GUIDELINES FOR MANUAL HANDLING IN THE PERIOPERATIVE ENVIRONMENT

GUIDING PRINCIPLES
USING A RISK
MANGEMENT APPROACH

Queensland Government
Queensland Health

THE AUSTRALIAN COUNCIL ON HEALTHCARE STANDARDS
ACHS

MESSAGE FROM THE DIRECTOR - GENERAL

The Guidelines for Manual Handling in the Perioperative Environment are based on the risk management principles of identifying, assessment, controlling and monitoring risks associated with the handling of people and materials to ensure a high standard of service delivery.

Developed in partnership between Queensland Health and The Australian College of Operating Room Nurses, the Guidelines is a major reference and policy document setting standards for worker safety in this unique health setting and complements the Think Smart Patient Handling Guidelines and Training manual.

A systematic approach to dealing with workplace hazards is vital if we are to reduce the human and emotional impact and the financial cost of injury.

It is intended for use by all organisations providing Perioperative services in the health community.

(Dr) R L Stable
Director-General
July 2003

FOREWORD

The authors have developed a system, clearly described and illustrated which addresses the interests and well being of those handling patients and equipment in the perioperative environment. In so doing they formalize handling techniques, which minimize risk to both patients and staff.
Such pro-active initiatives earn the acclaim and respect of all who place store on safety and quality in Healthcare.

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Introduction

These guidelines assist the perioperative team in manual handling in the perioperative environment and are to be used in conjunction with the Queensland Health Patient and Materials Handling Guidelines.

In all areas of manual handling the risk of injury to staff is high. The risk is proportional to the frequency and type of procedures undertaken. Staff at risk include, but may not be limited to nurses, anaesthetic technicians, theatre assistants, theatre orderlies, anaesthetists and surgeons.

> *Older and highly skilled theatre nurses were leaving the profession due to the physical demands of the job. Theatre orderlies, once injured were difficult to rehabilitate or redeploy. Nurses as they got older found they couldn't do these tasks and made special arrangements to avoid them. As a result the other nurses were exposed to greater risk more often.*
>
> *(Lusted M, Paper presented at the 37th Ergonomics Society of Australia, Annual Conference N.S.W. 2001)*

This document has identified risks associated with the most common tasks and lists control measures. The document is not definitive of all the specific risks that maybe identified in unique situations within the perioperative environment.

The guidelines were developed by an expert working group, comprising ACORN representatives, operating theatre nursing staff, operational staff, nurse educators, ergonomists/manual handling practitioners and Queensland Health representatives.

The information contained within this document is consistent with information located in the following publications:

- ACORN Standards, Guidelines and Policy Statements (May 2002),
- AS/NZS 4360:1999 Risk Management,
- Queensland Health Patient and Materials Handling Guidelines and
- Queensland Government Manual Tasks Advisory Standard 2000 and Manual Tasks Involving the Handling of People Advisory Standard 2001

These Guidelines are for manual handling of patients in the perioperative environment and should be used in conjunction with best practice for safety and positioning of patients on the operating table.

Risk Management of Manual Handling in the Perioperative Environment

There have been a number of potential hazards identified for staff working in the Perioperative Environment, including those related to the patient, the surgical procedure, the working environment and equipment available. The risk of injury to staff is proportional to the presence of these direct risk factors.

- Forceful Exertions
- Awkward or Static Working Postures
- Frequency and Duration

These direct risk factors will vary between healthcare facilities based on the variety of contributing and modifying risk factors. Where these direct risk factors exist, control measures for the following elements should be developed to minimise the risk of injury to both staff and patients.

Patient Risk Assessment or Assessment of Load	• Characteristics of the patient • The clinical constraints or contraindications • The size and shape of the load • Ease of handling of the load
Environment / Equipment and Assistive Devices	• Work area design • Space and distance travelled • Dimensions of furniture and equipment • Access and space • Equipment available to assist in moving, positioning and holding the patient • Personal protective equipment, that is required to be worn
Staffing	• Numbers of staff available or required/skill mix of staff • Staff Training Programs and Competency Assessments • Worker capabilities and characteristics • Clothing and footwear
Handling Procedure	• Plan and conduct procedures to minimise risks • Risk Management strategies in place to resolve specific problems
Work Organisation/Ongoing Maintenance	• Hours of work and rest breaks • Policies and procedures • Health & safety system -Hazard identification and risk control • Preventative equipment maintenance

When selecting control measures for identified risks, organisations shall take into account:

- clinical workloads,
- type of surgical procedures being performed,
- the type of equipment available and
- staffing levels

Control measures listed in this document are considered best practice. Other riskier options are not included in this document in line with Queensland Health policy. Situations may be encountered that are not covered in this document because of variation between healthcare facilities, (availability of staff, equipment and specific operating techniques).
If an alternative procedure is chosen to transfer the patient, the procedure **should not add further risk** to the patient or staff involved. The manoeuvre should be planned prior to moving or positioning the patient and/or equipment.

Suggested Control Measures

Patient Risk Assessment

All patients should have a risk assessment performed by designated staff. Each patient will be classified in one of the following categories:

Independent
Requiring assistance
Totally dependent

This is for the purpose of procedures within the perioperative environment.
Documentation of this risk assessment should be recorded in the patient's care plan and communicated to all members of the multidisciplinary team.
Communication of this information shall be part of the manual handling procedures within the perioperative environment.

The patient is considered **Independent** when they are:

- Able to comprehend and cooperate with instructions
- Able to manoeuvre their body on to the bed, this includes elbow prop and bottom lift
- There are no obvious limiting disabilities or clinical contraindications

The patient is considered as **Requiring Assistance** when they:

- Require minimal physical assistance from the healthcare personnel with any of the tasks listed above

Please Note:

- Perioperative patients may also be limited in their movement between trolley and/or operating table if they have intravenous lines, chest drains etc in situ
- Perioperative patients who have had premedication must be considered as requiring assistance or totally dependent

If the patient is assessed as **NO** for any one of the independent/requiring assistance criteria (see above), the patient is deemed **totally dependent** with transfers, therefore appropriate equipment and/or procedures (including the use of slide sheets) shall be used for the patient transfer.

This includes all emergency situations and patients who:

- Are unable to comprehend or cooperate with directions given by the healthcare personnel
- Have a disabling or critical condition, for example, CVA, acute spinal injury, or are heavily premedicated
- Are experiencing pain

In assessing patients for their mobility consideration should be given to factors including, but not limited to:

- Influence of premedication
- Surgical contraindications and/or potential complications
- The effect of the anaesthesia

- The surgical procedure

Assessment of Loads

Any manual handling of loads may result in the risk of injury to members of the multi-disciplinary team, for example:

- Forceful exertions,
- Awkward working postures,
- Repetitive movements and
- Prolonged duration of activity

All loads to be moved shall be assessed and any modifications to normal procedures made, for example:

- Size of the load,
- Shape of the load,
- Ease of carrying the load,
- Nature of the material in the load,
- Storage and
- Mode of transport

Environment, Equipment and Assistive Devices

Where it is recommended that assistive devices, for example slide sheets shall be used, all staff are expected to comply with the Queensland Health's overarching Patient and Materials Handling Policy.

Staffing

Training:

All staff should be trained in theory and practical applications relating to manual handling at orientation and then on an annual basis. Staff should also be assessed as competent in relevant manual handling skills on an annual basis.

Day Surgery:

In the Day Surgery environment staff should be aware of the range of tools available to assist ambulatory patients, these include walking aids, wheelchairs, patient walk belts and small patient slide boards. Staff should be trained in the use of these aids at orientation and on an ongoing basis.

Handling Procedure

Surgeons should be consulted as they may have specific positional requirements that require adaptation of the following procedures. These should not pose added risks to the staff involved in the transfer and should be planned prior to moving or positioning the patient.

Key principles for moving and handling loads should be taught to all staff as part of their manual handling training so that when lifting of loads cannot be eliminated staff can use the following principles:

- Identity if the load needs to be moved and the best way to accomplish this
- Plan the lifting procedure by preparing the environment and acquiring the necessary equipment
- Use a stable base with feet comfortably apart
- Use a secure grip on the load
- Position the load close to the body-to reduce the compression forces on the spine
- Lift in a smooth controlled fashion
- Tighten back and stomach muscles when lifting to help stabilise the lumbar spine and reduce the stress on ligaments. Leg muscles are well designed to do the job of moving loads

A weight transfer technique is one that generates force by using the body weight rather than isolated muscle power, such as using arm or back muscles. It can be used for pushing, pulling and moving objects while maintaining a stable posture.

A very simple way of applying this technique in a standing position is as follows:

- The feet are placed one in front of the other as though you are taking a step and the body positioned to face the direction of the movement
- Body weight is shifted from one leg to the other, using the leg muscles as the load is being moved

Common manual handling tasks for members of the multidisciplinary team within the perioperative environment have been included in the following four sections.

1. Transport of the Patient
2. Patient Positioning and/or Transfers
3. Moving of Equipment
4. Working Postures

It must be noted that when stating staff numbers required for manual handling tasks, these DO NOT include the anaesthetist, who has the duty of protecting the patient's airway at all times.

1 Transport of patients:

Potential hazards include: the force of pushing beds/trolleys, the design of beds/trolleys, equipment maintenance, the distances travelled, surfaces that are pushed over, the frequency of transporting patients and the characteristics of the patient.

Patient's Ability	Control Measures	Rationale
Independent/requires minimal assistance	**Walk patient to Operating Suite with assistance** **Number of staff required:** 1 person assist (see example 1A) **Equipment-**Walk-belt and/or walking aid as indicated	This maximises the patient's independence and will reduce the load for staff.
Requires moderate assistance	**Use of Wheelchair** **Number of staff required:** 1 person to push the wheelchair. An extra person will be required to assist with transferring the patient from chair to operating room table. (as shown in 1B) Equipment- Wheelchair, Walk-belt and/or walking aid as indicated. An appropriate foot stool or steps maybe required to enable the patient to step up to the operating room table.	 1A  1B
Totally dependent	**Patient transferred on bed or trolley to the Operating Suite** Use of mechanical "tug" to move the beds (1C) **Number of staff required:** 1 plus staff to assist patient in accordance with local policy **Option:** When a "tug" is not available: 2 persons are required to assist with movement of the bed in the manner indicated by the bed manufacturers and outlined in the facility procedure for bed moving. Some types of bed, eg. wide or with a pressure relieving mattress may require a separate procedure. The number of assistants required largely depends on the type of trolley provided, eg. rotational/fixed wheel and the patient's condition. Always refer to local hospital policy when moving beds and/or trolleys.	The use of a "tug" to move beds significantly decreases the risk of injury by reducing the force of pushing by the operator.  1C

Special considerations

Very large patients: For patients, who are of a weight or size not suitable for standard equipment it is necessary to alter staff and/or equipment required accordingly, eg. purpose built wheelchair or bed. Double slidesheets should be used for larger patients.

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.1 Transfer of the Patient to the Supine Position:

Patient's Ability	Control Measures	Rationale
Dependent	**Equipment:** **Large patient slideboard and slidesheet/s** **Staff Required:** **Minimum of three (3) people** **Procedure:** • Align the patient/trolley/bed so that when the patient is moved they will be in the correct position on the operating table/bed/trolley • Use one or two large slidesheets to transfer the patient across, this will depend on the size of the patient • Roll the patient onto their side and position the slide sheets and large patient slideboard halfway under the patient bridging the gap between the two surfaces (2.1A) • Bring the trolley/bed up to the operating table and put the brakes on. Ideally the trolley/bed will be positioned slightly higher so that the patient transfer is slightly downhill • One assistant will support the patient's head, usually by holding underneath the pillow • If the patient's condition requires it one assistant will support the feet, this will keep the patient's legs in line with the rest of the body and will prevent the feet from dragging. (2.1B) This assistant must ensure they don't twist their trunk and legs during the transfer. The safest method is to ensure a wide base with the feet and transfer the weight from one leg to the other during the slide (transfer of the patient) • The patient is transferred across by two assistants coordinating the move, eg. one, two, three; or ready, set move (2.1C & D)	The use of slide sheets for transfers significantly reduces the force and lessens the need for extended reach. Aligning the trolley with the OR bed reduces the need to reposition the patient. Appropriate staff numbers to assist will reduce the load.


2.1A


2.1C


2.1D


2.1B


2.1E

- To avoid unnecessary reaching when transferring across wider surfaces, staff might plan to complete this transfer in two stages, with staff repositioning them selves prior to completing the transfer
- When the patient is positioned on the trolley/bed, remove the large patient slideboard. After the patient has been correctly positioned remove the slidesheet/s by turning the slidesheet/s under itself and gently easing out (2.1E)

Please Note:
Lifting the patient from the bed/trolley to the operating table is not recommended. If no other options are available, which may occur with older style operating tables, such as orthopaedic hip tables, then consideration should be given to the purchase of specialised operating tables. Alternatively, existing operating tables may be modified using leg extensions or attachments.

Option:
An inflatable transfer mat (as shown in 2.1F, G & H) is indicated in high risk situations, eg. larger patient or multi-trauma patients.

If the patient is unconscious or has orthopaedic injuries that require stabilisation it will be necessary to increase the number of people required to assist with the transfer of the patient.


2.1G


2.1H


2.1F

Benefits of using a inflatable transfer mat include:
1.It is radiolucent, therefore can be left under the patient, minimising manual handling of difficult or critically ill patients.

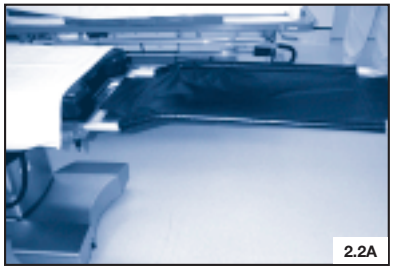
2. An inflatable transfer mat reduces the force required to move and/or position a patient by allowing air to escape through small holes (perforations) in the underside. This creates a layer of air and acts as a lubricant to reduce friction and therefore force required when transferring the patient.

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.2 Transfer of the Patient to the Lithotomy Position:

Patient's Ability	Control Measures	Rationale
Dependent	**Equipment:** **Two Slidesheets.** **Staff Required:** **Minimum of three (3) people** **Procedure:** • A lightweight table extension needs to be attached to the operating table (2.2.A) • Align the patient's hips with the table break before transferring onto the operating table using the technique described in 2.1. Transfer of the Patient into the Supine Position (see picture 2.2B) • The slidesheet is to be left under the patient until the patient is in the correct position • With the slidesheet/s used to transfer the patient onto the operating table, use the top slidesheet to pull the patient down the operating table (if necessary) using a 'weight transfer' technique • Tuck the slidesheet/s under the patient and remove by pulling the bottom opposite corner out at an angle • Two (2) people should simultaneously lift both legs and carefully place them into the stirrups (2.2C & D) • Remove or drop the table extension (2.2E)	Adding 2 slidesheets to the patient slideboard reduces the force required to transfer the patient and lessens the need of an extended reach. Correct patient positioning at the start of the procedure eliminates the need to use a draw sheet to move the patient down the bed. Lifting both legs at the same time reduces the strain on the patient's back and lower limbs. Coordinating the movement means that the manual handling task is well controlled.


2.2A


2.2B


2.2C


2.2D


2.2E

	• At the completion of the surgery, carefully remove both legs from the stirrups together • Place one slidesheet on the receiving trolley/bed and one on top of the large patient slideboard • Roll the patient to place the large patient slideboard and slidesheet under the patient simultaneously • Grasping the slide sheet, slide the patient onto the receiving bed/trolley • Remove the slidesheet/s as required • The table end is removed using the appropriate techniques and/or equipment Option: The use of the following equipment is recommended: • gas lifted table ends, • lightweight table ends, • hydraulic stirrups • trolleys designed to help transport the table extension or end of the operating table and transfer it away from the area	This equipment is designed to reduce the effort required by staff to operate it.

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.3 Transfer of the Patient to the Prone Position:

Patient's Ability	Control Measures	Rationale
Dependent	**Equipment;** **Two Slidesheets; Extra pillows x 4, or appropriate equipment eg. Harbour Bridge, or Four Poster Device**	
 2.3A	**Staff Required:** **Minimum of four (4) people**	 2.3D
 2.3B	**Procedure:** • Place the pillows and other equipment on the operating table (2.3A) • Place a slidesheet on top of the pillows/other equipment • With the anaesthetised patient positioned close to the edge of the trolley/bed, place the patient's hand under their buttock • Position the trolley/bed higher than the top of the pillows/other equipment and with the patient's body aligned with the equipment on the operating table (2.3B), then apply the trolley/bed brakes • Bend the patient's knee and roll the patient onto the pillows/other equipment and slidesheet by assisting at the patient's shoulder and hip (2.3C, D & E) • An extra person (other than one of the minimum 4) supports the patient's head and depending on the patient's condition, an extra person may need to support the patient's feet • Using the slidesheet reposition the patient and the pillows/other equipment • Once in the prone position, rotate the patient's arms forward and secure on arm rests • Remove the slidesheet by folding the upper edge under the patient and pulling the slidesheet down towards the patient's toes (2.3F)	 2.3E
 2.3C	 FOUR POSTER DEVICE	 2.3F

	At the end of the surgery: • Place the patient's arms back at their side • Place the slidesheet on to the patient's bed/trolley(2.3G) • Position the bed/trolley slightly lower than the operating table, **then** apply the brakes of the bed/trolley • Roll the patient onto the slidesheet (2.3 H & I) • Use the slidesheet to reposition the patient on the bed/trolley • Remove the slidesheet by folding the upper edge underneath the patient and easing it down towards the patient's toes  2.3G  2.3H  2.3I	Teamwork ensures safe positioning of the patient for operative procedures by maintaining the patient's body alignment, which prevents strain on nerves, joint, tendons and the development of pressure areas.

2. Patient Transfers for Positioning:

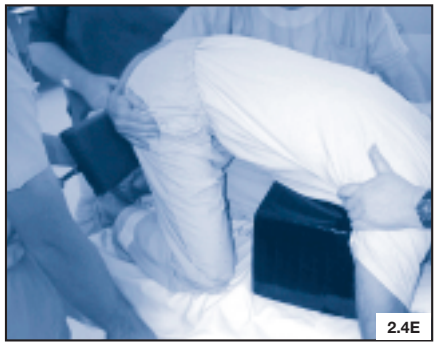
Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.4 Transfer of the Patient to the Knee Chest Position:

Patient's Ability	Control Measures	Rationale
Dependent  2.4A  2.4B  2.4C	**Equipment:** **Square Bolster, Table attachments eg. Harmon Seat** **No slidesheet is required** **Staff Required:** **Minimum of four (4) people** **Procedure:** • Position a bolster on the operating table (2.4A) • Remove the bottom end of the operating table • Place the appropriate attachment to the operating table • When the patient has been anaesthetised they are rolled onto their side close to the side of the trolley and then curled into the foetal position • Position the trolley/bed slightly higher than the operating table and put the brakes of the bed/trolley on • The patient is transferred across after careful planning and calling of the move eg. one, two, three; or ready, set move • Staff standing at the patient's back initiate the rolling of the patient through their shoulders and hips while staff in front of the patient facilitate the roll by guiding the patient's shoulder, hips and knees to align with the bolster on the operating table (2.4B) • With the assistants on one side supporting the patient (2.4C), the bed/trolley is removed, the patient support put into position and locked • Check the patient's knees and chest for pressure • Place the side plates into position, ensure the patient is secure on the operating table and then the operating table is tilted into the reverse Trendelenberg position (2.4D)	Teamwork ensures safe positioning of the patient for operative procedures by maintaining the patient's body alignment, which prevents strain on nerves, joint, tendons and the development of pressure areas.  2.4D

At the end of the Case:

- Bring the bed/trolley into position at a lower height than the operating table
- release the operating table attachments once all equipment and personnel are positioned to ensure the safety and security of the patient (2.4E)
- Roll the patient onto the bed/trolley. (2.4F)
- Keep the patient on their side and slowly straighten the patient's legs.


2.4E


2.4F

Please Note:

The feet will hang over the edge of the operating table.

An anti-pressure mattress should be used if the surgical procedure is going to take longer than two (2) hours.

Prior to prepping and draping the patient staff should always:

- Consult with the Anaesthetist and Surgeon and,
- Check the patient for any abdominal or chest pressure

Andrews' Table:

This is a mechanical operating room table that can be used for this position.

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.5 Transfer of the Patient to the Lateral Position:

Patient's Ability

Dependent


2.5A


2.5B

Control Measures

Transfer Patient to the operating table (as outlined in 2.1 Transfer of the Patient to the supine position) and position with slidesheets

Equipment Required:
Arm support, Armboard, Extra pillows, Body Supports as necessary

Staff Required:
Minimum of three (3) people

Procedure:

- Leave the slidesheet under the patient after being transferred to the operating table

After the patient has been anaesthetised:

- Bend the patient's knee, which knee will depend on to which side the patient is being turned (2.5A)
- The Anaesthetist supports the patient's head at all times
- Using the slidesheet, gently slide the patient towards the edge of the operating table and roll them onto their side in one movement (2.5B)
- Using the slidesheet adjust the patient's shoulder/hip, positioning the patient towards the edge of the operating table
- Ensure that the patient's position is stable prior to prepping and draping (2.5C)
- Remove the slidesheet by folding the upper edge under the patient and ease out gently (2.5D)

Rationale


2.5C


2.5D

	Using the Lateral Position for Epidural Catheter Insertion: • Prior to procedure, all staff involved in patient positioning should ensure that their position is optimum for them in terms of; • height of working position, • reach and • orientation to the patient to reduce twisting • Position patient on their side using slidesheets as for lateral position. Slide sheets can also be used to assist with bending of the trunk and legs into a curled (C) position One of the hazards for this position is the length of time staff are required to be in the same position. Using a step to place one foot on is one way of varying joint positions and using different muscles. Positioning legs apart, either forward and back or to the side allows weight to be shifted between legs again to vary posture and joint position.	

Special considerations

Acutely ill patients- May be operated on their bed to avoid transferring them.

In an emergency situation when a patient needs to be placed quickly into the recovery position.

One staff member technique

- The staff member places their arm closest to the head of the bed or trolley palm up underneath the patient's waist
- The other arm goes under the patient's thigh closest to the staff member and over the far thigh
- Using body weight and their forearms as a lever, the staff member moves forward and rolls the client

One - two staff member technique using Draw sheet

- The draw sheet closest to staff is rolled up so that it can be gripped
- Using body weight and a weight transfer technique the staff slide the draw sheet back toward them and then roll the patient over.

With larger patients staff should both be assisting from the same side of the bed with the opposite bed rail in place.

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.6 Transfer of the Patient to a Sitting Position:

Patient's Ability	Control Measures	Rationale
Dependent  2.6A	**Positioning patient in a Sitting Position** • 2 to 3 staff members to assist the patient to sit forward using a coordinated transfer • Prior to procedure, all staff involved in patient positioning should ensure that their position is optimum in terms of: height of working position, reach and orientation to the patient • In cases where staff have to position patients for long periods of time consider rotation of staff • A chair could be used by the patient to rest their feet, so that they can lean on a pillow and bend forward (2.6A) **Number of staff required:** minimum 2 **Equipment required:** Neurosurgery may require specific head rest and tongs in accordance with local policy	If the working height is too low the neck and back are bent and if the working height is too high, the shoulders and arms need to be raised, increasing the strain on these areas. Twisting , reaching and bending all increase the muscular effort needed to handle loads. Static postures can affect the back, neck and shoulders in particular

2. Patient Transfers for Positioning:

Potential hazards include: Patient characteristics, techniques used, type of equipment used, staff numbers and skill level.

2.7 Positioning and holding of limbs:

Patient's Ability	Control Measures	Rationale
Dependent  2.7A	**Change work practices which may include:** • Coordination of prepping with all staff ready to commence at the same time • Communication between staff re the size of the limb to allow rotation of staff or extra staff if practical • Staff to ensure that they are positioned well in terms of height of work, reach and orientation to the patient to avoid twisting prior to commencement of prepping (see example 2.7A) • changing positions, • brace arms, • rotate staff • Use suitable equipment to hold limbs if available. **Number of staff required:** minimum 2	Planning the task and using principles of safer manual handling reduces the strain on staff. Coordination of the task so that staff lift loads together can reduce the load on individual staff. Planning the task before commencing, can reduce the time spent holding limbs

3. Movement of theatre equipment **(eg: large instrument packs, equipment /trolleys/monitors/Image intensifier). Potential hazards include: type of equipment, characteristics of load (size, shape, weight), storage of equipment, number of cases, type of cases, maintenance of equipment, distance equipment moved, skill of staff, design of environment, space, access.**

Control measures

- Consider the use of tugs to assist with movement of tray trolley/s
- Rotation of tasks
- Instrument packs to be packed in smaller weighted sizes
- Smaller packs moved on trolleys,
- Less frequently used instruments in separate packs
- Ensure trolleys have appropriate wheels for the weight being carried and that they are designed for their role in terms of ease of pushing, height and access to trays
- Preventative maintenance of all equipment

Number of staff required is dependent on the size and weight of the trolley and/or equipment

- Add extra personnel to assist with movement of equipment where trolleys or “tugs” are not practical

Equipment storage-

- Store heavy or high turnover stock at waist level
- Limit the height of shelves to shoulder height
- Limit the depth of shelves to avoid overreaching
- Use height adjustable trolleys for unloading and loading items

Lifting transferring waste/linen-

- Use of suitable trolleys (ensure they are well maintained)
- Teaching staff the principles of moving loads safely
- Store loads moved frequently between shoulder and knee height and keep access to storage free of clutter
- Use equipment available eg tugs or linen bags with handles to help with moving loads
- Linen skips should have supportive bases and bags should not be filled beyond the line

Rationale

Storage areas should be planned, to eliminate unnecessary lifting, avoid double handling of items The best level of muscular effort can be exerted at about knuckle height (approx 70-80cm). Where possible loads should be stored at his level

Reliance should not be placed on staff training as the primary way of reducing risks in the workplace. Designing a safer workplace should always be the first consideration.

4. Working postures

Potential hazards include; holding of instruments, prolonged postures, awkward and confined postures, twisting, standing/sitting wearing heavy equipment

Control measures	Rationale
Sitting or standing for long periods of time • Changing work practices/pause exercises • Identify long duration surgery • Encourage movement of pelvis, shoulder & lumbar spine- see appendix for suggested exercises • Staff should be aware of and avoid leaning on the patient • Identify types of chairs, perch stools	Changing work practices and encouraging pause & reverse exercises will assist in reducing the effects.
Twisting & turning for access to instruments etc. • Changing work practices/pause exercises • Awareness/reverse exercises/training • Ensure that the tray/ trolley is positioned to minimise twisting movement for staff using the trolley • Avoid sudden jerky movements	 A staff member is using this table to rest their foot and change their trunk position.
Holding instruments • Change of work practices. This should include recommendations as to how many retractors are available for certain common procedures, types of retractors, time allowed to be holding a retractor should also be specific • Purchase of ergonomically designed equipment should be considered	Ergonomic equipment when used correctly is designed to limit awkward postures and reduce injury.
Wearing PPE eg. lead aprons for lengthy periods of time • Rotate staff (change work practices), Increase awareness of rotation of staff /workload particularly during long cases • Purchase appropriate equipment in sufficient numbers • Reinforce staff awareness of good posture • Options and range of equipment eg 2 piece protective lead aprons, lighter weight aprons or quick release lead gowns. A variety of different styles are required to accommodate all staff • Consider the use of specific purpose built mobile screen for staff to stand behind	 Staff modify their posture to attach equipment postioned at the low height.

Appendix

Appendix-1

EXERCISES FOR PERIOPERATIVE STAFF

Fatigue, or tiredness, is a risk factor for injury. Fatigue can be general to the whole body, or local to one specific body part. Local fatigue occurs in overworked muscles and can be felt as tiredness, aching, tightness or cramping. Tired muscles put the joints and muscles at risk of injury.

One of the ways we can minimise local fatigue is by taking frequent short breaks from an activity and by doing simple exercises during those breaks to aid recovery.

These exercises aim to:
- use unused muscles
- relax and stretch overused muscles
- reverse a sustained posture
- relieve pressured areas by working those muscles or by massaging
- increase general circulation
- increase alertness

The exercises should be specific to your work and could be done:
- in your warm up for work
- during frequent short breaks in your work and
- in a cool down after work

Exercises can be performed when there is a break in the procedure, on the way to meal breaks and when you break for task rotations.

If you have concerns about a previous injury, get advice from a doctor or physiotherapist before doing the exercises.

How to Do the Exercises

It is important to do the exercises in a slow, gentle, controlled way. Remember that rushed or jerky movements increase the risk of injury.

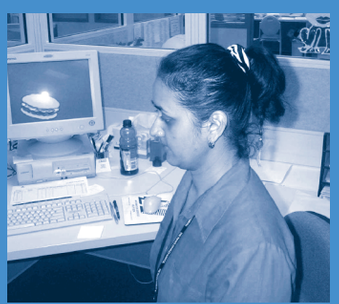
When to Stop

The exercises must be stopped immediately if you experience any pain, pins and needles or numbness. Seek advice from your doctor, physiotherapist or other treating practitioner. You can expect to feel some mild discomfort on the stretches.

A staff member who has been assessed as a competent trainer should teach exercises to staff as part of their manual handling training.

Staff should also be assessed for their competency in performing the exercises. The target areas for perioperative staff include, the neck, shoulder wrists, lower back and legs.

EXERCISES-

1. Marching 	**Teach:** March on the spot with arms swinging. March for 10-20 seconds. **Benefit:** This exercise increases the general circulation and increases your general alertness. **Variation-**Alternate heels lifting up off the floor-toes stay on the floor-ie jogging without the lifting of your legs. Continue for 10-20seconds.	**Look for:** Marching on the spot with arms swinging. **Possible mistakes:** exaggerated or jerky movements.
2. Chin Tucks 	**Teach:** Pull your chin in, keeping your neck and back straight. Don't tip your head forward. Keep your shoulder blades down. Hold for 3 seconds. Feel the stretch in your neck. Repeat 3 times. **Benefit:** This exercise reverses a sustained posture and stretches overused muscles.	**Look for:** Pulling the chin in to make a double chin. Keeping the back and neck straight. Keeping the shoulder blades down. Holding the stretch for 3 seconds. **Possible mistakes:**Tipping the head forward. Lifting the shoulder blades up. Arching backwards. Not holding the stretch for 3 seconds.
3. Neck Stretches  	**Teach:** 1.Slowly lift chin up, eyes look toward the ceiling and then take your chin down toward your chest. Hold for 3 seconds. Repeat 3 times on each side. 2. Slow and gentle movements to each side Hold for 3 seconds. Repeat 3 times on each side. **Benefit:** This exercise stretches overused muscles.	**Look for:** Relaxed shoulders. **Possible mistakes:** Sudden jerky movements. Not holding the stretch for 3 seconds.

4. Pelvic tilt 	**Teach:** Keeping legs and pelvis still, flatten out the small of your back. (Practice this against a wall till you have the correct feeling). Repeat 3-5 times. **Benefit:** This exercise reverses a sustained posture. **Variation**-Alternate placing your foot onto a small stable step or stool to assist with postural change.	**Look for:** The lumbar curve flattening. **Possible mistakes:** Hips moving forward and knees bending. Exaggerated or jerky movements.
	**Teach:** Roll your shoulders backwards (either together or one at a time) and then forwards in a circle. 3 times each way. **Benefit:** This exercise reverses a sustained posture and can help stretch overused muscles. Variation-Shrug both shoulders up towards your ears and then lower to a relaxed position-Repeat 3-5 times.	**Look for:** slow and controlled movements. **Possible mistakes:** Exaggerated or jerky movements.
6. Shoulder blade squeeze  	**Teach:** With arms held bent in front of you, squeeze your shoulder blades together as you gently push your elbows backward. **Benefit:** This exercise reverses a sustained posture.	**Look for:** elbows held away from the body and slowly pushed backward. Hands stay in front of body. **Possible mistakes:** Shoulders are shrugged, preventing backward movement of shoulder blades.

7. Wrist Stretch 	**Teach:** Hold your arm out in front and make a fist. Tip the fist forward and hold it there with your other hand. Feel the stretch down the back of your forearm. Hold for 3 seconds. Repeat 3 times on each hand. **Benefit:** This exercise can help stretch overused muscles.	**Look for:** Making a fist with one hand. Tipping the fist forward and holding it there with the other hand. **Possible mistakes:** Exaggerated or jerky movements. Not tipping the fist forward. Bending the elbows. Not holding the stretch for 3 seconds.
8. Elbow wrist & finger stretch 	**Teach:** Hold your arm forward with elbows straight and palm facing down. Hold it in position with your other hand. Feel the stretch down the inside of your forearm and in your fingers. Hold for 3 seconds. Repeat 3 times on each hand. **Benefit:** This exercise stretches overused muscles. **Variation**-Alternate finger clenching and stretching to aid circulation in upper limbs and to stretch muscles.	**Look for:** Holding the stretch for 3 seconds. **Possible mistakes:** Exaggerated or jerky movements. Not holding the stretch for 3 seconds. 
9. Backward arch 	**Teach-** With slightly bent knees. **Sterile technique-**Gently lean backward to feel a stretch. This is only a small movement, because you cannot support your back with your hands. Come upright slowly. **Non-sterile technique** Support your back with your hands and slowly lean back until you feel pressure in the lower back. Come upright slowly. Repeat 3 times. **Benefits:**This reverses a common forward or flexed posture as seen below.	**Look for:** Hands supporting the lower back. Leaning back slowly. Keeping the chin tucked in. Coming upright again slowly. **Possible mistakes:** Hips moving forwards and knees bending, head dropping backwards, exaggerated or jerky movements.  **Non Sterile Technique**

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