

Evaluation of Battery Powered Bed Jack

Introduction

The Bed Jack is designed to easily lift a bed or chair for the purpose of installing raisers underneath. This lifts the height of the bed or chair to enable safe and independent access/transfers by people who are struggling to get on and off low surfaces.

The purpose of this evaluation is to compare the effectiveness of the new Battery Powered Bed Jack 600mm stroke with both Manual Handling and the existing Mains Powered Bed Jack 300mm stroke.

Person responsible for this evaluation

This evaluation has been carried out by all staff who are expected as a part of there job requirements to raise beds and chairs to achieve the planned treatment and rehabilitation outcomes for clients. This is carried out by both Occupational Therapy assistants and qualified staff.

Key Points and Challenges

The majority of staff fitting bed/chair raisers are woman between the ages of 20 to 65 in this department. Some staff have suffered back injuries from lifting equipment in the past and have subsequently modified there approach to lifting by ensuring that they take another staff member with them in situations where heavy lifting is required. In this department it has been an accepted practice for 2 staff members to be involved in fitting raisers as one person cannot safely lift the bed/chair and position the raiser at the same time.

Use of lifting equipment is becoming mandatory as the recently introduced legislation for manual handling guidelines is enacted and enforced. The ACC Manual handling guidelines provide a formula for determining the Risk Score for lifting, which identifies risk elements such as the weight of the object, the distance it is held from the body, the amount of twisting, reaching bending required the amount of floor space available etc. This subsequently provides an indication of the risk of injury from lifting in these circumstances.

Bed and Chair lifts are generally done in a confined space, and involve bending and twisting. If half the weight of a standard single bed is approx 70kg's with the manual lift generally occurring in a confined space and requiring twisting and reaching the lift risk score ratio is going to be in the category of "injuries being possible to healthy and fit people." Manual fitting of raisers to beds and chairs by a single person exceeds the recommended ACC guidelines for manual handling and lifting.

OT Feedback

All OT staff in this department (13 Staff members inclusive of 2 assistants) fit bed/chair raisers on a regular basis. All have expressed concerns about manually fitting raisers and generally staff will either take a second staff member with them or take the existing mains powered bed jack purchased a couple of years ago.

Use of 2 staff members is not cost effective especially when the second staff member is generally a qualified therapist. Much of the fitting of equipment is delegated to the assistants however both assistants only work part time hours.

Staff has been known to fit raisers without assistance particularly in isolated rural environments but this is not a recommended practice.

Use of a bed jack has reduced the risk of injury to staff and enabled the fitting of raisers to be done by one person particularly in outlying areas.

Funding

This is generally approved by the line manager at the therapist's request. Approval would depend on the amount of funding available in the minor capital budget for the OT department and whether there were requests for other items that were considered more important. A case could be presented for savings based on loss of manpower from injury, monetary savings from using only one therapist and meeting the requirements of safety legislation but that would not guarantee funding. In the experience of this department use of a bed jack has created savings in the following areas

Uses of one person (generally an assistant) given that on the average 15 raisers are fitted per month at an average of approximately 20 hours per month including travel and rural locations:

- is a monetary saving of about \$320 per month based on an average of \$16.00 per hour for a qualified therapist.
- a time saving of 20 hours per month which frees one therapist up to do another 20 hours work per month which may include dealing with existing caseload or being free to take on new caseload
- reduces injury to staff and the loss of both manpower and the ability to deal with case load

This has not been quantified in a formal study as we do not have the necessary staff or time to do a measurable case study.

Measurable Activities

Comparison of the Mains Powered bed jack with the Battery powered bed jack. The staff in this department have had access to and used a mains powered Bed Jack for approx 2 years.

Staff report that they raise an average of 15 beds/chairs per month. They generally use the existing mains powered jack and have identified the following issues with this jack.

- It is often difficult to access a mains power plug in the clients' home with mains plugs often being located behind other heavy furniture requiring additional lifting and shifting or being overloaded with existing appliances requiring something else to be unplugged to enable use of the jack.
- The use of extension cords and the mains power cord to the jack becomes a safety hazard because of the risk of tripping over or becoming entangled in them for both the therapist and the well meaning client or family members who feel obliged to help.
- Family/clients feel the need to be involved in the process by providing additional power cords and insisting on plugging them in which can increase both levels of anxiety and safety risks for all parties.
- Having to carry an additional bag with power cords and the hand control for the jack can become an issue.
- There are some situations where this Jack cannot not be used because it does not lift (travel) high enough.

- There were occasions when this Jack could not be maneuvered in to tight spaces because of the trailing cords

Battery powered Bed Jack

The advantages of this Jack over the mains powered Jack is:

- The lack of trailing cords makes it safer to use
- Extra cables do not need to be carried
- The whole process is about 15mins quicker because time is not wasted by having to access power points or fend off well meaning clients and family.
- The battery powered Jack lifts (travels) higher than the mains powered Jack which makes it usable on a greater variety of beds and chairs. (It has not yet been trialed with a slat bed)
- The portability of the Jack makes the whole process a lot less stressful
- This Jack can be easily maneuvered into tight spaces without the prospect of becoming entangled in trailing cords.

Use of a bed Jack is more cost effective in terms of Time, Safety and fiscal outlay than Manual handling.

The disadvantages of manual handling are:

- Risk of injury to the therapist/assistant from lifting more than the recommended weight. ACC Manual Handling Guide and The NZ Patient Handling Guidelines
- Risk of injury to the therapist/assistant from lifting in a manner that is not recommended, ie twisting, bending, reaching, confined spaces etc.
- The expectation of the client or family that they should help with the process to reduce the risk to the therapist which contravenes the OT code of practice for safety of both clients and staff.
- The increased stress for staff members at the prospect of having to lift a bed/chair to fit raisers.
- The additional time required in both having to arrange a time frame suitable to 2 people to be available to do the lifting and the time wasted for one person in both travel and visit time.
- There are occasions particularly in isolated rural localities where it is only feasible for one person to go. In this instance fitting raisers is not a realistic option without a lifting device (although staff has been known to take the risk).
- The financial costs are higher in manual handling. Financial cost can be doubled for travel and visit time if 2 people are required to go and there is financial risk of loss of manpower and reduced case load due to injury.

We believe that it is imperative that every department should have at least one Bed Jack or more if there is a large staff or staff who work from isolated rural locations. Use of a Bed Jack will enable staff to comply with the Manual handling regulations,

will enable financial savings to the organization by eliminating the need to use more than one staff member to carry out the task and will enable more efficient use of highly qualified, paid staff time in meeting the contractual obligations of the organization.

The staff have made one or two suggestions about possible changes to the battery powered jack.

- Could the operating switch be a little more robust
- Is it possible to have a remote switch for those awkward spaces: ie up against a wall where it is more difficult to get at the switch on the top of the battery
- Is it possible to have a carry handle on the side of the Jack at its point of balance? It is a little heavier than the mains powered Jack and having a handle may make it easier to carry.
- Is it possible to make the travel plate another ½” to 1” deeper so that it fits slightly further under the objects.

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