

Manual Handling

in Health Care Services



A Guide to the Handling of People





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This Guidance is prepared by the
Occupational Safety and Health Branch
Labour Department

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Foreword

Frequent contacts with patients are something that health care workers cannot avoid. No matter what type of health care institutions they are in, they need to handle a lot of patients, and have close encounters with deaths and diseases.

Among the many potential health hazards at work, low back pain tops the problematic list. Nurses in hospitals and personal care workers in nursing homes are the main victims. The illness occurs normally not because of accidents, but because of repeated handling movements and awkward working postures.

Low back pain is not just a pain, it could be a disaster for both the workers and the employers. For the workers, they might need to take long sick leave or even end up in giving up their chosen careers. For the employers, they will have to pay hefty amounts for sick leave, compensation and permanent loss of skilled workers. This problem can be prevented by improving the working environment and educating workers.

This guide aims to explain the obligations of employers and employees under Part VII - Manual Handling Operations of the Occupational Safety & Health Regulation. It advises on a systematic approach to identify, assess and eliminate risks arising from handling people in the health care sector.

**Occupational Safety and Health Branch
Labour Department**





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1. Introduction

While health care workers take care of others everyday, they may not realise that they themselves are facing numerous occupational health and safety hazards at work.

The Occupational Safety and Health Regulation (OSHR) require employers to properly assess all manual handling operations which could risk the health and safety of employees, and to take appropriate steps to reduce the risks to the lowest level which is reasonably practicable.

The principal method of reducing risk is by avoiding hazardous manual handling operations. If it is not possible to eliminate this completely, it should be carefully and critically assessed. Responsible persons should take the task, the load, the working environment, individual capabilities and other factors into account; and ensure preventive and protective measures are in place.

As there is a wide spectrum of manual handling activities, it is impossible to produce one single guidebook that is applicable to every workplace. This guide is specially written for the health care services in which manual handling of people is common.

For matters concerning manual handling operations in general, please refer to another Labour Department publication, 'GUIDANCE NOTES ON MANUAL HANDLING OPERATIONS'.

1.1 Manual Handling of People

A manual handling operation means moving or supporting a load by a person's hands or arms, or by some other form of bodily effort. In the handling of people, this includes the use of force by a person to lift, lower, push, pull, carry, move, support and hold another person.



1.2 What the Law Says about Manual Handling Operations

The person responsible for the workplace is the employer, or the occupier of the premises if the employer has no control over the workplace. The responsible person must-

- ensure that before any manual handling operation is first undertaken there should be a preliminary assessment of its safety and health risks. If the operations are undertaken before the commencement of Part VII of OSHR, the preliminary assessment should be carried out within 14 days after the commencement;
- as far as is reasonably practicable, avoid any manual handling operations which may create safety and health risks to employees;
- ensure a further assessment of risks for hazardous but unavoidable manual handling operations;
- take appropriate steps to reduce risks to the lowest level that is reasonably practicable, and arrange preventive and protective measures for manual handling operations which may create safety and health risks to the employees;
- review the preliminary assessment and any further assessments whenever they are believed to be no longer valid, or the circumstances have changed significantly;
- provide employees with information about the loads, the safety and health risks and the preventive and protective measures taken; and
- if 10 or more employees are normally employed at a workplace at any one time to undertake potentially risky manual handling operation, keep assessment records for not less than three years and appoint sufficient competent persons to assist in carrying out the preventive and protective measures.

Employers must also-

- assess the employee's capability to perform manual handling operations which might create safety and health risks; and
- provide appropriate training to employees.

Employees at work must-

- take care of others; and
- co-operate with employers, e.g., properly use preventive and protective equipment provided by employers.

1.3 General Principles

This guide provides guidance on the process for controlling risks arising from manual handling of people. These include-

- identification of risk factors which are likely to cause injury or disease;
- assessment of particular risk factors; and
- selection and implementation of preventive and protective measures to eliminate or minimise risk.



2. Risk Identification

The purpose of risk identification is to identify 'people handling' operations which could be hazardous, and then place them in priority order, so that they can be effectively assessed, and appropriate preventive and protective measures can be introduced. It is advisable to involve employees in this process. Many hazards can be identified and corrected with management and employees working together.

There are three basic steps in risk identification -

- analysis of injuries, work-related illnesses and incident records;
- consultation with employees; and
- direct observation or inspection of the operation or work area.

Handling people will create safety and health risks to the operators, responsible persons must conduct a further assessment when an unavoidable people handling operation is identified. Section 3 of this guide provides advice on how to undertake this assessment.

2.1 Analysis of Injuries, Work-related Illnesses and Incident Records

Workplace injuries, work-related illnesses and incident records should be examined to identify where, and in what jobs, injuries and 'near miss' incidents from handling people have occurred. Injury and illness data should be analysed periodically to identify common causes and problem areas, so that means of prevention can be worked out.

Items to consider include -

- frequency and severity of events;
- the location of the workplace where the event occurred;
- the characteristics of the person being handled;
- the occupation, or job/task of the employees involved;
- the nature and part of the body injured;
- the type of incident, e.g. overexertion while preventing patient from tripping.

2.2 Consultation with Employees

Health care workers who routinely handle people may be able to indicate tasks, postures or movements which are particularly fatiguing, stressful, strenuous or difficult to perform. During the risk identification process, information about associated risk factors should be obtained from employees with experience of these tasks.

2.3 Inspections and Walkthroughs

Regular site safety and health inspections, or walkthroughs, should be conducted so that actual or potential hazards and failures in hazard controls are identified. These involve direct observation of the work processes, methods and practices, and the preventive and protective measures used.

Checklists tailor-made to the specific characteristics of the organisation should be developed to facilitate a systematic approach.

Risk identification/assessment should be organised based on specific work locations and specific people handling operations. Once a location or an operation is selected, an assessment according to the checklist can be conducted.

A Risk Identification/Further Assessment Checklist is provided in Appendix 1 of this guide. The checklist corresponds to the risk factors outlined in Schedule 3 of the OSHR. Any "YES" answer to the questions in the checklist means control of the risk factors is required. Generally the more the "YES" answers, the higher the priority for installing control measures.



2.4 Potential Risk Factors

Potential risks to safety and health in people handling operations include-

Weight - Moving a person, especially an adult, who has limited ability to assist may cause injuries to health care workers. There are many reasons why the injury occurs: e.g. overexertion, fitness, skill, frequency, work conditions and condition of the person being handled.

Distance - The longer the distance between the trunk and the hands the greater the effect of the weight. Therefore, factors that separate the worker from the person contribute to injuries. These factors would include but are not limited to the following-

- drip stands
- bed rails
- wheel chairs without movable arms
- furniture near the bed

Posture - In addition to the risk factors that relate directly to the lifting activity, awkward postures, separately or in combination with exertion, may cause or contribute to injury/illness. Examples of awkward postures are-

- prolonged stooping
- significant sideways twisting
- reaching above shoulder height
- one handed lifting/carrying

Risky Tasks - With the three factors of weight, distance and awkward posture, moving a person may result in musculoskeletal disorders. The most common risky handling tasks include but are not limited to the following-

- moving a totally dependent person,
- moving a hostile person,
- lifting a person from the floor,
- lateral transfer - moving a person from one horizontal position to another,
- transferring a person from bed to chair or chair to bed,
- transferring a person from chair to chair (e.g., to/from wheelchair, toilet),
- bathing a person,
- repositioning a person in a bed or chair,
- weighing a person,

- positioning a bed pan or changing incontinence pads,
- attempting to stop a person from falling, and
- assisting a disabled person into a vehicle.

Others - other elements that increase the safety and health risks when moving a person include but are not limited to the following-

- uneven, wet or slippery floor (water, urine, etc.),
- not enough space to manoeuvre,
- manually moving a person over a long distance,
- inadequate lighting,
- defective or poorly maintained equipment,
- poor grip on the person due to special medical conditions,
- fatigue from frequent manual handling operations,
- pushing and pulling while repositioning, and
- grasping a lift sheet or sling without handles.

3. Risk Assessment

An employer should ensure that all operations involving the handling of people in workplaces are subject to risk assessment. For all unavoidable handling operations which risk the safety and health of employees, a suitable and sufficient further assessment of those operations must be made. The fundamental objective of a risk assessment is to ensure that the preventive and protective measures are aimed at minimising the risks associated with the work.

The responsible person has the duty to carry out an assessment of handling operations. In practice, the assessment task may be delegated to trained persons within the organisation or occasionally to outside consultants. The appointment of a sufficiently experienced staff member to oversee the assessment of people handling operations is recommended.

Assessments should be recorded and should be reviewed to evaluate their effectiveness. Review of risk assessment is particularly critical whenever -

- there is reason to believe that the assessment is no longer valid,
- a new work process and/or practice is introduced or an existing one is modified,
- there is a change in work environment,
- any person has expressed a specific concern, or
- an injury has arisen from a work process/practice.

In assessing any operation, the first step must be to consider whether risky people handling operations can be avoided. It should not be assumed that because a particular handling operation has always been undertaken, it is automatically unavoidable. All people handling operations should be critically reviewed. Habit, custom and practice are not sufficient justifications on their own for continuing with a handling operation which puts employees at risk.

An assessment is needed even when mechanical handling equipment is available, because the use of such equipment may not totally eliminate the need for manual handling. Moreover, mechanisation may introduce new hazards.

A sample Further Assessment Checklist specially prepared for people handling operations is provided in Appendix 2 of this guide. This checklist covers the risk factors associated with people handling operations, and can be adapted for use in different health care settings.

3.1 Risk Factors

In assessing an operation, all risk factors should be considered. Due regard must be paid to the factors such as - the task, the load, the working environment, and individual capability. These factors are covered in the Further Assessment Checklists in Appendix 1 and 2.

It must be recognised, however, that one factor cannot be considered in isolation as they all interact and affect one another. The interaction of all the factors should be taken into account. A proper consideration of these factors can assist in determining appropriate preventive and protective measures to reduce the safety and health risks to the lowest level reasonably practicable.



3.2 People as Load

Points to note

- The employer has a duty to provide employees with general indications, and where practicable, precise information on the weight of each load. For example, if a patient's weight has already been recorded, it should be made known to those employees who are required to lift or handle that patient. When such information does not exist, patients may be asked about their approximate weight or an estimate should be made.
- The person being handled can assist (or hinder) the employee(s) in performing the handling task. The employee(s) may be required to apply additional force to control the person, or to exert sudden force in response to unexpected movements, for example, when a person being assisted to walk suddenly slips.
- Where heavy people are handled, more care is needed in the assessment of risk and in the application of appropriate control measures.
- Attention should also be paid to the problems which may arise when handling children and patients with special needs. The patient may be connected to fragile medical equipment or may become violent or agitated, thus requiring a new handling technique.
- Individuals apparently capable and willing to assist at the start of a lift may suddenly find themselves, during the course of that lifting manoeuvre, unable to continue. A natural reaction, e.g. while assisting a patient to walk, is to prevent them from falling. Injuries have occurred to both employees and patients in such circumstances. Properly positioned, the helper may either be able to prevent a fall or allow a controlled fall.

Examples of safety and health risk factors

- fractures or spinal injuries which require special handling,
- attachment to tubes or monitoring devices which may move or cause instability, and
- wet, slippery skin.

3.3 The Task

It may be useful to categorise people handling tasks, such as bed to chair or wheelchair to toilet transfers to prepare a generic assessment. Whenever a particular people handling task is carried out, there should be an on-the-spot assessment by the people actually carrying out that task to determine whether the generic assessment adequately reflects the actual risk involved. If it does not, the result of the generic assessment may be inappropriate or inadequate, and a specific assessment will be necessary.

3.3.1 Posture and Position

Points to note

- Posture determines which muscles are used in an activity and how forces are transferred from the muscles to the object being handled. More muscular force is required when awkward postures are used because muscles cannot perform efficiently. Poor posture significantly increases the amount of stress on the body.
- Fixed awkward postures (e.g., holding something at arm's length) contribute to muscle and tendon fatigue, and joint soreness. Any one posture should not be prolonged without the opportunity to change posture through rest or variation of activity.
- Forces on the spine increase when lifting, lowering or handling objects with the back bent or twisted. This occurs because the muscles must handle the body weight in addition to the load in the hands. During people handling tasks, employees should, where possible, avoid bending and/or twisting of the spine.
- Work activities should allow the employee to adopt a variety of safe working postures.

Examples of safety and health risk factors

- stooping over to turn a person in bed,
- bending to bathe a person,
- lifting a person from the floor or out of a low chair, requiring the employee to bend forward,
- lifting a person in a bed without assistance, requiring the employee to twist his or her back,
- transferring a person from bed to chair, requiring the employee to bend or twist sideways, and
- assisting a person with a disability into a vehicle, requiring the employee to adopt a stooped posture while carrying a load.

3.3.2 Action and Movement

Points to note

- Tasks involving the handling of people should be performed in a balanced and comfortable posture, and should not cause undue discomfort or pain. They should be performed smoothly and with control, avoiding sudden or jerky movements.
- Extreme ranges of movement should be avoided, especially when it is prolonged or repetitive. Repetitive bending, twisting and outreaching movements are among those liable to increase the safety and health risks.

Examples of safety and health risk factors

- pushing or pulling actions across the front of the employee when turning and positioning a person in bed,
- lifting a person out of a bath located against a wall, requiring the employee to bend over to one side to lift,
- dressing/undressing a person while simultaneously holding them upright, and
- prolonged stooping to dress or support a person.

3.3.3 Location and Distance

Points to note

- The optimal height for handling is around the employee's waist level, with lifting preferred between the hips and the shoulders.
- If the person is located above the employee's shoulder height, below mid-thigh height, or otherwise requires extended reach, then the safety and health risks are increased. An increased risk also occurs where manoeuvring is required to reposition the person.
- Distances over which people are transferred by employees should be as short as possible. It is also necessary to consider the ease associated with the distance.
- The longer and more difficult the distance, the lighter the person that can be carried by employees without increased risk.

Examples of safety and health risk factors

- carrying people up or down stairs,
- manual lifts from the floor, and
- lifting and carrying children.

3.3.4 Weight and Forces

Points to note

- The weight of any person to be handled should be considered in relation to other key risk factors which should include -
 - a) the position of the person relative to the employee's body, for example, a lighter person held at arm's length places more stress on the spine than a heavier person held close to the body;
 - b) the duration and frequency of the lift;
 - c) the distance moved;
 - d) characteristics of the person, for example, a bulky shape is often more difficult to grip and increases stress on the employee's spine;
 - e) the degree of assistance or resistance by the person being lifted; and
 - f) sudden and uncontrolled movements, for example, an employee moving suddenly to stop another person's fall.
- Apart from lifting, lowering or carrying people, many tasks involve the use of force to push, pull, hold, support people. The risk associated with applying a force is affected by the working conditions and the posture adopted.

Examples of safety and health risk factors

- injured or unconscious people who need to be pulled, pushed or moved, and
- pushing a heavy person in a wheelchair up a slope.

3.3.5 Duration and Frequency

Points to note

- The safety and health risks rise with the increasing frequency, repetition and duration of people handling activities by any one employee in a work period.
- Equally important are the number and length of rest or recovery periods.

Examples of safety and health risk factors

- insufficient employees to complete bathing or showering tasks when peak workloads occur,
- people handling tasks not spread throughout the shift or among employees,
- repeated lifting of people with disabilities into and out of vehicles without assistance, and
- feeding and toileting tasks with persons with disabilities.

3.4 Work Organisation

Points to note

- The organisation of the workload should aim to-
 - a) eliminate people handling operations;
 - b) minimise people handling operations by reorganising or redesigning tasks;
 - c) provide furniture and equipment that effectively reduce handling operations, for example hoists and grab rails in toilet and bathroom areas;
 - d) distribute handling tasks throughout the shift;
 - e) rotate employees to take up handling operations to minimise repetitive or prolonged work and allow for adequate rest and recovery periods; and
 - f) provide sufficient employees to perform the handling operations.
- Work organisation clearly plays a key role in determining the amount of handling work done by each employee and the amount that is done in total. Staffing levels will affect workloads, rest and recovery periods.

Examples of safety and health risk factors

- inadequate staffing levels for performing heavy handling tasks,
- the unavailability of mechanical equipment to assist lifts and transfers of people and a lack of clear direction or policy on its use,
- work schedules requiring frequent lifting,
- inappropriate lighting arrangement, for example, during night shift, inadequate lighting limits the visibility of obstacles,
- the work pace associated with heavy handling tasks, and
- failure to allow for sufficient recovery time from multiple tasks requiring prolonged awkward posture or frequent extended reaching.

3.5 The Working Environment

This factor is easily overlooked or assumptions are made that little can be done to physically alter the working environment. However, minor alterations can significantly improve the standard of a working environment.

3.5.1 Workplace Layout

Points to note

- Space is often limited in both old and new health care settings. The maximum use of available space is essential.
- The relative positions of equipment, operating controls, furniture and other materials and the employee(s) affect the working posture, working height, handling technique, duration, frequency and other work actions and movements.
- The layout within wards, bathrooms and other areas will need to be reviewed to determine whether sufficient space is actually available for people handling operations to be carried out safely. The layout should allow an employee as far as is practicable to -
 - a) adopt an upright and forward facing posture;
 - b) have good visibility during the task; and
 - c) perform the majority of tasks within easy reach and preferably between the employee's hip and shoulder heights.

Examples of safety and health risk factors

- insufficient space in a toilet cubicle for assisted toileting tasks,
- lifting equipment stored out of easy reach, and
- bathing facilities which prevent people being bathed at the employee's waist height.

3.5.2 Work Environment

Points to note

- Working environments for people handling require floors which are even, non-slip and stable. Floors may become uneven if floor coverings are poorly laid or allowed to deteriorate or whilst maintenance work is underway.
- Changes in level of both floors and work surfaces may increase the safety and health risks. While differences in floor levels from one area to another may be difficult to eliminate without major reconstruction, the provision of ramps and suitable handrails should be considered. Not only may this facilitate greater and easier use of wheeled equipment, trolleys, wheelchairs or mechanical lifting aids, it may also help some patients to manage a slope by themselves when they cannot manage steps.

- The working heights of baths, beds, chairs and other equipment should be adjustable whenever possible.
- Extreme temperature, humidity or air movement may induce a range of symptoms - drowsiness, fatigue or loss of sensation - which may affect the performance of the task. Noise can also make it difficult to hear instructions and communicate properly.
- Adequate lighting must be provided and maintained. Prompt replacement of failed light fittings is essential. Main work areas and thoroughfares need sufficient lighting, so do stairways, cupboards and store-rooms. Consideration should be given to lighting requirements in wards at night. Inadequate lighting increases the risk of tripping.
- Housekeeping and footwear are associated factors that have particular relevance for risk of slips, trips and falls during people handling tasks.

Examples of safety and health risk factors

- an untidy and/or dimly lit workplace,
- confined situations which restrict good posture, and
- slippery floors and different floor levels.

3.6 Individual Capability

Employers must not place employees in situations where the job demands exceed their own individual limits. All relevant risk factors including the employee's body size, shape and stature in relation to the person being handled should be taken into account. The task should be redesigned if it can only be carried out by very strong people.

3.6.1 Personal Characteristics

Points to note

- Initial assessments of an individual's capability may not remain valid throughout that individual's period of employment. The employee's current physical and functional capacity to engage in certain people handling tasks is an important consideration. They should be updated to take account of, for example, injury, ill-health, pregnancy, the natural ageing process or significant job change.
- Training requirements are discussed in Section 4.7. The specific factor under consideration here is whether training or knowledge is needed for particular tasks, e.g. handling patients with injuries or disabilities requiring special techniques.
- Young employees are at greater risk than adult workers because they are still developing physically. Greater care is needed in the assessment of risk and the application of appropriate control measures for young workers. As a guide, the younger the worker, the more care is needed.

Examples of safety and health risk factors

- physically feeble employees engaged in lifting or supporting heavy people without assistance,
- employees who may be physically unfit to perform people handling tasks but are asked to do so without appropriate assessment of their ability, and
- an employee not fully recovered from an existing injury.

3.6.2 Skill and Experience

Points to note

- Employees must have the knowledge and ability required to perform the task. A mismatch can increase the safety and health risks.
- Induction and training procedures should address the skills required for handling people and the individual's ability to assess the requirements of each task and carry it out safely.

Examples of safety and health risk factors

- inadequate induction training of new employees in the recognition of risks,
- training which fails to emphasise the need to assess every handling activity, and
- an employee's lack of experience with heavy handling tasks.

3.7 Other Matters

3.7.1 Clothing

Points to note

- The type of clothing an individual wears at work, including protective clothing and uniforms, may hinder the safe handling of people. Tight clothing which restricts movements will adversely affect the techniques used for handling people. The ease of movement and ability to achieve appropriate posture are essential for safe lifting.
- Footwear should provide stability and adequate grip when performing people handling tasks. All workwear and protective equipment should be designed or selected according to the job.

Examples of safety and health risk factors

- high-heeled shoes can affect stability and balance,
- short or tight skirts can hinder correct feet and hip positioning, and
- flared or loose garments can get caught in equipment such as wheelchairs or hoists.

3.7.2 Special Need

Points to note

- A person may suffer back injury or trigger an attack of pain in an already damaged spine by a relatively trivial movement or action.
- An aching back or limbs at the end of a working day should not simply be accepted as an occupational hazard.
- Early warning signs of possible musculoskeletal damage should be identified and appropriate action should be taken.

Examples of safety and health risk factors

- returning to work from an illness,
- pregnancy, and
- new employees or new assignments.

4. Preventive and Protective Measures

When risks have been identified and assessed, appropriate solutions will be apparent and several will be discussed later in this guide. There will be other situations for which solutions are less obvious. The mere fact that a situation appears difficult to improve upon does not mean it can be ignored. Appropriate steps must be taken to reduce the safety and health risks to the lowest level reasonably practicable.

The illustrations in this section show how specific principles associated with risk control options can be applied in various work situations.

4.1 Tasks

The schedule or timing and path(s) taken may be changed. For example, tasks may be rescheduled so that physically heavy workloads are shared throughout the day by employees on different shifts instead of being concentrated in the early morning.

Multiple transfers can be eliminated or reduced by introducing equipment like trolleys, wheelchairs, shower/commode chair or mechanical lifting devices.





Placing loads to be handled in an optimum location will help to reduce the risk of strain. The best height range for handling people is around the employee's waist level, with lifting preferably between the hips and the shoulders.

A horizontal transfer can be made without actually lifting a person, if the bed or trolley can be adjusted to the height of the chair/trolley to which the person is being transferred. For example, adjusting the bed height to that of a wheelchair enables a smooth transition with minimal assistance and reduces lifting requirements.



When transfers cannot be performed on the same levels, it is safer to move a person from a higher to a lower level rather than to lift the person from a lower to a higher level.

4.1.1 Presentation of Person Being Handled

The person being handled may be presented, positioned or prepared in ways that minimise lifting forces and stresses on the employee(s). Risks may be minimised by modifications suggested in the following -

- a) Change the posture of the person and the positioning of any attached items so that the person is easier to grip and can be held closer to the employee's centre of gravity.



- b) The person be positioned to facilitate a safe handling technique. For example, a person in bed may be placed in a sitting position so that employees can perform a shoulder lift.



- c) To prevent the person to be handled from moving unexpectedly, the patient's co-operation is important. For example, he/she should be fully informed of and prepared for the lifting/moving to be carried out.

4.1.2 Actions, Movements and Forces

With or without workplace modifications, a task may be done in a different way using different actions, movements and forces. Principles involved in minimising the safety and health risks when applying force include -

- a) pushing/pulling is more efficient if applied at or around waist level;
- b) pushing in/pulling out is stronger than left/right actions (across the body); and
- c) higher push/pull forces are possible when standing than when seated and the use of body weight in pushing/pulling is preferred.

Awkward movements can be reduced by -

- a) converting to pushing or pulling;
- b) bringing the person close to the employee's body;
- c) ensuring where possible that the person is positioned within easy reach;
- d) opting to lower a person rather than to lift;
- e) eliminating extended reaches, for example, into vehicles or across beds;
- f) sitting or kneeling to perform certain tasks, for example, feeding;



- g) reducing the forces required of an individual, for example, by organising team lifting for moving persons who are unable to assist;
- h) improving the layout of the work area to ensure sufficient work space for the employee's feet and whole body to turn;

- i) reducing carry or transport distance by improving work area layout, for example, by removing obstacles which obstruct the shortest route;
- j) using a lifting belt to get a grip on the person;
- k) raising the work level, for example, using mobile shower trolleys;



- l) providing height-adjustable furniture and equipment, for example, by raising or lowering the height of tables or beds to enable transfer at the same level;
- m) using mechanical transfer equipment, for example, a swivel seat into a shower area with limited space;
- n) using lifting devices or hoists; and



- o) providing good maintenance of plant, equipment and floor surfaces.

4.2 Team Lifting

The regular need for team lifting usually signals the need for job redesign. However, introduction of team lifting may be effective in reducing the risks of lifting and transferring a seriously incapacitated person.

Whenever team lifting is used, it is essential to co-ordinate and carefully plan the lift. Where possible, the lift including what to do in case of emergency should be rehearsed. In organising a lift it is important to ensure -

- a) an adequate number of persons in the team;
- b) that one person is appointed to co-ordinate the lift and instruct the others;
- c) that the team members are of similar capacity and stature and know their responsibilities during the lift; and
- d) that appropriate training in lifting has been provided.

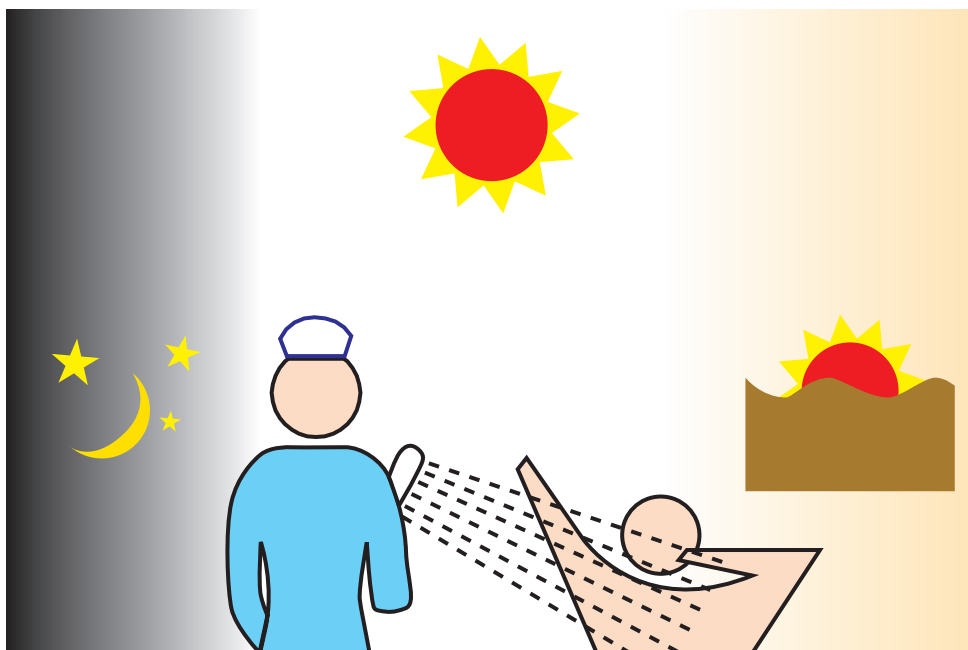


4.3 Work Organisation

Rotate employees to take up physically demanding tasks involving the most dependent persons and the highest workload.

Organise employees into work groups so that assistance is readily available.

Spread the tasks that involve a high workload throughout the day. For example, showers can be done by morning, afternoon and night shift employees depending on the needs and preferences of individual persons required to be handled.



4.4 Workplace Layout and Environment

Modification of the workplace layout may be effective in reducing risks. This includes increased attention to housekeeping and maintenance functions. Examples of workplace layout modification are discussed below.

Floor surfaces should be of non-slip materials, kept dry and free from hazards such as spills, clothing or other equipment which can cause slips and trips. Non-slip floorings should be provided in problem areas, e.g. at the entrance to the shower room. Cleaning of floor surfaces should be done without adding further risk, for example, when the least number of people are around. Ensure appropriate cleaning and maintenance procedures are used, e.g. clean spillage immediately, avoid excessive use of cleaning fluids, machine buff surface to improve non-slip properties.



Avoid a step between different floor heights or a "lip" to doorways and shower cubicles. Replace them with a small ramp.

There should be enough room for safe transfers or other movements, especially where uncooperative or highly dependent people are located. Careful placement of furniture, equipment and fittings will help avoid dangerous lifting conditions, and facilitate the safe use of assisting devices and lifting equipment.

Consideration should be given to the width of circulation spaces and access to work areas, for example, dining rooms, wards, toilets, showers, baths, or vehicles. Functional space in existing facilities can be maximised by -

- a) providing privacy curtains with movable fittings;



- b) replacing doors opening into confined spaces with sliding doors or curtains, for example, in shower cubicles, or removing doors or partitions to increase width of access;



- c) replacing an existing low bath with a standing one allowing easy access for both mechanical equipment and manual handling; and



- d) replacing a bath with a height adjustable mobile shower trolley to enable an employee to bathe a person at a comfortable height.



Hand held shower attachments can facilitate washing a person without excessive stooping. Locating attachments where they can be reached from chair height enable less dependent people to shower themselves with minimal assistance.



To aid independence, safety aids such as bath seats, safety bars and grab rails can be added to existing facilities. Provide showers and toilets in close proximity. Appropriate night lights should be located in circulation areas, bathrooms and toilets.

Beds should be height-adjustable with lockable castors on all legs, with easy access to and operation of brake control.

4.5 Equipment

The choice of equipment, beds, tables and chairs etc. affects the way in which people handling tasks are performed. The selection of any new items of equipment and replacement or modification of an existing item must take into account how, where and by whom that item will be used. The needs of both patients and employees must be met. Vehicles used for transporting patients should also be provided with suitable lifting facilities. Loading and unloading bays should be designed to be compatible with the delivery vehicles. Before any equipment is purchased, staff appointed to co-ordinate people handling activities, trainers, and end users should be consulted as appropriate. A trial of the equipment is highly recommended.

4.5.1 Assisting Devices

The risks associated with handling people can be reduced by the use of assisting devices such as handling slings, lifting sheets, sliding boards, stretchers, patslides, lifting belts, lifting frames, turntables, trapeze/monkey rings, and grab bars.

The use of assisting devices to reduce the risks to employees from handling a person should not diminish the person's existing level of independence, nor add to any disability.

The design of equipment and its controls has an influence on work postures, movements and physical stress. The following are principles of good designs -

- a) Handling aids and devices should be as light as their function will permit. Where appropriate, they should be designed for two handed use and save the employee from having to support any unnecessary weight.
- b) Handling devices are well balanced. The angle between handle and working parts should be designed to avoid unnatural bending of the hands and arms.
- c) Handles should be designed to suit the grip and force required, and preferably in such a way that the user can change grip urgently if necessary.
- d) Handling devices are suitable for both right and left-handed employees and for hands of different sizes.

Examples of assisting devices:

Guide Board

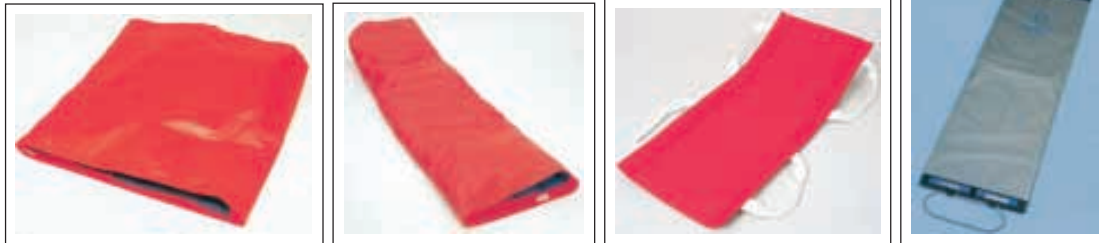


Lifting Belt



Examples of assisting devices:

Sliding Mat/Board



Pull-up



4.5.2 Mechanical Aids

Numerous mechanical aids are available which are designed to avoid the need for people handling or make the task itself less physically demanding. This part concentrates on the availability, suitability, and maintenance of such items in general. It does not provide detailed guidance on the use of specific hoists or other lifting aids. The range of equipment mentioned is by no means exhaustive and manufacturers are constantly improving the design of equipment.



Availability

This refers to both the range of lifting aids currently marketed and the range available for use by employees at any given location. Mechanical aids can support the full weight of the load, e.g. certain patient hoists and lifters. Non-mechanical aids used to support a portion of the load weight can make supporting the load easier and/or eliminate a portion of the people handling task itself. Examples are patient handling slings and sliding aids.

The use and location of existing equipment should be known. The maximum weight which may be lifted should be clearly marked. A central inventory of less frequently used special equipment should also be maintained to allow the efficient use and sharing of equipment between different work areas as the demands for particular items of lifting equipment may vary over a period of time. All equipment, whether in regular use or for special applications, must be properly maintained. The reliability and frequency of using of such equipment should be monitored.

Suitability

The assessment should identify those people handling tasks for which mechanical aids should be used and take the user/worker centered approach to optimise the fit between people and work.

When selecting mechanical aids, the following should be considered:

- a) the training need for using the mechanical aid,
- b) the stability of the mechanical aid and its accessories,
- c) users comfortability,
- d) physical demand for operating the mechanical aid, and
- e) ease of maintenance.

People handling equipment selected for a particular task should-

- a) reduce the people handling load of employees;
- b) be easy to operate;
- c) be capable of lifting the load safely;
- d) be capable of being used in the intended location;
- e) be in sound condition and properly maintained; and
- f) where relevant, be suitable for the condition and comfort of the patient.

Too few readily available lifting aids will discourage employees from using them. Employees' reluctance to use lifting aids, even when they are available, may be due to their lack of knowledge of correct use or application, distrust of the design, inadequacy of maintenance or a belief that people being handled dislike them. The provision of ergonomically designed working environments, adequate training and appropriate design, availability and maintenance of equipment all amount to "appropriate steps" which the employer is required to take to reduce the safety and health risks.

Maintenance

Equipment provided for use at work must be maintained in a safe condition. The type and frequency of maintenance will vary with the type of equipment and the level of use of that equipment. Poorly maintained equipment has resulted in injuries to both patients and employees.

Employers must establish appropriate preventive maintenance procedures taking into account the manufacturer's recommendations. Any maintenance work, of a preventive nature or otherwise, must be carried out by competent persons who know how the equipment is designed to operate, and are capable of recognising defects and determining whether they are significant in terms of its continued use.

Any equipment which is found or suspected to be faulty should be withdrawn from service for prompt repair. The user of equipment should report any fault, defect or potential hazard in accordance with the employer's defect reporting procedure.



Training and information for patients

Patients should be encouraged to help themselves, whenever they are capable to do so safely. A brief explanation by employees on what is to be done is an important preliminary to a successful lift. Patients should be given information and training in the use of equipment, where appropriate. This will reassure them, gain their confidence and help them to co-operate with employees.

Examples of use of mechanical aids

Hoist/Lifter

Moving people in or out from the compartment of a car



Assisting people in their daily life



Using hoist/lifter and bath chair/hygiene chair to assist the patient in bathing and toileting



Tail lift of the vehicle helps to reduce manual transfers



4.6 Clothing

Clothing should allow employees to move freely.



Ensure appropriate staff footwear, e.g. low heels and non-slip soles with a good grip for wet areas give a firm base while handling loads.

Waterproof aprons should be available in wet areas.



4.7 Training

Appropriate training must be provided to all staff groups before any people handling tasks are performed. This may form part of a general induction programme. Refresher and in-service courses are needed as a regular part of the training programme. These should reinforce the principles of health care and injury prevention, and ensure the development of handling skills.

Content of training

Training programmes should be tailor-made to meet the needs of specific occupational groups or working teams.

Line managers also require training to enable them to supervise and monitor established safe practices, contribute to people handling assessments, investigate accidents, identify further needs and appreciate their responsibilities. Senior managers will require information on the wider implications of people handling issues. Management awareness and commitment is the key to an effective control of risks arising from people handling operations.

Sufficient time must be allowed to permit explanation, demonstration and practice, both in the classroom and workplace.



As a minimum, training programmes should include-

- a) all the work risk factors that contribute to injury;
- b) guidance on evaluation of the environment, task, load and individual capability;
- c) the principles of health care and the prevention of injuries through work organisation, workplace design and the use of appropriate equipment; and
- d) instruction and supervised practice of people handling techniques and use of patient handling equipment in the workplace.

Since fitness is increasingly recognised as important in the avoidance of injury, general fitness, co-ordination, flexibility, relaxation, the effect of obesity and other physical conditions such as pregnancy, are relevant considerations. Conditioning exercises performed before people handling and during the course of a working period should be taught, encouraged and scheduled.

Follow up training and training records

A recall system, which ensures that all staff including those who are part-time, have time set aside at least once a year for refresher training is essential. The nature of the refresher training will depend upon what and where people handling is undertaken. Additional training may also be identified as appropriate after injury or incident investigation.

Train the trainers

A team approach is considered particularly important for the trainers themselves. Sufficient expertise should be available within health service organisations to allow the formation of multi-disciplinary training teams. Suitably qualified and experienced staff are able to adapt training to local needs and utilise the experience of solutions developed elsewhere within the organisation for solving current problems. They may also be involved in troubleshooting, i.e. identifying potential problem areas.

4.8 Assessment of Health Problems and Rehabilitation

Employers should encourage employees who experience early features of pain or other symptoms thought to be associated with people handling to see an occupational health physician for early assessment.



Employees injured as a result of people handling should be offered early assessment and the employer should ensure that-

- a) where necessary, a suitable rehabilitation programme is planned, according to the needs of individual employees;
- b) the rehabilitation programme is monitored;
- c) the principles of health care are reinforced;
- d) the working environment etc. in which the injury occurred is reviewed, and reassessed, and improved if necessary; and
- e) a final assessment is made by the physician regarding suitability for return to full duties.

4.9 Accident, Work-related Illness and Incident Reports

Employees should be actively encouraged to inform their manager and seek health advice for cumulative strains or pains. Statutory reportable events must, at least be investigated to the extent which is required by the report form.

A thorough investigation of people handling incidents, whether statutory reportable or not, should yield valuable data. It may be possible to identify the causes of such events, the level of compliance with current legislation, and particular trends or problem areas which need better preventive measures.

The quality of the investigation itself is equally important. An investigation report should provide a factually accurate account of the circumstances of an event and should identify the causes or contributory factors. An investigation, which reveals that a worker suffered a back injury because the bed onto which a patient was being lifted moved, should identify why the bed moved. The cause may be due to faulty wheel locks, locks not properly applied, or the injury may be attributable to another cause altogether. Effective action after an accident must be based on properly identified causes and not simply be a response to the immediate circumstances of the accident.

Managers need to understand why they are being asked to investigate thoroughly. They should also be prepared to make use of the collected data. Each cause, if identified, should lead to suitable action to prevent a recurrence in the same workplace or elsewhere.

4.10 Special Considerations

The recommendations on distributing the people handling loads throughout the work period and the need for staff rotation will almost inevitably require review of existing staffing levels. Determining staffing levels will depend upon many factors, one of which is the people handling requirement. Management must ensure that adequate supervision is provided by suitably trained staff.

Employees should be encouraged to alert their employers to pregnancy or any other medical conditions which might affect their ability to handle loads safely.

Moreover, the co-operation of employees with their employers is vital to the improvement of patient and staff care. In particular, employees should be motivated to observe safe systems of work, report defects and participate in safety and health training.

5. Conclusion

This document provides advice which is generally useful to the management of risks arising from the handling of people. An effective safety and health programme is crucial for successful control of safety and health risks. It is recommended that the programme be reviewed regularly to evaluate its successfulness in meeting stated goals. The review and evaluation should measure outcomes, such as the attainment of goals and objectives, trend analysis, and programme effectiveness. The results and findings of reviews and evaluations should be used to determine the components that need to be improved for the effectiveness of the whole programme.

The development of an occupational health and safety programme in the health care setting is a challenging, but worthwhile endeavour. With time, commitment and resources, a successful programme can be developed, and the safety and health of employees can be secured.

Appendix 1

FURTHER ASSESSMENT CHECKLIST FOR MANUAL HANDLING OPERATIONS

Matter	Question	Yes/No	Comment
1. The tasks	Do they involve holding or manipulating loads at distance from the body's trunk?		
	Do they involve unsatisfactory bodily movement or posture, especially -		
	(a) twisting the body's trunk?		
	(b) stooping?		
	(c) reaching upwards?		
	Do they involve excessive movement of loads, especially -		
	(a) excessive lifting or lowering distances?		
	(b) excessive carrying distances?		
	Do they involve -		
(a) excessive pushing or pulling of loads?			
(b) risk of sudden movement of loads?			
(c) frequent or prolonged physical effort?			
(d) insufficient rest or recovery periods?			
(e) a rate of work imposed by a process?			
2. The loads	Are they -		
	(a) heavy?		
	(b) bulky or unwieldy?		
	(c) difficult to grasp?		
	(d) unstable, or with contents likely to shift?		
(e) sharp, hot or otherwise potentially damaging?			
3. The working environment	Are there space constraints that prevent good posture?		
	Are there uneven, slippery or unstable floors?		
	Are there variations in level of floors or work surfaces?		
	Are there extremes of temperature or humidity?		
	Are there conditions causing ventilation problems or gusts of wind?		
	Are the lighting conditions poor?		
4. Individual capability	Does the operation -		
	(a) require unusual strength or height, or other abnormal physical characteristics?		
	(b) create a hazard to persons who are pregnant or have a health problem?		
(c) require special information or training for its safe performance?			
5. Other matters	Is movement or posture hindered by personal protective equipment or by clothing?		

Appendix 2

FURTHER ASSESSMENT CHECKLIST FOR THE HANDLING OF PEOPLE

Organisation / Department: _____

Work Location: _____

Task Description: _____

Post and Number of Employees: _____

Assessed by: _____ Date: _____

A 'Yes' answer means that control measures should be considered.

Risk Factors	Yes/No	Comment
1) PEOPLE AS LOADS		
a. Does the person require special handling?		
b. Is the person :		
(i) unable to assist?		
(ii) uncooperative?		
(iii) likely to shift or move about, or go rigid?		
(iv) slippery or wet?		
(v) difficult to grip?		
(vi) awkward to handle?		
(vii) unstable or unbalanced?		
c. Does the person block the view of the employee during handling?		
d. Does one employee handle large and/or heavy persons without assistance from equipment or a second person?		
e. Is any equipment attached to the person being moved?		

Risk Factors	Yes/No	Comment
2) THE TASK		
A. Postures and positions		
a. Is the employee holding the person away from the body?		
b. Is the employee's posture uncomfortable during the task?		
c. Is one posture required to be maintained for long periods without variation of activity or rest?		
d. Is the task performed in a position which makes it difficult to reach, grasp or handle?		
e. Does the task require frequent, prolonged or repetitive :		
(i) reaching upwards?		
(ii) stooping?		
(iii) twisting the body's trunk?		
B. Actions and movements		
a. Does the employee experience undue discomfort from actions during the task?		
b. Are the employee's movements sudden or uncontrolled?		
c. Are there repetitive over-reaching movements?		
d. Is the load unevenly shared between both hands?		
e. Is the person lifted by one hand only?		
f. Is the person pushed or pulled across the front of the employee's body?		
g. Does the employee need to bend over to one side to lift or to exert a force?		
h. While holding an unsupported position, is another action performed by the employee?		
C. Locations and distances		
a. Is the person to be carried up or down stairs?		
b. Is the person located :		
(i) above the employee's shoulder?		
(ii) below mid-thigh height?		
(iii) in a position which requires extended reach?		

Risk Factors	Yes/No	Comment
<p>D. Weights and Forces</p> <p>a. Is a large amount of force required to : push? / pull? / lift? / lower? / carry? / hold? / cope with sudden movements?</p>		
<p>b. When sliding, pulling or pushing, is the person difficult to move?</p>		
<p>c. Is the employee required to exert a large force while seated?</p>		
<p>d. Is the employee required to push/pull while seated without having good seating and stable foot support?</p>		
<p>E. Duration and frequency</p> <p>a. Does the task require frequent or prolonged: pushing? / pulling? / carrying and holding?</p>		
<p>b. Does the task require prolonged periods of effort resulting in fatigue?</p>		
<p>3) WORK ORGANISATION</p>		
<p>a. Is the work flow affected by congestion or sudden changes or delays?</p>		
<p>b. Is the work affected by insufficient staff to complete tasks within a deadline, or at peak workloads?</p>		
<p>c. Are assisting devices unavailable or not used?</p>		
<p>d. Are policies and procedures on the use of assisting devices inadequate?</p>		
<p>e. Should procedures for specific lifting situations be identified?</p>		
<p>f. Should team lifting be a requirement for this job?</p>		
<p>g. Is there ineffective maintenance of mechanical handling aids and equipment?</p>		
<p>h. Are people handling tasks performed without planned recovery time?</p>		
<p>i. Are there inadequate procedures for reporting and fixing unsafe equipment or environmental conditions?</p>		
<p>j. For mechanical handling aids and equipment, are there deficiencies in : (i) selection processes?</p>		
<p>(ii) purchasing specifications?</p>		
<p>(iii) record keeping related to health and safety?</p>		
<p>(iv) instruction in safe use?</p>		

Risk Factors	Yes/No	Comment
4) THE WORKING ENVIRONMENT		
A. Workplace layout		
a. Does the layout prevent the employee adopting an upright and forward facing posture?		
b. Is the task obscured in any way from the employee?		
c. Is access to the person restricted?		
d. Is the employee unable to perform handling tasks between his/her hip and shoulder height?		
e. Is there limited space for movements in the task?		
f. Is there insufficient space for the employee's leg and feet movements?		
g. Are working heights inappropriate to the employee's size and the task performed?		
B. Work environment		
a. Does noise interfere with communication?		
b. Is inadequate footwear worn for the task?		
c. Are the floors/surfaces underfoot uneven or slippery?		
d. Are there different floor levels?		
e. Is the workplace untidy?		
f. Are there extremes of heat, cold, wind or humidity?		
g. Is there excessive vibration?		
h. Is lighting inadequate for the task?		
i. For seated work :		
(i) is the seating uncomfortable?		
(ii) does the height of the chair contribute to discomfort?		
(iii) does lumbar support need to be improved?		
(iv) does leg room need to be improved?		
j. For prolonged standing work, does a footrest need to be provided?		

Risk Factors	Yes/No	Comment
5) INDIVIDUAL CAPABILITY		
A. Personal characteristics		
a. Is unusual strength or height required?		
b. Is a young worker handling or lifting people?		
c. Are 'at-risk' groups (for example, smaller or older workers) performing people handling tasks?		
d. Are employees who perform people handling tasks physically unfit for the tasks?		
e. Is an employee with a previous back injury handling or lifting people?		
B. Skills and experience		
a. Is there a need for more training in recognising risk and knowing how to deal with them?		
b. Is there a need for improved induction training?		
c. Is the employee inexperienced in heavy handling tasks if required for the job?		
6) OTHER MATTERS		
A. Clothing		
a. Does clothing restrict the use of appropriate and safe handling techniques?		
b. Is the employee's footwear poorly designed for people handling tasks?		
c. Is the employee's jewellery or hair likely to be caught or pulled by a person being handled?		
d. Will the requirement to wear gloves or personal protective equipment significantly increase the risk of injury due to reduced grip stability, dexterity or strength of grip?		
B. Special needs		
a. Does the employee have temporary special needs for example, pregnancy, returning from illness or extended leave?		
b. Does the employee have any permanent special needs not addressed elsewhere?		

Conclusions / Follow up: _____



Appendix 3

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Further Information

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