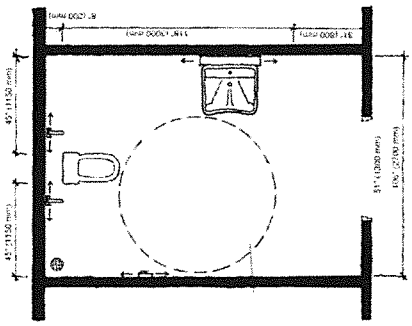
Housing for Bariatric Users

Viva Access Ltd



Trainer: Anita Rush

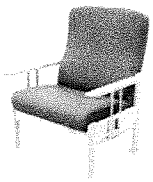
MSc (Health Ergonomics) Dip Health Care Studies RGN

Clinical Nurse Specialist - Equipment.

Aim and Learning Outcomes

Aim

- To provide delegates with the opportunity to problem solve issues relating to the manual handling of Plus size persons within community settings



Learning outcomes

By the end of the workshop, delegates will be able to:

- Identify the health, social and economic impact of obesity
- Identify the differing body types of bariatric clients & the impact on normal patterns of movement and subsequent moving and handling tasks
- Understand the range of issues associated with bariatric users and their home environments and be able to discuss potential solutions to these problems
- Be familiar with the range of equipment available to users within the home and be able to specify appropriately

Global Definition

- The term bariatric comes from baros (Greek) meaning large or heavy (American Society of Bariatric Physicians, 2003) but the application of this term is used to include a wider population than the definition of obesity
- Individuals with a Body Mass Index (BMI) of greater than 30 are classified as obese, and greater than 40 as morbidly obese.

40 stone + → bespoke
25–40 stone → "mediatric", plus size people

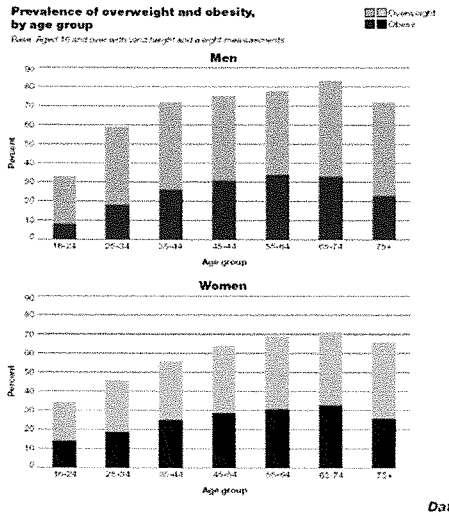
The term '**Bariatric** is used to describe the field of medicine that focuses on the treatment of obesity and its associated diseases. Plus Size

A **'Plus Size'** person can be defined as anyone who has limitations
in health and social care due to:
Weight
Size
Shape
Health
Mobility
Environmental access
Exceeds the safe working load and dimensions of a support surface, for example a mattress, bed frame, commode etc.

Prevalence

- Levels of obesity have nearly trebled in the UK in the last quarter 21% men 24% women
- Obesity increasing throughout the developed world over a quarter of the population have a BMI $\geq$ 30
- Childhood obesity appears to be increasing
- High prevalence among certain ethnic groups

"big is beautiful"



Obesity Prevalence Chart 2010

Data supplied by

The central, authoritative source of health and social care information

Obesity is a Global Epidemic

- The health, economic and psycho-social consequences of obesity have reached epidemic proportions due to
  - societal changes
  - a worldwide shift in eating patterns and nutrition
- Globally there are more than 1 billion overweight adults
  - with at least 300 million adults of those classed as clinically obese (WHO 1998)
  - an estimated 17.5 million under-five's are classified as overweight (WHO, 1998)

Impact of obesity

- The government has identified obesity as a priority area and has set the target of halting the rise in childhood obesity by 201 0 in the context of a broader strategy to tackle obesity in the population as a whole.
- Obesity decreases life expectancy by up to nine years and substantially increases the risk of many diseases, including heart disease, cancer and diabetes. Type II diabetes is almost 13 times more common in obese women than women of normal weight and 7 time more likely to develop in obese men 30,000 deaths a year of 6% are obesity related
- It has been estimated that if childhood obesity continues to rise at the current rate, children could soon expect to die younger than their parents.

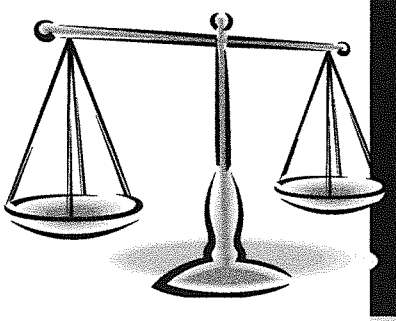
Plus size energy balance

? Disease

Complex and multi factorial

Excess body fat

20% more than ideal weight



WHO Report – Obesity: preventing and managing the global epidemic (WHO TRS 894)

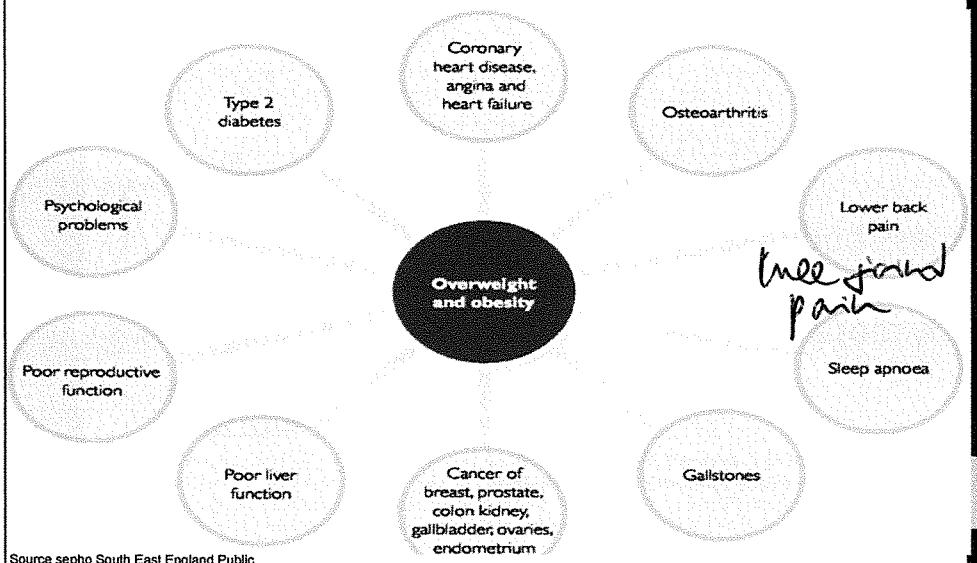
Aetiology

Obesity is a disease in which excess body fat has accumulated in the adipose tissue to such an extent that health may be adversely affected – 20% more than ideal weight

Metabolic	Reduced physical activity
Genetic	Risk adverse
Behavioural	Medication
Therapeutic	Illness "Prader Willi syndrom
Foetal factors	Binge eating disorders
Physiological factors	Environmental & social Factors
Food	

WHO Report – Obesity: preventing and managing the global epidemic (WHO TRS 894

Health risks associated with overweight and obesity



Source sepho South East England Public Health Observatory Nov 2005

THE IMPORTANCE OF WEIGHING

What impact does it have?

FACT: Research demonstrates a 20% variation (estimated versus actual weight)

Weight & ...	Recommendations	Consequences (based on 120kg patient estimated at 100kg)
Inotropes	mgs / kg / minute (BNF)	Incorrect therapeutic dosage
Ventilation	↓ mortality seen with a tidal volume of 6mls / kg	Patient actually receives 7.2mls / kg
Nutrition	35kcal/kg and 1.8g/kg of protein (NICE)	Patient actually receives 29kcal / kg – malnourishment
Haemodynamics	Cardiac output, stroke volume and systemic vascular resistance calculated from weight	Adverse clinical incident
Urine output	Output >0.5mls/kg/hr	Oliguria
Fluid balance	Use body weight to determine fluid balance	Dehydration or fluid overload
Equipment	Safe working load?	↑ clinical risk , equipment failure and musculo skeletal injury

Human Consequences

- Reduced mobility and functioning
- Discrimination
- Increased morbidity and mortality
- Reduced body image

NHS costs

£10 billion

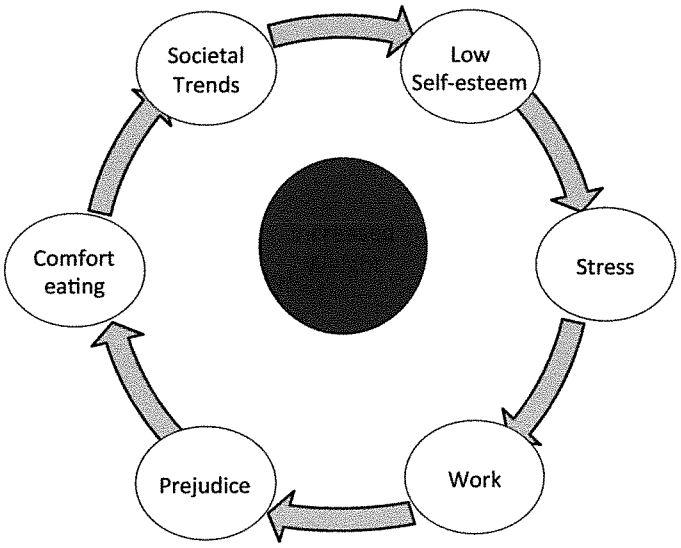
2050

Wider economic cost

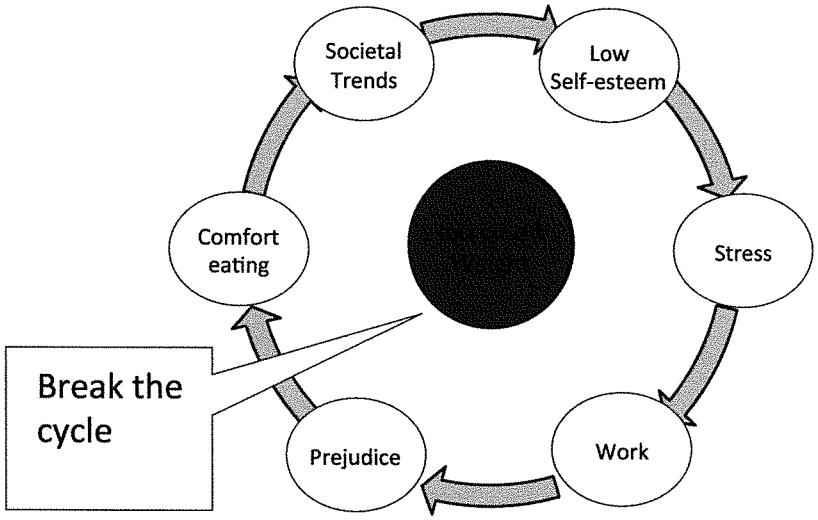
£49.9 billion

2050

Partners in Obesity



Partners In Obesity



Organisations Role

- Obesity targets are included within the National Service Framework to prevent coronary heart disease and diabetes
- Increased levels of obesity impact on other areas of healthcare provision
- National Audit Office survey of GP practices confirmed that there are many advantages to a whole practice approach
- Clarify roles and responsibilities of the primary care team
- Achieve a coordinated and cohesive approach

Organisations Philosophy of Care

- Treat patients as individuals
- With dignity
- With tact, gentleness, and concern
- Weighing should be undertaken in a private setting
- Safely
- Encouragement

Bariatric weight distribution

Body Types:

- Anasarca

end stage of life, lots of fluids in body

- Apple

- Apple Ascites Distribution tissue predominantly around abdomen *
- Apple Pannus Distribution weight hanging down, SI. down to the floor, tissue damage *

(Liko 2004)

* lying flat → weight pressing on organs, positioning 45° angle
knee break in bed sqashing & affecting breathing

* how to get pannus off the floor, company providing rollers to place in on

Body Types

- Pear

Pear **Ab**ducted Distribution
tissue on inside of legs *

Pear **Ad**ducted Distribution
tissue on inside of legs **

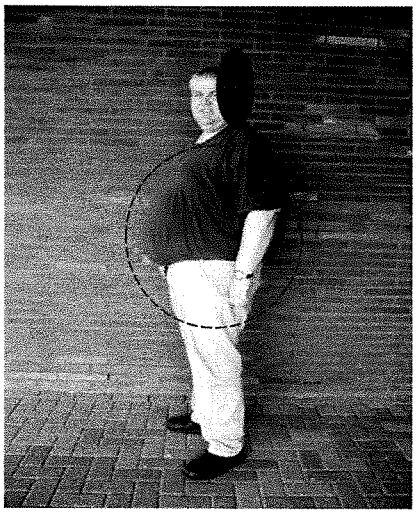
- Bulbous Gluteal Region
- Proportionate

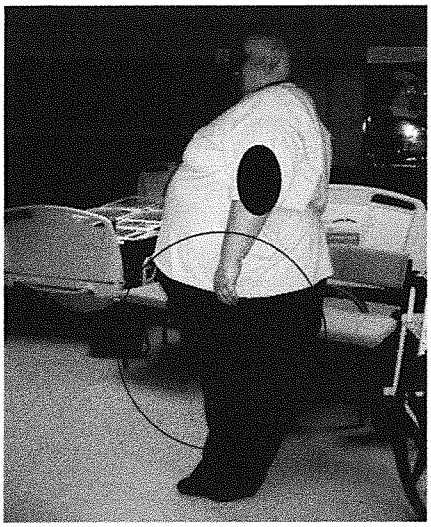
accommodate "shelf" in bed + chair

(Liko 2004)

* WC facilities; Clos-o-Mats (new model + riser function)
- slings that accommodate thighs

** assist circulation in sitting

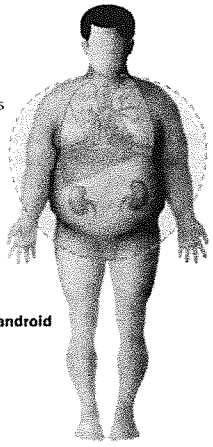




Typical fat distribution common in men and Women

Organs affected

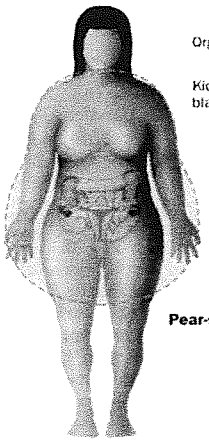
Heart, liver, kidneys and lungs



Apple-shaped or android

Organs affected

Kidneys, uterus, bladder and intestines



Pear-shaped or gynoid

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"Somatypes" - way of describing body type

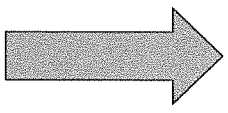
Bariatric Management

- Makes every day task more hazardous:
  - Turning a patient in bed,
  - Lateral transfers,
  - Transferring from bed to chair,
  - Lifting a limb
  - Bathing.
  - Transportation
  - Rehabilitation

Increases the risk of musculoskeletal injuries to both care giver and patient

Your Bariatric Person Mobility is "Substantially Limited"

- Walking
- Breathing
- Sitting
- Standing
- Toileting
- Showering



"Major Life Activities"

Organisational Concerns

Morbidly obese in the workplace

- Care environments
- Occupational Health
- Human Rights
  - article 2 right to life
  - Article 3 not subjected to inhuman or degrading treatment
  - Dignity
- Disability Act
- Prejudice

Organisational Considerations

- Risk Register
- Resource Management
  - Financial
  - Human
- Implementation of
  - Policies/procedures
  - Multi-service strategy
  - Training
  - Equipment Provision

pathways for obese clients, are there meetings with emergency services to establish evacuation plans etc

example: Berkshire fire services charge £300 call out charge for e.g. picking

Risk Management

- Fundamental Principles of controlling health and Safety
- Multi-factorial
- Risk reduction process

Legislation

- Common Law
  'Duty of care'
- Lifting Operations & Lifting Equipment Regulations 1998
- Provision and Use of Work Equipment Regulations 1998

Ergonomic Risk Assessment

- T = TASK
- I = INDIVUAL
- L = LOAD
- E = ENVIRONMENT
- E = EQUIPMENT
- P = PSYCHOSOCIAL

Risk Control Measures

- Collaborative working with all service providers (incl. undertakers, GP, police)
- Patient Focus
- Process for Equipment Provision
- Develop Bariatric Group
- Equipment Resource
- Education
- Audit

Individual Assessment

Practitioners should be educated to

- Recognise
- Predict
- Prevent
- Communicate

To manage the associated risk factors associated to bariatric care

Bariatric Patients Risk Hazards:

- Skin breakdown and other skin related problems
- Pressure ulcers
- Rashes
- Dermatitis
- Incontinence
- Poor wound healing
- Manual handling injuries
- Environmental constraints
- Patients low self esteem

All of which are commonly caused by using:

- Inappropriate equipment
- Unsafe handling techniques
- Inappropriate assessments

Staff Exposure Hazards

- Musculoskeletal Disorders
- Insufficient knowledge
- Insufficient Training
- Insufficient human resources
- Work design
- Equipment design
- Time constraints
- Duty of Care
- Relatives
- Environmental constraints

Equipment Concerns

Patient Specific Constraints

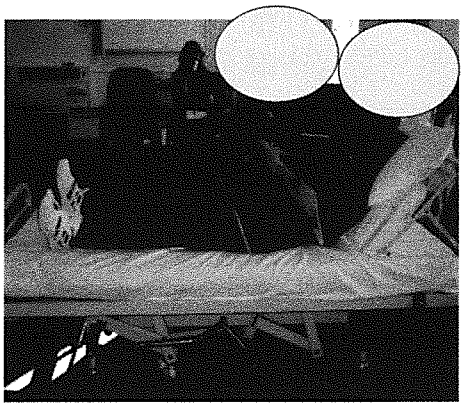
- Linens
- Patient gown
- Abdominal binders
- BP Cuffs
- Pharmaceutical
- Dressings
- Ventilation
- Continence
- Catheters for Venous access

WC apertures: men prefer oval, women round
WCs available w. splash guards
increased aperture size as skeletal
structure same as normal sized person

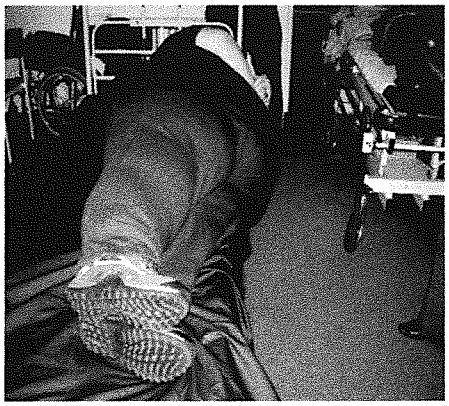
weight gain — reach & stretch ↓ i.e. sit-stand from commode
– this would affect positioning of rails around commode or WC

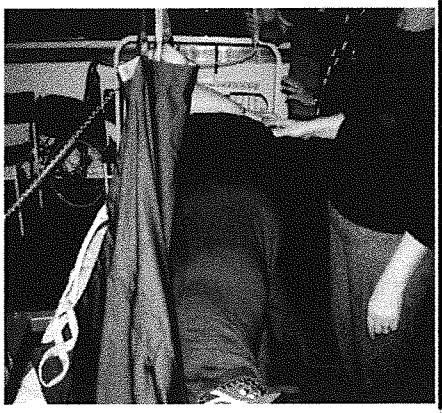
consider flexible piping / 600 mm side wall → centre of pan

Bed Design



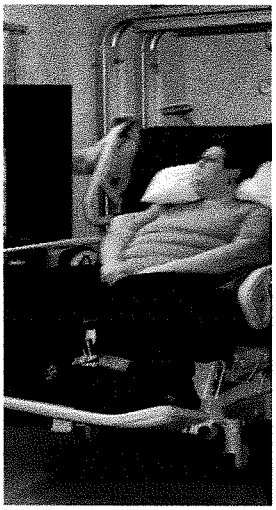
Compatible with size of bed?



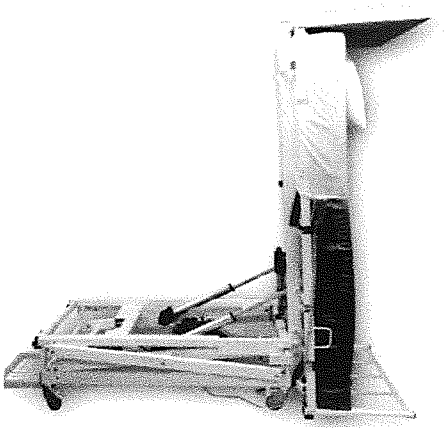


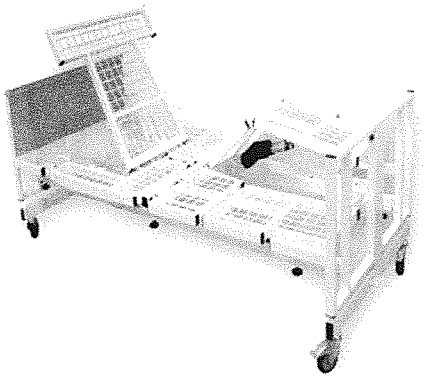
Width adjustable beds

Front egress and chair beds

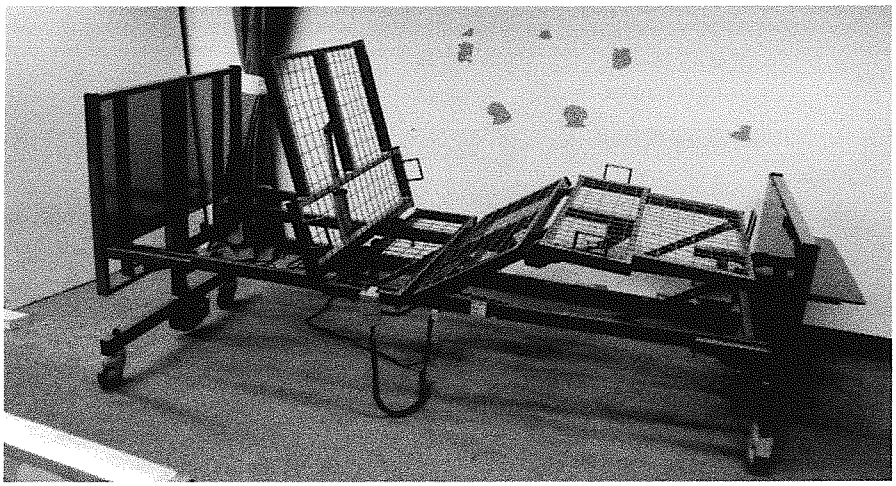


Community beds





Extra Widths

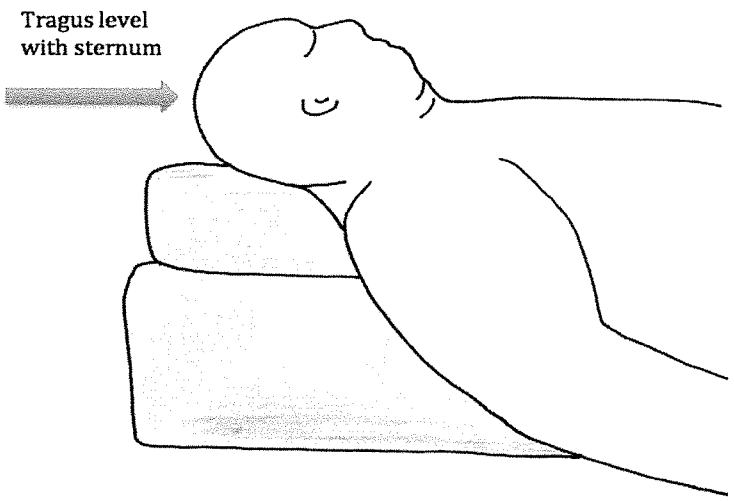


Neck positioning

- Posterior scapula adipose deposits around the neck
- Ramping improves the laryngeal view, arrange either a medium pillow, flat pad and/or neck roll under the patient's head until an imaginary horizontal line can be drawn between the external ear and sernal notch space. This provides a supportive surface that ensures safe alignment of the head and neck
- Hyperextension is an important position for airway management

Ramping

Ear level with sternum. Reduces risk of difficult laryngoscopy, improves ventilation.



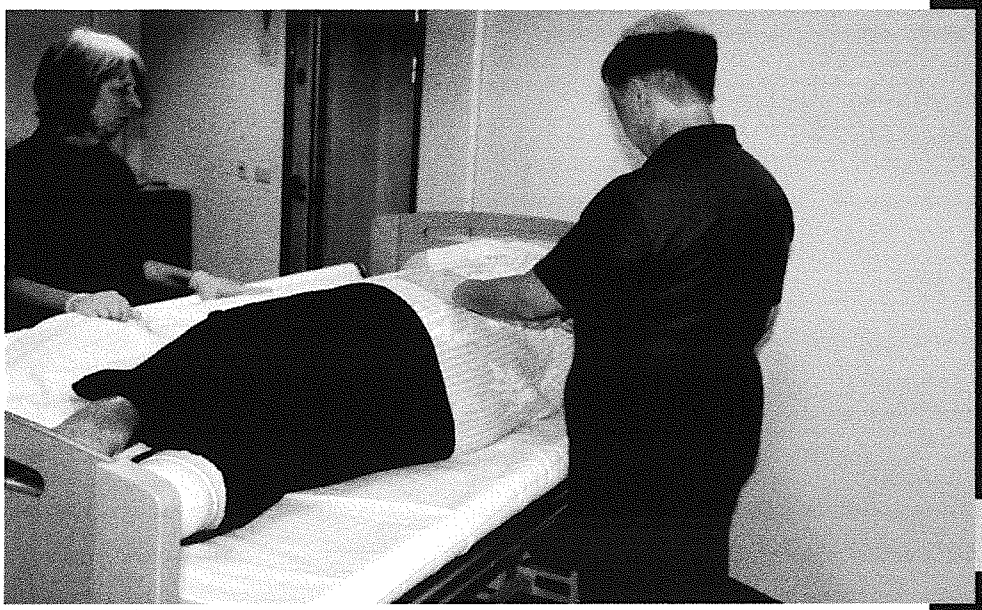
Ramping with pillows

Concluding: when evaluating beds and mattresses consider:-

- Height and width of the bed
- Safe working load of the bed, to include mattress weight and health staff caring for the patient
- Suitability of the bed design
- Width of the bed enables patient to be turned from side to side
- Sustaining Tissue Viability pressure reducing, reduction
- Working environment
- Length of the bed
- Weight Capacity of side rail support
- Bed Positioning

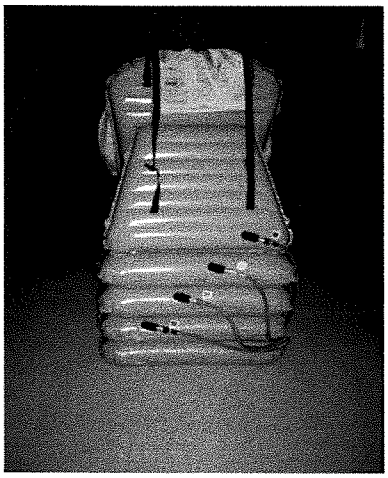
Otherwise unsafe practice can occur

Lateral Transfer Devices



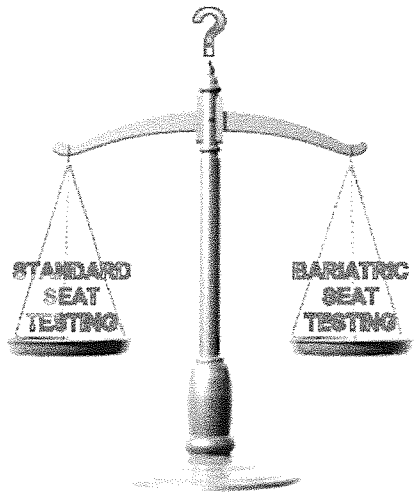
Anita Rush & Mary Muir ©

Alternative equipment for raising off the floor



Seating

What to look for in seating



- Seat width
- Seat depth
- Weight capacity - is it
  - static
  - moving
- Foam should be high density to prevent compression
- Ease of use stable and well balanced
- Check arms are in reach
- Surface texture facilitate the insertion of slide sheets or slings
- Consider BS EN 1022:2005 and BS EN 12520:2010 (strength and stability)

Why prescribe riser recliner chairs

- Plus Size persons sleeping surface 24 x7
- Independent function
- Aid Rehabilitation
  - Heavy Lymphatic legs
  - Decreases exertion
- Cardiac management
- To facilitate postural management
- Pressure care management

Consider the following

- Approximately 75% of the body weight is taken through the seated area
- Weight of each leg may account for up to 15.7% of persons total body weight (ref c

D.B, Anderson GBJ, Martin BJ (1999) Occupational Biomechanics 3rd ed New York: J Wiley and Sons)

- Knees and hips should be level
- Majority of the weight should be over the Ischial tuberosity's and buttocks.
- Upper half of the posterior thighs with head in midline and balanced over the boc

Plus size seating assessment

- Look at the body dynamics of the patient
- Functional spatial requirements for the person
- Where the chair is being used
- Environmental constraints
- Independent adjustments: (1,2,3,4 motor options)
- Configurability of the chair, (i.e. can it be adjusted to meet the varying needs of the person)
- Safe working load of all the functional movements
- Height width and depth of chair
- Arm rest width/height (comprising seat width/safe transfers)
- Purpose it is being used for
- Tissue Viability Properties i.e. seating leg elevation, tilt in space function
- Weight of leg elevation if pannus and legs combined
- Recyclability

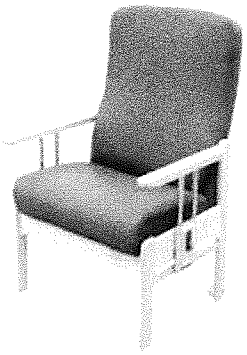
Otherwise you can disable rather than enable

Potential challenges

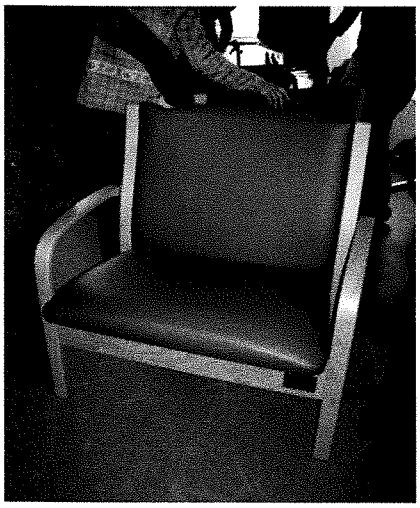
- Feet dangling in plantar flexion when sat in the chair in an upright position (can't bend knees)
- Gluteal shelf
- Low seat height required
- Depth of chair (no head support)
- Pannus putting pressure on groin area (non-healing tissue damage)
- Cardiac management
- Combat fatigue
- Prescriber knowledge base

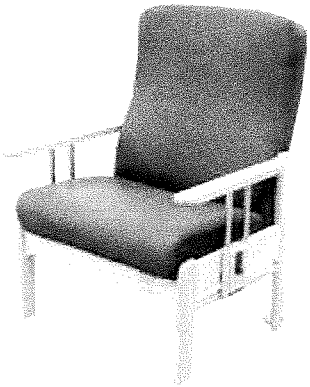
Riser chair

Hospital chair

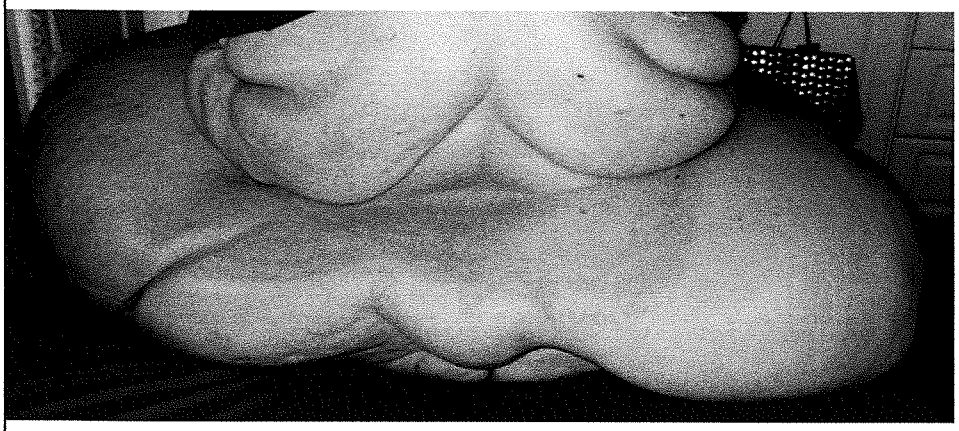


Waiting room **Standard chair**



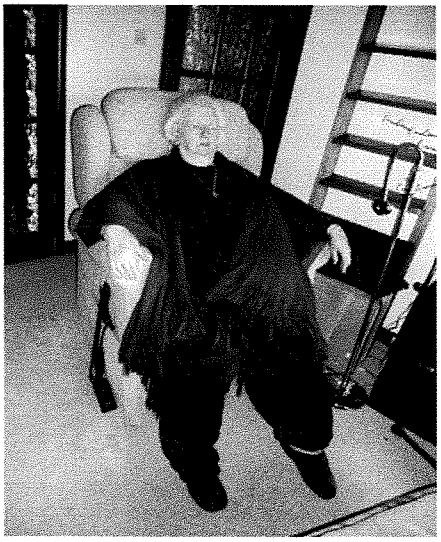


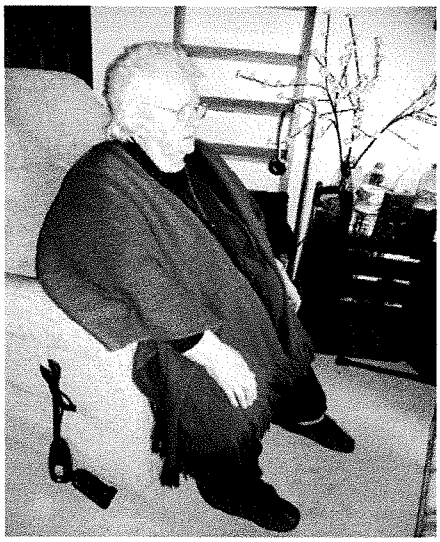
Who can prescribe a chair for this person



What is wrong with this chair?

Self-purchase





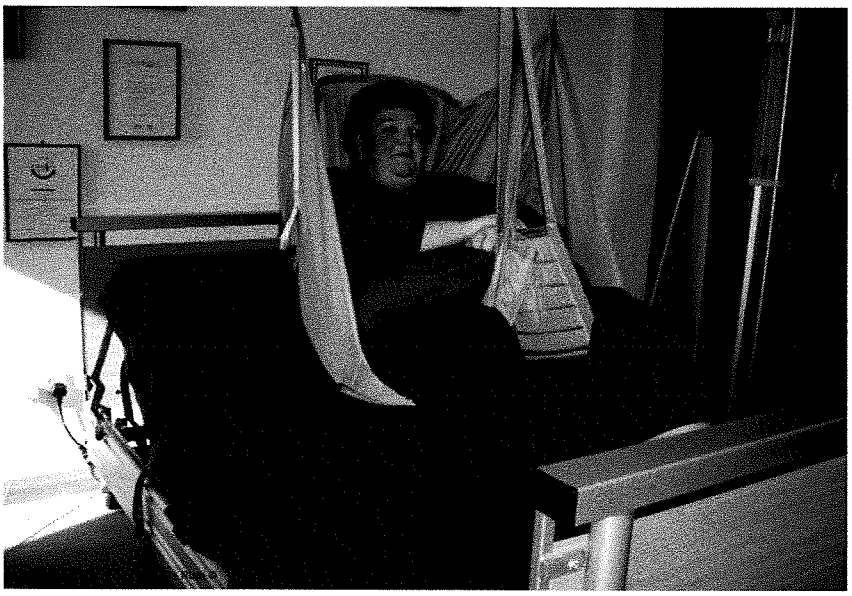
Concluding: when evaluating chairs consider:-

- Look at the body dynamics of the patient
- Where the chair is being used
- Environmental constraints
- Must range between two and four motors
- Height and dept of chair
- Purpose it is being used for
- Pressure relieving properties
- Weight of leg elevation if pannus and legs heavy

Otherwise you can disable rather than enable

Getting it right

Hoists and slings



Design and safety: impact weight

- Accommodate the weight of a falling patient
- As a rule of thumb, a falling patient is double their weight
- Designing for Plus Size persons anything designed needs to consider the persons impact weight i.e. 25stone impact weight 50stone.

Increased footprint

- Storage
  - Width of room
  - Width of equipment
- Corridors/opening/doors/transport
  - Home environment
  - Delivery transportation

Circulation

- Width can it go through doorways
- Map route
- Where are you going
- Manoeuvrability
- Number of staff required to move
- Stability

Associated environmental risks

When prescribing equipment for the home environment ensure that the following is considered

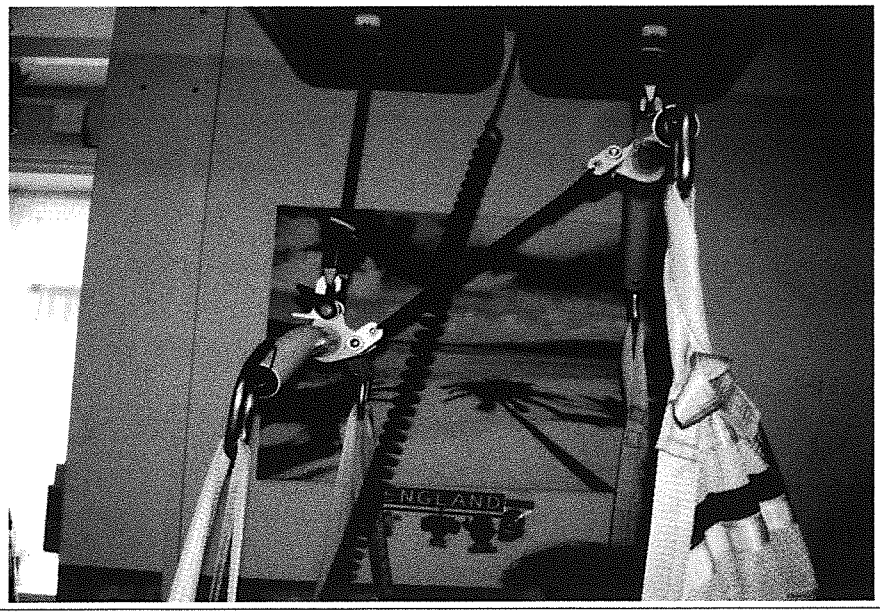
- Floor weight limits
- Weight of the equipment being used
- Weight of the spouse/carer if they sit on the bed or kneel to undertak handling tasks
- Weight of the mattress
- Lift weight
- Corridors

All need to be added to the weight limit calculation.

Mobile hoist

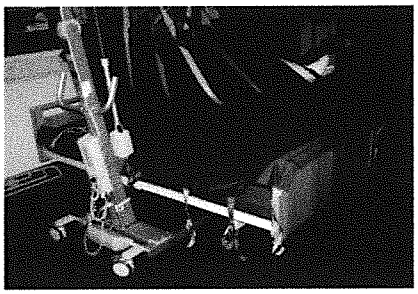
Gantry hoist

Fixed tracking options



Sling design

Repositioning sling



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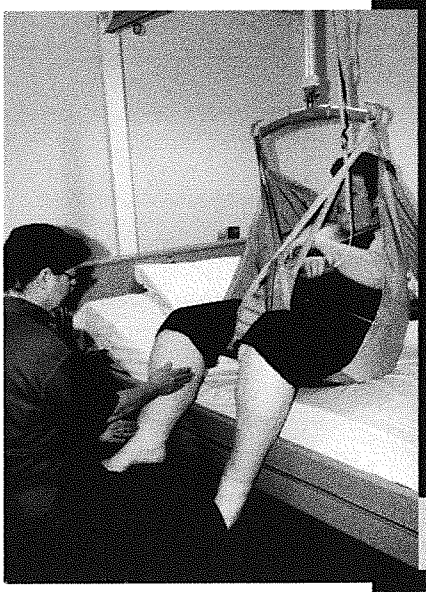
Techniques for washing limbs



Lifting Straps

Consider when evaluating hoists and slings:

- Positioning of the sling
- Safe working load of the hoist / sling
- Width of the sling bar
- Size of the sling: patients dynamics not only height and weight but shape
- Will the position of the patient enable safe transfer on and off the bed
- Does the patient have any ability to assist
- Sustaining tissue viability with the use of slide sheets
- Attachments
- Working Environment. E.g. safe working load of the floor

Consider the following in patient rehabilitation

- Patient body dynamics
- Muscle tone high or low
- Trunk Stability
- Range of movement
- Head control
- Environmental constraints
- Equipment provision

Equipment alternatives

Bariatric wheelchairs

Things to consider when purchasing or prescribing a Bariatric wheelchair

- Dynamics of the Bariatric person
- Ramps, slopes & compatibility
- Who's pushing?
- Do you need to fold, transport, lift i.e. vehicle?
- How to specify and choose your Bariatric wheelchair

Physical Environments

Environmental features:

- Outdoors: terrain, location in the community, shelter
- Indoors: floor coverings, general access, clutter
- Vehicle: seating, other users of vehicle,

Environmental measurements:

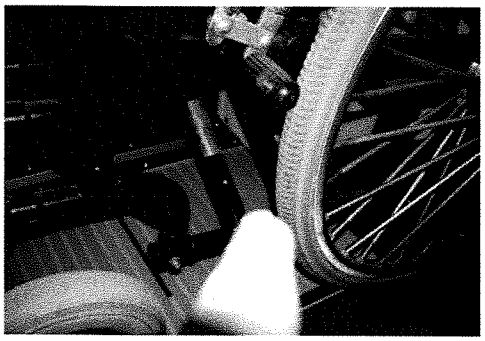
- Indoors: openings, turning spaces, heights, clearances, depths
- Outdoors: space distance, heights
- Vehicle: height, access storage

Wheelchair internal spatial space

Space needed for:-

- Dressing
- Inserting Slings (Liko demo)
- Mobility
- Pressure relief cushions
- Spread of body mass

Mismatch of wheelchair and ramps



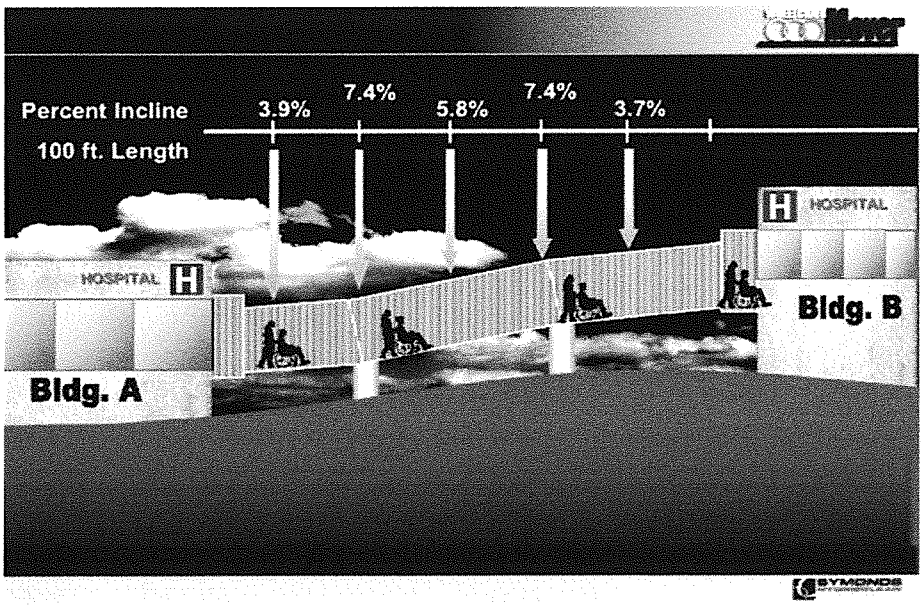
Pushing pulling forces

- **Guideline figure for starting or stopping a load is a force of about 20kgs**
- **Guideline figure for keeping a load in motion is a force of about 10kg**
- **Guidance exists in relation to gradients**

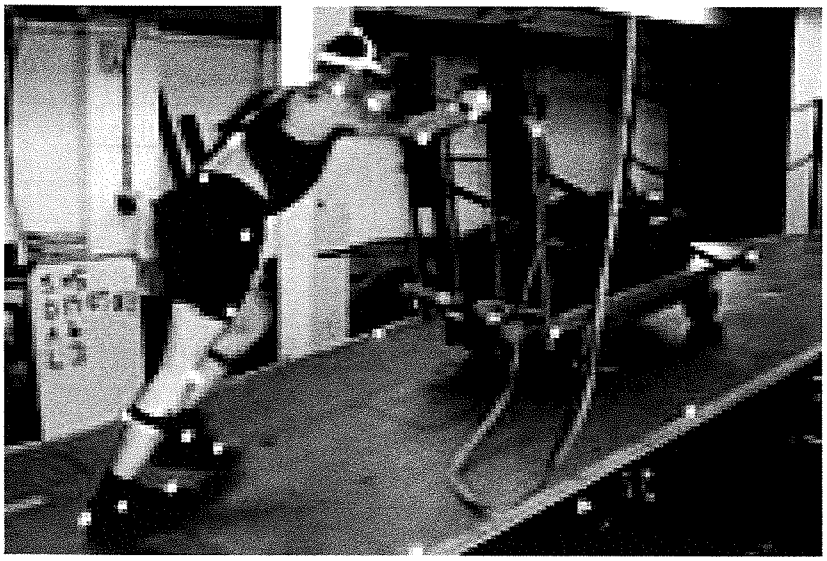
(Manual Handling Operations Regulations amended 2002)

Pushing and Pulling of Loads

- Slopes and rough surfaces increase the amount of force required to push/pull a load
- Risks increase over longer distances and when frequency does not provide sufficient rest/recovery time
- Obstacles can create risks by trying to avoid collision
- Large amounts of effort increase risks
- Repetitive pushing and pulling increases risk
- Position of the hands are best placed between the waist and shoulder height



Pushing Pulling constraints



Space

Community Environment

Client

Family

Clinical

Hygiene

Space Requirements

A research study was undertaken by Loughborough University, to identify the space requirements for caring for a bariatric patient on a medical ward

Recommendations:

- Minimum width of 3.93m, length of 4.23m, giving an average area of 16.61m^2
  → clear space to accommodate 4-6 carers
- Current area required is 3.6m width, 3.7m length giving an area of 13.32m^2 (NHS Estates 2005)

Health and Safety Executive 2007, Risk assessment and process planning for bariatric patient handling pathways, RR573 Research Report, HSE 2007

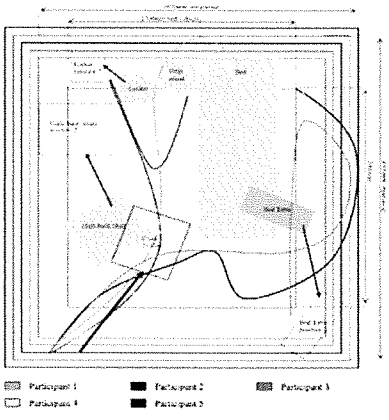
HSE bariatric inpatient room

Evidence for Bariatric Room Space Capacity

A functional space experiment (FSE) was conducted by Hignett et al (2007) to determine the spatial requirements for tasks related to treating and caring for a bariatric patient on a general medical ward. Three specific tasks were used to define the space required:

1. Transfer from a bariatric chair to a bariatric bed using a ceiling lift and sling;
2. **Resuscitation; and**
3. Lateral transfer from the bariatric bed to transfer chair using pat slide and sliding sheets.

The experiment showed that the minimum spatial requirements (incompressible functional space-spaces required for defined functional activities) for a bariatric room was 179 sq feet. This space excludes the additional space needed for storage, **family and hygiene.**

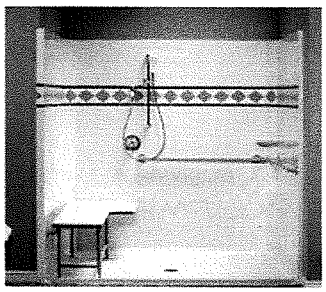


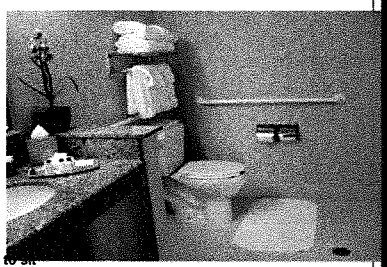
taken from Hignett et al 2007)

•BATHROOMS

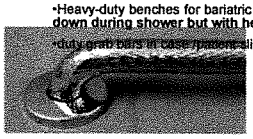
•Apart from inpatient bariatric bathroom facilities, bariatric patient-accessible bathrooms should also be **located in outpatient facilities and signposted with universal signage that is respectful and functional**. The toilet design should also not have features that can lead to stigmatization.

•Universal Signage





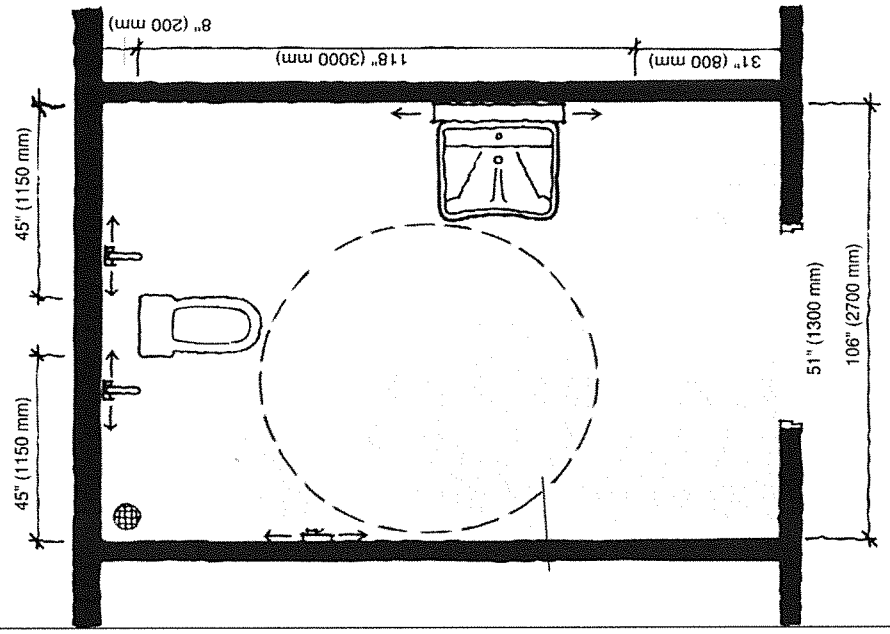
•Heavy-duty benches for bariatric patients to sit down during shower but with heavy-duty grab bars in case patient slips. Sinks located away from toilet and



•Heavy-duty grab bars that look trendy and are functional

www. nhspropertyservices (co.uk?)
purpose built bariatric medical centre
near Arsenal, N5

Bathroom Dimensions

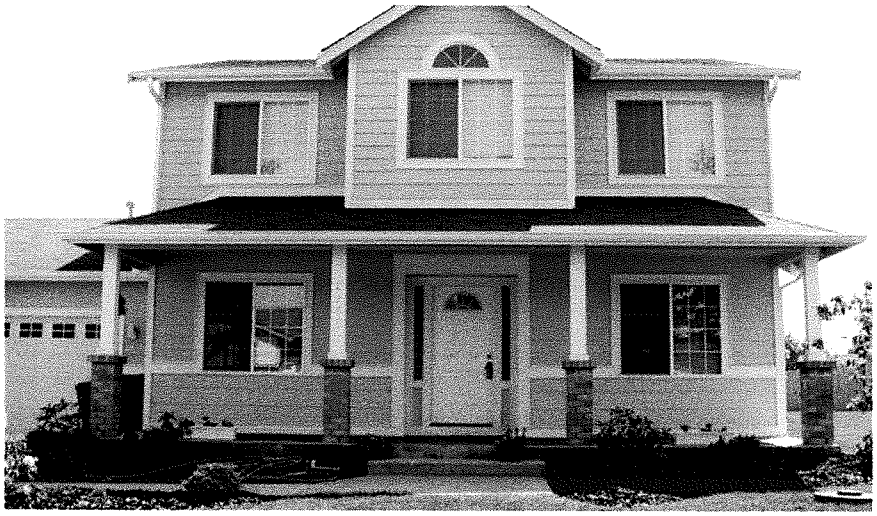


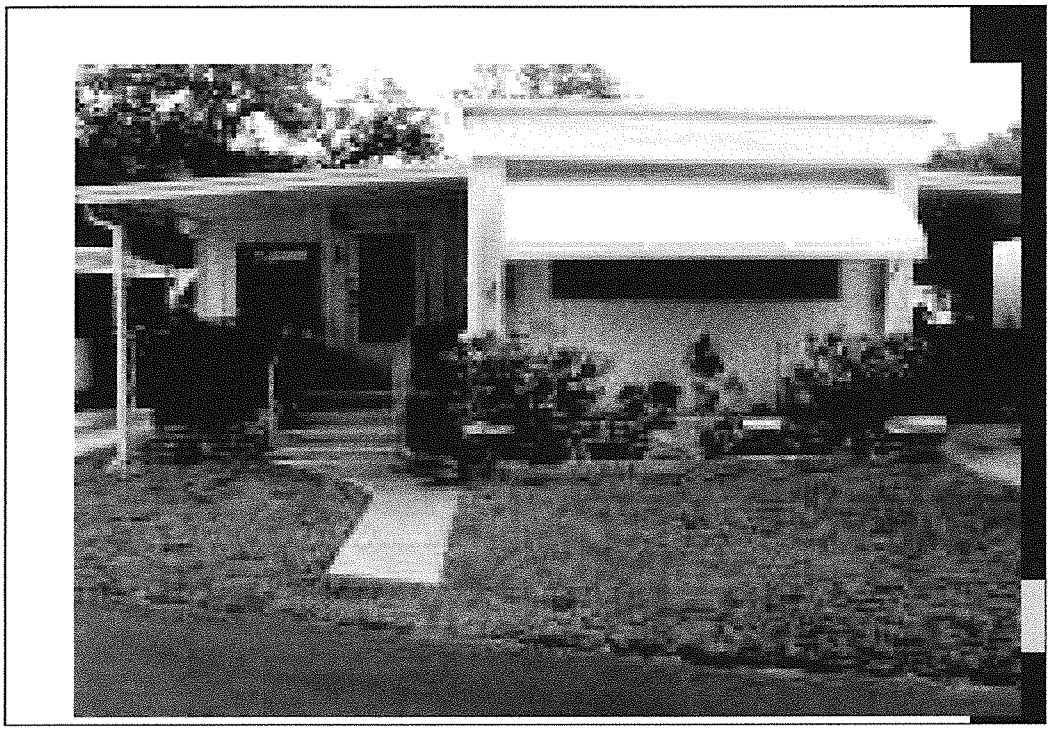
hotel room pic,
image as not fixed
to floor

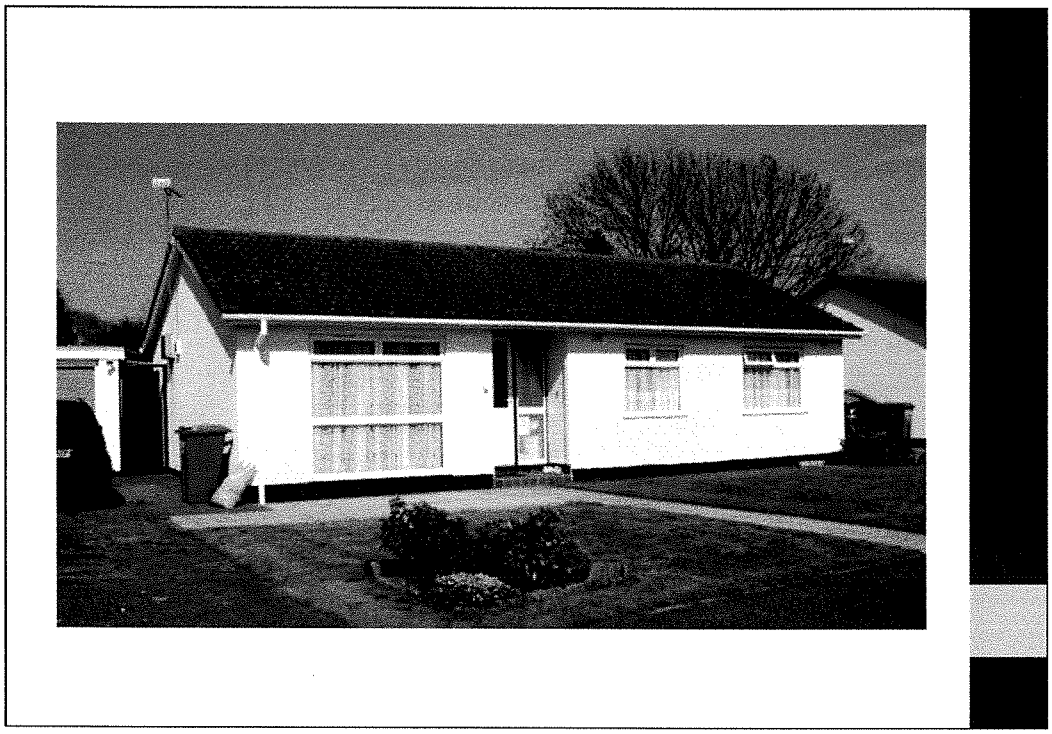
Anita Rush ©

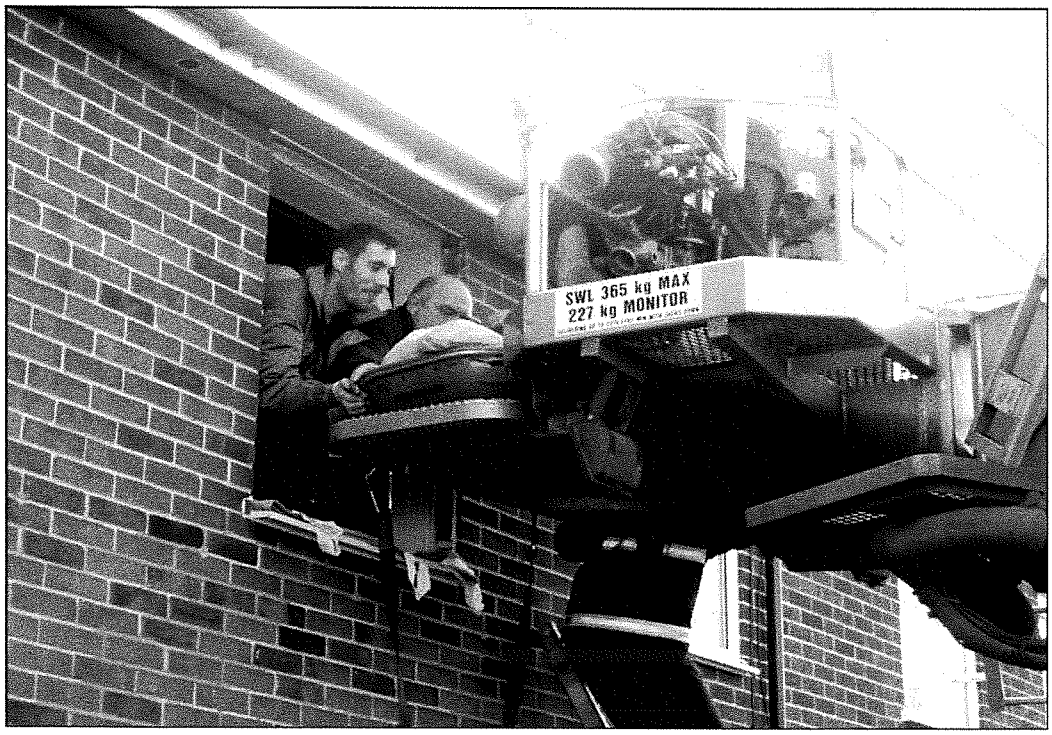
Environmental

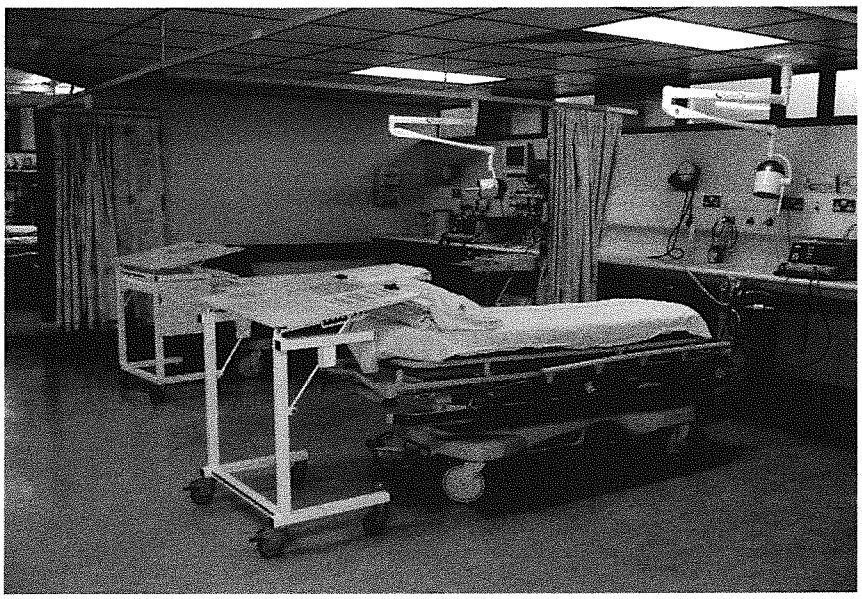
"future proofing"

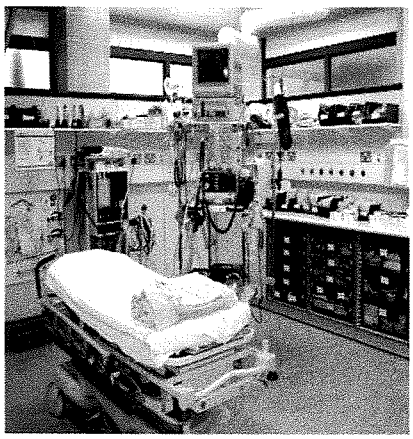




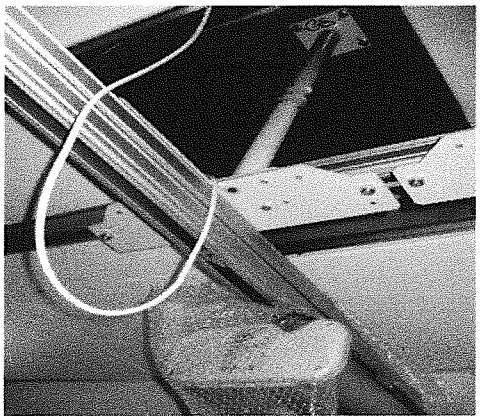


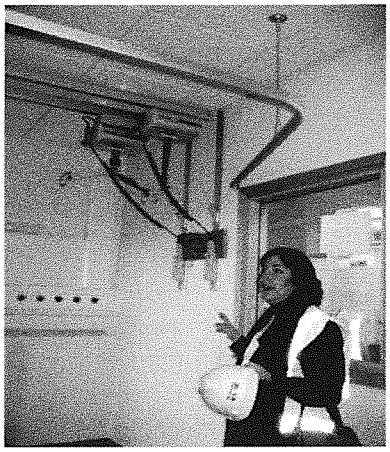

SWL 365 kg MAX
227 kg MONITOR





Getting it right





Evacuating a bariatric person

Environmental hazards

- Constraints
  - Access and Egress
  - Safe working load of the floor
  - Stair lifts
  - Carpets
  - Furniture
  - Door openings
  - Corridors

Safe working load of stairs?

Associated Environmental Risk

When prescribing equipment for the home environment ensure that the following is considered:

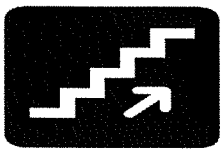
- Floor weight limits
- Weight of the equipment being used
- Weight of the spouse/carer if they sit on the bed or kneel to undertake handling tasks
- Weight of the mattress
- Lift weight
- Corridors

All need to be added to the weight limit calculation.

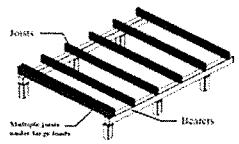
Implementing safe systems of work

- Environmental constraints and safe working load of the floor. You need to remember that the environmental flooring will b different. After consulting with a surveyor I discovered that there are 29 different concrete floors this does not take into account wooded floor joints.

General rule of thumb a ground floor can take 2000kgs based on a 3 metre square room

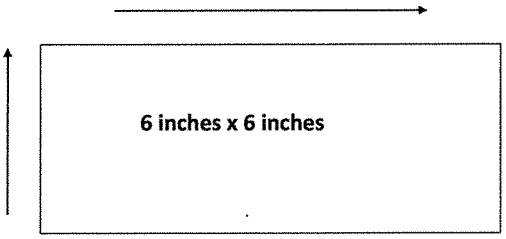


Upstairs will be less



Equation has to take into account the joists, type of floor and size of room

Max: point load 1 square foot



Point load 375kgs most building are built to that as a minimum

400 kg person should not stand on one leg

99% of ground floor buildings are adequate

1st floor and above you should always seek advice

Emerging Plus Size themes

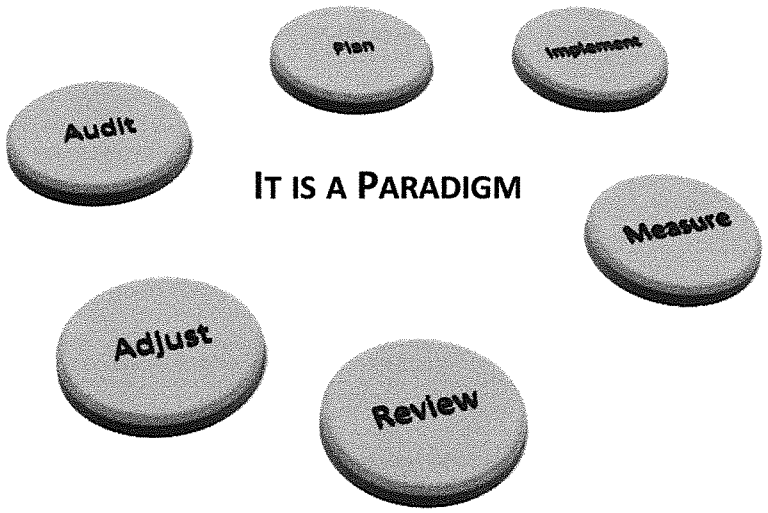
- Risk Management
- Patient Led intervention
- Appropriate Resources
- Appropriate Equipment
- Appropriate Environments
- Education

Dignity end of life

In essence

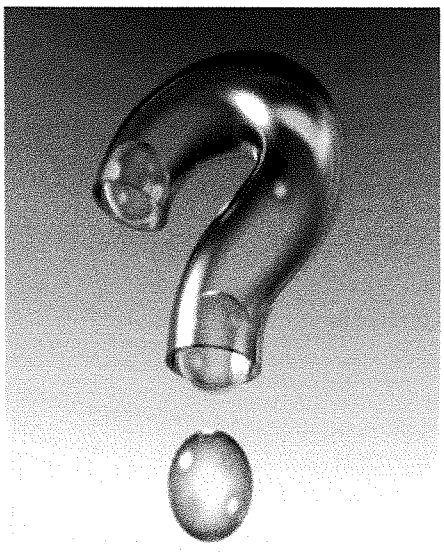
- The right equipment can facilitate
  - Patient function
  - Increase independence
  - Eliminate some high-risk nursing tasks
- Inappropriate equipment causes over-exertion injuries to staff
- Regular heavy patient handling increases the risk of cumulative damage (Pheasant 1997)

Keep it Simple & 'Back to Basics'



Concluding

- Bariatric Management is complex and multi-factorial.
- Requires a Whole Systems Approach
- Bariatric patients should be enabled not disabled



Any Questions?

Thank You!

Future queries - contact Viva Access at:

admin@viva-access.com
t: 01273-251938
t: 07909-582491

Moving & Handling of Plus Size People
- an illustrated guide
  - Mary Muir & Anita Rush

Through floor lifts — generally 8ft. (if over 20" wheelbase access lifts which will require shaft building

- Terry
- Wessex → do heavy duty
- Pollock