

*ARCHIVE*

# **BACK in CARE**

**Preventing  
musculoskeletal  
injuries in staff in  
hospitals and residential  
care facilities**

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Important Note: All the publications in the Archive contain the best guidance available at the time of publishing. However, you should consider the effect of any changes to the law since then. You should also check that the Standards referred to are still current.

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## Executive Summary

*The adult human form is an awkward burden to lift or carry. Weighing up to 100kg or more, it has no handles, it is not rigid, and it is liable to severe damage if mishandled or dropped. In bed a patient is placed inconveniently for lifting, and the placing of such a load in such a situation would be tolerated by few industrial workers.*

These words, taken from a leading article “The Nurse’s Back” in *The Lancet* in 1965<sup>1</sup>, summarise the challenge this booklet addresses.

Back injuries and chronic back pain are the experience of a large number of care givers in hospitals and residential care facilities. This occupational group accounted for 3.2 percent of the Accident Compensation Corporation payout for back injuries in the year to June 1992, and leads all New Zealand occupational groupings in this respect.

To prevent back injuries, health facilities have traditionally relied on training employees how to handle patients and residents. By itself, this strategy is not enough. It must be accompanied by efforts to reduce the burden of manual handling.

To this end, a united team approach is necessary, in which employees and employers act together. This booklet outlines a four-step framework:

*Identify* manual handling hazards,

*Assess* the risks they pose,

*Control* the risks, and

*Evaluate* the measures taken until control is achieved.

The booklet covers this framework in a number of sections: the reasons why manual handling needs urgent attention, legal obligations, data gathering, and an approach to resolving the problems. To support these activities, comments about training for handling, the value of exercise programmes, suitable clothing, patient assessment and injury management are also included.

Appendices supplement this material with case studies, practical samples of forms and checklists, notes on handling aids, suggested content for training courses and where further help may be obtained.

Employers and employees in hospitals and residential care facilities: we hope that you will adapt and use this booklet to develop your own strategies for manual handling. We have written it with both large and small facilities in mind.

Manual handling is part of everyday life. But if handling activities exceed the capacity of the body, in both the long and short term, injury may result. Mostly, these injuries are to the lower part of the back, with the shoulder the second most frequently injured part. Neck injuries are also common among care givers.

Preventing these injuries will save employers money, and will remove a burden of pain, suffering and lost income from employees.

Many quality assurance schemes operate to improve patient care. A manual handling policy does not address patient care directly, but we anticipate improvements in the quality of patient care as manual handling solutions are implemented. This policy should be viewed as an extension of existing quality assurance schemes.

The enormous cost of back injuries is reflected in the sum of \$247 million paid out for back injuries by the Accident Compensation Corporation in the year to March 1992. This is nearly 25% of all money paid by the ACC. About 65% of these injuries occurred at work, and most of these were from manual handling. Nurses and care givers are a group at particular risk of back injury. They were paid 3.2 percent of earnings-related compensation for back injuries in 1991-92, or nearly \$11 million.

For these reasons, the Occupational Safety and Health Service of the Department of Labour (OSH) has mounted a national campaign to reduce manual handling injuries. Health and care facilities are an initial target, along with other occupations.

The passage of the Health and Safety in Employment (HSE) Act in 1992 means that from 1 April 1993, *all* New Zealand health and care facilities will have identical legal responsibilities, including those in the public sector that were not covered by previous legislation. The prime concern is to provide a safe place of work for staff.

This booklet outlines a standard, proven method of preventing back injuries that reflects the approach taken in the HSE Act:

- the systematic identification of manual handling hazards,
- the assessment of the risks posed by these hazards,
- the control of the risks.

We present an outline on how health facilities can approach the solution of their manual handling problems. It does not cover every detail of *how to* solve the problems. Part of the reason for this is the large variation from one health facility to another. Also, the HSE Act places emphasis on involving employees in the resolution of work-related safety and health problems. Solutions devised by outside

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consultants that do not involve workers are, in our opinion, less likely to get the support of staff and to succeed.

Several organisations helped develop this policy, which represents a consensus. The authors are listed separately. The groups represented on a steering committee were the :

Accident Compensation Corporation,

Health Employers Council,

New Zealand Licensed Rest Homes Association,

New Zealand Nurses Association,

New Zealand Nurses Union,

Occupational Safety and Health Service (Department of Labour),

Private Hospitals Association,

Public Service Association,

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**Alternative duties**

Tasks designed or identified to allow an early return to work by a person with a back problem. Alternative duties should be (i) identified beforehand as being within the capacity of people returning to work before they are fully recovered, and (ii) matched to the particular capacity/problem of the person returning.

**Care giver**

For the purposes of this document, a hospital aide, nurse assistant, psychiatric assistant, nurse aide, domestic assistant, or orderly.

**Ergonomics**

The study of the relationships between people and their work. Capsule definitions are: “Fitting the task to the person” and “Design for human use”.

From the Greek: *Ergo* — work, *Nomos* — natural law

**Harm**

Illness or injury or both (from the HSE Act 1992).

**Hazard**

An actual or potential agent or source of harm, e.g. a heavy patient (from the HSE Act 1992).

**Hazard Register**

A place to record (in writing) the existence of a hazard. (See Appendix 6 (i).)

**Manual Handling**

Manual handling is defined (generally) as lifting, lowering, pushing, pulling, carrying, manipulating and restraining any animate or inanimate object. In the health facility this will include lifting, transferring and positioning patients and residents.

**Nurse**

As defined in the Nurses Act 1977.

**Patient/Resident/Client**

In this document, a person receiving care in a hospital or rest home.

**Risk**

A measure of the likelihood of harm occurring combined with the consequences of the harm.

**Supervisor**

In this document, a person (such as a head of department, local manager or charge nurse) with control over the activities of other people.

# Outline of the Policy

- This policy may be adopted, adapted and used by hospitals, nursing homes and residential care facilities. It suggests a comprehensive, systematic approach to identifying hazards of and implementing solutions to manual handling problems.
- A manual handling programme can be regarded as an extension of a quality assurance scheme. Health facilities are increasingly adopting these because of the need for accreditation. Steps taken to implement quality assurance programmes should be directly transferable to a manual handling policy.
- Different health and care facilities may have different needs because of their different sizes and staff numbers. This policy is adaptable to these different types of facility.
- A broad approach should be used to resolve manual handling problems. This is essential. In particular, programmes that have concentrated solely on training care givers in “how to lift” have not worked<sup>4</sup>.
- The Health and Safety in Employment Act 1992 requires employers to adopt a systematic analysis of work-related hazards. This comprises the systematic *identification* of hazards, their *assessment* and then the *control* of the risks posed. Training and education on how to lift, still necessary parts of an overall programme, need to be supplemented by the use of ergonomics to effect, by this three-step process, a reduction in the burden of manual handling.
- An effective policy to reduce manual handling problems therefore requires:
  - 1 A united, team approach.
  - 2 Management commitment, support and leadership.
  - 3 Employee commitment and support.
  - 4 A desire to go beyond minimum standards.
  - 5 Establishing a written health and safety policy, including:
    - A policy statement;
    - The organisational structure to implement and review the policy and to define accountability;
    - The development of information systems to allow the policy to operate;
    - Resources, to enable the policy.
  - 6 Provision of information and training to employees.

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- 7 Employer-employee consultation and joint participation in the development of health and safety procedures.
- 8 Ongoing education and training for all staff.
- 9 Provision for the evaluation of initiatives.
- 10 Provision of a rehabilitation policy and programme.

The minimum standards referred to in 4 above are the provisions of the Health and Safety in Employment Act 1992.

## 2

# Introduction

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## 2.1 Costs of back injuries

Back injuries due to sprains and strains cost the Accident Compensation Corporation \$247 million in the year to March 1992. Work-related sprains to nurses and care givers accounted for \$7.9 million, or about 3.2 percent of this amount. Unknown personal costs, especially those following a serious injury, relate to the loss of ability to participate in previous activities, and may be immense. The case study in Appendix 1 illustrates this point.

Apart from earnings-related compensation, manual handling injuries often incur the following costs:

### PERSONAL:

pain	loss of experienced staff
lowered morale	loss of skills specific to the area
sick leave used to recover from back pain.	

### FINANCIAL:

costs of treatment	administrative costs
costs of replacing staff	cost of first week's compensation
training for new or temporary staff	increased insurance premiums.

Many of these costs are not easy to measure, and may be missed by management in their costing of services. Some or all are present, however, after every back injury.

The total cost to the community of back injuries is estimated at between four to eight times the cost of earnings-related compensation<sup>5</sup>. The estimated total cost of back injuries in health and care facilities in the year to March 1992 was therefore between \$1 and \$2 billion.

Many trained, experienced nurses leave the profession because of back pain. A major British study found that 3.5 percent of a sample of nurses leaving their jobs cited back pain as the main cause or a contributory factor. A further 12 percent who left nursing for good cited back pain as a main or contributing factor<sup>6</sup>, and 6 percent cited back pain as the sole reason<sup>7</sup>.

## 2.2 Why back injuries occur

The high incidence of back pain and back injury generally is due to several factors:

- The spine is the foundation for movement and support, and is therefore in constant use.
- Modern society has led to reduced levels of effort for many, but requires that particular groups must use their backs beyond a reasonable limit.
- The cumulative nature of back injuries.
- An increased workload on fewer people in the present economic climate.

Nursing poses particular opportunities for back injuries because of:

- The need for constant handling and prolonged stooping.
- The poor design of facilities and equipment.
- The tradition that nurses and care givers cope and carry on regardless.
- Shortages of staff.
- The extremely awkward nature of the loads handled:
  - patients who are wet, fragile, apprehensive and possibly unco-operative;
  - the weight of people, especially the obese patient; and
  - the need to handle in an emergency.
- A climate of denial or disbelief about the validity of back injuries.
- Nurses' and care givers' perceptions that back injuries are inevitable.

Nurses and care givers do not only handle people, however. Efforts to resolve problems posed by the handling of inanimate objects, (laundry bags, trolleys, shower chairs, beds, etc.) and improved design of plant and equipment (e.g. storage spaces) will go a long way towards reducing the overall handling burden.

The traditionally cited risk factors for back injuries are:

frequent bending	heavy physical work
stress	manual handling
prolonged static postures	sudden unexpected loads
fatigue	poor muscle tone
poorly co-ordinated team lifting	stretching and twisting of the trunk.

These physical factors are not the only ones that need consideration. Social and psychological issues are also important in any consideration of back pain<sup>8</sup>.

Psychologic and social issues refer to relationships within an organisation. The effects of poor relations at work must be taken as real. One of the marks of professionalism is a striving for elimination of the undesirable effects of interpersonal relations.

Collins, reporting on the successful Mater Hospitals manual handling project in Brisbane, states<sup>9</sup>:

“However, by far the most important outcome of the project for nursing staff and administration was the creation of an open and co-operative approach to what had previously been a taboo subject”.

## 2.3 A new control strategy is needed

To control back injuries in the past, emphasis has been placed on:

- Selecting workers,
- Restricting weights,
- Training how to lift.

Selecting workers, a practice which may pose ethical problems, was found, in one study at least, to have no measurable effect on the incidence of back injuries<sup>10</sup>. Restricting the weight to be lifted is but one action of the many that will usually be needed to reduce the injury potential of a manual handling task.

To train staff in “how to lift” a “Backs Campaign” is often mounted. Typically, it has an effect for a time, after which the injury rate returns to its previous high level<sup>11</sup>. One evaluation, which lasted for a comparatively short time, showed an improvement for some months but did not give evidence of a sustained improvement over a longer period<sup>12</sup>.

The ineffectiveness of training how to lift as a general strategy has been noted in industry at large. For nurses, this is compounded by aspects of the mental concentration they must bring to their work. They may not always be able to give as much attention as they would like to physical handling. Emotional involvement in their work may reinforce this tendency. These, and the increasing time pressure on all staff, mean that physical skill in handling is often difficult to apply. Further aspects of “training how to lift” are discussed in section 7.

All these factors lead to the conclusion that even the best training cannot compensate for handling activities that are beyond the capacity of the person. A new approach is needed.

The new approach to controlling manual handling problems involves:

- The systematic identification, assessment and control of manual handling hazards.
- The design and redesign of equipment, workstations and facilities on ergonomic lines.
- Training all in the organisation on their varied responsibilities to reduce back problems.

The thrust of this approach is that equipment, facilities and procedures are designed to reduce the burden of manual handling. This emphasises the importance of ergonomics. Training in how to handle patients is an integral part of the new approach, but should not be regarded as a first and last line of attack.

Training also needs to encompass a far wider range of approaches and should be directed at all personnel.

## 2.4 Evidence that the approach works

There is evidence that this approach works. In the Mater Hospitals campaign in Brisbane, Australia, for example, there was some indication of an improvement in injury rates. Most significantly, the total lost time associated with back pain was reduced from over 600 shifts per year to 500 shifts per year. On average, lost time was reduced from 17 working days per claim to 11 days per claim. Reductions in compensation payments led to a reduction in workcover premiums of A\$105,000 in the first year of the programme and A\$177,000 at the end of the second year.

Staff morale improved as a result of the project, as mentioned already. Collins reports that in addition to these benefits, some 85 changes were made to plant and equipment as a direct result of co-ordinated prevention programmes. Some of these were effected throughout the entire hospital group, such as the establishment of a preventive maintenance programme for all mobile equipment. The majority of improvements were technically simple and inexpensive. Nurses reported feeling more comfortable as a result of these changes<sup>2,9</sup>.

At Taranaki Base Hospital, all beds have been numbered and recorded on a computer database in the maintenance section. When a bed needs repair, maintenance staff consult the database to find out what tools and spare parts they may need before setting out. The beds are kept in better condition and this has contributed to a decreased incidence of back and shoulder injuries among nurses<sup>13</sup>.

Appendix 2 outlines a successful manual handling programme mounted by the HavenCare Hospital Group, Auckland.

## 2.5 A team effort is needed to apply this policy

Systematic teamwork is required to control manual handling. This means that a team approach is required, initiated by an active management who stimulate and promote the involvement of employees in solving manual handling problems.

Employee consultation and participation makes good sense. Employees are likely to be best aware of the hazards associated with their work and to be able to assess the risks involved. Employee contributions can be enhanced by appropriate training in hazard identification, risk assessment, risk control procedures and evaluation.

When employees are involved in the entire process, rather than being expected to fall in with solutions imposed from the outside, greater commitment to change should result.

Visible evidence of teamwork being used to control manual handling should, by itself, help people who handle. No longer will they be entirely dependent on their own ability to “lift safely” every hour of every day, every week, every month and in all circumstances. They will be encouraged by the knowledge of other measures operating to reduce the burden of handling.

## 2.6 What goals are reasonably attainable?

Goal setting provides a stimulus to action. A target to aim at, where none has existed before, is often all that is needed to generate enthusiasm. Because back injuries are cumulative, a sudden large drop in the incidence of the problem nationwide is unlikely. Steady progress in the right direction should be the aim. Worthwhile goals for an individual facility, which are attainable and measurable, are statistically significant reductions in:

- The incidence of back injuries.
- The severity of the injuries.
- Staff turnover.
- ACC premiums.
- The average time off work after a back injury.
- The use of temporary and casual staff to replace people off work with back injuries.

These goals may extend several years into the future. Short-term and medium-term goals may address the situation in detail, and some examples are shown in Appendix 3. Other goals were mentioned in section 2.1.

## 2.7 Application

Although this policy aims at the problems of nurses and care givers, it has general application in the entire facility, be it a residential care facility or a public or private hospital.

## 2.8 Some matters of principle

- As a matter of principle, health facilities should be *healthy* facilities. Hospitals which practice poor occupational health and safety create work for themselves.
- The direct benefits of the nation's largest industry practising health and safety for its own staff are immense. It may be hoped that these benefits will flow on to the community, as actions initiated by management to help staff are passed on.
- A pre-requisite for safe, quality patient care is that staff are in good health.
- Commitment by all groups is required to ensure the success of this policy.
- A united, team approach is required.

The Health and Safety in Employment Act (1992) covers every place of work.

The Act's principal intention is to provide for the prevention of harm to employees and other people at work. To make this possible, the Act imposes duties on employers and employees, promotes excellence in the practice of occupational health and safety, and provides for the making of regulations and codes of practice.

Relevant sections of the Act (5 –19) are reproduced in Appendix 4.

In summary, the legislation requires of employers the following actions:

Section(s) in the Act	Intent of the Section
--------------------------	--------------------------

6	Employers shall take all practicable steps to ensure the safety of employees.
7	Employers shall use effective, systematic methods to identify hazards.
8 - 10	Employers shall <i>eliminate</i> significant hazards, or if this is not practicable <i>isolate</i> them, or if this is not practicable <i>minimise</i> them.
11 - 12	Employers shall provide employees with information about the hazards of the work they do.
13	Employers shall provide training and supervision.
14	Employers shall involve employees in the development of health and safety procedures.
15	Employers shall ensure that people who are not employees are not harmed.
16 - 18	Employers' liability extends to contractors and subcontractors.
19	Employees shall not cause harm to themselves or others at the place of work.

## 4

# Health and Safety Policies

## 4.1 General

An effective health and safety policy consists of a general statement, the means of developing the policy, the systems and procedures to implement it and the resources to make it work.

## 4.2 Policy statement

A general health and safety policy should cover<sup>14</sup>:

- A statement of employer's commitment,
- Compliance with legislation,
- Responsibilities,
- Accountability,
- Consultation mechanisms,
- Training methods,
- An outline of the health and safety programme, and
- A commitment to the review of the policy.

A sample written statement is shown in Appendix 5. While these aspects of a policy may need spelling out in detail in a large facility, it should not be difficult for a small employer to demonstrate that they are being applied.

## 4.3 Organising to make the policy work

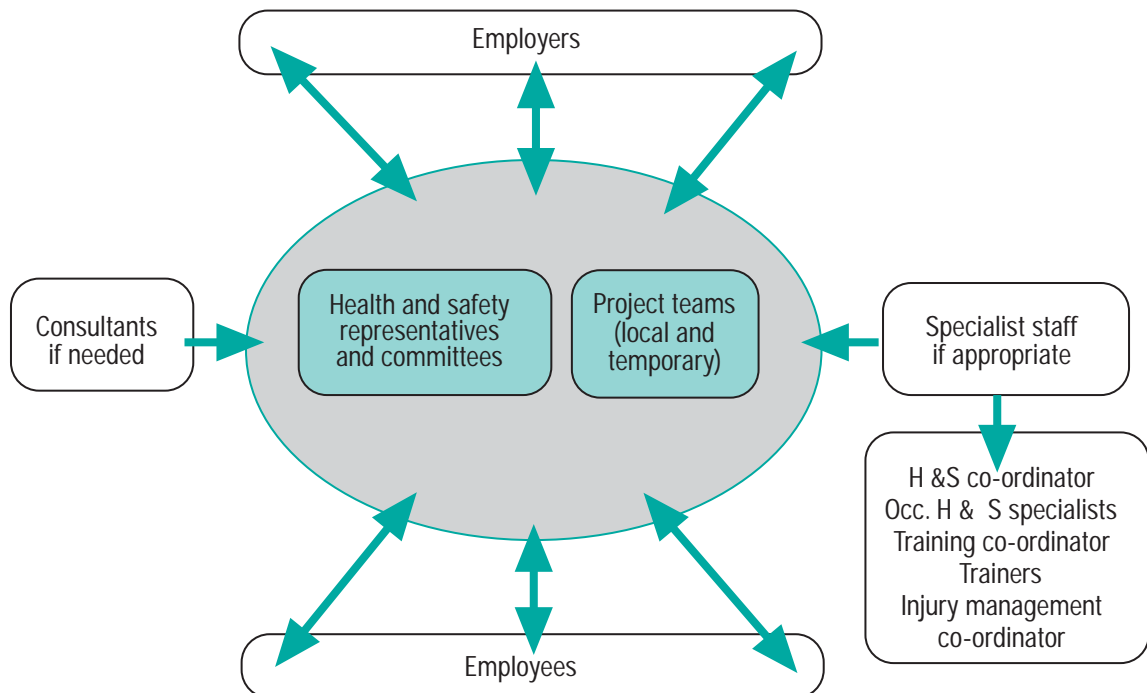
The following individuals and groups may be involved in implementing the policy, depending on the size of the facility:

- Health and safety representative(s),
- Health and safety co-ordinator,
- Health and safety committee,
- Occupational health and safety personnel,
- Staff education and training co-ordinator,

- Trainers,
- Injury management co-ordinator,
- Project teams,
- Consultants (if needed), and
- Employees.

Good relationships between them are vital. An outline of possible lines of communication is shown in Figure 1.

Figure 1: Sample Health and Safety Relationships



To ensure the success of these relationships, there should be formal structures to implement the policy. Responsibilities and accounting procedures for all staff involved should be defined, after consultation between employers and employees.

Figure 1 illustrates the relationships that will enhance the implementation of the health and safety policy. This doubtless represents what now takes place (informally) in many facilities. It emphasises that responsibility for health and safety lies with management, supervisors and employees and cannot be provided solely by specialists.

In smaller workplaces, the approach might be to use health and safety representatives and committees, with a supervisor or person designated to co-ordinate. Outside consultants may be called on to assist as required.

If the implied lines of communication are not open already, then the diagram suggests a way to begin opening them. Health and safety committees can be set up to oversee the identification, assessment and control of hazards, while local project teams (often referred to as risk assessment teams) can form to deal with each hazard as it arises. An important function of the health and safety committee is to evaluate the control strategies used.

## 4.4 Implementing the health and safety policy

Details of the specific actions required to implement the (manual handling) policy should be listed. The following actions require supporting procedures to be developed:

- **Identify hazards** (also develop forms and databases).
- **Report incidents** (also develop forms and databases).
- **Analyse data** (report summaries of these data regularly).
- **Assess the risks** hazards pose.
- **Control risks.**
- **Evaluate** the effectiveness of risk control measures.
- **Training.**
- **Manage injuries** (procedures to be followed in the event of an injury).
- **Monitor the effectiveness** of the programme.

Good relationships between the various parties are necessary to allow these procedures to be developed and to promote the flow of the implied information. The information systems required are the subject of the next section.

Important components of the system required to make these activities run smoothly are local project teams, risk assessment teams for studying local hazards, and the advisory role of the health and safety committee.

## 5.1 Gathering data

Data need to be gathered about incidents and all accidents so that:

- Hazards can be identified.
- Hazards can be put into a priority for action.
- Solid evidence of the changes required is available.
- Before and after situations can be compared and changes evaluated.
- There is long-term monitoring of the effectiveness of the programme.

It goes without saying that reports of hazards, injuries, accidents and incidents should be both *made* and *investigated* as early as possible after the event. It also goes without saying that staff must be familiar with *how* to complete the registers or forms involved, *where* the register or the blank forms are located, and *when* a verbal report must be made to a supervisor. These reports need to remain alive for a time because continued follow-up may be required.

Data should be gathered about the following (sample registers or forms for each type are shown in Appendix 6):

**Hazards:** A hazard register is a means to note an observed or anticipated hazard.

**Pain:** Staff should be encouraged to report pain of any nature. This includes the slightest twinge of back pain, incidents where time off work is not needed and pain in other parts of the body as well. Because this is personal health information, its confidentiality should be respected.

**Injuries:** Injuries should be reported as a matter of course. The method of recording data will vary depending on the size of the facility. A smaller facility would not require elaborate recording methods, and a register for incidents involving staff would suffice.

**Incidents:** These are far more numerous than injuries. Data from incident reports are a valuable means of forestalling further problems, or of preventing a particular problem from escalating.

Note that both injury accidents and non-injury accidents are incidents and should be reported on the same form. A computer system will be required to store and analyse the data, at least in large facilities.

Difficulties may be encountered getting staff to provide the needed data. Nursing and residential care staff record data (about patients/residents/clients) as a normal part of work. The supply of the above data should be an extension of this activity. Any difficulties may be overcome by management example and staff commitment.

## 5.2 Documentation of risk control methods

The methods used to control risks should be written down for future reference in a risk care plan. Criteria for the success of the control measure should be stated on the plan. The date when a check will be made to see that the control measure has been implemented, the method of evaluation and the person responsible for it should also be stated.

## 5.3 Future use of records

Architects, designers and engineers should incorporate the material obtained from these records in their designs for new facilities or during the redesign of existing ones.

## 5.4 Other data recording

Data may be gathered for specific purposes. Here is a brief case study which illustrates a straightforward example:

### **Case Study:** How a ward supervisor obtained a lifting aid

A charge nurse in a general medical ward was not a great believer in the value of data. She observed the large number of back injuries among her staff, however, and wondered how a lifting device could be obtained. Discussions with colleagues convinced her that the only way management would listen to her request was if it was supported by solid data. She began to collect data on back injuries from staff accident forms.

In another approach, she arranged for the daily handling activities to be *counted*. This simple exercise revealed that up to 30 transfers or lifts were performed by each nurse between 0700 hrs and 1300 hrs. The average weight of the patients was 50kg. This represents 1.5 tonnes of patients in six hours.

Six months of data were collected and this convinced the management of the need to increase staffing levels for that time of the day.

Latterly, a new lifting hoist was obtained with the assistance of the occupational health team, who did research work in helping to find the most appropriate hoist for the needs of the particular ward. The exercise was endorsed by the manager, who assisted by providing funds for the purchase. The hoist proved its worth, with staff back injuries minimal for the first six months of its use.

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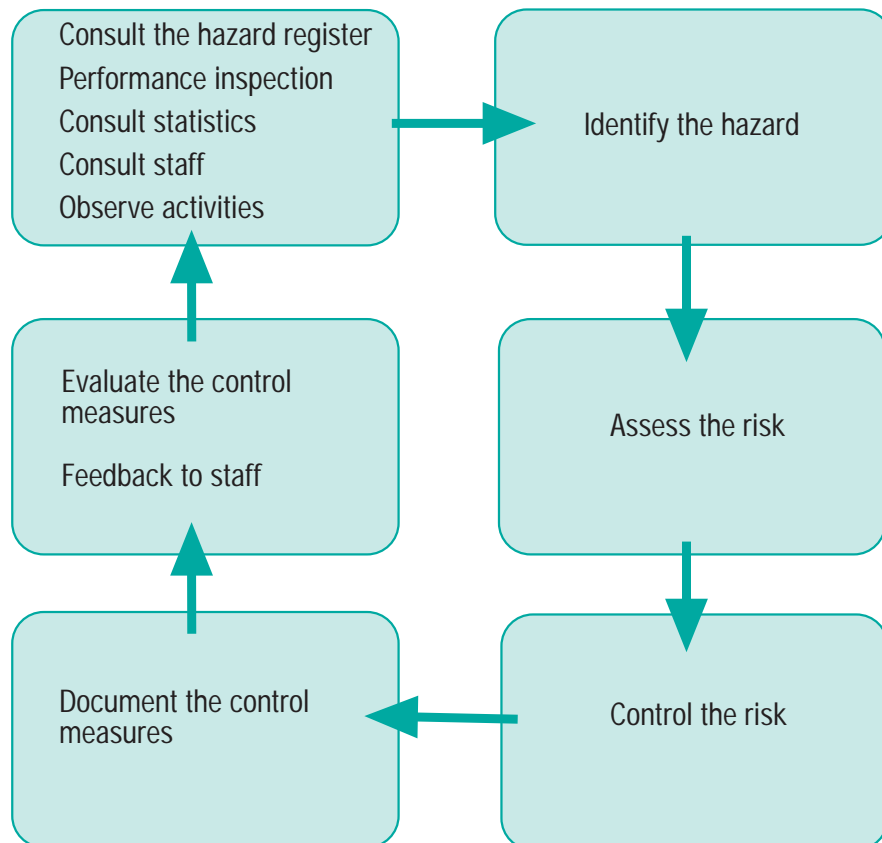
# Resolving Manual Handling Problems

## 6.1 General principles

Manual handling should be approached in a systematic way. The standard method, required in the Health and Safety in Employment Act, is the three-step, logical process:

- identify** a hazard,
- assess** the risk it poses,
- control** the risk by either removing the hazard entirely, isolating it, or minimising the risk it poses.

Figure 2: An Outline of Hazard Resolution Procedure



Evaluation of the control method is a vital step also. This requires ongoing assessment of the measures until control is achieved.

This approach is explained fully in various Department of Labour publications<sup>15,16</sup>. Another reference<sup>17</sup> gives a series of ergonomic checklists to aid the application of the principles in these two publications.

This three-step process allows a task which often seems impossible to be broken down into smaller steps. The individual risk factors can then be addressed one by one.

## 6.2 Hazard identification

The manner of identifying hazards should show both a proactive and reactive approach. Proactive methods are safety inspections, the observation of tasks and the application of ergonomic principles to the design of equipment and facilities.

For example, one of the main hazards faced by nurses is simply bending over patients and beds<sup>18</sup>. Stooping activity was observed for 22 percent of the time in the study cited, suggesting an increased risk of back problems from this cause alone.

Reactive methods include investigating reports of discomfort, the use of hazard registers to identify existing and potential problems and the analysis of incident reports to investigate and resolve accidents and incidents<sup>19</sup>.

Thus there are four main ways of identifying hazards:

### 6.2.1 HAZARD REGISTER

All staff should report observed and perceived hazards. The hazard register should be reviewed formally at agreed intervals. Who should do this depends on the facility, but it could be the charge nurse, the local manager or any other person in a supervisory role. Reviewing the register should be part of the person's normal management duties.

### 6.2.2 SAFETY INSPECTIONS

Formal safety inspections are essential to identify and document hazards. Planned safety inspections should be organised in a systematic, regular way. Objective and critical observation of the work environment, the tasks people do, work processes and the organisation of work are all needed.

Safety inspections serve a number of purposes. They:

- Provide a systematic method of surveying the entire facility.
- Reveal problems not brought up by other means.
- Provide a check that regulations are complied with.
- Provide a check that agreed improvements have occurred.
- Provide an opportunity for contact between employers and employees.
- Demonstrate employer commitment.
- Increase employee awareness.

Safety inspections should be one of the normal management functions of supervisors.

## 6.2.3 REVIEW STATISTICS FROM INCIDENT RECORDS

The analysis of these data will indicate areas of concern. Computerised systems will assist here, as long as the overall system is capable of meeting the demands placed on it.

Data from incidents should be analysed by:

- Type of incident (slip, chemical spill, etc.)
- Nature of injury (strain, cut, scald etc.)
- Agency of injury (patient, equipment, furniture, etc.)
- Body location.
- Time of day and week (are there peak times?)
- Location (what part of the facility?)
- Occupational grouping (is any one group more affected?)

Outcomes of hazard reports, incidents and accidents should be recorded and analysed also by the total numbers of accidents and incidents, the number of ACC claims and the total time lost.

## 6.2.4 OBSERVE ACTIVITIES

In addition to staff reporting problems through the hazard register and planned safety inspections, particular activities may require more detailed observation and analysis. Sample checklists to use during these observations are given in Appendix 7. These four methods are explained in more detail in reference 19.

## 6.3 Hazard resolution procedures

A formal written method for hazard resolution is more useful in a larger facility, because many more people may be involved. Figure 2 formalises what should happen, while Figure 3 shows a more detailed approach.

### 6.3.1 USE OF PHOTOGRAPHS/VIDEO ASSESSMENT

A series of photographs or a video can be used to show people the actions they use to carry out tasks.

#### **Case Study:** Using photographs to effect change

The design of an X-ray room facility meant that operators had to reach over a wide bench to place the film carrier under the X-ray table. A series of photographs of the operator doing this task were mounted on a card. Once the strain on the operators' back was graphically illustrated in this way and shown to management, and the easy solution to the problem was pointed out, redesign of the room was quickly authorised.

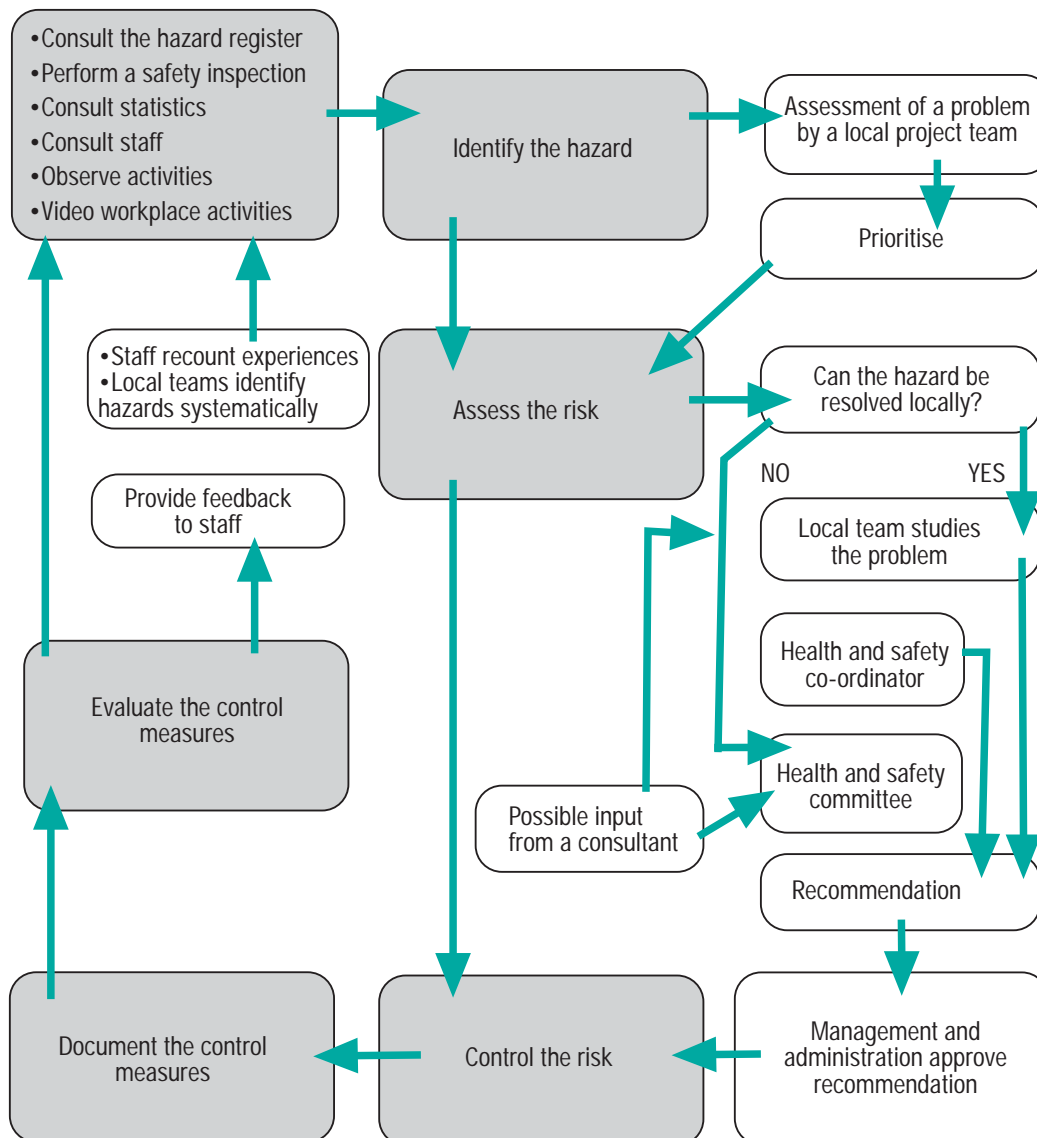
## Case Study: The power of video analysis in work tasks

A video taken of staff in the central sterile unit who were packing instruments and clothing was shown to management in fast forward mode. The graphic depiction of the repeated nature of the task, and the constant forward bending, resulted in the installation of raised and adjustable working platforms.

Not all instances are as dramatic or simple as these two examples, but the value of both techniques is immense. Photographing or videoing a task can be used for three main purposes:

- To show the manager of the facility what happens.
- To analyse actions in detail (using slow motion replay with the video).
- To help with training.

Figure 3: Detailed Hazard Resolution Procedure



## 6.4 Risk assessment

The *Manual Handling Guideline*<sup>15</sup> lists a number of factors for investigation during any manual handling task, and these are explained below. Detailed analysis at this stage, while time-consuming, is paid back in the immediate indication of where risk control measures are best applied.

Who should do the risk assessment? Local project teams, which come together for brief periods to study particular tasks are recommended<sup>20</sup>. Local teams have the advantages of bringing local knowledge to the assessment and of involving employees. Sometimes they may need advice from a specialist or consultant.

Local project teams may need training. A suitable composition would be one or two nurses/care givers, a supervisor and, in special cases, a person with specialist knowledge.

The thirteen factors illustrated below indicate that manual handling is not simply a matter of lifting. The factors correspond to the thirteen parts of section four of the *Manual Handling Guideline*<sup>15</sup>.

### 6.4.1 ACTIONS AND MOVEMENTS

Actions should be performed smoothly and without using extreme ranges of joint movement, avoiding reaching, bending and twisting.

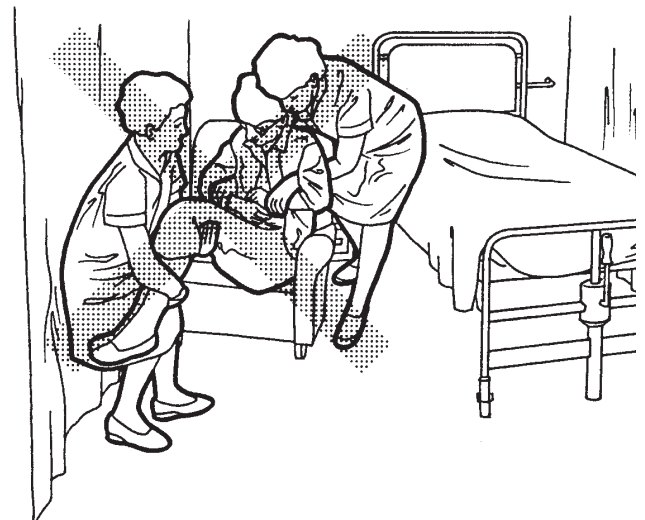
Examples of where this factor may be violated include: moving patients up in the bed, transferring patients from bed to chair, and so on.



### 6.4.2 WORKPLACE DESIGN OR LAYOUT

Places of work should be designed to suit the worker. The position and design of equipment should allow the operator to: adopt an upright, forward-facing posture, see the task easily, and perform tasks at about waist height.

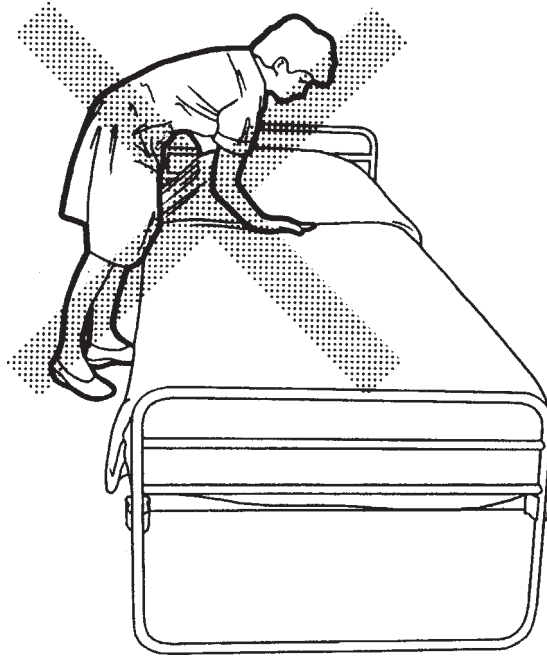
Examples of where this factor might be violated include: making beds, bending over residents in lounge chairs, and helping dependent residents into a narrow toilet. Other examples are: narrow aisles in storage spaces, and low benches requiring bending.



## 6.4.3 WORKING POSTURE AND POSITION

A variety of healthy postures should be available for repeated tasks.

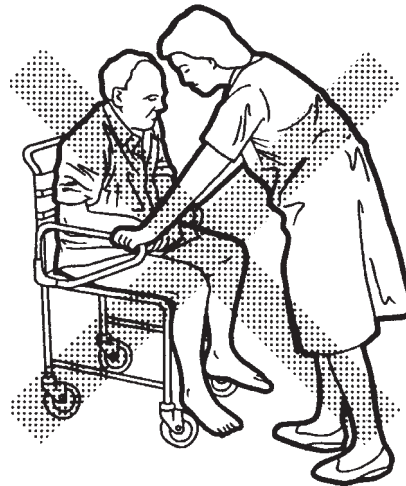
Examples of where this factor might be violated include: stooping over patients for a large proportion of the day, reaching forward at wide table to fold sheets, one person making a bed on their own.



## 6.4.4 DURATION AND FREQUENCY OF MANUAL HANDLING

The duration and frequency of manual handling tasks bear an obvious relationship to an increased risk of injury. Work should be spread evenly.

Examples of where this factor might be violated include: a large number of transfers in a busy ward or moving a supine patient, packing laundry into laundry bags.



## 6.4.5 LOCATION OF LOADS AND DISTANCES MOVED

As a general rule, manual handling, especially when repeated, should be performed between the mid thigh and the shoulders.

Examples of where this factor might be violated include: reaching for linen on a high shelf, heavy equipment on a low shelf.



## 6.4.6 LOADS AND FORCES

As the weight of a load rises, so does the risk of injury, with a threshold of 16kg standing and 4.5kg sitting signalling a rise in the likelihood of an injury. Application of force in handling apart from lifting: dragging, pushing and restraining needs to be considered too.

Examples of where this factor might be violated include: handling heavy patients, over-filling laundry bags, and the method of filling and dragging them.



## 6.4.7 CHARACTERISTICS OF LOADS AND EQUIPMENT

Loads exhibit many different features, which may add to the risk of the handling required: size, shape, texture, temperature, rigidity, stability, ease of gripping, slipperiness, sharp edges and an absence of hand grips are examples.

Examples of where this factor might be violated include: handling slippery patients, patients with contractures or delicate skin, extremely obese patients.

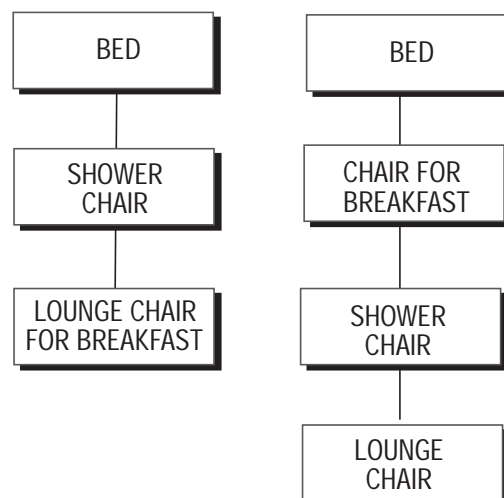
With respect to the latter point, all facilities should work out in advance how they will handle patients with extreme obesity.



## 6.4.8 WORK ORGANISATION

This refers to the time pressure of work and the number of people able to do it. Apart from these obvious factors, deadlines, bottlenecks, maintenance and the reporting of hazardous conditions are relevant here. Rest breaks should provide adequate relief.

Examples of where this factor might be violated include: having too few staff for the lift (e.g. a ward of 30 patients requiring a high level of care with two nurses only at night), uneven workloads caused by doctors' rounds, or when staff off have not been replaced.



## 6.4.9 WORK ENVIRONMENT

Poor environmental conditions (lighting, heat and humidity, noise, vibration, flooring, housekeeping) may add to the general load on an employee or may contribute directly to an incident.

Examples of poor conditions include: wet or slippery floors, frayed carpet, sharp edges on tables, cold draughts.



## 6.4.10 SKILLS AND EXPERIENCE

Employees need knowledge about health and safety issues of manual handling and training in how to perform tasks to minimise the risk of injury.

Examples of where this factor might be violated include: staff with little experience of or poor training for team lifting.



## 6.4.11 AGE

Younger and older workers are at greater risk. No person under the age of 18 should be expected to handle loads weighing more than 16kg<sup>14</sup> without mechanical or other assistance.

With age, the general physical capacity declines. This may be offset by increasing skill, but this should not be assumed. The peak incidence of back pain occurs later in life, possibly reflecting the cumulative nature of back injury.



## 6.4.12 CLOTHING

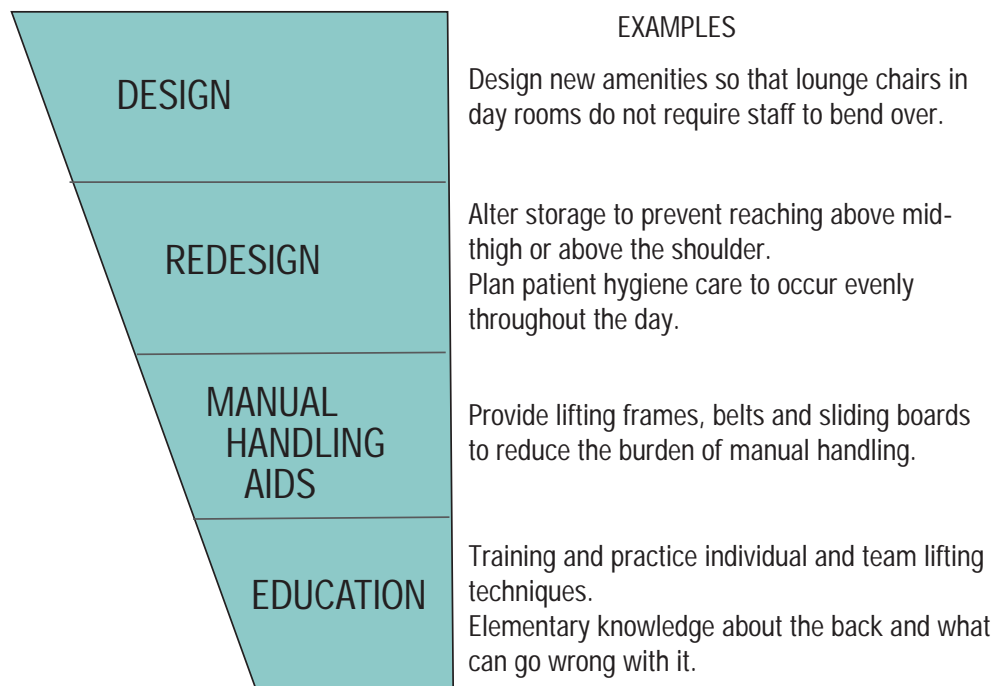
This topic receives special comment in section 8.

## 6.4.13 SPECIAL NEEDS

People returning from illness or other prolonged absence may take time to get fully fit for work. Pregnancy or disability will require special measures. Activities outside work may be relevant as well.

## 6.5 Risk control

To reduce risks of manual handling, the following hierarchy of controls should be applied, in order of priority:



The basic principles of each of the steps in the four-point hierarchy are as follows:

### 6.5.1 DESIGN AND REDESIGN

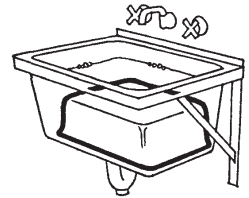
Ideally, plant and equipment should be designed safe from the outset.

The Health and Safety in Employment Act requires that employers shall take all practicable steps to ensure that plant used by any employee is so *arranged, designed, made and maintained* that it is safe. These requirements are reflected in the five risk control measures in this subsection.

## Modify the object

Remove the need for handling, or change the object handled to make it less of a burden.

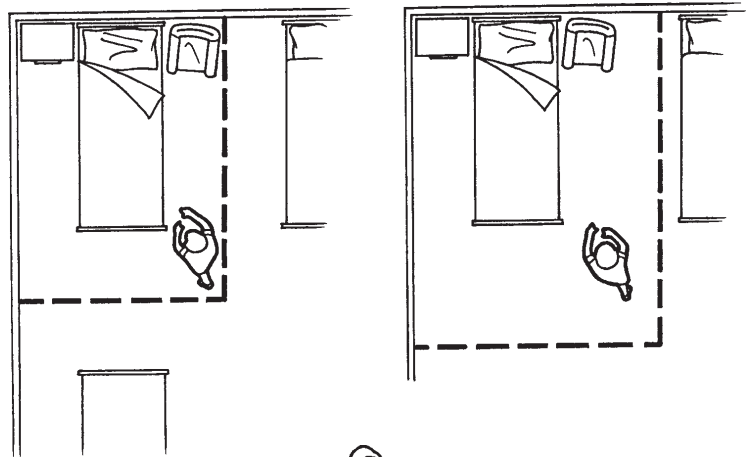
For example: provide smaller laundry bags, use reliable castors/wheels on trolleys.



## Modify the workplace design

Change the workplace, tools, equipment and the space the work is done in to eliminate undesirable postures, actions and movements.

For example: remove high and low shelves, alter layouts in wards to allow freedom of movement, provide sufficient space around beds to lift and transfer patients.



## Rearrange materials flow

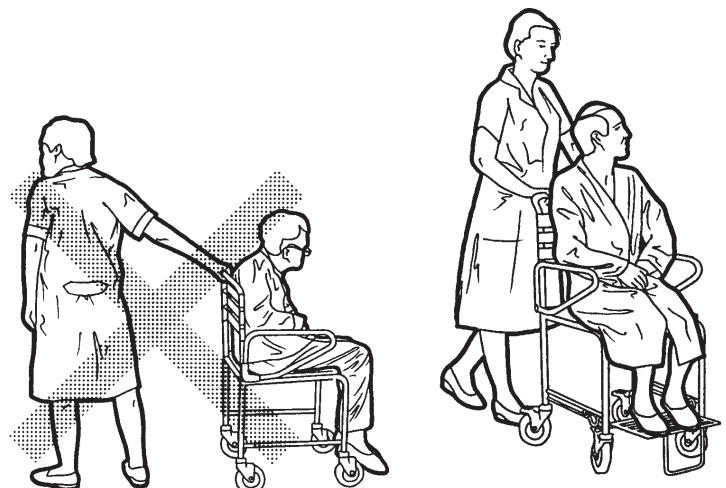
Workplace design to take this factor into account is often needed in industry. In health facilities, the opportunity for it arises in the rescheduling of work.

For example: heavily dependent patients can be evenly distributed among wards.



## Different actions, forces and movements

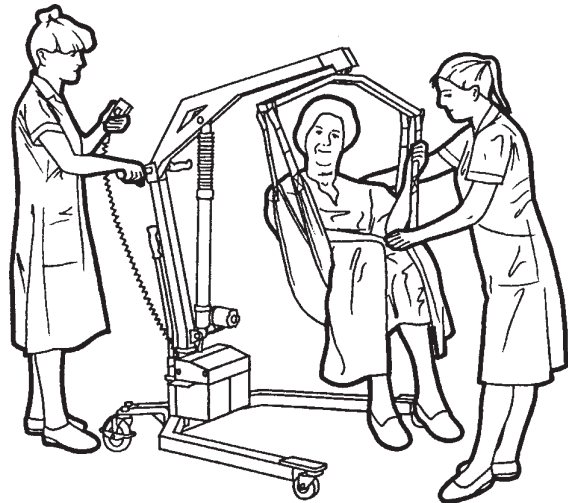
Eliminate bending, twisting, reaching movements and static postures.



## **Modify the task with mechanical assistance**

Lifting hoists to aid the transfer of patients is essential in some instances. Extra space may be needed in a ward for their operation.

As distinct from the use of aids to handle patients, there is sometimes the possibility of using mechanical assistance to ease the burden of handle objects. Trolleys for laundry, linen and food are examples.



## **6.5.2 MANUAL HANDLING AIDS**

Use sliding boards, bars, poles, hand blocks, lifting belts, lifting hoists, etc. whenever possible. (This topic is amplified in Appendix 9).



## **6.5.3 TEAM LIFTING**

Team lifting is often required in health and residential care facilities and should be part of the training for nurses and nurse aides and orderlies. Team lifting requires team work. If it goes wrong, the person committing an error may cause another to be injured.



## **6.5.4 EDUCATION AND TRAINING**

Training needs to cover far more than the normal training in “how to lift” given to nursing staff. Detailed suggested training requirements are listed in Section 7 and Appendix 9.

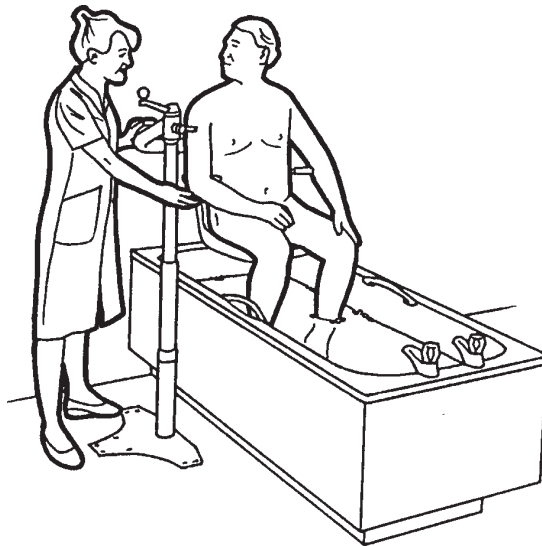
## 6.5.5 EXERCISES

Exercises to promote back fitness are covered in section 8 and Appendix 10.

## 6.5.6 OTHER RISK CONTROL METHODS

Special methods of risk control may be required in particular situations, for example: people returning from an absence or holiday, people with disabilities, people who are pregnant or recovering from an operation or an injury.

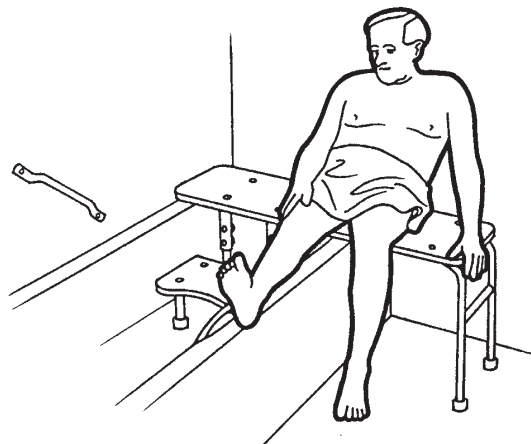
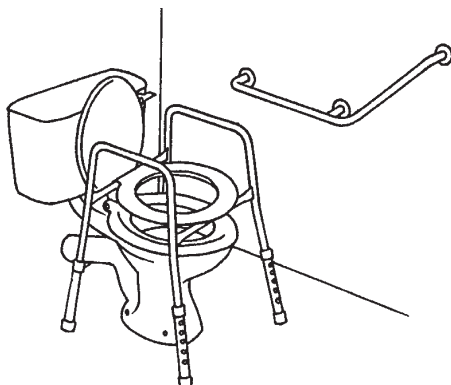
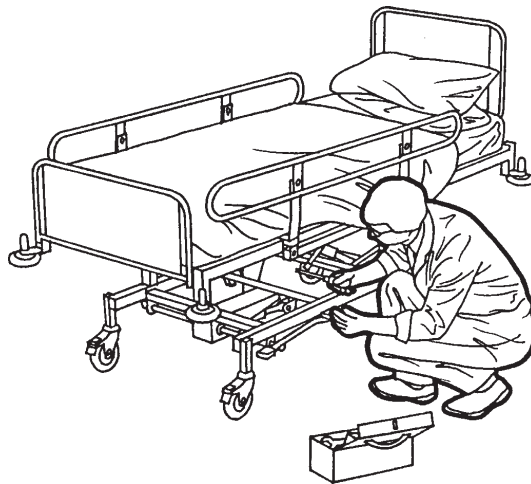
Staff new to the job may require an induction period, depending on the tasks to be done, to allow physical skills required by the task and fitness for the task to develop.



## 6.6 STRATEGIC PLAN AND EVALUATION

Each hazard that is assessed and found to need control should be documented in a risk control plan. A sample layout for the plan, including the appropriate headings, is shown in Appendix 7.

Part of the risk control documentation should refer to the evaluation procedures. Criteria by which the success will be shown, the person (group) who will perform the evaluation and the date for the completion of the evaluation should be stated.



# 7

# Education and Training

## 7.1 General comments

All staff in a health care facility need to have an appreciation of the entire manual handling programme operating there. Therefore, training packages which have traditionally emphasised “how to lift” need broadening to include hazard identification, risk assessment and risk control. Staff also need to know the methods for reporting back pain, manual handling incidents and injuries and other problems.

Educators will need no reminding that education for knowledge *and* training for skill acquisition are essential. Training will need to be ongoing as new staff move into a facility, as present staff move from job to job, as skills need updating and as different staff take different responsibilities in the hazard identification, risk assessment and risk control approach to manual handling.

Trainers are encouraged to have a very broad appreciation of all the issues of a manual handling campaign. They will need to be skilled in training, apart from having the technical knowledge.

Suggested detailed contents for training programmes for the different groups in health facilities are covered in Appendix 9.

## 7.2 Challenges of training

There are several challenges, of both principle and detail, which confront the person training others how to handle patients. These will need to be taken into account during the development of training programmes. Some of these challenges are:

### 7.2.1 THERE IS OFTEN NO SINGLE, CORRECT WAY

There is often no single, correct way for a particular lift. Common sense dictates that the knees bent/straight back technique is preferred. With this method, however, a number of problems can still arise, depending on the circumstances:

- The knee function may be at a disadvantage for some lifts/transfers.
- There may be increased strain on the shoulders, upper spine and arms.
- Lifting over the knees can be a problem.
- The stance may be awkward, leading to a slip or a trip.
- It can't always be used (especially in a health or care facility).

Trainers need to educate people in how to think about their activities rather than just follow rules.

## 7.2.2 SUBTLE MESSAGES

Training how to lift carries some subtle messages:

- Managers and employees may think they have done enough.
- There may be a tendency to blame the employee or the manager after an injury.
- It may undermine the importance of other strategies.

## 7.2.3 MISCELLANEOUS

Some miscellaneous problems extend this section:

- People forget — they need refresher training in the best of circumstances, but
- Refresher training can be boring.
- Training at the education facility does not transfer to the ward or unit.
- Each ward or unit has its own special demands due to the particular nature of the work, the personalities and local conditions.
- Different trainers train different things.
- Skills and knowledge are forgotten in the gap between training and taking up a job.

Jensen<sup>21</sup> recounts a study of refresher training that began with an assessment of the training needs of the particular employee and addressed these. This method was more successful than non-targeted training (which was often perceived as boring). Most success was obtained when this training was perceived as a service provided by one professional to another professional.

Sometimes newly qualified nurses find it difficult to get a job. The gap between training and taking up a job, mentioned above, may be measured in years.

## 7.2.4 TERMINOLOGY

Confusion can arise over the terminology applied to handling. Hollis raised this problem in her review of the 400 cases in which she represented nurses taking Court action<sup>21</sup> :

“...there seemed to be naming rules I had never encountered. Examples being (i) if you put your hand anywhere near the axilla you are using the Through Arm or Axillary Grasp and (ii) the Shoulder Lift refers to the patient’s shoulder being held somewhere.”

Hollis referred to the Royal College of Nursing guide<sup>23</sup> for the definitive naming of the different handling manoeuvres.

## 8.1 Introduction

Back fitness may be enhanced by exercise. Therefore, regular exercise has been advocated as a way of reducing back injuries. Some closely focused programmes of back assessment and exercise claim to have led to a reduction in injury rates, typically when instituted in a large company<sup>24</sup>.

The benefits of reduced numbers of back injuries after a number of exercise programmes has not been demonstrated in controlled trials, however. One study did show a slight decrease in the duration of back pain symptoms after a strength programme. Another study<sup>21</sup> found that those who participated in aerobics classes were *more* likely to have back pain!

In industry at large, the conclusion appears to be that the evidence of benefits of exercise outweighs the evidence of no benefits<sup>25</sup>. More specifically, fitness for the (particular) task is more beneficial than general fitness. A possible explanation for this is that exercise increases disc nutrition.

Everyone will be aware of the danger of arriving at work barely awake for an early shift, stumbling across the parking lot and starting straight into heavy lifting. The spine is particularly at risk in the early morning, owing to fluid distension of the lumbar discs during sleep. So there is a strong case for warm-up and stretching exercises *at the start of the day*.

The purpose and timing of back exercises should be carefully considered because there are several types. Exercises may be performed in general anticipation, for the specific purpose of warming up or otherwise preparing for daily activities or, indeed, a particular episode. These are briefly reviewed in Appendix 10.

# Uniforms and Shoes

## 9.1 Uniforms

Uniforms influence manual handling. One study showed that traditional smock uniforms reduced the range of motion of some joints by 26 percent<sup>26</sup>. Tight uniforms create friction between the skin and the cloth that will require additional muscle effort to overcome, leading to an increased risk of a muscle strain. Efforts to retain modesty make nurses adopt awkward postures, which also increases the risk of a manual handling injury.

Therefore, uniforms should be evaluated, before purchase, to ensure that:

- The range of movement is not compromised.
- The cloth of the uniform rides smoothly over the skin.
- Modesty is not compromised.

Generally a “separates” uniform, for example action-back shirts and divided skirts, will provide free motion while retaining modesty, though these are not the only types of uniform that do this. Even action-back shirts, however, may suddenly restrict movement as they come to the end of their range of movement. A choice on the use of stretch or non-stretch material may therefore be necessary.

A trial of clothing, as it will be finally used, is recommended. For example, one hospital manager found that the action-back gusset of one uniform tended to catch on door knobs.

A reasonable long-term goal would be to replace poorly designed uniforms over a five-year period. Liaison with the laundry will be required. Personal preferences for mode of dress must be respected.

## 9.2 Shoes

Footwear influences manual handling. Shoes should provide good foot support, be comfortable for the entire day and provide a good base for manual handling activities. Soles should be non-slip in wet and dry conditions.

Low heels are, of course, essential, and the area of contact of the sole with the floor should be large.

Insoles may provide some increased comfort for those who stand all day. Their use should not persuade managers that other ways of relieving discomfort from standing may be neglected<sup>27</sup>.

All patient notes should include a section on handling requirements. This space should be large enough to contain information covering all the points listed below. To cover patient handling adequately, the patient care plan should include all of the following:

- The degree of patient mobility.
- The type of lift/transfer likely to be needed.
- Any lifts/transfers that must not be used.
- The number of staff required to lift/transfer the patient/resident.
- Equipment/mechanical assistance needed.
- The patient's ability to understand and co-operate with instructions.
- The likelihood that the patient will become aggressive.
- The likelihood that the patient will become contracted.
- The likelihood that the patient will suddenly go limp or make uncontrolled movements.
- Special needs (skin sensitivity).
- How often the assessment should be updated (daily, if required).
- Who should carry out the initial assessment and who should update it.
- The patient's weight.

These points are additional to the normal handling requirements for patient safety, and the effectiveness of this aspect of the patient care plan should be assessed. The existence of a patient care plan is no guarantee that it will be read. Supervisors will need to ensure that information is passed on as shifts change.

Another communication problem is that sometimes nurses are called to assist in handling a patient with whom they are not familiar. Sometimes the patient's normal nurse is present, and sometimes not. In either case, increased potential for a problem exists and should be guarded against. A placard on the patient's bed (or nearby) is one way of communicating handling requirements. If words prove embarrassing, coded messages such as "traffic lights" can be used (see below). Other more detailed plans exist<sup>28</sup>.

- Red:** Specialised handling requirements.
- Orange:** Two people, at least.
- Green:** Lift/transfer possible with one person.

## 11

# Injury Management

## 11.1 General

The manual handling policy should state the treatment and rehabilitation to be provided for staff who are injured at work. A well-managed recovery is much preferable to the recurring injury likely when a return to work is forced.

There will always be a potential conflict between whether, when the company follows up the injured employee, they are trying to help or prying. Under the banner of being a good employer, management should have a good employer policy on this aspect of injury management. Good communication, sensitively handled, between the employee off work and their employer is built on a foundation of trust. The success of rehabilitation may depend, therefore, on what has gone before in the daily working life.

## 11.2 Injury management/rehabilitation policy

A comprehensive policy should include:

### PRE-INJURY

- The identification of alternative duties beforehand.
- The establishment of a climate of trust so that employees feel free to report injuries.

### POST-INJURY

- The early reporting of all injuries, especially back problems.
- Clear indications of how the employee should receive treatment.
- A clear indication of the method to assess treatment needs<sup>29</sup>.
- Liaison between the injured person, care givers, supervisors and the health and safety co-ordinator.
- Support for the injured employee while not at work.
- An assessment prior to the resumption of work.
- The acknowledgement that a return to normal work does not signal recovery. Follow-up after the person's return to work.

# ARCHIVE

Rehabilitation policies are discussed in some detail by Jensen<sup>21</sup>. He cites the instance where injured employees were transferred to the personnel department, where systematic follow-up was more feasible. This created the opportunity for the personnel department to act as a clearing centre for alternative duties and to assign them to staff as they became fit for these duties.

Where employees had a problem with their supervisor, unpleasant feelings associated with the return to work were lessened by this practice.

An early return to work to a job in the facility somewhere has been advocated for a variety of reasons. These include a reduction in costs and the increased morale of the injured person. The jobs chosen must, of course, require minimal stress on the back.

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To quote their conclusion: "In summary, if we are to be more successful in approaching back problems within industry, a greater understanding and broader perspective of the problem is needed. This includes identifying and addressing relevant *psychologic* and *social* issues, which seem to play a critical role in influencing the response to back symptoms".
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- <sup>23</sup> Lloyd P, Tarling C., Troup J. D. G. and Wright B. *The handling of patients: A guide for nurses*. The Back Pain Association and the Royal College of Nursing, London, 1987. 31-33 Park Road, Teddington, Middlesex. TW11 OAB.
- <sup>24</sup> A number of agents and franchise holders offer back programmes. Typically, these aim to assess a person's back fitness and provide exercises to improve it.
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- <sup>28</sup> Ontario Hospital Association. *Transfers and lifts for care givers*. Health Care Occupational Health and Safety Association, Ontario, 1986.
- <sup>29</sup> For example: Quebec Task Force on Spinal Disorders. Scientific approach to the assessment and management of activity related spinal disorders: A monograph for clinicians. *Spine*. Supplement 1, 12(7S): S22-S30, 1987.

References 4, 9, 15, 19, 20, 21 and 23 are especially recommended. Reference 23 may be regarded as the most comprehensive source of information in this field at the time of printing. Although about handling, it covers all aspects of the programme we advocate and emphasises the need for good ergonomics.

## Appendix 1: The Personal Cost of Back Injury

Elaine\*, a nurse manager at a residential home, faces a spinal fusion after many years' intermittent back pain.

Elaine is 50. Her present condition is the result of an incident eight months ago when she injured her back while helping to move a resident up the bed. Previous incidents normally resolved after about two weeks with physiotherapy, acupuncture and anti-inflammatories. This time, extensive use of these treatments, including physiotherapy, have had no lasting effect.

Elaine first experienced back pain while she was a student nurse, and wore a corset for support as a result. In those days, she says, they got very little training in how to handle patients, and the common attitude among her peers was that "it won't happen to me". Further, she says that there was no concept of nurses looking after themselves, and the pride one took in the job did not allow consideration of one's own needs. Typically, she and her fellow trainees would spend six days of the week working and the seventh sleeping. On two occasions she had spinal manipulation under anaesthetic.

After her early years as a nurse, Elaine assumed more and more responsibility. At one stage she was in charge of a children's ward with 60 patients. There were just two and a half nurses to care for them over one six-week period. This, and the seven to 11-hour working day, were taken for granted by both staff and management.

Most of the back incidents Elaine experienced were the result of seemingly innocuous incidents, but she did have to handle extremely heavy patients now and then (a 165kg man on one occasion).

Elaine now has constant pain. She has difficulty getting to sleep and often wakes at night. She has had to give up the tennis she has enjoyed for many years. Pain is the controlling factor in her life. Before she does any physical movement (e.g. getting dressed) she stops and thinks about how to do it without making the pain worse. She gets tired and irritable and feels her performance at work has suffered. She cannot drive any distance without severe pain developing and can't go to a movie. She has difficulty walking up stairs. Her housework is affected and she finds problems with vacuuming, lifting washing out of the machine and hanging it out, lifting pots off the stove, making beds—and indeed any lifting. She helped her daughter move flats recently and was in severe pain for many hours afterwards.

Now, after visiting an orthopaedic specialist with subsequent X-rays and a CT scan, she has been told that the best solution for her is a spinal fusion. The decision to undertake this operation has not been made lightly as it will entail some six months off work and some degree of dependence on others. The deciding factor, however, was the fact that she would be rid of 24-hour pain and so regain some "quality of life."

\*Name changed to protect identity.

## Appendix 2: A Successful Intervention

**Barbara Davidson RGON, Nurse Manager (Special Duties) with the HavenCare Hospital Group, describes a back injury prevention programme that has not only led to a dramatic decrease in back injuries, but has also improved the quality of patient care. This case study of a successful intervention is abridged from an article that originally appeared in *Safeguard* (Vol. 12, August 1991).**

THE EDUCATIONAL approach to preventing back injuries, which usually includes training in biomechanics and lifting techniques, is not sufficient. Training is only one component of a comprehensive programme for back injury control which should also include an ergonomic approach. That is:

- Changing the way the job is done by identifying specific tasks within those jobs which impose greater stress on the back.
- Changing the equipment used.
- Changing the environment.

THE HAVENCARE Hospital Group consists of three hospitals, which care for 247 chronically ill, elderly patients. A total of 420 staff are employed, the majority of whom work part-time and are unqualified (nurse aides and domestic staff). For the nurses, the work is heavy and repetitive. Many patients are incontinent, and the few who remain in bed require two-hourly nursing intervention.

As a result of staff back injury claims, we were visited by the Accident Compensation Corporation in 1989. It was suggested that we might be interested in developing a programme for back injury prevention. An initial meeting was set up with ACC staff and staff from the OSH office.

Baseline quality assurance statistics on lifting incidents were examined. At this stage it was obvious that many incidents involving lifting and transferring were not being reported. More detailed statistics were collected, separating back injuries and other injuries incurred while lifting. The cost to the hospital was also documented.

AS A FIRST step, a *count* was made of the lifts and transfers required in one of our hospitals. In the four wards, where 77 patients were cared for, 970 lifts, transfers and position changes were made in the 24-hour period of the study

A workshop, planned by OSH, was held for key personnel such as nurse managers, registered nurses from each hospital and physiotherapists in November 1990. It involved video material, ergonomic checklists, resource lists and discussion.

# ARCHIVE

Each hospital then organised a committee to run a programme tailored to its individual needs. The aims of the programme were:

- To educate all staff in the hospital group.
- To identify hazards in the workplace.
- To identify patients with special lifting needs.

The committee members have become known as 'lifting monitors'. My role has been to act as co-ordinator and adviser and to encourage networking.

It was decided to formulate the action plan before Christmas so that the promotion could begin after the summer holidays, in February 1991. Goals and objectives were agreed upon and each hospital documented its planned activities during the programme. Suggestions were sought from staff on how the induction programme could be improved.

Staff who had injured their backs during the previous six months were identified through the quality assurance programme. They were reminded of the correct lifting procedure and asked for feedback. Support from the "lifting monitors" was given to this group of staff.

Aids required to help with the programme were listed. A list was drawn up of what could be tackled within each hospital over the holiday period, such as observing staff and intervening when a lift or transfer was not executed correctly.

An ergonomic checklist was used to identify potential hazards in each hospital. These included:

- Inadequate lighting in corridors.
- Linen bags too deep.
- Shower areas difficult to manoeuvre patients in wheelchairs/shower chairs.
- Insufficient wet floor signs.
- Linen often stored on high shelves.
- Cluttered corridors.
- Kitchen sinks too deep, floors slippery.
- Heavy food items to be lifted and stored.
- Spilt talcum powder on the floors.
- Lack of lifting belts.
- Lack of hoists.
- Lack of lifting pads.

Other areas looked at were:

- Consistency of lifting techniques.
- Documentation of individual patients' needs in the nursing care plans.
- Pre-employment interviews to include questions regarding previous back injuries.
- Disciplining of staff who do not adhere to the group lifting policy.

IN FEBRUARY 1991 a meeting was held with the group's chief principal nurse, Jennie Michel, to discuss budgeting for the programme and to review the progress to date for all three hospitals.

# ARCHIVE

It was agreed that pivot boards would be assessed and more lifting belts purchased. Two more lifting hoists would be purchased once trials had been completed. Signs for wet floors would be purchased if there was a shortage.

Staff members who needed 'follow-up' education following back injuries would be paid to attend a session outside their normal work hours.

EACH HOSPITAL ran its own programme as follows:

- Questionnaires were given to every staff member asking whether they suffered from work-related back pain, whether they used the lifting equipment supplied and whether they needed training on how to lift correctly.
- A back injury notification notebook was set up and staff encouraged to report even the slightest twinge.
- An awareness week was held. Stick-on badges were provided saying "Lift with a friend", "Use my belt". Some of the patients were invited to participate and wear a badge.
- The physiotherapists held workshops for the lifting monitors to check that everyone lifting used the same techniques.
- All staff members' names, including domestic staff, were entered in a register. Each individual was assessed and observed during a lifting procedure. If necessary, the person would be followed up by the physiotherapist and education officer.
- Kitchen, cleaning and laundry staff had a half-hour talk on lifting problems. As many of these women were in the older age range, several suffered from osteoarthritis of the knees and hips, which made bending at the knees very difficult.
- Staff footwear was looked at.
- Placement of furniture was assessed.
- Large and colourful posters (hand-drawn) promoting the programme were displayed.
- A fitness programme for staff was discussed.
- Problem patients were identified.
- A "theme for the month" was decided upon, e.g. lifting belts and appropriate positioning in bed, positioning of furniture and beds, necessary and unnecessary lifting. These themes are promoted through hand-drawn posters with cartoons.
- Graphs were displayed in each hospital showing the month-by-month incidence of lifting-related injuries.
- Statistics were presented to each hospital on a monthly basis through the quality assurance committees. Injuries were broken down into back injuries and other injuries due to lifting or transferring.

Each patient needed to be assessed in detail to address the complex problem of patient handling. This assessment was incorporated in the nursing process and patient review meetings. Patient variables have been taken into consideration: drug therapy, general mobility, medical condition, and mental function. Registered nurses can often assess the patient's need intuitively, but nurse aides frequently lack such skills.

# ARCHIVE

With help from the lifting monitors and visual aids, it has been possible to assess and observe most of the domestic and nursing staff on each shift. The staff were observed during an actual transfer or lift.

Management are committed to the programme and have agreed that staff who sustain lifting related injuries be paid to attend follow-up education provided by the physiotherapist and/ or education officer.

THE PROGRAMME has had a number of benefits to the HavenCare Hospital Group. The number of reported staff incidents has decreased dramatically—not just lifting-related injuries but also slips on wet floors, problems with equipment malfunctioning, etc. All incident statistics are reported to the occupational health and safety committees which meet every six weeks. Recommendations are then made to management.

Each hospital has purchased extra lifting equipment to help with lifting tasks. Nurses report that lifting is much easier with the help of mechanical aids. Staff awareness of the need to report injuries has been raised.

In many situations now it is a requirement that certain patients be lifted with two nurses. These instructions are documented in the nursing care plans. Staff not adhering to the requirements are disciplined.

Patient quality care has improved. No longer is a large, heavy patient “pulled around” by two or three nurses—a patient hoist is used if it is appropriate for that patient’s care.

Documentation by the nurses is also improving as each patient’s lifting needs are individually assessed. One hospital has fluorescent tickets pinned to the notice board next to the patient’s bed, with information as to whether one, two or more nurses are required to lift and whether a patient hoist, lifting belt or lifting pad is required.

Finally, the networking, co-operation and sharing of ideas have brought the hospitals closer together.

THE BACK INJURY prevention programme in the Havencare Hospital Group is still in its infancy. I see it as an ongoing programme with activities which are revised annually.

The hospitals’ nurse managers and committees have acted in the promotion of the programme in an enthusiastic and motivated way. The support by management has been tremendous.

Over the next few months, an education package on the use of lifting belts, patient hoists and positioning of patients in bed will be completed for each hospital. This will include posters with photographs and pictorial education folders.

Statistical evaluation still needs to be fine tuned, but as this is done manually, it will take time.

The programme has not been without costs in terms of human resources and extra equipment, but it is hoped that the payback will be in a reduction in ACC payments by the hospitals for lifting-related injuries. There will certainly be a saving to the taxpayer.

**Acknowledgements:**

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## Appendix 3: Some Achievable Goals

Because of the nature of back injuries, a sudden reduction in their number is unlikely. Reducing back injuries will require steady progress over many years. Some of the objectives below will need to be kept alive permanently until they are fulfilled.

### SHORT-TERM

- A method for hazard reporting is set up and all staff trained in its use.
- An incident/accident reporting system is set up.
- All beds are made by two people.

### MEDIUM-TERM

- All staff are able to perform a basic manual handling risk assessment.
- Regular safety inspections are performed.
- The work done by nurses is analysed: the number of lifts/transfers in each ward is counted.
- Data from accident/incident reports are analysed and summaries reported to management regularly.
- Laundry bags are reduced to a reasonable size if large.
- Signs are provided to indicate floors that are wet.
- All storage areas are assessed to see that low and high reaching is eliminated as far as possible and that aisle widths are great enough to avoid the need to twist.
- Wheeled trolleys are maintained on a regular basis.
- Beds are maintained on a regular basis.
- Narrow toilet cubicles with solid walls are enlarged to allow nurses to help patients.
- Provision is made for handling extremely heavy patients.
- Provision is made for the assignment of extra staff when required.
- All staff are made familiar with the essentials of the hazard identification, risk assessment and risk control process.
- Work is analysed to see if it can be rescheduled to reduce peaks of work.
- Work is analysed to see that it is spread evenly between wards.

## LONG-TERM

- Uniforms are replaced as necessary to allow freedom of movement and modesty.
- Floors and carpets are altered and maintained to eliminate slipping and tripping hazards.
- All equipment is listed in an inventory to promote efficient maintenance.
- All lounge chairs have space for feet underneath and are not so low that people get cast when trying to get out of them.
- All staff know the correct names of lifts/transfers.
- Patient notes have space for handling requirements. Staff are skilled in completing this section of the notes.
- A core group of employees is identified who display particular expertise in manual handling issues.
- The management of occupational safety and health issues is woven into managers' duties.
- Outside auditors assess effectiveness of the manual handling programme.
- Information about design issues is fed to designers, architects and engineers.
- Physiotherapists are skilled in the use of lifts, develop excellent training skills including training needs analysis, and develop skills in workplace analysis on ergonomic lines.

## Appendix 4: Extracts from the Legislation

These extracts are taken from the Health and Safety in Employment Act 1992. The following are some of the definitions stated in Part I of the Act.

### PART 1

#### PRELIMINARY

“All practicable steps”, in relation to achieving any result in any circumstances, means all steps to achieve the result that it is reasonably practicable to take in the circumstances, having regard to—

- (a) The nature and severity of the harm that may be suffered if the result is not achieved; and
- (b) The current state of knowledge about the likelihood that harm of that nature and severity will be suffered if the result is not achieved; and
- (c) The current state of knowledge about harm of that nature; and
- (d) The current state of knowledge about the means available to achieve the result, and about the likely efficacy of each; and
- (e) The availability and cost of each of those means:

“Harm” means illness, injury, or both; and “to harm”, “harmed”, and “unharmred” have corresponding meanings:

“Hazard” means an activity, arrangement, circumstance, event, occurrence, phenomenon, process, situation, or substance (whether arising or caused within or outside a place of work) that is an actual or potential cause or source of harm; and “hazardous” has a corresponding meaning:

“Safe”,—

- (a) In relation to a person, means not exposed to any hazards; and
- (b) In every other case, means free from hazards;—

and “unsafe” and “safety” have corresponding meanings:

“Serious harm”, subject to subsection (4) of this section, means death, or harm of a kind or description declared by the Governor-General by Order in Council to be serious for the purposes of this Act; and “seriously harmed” has a corresponding meaning:

“Significant hazard” means a hazard that is an actual or potential cause or source of—

- (a) Serious harm; or

- (b) Harm (being harm that is more than trivial) the severity of whose effects on any person depends entirely or among other things) on the extent or frequency of the person's exposure to the hazard; or
- (c) Harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard:

## PART II

### DUTIES RELATING TO SAFETY AND HEALTH IN EMPLOYMENT

#### *General Duties of Employers*

**6. Employers to ensure safety of employees**—Every employer shall take all practicable steps to ensure the safety of employees while at work; and in particular shall take all practicable steps to—

- (a) Provide and maintain for employees a safe working environment; and
- (b) Provide and maintain for employees while they are at work facilities for their safety and health; and
- (c) Ensure that plant used by any employee at work is so arranged, designed, made, and maintained that it is safe for the employee to use; and
- (d) Ensure that while at work employees are not exposed to hazards arising out of the arrangement, disposal, manipulation, organisation, processing, storage, transport, working, or use of things—
  - (i) In their place of work; or
  - (ii) Near their place of work and under the employer's control.
- (e) Develop procedures for dealing with emergencies that may arise while employees are at work.

#### *Duties of Employers in Relation to Hazard Management*

**7. Identification of hazards**—(1) Every employer shall ensure that there are in place effective methods for—

- (a) Systematically identifying existing hazards to employees at work; and
- (b) Systematically identifying (if possible before, and otherwise as, they arise) new hazards to employees at work; and
- (c) Regularly assessing each hazard identified, and determining whether or not it is a significant hazard.

(2) Where there occurs any accident or harm in respect of which an employer is required by section 25 (1) of this Act to record particulars, the employer shall take all practicable steps to ensure that the occurrence is so investigated as to determine whether it was caused by or arose from a significant hazard.

**8. Significant hazards to employees to be eliminated if practicable**—Where there is a significant hazard to employees at work, the employer shall take all practicable steps to eliminate it.

**9. Significant hazards to employees to be isolated where elimination impracticable**—Where—

- (a) There is a significant hazard to employees at work; and
- (b) Either—
  - (i) There are no practicable steps that may be taken to eliminate it; or

- (ii) All practicable steps to eliminate it have been taken, but it has not been eliminated,—

the employer shall take all practicable steps to isolate it from the employees.

**10. Significant hazards to employees to be minimised, and employees to be protected, where elimination and isolation impracticable—**(1) Where—

- (a) There is a significant hazard to employees at work; and
- (b) Either—
  - (i) There are no practicable steps that may be taken to eliminate it; or
  - (ii) All practicable steps to eliminate it have been taken, but it has not been eliminated; and
- (c) Either—
  - (i) There are no practicable steps that may be taken to isolate it from the employees; or
  - (ii) All practicable steps to isolate it from the employees have been taken, but it has not been isolated,—

the employer shall take the steps set out in subsection (2) of this section.

(2) The steps are—

- (a) To take all practicable steps to minimise the likelihood that the hazard will be a cause or source of harm to the employees; and
- (b) To ensure that there is provided for, accessible to, and used by the employees suitable clothing and equipment to protect them from any harm that may be caused by or may arise out of the hazard; and
- (c) To monitor the employees' exposure to the hazard; and
- (d) To take all practicable steps to obtain the employees' consent to the monitoring of their health in relation to the hazard; and
- (e) With their informed consent, to monitor the employees' health in relation to exposure to the hazard.

*Duties of Employers in Relation to Information*

**11. Employees to be given results of monitoring—**(1) This section applies to the results of any monitoring of any employee or place of work if it was undertaken in compliance with this Act; and—

- (a) If the monitoring was undertaken by or on behalf of an employer; or
  - (b) If—
    - (i) The monitoring was undertaken by or on behalf of a department (within the meaning of the State Sector Act 1988); and
    - (ii) The results have been given to an employer.
- (2) Subject to subsection (3) of this section, every employer shall ensure that—
- (a) Every employee is given all results to which this section applies of monitoring of the employee (whether as an individual or as one of a number of employees) in relation to health and safety; and
  - (b) All employees who ask for them are given all results to which this section applies of general monitoring of—
    - (i) Conditions in the employee's place of work; or
    - (iii) The health or safety of employees there.

(3) Every employer shall ensure that—

- (a) There are omitted from all results to which this section applies given to any individual employee all information that identifies, or discloses anything about, any other individual employee; and
- (b) There are omitted from all results to which this section applies given to any group of employees all information that identifies, or discloses anything about, any employee.

**12. Information for employees generally**—Every employer shall ensure that every employee who does work of any kind, or uses plant of any kind, or deals with a substance of any kind, in a place of work, has been given, in such a form and manner that the employee is reasonably likely to understand it, information about—

- (a) What to do if an emergency arises while the employee is doing work of that kind, using plant of that kind, or dealing with substances of that kind, in that place; and
- (b) All identified hazards to which the employee is or may be exposed while doing work of that kind, using plant of that kind, or dealing with substances of that kind, in that place, and the steps to be taken to minimise the likelihood that the hazards will be a cause or source of harm to the employee; and
- (c) All identified hazards the employee will or may create while doing work of that kind, using plant of that kind, or dealing with substances of that kind, in that place, and the steps to be taken to minimise the likelihood that the hazards will be a cause or source of harm to other people; and
- (d) Where all necessary safety clothing, devices, equipment, and materials are kept.

### *Duties of Employers in Relation to Training and Supervision*

**13. Training and supervision**—Every employer shall take all practicable steps to ensure that every employee who does work of any kind, or uses plant of any kind, or deals with a substance of any kind, in a place of work,

- (a) Either—
  - (i) Has; or
  - (ii) Is so supervised, by a person who has,—  
such knowledge and experience of similar places, and work, plant, or substances of that kind, as to ensure, that the employee's doing the work, using the plant, or dealing with the substance, is not likely to cause harm to the employee or other people; and
- (b) Is adequately trained in the safe use of all plant, objects, substances, and protective clothing and equipment that the employee is or may be required to use or handle.

**14. Employers to involve employees in development of health and safety procedures**—Every employer shall ensure that all employees have the opportunity to be fully involved in the development of procedures developed for the purpose of—

- (a) Complying with section 7 to 10 of this Act; or
- (b) Dealing with or reacting to emergencies or imminent dangers.

### *Other Duties*

**15. Duties of employers to people who are not employees**—Every employer shall take all practicable steps to ensure that no action or inaction of any employee while

at work harms any other person.

**16. Duties of persons with control of places of work—**

To the extent that a person is—

(a) The owner, lessee, sublessee, occupier, or a person in possession of a place of work or any part of a place of work; or

(b) The owner, lessee, sublessee, or bailee, of any plant in a place of work,—

the person shall take all practicable steps to ensure that people in the place of work, and people in the vicinity of the place of work, are not harmed by any hazard that is or arises in the place of work.

**17. Duties of self-employed people—**Every self-employed person shall take all practicable steps to ensure that no action or inaction of the self-employed person while at work harms the self-employed person or any other person.

**18. Duties of principals —**(1) Every principal shall take all practicable steps to ensure that—

(a) No employee of a contractor or subcontractor; and

(b) If an individual, no contractor or subcontractor,—

is harmed while doing any work (other than residential work) that the contractor was engaged to do.

(2) Subsection (2) of this section shall be read subject to section 2(2) of this Act.

**19. Duties of employees—**Every employee shall take all practicable steps to ensure—

(a) The employee's safety while at work; and

(b) That no action or inaction of the employee while at work causes harm to any other person.

## Appendix 5: Sample General Safety Policy

..... is committed to the protection of its employees, patients, visitors and property from harm and/or accidental damage.

To meet this commitment, employers will take all practicable steps to provide a safe place of work, safe equipment and adequate staffing; to establish and insist on safe work methods; to comply with legislation and be proactive in anticipating health and safety problems.

### **In particular, employers will:**

- Develop, implement and evaluate a health and safety programme.
- Develop, implement and monitor a health and safety information system.
- Develop and implement strategies to identify, assess and control occupational hazards and unsafe conditions, systems or processes.
- Provide education and training in health and safety.
- Provide a first aid service.
- Develop a policy for the rehabilitation of employees injured at work.
- Consult with and involve employees in the development of these policies.

### **Employees will:**

- Report hazards and incidents they encounter.
- Comply with health and safety principles, regulations, procedures and instruction.
- Work in a safe manner, to avoid endangering themselves and others.
- Take part in education/training and rehabilitation programmes.

### **Supervisors will:**

- Ensure that safety policies and guidelines are followed in their areas.
- Ensure that staff are adequately trained in health and safety.

## Appendix 6: Sample Forms

The following sample forms appear in this draft and are intended as examples for health facilities to adapt and use.

- 1 Hazard register
- 2 Incident register (for a small facility)
- 3 Staff incident report (for a large facility)
- 4 Back strain and sprain report.

### 1. HAZARD REGISTER

The hazard register is designed simply as a place where hazards may be recorded. A hazard is defined as “an actual or potential cause of harm”. The systematic identification of hazards is required by the Health and Safety in Employment Act. The use of a register after this style (with the headings set out in an exercise book, for example) would satisfy this requirement.

### 2. INCIDENT REGISTER (FOR A SMALL FACILITY)

In contrast to the long form needed in a large facility, this form (with the headings adapted as required and set out in an exercise book) would provide a means of recording incidents. The results of the investigation of the incident should be entered as soon as possible afterwards.

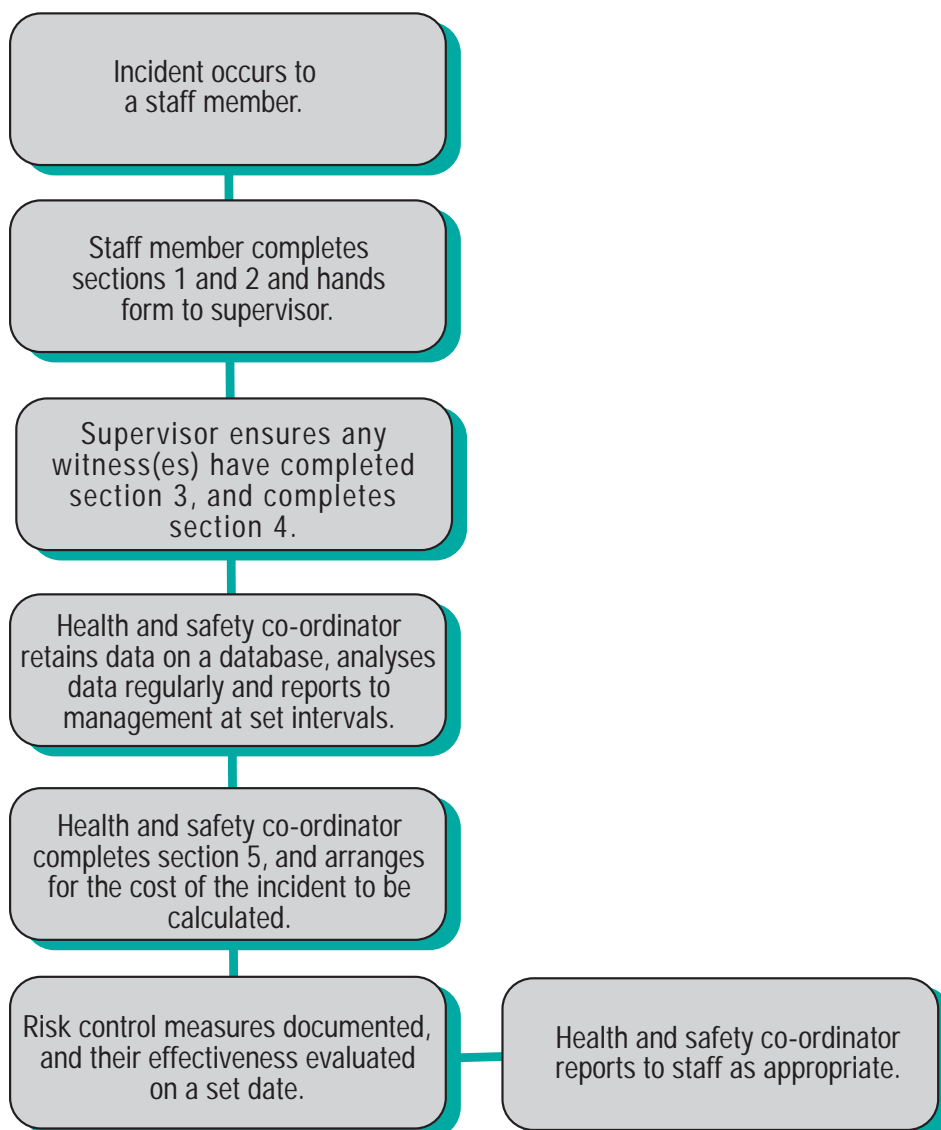
### 3. INCIDENT REPORT (FOR A LARGE FACILITY)

This sample form may be used where an incident occurs to an employee, a patient or a visitor. It is designed for a large health facility with professional health and safety staff and outlines the detail needed for the proper reporting and investigation of an incident or accident. Many who commented on an early draft noted the length and complexity of this form and sent samples of their own. These were generally shorter and less specific about detail.

The authors believe, however, that an accident investigation form should reflect the complexity of incidents, and need to be passed between the relevant parties for completion.

The diagram over the page outlines the steps required in an incident investigation, at least in a large health facility. In summary, the form should be used as follows:

## Suggested Procedure for Completing the Accident/Incident Form



#### 4 BACK STRAIN AND STRAIN REPORT

This form should be filled out whenever a staff member experiences back pain.

A similar path should be followed for incidents to visitors and patients.

## Hazard Register

A hazard is an actual or potential cause of harm. Hazards may be activities, processes, substances or objects, among other things. These should be recorded on this form to allow proactive prevention measures to be taken.

**Name of person reporting hazard**

(Include normal place of work.)

**Date and time**

**Location of hazard**

**Description of hazard**

(Include the area involved and equipment, hand tools and people involved. Provide a sketch if appropriate.)

**Hazard reported to**

(Include name and position.)

**Possible remedies**

(List any suggestions for eliminating, minimising or isolating the hazard, e.g. redesign, mechanical aids, education or maintenance.)

**Action taken**

(Supervisor to complete. State actions taken at local level and what reference was made to other sources, if appropriate. State who took the action and the date it was taken.)

**Evaluation**

- Hazard eliminated  
 Hazard controlled

**Further action taken**

Signature

## PROCEDURE FOR REPORTING INCIDENTS

Here, an "incident" refers to an event which results in, or could have resulted in, an injury to a person or loss of or damage to equipment or property.

The procedures described below should be undertaken when:

- Staff members are involved in an incident either at work or travelling to or from work;
- Staff members experience pain or illness arising from or aggravated by their work;
- Patients or visitors are involved in an accident within the health facility;
- An event occurs that is not consistent with normal operations (including theft) or routine care of a patient.

## RESPONSIBILITIES

### Employees:

Employees involved in or witnessing an incident or experiencing work-related pain or illness are responsible for reporting the incident to their immediate supervisor. They should also complete sections 1 and 2 of the incident report form.

### Supervisors:

Supervisory staff are responsible for ensuring that all incidents and work-related pain/illness brought to their attention are reported on an incident report form.

If a staff member is involved, the supervisor:

- Will complete section 4 of the Incident Report Form.
- Will ensure that any witness(es) complete section 3 of the form.
- Will initiate any necessary investigation and controlling actions that are required immediately.
- Will arrange for any necessary medical intervention.
- Will forward the incident report form to the health and safety co-ordinator (or equivalent) in a sealed envelope marked "Confidential".

If a visitor or patient is involved, the supervisor in the area concerned:

- Will initiate any necessary medical intervention.
- Will make an entry in the patient's chart.
- Will note on the incident report form whether or not the visitor requested medical treatment.
- Will authorise the incident report form, ensuring it has been completed by witness(es).
- Will forward the incident report form to the health and safety co-ordinator (or equivalent) in a sealed envelope marked "Confidential".

### Health and safety co-ordinator:

- Will complete section 5 of the Incident Report Form.
- Perform any further investigations to identify causes.
- Ensure appropriate controlling actions are recommended to management.

# ARCHIVE

- Ensure a cost is calculated for each incident.
- Maintain a register of incidents.
- Periodically, prepare a report on incident trends for management and staff.

## **Health and safety committee:**

- Will review reports on trends in incident rates and make recommendations for appropriate controlling actions.

## **Management:**

- Will review reports on trends in incident rates and, when required, direct the health and safety officer or other parties to initiate appropriate action.

# ARCHIVE

## Incident Register

This register should be used to record incidents to employees, patients/residents or visitors.

This register covers the period from \_\_\_\_\_ to \_\_\_\_\_

Date and time of this report

Date and time of incident

Area where the incident occurred

Staff/Patient/Visitor

Age

Male/Female

Describe the incident

What task was being performed?

What happened?

Describe the injury

Type of injury and part of body affected

What treatment was given?

ACC claim

Yes

No

Cost

Time lost

Preventive actions taken

## Incident/Accident Report Form

### Personal Details

1 Surname and given names of person affected:

2 Date of birth (day, month, year)

3 Home address

4 Was the affected person a:

Staff member  Patient  Visitor

5 Gender:  Female  Male

6 Job title

7 Employment status

Full-time  Permanent

Part-time  Casual

8 Telephone numbers:

Home
Work

### Details of the Incident

9 What was the name of the area in which the incident took place?

10 Please describe exact location of the incident:

11 On what shift did the incident occur?

Day  Afternoon  Night

12 What was the time and date of the incident?

Time	Day	Month	Year
------	-----	-------	------

13 At the time of the incident:

How many staff were on duty?

How many staff were scheduled for duty?

14 Type of incident:

Fall, trip or slip

Postural

Manual handling

Needlestick inoculation

Muscular over-exertion

Heat, radiation or noise

Aggressive, abusive patient

Defective equipment

Hit by moving object

Other

15 Did an injury result from this incident?

Injury absent  **Go to question 18**

Injury present

16 Body parts injured:

17 What was the nature of the injury?

Back injury

Sprain, strain

Bruising

Laceration, cut

Scratch/graze

Needlestick inoculation

Foreign body

Burn/scald

Chemical/drug:

Specify

Occupational disease:

Specify

Other: Specify

18 Was this a recurrence?

No  Go to Question 19

Yes

What was the date of the original injury?

19 Please describe the incident  
(Continue at Question 40 if necessary)

20 Prevention suggestions  
(Continue at Question 40 if necessary)

21 The incident/accident was reported to:

22 Signature of person reporting  
(position and date)

## Witness Report

23 Who witnessed the incident? (Name and address)

24 Report of the witness  
(Continue at Question 40 if necessary)

25 Witness signature and date

## Investigation of the Incident (Supervisor to Complete)

26 The incident was reported to me on:

Time Day Month Year

27 Please list all possible causes of the incident

28 Did any of the following contribute to the incident:

Insufficient training

Unsafe acts

Insufficient supervision

Unsafe conditions

29 What preventive measures have been taken?

30 What preventive measures could be taken in the future?

31 Signature of Head of Department and date

## Final Outcome (Health and Safety Co-Ordinator to Complete)

40 Use this space for additional comments. (Please indicate the number of the question referred to.)

32 Health treatment required? (Person in charge to complete)

- None needed
- Medical treatment sought
- First aid
- Refused treatment

33 Immediate outcome of the incident

- Resumption of duties
- Went home
- Seen by Occupational Health/A&E

34 Was further treatment required?

- No
- Yes

35 Was time off needed?

- No
- Yes

If Yes:

Date person ceased work

Date person returned to work

36 Did the ACC grant earnings-related compensation?

- No
- Yes

37 Equipment furniture modification

- Changes to work procedure
- Changes to the work environment
- Staff/rostering changes
- Training/education

Other (specify)

38 What cost has been calculated for this incident? \$

39 Signature and date

## Back Pain Report

Affected person to complete and hand to supervisor

### Personal Details

1 Surname and given names of person affected

2 Date of birth

3 Home address

4 Gender

 Male

 Female

5 Job title

Normal work area

6 Employment status

 Full-time

 Permanent

 Part-time

 Casual

7 Telephone numbers

Home

Work

### Details of the Incident

8 In what ward or other area did the back pain occur?

9 Please describe the exact location of the incident:

10 On what shift did the back pain occur?

 Day

 Afternoon

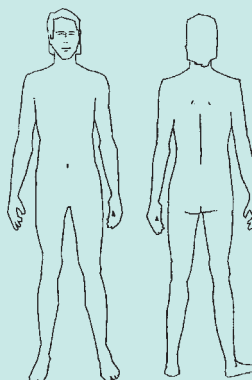
 Night

11 At what time and in what date did the back pain occur?

Time Day Month Year

12 Please describe what happened to cause the back pain:

13 Please shade the body parts affected:



14 Is this a recurrence?

 No

 Yes

15 Please list all possible causes of the back pain:

16 Did any of the following contribute to the incident:

 Insufficient training

 Insufficient supervision

 An unsafe act

 An unsafe condition

17 What preventive measures could be taken in the future?

## Appendix 7: Manual Handling Checklists

The three checklists which follow cover the three stages of the overall effort needed to resolve manual handling problems:

- Hazard Identification
- Risk Assessment
- Risk Control.

The checklists are taken from the OSH publication *Manual Handling Guidelines for the Workplace*, which should be consulted for further information on their use.

## Manual Handling Hazard Identification Checklist

1 What is the task being assessed?

**Movement, Posture and Layout**

2 Is there frequent or prolonged bending down where the hands pass below mid-thigh height?

Yes  No

3 Is there frequent/prolonged reaching above shoulder?

Yes  No

4 Is there frequent/prolonged bending/reaching forward?

Yes  No

5 Is there frequent or prolonged twisting of the back?

Yes  No

6 Are awkward postures (ones that are not forward facing and upright) held frequently or for prolonged periods?

Yes  No

**Task and Object**

7 Is manual handling performed frequently or for extended periods?

Yes  No

8 Are loads moved or carried over long distances?

Yes  No

9 Is the weight of the object:

More than 4.5kg and handled from a seated position?

More than 16 kg and handled in a standing position?

More than 55 kg?

	Yes	No
More than 4.5kg and handled from a seated position?	<input type="checkbox"/>	<input type="checkbox"/>
More than 16 kg and handled in a standing position?	<input type="checkbox"/>	<input type="checkbox"/>
More than 55 kg?	<input type="checkbox"/>	<input type="checkbox"/>

10 Are large pushing or pulling forces involved (where pushing, pulling or other force application is required).

Yes  No

11 Is the load difficult or awkward to handle? (For example, due to its size, shape, temperature, texture, instability, unpredictability or lack of handles).

Yes  No

12 Is it difficult or unsafe to get a good grip on the load?

Yes  No

**Work Environment**

13 Is the task performed in a confined space?

Yes  No

14 Is the lighting inadequate for safe manual handling?

Yes  No

15 Is the climate particularly cold or hot?

Yes  No

16 Are the floor working surfaces cluttered, uneven, slippery or otherwise unsafe?

Yes  No

**Individual Factors**

17 Is the employee new to the task or returning from an extended period away from work?

Yes  No

18 Are there age-related factors, disabilities or other special factors that may affect task performance?

Yes  No

19 Does the employee's clothing or personal protective equipment interfere with manual handling performance?

Yes  No

## Manual Handling Risk Assessment Worksheet

To be completed during consultation between employer and employee. The hazard identification checklist should be completed before performing this assessment.

Description of task

Description of work location

Person assessing task (employer)

Person assessing task (employee)

Other person(s) assessing task

Date

**1** Actions and movements

Is there a risk?

Yes  No

**2** Layout of the workplace

Is there a risk?

Yes  No

**3** Posture and position

Is there a risk?

Yes  No

**4** Duration and frequency of handling

Is there a risk?

Yes  No

**5** Location of load and distance handled

Is there a risk?

Yes  No

**6** Loads and forces exerted

Is there a risk?

Yes  No

**7** Nature of load

Is there a risk?

Yes  No

**8** Work organisation

Is there a risk?

Yes  No

**9** Work environment

Is there a risk?

Yes  No

**10** Skill and experience of employee

Is there a risk?

Yes  No

**11** Age of employee

Is there a risk?

Yes  No

**12** Clothing

Is there a risk?

Yes  No

**13** Special needs

Is there a risk?

Yes  No

**14** List the numbers of the sections where a risk exists

**15** Comments

## Manual Handling Risk Control Worksheet

This worksheet should refer to the hazard identification and risk assessment checklists for the task or job under study.

Description of task

Description of work location

Person(s) devising the risk control method

Date on which this plan was devised

**1** Date on which this plan should be evaluated

**2** Can the job or task be eliminated?

No  **Go to Question 3** Yes

What are the options to eliminate task or job?

**3** Can any of the risks associated with the task or job be eliminated?

No  **Go to Question 4** Yes

What are the options to eliminate these risks?

**4** Is the reduction of risk(s) by redesign possible?

No  **Go to Question 5** Yes

What are the options?

**5** Can mechanical aids be used to reduce the risks?

No  **Go to Question 6** Yes

**6** Can risks be reduced by particular forms of education and/or training?

What are the options?

Comments

## Risk Control Plan

**7** Short-term control methods

(Indicate date by which they will be implemented)

**8** Medium-term control plan

(Indicate date by which they will be implemented)

**9** Long-term control plan

(Indicate date by which they will be implemented)

**10** Have all the parties to this job or task been consulted?

Yes  **Go to Question 11**

No  Indicate date by which this will occur:

Comments

### Control is Achieved

**11** Have all the controls been implemented and evaluated?

Yes  No

Comments (Especially if a "no")

## Appendix 8: Manual Handling Aids

It is beyond the scope of this publication to list all the possible lifting aids available to help handle patients. These are described, together with detailed instructions on their use, in an authoritative text<sup>1</sup>.

These aids require careful selection according to the nature of the patients and their medical condition(s) and the environment where the handling will occur (e.g. door widths). Training for the correct use of handling aids is vital.

These considerations indicate that each large hospital should appoint a person to co-ordinate the use of lifting aids. The duties needing to be performed by such a person are:

- To co-ordinate the training of staff in the use of the aids.
- To oversee the maintenance of lifting aids.
- To maintain product information.
- To maintain an inventory of aids.
- To prepare specifications for new equipment purchases.
- To assess the needs for handling aids on each particular ward.
- To serve on key committees to ensure compatibility of handling aids, the working environment and other equipment.

The types of lifting/handling devices are as follows:

### SLIDING BOARDS

Sliding boards are a major help in transferring patients. They are normally used in pairs and with pads to assist the sliding action. Enough boards should be provided in each ward to encourage their use. It is not practical to carry them from room to room as staff move about, and staff will be unwilling (and unable in many cases due to time pressures) to use them if they have to fetch them.

### LIFTING BELTS

These can be used to help control the movement of a patient who can assist to some extent.

<sup>1</sup> Christine Tarling. *Hoists and their use*. The Disabled Living Foundation, William Heinemann Medical Books, London, 1980.

## **SATIN SHEETS**

A luxury item, but a possible aid when handling patients with particular conditions.

## **HOISTS**

Hoists come in a number of styles and are designed for a variety of uses. They need to be used correctly.

## **SHOWER TROLLEYS AND MOBILE COMMUNES**

Common handling aids, which need to be maintained properly to retain full effectiveness.

## **MONKEY BARS OR POLES**

These can be affixed over beds, toilets and baths to aid the handling of patients with sufficient upper body strength.

## **HANDRAILS**

May need to be provided on both sides (of the stairs or a bath) where a patient has a condition affecting one side of the body (e.g. CVA).

## **BEDS**

Beds should be adjustable for height to allow for their making and so that nurses avoid bending when tending a patient or carrying out lifts and transfers.

## **CUSHIONS**

Cushions may be used to prop patients, thus avoiding unnecessary muscle effort.

## **MOBILE CHAIRS**

Some manufacturers offer mobile chairs to which a patient can be transferred with minimum effort.

## **BATHROOM AIDS**

Many aids exist for bathrooms to assist the bathing of patients.

## **WOODBLOCKS**

An aid the patient/resident uses to move on the bed.

## **CIRCULAR DISCS**

A platform for the patient/resident to stand on. A circular turntable allows the feet to swivel, thus making a bed-to-chair transfer easier.

## Appendix 9: Suggestions for Training Courses

### 1 General

Students must have a foundation of knowledge about the structure and function of the body and the theory of biomechanics so that proper handling techniques are understood. They will need *time* and *opportunity to practice* so that they can develop the musculoskeletal skills needed to handle patients.

Training for students at education facilities should emphasise the themes stated earlier. These include the concepts that:

- Quality care requires a care giver in good health.
- Health facilities should be healthy facilities.
- Principles must be applied to oneself.

Students are increasingly taught that what they learn they should apply personally. This applies to the structure and function of the body, and the problems that can arise in the body due to manual handling. Training directed at teaching students how to handle people should reiterate these points. There is much relevant material to be absorbed before training in how to handle is given.

Transferring learning from the education to the health facility is not automatic. This is partly because the facility will almost certainly differ markedly from the place of learning, not only in physical layout and the nature of patients/residents, but also because the environment will be unfamiliar and possibly overwhelming.

Part of the education should be directed at the possible conflict between putting patients first and caring for the self.

### 2 Education facility: training course contents

Although the details of how a back care programme will operate will vary from one health facility to another, the principles are similar enough to be covered during education facility training. The training programme for students at an education facility should include:

#### PRINCIPLES OF A BACK CARE PROGRAMME

- The health and safety policy, legal requirements.
- Risk control: identification of hazards, risk assessment methods, risk control principles.

- Record keeping, education and training principles.
- Clothing, patient assessment.
- Injury management.

## GENERAL BACK CARE

- Body awareness, early warning signs of trouble.
- The structure and function of the spine.
- What can go wrong with the spine: how, when, where, why.
- Exercises to promote fitness and as therapy. Warm-up exercises. Stretching exercises to prepare muscles and tendons. Strengthening exercises. Exercises which are hazardous<sup>2</sup>.
- Back care strategies, self-care tactics.
- Relaxation techniques, personal fitness.
- Care of other parts of the body: knees, Achilles tendons, etc.

## BIOMECHANICS<sup>3</sup>

- Muscle balance, gravity.
- A firm base of support, balance throughout the lift.
- Safe floor surfaces, foot-to-floor friction.
- Force, the different types of leverage.
- Risk factors for back pain.
- How to lift: the principles.
- Minimising strain on the spine.
- Evaluation.

## TRAINING FOR PATIENT HANDLING AND OTHER TYPES OF HANDLING<sup>4</sup>

- Lifts and transfers of patients.
- Techniques for breaking spasticity, facilitating and controlling patient movement.
- Techniques of communicating with patients in preparation for lifts/transfers.
- Safe use of equipment, preventive maintenance of lifting equipment.
- Handling inanimate objects.
- Team lifting, especially when with others of different height.
- Bed making<sup>5</sup>.

<sup>2</sup> Donovan G., McNamara J., Gianoli P. *Exercise danger*. Wellness Australia, Perth, 1988.

<sup>3</sup> Kozier D., Erb Bufalino P. *Introduction to nursing*. Chapter 36. Addison Wesley, California, 1989.

<sup>4</sup> Caruth F. and Thompson F. *1-2-3- Lift: Transfer and lifting techniques for extended care*. 2nd edition. Transfer Manual: PO Box 35655, Postal Station E, Vancouver BC, Canada V6M 4G9.

<sup>5</sup> Milburn P. Lumbar stress in bed making. *Proceedings Third Conference NZ Ergonomics Society*, 1990.

## 3 Education and training at the health facility

Induction and ongoing education and training in hospitals and rest homes is an obvious need. Induction training should be provided to reinforce the skills learned while training at the education facility, to introduce local rules and to check on students' skills. In-service training is required to ensure that skills and knowledge are kept up-to-date. Special provisions will need to be made for casual staff.

Certification for continuing knowledge of the issues and handling ability should be considered. As an obvious corollary, certification for trainers should also be considered.

In the health or rest home facility, education and training need to be carefully considered as a part of the whole manual handling campaign. The nature of training needs to extend beyond traditional lines, and to include everyone in the workplace. A decision on the frequency of training will be required. These principles are outlined below for the following occupational groups.

Musculoskeletal skills may develop slowly, and care givers should not be expected to show perfect skills immediately they begin work. The work they are given will need to reflect this.

There are several distinct groups in the health facility who will require training at different levels:

**Facility and equipment managers:** Managers, accountants, designers of plant and equipment, maintenance staff, purchasers of equipment.

**People supervising others who handle:** Supervisors (charge nurses, etc.)

**People who handle:** Nurses, care givers (hospital aides, psychiatric assistants, nurse aides, domestic assistants, and orderlies), maintenance staff, casual and temporary staff.

## 4 Course contents

Suggested course contents for the three groups mentioned above are as follows.

### 4.1 PEOPLE IN CONTROL

Designers and purchasers of equipment should realise the potential of inappropriate equipment to cause back problems. Managers should know the basic principles of determining the costs of incidents.

A training course for all in this group should cover:

- General health and safety policies and procedures.
- An approach to the control of manual handling activities. Hazard register: hazard identification methods, safety inspections, observation of tasks. Risk assessment: team approach to assessment of manual handling tasks. Risk control: hierarchy of controls, work re-organisation, use of manual handling aids, equipment maintenance, housekeeping.
- Consultation procedures so that staff have an input into the selection of equipment.
- The design of trials to test equipment and facilities, where possible, for its suitability for human use and for its compatibility with the environment where it will be used.

- Costing: assessing the costs of an incident, benefit/cost analysis.

## 4.2 PEOPLE SUPERVISING OTHERS WHO HANDLE

This group will need to know all that the people they supervise are taught. In addition, they should know how the data reported and collected should be collated and analysed, and they should be involved in the setting of procedures and policies.

## 4.3 PEOPLE WHO HANDLE

Training for this group should cover:

- General health and safety policies and procedures.
- General back care, body awareness, structure and function of the spine, posture, exercises, back care strategies, relaxation techniques, personal fitness.
- Reporting procedures, hazard register, accident reports, incident reports.
- Approach to the control of manual handling activities. Hazard register: hazard identification methods, safety inspections, observation of tasks. Risk assessment: team approach to assessment of manual handling tasks. Risk control: hierarchy of controls, work re-organisation, use of manual handling aids, equipment maintenance, housekeeping.
- Patient assessment.
- Injury management policy.
- Training for patient handling, and other types of handling, lifts and transfers of patients, safe use of equipment, handling inanimate objects, team lifting.

## Appendix 10: Exercise Programmes

### **SPECIFIC TYPES OF EXERCISE PROGRAMMES**

Specialists should be consulted for details of exercise programmes. The health facility will need to decide, however, on several aspects of their implementation including: whether exercises are to be performed during the employer's time, how far the facility will support staff in providing a gymnasium and/or health assessments, and what role supervisors are to play in encouraging staff to do exercises during daily work.

### **STRENGTH PROGRAMMES**

Strengthening exercises, suitably graded for the person after an assessment by a qualified instructor, may be helpful in lessening the severity of back injuries experienced, as noted above.

### **AEROBIC PROGRAMMES**

Aerobic warm-up is recommended before stretching exercises. Brisk walking on the level (from a semi-distant carpark perhaps), or walking up and down several flights of stairs several times is recommended.

### **TENDON/LIGAMENT STRETCHING**

After aerobic warm-up, stretching exercises are recommended. A sample set of posters may be obtained from the ACC<sup>6</sup>.

### **MENTAL ASPECTS OF EXERCISE**

Exercises done in a spirit of positive optimism do far more good. When the mind is engaged in the performance, all parts of the body work in concert and the organism benefits as a whole.

It is not only the doing of exercises that counts, but how the mind is engaged in the activity. This principle will be familiar to students of Tai Chi and other eastern martial arts. Music students are urged to practice twice in the mind for every physical practice with the instrument. Another term for this is visualisation.

Probably, the most valuable exercise comes while doing the daily work. This is equivalent to saying that fitness for the task protects against back injury, a point that was made above.

<sup>6</sup> Accident Compensation Corporation. *Stretch after warm-up* posters. Wellington, 1991.

**Case Study:** Physical activity is a state of mind

Students enrolling at a university were divided into three groups: study groups A and B, and a control group. At the start of the term, all the students were tested for their ability to shoot basketballs through the hoop in the gymnasium.

Study group A spent 20 minutes each day of the term practising shooting basketballs in the gym. Study group B sat in the gym for 20 minutes each day and thought about shooting the basketballs. The control group did neither.

At the end of the term, each student was tested again. The control group showed no average improvement. Study groups A and B showed an improvement of 24% and 23% respectively.

## Appendix 11: Contacts for Assistance

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Field staff of the Occupational Safety and Health Service of the Department of Labour are able to offer seeding advice about all aspects of manual handling.

Others able to give advice are members of the New Zealand Ergonomics Society, the New Zealand Society of Physiotherapists and the New Zealand Association of Occupational Therapists. The addresses of these societies are listed here, and may be contacted to obtain the names of their members in your area with the needed skills.

### **ADDRESSES OF THE OCCUPATIONAL SAFETY AND HEALTH SERVICE**

#### **ADDRESS OF THE NEW ZEALAND ERGONOMICS SOCIETY**

The President  
New Zealand Ergonomics Society  
P O Box 802  
Palmerston North

#### **ADDRESS OF THE NEW ZEALAND SOCIETY OF PHYSIO-THERAPISTS**

The Executive Director  
New Zealand Society of Physiotherapists  
P O Box 27 386  
Wellington

#### **ADDRESS OF THE NEW ZEALAND ASSOCIATION OF OCCUPATIONAL THERAPISTS**

The President  
New Zealand Association of Occupational Therapists  
P O Box 68 291  
Auckland