

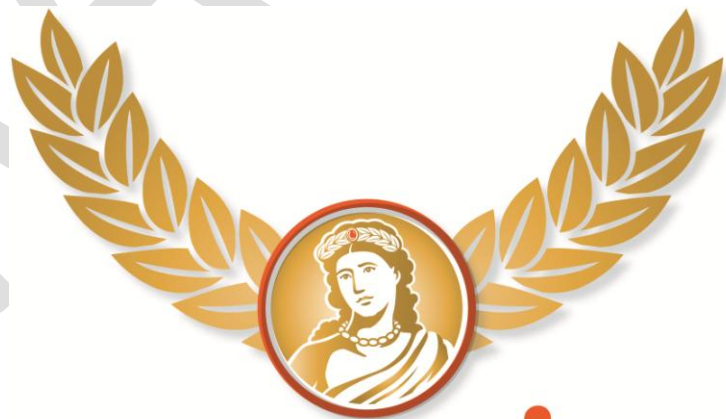
Soteria Strains

Safe Patient Handling and Mobility Program Guide

Section 3 - Controls

Section 3.1 – Equipment Installation and Maintenance

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STRAINS

A provincial strategy for healthcare workplace musculoskeletal injury prevention.

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Section 3.3 – Equipment Installation and Maintenance

Introduction

This section discusses key issues to consider when installing equipment and establishing processes and procedures to ensure that equipment is effectively maintained. It also offers direction for developing or improving current organizational processes related to installation and maintenance of patient handling and mobility equipment. Many specialized pieces of equipment such as bathroom grab bars, extended-capacity toilets, and ceiling lifts require installation prior to use. All equipment must be inspected, serviced, and maintained on a regular schedule as well as taken out of service and repaired as the need arises. Manufacturers' recommendations for installation and all relevant standards should be satisfied during installation and maintenance of any equipment.

In this section, ceiling lifts are used as an example because they are a common piece of equipment that requires installation. The steps/activities listed here may occur in a different order or run concurrently.

Ceiling Lift Installation

Once funding has been approved, a date should be scheduled for installation. Prior to installation, a number of departments need to be engaged to ensure a seamless and effective process. They are:

- **Engineering Services:** Ceiling lifts require an electrical outlet for power. Facilities may have different guidelines regarding installation of the outlet. For example, one organization typically installs the outlet above the ceiling tiles, and the ceiling lift is plugged in there to avoid excess cords in the area. Regardless of location, it is beneficial to install the outlet first so that the ceiling lift can be checked and ready for use when needed. The possibility of encountering asbestos-containing materials in and/or above the ceiling structure should have been considered during equipment selection, so that appropriate selection decisions are made. If installation will result in any disturbance to asbestos-containing materials, control measures must be taken to avoid exposure.
- **Bed Utilization:** During installation the room cannot be occupied by patients, who will need to be relocated for the duration of the installation. This will require input from Bed Utilization so they can plan where the patient(s) will be located during the installation. This can be a very challenging constraint to the ceiling lift installation process. Often times this is not as challenging in Long Term Care environments as residents may be out of their rooms for portions of the day.
- **Environmental Services:** Current Infection Prevention and Control (IPAC) standards require that the room be cleaned both prior to and following installation. Environmental Services may also assist in removing furniture from the room.
- **Infection Prevention and Control:** IPAC should be consulted to ensure that the standards outlined in CSA standard Z317.13-12 and any other relevant standards/legislation/current practice are met during ceiling lift installation. The CSA standard looks at the type of construction occurring and the type of patient/resident in that area. It outlines air quality requirements, hoarding (enclosure) requirements, etc. Determination of the requirements should be completed prior to the day of installation so that the installers are made aware of the requirements. Typically on the day of the installation IPAC will assess to determine if the standards have been met prior to any work beginning.

- **Clinical Engineering / Maintenance:** When the tracks are load tested as part of the installation process it is important that an organization employee observe the test. Once the ceiling track motor is installed on the track the unit should be checked by Clinical Engineering to ensure that it is working properly before it is put into use with employees and patients.
- **Safe Patient Handling Program/Facility Coordinator /Peer Champion:** Once the unit is operational, either of these individuals should schedule training if this equipment is new to this unit.
 - Health care workers should be trained in the selection and use of the specific equipment being put in place. Refer to “Section 3.6 – Training” for details on implementing training.
 - Training should include general, unit-specific, and equipment-specific elements. Vendors can usually provide equipment-specific training elements and may also assist with general and unit-specific elements in collaboration with internal resources (peer champions, trainers, managers, etc.). Refer to “Section 1.2 – Policy” and “Section 3.6 – Training” for more details on delivering general and unit-specific training elements.

If ceiling lifts are being installed in new construction, please refer to *Section 3.5 - Key Design and Installation Specifications* to help make decisions about this equipment.

Equipment Maintenance

Once equipment is purchased and/or installed, it is checked and cleared by Clinical Engineering before it is put into service. Once cleared, it is required that the equipment be inventoried and placed into a preventative maintenance schedule. The inventory should include installation locations, weight limits of the equipment, models number of equipment, as well as serial numbers. Some organizations may also have pre-utilization inspections completed by the vendor and/or an external provider through service contracts. Each organization is responsible for ensuring the completion of these inspections before the equipment is put into service regardless of who conducts them.

Note: All equipment should be inspected as outlined by the manufacturer. Equipment should meet all standards as outlined by the OHS Division of NS Labour and Advanced Education (e.g. CSA standard Z317.13-12)

Steps/Activities for Maintenance and Inspection of Equipment

| Step/Activity | Tools |
|---|---|
| 1a) Pre-use inspections | Appendix 3.1.1 – Pre-use inspection guide Appendix 3.1.2 - Sample Equipment inspection checklist |
| 1b) Post-Use Inspections / Requirements | |
| 2) Daily Inspections | |
| 3) Monthly Inspections | |
| 4) Annual Inspections | |

Patient handling and mobility equipment needs to be inspected to ensure that it is safe to use and to minimize the risk of injuries to patients and health care workers. It is important to ensure that those individuals who are responsible for conducting these inspections are made aware of this and are trained to conduct the inspections. Generally equipment will require daily, monthly, and annual

inspections. Monthly and annual inspections should be scheduled with the required completion dates defined. All appropriate legislation and standards should be satisfied by meeting or exceeding expected timeframes. Checklists are helpful to ensure inspections are done to required standards and may be used to document completion (refer to safety legislation and policies for current and specific legal expectations). Organizations may have an automated data management system to help them keep track of inspection requirements / schedules for patient handling and mobility equipment. Use of these systems is encouraged so that equipment inspections can be better planned for, tracked and integrated into current practices.

Step 1a - Pre-Use Inspections

It is expected that health care workers will do a pre-use inspection of all patient handling and mobility equipment before each and every use. For all mechanical lifts this should, where applicable, include:

- missing hardware or broken pieces
- battery charge level
- spreader bar
- wear and tear on the sling
- wear or damages on the lifting strap

Other pieces of equipment / accessories should also be visually inspected for damage before use (e.g. loose screws on grab bars, cracks in transfer boards, tears in slider sheets).

Any damage or concerns should be reported to the unit manager and the equipment should be taken out of service until it is inspected and approved and/or repaired. Refer to appendix 3.3.2 for sample tags to document inspection and identify equipment requiring repairs.

Step 1b - Post-Use Inspections / Requirements

For Ceiling Mounted Lifts:

Ceiling track motors should be returned to their charger after every use. The batteries in the motor are rechargeable; however, their lifespan will be greatly shortened if they are completely drained on a regular basis. Some ceiling mounted lifts have a “Return to Home” button on the remote control that, when pressed, automatically returns the motor to the charging unit. However, the CSA standard no longer allows for ceiling lifts to have this function. They must now be taken back to the charger by pressing the lateral motion button on the remote control.

All health care workers should ensure that the ceiling track motor is returned to its charger after each and every use.

For Portable Lifts:

All health care workers should ensure that portable lifts are returned to their designated storage area after they have finished using them with one or more patients. Once finished using a lift, the workers should ensure that the lift is plugged into its charging station or the battery for the lift is removed and placed into its charging unit.

For all mechanical lifts, health care workers should ensure that they follow the required infection control procedures (e.g. wipe down controls, wipe down or replace sling, etc.)

Step 2 – Daily Inspections

Daily inspections are completed for all mechanical lifts, portable and ceiling mounted. The key difference between these daily inspections and the pre-use inspections, discussed above, is the daily inspections are more thorough and documented. See Appendix 3.3.1 for a sample daily inspection checklist.

The unit manager is responsible for ensuring that someone is assigned the task of completing the daily inspections of mechanical lifts. Note: all lifts do not have to be inspected by the same individual.

Any piece of equipment that does not operate properly should be taken out of service immediately and reported to the unit manager/supervisor and/or clinical engineering representative.

Step 3 – Monthly Inspections

Manufacturers will require that certain elements be inspected on a regular basis. These inspections should be completed every month and documented using a document similar to Appendix 3.3.1 - Sample Daily Inspection Checklist -- Patient Care Lifts and Slings. The unit manager is responsible for ensuring that someone is assigned the task of completing the monthly inspections of mechanical lifts. Note: all lifts do not have to be inspected by the same individual.

- Lift Monthly Inspection
 - For ceiling mounted lifts:
 - Ensure the track is visually level and no obvious loose bolts
 - Ensure end caps are in place
 - Ensure the emergency pull cord is in place and functioning
 - Check the full length of the lifting strap for wear and tear
 - Motor housing
 - Hand control buttons should be visually inspected and tested for normal operation
 - For portable lifts
 - Carry bar
 - Full length of the lifting strap for wear and tear.
 - Casters are clear of debris and freely moving
 - Hand control buttons should be visually inspected and tested for normal operation.
 - Battery chargers should be inspected to ensure indicator lights are functioning as expected

This may also be a convenient time to inventory smaller, non-fixed items such as slider sheets, slings and transfer boards.

Any piece of equipment that does not operate properly should be taken out of service immediately and reported to the unit manager/supervisor and/or clinical engineering representative.

Step 4 – Annual Inspections

A qualified professional must conduct a load test on all mechanical and ceiling lifts at least annually. Lifts should be tested to ensure they can handle, at a minimum, the CSA recommended multiplier of the manufacturers documented safe operating load. Refer to CSA - Z10535-1 Hoists for the transfer of disabled persons – Requirements and test methods (available at the time of publication), and Z10535-2 – the standard for testing and installing lifts (expected to be published in 2015). The Joint Occupational Health and Safety Committee should be informed before any testing takes place and provided the opportunity to observe. The results of the annual load tests should be documented and the results for all tests shared with the joint health and safety committee. For each individual piece of equipment tested, an inspection sticker or tag should be used to indicate that the equipment passed the test and the date the testing was completed.

Any piece of equipment that does not operate properly should be tagged, taken out of service immediately and reported to the unit manager/supervisor and/or clinical engineering representative.

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Appendix 3.3.1 - Sample Pre-use Inspection Guide

| Pre-use Inspection – Check before every use | Check |
|---|-------|
| Mechanical Lifts / Portable Floor Lifts | |
| Wheels free of debris, not cracked or broken | |
| Lift easily rolls / moves | |
| Brakes functioning properly | |
| Base width adjusts easily | |
| Boom moves through full range | |
| For all lifts | |
| No obviously loose bolts, nuts, screws or other hardware | |
| No cracks, bends or other damage to lift, motor housing, and/or carry bar | |
| Carry bar sling hooks are present and not damaged (if applicable) | |
| No signs of wear and tear on lifting strap (if present) | |
| Slings | |
| No frayed edges | |
| No holes | |
| No ripped or loose stitching | |
| Manufacturer’s label present, inc serial #, readable | |

Appendix 3.2.2 - Sample Inspection Checklist -- Patient Care Lists and Slings

Adapted from PSHSA

Type of Lift: Floor Ceiling Serial #: _____

Inspections for week beginning Sunday, dd/mmm/yy

| Inspect | Sun. Initials | Mon. Initials | Tues. Initials | Wed. Initials | Thurs. Initials | Fri. Initials | Sat. Initials | Date; Comments |
|---|------------------|------------------|-------------------|------------------|--------------------|------------------|------------------|----------------|
| Mechanical Lifts / Portable Floor Lifts | | | | | | | | |
| Wheels free of debris and in good working order | | | | | | | | |
| Wheels firmly attached to base of lift | | | | | | | | |
| Brakes functioning properly | | | | | | | | |
| No obviously loose bolts, nuts, screws or other hardware | | | | | | | | |
| No cracks, bends or other damage to carry bar | | | | | | | | |
| Carry bar sling hooks are present and not damaged (if applicable) | | | | | | | | |
| No signs of wear and tear on lifting strap | | | | | | | | |
| Base width adjusts easily | | | | | | | | |
| Boom moves through full range | | | | | | | | |

| Ceiling-mounted Lifts | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Lift strap -- no signs of fraying or other damage | | | | | | | | |
| Track - appears secure and flush against surface | | | | | | | | |
| Ceiling track end stops secure | | | | | | | | |
| No cracks, bends or other damage to carry bar | | | | | | | | |
| Carry bar sling hooks are present and not damaged | | | | | | | | |
| No signs of loose hardware | | | | | | | | |
| Return-to-charge feature functions correctly (if applicable) | | | | | | | | |
| Operational Inspection | | | | | | | | |
| All hand controls function correctly | | | | | | | | |
| Emergency controls function correctly | | | | | | | | |
| No unusual noises | | | | | | | | |
| No unusual kinks or twists in cable connecting motor to controls | | | | | | | | |

Appendix 3.3.3 - Tag Labels for Equipment Inspection

