Health problem addressed

Patient lifts enable safe lifting and transferring of weak, obese, or disabled patients with minimal physical effort. They are important devices for nurses, for whom lift-strain injuries make up about one-third of all reported work-related injuries each year.

Product description

The conventional patient lift, operated manually or by a motor or a hydraulic system, consists of six major components: a support base (including casters that enable the lift to roll), a mast, a boom, a lifting mechanism, a swivel bar, and a seat (sling). Most models are also equipped with caster brakes to prevent the base from moving during the lifting process. Permanently mounted overhead track lifts have five major components: a ceiling track, usually made of aluminum; a mounting system that attaches the track to the ceiling (e.g., steel brackets); a ceiling console containing the motor that drives the system and the pulleys that roll it on the track; a suspension system (the seat [sling] and its attachment to the console); and a remote control or battery-operated control box, which regulates the lift’s movement.

Principles of operation

There are two common designs for the support base of a mobile lift: C- or U-shape. The mast connects the base to the boom and supports the lifting mechanism. The boom extends out over the base and supports the swivel bar from which the seat or sling is suspended. Permanently mounted overhead track lifts have a ceiling track, a mounting system that attaches the track to the ceiling, a ceiling console containing the motor that drives the system and the pulleys that roll it on the track; a suspension system (the seat and its attachment to the console); and a remote control or battery-operated control box, which regulates the lift’s movement.

Operating steps

• When using a mobile lift, the operator places a sling under patient and attaches the sling to the swivel bar.
• Operator raises raises the patient using an electronic push-button switch or hand-crank mechanism. The lift brings the patient up and away from the bed, chair, or other surface, ready to be transferred. When using an overhead track, the operator first positions the patient in the sling or support. The patient is lifted up and away when the operator presses a switch on the electric control box, activating the motor. The lift brings the patient across the room or to another room as the overhead console containing the motor and pulleys moves along the ceiling track.

Reported problems

Typical lifts have a high center of gravity when the patient is aboard and the lift can become unsteady and tip over. Improper use, poor maintenance, wear, corrosion, and fatigue can lead to mechanical failures. Avoid using disinfectants or cleaning agents that contain corrosive ingredients. On rare occasions, hydraulic fluid can leak from pumps used with some models if the lift has been turned upside down or has not been in recent use.

Use and maintenance

User(s): Nurse; nursing staff; medical staff
Maintenance: Biomedical engineering staff and/or service contract with the manufacturer or third-party organization
Training: Initial training by manufacturer; operator’s manuals; user’s guide

Environment of use

Settings of use: Hospital; long-term care facility
Requirements: Stable power source (track-mounted units)

Product specifications

Approx. dimensions (mm): 1143 x 686 x 1219 minimum storage area required for conventional lifts; size may vary due to room configuration for track-/ceiling-mounted units
Approx. weight (kg): 42 for conventional unit; 35 for track-/ceiling-mounted units
Consumables: Slings; straps
Price range (USD): 4,150- 23,700 (12,000 typical) for conventional unit; 3,200-7,950 (5,200 typical) for track-/ceiling-mounted unit
Typical product life time: 10 years
Shelf life (consumables): NA

Types and variations

• Mobile
• Fixed