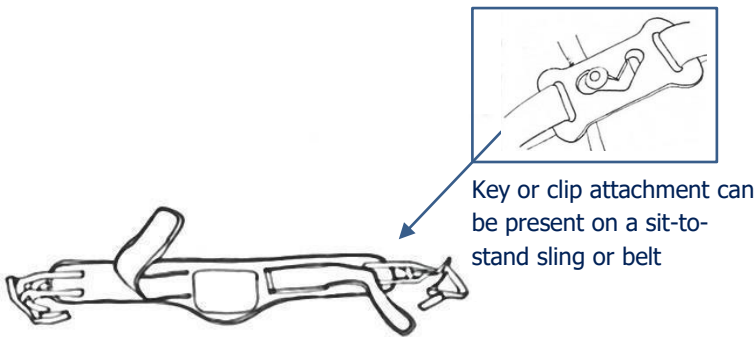
Loop attachment on a sling



Loop attachment connected to a hanger bar that is designed to be used with slings that have loop attachment points

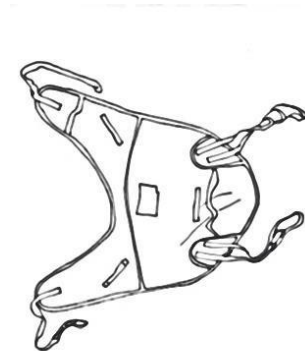


Key or clip attachment on a sling



Key or clip attachment can be present on a sit-to-stand sling or belt

Loop attachment on a sit-to-stand sling or belt



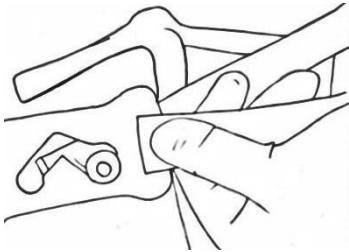
Loop attachment on a seated or universal sling

E. Hanger bars/spreader bars

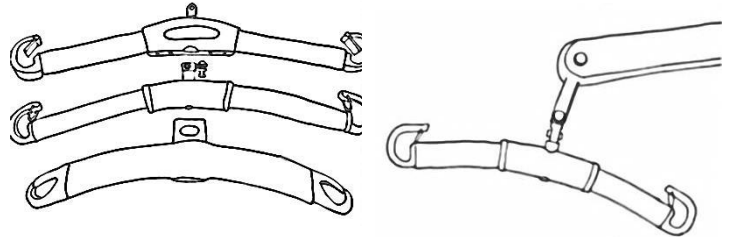
Lift hanger bars have rigid construction with more than one connection point, onto which a sling is attached. A hanger bar may attach to a flexible lifting strap that is attached to a motor or may be integrated with the lift motor itself.

Configuration and design of attachment points (also known as coupling points) varies.

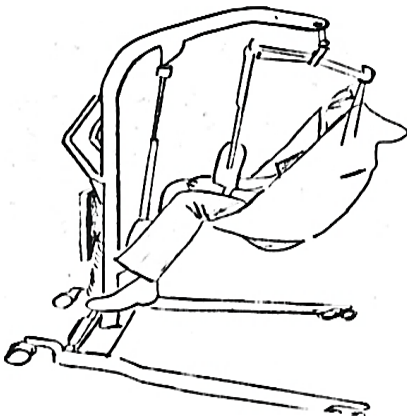
1) Two-point



Key or clip attachment being applied to a hanger bar is designed to be used with slings that have key or clip attachment points

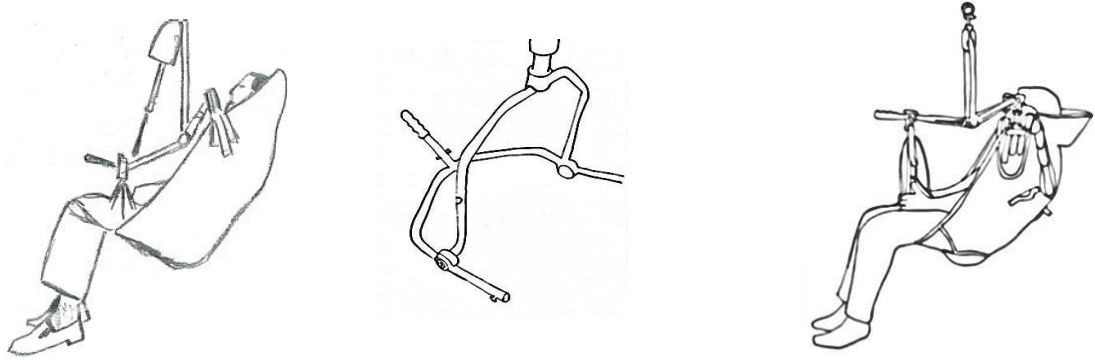


Hanger bars with 2-point attachment points. These are used with slings that have loop attachments only



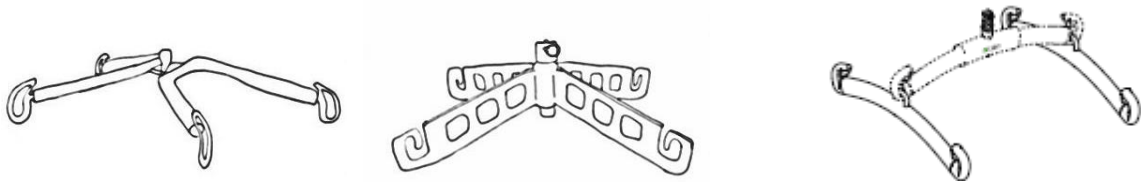
Seated or universal sling with loop attachments connected to a hanger bar with 4-point attachment points on a powered floor lift

2) Three-point and pivot frame



Seated or universal sling with key or clip attachments connected to a hanger bar with 3-point attachment points on a powered floor lift

3) Four-point (H and X configurations)

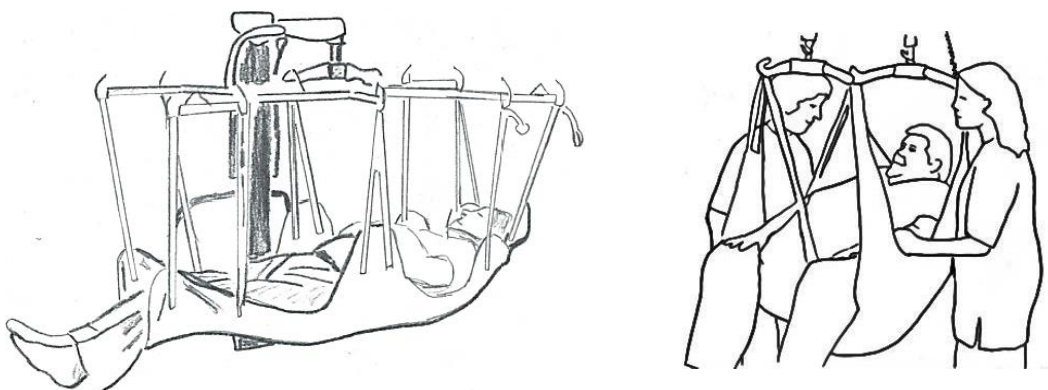


Hanger bars with 4 attachment points

Hanger bar with floating 4-point attachment

Four-point hanger bars are used with slings that have loop attachments only.

4) Multiple configurations (e.g., six, eight-point bar and use of two or dual hanger bars)



Hanger bar with 8 attachment points used with a repositioning or supine sling

Two (dual) hanger bars used with a seated sling

Hanger bars with multiple configurations are used with slings that have loop attachments only.

III. SLING AND HANGER BAR COMPATIBILITY ^{1,5,7,15,16,18,19,20,25,26,33,35,38,45,46}

A. Sling and lift manufacturers

- 1) Sling and lift manufacturers should meet current design, manufacturing and testing standards as required by ISO 10535 (2006) and FDA design of medical product standards.
- 2) Manufacturers of hanger bars and/or slings should indicate what style(s)/type(s) of hanger bar is compatible with their slings. Manufacturers should indicate 2, 3, 4, 6 and/or 8-point hanger bar compatibility.
- 3) Sling manufacturers should clearly state the method by which a sling can be adjusted or removed from a hanger bar in the accompanying operating instructions.
- 4) Based on a literature review, including review of FDA Manufacturer and User Facility Device Experience (MAUDE) reports conducted by the committee (refer to Appendix I), we are of the opinion that healthcare worker and healthcare recipient safety would be enhanced through the adoption of a universal labeling identification system. A color coded safety labeling system may reduce the chance of error, such as improper size selection and resulting incident(s).

A color coded sling system with weight limits for seated slings is listed below as a sample.

Seated Slings

- a. Red edging on Small slings with the letter 'S' or word 'Small' in red text and a weight guide of _____ - ___lbs./kg
- b. Yellow edging on Medium slings with the letter 'M' or word 'Medium' in yellow text and a weight guide of _____ - ___lbs./kg
- c. Green edging on Large slings with the letter 'L' and or word 'Large' in green text and a weight guide of _____ - ___lbs./kg
- d. Purple edging on XL Large slings with the letter 'XL' and or word 'X Large' in purple text and a weight guide of _____ - ___lbs./kg
- e. White edging on XXL Large slings with the letter 'XXL' or word 'XX Large' in white text and a weight guide of _____ - ___lbs./kg

In addition to the color coded size and weight information described above, sling manufacturers should include the information that is detailed in Section IVA on sling labels.

Other types of slings such as sit-to-stand, turning and limb slings should use the same universal color coding to indicate size (e.g. red for a small size), and list maximum load

capacity and weight range (if applicable) for use. *(Refer to Section IX for more information on sling selection.)*

The committee suggests sling manufacturers consider phasing in the universal weight guide for seated slings within two years of publication of this document, and that a universal color system for all slings be phased in within four years of publication of this document.

B. Healthcare organizations/facilities

- 1) When purchasing healthcare recipient lifting devices (lifts, attachments and slings), the organization/facility should ensure the devices comply with relevant standards (e.g. ISO 10535). Current purchasing or supply chain management processes should be evaluated to ensure this criterion is included.
- 2) Clip and loop slings should never be used interchangeably. A sling with a clip attachment should only be used on a hanger bar that is designed for a clip attachment. A sling with a loop attachment should only be used on a hanger bar designed for a loop system.
- 3) When possible, standardization of lifts, hanger bars and slings is recommended within a setting to reduce the risk of healthcare worker error and simplify training. A setting using lifts with hanger bars accommodating loop slings should avoid, when possible, the use of lifts with hanger bars accommodating clip slings.
- 4) If special needs should arise requiring a mix of hanger bars and sling types, the facility must take precautions to prevent healthcare worker error, such as labeling of hanger bars to indicate use with the appropriate sling and additional training for staff in appropriate use of hanger bars and slings.
- 5) Slings should be laundered and maintained per sling manufacturers' instructions. *(Refer to Section V of this document.)*
- 6) It is critical that slings and hanger bars are inspected prior to each use. If they are worn or damaged they must not be used and must be removed from service. *(Refer to Section VI of this document.)*
- 7) All clips, latches, loops and hanger bars must remain securely fastened during operation of a lift.
- 8) Healthcare recipient assessment for SPHM should be conducted before using any sling and lift for a particular healthcare recipient, regardless of whether the manufacturer of the sling and lift are the same or different. *(Refer to Section X of this document.)*

- 9) It is critical that a sling be compatible with a specific lift and meet the weight, shape and clinical needs of the healthcare recipient.
- 10) Purchasers of healthcare recipient lifts and slings should read and/or receive oral instructions provided by the sling and lift manufacturer in order to safely operate the device.
- 11) Healthcare workers should receive employer-sponsored training and demonstrate understanding of how to safely use healthcare recipient lifts and slings. (*Refer to Section IX of this document.*)
- 12) A system should be established to define how to properly clean, disinfect, maintain, repair, and upgrade lifts, slings, and other Safe Patient Handling and Mobility (SPHM) technology. SPHM technology may include equipment, devices, accessories and software.

IV. SLING DESIGN AND TESTING ^{1, 2}

Sling manufacturers are required to meet current design, manufacturing and testing standards as required by ISO 10535. This includes the following:

A. Sling labels

- 1) The following information should be included on a sling label:
 - a. The sling manufacturer's company name, website, address, telephone, and country of origin.
 - b. The maximum load capacity in lbs. /kg. *Note: for the purposes of this document maximum load capacity is the same as 'safe working load.'*
 - c. A symbol for manufacturer recommended cleaning including the maximum temperature for drying and/or written cleaning instructions. Symbols used should comply with ISO 3758 Textiles -- Care labelling code using symbols. (*Refer to Appendix II for examples of laundry symbols.*)
 - d. A symbol for and/or written description of intended use and sling manufacturer instructions that are provided by the manufacturer when a sling is purchased.
 - e. A symbol and description of the hanger bar and a 2, 3, 4, 6 and/or 8-point bar that the sling is to be used with, and the type of hanger bar connection point that is compatible for the sling (e.g., a loop or key/clip).

- f. A symbol for and/or written description that is color coded and indicates the size of the sling by weight or weight range as applicable.
- g. A place to indicate 'Date of First Use.'
- h. The sling serial or batch number.
- i. A warning not to use a damaged or eroded/threadbare sling.

Information provided on sling labels as text and symbols should be easy to read and meaningful for the US population.

Information provided on sling labels should be colorfast and not fade through repeated laundering.

2.) Other information to be included in instructions for use if it cannot be provided on the sling label:

- a. Types of hanger bars that are appropriate to use with the sling. (e.g., a 2, 3, 4, 6 and/or 8 - point bar) and the type of hanger bar connection point that is compatible with the sling (e.g., a loop or key/clip).
- b. Appropriate directions for use that include information on the choice of style and type of sling for the healthcare recipient and the appropriate application method.
- c. A statement that a healthcare recipient assessment for SPHM should be performed to ensure that the correct size, type and shape of sling are used for the healthcare recipient. (*Refer to Section X of this document.*)
- d. Information about the materials used in the sling fabric.

B. Fabric of the slings

The fabric or materials in the sling (e.g. synthetic, blend or natural fibers) should be identified.

C. Flammability standards

The sling manufacturer may/may not report flammability information. Refer to any local or state fire code related to flammability of fabrics and equipment used, such as in an operating room environment.

D. Load testing

The sling manufacturer should comply with the process for load testing of slings as required by ISO 10535.

E. Sling sizing - Refer to III A.4 above

V. LAUNDERING SLINGS ^{1,8,9,10,11,19,23}

A. Reusable fabric slings

- 1) Laundering instructions should be made available by the sling manufacturer and/or supplier and include a) types of washer and dryer systems that may be used, b) washing and drying instructions, and c) clarification on use of chlorine and/or oxygen based bleach systems.
- 2) Standard shrinkage of fabric should be 5 percent or less if manufacturers' laundry instructions are followed.
- 3) Laundering instructions should be followed to meet the following Environmental Infection Control in Health-Care Facilities guidelines published by the Centers for Disease Control (CDC):
 - a. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC) June 6, 2003/52(RR10); Section IV Laundry Process for information about other laundry, package, transport, and storage requirements.
http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_HCF_03.pdf
 - b. CDC Recommendations to Prevent Healthcare-Associated Infections Centers for Disease Control and Prevention Laundry: Washing Infected Material Jan 2011.
<http://www.cdc.gov/HAI/prevent/laundry.html>

B. Wipeable slings

The sling manufacturer should provide information about the types of sanitizer or disinfectant that can be used to wipe down or clean a sling. Wipeable slings should be wiped down/disinfected with a sanitizer that is approved by the facility and sling manufacturer before use between different healthcare recipients. Sling manufacturers should meet FDA published guidelines for reprocessing non-critical medical devices.

C. Single 'healthcare recipient' (patient) use or one-time use slings

This type of sling should never be laundered and reused. Sling labels should include identification that indicates that they must not be laundered and include a symbol that indicates if the sling has

been inadvertently laundered and thus should not be reused.

(Refer to Section VI: Sling and Hanger Bar Inspection for more information about sling inspection and Section VIII for more information about Maintenance.)

VI. SLING AND HANGER BAR INSPECTION PROCESS ^{1,7,12,16,19,21,27,32,34,37,39,40,41,45}

A. Slings should be visually inspected

- 1) When they are placed into first use -- the date of first use should be marked on the sling label
- 2) Prior to each use, and
- 3) At regular, documented intervals as decided by a risk assessment made by a ‘competent’ person assigned by the facility or organization. Inspections should be based upon frequency of use and sling manufacturer’s recommendations.

B. Hanger bars should be visually inspected

- 1) When they are placed into first use
- 2) Before securing a sling each time they are used, and
- 3) At regular, documented intervals as part of a routine maintenance program. Inspections should be based upon frequency of use and lift manufacturer’s recommendations. *(Refer to Section VIII for more information on Maintenance.)*

C. Healthcare workers should check for the following each time they use a sling:

- 1) The sling to be used:
 - a. Is documented on the healthcare recipient’s care plan, and on the nursing assistant assignment, and/or communication hand-off tool
 - b. Is compatible with the hanger bar connection points
 - c. Is suitable for the healthcare recipient, in terms of:
 - ❖ size
 - ❖ fabric
 - ❖ style

- d. Has a load capacity that exceeds the healthcare recipient's weight
 - e. Is clean
 - f. Has stitching that is intact especially where the straps/loops are attached to the body of the sling.
 - g. Has no damage to the fabric/body or its clips/loops
 - h. Has no damage to any fastenings (e.g., its Velcro[®] or security buckles)
 - i. Has no rips, tears, or holes
 - j. Has not been altered e.g., knots in the attachments straps
 - k. Has a sling manufacturer's label and the label is easy to read (e.g., is not faded or damaged)
 - l. Shows the date of first use
- 2) The hanger bar:
- a. Is not damaged or bent
 - b. Has connection points that have capping/safety locks if applicable per design.
 - c. Has no sharp edges or burrs that could damage the sling connection point.
 - d. Has not been altered
 - e. Meets or exceeds the weight capacity of the sling to be used.
 - f. Is compatible with the sling to be used (e.g., loop sling/loop hanger bar, 2, 3, 4, 6 and/or 8-point hanger bar.

D. The organization or facility should have specific criteria and a process for removing a defective or damaged sling and/or hanger bar from service that is clearly communicated to healthcare workers.

(Also refer to Sections IX: Education and Training and X: Healthcare Recipient Assessment for SPHM.)

VII. HANGER BAR – DESIGN ^{1, 17, 21}

Lift manufacturers are required to meet current design, manufacturing, and testing standards as required by ISO 10535 and FDA design of medical product standards.

The following is related to the design of a hanger bar's attachment point to a sling only.

- 1) The committee recommends that lift manufacturers label the maximum load capacity on each detachable hanger bar in such a manner that it is easily visible to the staff.
- 2) In the sling/lift manufacturer's instructions for use, information shall be given about the type(s) and design(s) of slings (e.g., number of connection points, dimensions, and the type of material that is used to connect a sling to a hanger bar) which can be used in combination with the hanger bar. This information can also be displayed on the hanger bar. Each healthcare organization has the final responsibility to ensure any slings purchased from a lift manufacturer, and/or from a third-party sling manufacturer are compatible with the hanger bar(s) in their system(s) or facility.
- 3) The design of the connection point for attaching a sling to the hanger bar should prevent accidental unhooking or release.
- 4) Edges, corners, or surfaces that will be in contact with the sling attachment point should be smooth – there should be no sharp edges or burrs that could damage the sling connection point and/or protruding points that may cause injury to healthcare worker or healthcare recipient.
- 5) The hanger bar connection point should be large enough to allow the sling attachment (e.g., key or clip or a loop design) to be seated and secured in the connection point so that multiple loops on a sling can be easily seated in the hanger bar connection point:
 - a. Without risk of shearing, crushing, or trapping or damaging the sling and
 - b. So that the locking device if one is present, can be closed correctly.
- 6) The design of the sling when attached to a hanger bar should not change the center of gravity or affect the lift's stability.
- 7) The design of the sling and hanger bar combination should allow for the healthcare recipient to be positioned safely and comfortably as needed to meet the healthcare recipient's physical and clinical needs.
- 8) The hanger bar should allow for sufficient clearance for taller healthcare recipients when

being moved in a sling. (*Refer to Section X of this document.*)

- 9) A health care worker should be able to attach a sling to a hanger bar using minimal hand and finger force.
- 10) Slings with key or clip attachment points should only be used with hanger bars designed for this type of sling.
- 11) When applying a sling with key or clip attachment points to the hanger bar, the attachment point should feel firmly attached to the hanger bar and should not become loose.

When a facility is purchasing equipment, slings and other SPHM devices, to meet the specialized needs of specific healthcare recipients such as a pediatric, orthopedic, or bariatric population, the facility should consult a competent - professional with expertise in SPHM for assistance.

VIII. MAINTENANCE – SLINGS & HANGER BAR ONLY 1, 4, 12, 16, 17, 19, 20, 28, 34, 42

- 1) The facility or organization should establish a system for regular cleaning, disinfection, maintenance, and upgrade of SPHM technology that includes hanger bars and slings. A thorough inspection at regular, documented intervals as decided by a risk assessment should be made by a ‘competent’ person assigned by the facility or organization. Inspections should be based upon a) frequency of use and b) sling and lift manufacturer’s recommendations, if any.
- 2) A process should be established by the ‘competent person’ for removal of defective, damaged, and/or malfunctioning hanger bars and/or slings from service and for notification of such to healthcare workers.
- 3) The facility or organization should prepare an inventory that tracks the purchase of SPHM technology including slings. For each sling purchased, the inventory may document a) date of purchase b) date of first use c) date of periodic sling inspection by “competent person” assigned by the facility or organization.
- 4) The responsibility for monitoring and acting on upgrade or recall notices for equipment or software will be assigned to a specific position within the facility or healthcare organization.

IX. EDUCATION AND TRAINING ^{4,6,12,14, 16,17,19,24,26,27,34,35,36,37,38,39,40,41,42,44,45,46}

- 1) An effective system of educating and training on the safe use of slings and hanger bars, including reviews to maintain competence, should be established.
- 2) The facility or organization should provide this training to the appropriate healthcare and ancillary/support workers at the following times:
 - ❖ at orientation
 - ❖ annually
 - ❖ with the introduction of new competencies or technology solutions
 - ❖ following incidents or accidents
 - ❖ as requested by a healthcare worker
- 3) The methodology should meet the needs of the adult learner and be as interactive as possible.
- 4) The content of the education and training should be specific to the role and setting of the healthcare or ancillary/support worker and inclusive of the following:
 - a. Types of slings with proper use for each.
 - b. Physical, cognitive and clinical requirements of healthcare recipient for use.
 - c. Proper sizing/fitting for each type of sling.
 - d. Proper storage and access to slings.
 - e. Compatibility of each type of sling with each type of hanger bar used.
 - f. Maximum load capacity for each type of sling (safe working load), and maximum load capacity of the lift and of the hanger bar used.
 - g. Recognizing that the *maximum* load capacity of a sling, lift or hanger bar may differ, the healthcare recipient's weight must not exceed the *maximum load capacity* of any of these individual component parts.
 - h. Proper attachment of sling to hanger bar and use of all sling safety features.
 - i. Safety concerns/features – inspection of sling and hanger bar before use.
 - j. Knowing when a sling and hanger bar is unsafe for use.

- k. Reporting of all malfunctioning and/or damaged lift equipment and accessories such as slings to appropriate individual(s) or department and removal from use until repaired or replaced.
- l. Matching of the sling – size and style – to care plan, and nursing assistance assignment sheet, communication or ‘white’ board in healthcare recipient room, and/or hand off tool.
- m. Proper applications of sling and use with hanger bar through hands-on training and return demonstration to ensure safe transfer of healthcare recipient.
- n. Proper cleaning of slings, including:
 - ❖ laundering of reusable fabric slings
 - ❖ the proper cleaning method of wipeable slings
 - ❖ disposal of single ‘healthcare recipient’ or disposable slings
- o. How to instruct healthcare recipients and their family members regarding use of SPHM technology, including which sling(s) and lift(s) will be used to maintain their safety as well as the safety of their healthcare workers.

At the completion of the education and training sessions, healthcare workers should demonstrate competence with slings and hanger bars prior to providing actual hands-on care. The facility or organization should monitor the effectiveness of the education and training on an ongoing basis.

Education and training should be designed and delivered to address the differing cultural, linguistic, clinical and non-clinical practice needs of healthcare workers to facilitate effective competency based learning.

X. HEALTHCARE RECIPIENT ASSESSMENT FOR SPHM ^{4,14,26,27,29,33,40,41,44,46}

The employer and healthcare workers partner to adapt the plan of care to meet the SPHM needs of individual healthcare recipients and specify appropriate SPHM technology and methods.⁴

The written procedure outlines how to evaluate a healthcare recipient’s SPHM status, establish goals, select technology for specific care tasks, and address roles and responsibilities of the healthcare worker related to assessment and/or scoring, evaluation, plan of care, and documentation.⁴

The healthcare recipient will be evaluated for physical, cognitive, clinical, and rehabilitative needs that

impact mobility needs, both initially and on an ongoing basis. The outcome of the SPHM assessment, evaluation, or scoring system will be incorporated into the individual plan of care.⁴

The individual plan of care will specify required SPHM technology, methods and expected outcomes.

Perform initial and ongoing assessment of mobility and SPHM needs

The licensed healthcare worker will perform initial and ongoing assessments of mobility and SPHM needs, per organizational policy.⁴

Such an assessment for SPHM should include the following:

- 1) The healthcare recipient's
 - a. Clinical needs and precautions, such as hip precautions; unstable spine or pelvis; shoulder surgery; surgical incisions or wounds and their location; skin and fall precautions.
 - b. Cognitive status such as ability to follow commands, be cooperative, and assist during the task to be completed.
 - c. Mobility status that is, the functional mobility level of the healthcare recipient including the ability to bear weight.
 - d. Weight, torso width and girth, height and shape.
 - e. Level of postural support required in a sling (e.g., support needs for the head and trunk or asymmetrical body position and the likelihood of unpredictable movement, spasm or pain during the process).
 - f. Sensory deficits or disturbance.
 - g. Dignity when using the equipment.
- 2) Attachments to the healthcare recipient (e.g., intravenous line, catheters, feeding tube, chest tube, tracheotomy; monitors, orthopedic supports such as Halo brace, Thoraco-Lumbo-Sacral-Orthosis (TLSO) brace, traction of extremities).
- 3) Task to be accomplished (e.g., repositioning in bed, lateral transfer from bed to stretcher, vertical transfer to/from bed to chair, bathing, wound care, ambulation).

GLOSSARY

Ambulation. To walk from place to place; to move about.³⁹

Assistive Devices. Devices used to facilitate safe patient handling and mobility.³⁹

Bariatrics. The branch of medicine that deals with the causes, prevention, and treatment of obesity.³⁹ Both a patient's weight and the distribution of this weight throughout the body are involved in determining whether one is a bariatric patient. The most commonly accepted and consistent language for identifying and defining bariatric patients has been through the use of the Body Mass Index or BMI. The World Health Organization describes people who have a BMI greater than 30 as obese, and those having a BMI greater than 40 as severely obese.³¹

Ceiling mounted or Overhead lifts. These are lifts that are attached to fixed track systems that are installed on ceilings or supported via wall installation. Ceiling track design options that are commonly used are traverse (i.e., room covering which travel along multiple paths within a room), single and curved track. Other options include an integrated track that is mounted on a head wall or utility column.¹³ Ceiling lift motors may also be used with freestanding gantry systems. Some ceiling lift motors may be portable so that they can be moved from room to room when needed and attached to existing track in the room. These lifting devices can be used for almost any type of healthcare recipient lifting or transfer related task.

Connecting or attachment point(s). Location(s) on a hanger bar where slings are attached. Also known as couplings.

Competent person. An individual with the relevant technical knowledge and practical experience with SPHM technology to enable her/him to detect defects and/or weaknesses and to assess their importance in relation to the safety and continued use of the specific hanger bars and slings being examined.¹⁷

Competence. An expected, measurable, and confirmed level of performance that integrates knowledge, skills, abilities, and judgment, based on established scientific knowledge and expectation for practice.⁴

Coupling or coupling points. Location(s) where slings are attached to the lift. Also known as connecting or attachment point(s).

Disposable or single healthcare recipient (patient) use sling. Slings that are designed to be used by only one healthcare recipient and disposed of once soiled, damaged or no longer needed by the healthcare recipient. Also commonly known as a Single Patient Use (SPU) sling.

Education. The transfer of information to others in order to raise awareness and increase

understanding of the subject; includes relaying of information during orientation and in-service education.

Floor based lift. These portable/mobile lifts move along the floor surface on wheels attached to an expandable base for spreading around chairs/wheelchairs. They use a battery (powered) system to raise and lower the hanger bar.

Hanger Bar. The part of a floor based and ceiling or overhead lifts onto which a sling is attached. Also known as a Spreader Bar.

Healthcare recipient. In the context of this document a healthcare recipient is an individual who is receiving healthcare in any healthcare facility or setting such as a hospital, long and short term care facility, assisted living facility, or home environment.⁴

Healthcare recipient assessment for SPHM.

Use of a scoring or other system to examine and evaluate the physical, mental, cognitive, medical, and/or environmental conditions of a healthcare recipient to determine appropriate SPHM methods, technology, and supplies. Assessment for SPHM may be an interprofessional activity, with collaboration from several disciplines.⁴ Also known as a patient handling or mobility assessment.

Healthcare worker. An individual involved in the provision of care to another individual and who works for the employer at any level in the continuum of care. Examples of healthcare workers include, but are not limited to, nurses, nursing assistants, resident assistants, home health aides, direct care workers working in community settings, occupational therapists, physical therapists, therapist assistants, radiology technologists, infection control practitioners, peer leaders, social workers, morgue personnel, emergency medical technicians, paramedics, transporters, physicians, dentists, school nurses, and para-educators. Settings with organized labor should include union representation.⁴

Healthcare recipient or patient lifts. In the context of this document healthcare recipient lifts are ceiling mounted or overhead lifts, powered floor based lifts and sit-to-stand lifts.

Lateral Transfer. Lateral or horizontal transfers are transfers in which the healthcare recipient starts and ends lying in a prone or supine position, such as bed to stretcher, bed to bath trolley, stretcher to procedure table.⁴⁰

Lifting Equipment. Equipment that lifts the healthcare recipient in either a seated or supine position from one place to another. This category includes ceiling lifts, floor-based lifts, and sit-to stand lifts.³⁹

Maximum Load Capacity. The maximum weight that a sling/hanger bar is able to safely carry at a specified load center. The maximum load capacity in lbs./kg. *Note for the purposes of this document maximum load capacity is the same as 'safe working load'.*

Non-Powered Sit-to-Stand Aid. A non-powered sit-to-stand aid is a non-motorized healthcare recipient transferring device. It is designed for healthcare recipients who can be active and engaged in pulling themselves up into the stand aid, as well as have the ability to bear some weight.

Powered Sit-to-Stand Lift. These powered lifts are mobile and move along the floor surface on wheels attached to an expandable base that can spread around chairs/wheelchairs. The lifts are used for healthcare recipients who can provide some assistance in transferring and ambulating (i.e., those with partial weight-bearing capability). These healthcare recipients must also have upper body strength, the ability to grasp with at least one hand, and the ability to follow simple instructions. The lifts are used for transfers from seated position to seated position (e.g., bed to wheelchair or commode) and for assistance in dressing, pericare, toileting, and other activities. Sit-to-stand lifts with ambulation capability can also be used for assistance in healthcare recipient mobilization and ambulation therapy.¹³

Prone position. Lying on the chest or having the face downward.

Repositioning. Adjusting healthcare recipient's position in a bed or chair to prevent pressure ulcers and promote comfort.³⁹

Risk Assessment. In the context of this document a risk assessment is a process of inspecting hanger bars and slings with the goal of identifying defective, damaged, and/or malfunctioning hanger bars and slings and removing them from use by healthcare recipients.

Safe Patient Handling and Mobility (SPHM). The use of technology such as powered lifts and evidence based work practices and processes that are used to facilitate movement of a healthcare recipient with the goal of reducing the risk of injury to both the healthcare worker and the healthcare recipient.

Safe Working Load. The maximum weight that a sling/hanger bar is able to safely carry at a specified load center. The maximum load capacity in lbs./kg. Refer to Maximum Load Capacity.

Sling. A device that is manufactured from flexible materials such as fabric, which adapts to the shape of the body or from rigid materials such as plastic or stainless steel. Slings are used with mechanical lifting equipment to temporarily lift or suspend a body or body part in order to transfer, lift, turn, reposition or ambulate a healthcare recipient, or perform other similar direct care tasks.

Single Patient Use Sling (SPU). Slings that are designed to be used by only one healthcare recipient and disposed of once soiled, damaged or no longer needed by the healthcare recipient. Also commonly known as a disposable sling.

Spreader Bar. The part of a floor based and ceiling or overhead lifts onto which a sling is attached. Also known as a Hanger Bar.

Stretcher. A wheeled cot or stretcher that is used to transport healthcare recipients. Also known as Gurney.

Supine. Lying on the back or having the face upward.³⁹

Technology. The assistive tools used, within the organization and at the point of care, to facilitate the healthcare worker's performance of SPHM tasks, thus minimizing the risk of injury to the healthcare recipient and the healthcare worker. Technology may include equipment, devices, accessories, software, and multimedia resources.⁴

Training. The process of bringing a person to an agreed standard of proficiency by hands-on practice or simulation applications.⁴

Vertical Transfer. A transfer in which the healthcare recipient starts and ends in a seated position, such as transfer from bed to chair, chair to toilet, wheelchair to bedside chair, or car to wheelchair.³⁹

REFERENCES

1. International Organization for Standardization. (2006) ISO 10535:2006 (en) *Hoists for the transfer of disabled persons — Requirements and test methods*. Geneva, Switzerland.
2. International Organization for Standardization. (2012). *ISO 3758:2012, Textiles – Care labelling code using symbols. Includes Care Labeling and Standards for fabrics*. Geneva, Switzerland.
3. Department of Health and Human Services Food and Drug Administration. (2011). *Food and Drug Administration Modernization Act of 1997: Modifications to the List of Recognized Standards, Recognition List Number: 027*. Federal Register Volume 76, Number 148 (Tuesday, August 2, 2011)[Pages 46300-46303]. Retrieved from <https://www.gpo.gov/fdsys/pkg/FR-2011-08-02/html/2011-19479.htm>
4. American Nurses Association. (2013). *Safe Patient Handling and Mobility: Interprofessional National Standards*. Nursebooks.org. Silver Spring, MD.
5. Association for the Advancement of Medical Instrumentation. (2009). *ANSI/AAMI HE75:2009/(R) 2013. Human factors engineering – Design of medical devices*. Approved 21 October 2009 and reaffirmed 26 November 2013 by American National Standards Institute Inc. Arlington, VA.
6. Association for the Advancement of Medical Instrumentation. (2013). *AAMI TIR49:2013 Design of training and instructional materials for medical devices used in non-clinical environments (Technical Report)*. Arlington, VA: AAMI. Approved 19 March 2013 by Association for the Advancement of Medical Instrumentation. Arlington, VA.
7. Canadian Center for Occupational Health and Safety Advisories, Warnings and Recalls. (2012). *Hazard alert: Patient Lifts and Worker Risks. Health and Safety Report*. Vol 10 Issue 8. Retrieved from <http://www.ccohs.ca/newsletters/hsreport/issues/2012/08/ezone.html#hsreport-hazardalert>
8. Centers for Disease Control (CDC). (2003). *Guidelines for Environmental Infection Control in Health-Care Facilities. Recommendation of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)*. MMWR 2003; 52(RR10); 1-42. Retrieved from <http://www.cdc.gov/hicpac/pubs.html>
9. Centers for Disease Control (CDC). (2007). *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings*. Siegel, J.D., Rhinehart, E., Jackson, M., and Chiarello, L., and the Healthcare Infection Control Practices Advisory Committee. Retrieved from <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>
10. Centers for Disease Control (CDC). (2011). *CDC Recommendations to Prevent Healthcare-Associated Infections Centers for Disease Control and Prevention* Jan 2011. Retrieved from <http://www.cdc.gov/HAI/prevent/laundry.html>

11. Department of Health and Human Services Food and Drug Administration. (2015). *Reprocessing Medical Devices in Health Care Settings: Validation Methods and Labeling Guidance for Industry and Food and Drug Administration Staff*. Document issued on: March 17, 2015. Retrieved from <http://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm253010.pdf>
12. ECRI Institute. (2015). *Top 10 Health Technology Hazards for 2015*. Health Devices 2014 November. Retrieved from www.ecri.org/2015hazards
13. Facilities Guidelines Institute (FGI). (2010b). *Patient handling and mobility assessments: A white paper*. Retrieved from http://www.dli.mn.gov/WSC/PDF/FGI_PHAMAWHITEPAPER_042710.pdf
14. Government of South Australia Dept. of Communities and Social Inclusion. (2013). *Equipment Program Clinical Considerations for Prescribers Slings*. June 2, 2013. Retrieved from [http://svc015.wic006wss.server-web.com/Shared supporting documents/Slings - Clinical considerations for prescribers.doc](http://svc015.wic006wss.server-web.com/Shared%20supporting%20documents/Slings%20-%20Clinical%20considerations%20for%20prescribers.doc).
15. Government of South Australia Dept. of Communities and Social Inclusion. (2013). *Equipment Program Clinical Considerations for Prescribers Hoists*. Retrieved from [http://svc015.wic006wss.server-web.com/Shared supporting documents/Hoists - Clinical Considerations for Prescribers.doc](http://svc015.wic006wss.server-web.com/Shared%20supporting%20documents/Hoists%20-%20Clinical%20Considerations%20for%20Prescribers.doc)
16. Health Canada. (2016). *Recalls and Alerts on Patient Lifts*. Retrieved from <http://www.hc-sc.gc.ca/dhp-mps/medeff/advisories-avis/index-eng.php>
17. Health and Safety Executive (2012). *Getting to grips with hoisting people*. Health Services Information Sheet No 3. Retrieved from <http://www.hse.gov.uk/pubns/hsis3.pdf>
18. Health and Safety Executive. (2014). *Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998 Approved Code of Practice and Guidance*. 2nd edition.
19. Medicines and Healthcare Products Regulatory Agency. (2007). *Patient hoists and slings - ensure you follow manufacturer's instructions for use and that you carry out risk assessments*. 23 April 2007. Retrieved from <https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency>
20. Nova Scotia Labour and Advanced Education Occupational Health and Safety Division. (2013). *Hazard Alert. Patient and Resident Lifts*. Date of Issue: June 2012 Revised: Jan 2013. Retrieved from <http://novascotia.ca/lae/healthandsafety/documents/PatientandResidentLifts.pdf>

21. Queensland Health. (2012). *Occupational Health and Safety (OHS) Policy Procedure for Management of Patient Lifting Devices*. State-wide Distribution Document Number # QH-PCD-275-5-1:2012 610 Version No.: 1.1 Effective From: 01 Dec 2012. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.352.8488&rep=rep1&type=pdf>
22. Textile Industry Affairs (n.d.). *Guide to Common Home Laundering & Dry Cleaning Symbols*. Retrieved from <http://www.textileaffairs.com/c-common.htm>
23. US Department of Labor: Occupational Safety and Health Administration (OSHA). (2001). *Occupational exposure to bloodborne pathogens: Final rule. 29 CFR Part 1910:1030*. Federal Register 1991; 56:64003-64182 Revised 2001 CFR 66 2001:5317-25.
24. World Health Organization. (2010). *Medical Devices: Managing the Mismatch an outcome of the Priority Medical Devices project*. Retrieved from http://apps.who.int/iris/bitstream/10665/44407/1/9789241564045_eng.pdf
25. Department of Health and Human Services Food and Drug Administration (FDA). *Manufacturer and User Facility Device Experience (MAUDE) database*. <http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfmaude/textsearch.cfm>
26. Alexander, P. (2008). Slings and things: The importance of assessment. *International Journal of Therapy and Rehabilitation*, 15(1), 44-49.
27. Alexander, P. (2009). Hoists and slings: the correct procedures for moving a patient. *British Journal of Healthcare Assistants*, 3(2), 58-60.
28. Baptiste, A., McCleery, M., Matz, M., and Evitt, C.P. (2008). Proper sling selection and application while using patient lifts. *Rehabilitation Nursing*, Jan-Feb; 33(1):22-32.
29. Boynton, T., Kelly, L., Perez, A., Miller, M., An, Y., and Trudgen, C. (2014). Banner Mobility Assessment Tool for Nurses: Instrument Validation. *American Journal of Safe Patient Handling and Movement*, 4(3), 86-92.
30. Enos, L. (2013). Safe Patient Handling Equipment Purchasing Checklist. *American Journal of Safe Patient Handling and Movement*, 3(1), S1-16.
31. Muir, M., and Archer-Heese, G., (January 31, 2009) "Essentials of a Bariatric Patient Handling Program" *OJIN: The Online Journal of Issues in Nursing*, Vol. 14, No. 1, Manuscript 5.
32. Murray, E., and Monaghan, H. Safe Patient Handling & Movement: Sling Safety. (2012). *American Journal of Safe Patient Handling and Movement*, 2(3), S1-14.

33. Rush, Anita. (2004). Assessing Clients for the Correct Hoist or Sling: A Practical Guide. *International Journal of Therapy and Rehabilitation*, 11 (4): 179–82.
34. Wanless, S.G. (2015). Hoisting a patient: Principles for safer practice. *International Journal of Therapy & Rehabilitation*, 22(8): 390-395.
35. Wanless, S.G. and Wanless S. (2011). Improving training and education in patient handling. *Nursing Times*, 107(23): 17–9.
36. Association of Occupational Health Professionals in Healthcare (AOHP). (2011). *Beyond Getting Started. A Resource Guide for Implementing a Safe Patient Handling Program in the Acute Care Setting*. Retrieved from https://www.aohp.org/aohp/Portals/0/Documents/AboutAOHP/BGS_Summer2011.pdf
37. Gallagher, S. (2013). *Implementation Guide to the Safe Patient Handling and Mobility Interprofessional National Standards*. American Nurses Association. Nursebooks.org. Silver Spring, MD
38. Mulley, G., Bowman, C., Boyd, M, and. Stow, S. (Editors). (2014). *The Care Home Handbook*. Hoboken, NJ: Wiley-Blackwell. ISBN: 978-1-118-31462-3.
39. Nelson, A.L., Motacki, K., and Menzel, N. (2009). *The illustrated guide to safe patient handling and movement*. New York, NY: Springer Publishing Company.
40. Nelson, A.L. (Editor). (2006). *Safe Patient Handling and Movement: A Guide for Nurses and Other Health Care Providers*. New York: Springer Publishing Co.
41. US Department of Labor: Occupational Safety and Health Administration (OSHA). (2002). *Appendix A of the Settlement Agreement between OSHA and Beverly Enterprises entitled Lift Program Policy and Guide*. Retrieved from <https://www.osha.gov/CWSA-attachment/beverlyliftprogramguide.pdf>
42. Smith, J (Editor). (2011). *The Guide to the Handling of People: A Systems Approach*. 6th edition. Teddington, United Kingdom: The BackCare Charity.
43. U.S. Department of Health and Human Services Food and Drug Administration’s (FDA). (2014). *Medical Devices - General Hospital Devices and Supplies: Patient Lifts*. Retrieved from <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/GeneralHospitalDevicesandSupplies/ucm308622.htm>
44. U.S. Department of Veterans’ Affairs. VISN 8 Patient Safety Center of Inquiry. (2008). *Algorithms for safe patient handling, mobility and movement*. Retrieved from <http://www.visn8.va.gov/patientsafetycenter/safepthandling/>

45. U.S. Department of Veterans' Affairs. VISN 8 Patient Safety Center of Inquiry. (2008). *Patient slings selection and toolkit*. Retrieved from <http://www.visn8.va.gov/patientsafetycenter/safePtHandling/toolkitSlings.asp>
46. U.S. Department of Veterans' Affairs. VISN 8 Patient Safety Center of Inquiry. (2005, Aug 31). *Patient care ergonomics resource guide: Safe patient handling*. Retrieved from <http://www.visn8.va.gov/patientsafetycenter/resguide/ErgoGuidePtOne.pdf>

OTHER USEFUL RESOURCES

ECRI's Medical Device Safety Reports <http://www.mdsr.ecri.org/>

U.S. Department of Health and Human Services Food and Drug Administration's (FDA):

Code of Federal Regulations Title 21, Volume 8 Revised as of April 1, 2013 PART 880

-- **GENERAL HOSPITAL AND PERSONAL USE DEVICES** Subpart F--General

Hospital and Personal Use Therapeutic Devices:

21CFR880.5510

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?fr=880.5510> and

21CFR880.5500

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?fr=880.5500>

Guidance for Industry and FDA Staff Recognition and Use of Consensus Standards

Document issued on: September 17, 2007 U.S. Department of Health and Human Services

Food and Drug Administration Center for Devices and Radiological Health Standards

Management Staff Office of Science and Engineering Laboratories.

<http://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm075064.pdf>

Human Factors Program and Medical Device Use resources. Information for Healthcare Professional, Manufacturers and Consumers.

<http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/HumanFactors/default.htm>

MAUDE - Manufacturer and User Facility Device Experience or MAUDE database houses medical device reports submitted to the FDA by mandatory reporters (manufacturers, importers and device user facilities) and voluntary reporters such as healthcare professionals, patients and consumers. Searchable data base provided.

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfMAUDE/Search.cfm>

MedSun: Medical Product Safety Network adverse event reporting program designed to promote reporting of medical device issues by healthcare organizations. Searchable data base provided. <http://www.fda.gov/medicaldevices/safety/medsunmedicalproductsafetynetwork/default.htm>

MedWatch Safety Alerts – subscribe to receive email safety alerts about Medical products.

<http://www.fda.gov/Safety/MedWatch/ucm228488.htm>

Recognized Consensus Standards – search for standards such as ISO 10535 that are recognized by the FDA.

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfstandards/search.cfm>

APPENDIX I

Summary of MAUDE report and other incidents related to the use of slings in lifting and transferring healthcare recipients 2004-2015

The summary below was developed from a review of adverse events from 2004 through 2015 involving medical devices specifically, healthcare recipient lifts and slings that have been reported to the FDA and are stored in the Manufacturer and User Facility Device Experience Database (MAUDE).

The MAUDE database houses medical device reports submitted to the FDA by mandatory reporters (manufacturers, importers and device user facilities) and voluntary reporters such as health care professionals, patents and consumers. Each year the FDA receives several hundred thousand medical device reports (MDRs) of suspected device-associated deaths, serious injuries and malfunctions.

Please refer to the [MAUDE report home page](#) to review more information about the type and scope of information housed in the MAUDE database.

A total of 105 reports were reviewed including individual event reports and information about investigations conducted and recommendations made by the equipment manufacturer if provided.

Recalls and safety alerts related to healthcare recipient lifts and slings for 2004-2015 from [Health Canada](#) and the UK [Medicines and Healthcare Products Regulatory Agency](#) were also reviewed.

The following are the *primary themes or main issues* noted in the review of adverse events related to hanger bars and slings:

- 1) Sling Clips
 - a. Broken, cracked, worn, defective
 - b. Not applied or attached properly
 - c. Incompatible with lift
 - d. Not properly laundered (which contributed to cracks/defects)
 - e. Bumped off/detached during transfer

- 2) Sling Loops
 - a. Tore during transfer
 - b. Worn
 - c. Not applied properly/ attached improperly
 - d. Detached during transfer – missing safety clip/flap on hanger bar/stretchers bar





















- 3) Other Sling-related issues:
 - a. Sling sizing/incorrect size - too large

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- b. Sling fabric and seams – worn
 - c. Defective sling placed back in use
 - d. Used past anticipated lifetime
 - e. Sling incompatible with lift hanger bar
 - f. Wrong lift and sling used based on patient’s needs
 - g. Caregiver didn’t apply sling correctly
- 4) Training and competency issues:
- a. Lack of or inadequate training related to:
 - i. Sling inspection
 - ii. Choosing the correct sling size
 - iii. Application of slings on healthcare recipients and consideration of healthcare recipients’ specific clinical needs
 - iv. Application of slings and adjusting for stability prior to transfer
 - v. Correct choice of sling that is compatible with a hanger bar
 - vi. Correct attachment of slings to lift hanger bars
 - vii. Healthcare recipient assessment and choice of equipment to move healthcare recipient

APPENDIX II

Guide to Common Home Laundering and Dry Cleaning Symbols

GUIDE TO COMMON HOME LAUNDERING AND DRYCLEANING SYMBOLS			
DOS/WIN Code Ref#	Care Symbol	Written Care Instructions	What Care Symbol and Instructions Mean
Wash <small>MW_Norm</small>		Machine Wash, Normal	Garment may be laundered through the use of hottest available water, detergent or soap, agitation, and a machine designed for this purpose.
<small>MW30C</small>	 	Machine Wash, Cold	Initial water temperature should not exceed 30C or 65 to 85F.
<small>MW40C</small>	 	Machine Wash, Warm	Initial water temperature should not exceed 40C or 105F.
<small>MW50C</small>	 	Machine Wash, Hot	Initial water temperature should not exceed 50C or 120F.
<small>MW60C</small>	 	Machine Wash, Hot	Initial water temperature should not exceed 60C or 140F.
<small>MW70C</small>	 	Machine Wash, Hot	Initial water temperature should not exceed 70C or 160F.
<small>MW95C</small>	 	Machine Wash, Hot	Initial water temperature should not exceed 95C or 200F.
<small>MW_Pres</small>		Machine Wash, Permanent Press	Garment may be machine laundered only on the setting designed to preserve Permanent Press with cool down or cold rinse prior to reduced spin.
<small>MW_Gentl</small>		Machine Wash, Gentle or Delicate	Garment may be machine laundered only on the setting designed for gentle agitation and/or reduced time for delicate items.
<small>Hndw</small>		Hand Wash	Garment may be laundered through the use of water, detergent or soap and gentle hand manipulation.
<small>W_DoNot</small>		Do Not Wash	Garment may not be safely laundered by any process. Normally accompanied by Dry Clean instructions.
Bleach			
<small>B_Any</small>		Bleach When Needed	Any commercially available bleach product may be used in the laundering process.
<small>B_NonChl</small>		Non-Chlorine Bleach When Needed	Only a non-chlorine, color-safe bleach may be used in the laundering process. Chlorine bleach may not be used.
<small>B_DoNot_B</small>		Do Not Bleach	No bleach product may be used. The garment is not colorfast or structurally able to withstand any bleach.

NOTE:
SYSTEM OF DOTS INDICATING TEMPERATURE RANGE IS THE SAME FOR ALL WASH PROCEDURES.

NOTE:
All (98+%) washable textiles are safe in some type of bleach. IF BLEACH IS NOT MENTIONED OR REPRESENTED BY A SYMBOL ANY BLEACH MAY BE USED.

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APPENDIX II







GUIDE TO COMMON HOME LAUNDERING AND DRYCLEANING SYMBOLS			
DOS/WIN Code Ref#	Care Symbol	Written Care Instructions	What Care Symbol and Instructions Mean
Dry TD_Nor		Tumble Dry, Normal	A machine dryer may be regularly used at the hottest available temperature setting.
TD_Nor_L		Tumble Dry, Normal, Low Heat	A machine dryer may be regularly used at a maximum of Low Heat setting.
TD_Nor_M		Tumble Dry, Normal, Medium Heat	A machine dryer may be regularly used at a maximum of Medium Heat setting.
TD_Nor_H		Tumble Dry, Normal, High Heat	A machine dryer may be regularly used at a High Heat setting.
TD_NoHet		Tumble Dry, Normal, No Heat	A machine dryer may be regularly used only at No Heat or Air Only setting.
TD_PP		Tumble Dry, Permanent Press	A machine dryer may be regularly used only at the Permanent Press setting.
TD_Gen_L		Tumble Dry, Gentle	A machine dryer may be regularly used only at the Gentle setting.
TD_DoNot		Do Not Tumble Dry	A machine dryer may not be used. Usually accompanied by an alternate drying method symbol.
Dr_DoNot		Do Not Dry	A machine dryer may not be used. Usually accompanied by an alternate drying method symbol.
Dry_Line		Line Dry	Hang damp garment from line or bar, in or out doors.
Dr_Drip		Drip Dry	Hang dripping wet garment from line or bar, in or out doors, without hand shaping or smoothing
Dr_Flat		Dry Flat	Lay out horizontally for drying.
Dr_Shade		Dry In Shade	Usually added to Line or Drip Dry. Dry away from direct sunlight.
Wring Wr_DoNot		Do Not Wring	Do not wring.

NOTE
SYSTEM OF DOTS INDICATING TEMPERATURE RANGE IS THE SAME FOR ALL DRY PROCEDURES.

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APPENDIX II

GUIDE TO COMMON HOME LAUNDERING AND DRYCLEANING SYMBOLS

DOS/WIN Code Ref#	Care Symbol	Written Care Instructions	What Care Symbol and Instructions Mean
Iron Ir_TaIl		Iron, Any Temperature, Steam or Dry	Regular ironing may be needed and may be performed at any available temperature with or without steam is acceptable.
Ir_TaIl_L		Iron, Low	Regular ironing, steam or dry, may be performed at Low setting (110C, 230F) only.
Ir_TaIl_M		Iron, Medium	Regular ironing, steam or dry, may be performed at Medium setting (150C, 300F).
Ir_TaIl_H		Iron, High	Regular ironing, steam or dry, may be performed at High setting (200C, 290F).
Ir_NoStm		Do Not Steam	Steam ironing will harm garment, but regular dry ironing at indicated temperature setting is acceptable.
Ir_DoNt		Do Not Iron	Item may not be smoothed or finished with an iron.

NOTE
SYSTEM OF DOTS INDICATING TEMPERATURE RANGE IS THE SAME FOR ALL IRONING PROCEDURES.

NOTE: IF IRONING IS NOT A NECESSARY, REGULAR CARE PROCEDURE IT NEED NOT BE MENTIONED.

Dryclean DC_Circle		Dryclean	Dry Clean, any solvent, any cycle any moisture, any heat.
DC_A		Dryclean, Any Solvent	Dry Clean, any solvent. Usually used with other restrictions on proper dry cleaning procedure.
DC_F		Dryclean, Petroleum Solvent Only	Dry Clean using only petroleum solvent. Usually used with other restrictions.
DC_P		Dryclean, Any Solvent Except Trichloroethylene	Any dry cleaning solvent other than trichloroethylene may be safely used.
DC_S_Cye		Dryclean, Short Cycle	May be used with A, P, or F solvent restriction.
DC_RMois		Dryclean, Reduced Moisture	May be used with A, P, or F solvent restriction.
DC_LHet		Dryclean, Low heat	May be used with A, P, or F solvent restriction.
DC_NSt		Dryclean, No Steam	May be used with A, P, or F solvent restriction.
DC_DoNot		Do Not Dryclean	Garment may not be commercially drycleaned.

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APPENDIX III

Slings and Safe Patient Handling 2014 Survey Tool



Slings and Safe Patient Handling

1. Title or department of person completing survey

- SPH facility champion
- SPH peer leader
- Leadership/management
- Risk management
- Patient safety
- Employee safety
- Patient educator
- Equipment/slings manufacturer
- Equipment/slings vendor
- Slings manufacturer/vendor
- Other (please specify)

2. Type of facility where a majority of your patient lift equipment is used

- Acute Care
- Rehabilitation
- Long Term Care (nursing home, assisted living, etc.)
- Home Care
- Outpatient Medical Clinic (family practice, internal medicine, urgent care, etc.)
- Dental Offices
- Other (please specify)

3. Does your facility use patient lift equipment (e.g., floor lift, ceiling lift, and sit-to-stand lift) that requires the use of patient slings?

- Yes, go to next question
- No

If 'No' please tell us why lift equipment is not used at your facility

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Slings and Safe Patient Handling

4. Do you know of any instances in which a patient has been injured at your facility or a facility you work with directly (vendors) from being lifted using a ceiling/mobile lift and sling?

- Yes
- No

If Yes, please explain your understanding of the root cause and contributing factors related to the incident(s)

5. Do you know of any instances in which a patient could have been injured at your facility or a facility you work with directly (vendors) from being lifted using a ceiling/mobile lift and sling but was unharmed?

- Yes
- No

If Yes, please explain your understanding of the root cause and contributing factors related to the incident(s)

6. Does your facility use only slings made by the same equipment manufacturer/vendor as your lifts?

- Yes
- No

Please explain your answer

7. What information was used by your facility to make the decision regarding which manufacturer/vendor slings are used on your lifts?

- Equipment manufacturer written statements
- Equipment manufacturer verbal statements
- Consultation with internal legal/risk management
- Consultation with external legal/risk management
- Independent manufacturer evaluations/statements
- Other (please specify)

APPENDIX III



Slings and Safe Patient Handling

8. What do you consider to be the most crucial concern affecting patient safety when using lift slings?
- Using another manufacturer/vendor slings on a different manufacturer/vendor's equipment?
 - Inadequate/poor quality initial training
 - Inadequate/poor quality ongoing training
 - Difficulty and/or inability to inspect slings following each washing
 - Difficulty and/or inability to inspect and document prior to each patient use
 - Difficulty and/or inability to determine the sling integrity/life until needing replacement
 - Inadequate and/or poor quality of the sling itself
 - Sling design does not support body in safe manner
 - Other (please specify)
9. Did you know that the FDA has published recommendations for sling use with patient lift equipment?
- Yes
 - No
10. If "Yes" to question (9) above
- Have you read the FDA recommendations for sling use with patient lift equipment?
- Yes
 - No
11. If "Yes" what do you believe the statement to be?
- A government standard that must be complied with
 - A guideline or best practice only
 - None of the above
 - Other (please specify)
12. Do you have any other comments or specific needs related this issue?



American Association for
Safe Patient Handling & Movement

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