Moving and Handling of Inanimate Loads

James Paget University Hospitals
NHS Foundation Trust

Level 1 - All staff
Including unpaid and voluntary staff

Core Skills Booklet
Introduction

This booklet has been designed to offer a flexible way in which to meet the necessary levels of mandatory training required by James Paget University Hospital NHS Foundation Trust. It is recognised by the Trust that releasing staff on an annual basis is increasingly difficult. This booklet and associated assessment supplements and replaces the need for staff to attend the face to face Mandatory Training.

The sections contained within the booklet are up to date, relevant and important and serve to safeguard the health, safety and wellbeing of our patients, staff and visitors, to ensure we deliver a first class service. The assessment gives managers and staff an opportunity to ensure that the key principles, along with individual responsibilities are fully understood.

The booklet and associated assessment currently applies to all temporary and permanent staff.

Each member of staff or agency staff, dependent on individual roles and responsibilities will need to complete different Mandatory Training components. Please refer to the Trusts Corporate Induction and Mandatory Training Policies for guidance.

The assessment must be completed within a 1 month period in line with the Trust’s Corporate Induction and Mandatory Training Policy using appropriate times in the day/week when demands on staff are less pressing. Where staff choose to use this option to complete their mandatory training, please ensure staff are given the required time to undertake this learning. If the assessment is not completed within the allowed timeframe, candidates may be required to attend a training course.

The Aim of the Booklet and Assessment

The booklet is to provide you with up-to-date information on the moving and handling of inanimate loads relevant to your role, which the Trust deems Mandatory. It may be used to refresh training and/or build on instruction given on induction.

It informs you of the risk factors and steps that you can take to minimise the risk of injury when undertaking manual handling and points you towards the relevant policies, and further information.

Objectives

1. To raise and refresh your awareness of the key elements of Mandatory Training.
2. To enable you to apply this awareness to your job role and workplace.
3. To enable you to complete the associated assessment.
4. By completing the assessment you will be able to use the knowledge gained to reduce the risks when manual handling.
5. To provide evidence in preparation for your appraisal.
Guidance for Staff Completing the Assessment

If you are not sure about any of the information, you can discuss this with your manager. He/she should be able to talk to you about the issues and information contained within the sections and help you to understand how these relate to your job and work area.

When you have finished reading the booklet, you will need to complete the associated assessment including the multi-choice questions. Together with your manager, you can agree if you have fully understood the issues, your responsibilities and any expectations the organisation has.

If you are struggling with any aspect of the assessment, you should speak to your line manager and they should be able to help you. If you are still having difficulty, please contact Corporate Training who will direct you to the subject specialist.

Guidance for managers who are supporting staff to complete the assessment

As a manager, you are responsible for ensuring that staff within your team completes the Trust’s Mandatory Training, including refresher training and understand their responsibilities. If you have a member of staff who requires this in a different format then please contact a member of the Corporate Training as they may be able to help.

When the booklet has been read, you should ensure that the member of staff completes the associated assessment and answer any questions that they have. You should be satisfied that the member of staff has understood the subject and the departmental arrangements. The pass mark for the assessment is 80%.
What you will learn in this session

The objectives covered by this booklet are listed below and aligned to the Learning Outcomes for Manual Handling – Level 1 in the UK Core Skills Training Framework.

1. Recognise manual handling risk factors and how injuries occur
2. Employers and employees responsibilities under relevant legislation
3. Responsibility under local organisational policies for Moving and Handling
4. Where additional advice relating to Moving and Handling can be sought
5. Use an ergonomic approach to improve working posture
6. Principles of good back care to promote musculo-skeletal health
7. Principles of safer handling
8. Undertake dynamic risk assessment prior to Moving and Handling tasks
9. How risk management informs safer systems of work
10. Use risk control strategies, resources and support to facilitate good practice

Why is this important?

- Moving and handling can be a frequent activity for most employees
- In health and social care, moving and handling injuries account for 40% of work-related sickness absence.
- Around 5000 moving and handling injuries are reported each year in health services
- It costs the NHS £1 billion a year to treat injuries resulting from manual handling
What the law says

Significant legislation and guidance related to moving and handling:

- Health & Safety at Work, etc. Act (1974) and the

Aim is to protect, employers, employees and the public

Your employer has responsibilities to....

- AVOID moving and handling activities if there is a risk of injury to you
- ASSESS moving and handling activities if it cannot be avoided
- REDUCE the risk of injury to employees as far as reasonably practicable
- REVIEW risk assessments regularly

If an employee has complained of discomfort, any changes made to avoid or reduce moving and handling activities must be monitored

Organisations: Actions required to promote a Safer Workplace

- Implement and make available organisational policies and guidance
- Introduce specialist roles to lead & coordinate systems and procedures e.g. Back Care Advisor, Inanimate Moving and Handling Trainer, Moving and Handling Champions
- Undertake risk assessments, monitor, complete regular audits, act upon findings & ensure they are disseminated
- Provide employees with training and guidance
- Provide specialist equipment to support safer moving and handling activities
- Provide support services e.g. Occupational Health

You have responsibilities to:

- Follow prescribed safe systems of work
- Be aware of and understand the Trusts moving and handling policy
- Use equipment provided properly
- Do not misuse or interfere with equipment provided for your safety
• Co-operate with your employer on moving and handling matters, apply the proper techniques.
• Tell your manager if you identify hazardous handling activities or any defects in equipment
• Ensure your activities or omissions don’t put yourself or others at risk

How is moving and handling defined?

Under the Manual Handling Operations Regulations 1992 moving and handling is defined as:

“...any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or bodily force”

MHOR, 1992

The spine and back

The back is particularly vulnerable to injury. Its main components are:

- The spinal cord which is a thick cord of nerve tissue enclosed by the spine this together with the brain forms the central nervous system
- The vertebrae are the bones which act as the building blocks of the spine. They can be damaged by impact injury as with any other bone
- The intervertebral discs are kind of shock absorbers – they are soft fibrous discs with a jelly like centre and are positioned between the vertebrae. They allow the spine to move by cushioning movements between the vertebrae
- Ligaments – gristy straps between vertebrae holding them together and mainly control the direction of motion and limit movement at the end of the normal range
- Tendons – the means by which the
Muscles are attached to the bones

- Muscles – found in pairs on either side of the spine and provide the main stability for the vertebral column

Back injuries at work can be prevented by understanding what causes them and taking preventative measures to reduce risk when moving and handling loads.

Most common injuries and promoting healthy backcare

Musculo-skeletal disorders describe any injury, damage or disorder of the joints or other tissues in the upper/lower limbs or the back. Common activities that can cause Musculo-skeletal disorders include; holding a static posture, bending, and moving and handling activities on a regular basis particularly when they involve bending or twisting, lifting heavy loads and poor seating posture.

Common injuries include:

- Back injuries – trapped nerves, disc injury, strain
- Muscles and tendons – repetitive strain injury
- Ligaments, tendons and muscles can be injured (stretched or torn) as a result of twisting and stretching, particularly if carried out repetitively. These types of injuries are called soft tissue injuries and tend to be the cause of the majority of reported back injuries
- Cumulative strain is when these injuries occur as a result of repetitively carrying out these activities – and is a loss of elasticity in muscle structures.
- Hernias- when an internal part of the body (usually bowel) pushes through a weakness in the muscle or surrounding tissue wall.
- Abrasions/bruises – banging into and scraping against objects, typically with arms/legs and hands
- Wear and tear
- Fractures- typically through tripping over, slipping and falling through not viewing and preparing the route and tripping over obstacles/steps not seen because load is blocking view of feet.
Injuries tend to come on gradually
Serious injuries involve damage to the disks & vertebrae
Less serious involve muscle strains

The vast majority of reported manual handling accidents result in an over-three-day injury, most commonly a sprain or strain of the back.

To prevent these common injuries, there are a number of things that can be done to promote healthy back care. Key activities include:

- Always risk assess a lift and use the proper techniques
- Always ensure a good posture
- Try to use a chair with a backrest
  *Change how you sit every few minutes*
- Stay active and exercise
  *Particularly strengthen abdominal and back muscles*
- Maintain a healthy weight
- Quit smoking
- Reduce stress

**Manual handling Risk Assessment**

Ergonomic approach to assessment of risk

"Fitting the job to the person rather than the person to the job"

The ergonomic approach shows clearly that emphasis on how much weight can be lifted is too simple a view of the problem and may lead to incorrect conclusions.
Instead, an ergonomic assessment based on a range of relevant factors should be used to determine the risk of injury and point the way to remedial action.

**Dynamic risk assessment of manual handling using T.I.L.E.**

This assessment method is easily remembered by the acronym TILE. Before starting any manual handling you need to look at four specific areas:

- **Task** - does the activity involve twisting, stooping, bending, excessive travel, pushing, pulling or precise positioning of the load, sudden movement, inadequate
rest or recovery periods, team handling or seated work?

- **Individual** - does the individual require unusual strength or height for the activity, are they pregnant, disabled or suffering from a health problem. Is specialist knowledge or training required?
- **Load** - is the load heavy, unwieldy, difficult to grasp, sharp, hot, cold, difficult to grip, are the contents likely to move or shift?
- **Environment** - are there space constraints, uneven, slippery or unstable floors, variations in floor levels, extremely hot, cold or humid conditions, poor lighting, poor ventilation, gusty winds, clothing or Personal Protective Equipment that restricts movement?

**The Task....**

Before you undertake any moving or handling task you should consider the work area and the work load you are to handle. You can do this by asking yourself the following questions:

- Why am I moving this load?
- Can I avoid the move in some way?
- Is there an alternative?
- How often will I perform this task?
- Where am I going to and from?
- What is the most effective/safest way of fulfilling the task?

**Individual capability**

It is important to consider both your own and others, if this is a team situation, physical attributes when thinking through the task. Do you or any other member of the team have any medical or physical characteristics / problems which would affect ability to carry out the task?

- Previous injuries
- Pregnancy
- Differences in height
- How tired are you? (tiredness can affect ones physical and mental ability as well as concentration)
The Load
You should make a personal assessment of the risk when moving and handling any type of load. You need to assess a number of factors including:

- Is the load Heavy?
- Is it bulky or unwieldy?
- What about the shape?
  - Will this present any difficulties?
- Will it be difficult to grasp?
- Is it unstable or will it shift unpredictably?
- Is it hot or cold?
- Has it any sharp edges?
- Will it be slippery?

You must be able to get an idea of the weight of the load prior to lifting. If in the original container, look for weight indication on boxes and bags, volumes on liquid containers- remember (1 litre of water weighs 1 kg).

Where this is not the case then you should rock the load from side to side to gauge the weight before attempting to lift it.

In general, unfamiliar loads should be treated with caution. For example, it should not be assumed that apparently empty drums or other closed containers are actually empty.
They should be tested first, for example by trying to raise one end. Apply force gradually until either too much strain is felt, in which case the task should be reconsidered, or it is apparent that the task is within your capability.
The Environment

People don’t often think about the environment they work in. But it is very important that you recognise any hazards that the environment you are operating in has.

You need to consider if there is a lack of space to manoeuvre or are the work surfaces to high or low meaning you will have to stretch or reach.

Uneven or slippery floors are hazardous as are steps and inadequate lighting. Be mindful of any obstructions that may cause you to trip and fall.

The environmental temperature could be a hazard in itself if it is too hot or cold.

Inadequate or harsh lighting could also pose an additional risk.

Other possible risk factors

When assessing risk you may also need to consider other factors that may influence your outcome. They may include:

- Previous or existing injuries
- Psycho / social factors
- Availability of equipment
- Use of protective clothing
Principles of Safer Handling

Be aware of and use the Principles of Safer Handling to promote your safety.

- Stop and Think
- Stable Base
- Assess the Load
- Prepare the Area
- Spine in Line
- Firm Hold
- Hold the Load Close to the Body
- Lead with the Head Up
- Clear Commands
- Move Smoothly

Assessment leads to a plan

In any situation where you are expected to move or handle an inanimate object it is important that you stop and take time to think through how you will undertake the task.

You will need to formulate a plan of how to complete the task, minimising any risks to others or yourself. To do this you must ask and answer the questions the TILE model proposes.
Don’t forget the first question you should be asking yourself is, “Do I need to move this load manually? Can I use a handling aid to transport the inanimate load?”

**Think before handling/lifting.**

Plan the lift/handling activity.
Where is the load going to be placed?
Use appropriate handling aids where possible.
Will help be needed with the load?
Remove obstructions, such as discarded wrapping materials.

For long lifts, such as from floor to shoulder height, consider resting the load mid-way on a table or bench to change grip.

**Keep the load close to the waist.**

Keep the load close to the waist for as long as possible while lifting.
The distance of the load from the spine at waist height is an important factor in the overall load on the spine and back muscles.

Keep the heaviest side of the load next to the body. If a close approach to the load is not possible, try to slide it towards the body before attempting to lift it.
Position your feet correctly

Adopt a stable position. Place your feet shoulder width apart with one leg slightly forward to maintain balance (alongside the load, if it is on the ground). You should be prepared to move your feet during the lift to maintain your stability. Avoid tight clothing or unsuitable footwear, which may make this difficult.

Remember to wear suitable footwear

Adopt a good posture

Bend the knees so that the hands when grasping the load are as nearly level with the waist as possible but do not kneel or over-flex the knees. Keep the back straight (tucking in the chin helps). Lean forward a little, over the load if necessary to get a good grip. Keep shoulders level and facing in the same direction as the hips.

Get a good hold

Get a firm grip. Try to keep the arms within the boundary formed by the legs. The optimum position and nature of the grip depends on the circumstances and preference, but it must be secure. A hook grip is less fatiguing than keeping the fingers straight. If it is necessary to vary the grip as the lift proceeds, do this as smoothly as possible. A load becomes more difficult to handle if it is held:

- Above the shoulders
- Below your knees
- Away from the body i.e. with arms stretched out.
- Do you need gloves?
Use equipment to move objects

You should reduce your risk of injury by using mechanical handling aids. Equipment such as trolleys, sack trucks and wheelbarrows can be used to move items and if they are used correctly will reduce the likelihood of injury.

More sophisticated manual equipment may be needed in some health care situations. Before you use any piece of equipment your employer should provide training in their proper use and the assessment of risk associated with their use.

Remember it is better to push rather than pull, and to use body weight and leg muscles to do the work. Make sure the load is kept under control, particularly on slopes.

It should be remembered that, although the handling aids will eliminate many manual handling risks, their use will introduce others and these risks must be assessed. Another consideration is that regulations require that many of these items require a periodic statutory inspection on safety critical components.
HSE guidance

HSE: Numerical guidelines for lifting and lowering loads

There is no such thing as a completely ‘safe’ manual handling operation. But working within the following guidelines will cut the risk and reduce the need for a more detailed assessment. The HSE guideline weights for safe lifting can only be exceeded following a more detailed risk assessment.

- Use Figures 1 and 2 (below) to make a quick and easy assessment. Each box contains a guideline weight for lifting and lowering in that zone. (As you can see, the guideline weights are reduced if handling is done with arms extended, or at high or low levels, as that is where injuries are most likely to happen.)
- Observe the work activity you are assessing and compare it to the diagram. First, decide which box or boxes the lifter’s hands pass through when moving the load. Then, assess the maximum weight being handled. If it is less than the figure given in the box, the operation is within the guidelines.
- If the lifter’s hands enter more than one box during the operation, use the smallest weight. Use an in-between weight if the hands are close to a boundary between boxes.

The guideline weights assume that the load is readily grasped with both hands and that the operation takes place in reasonable working conditions, with the lifter in a stable body position.

Figure 1 Lifting and lowering
Twisting

Reduce the guideline weights if the handler twists to the side during the operation. As a rough guide, reduce them by 10% if the handler twists beyond 45°, and by 20% if the handler twists beyond 90°.

Frequent lifting and lowering

The guideline weights are for infrequent operations – up to about 30 operations per hour where the pace of work is not forced, adequate pauses to rest or use different muscles are possible, and the load is not supported by the handler for any length of time.

**Guidelines for handling while seated**

Figure 3:
Seated workers face particular risks when handling because they cannot use their stronger leg muscles to lift the load. The weight limits are much smaller and the object should be held closer to the body. Where this is not happening, a detailed risk assessment is needed.

**Important Points**

Weights to be lifted may need to be reduced below the guideline values if there are any factors that could affect the moving and handling activity.

You must not put yourself at risk by attempting to move items that are too heavy for you and have a real potential to cause you injury.

But how do I know if there’s a risk of injury?

It’s a matter of judgement in each case, but there are certain things to look out for, such as puffing and sweating, excessive fatigue, bad posture, cramped work areas, awkward or heavy loads (above the guidelines) or a history of back trouble. People doing the tasks can often highlight which activities are unpopular, difficult or hard work, you know your body and capabilities.
You cannot live a full life and enjoy activities with your family if you have injured yourself through inappropriate manual handling at work.

If the loads that you are intending to move exceed the guidelines then you must reduce them, eg. break them down into smaller, use mechanical aids (eg. A trolley or sack barrow) or seek assistance including calling upon the services of a supplies operative (who are better trained and equipped to move the item(s) safely).

Moving items that exceed the weights in the guidelines or in tight spaces requiring awkward postures or any other restrictions is considered potentially hazardous and must be subject to a more thorough risk assessment. If you do this regularly with inanimate objects and don’t lift people as part of your role you must receive the “Level 1 manual handling training for load handlers”.

**Good handling technique for pushing and pulling**

Here are some practical points to remember when loads are pushed or pulled.

**Handling devices.** Aids such as barrows and trolleys should have handle heights that are between the shoulder and waist. Devices should be well maintained with wheels that run smoothly. The law requires that equipment is maintained. When you choose trolleys etc, make sure they are good quality with large diameter wheels made of suitable material and with castors, bearings etc which will last with minimum maintenance.

**Force.** As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2% of the load weight. For example, if the load weight is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (eg wheels not in the right position or a device that is poorly maintained). The operator should try to push rather than pull when moving a load, provided they can see over it and control steering and stopping.

**Slopes.** Employees should get help from another worker whenever necessary, if they have to negotiate a slope or ramp, as pushing and pulling forces can be very high. For example, if a load of 400 kg is moved up a slope of 1 in 12 (about 5°), the required force is over 30 kg even in ideal conditions – good wheels and a smooth slope. This is above the guideline weight for men and well above the guideline weight for women.

**Uneven surfaces.** Moving an object over soft or uneven surfaces requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10% of the load weight, although this might be offset to some extent by using larger wheels. Soft ground may be even worse.

**Stance and pace.** To make it easier to push or pull, employees should keep their feet well away from the load and go no faster than walking speed. This will stop them becoming too tired too quickly.
Guidelines for pushing and pulling

For pushing and pulling operations (whether the load is slid, rolled or supported on wheels) the guideline figures assume the force is applied with the hands, between knuckle and shoulder height. It is also assumed that the distance involved is no more than about 20 m. If these assumptions are not met, a more detailed risk assessment is required.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>Guidelines for stopping/starting a load (maximum force to be exerted)</td>
<td>20 Kgs (ie about 200 newtons)</td>
<td>15 Kgs (ie about 150 newtons)</td>
</tr>
<tr>
<td>Guidelines for keeping the load in motion (maximum force to be exerted)</td>
<td>10 Kgs (ie about 100 newtons)</td>
<td>7 Kgs (ie about 70 newtons)</td>
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</table>

Over the stated guidelines an assessment has to be undertaken

As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2% of the load weight. For example, if the load weight is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (eg wheels not in the right position or a device that is poorly maintained). Moving an object over soft or uneven surfaces also requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10% of the load weight, although this might be offset to some extent by using larger wheels. Pushing and pulling forces will also be increased if workers have to negotiate a slope or ramp. Even where the guideline figures are met, a detailed risk assessment will be necessary if risk factors such as uneven floors, confined spaces, or trapping hazards are present.
Team handling

Handling by two or more people may make possible an operation that is beyond the capability of one person, or reduce the risk of injury to a single handler. However, it may introduce additional problems that need to be assessed. The load that a team can handle safely is less than the sum of the loads that the individual team members could cope with when working alone.

As a guide, the capability of a two-person team is two-thirds the sum of their individual capabilities and for a three-person team the capability is half the sum of their individual capabilities. There may be additional difficulties if:

- Team members get in the way of each other’s sight or movement; or
- The load does not have enough good handholds
- The background noise level is too high to allow easy communication between team members

For safe team handling there should be enough space for the handlers to manoeuvre as a group. They should have adequate access to the load, and the load should provide sufficient handholds.

One person should plan and then take charge of the operation, ensuring that movements are co-ordinated. However, there should be good communication between team members.

Person in charge asks “READY?” team members reply “READY” Then person in charge says “READY, STEADY, LIFT” team all lift together on the word “LIFT”

Sources of information

It is important that you regularly update your skills. This can be done by attending refresher training sessions where you will get information on the most up to date guidance.

Guidance on the risks associated with moving and handling is constructed from evidence based practice. That is evidence of what works to reduce the risk of injury.

Guidelines change based on the best evidence available and organisations such as the **Health and Safety Executive** and the **National Back Exchange**
and many others are excellent references and publish updates regularly.

- Health and Safety Executive [www.hse.gov.uk](http://www.hse.gov.uk)
- National Back Exchange [www.nationalbackexchange.or](http://www.nationalbackexchange.or)

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