

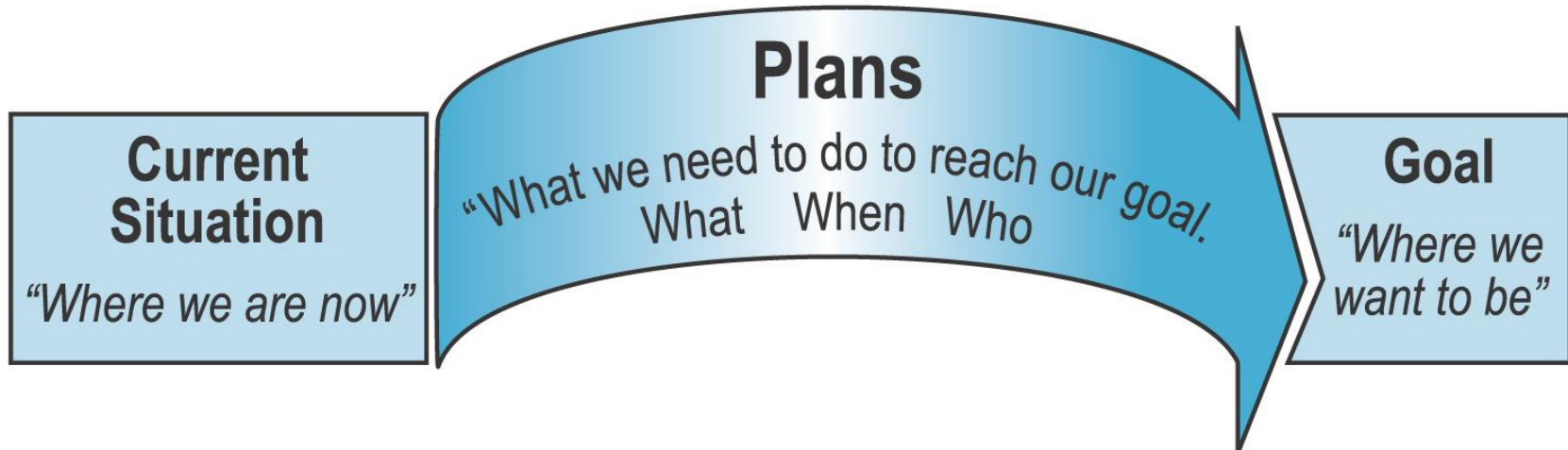
Handling the Bariatric Patient: Ergonomic Issues



2015

Plan

- Where are you going?



I'll win 400kg battle of bulge

EXCLUSIVE

**BEN PIKE
JANE HANSEN**

A SYDNEY man who once weighed about 400kg and needed to have part of his house removed so he could be taken to hospital has lost more



The partly demolished house,

than 100kg and is now planning to study nutrition.

Andre Nasr's family said the 35-year-old was "feeling great" after getting his weight down to under 300kg and he could walk for the first time in many years.

"He has come a long way," said Mr Nasr's stepson Vince Tassone. "He's about to study an advanced diploma of nutrition. He just wants to help people who are in similar situations to what he has been in."

Mr Tassone, 21, said his stepfather had made major progress after some intense physiotherapy and changes to his diet. He said the family had had its struggles since Mr Nasr was taken to Concord Hospital in July last year.

"He has got a lot of support from the family," Mr Tassone said. "They had their ups and downs, but other than that everyone's strong behind him."

Plastic surgeon Dr Peter Haertsch said Mr Nasr's weight loss would save his life.

"He was bed-bound and covered in bed sores, but he's

mobile now," Dr Haertsch said.

"The fact he is losing weight will save his life and he will become much more mobile."

"When he gets to 250kg the anaesthetists say it will be safe for me to operate and remove all the fat from his legs that hamper his mobility."

Mr Nasr's case made headlines last July when the NSW Ambulance service called in 20 Fire and Rescue workers to remove him from his house.

Nutritionist Dr Rosemary Stanton said Mr Nasr's case was a stark illustration of Australia's growing battle of the bulge, with more than half of all people overweight or obese.

"The fat are getting fatter," she said. "We've always had a lot of men who are a bit overweight but a lot more who were overweight are becoming obese. That's the category that is increasing the fastest."

Australia's obesity rate increased 19 per cent between 1989 and 2011-12, with figures from the National Health Performance Authority showing 4.7 million people were obese.

Defining Ergonomics

Ergonomics is NOT:

- Buzzword, passing craze/fad
- Exercise, proper body mechanics
- Physical Therapy, treatment of injuries
- Lift Teams

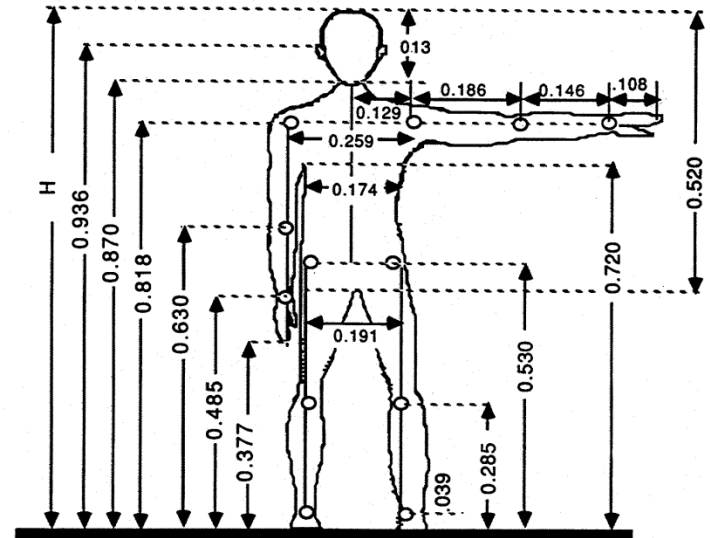
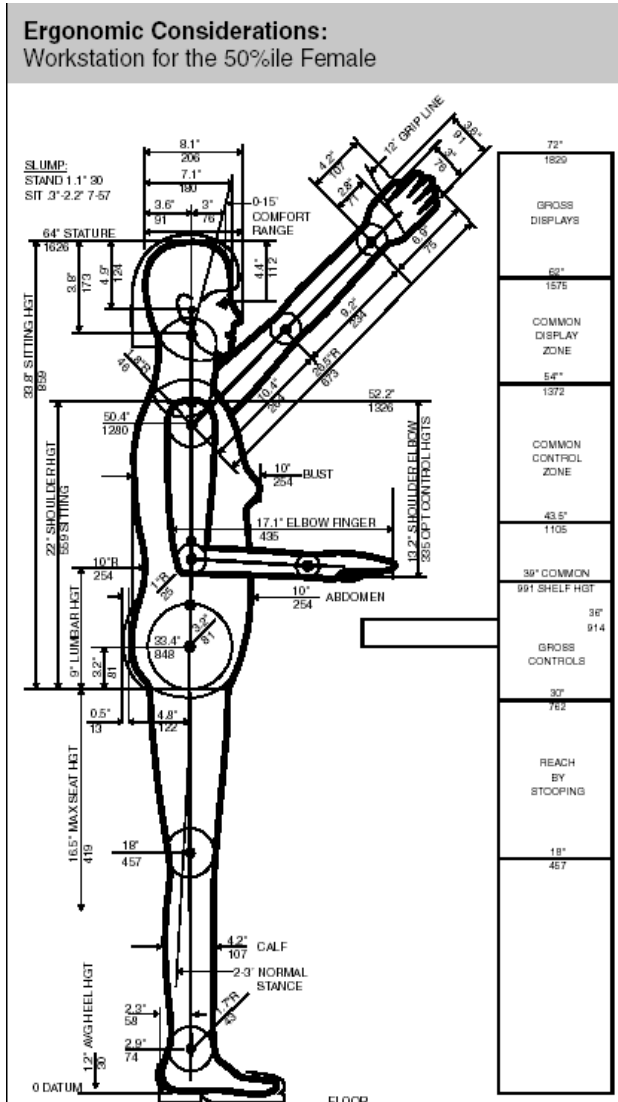


FIGURE Link Length Studies Based on Data by Drillis and Contini (1966)

Ergonomic Considerations: Workstation for the 50%ile Female



Reach Locations

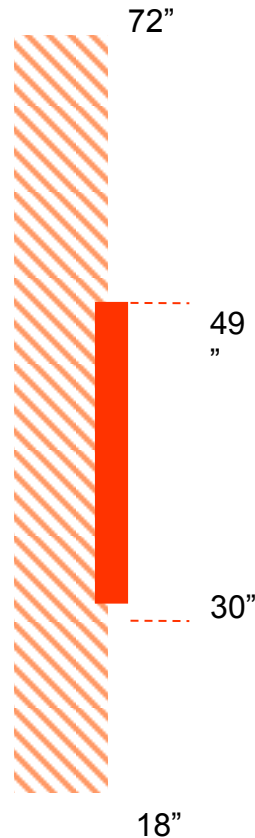
Minimize repetitive back bending and/or excessive reaching by correct placement of controls, connections and devices

- Frequently accessed controls and connections:

- No higher than 49" (1.24m)
- No lower than 30" (.762m)
- No more than 15" (.381m) horizontally from a standing location

• Other controls and connections:

- No higher than 72" (1.82m)
- No lower than 18" (.457m)
- No more than 23" (.584m) horizontally from a standing location



- **Fitting the job to the worker**
- Science
 - Study/design of the human-work environment / interaction
 - Design the work environment according to the capabilities of the human
- Objectives
 - Improve safety and health
 - Eliminate/reduce risk factors for injury through the design of the work environment
 - Increase efficiency, productivity
 - Design optimizes human capabilities and compensates for limitations
 - Enhance quality and user satisfaction



Cumulative Risk Factors

- Average age of nursing = 47 yrs.
- Greater risk vs. average occupation
- 10-12 hr. work shift
- Maintains normal family duties



Stand Assisting Patients



Lifting Patients



Repositioning Patients



Transporting Patients



↓ Daily Recovery

Insufficient time to recover and heal from muscle strains sustained daily - compounding the risk for greater injury.

Body Mechanics Training

- Questionable applicability to patient care
 - Reaching and lifting loads far from the body
 - Lifting heavy loads
 - Twisting while lifting
 - Unexpected changes in load demand during the lift
 - Reaching low or high to begin a lift
 - Moving a load a significant distance
- All transfer tasks produce excessive compressive forces on spine (Marras et al., 1999)

Solicit assistance

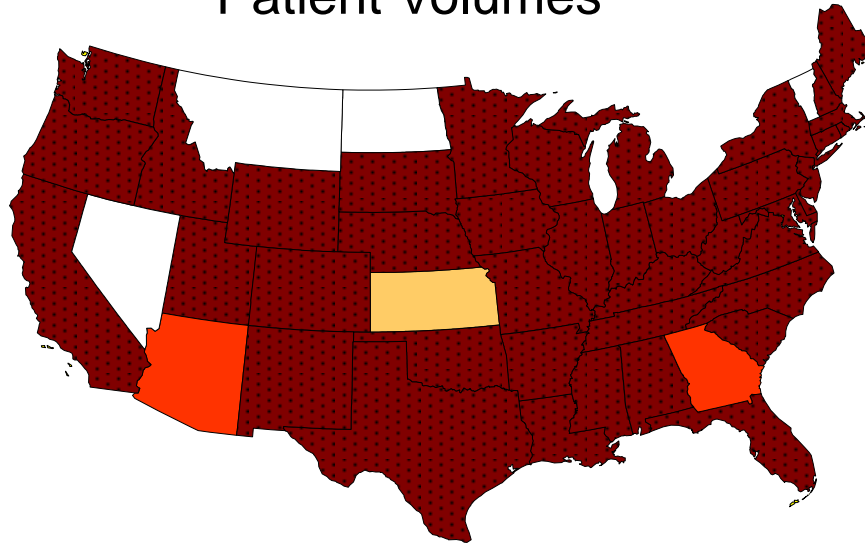
- Additional staff--Back stress only reduced by 10% (Marras et al., 1999)

•Not effective in reducing injuries among health care workers

- **Our bodies first reaction to stress, either physical or emotional stress, is muscle tension (Fight or Flight Syndrome)**
- **A tense muscle is a tight muscle. And tight muscles are much more susceptible to strains and sprains**

2006 BMI Comparison

Patient Volumes

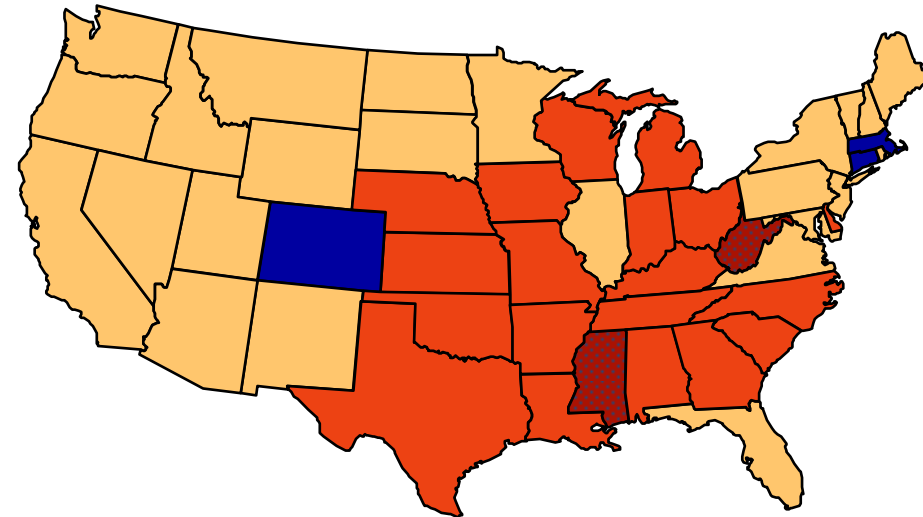


Source: 68,479 Patients; 2006 Hill-Rom IPUP Survey
731 Hospital Represented

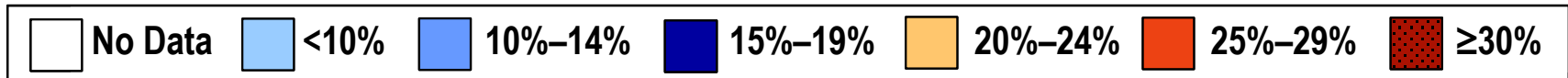


% of Obese Patients
(BMI of 30 or Greater)

Total Population

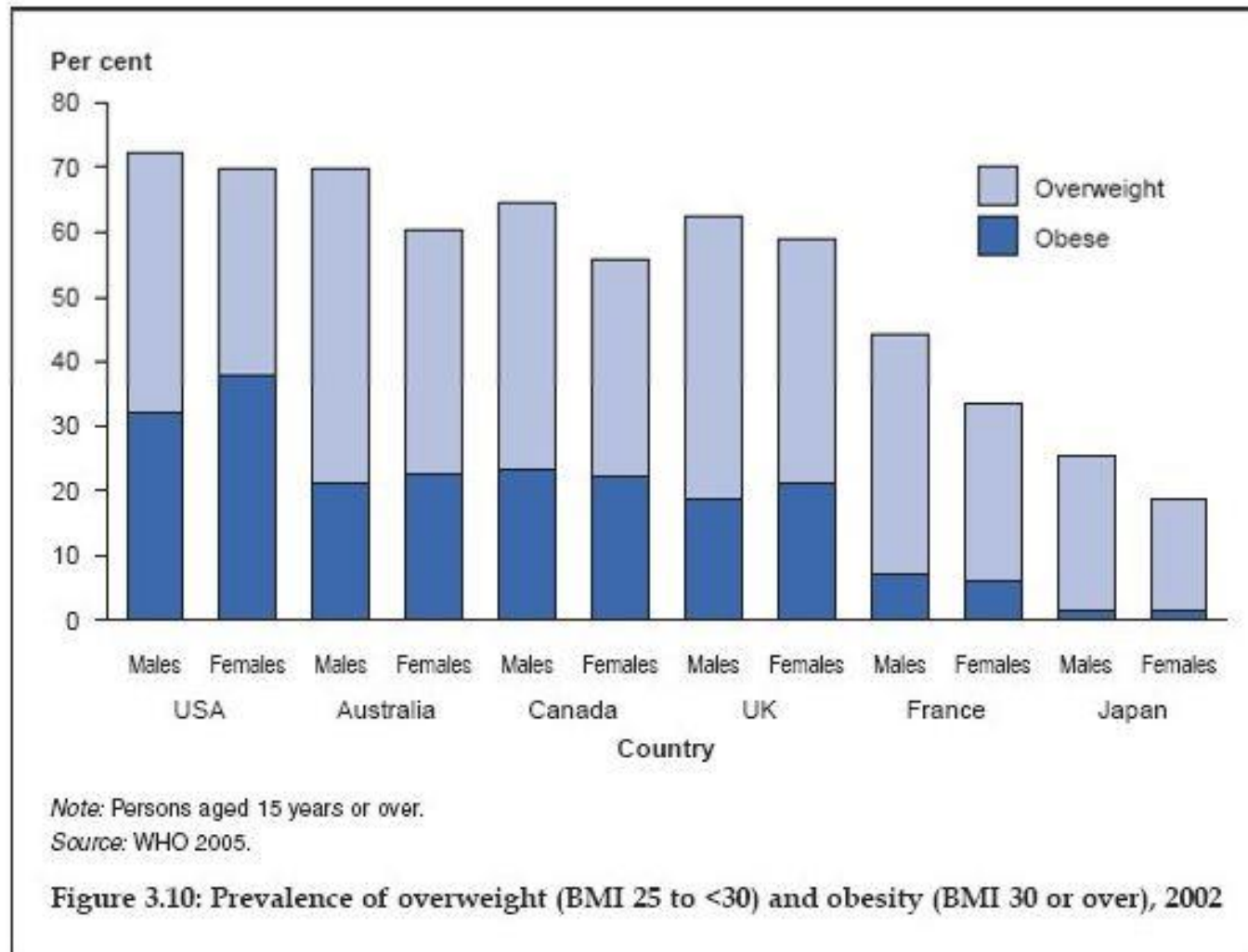


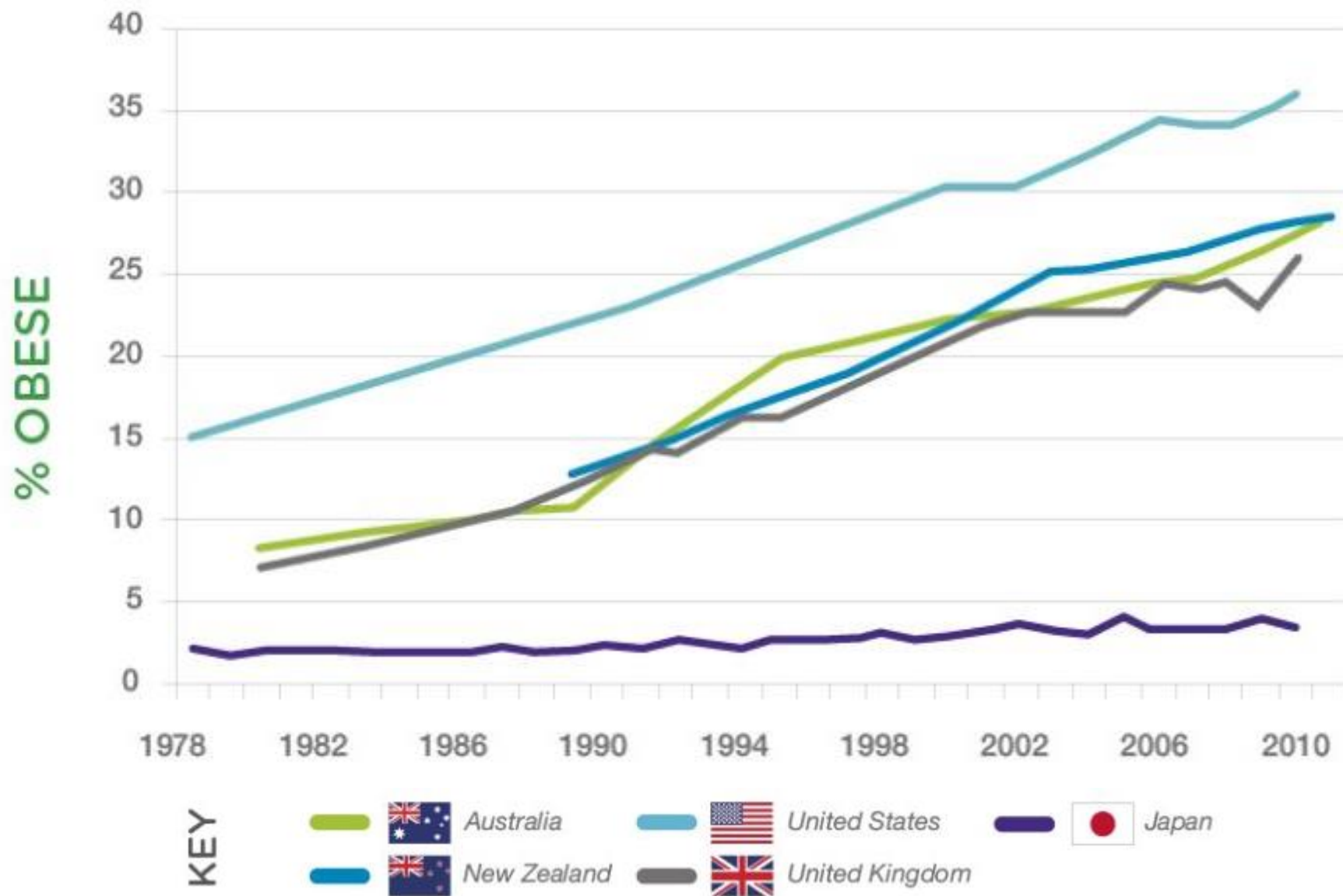
Source: Behavioral Risk Factor Surveillance System, CDC.



Obesity Trends in Australia

Recent data indicates that the prevalence of overweight adult Australians is similar to that in the US, Canada and the UK.





Trends in obesity prevalence for selected countries, 1978 to latest year The increasing prevalence of obesity in Australia is part of a worldwide trend, with the exception of Japan. Source: OECD15

Obesity Trends in Australia

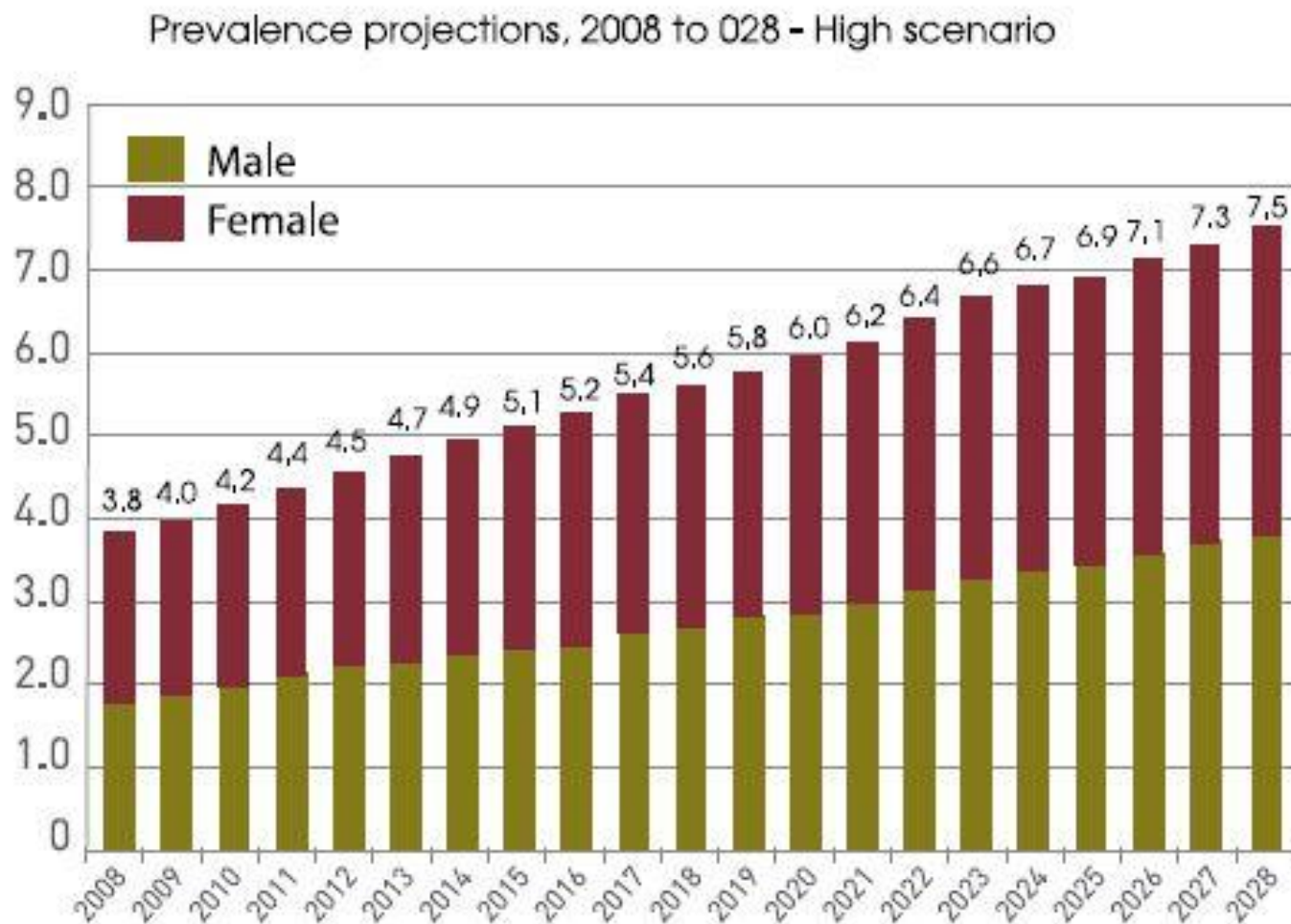


Figure 3: Population obesity prevalence projections, Australia, 2008-2028 (assuming current trends continue)

Source: Access Economics 2008(13)

Millions of obese people.

- **Build in Ergonomics from the Start**
- **Ergonomics by Design**
 - **Equipment**
 - **Work Environments**
 - **Work Processes**
 - **Organization**

- **Same Ergonomic Principles**

- Fit the Work Environment to the Human User
 - Caregiver and patient

- **Importance of Ergonomics**

- Reduce risk of caregiver and patient injury
- Enhanced potential for inefficiency, loss of productivity
- Improve impact on quality of care

- **Anticipation is Key**

- Unique patient population
- Unique intervention
- Unique equipment needs
 - Transportation
 - Placement

Key Elements

- **Facility/Unit Preparedness**
 - Statement of Purpose
 - Systematic Process of Care
 - Environment Design and Equipment
- **Staff Preparedness**
 - Safe Patient Handling Practices
 - Training and Education
- **Patient Preparedness**
 - Orientation
 - Discharge Planning
- **Program Evaluation**

Ergonomics Improvement Process

Root Cause
Analysis

Identify
Solutions

Develop Policy
& Procedure

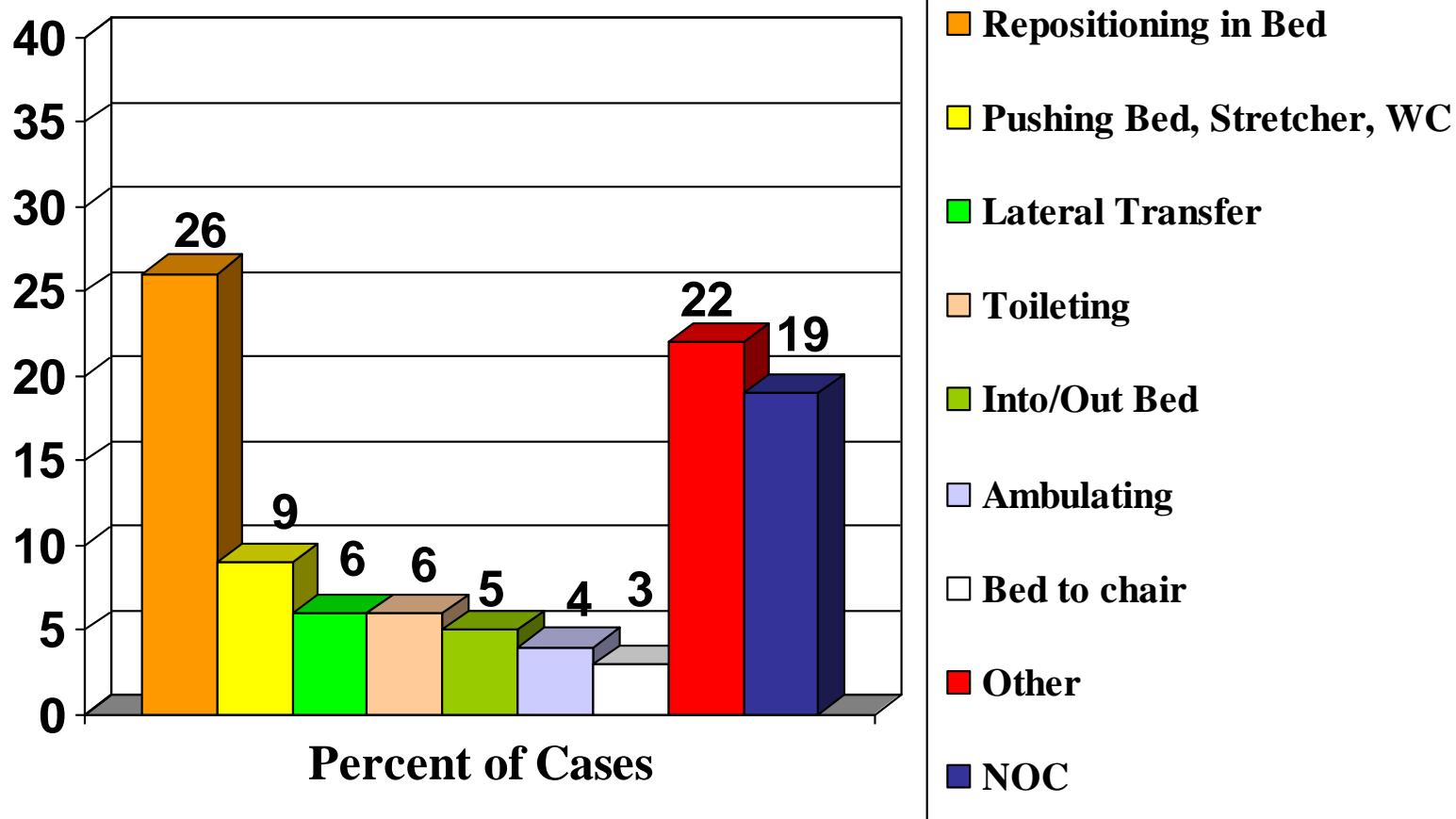
Implement
Solutions

Educate Staff

Internalize Ergonomics Management Skills

Facility Analysis: Causes of Patient Handling Injuries

Percent of Injuries Occurring During Each Task



Data Analysis and Summary from XXX Hospital

Facility/Unit Preparedness

- **Environment Design and Equipment**
 - **Facility wide perspective**
 - Admission to discharge
 - **Elevators/Hallways/Passageways**
 - **Room**
 - Dimensions
 - Bathroom
 - Family
 - **Audit Ancillary Departments**
 - Weight bearing and dimensional capacity
 - Clearance
 - Access to lift assist equipment
 - **Reference manual/database**



Bariatric Bathroom

Bariatric Bathroom Toilets

Specify floor mounted toilets with 800-1000 lbs. capacity based on anticipated patient weight.

Wall mounted toilets are not recommended for bariatric patient environments (250 lbs. capacity). Wall mounted toilets increases the risk of hardware failure and patient injury.



Floor Mounted Toilet
-800 – 1000 lbs. capacity



Stainless Steel Toilet
- 3,000 - 5000 lbs capacity

Bariatric Bathroom

Bathroom Design Considerations

- Place rails to maximize patient ability to assist self/caregiver and caregiver to assist patient
- Assist bars in the bathroom can be beneficial in allowing bariatric patients to rise from a toilet. Both horizontal and vertical bars can be useful.
- Horizontal bars should extend from directly beside the commode to a point at least 4" (.101m) in front of the commode. The height of this bar should be 6" (.152m) to 8" (.203m) above the commode seat height.
- Vertical bars should be in front of the commode and near seated shoulder height.
- Avoid placing towel rack near handrails

Bathroom Design Considerations

- Bathroom/shower door design
- Avoid open door as an obstacle either inside or outside the bathroom or shower stall
- Width of bathroom and shower entrance should allow for the patient, caregiver and assist devices.
- Ideally, the door width should be 60”.
- Entrance to shower should be flush with bathroom floor to allow ease of use for assist equipment and to avoid presenting an obstacle for patients and caregivers

Facility Preparedness

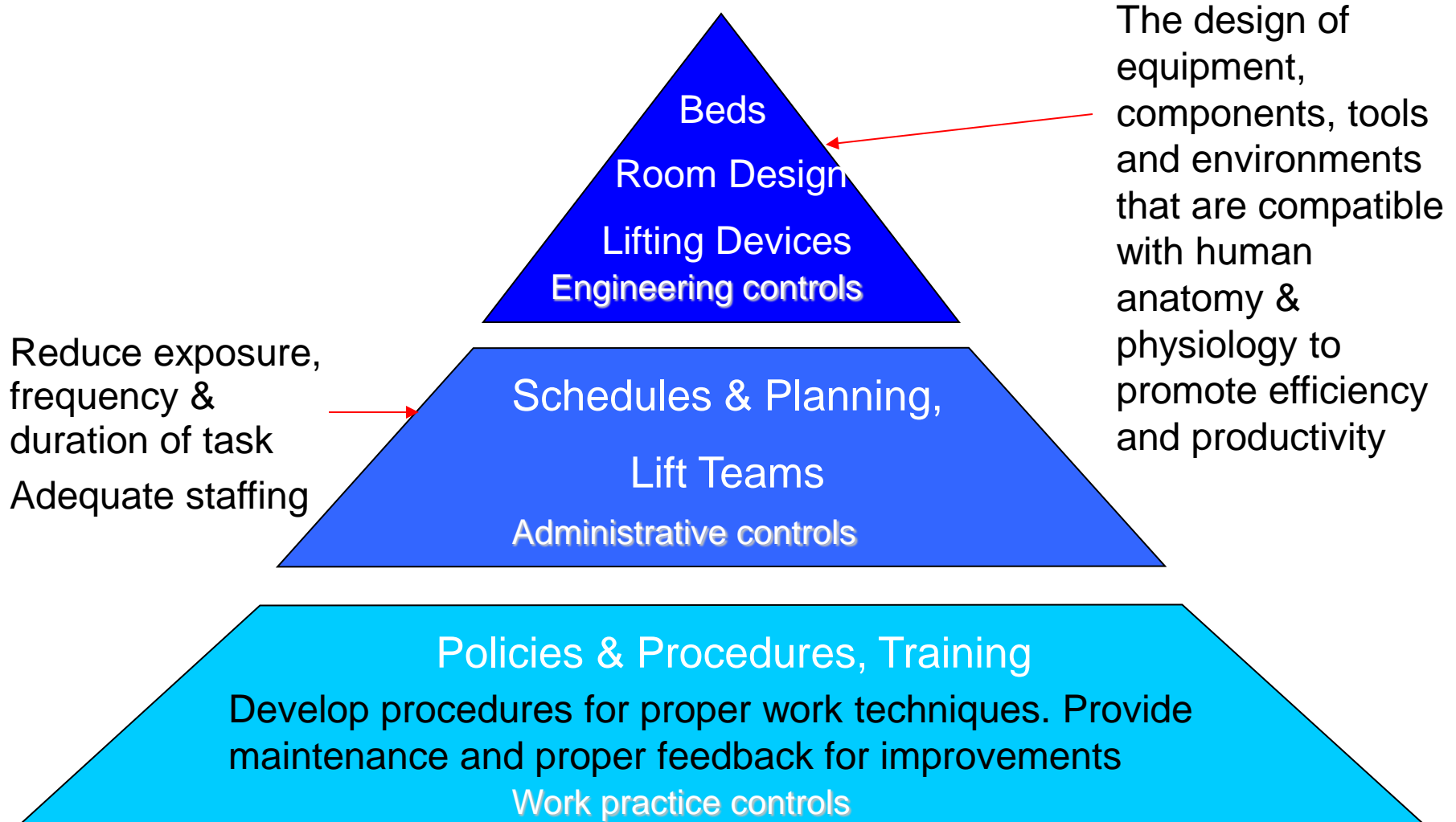
- Reduce/eliminate hallway and room clutter where possible. Difficult to maneuver equipment with patients in crowded areas.

Facility Preparedness

Patient Handling Equipment

- High visibility placement and ease of accessibility of lifting equipment will promote consistent use.
- Do not block access.

Hierarchy of Controls



Facility Preparedness: Equipment

- Equipment Considerations: **Beds**
 - **Weight Capacity / Mattress length-width**
 - Importance of appropriate fit
 - **Features that prevent the patient from sliding down in bed**
 - Frame design
 - Retractable foot section
 - **Turn assist feature**

Facility Preparedness: Equipment



Vertical Lift Device

- **Powered lift**
- **Ability to lift from floor level**
- **Integrated scale**
- **Types**
 - **Portable-base units**
 - **Overhead ceiling mounted units**

Facility Preparedness: Equipment

• **Vertical Lift Devices** *continued*

- Assist to stand
- Assist to ambulate
- Assist with patient dressing
- Integral scale feature
 - Eliminates additional transfer task
- Contraindicated
 - Non-weight bearing patients
 - Restricted ROM



Facility Preparedness: Equipment

•Lateral Transfer Devices

- Powered
- Air-assisted sliding aid
 - Eliminates force and awkward posture
 - Reduces the number of staff required
- Friction-reducing sheet
 - Limitations with patient population
 - Assist with sling application
 - Other limitations
 - uneven surface transfer
 - Can bind where mass is greatest
- Supine sliding boards
- Same concept applies to repositioning in bed



- **Stretcher-Chair**

- Facilitates bed-to-chair transfers
 - Hip/knee surgery
- Ability to recline

- **Inter-Unit Transport**

- Portable diagnostic equipment
- Bed powered transport
- Bariatric stretcher
 - Powered transport
- Bariatric wheelchair

Facility Preparedness: Equipment

- **Commode/Shower Chair**

- Adjustable side-rails for access to the patient

- **Bariatric Walkers**

- Sufficient weight bearing capacity
- Compatibility with body mass distribution

- **Reducing Static Loading**

- **Abdominal Binders**

- Use if abdomen impairs a patient handling task

- **Modified Lift Slings**

- **Blanket with Handles**

Facility Preparedness: Equipment

•Buyer Beware!!!



Bariatric Transfer Board with Hand holes

This laminated high gloss finish bariatric transfer board is made from strong plywood. The chamfered ends facilitate secure positioning during transfers. This heavy duty board is ...designed to accommodate a wide variety of functional transfers. Hand holes are cut into both ends for easier grip.

•Patient Handling Protocol/Practices

- Written policy
- Based upon dynamic patient assessment
 - **Determine level of dependency**
 - Ability to bear weight
 - Upper body strength
 - Level of cooperation
- Incorporates **available equipment**
- Specifies **minimum assistance required**
- Outlines **consistent approach**
 - Prepare patient
 - Prepare team
 - Prepare environment

Process Recommendations:

Develop and Promote a Written Patient Handling Policy

- Each individual caregiver is responsible for determining if the lift or transfer is within their limitations based on available resources. (This approach often creates a conflict, caregiver chooses between safety and quickness. This is a formula for potential injuries.) Often, lifts and assistive devices are available, but most caregivers interviewed elect not to use them for a variety of reasons. This common issue needs to be addressed in a formalized policy.
 - Include clear goals, objectives, and responsibilities.
 - Identify the specific responsibilities of senior management and unit management that are necessary for program success, so that in approving the policy senior management is clear about the implications and requirements for success.

Unit Specific Implementation Plans

- Policy is different than the implementation plan. The policy reflects commitment to reducing injuries through improvements in equipment, processes, training, and work practices. It also reflects who is responsible and accountable for achieving improvement and how that improvement will be measured. The policy may be hospital-wide or even system-wide.
- The implementation plan may be unit specific and describes how the goals will be achieved. The implementation plan is generally developed by the unit with direction and assistance from the ergonomics committee or patient handling committee.

Policy Development

- Using a “canned” policy
 - Equipment mis-matches
 - Lack of ownership, NIH Syndrome
 - Culture, Program of the Month

Staff Preparedness: All Levels

Senior Nurse Executives

- Periodic communication of program expectations and commitment
- Accountability at unit level

Nurse Managers

- Model and reinforce desired behaviors

Direct Caregiver Training

- Program launch, annual refresher, new hire
- Capabilities and safe operation of equipment
- Safe patient handling protocol/practices
- Successful involvement of patient

Other staff who interact directly with the patient

- Sensitivity/Unintentional promotion of negative stereotypes

Importance of patient cooperation and participation in care

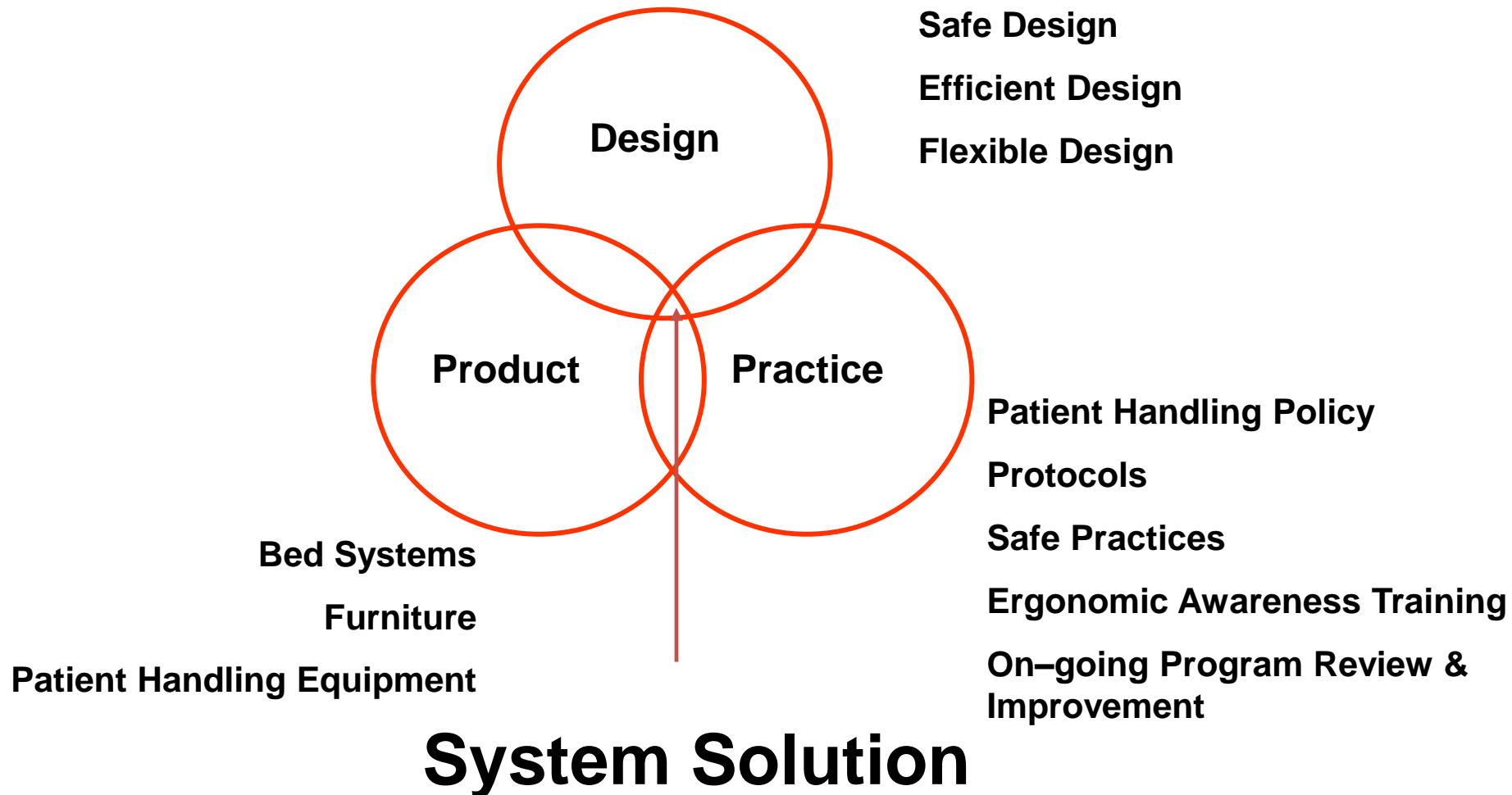
•Admission orientation packet

- Care staff
- Procedures/equipment for lifting, repositioning and moving the patient
- Safety policy
- Beneficial patient participation
- Videos /graphics demonstrate each procedure with Bariatric patient

•Discharge Planning

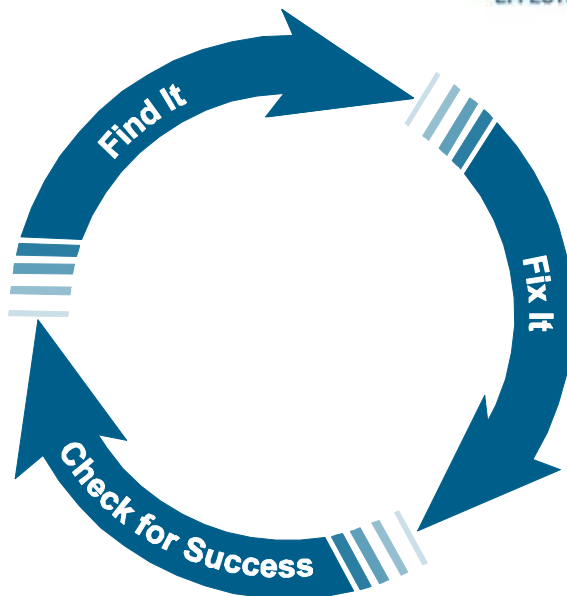
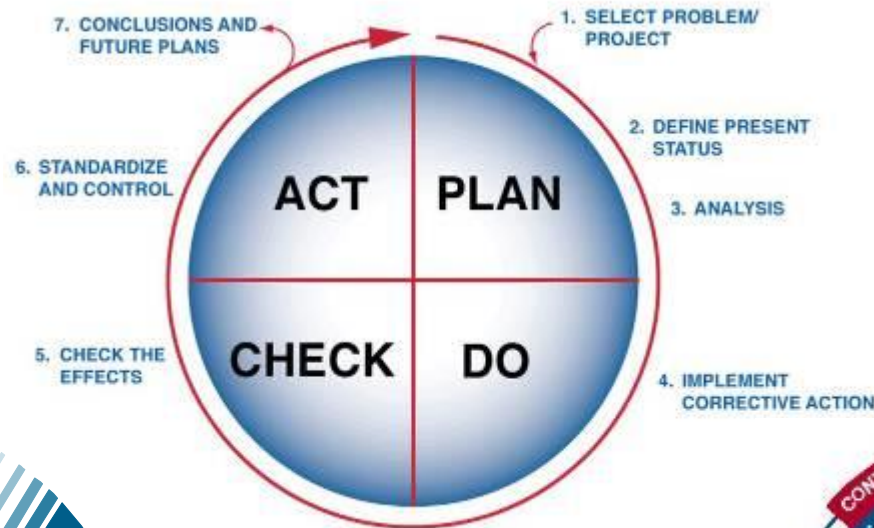
- Ambulation Assessment
- Ability to use bathroom
- Bed/Sleep Assessment
- Support systems

Patient and Caregiver Safety



Process Recommendations:

“Life is a journey, not a destination”



Questions?



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