Purpose: The numbers of individuals who are considered obese and morbidly obese are increasing rapidly and there is no indication that the numbers will decrease at any time in the near future. "Bariatrics‘ is the term used to refer to healthcare as it relates to the causes, prevention and treatment of obesity. It is not uncommon that as a healthcare provider, you may serve a client that weighs between 300-700 pounds. Managing the needs of the bariatric client can be time consuming, costly and complex therefore it is important that there be an interdisciplinary approach to caring for the needs of the obese client.

Learning Objectives:

1- The student will be able to define obesity.

2- The student will understand the prevalence of obesity and the risk factors associated with obesity

3- The student will identify important aspects of the assessment process for an obese individual

4- The student will recognize important strategies to maintain client and health care worker safety while caring for the needs of the obese client

5- The student will identify basic equipment needs of the bariatric client
6- The student will understand the psychosocial barriers that exist for the obese individual

7- The student will identify important treatment strategies for managing the bariatric client

**Outline:**

I. Introduction

This section introduces the definition and incidence of obesity in our culture. An overview of the causes of obesity is discussed as well as the costs personally and as a society. Costs described include, health risks, financial costs to the healthcare system and the psychosocial cost to individuals.

II. Definition, Prevalence and Risk Factors in Obesity

This section defines levels of obesity and common terms such as “morbid” obesity. The prevalence of obesity in various states is outlined and a description of common risk factors associated with obesity such as respiratory conditions, cardiovascular disorders, musculo-skeletal and other disorders are identified.

III. Assessments

This section emphasizes the importance of a good assessment process, both initial and on-going. Assessment of Body Mass Index, Activities of Daily Living, Skin Integrity, Respiratory Status, and Joint Integrity are highlighted.

IV. Moving and Handling the Obese Client

Injury to both staff and client is a common occurrence while treating the obese client. This section deals with special considerations in dealing with moving and handling the bariatric individual as well as a review of good body mechanics to aide in avoiding injury.

V. Special Equipment Needs of the Obese Client

Depending on the level of obesity, some clients will need specialized equipment. Types of equipment commonly utilized as well as specifications to address in selecting equipment are described in this section.
VI. Stigma and Psychosocial Implications

Treatment of the bariatric client must involve looking at not only the physical aspect of function, but also the psychosocial aspect of function in the obese client. Practitioners must address their own biases and prejudices as they relate to obese client.

VII. General Treatment and Surgery

This section reviews 3 common treatments for obesity: Behavioral changes, Medications and Surgery. Each of these common treatments are reviewed, including the risks and benefits of each.

VIII. Therapy Considerations for the Obese Client

This section addresses areas that may need to be addressed by the physical or occupational therapist. Those areas include pressure relief, mobility, transfers, and ADL care.

I. Introduction

The second leading cause of preventable death in the United States result from problems related to being overweight or obese. Obesity is now seen as reaching epidemic status in the United States according to the Surgeon General’s office, and due to the increase of obesity around the world, the World Health Organization has classified it as a pandemic. What is obesity? In simple terms, it is excess amounts of body fat which negatively impacts one’s health. What are the factors that contribute to obesity? Again, stated in simplest form, it is caused from eating more calories than one expends. (eMedicine, 2009) But those who work with individuals who are obese know that behavior, environment and genetics all play a role. Behavior plays a role as an individual needs to balance the number of calories consumed with the number of calories utilized during normal body functions and physical activity. Environment plays a role in obesity in a more subtle form. For example, a person’s cultural background may affect the types of foods consumed, or a person’s neighborhood (without sidewalks) or job (sedentary) may limit their physical activity. Finally, genetics plays a role as some genes have been isolated that relate to known illnesses that cause weight gain. Examples of illnesses that may cause weight gain include Cushing Syndrome, hypothyroidism and depression. That being stated, obesity is often blamed on genetics or a physical disorder when a behavioral link is more likely.
Obesity has a high cost as it relates to an individual’s health status. According to the Centers for Disease Control, obesity places the individual at a risk for developing some major illnesses including the following:

- Coronary heart disease
- Type 2 diabetes
- Cancers (endometrial, breast, and colon)
- Hypertension (high blood pressure)
- Dyslipidemia (high total cholesterol or high levels of triglycerides)
- Stroke
- Liver and Gallbladder disease
- Sleep apnea and respiratory problems
- Osteoarthritis (a degeneration of cartilage and its underlying bone within a joint) (CDC, 2008)

Obesity also has high economic costs in the United States. A study done in 1998 suggested that approximately 80 billion dollars were spent on direct medical expenses related to obesity. That does not include indirect expenses such as lost income and productivity and loss of future income due to premature death. (CDC, 2007) Today, that dollar amount continues to grow.

Obesity also has a high psychosocial cost to the individual. Prejudice, stigma, and bias are common battles that the obese individual must face. It can interfere not only with day to day relationships, but also with interaction in the greater community. It is not unusual for the obese person to not seek medical treatment when necessary due to shame, embarrassment, and lack of mobility. For this reason we often see the client with morbid obesity coming to a treatment facility (hospital, LTC) only when their obesity has been a chronic problem for some time. (Dartford, 2006)

When the obese client does come to a treatment facility, there may be special concerns that need addressing. These include:

- Completing proper assessments
- Maintaining safety through protocols and procedures for moving and handling the client
- Availability of correct equipment to accommodate the specialized needs
- Providing psychosocial care/support as needed
- Treating the obesity as well as the co-morbid conditions impairing function

This course will discuss these special concerns and needs of the obese client.
II. Definition, Prevalence and Risk factors in Obesity

Definitions:

Obesity defined in simplest terms, as previously stated, is an excess of body fat that negatively affects one’s health. It is further defined by utilizing Body Mass Index (BMI). BMI is the accepted measure for determining obesity rates. While BMI does not actually measure the fat content of the body, it uses a formula based on heights and weights to indirectly assess the amount of body fat. (How to calculate BMI will be discussed later in this course). Generally, BMI is a good indicator of the amount of fat in one’s body composition, however, there are some variables that must be taken into consideration. One, women generally have a higher percentage of body fat than men. Two, older individuals have higher proportions of fat than younger individuals and thirdly, individuals with a large proportion of muscles will have higher BMI calculations. That being stated, a person with a body mass index of equal to or greater than 30 is generally defined as obese. Utilizing this criteria, approximately one third of U.S. adults can be defined as obese. Obesity is then further defined as Class 1 (BMI 30-34.9), Class 2 (BMI 35-39.9) and Class 3 (BMI 40 and above). Bariatrics usually refers to the treatment of individuals with a body mass index of 35 or above. (CDC – Healthy Weight, 2008) When discussing obesity there is another term that is commonly used – morbid obesity. Whereas, obesity is defined as a BMI of 30 or higher, and bariatrics is defined as an individual with a BMI of 35 or above, a person with Class 3 obesity, or BMI of 40 or above is commonly referred to as morbidly obese. A further definition for morbid obesity is as follows:

“Morbid obesity is a chronic disease, meaning that its symptoms build slowly over an extended period of time. Obesity becomes “morbid” when it reaches the point of significantly increasing the risk of one or more obesity-related health conditions or serious diseases (also known as co-morbidities) that can result either in significant physical disability or even death.” (Dartford, 2006)

There are 2 body types that have been identified, or two ways that fat is usually distributed, in morbidly obese individuals and they are described as “pear shaped” or “apple-shaped”. Below is a description of these two body types:

“Pear-shaped patients have excessive adipose tissue in the gluteal-femoral region of the body. Although they are often able to move around quite well and can get from sitting to standing as they can push their centre of mass over their legs. Generally these patients have a more stable disposition.
Although patients find that losing weight is more difficult with this body shape. This is predominantly a weight concern of women. The apple-shaped person has excessive adipose tissue in the viscera or abdominal area. Often this adipose tissue can press on the aorta, vena cava and small capillaries, causing increased stress on the cardiovascular and respiratory systems. The risks are positional asphyxiation. The patients who have abdominal obesity have increased complications and more weight fluctuations. They have a higher chance of congestive heart failure.” (Darford, 2006)

Studies have indicated that weight carried in the mid section, or “apple shaped” individuals, have a higher incidence of other health related disorders than the “pear shaped” individual. (eMedicine, 2009)

Prevalence:

Obesity is on the rise in most states in the U.S. The following map from the Centers for Disease Control and Prevention shows the percentage of obese individuals (BMI greater than 30) by state. Alabama, Tennessee and Mississippi rank the highest with each having slightly over 30% of their population considered obese, while Colorado ranks lowest with just over 18% of the population defined as obese.

Source: Centers for Disease Control and Prevention

These rates have increased significantly since the 1970’s among both adults and children. Since 2005, the rates have begun to slow, but they have not dropped. (CDC, 2008)
**Risks:**

There are multiple health risks associated with being obese. **Respiratory conditions** are common in obese individuals. Just because an individual’s body size has increased, does not mean that the size of the internal organs increase. In fact the internal organs, such as the lungs remain the same size while the chest wall becomes very large and heavy making it difficult for the person to breathe. It is not uncommon for the bariatric client to breathe with a respiratory pattern of hyperventilation. This causes decreased oxygenation to all tissues. In addition, because the heart is straining to supply oxygen to all organs, a condition known as venous hypertension is common. This also increases the risk of pulmonary embolism. If a morbidly obese individual becomes critically ill and stops breathing altogether, it can be difficult to resuscitate them. The reason for this is that it is difficult to maintain adequate circulation of oxygenated blood to a body that already has compromised circulation. As a result, these clients will “de-saturate” in a relatively quick period of time. (Dartford, 2006) A person who already has respiratory conditions such as asthma or bronchitis often will find these conditions aggravated by obesity. Another condition associated with the respiratory system is **sleep apnea** which is also common in many obese clients. Sleep apnea occurs when individuals stop breathing while they are sleeping. This occurs because the tissues in and around the throat area collapse during sleep causing decreased or no airflow for short periods of time. The person then often feels tired during the day.

**Cardiovascular risks** associated with obesity include high blood pressure, congestive heart failure, coronary artery disease and stroke. More strain is put onto the heart as it is unable to pump efficiently. In addition, high cholesterol causes an increase build-up on artery walls decreasing blood flow and increasing the chance of stroke. **Diabetes** is 10 times more common in an obese individual. Diabetes itself is a dangerous condition which can lead to kidney failure and tissue damage throughout the body. **Osteoarthritis** is a common concern due to the excess stress placed on joints. Joints often “wear out” and require replacement surgery but the success rate of this type of surgery is low for obese individuals. Increased
pressure from abdominal fat often causes both Gastroesophageal Reflux Disease (GERD) and Urinary Incontinence. (Wallace, 2001) Skin infections are common due to yeast in the skin folds. These individuals are at a higher risk for skin breakdown due to decreased mobility, increased pressure and increased risk of sheer movement. Increased perspiration and difficulty controlling body temperature is caused by the larger body mass in relation to proportionately smaller skin area. (Dartford, 2006) A person who is obese may have all or any combination of these health issues.

III. Assessments

Because of the variety of health and risk factors involved, it is important when admitting a client with morbid obesity, that the facility completes a thorough assessment and ensures that they are meeting the care needs of the individual immediately upon admission. Assessment should include height, weight, Body Mass Index, Activities of Daily Living, and Mobility (weight bearing status, transfer ability, etc...) Co-morbid conditions that will most likely also need assessed include respiratory status, skin integrity and joint integrity. There may be other health problems that need addressed as well. Other health problems that are commonly seen and may need assessed are hypertension, type 2 diabetes, arthritis, gallbladder disorders, heart disease, and the presence of sleep apnea. (NIH, October 2000)

Assessing level of obesity:

As previously stated, Body Mass Index is the accepted measure for determining obesity rates. The following table explains how BMI is calculated:

<table>
<thead>
<tr>
<th>Measurement Units</th>
<th>Formula and Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilograms and meters (or centimeters)</td>
<td>Formula: weight (kg) / [height (m)]^2</td>
</tr>
<tr>
<td></td>
<td>With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared. Since height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters.</td>
</tr>
<tr>
<td></td>
<td>Example: Weight = 68 kg, Height = 165 cm (1.65 m)</td>
</tr>
</tbody>
</table>
Calculation: $68 \div (1.65)^2 = 24.98$

<table>
<thead>
<tr>
<th><strong>Pounds and inches</strong></th>
<th><strong>Formula:</strong> weight (lb) / [height (in)]^2 x 703</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.</td>
</tr>
<tr>
<td>Example: Weight = 150 lbs, Height = 5’5” (65&quot;)</td>
<td>Calculation: $[150 \div (65)^2] \times 703 = 24.96$</td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention

There are many ‘calculators’ on the internet where you can go to calculate a person’s BMI (see below). The same calculations are used for both adults and children. Interpreting the results are different for adults and children, however. The following chart shows the standard BMI categories for adults:

<table>
<thead>
<tr>
<th><strong>BMI</strong></th>
<th><strong>Weight Status</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 – 24.9</td>
<td>Normal</td>
</tr>
<tr>
<td>25.0 – 29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>30.0 and Above</td>
<td>Obese</td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention

Go here to calculate your own Body Mass Index:


Another assessment of obesity that is sometimes used is to measure waist circumference. This is an important measurement especially as it relates to increased risk of other health complications. A waist circumference of 40 inches or greater for men and 35 inches or greater for women, has been shown to correlate to increased risk for diabetes, hypertension and heart disease. (NIH, October 2000) This may be important information when caring for an obese individual.
Assessing Skin Integrity:

The skin is the largest organ in the body accounting for 16% of the total body weight and it is an important consideration when dealing with an obese individual as their skin area increase in size. (Camden, 2007) Because an obese individual tends to be less physically mobile, the risk of pressure ulcers is increased. It is therefore important to regularly assess the individual for compromises in skin integrity. One scale that can help to assess risk is the Braden Scale for Predicting Pressure Sore Risk. This scale measures risk based on sensory perception, moisture, activity, mobility and nutrition. It is important to find a tool that can be used to track both at admission and during facility stay, the increasing or decreasing risk of developing pressure ulcers. You can access the Braden Scale here http://www.bradenscale.com/braden.PDF (Braden, 1988)

Assessing Activities of Daily Living:

Independence in basic self care tasks is an important aspect of dignity and self esteem. It is essential to know what areas the individual needs assistance in and the corresponding amount of assistance that needs to be given. Because the performance of basic activities of daily living can produce increased fatigue, shortness of breath and pain in the obese individual, they may at times be reluctant to attempt some tasks. In addition, the person may feel shame and embarrassment about their body which inhibits participation. For these reasons, it is important that the staff encourage participation in these skills. Staff may have a tendency to assist “too much” causing further disability or what is sometimes referred to as excess disability. Another common mistake is for the caregiver to falsely assume that an individual who does not ask for assistance can complete a task independently. It is not uncommon for an obese individual to need help with an ADL task but be reluctant to ask for help due to shame and or embarrassment. For this reason, a good initial and ongoing assessment of ADL independence is essential. Facilities may have their own assessments that address basic self care skills but there also several tools that can be useful in establishing ADL participation. The Physical Self Maintenance Scale is one such tool and addresses both basic ADL skills as well as higher level skills called “Instrumental Activities of Daily Living” (Telephone Use, Shopping, Cooking, Housekeeping, Medication Use). This Scale can be accessed here: http://www.hospitalmedicine.org/geriresource/toolbox/pdfs/phys_selfmain.pdf (Society of Hospital Medicine, 2004)
Assessing Respiratory Status:

As previously noted, respiratory conditions are a common concern in the obese or bariatric client. For this reason it is important that all professionals who work with this client are able to recognize signs and symptoms of respiratory distress. The following chart lists helpful criteria in assessing level of respiratory distress.

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Mild Distress</th>
<th>Moderate Distress</th>
<th>Severe Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Appearance</strong></td>
<td>Calm</td>
<td>Possibly mildly anxious</td>
<td>May be distressed,</td>
<td>Distressed, anxious,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Anxious</td>
<td>fighting to breathe</td>
</tr>
<tr>
<td><strong>Speech</strong></td>
<td>Clear and normal</td>
<td>Speaks in sentences</td>
<td>Speaks in short phrases</td>
<td>Speaks in words only, or no</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>only</td>
<td>speech</td>
</tr>
<tr>
<td><strong>Respiratory Rate</strong></td>
<td>12-16 per minute</td>
<td>16-20 per minute</td>
<td>More than 20 per minute</td>
<td>More than 20 per minute</td>
</tr>
<tr>
<td><strong>Pulse Rate</strong></td>
<td>60 – 100</td>
<td>60 - 100</td>
<td>100-120</td>
<td>More than 120</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td>Normal</td>
<td>Normal</td>
<td>May be pale and sweaty</td>
<td>Pale and sweaty, may be</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cyanosed</td>
</tr>
<tr>
<td><strong>Conscious State</strong></td>
<td>Alert</td>
<td>Alert</td>
<td>May be altered</td>
<td>Altered or Unconscious</td>
</tr>
</tbody>
</table>

In addition to the ability to identify respiratory distress, the healthcare professional should be alert to levels of shortness of breath (SOB) experienced by the obese individual at varying times of the day and/or during various tasks. The Shortness-of-Breath Visual Numeric Scale is a helpful tool to assess perceived SOB by the individual. It can be accessed here: [http://patienteducation.stanford.edu/research/vnssob.html](http://patienteducation.stanford.edu/research/vnssob.html)

(Stanford Patient Education Research Center)
Anther useful scale for measuring level of shortness of breath is the Ventilatory Response Index also sometimes referred to as the “Counting to Fifteen” test. This scale is described in the following article:

http://www.thefreelibrary.com/Cardiac+transplantation:+a+review-a018326968 (Sadowsky, 1996)

Assessing joint integrity

Joint integrity is generally assessed through testing of muscle performance, joint range of motion, posture and/or joint alignment and pain assessment. There are many tools commonly available to assess these areas.

Assessment for handling the individual and special equipment needs is a major part of proper care for the obese client. The number of staff needed to handle individual, techniques for handling individual, as well as equipment requirements must be communicated to all departments involved in the care of the bariatric client. The following sections deal with these two important care areas. (Dartford, 2006)

IV. Handling and Moving

Back injuries account for approximately one-fourth of all occupational injuries. Among the top 10 occupations at the greatest risk for back injuries are nurse aides, LPNs, RNs, and physical therapists. Many of these injuries are the direct result of handling and moving clients. Nurses in particular have a 35% - 80% chance of having a back injury at some point during their professional career. (Camden, 2007) We must safeguard both the health and safety of the client as well as the health and safety of the staff.

Handling and moving the bariatric client is an area that needs special attention. Both the size and the weight of the individual is a challenge for care giving staff. In addition, the bariatric client may be somewhat lethargic and unmotivated to participate. It therefore becomes very important to coordinate with all staff involved in care, to work at a slower pace, and to observe good body mechanics when in the process of moving or assisting to move the client. (Perkins, 19999) The Occupational Safety and Health Administration (OSHA) lists several reasons why injuries occur during manual moving and handling tasks including:

- Poor posture
- Reaching while lifting
- Twisting while lifting
- Bending while lifting
• Heavy lifting
• Poor footing

For this reason, OSHA states that it is important to train staff in correct body mechanics during lifting procedures. OSHA has even developed specific guidelines for individuals in healthcare settings including nursing homes. OSHA recommends that the following information is important to establish initially for the bariatric client –

- the level of assistance the resident requires
- the size and weight of the resident
- the ability and willingness of the resident to understand and cooperate and
- any medical conditions that may influence the choice of methods for lifting or repositioning. (OSHA – U.S. Department of Labor)

In addition, it is important to remember the principles of good body mechanics. Body mechanics are defined as determining the safest and most effective ways to move and lift by applying the principles of how the human body most naturally moves. The three basic principles underlying all body mechanics are center of gravity, base of support and line of gravity. A person’s center of gravity is located in the pelvic region of the body. Therefore, when a person is bending or moving an object, they should try to keep their center of gravity over their feet as this gives added stability and balance. In order to keep center of gravity (the pelvic region) over the feet, the individual must bend their knees and hips, but keep the back straight. Base of support is located in the feet. In general, a person needs a wide base of support to increase stability, therefore, when lifting and moving, a person should have their feet spread apart for side to side stability and one foot slightly in front of the other foot for front to back stability. If an individual is turning while lifting, their base of support (feet) should turn and not just their body (twisting). Finally, the line of gravity goes from the head, through the pelvic region (center of gravity), to the feet (base of support). The straighter you can keep this line during lifting and moving, the more efficient and safer you will be. (Rosedahl, 2007) Based on these underlying principles, the following is a list of recommendations from
Brookside Associates Medical Education Division – Nursing Fundamentals for lifting and moving:

**“Lifting**

1. Use the stronger leg muscles for lifting.
2. Bend at the knees and hips; keep your back straight.
3. Lift straight upward, in one smooth motion.

**Reaching**

1. Stand directly in front of and close to the object.
2. Avoid twisting or stretching.
3. Use a stool or ladder for high objects.
4. Maintain a good balance and a firm base of support.
5. Before moving the object, be sure that it is not too large or too heavy.

**Pivoting**

1. Place one foot slightly ahead of the other.
2. Turn both feet at the same time, pivoting on the heel of one foot and the toe of the other.
3. Maintain a good center of gravity while holding or carrying the object.

**Avoid Stooping**

1. Squat (bending at the hips and knees).
2. Avoid stooping (bending at the waist).
3. Use your leg muscles to return to an upright position.

**GENERAL CONSIDERATIONS FOR PERFORMING PHYSICAL TASKS**

1. It is easier to pull, push, or roll an object than it is to lift it.
2. Movements should be smooth and coordinated rather than jerky.
3. Less energy or force is required to keep an object moving than it is to start and stop it.
4. Use the arm and leg muscles as much as possible, the back muscles as little as possible.
5. Keep the work as close as possible to your body. It puts less of a strain on your back, legs, and arms.
6. Rock backward or forward on your feet to use your body weight as a pushing or pulling force.
7. Keep the work at a comfortable height to avoid excessive bending at the waist.
8. Keep your body in good physical condition to reduce the chance of injury.” (Brookside Associates, 2007)

Another factor that must be considered when lifting and moving the obese client is the amount of friction and sheer that occurs during the transfer. Reducing friction can be accomplished by utilizing a slide or transfer sheet. These principles must be adhered to when lifting and moving patients of all sizes, however, they are extremely important for reducing the risk of injury when moving the obese client.

Staff should not attempt to manually lift an individual that has been determined to require Hoyer or other mechanical lifting. Because of the risk of injury involved, many healthcare facilities have set up protocols and decision trees that help staff determine when mechanical equipment is best to use for moving and handling individuals as opposed to manual moving and lifting. The U.S. Occupational Safety and Health Administration (OSHA) developed ergonomic guidelines for nursing homes that include decision trees for lifting and handling clients. These guidelines can be accessed here: http://www.osha.gov/ergonomics/guidelines/nursinghome/final_nh_guidelines.html (OSHA – Ergonomics: Guidelines for Nursing Homes)

Moving and handling of bariatric clients has become such an issue that the government has also stepped in with some legislation that protects both the safety of healthcare workers as well as the bariatric patient. One such piece of legislation was passed in Texas in 2006 which requires hospitals and nursing homes to have special protocols in place for lifting and transferring of patients. In the same year (2006) in Washington legislation was passed that requires hospitals to have mechanical lifting devices for patient moving and handling. There is a move among some representatives of health care professionals to have a “no lift” policy. There is currently a bill in the House of Representatives that would eliminate manual lifting for nurses altogether but that bill, at this time, has not currently passed. (Thomas, 2008)

V. Specialized Equipment Needs

The correct equipment is vital to properly care for an individual who is morbidly obese. Utilizing improper equipment can lead to serious injury. For example, in a hospital or a long term care facility there may be items in a person’s room that are on wheels (tables, beds). If the obese client uses these items for support as they move around the room, this can lead to a fall. In addition, equipment and furnishing may be lightweight or too small
for a larger client. (Camden, 2007) Most standard equipment is able to manage individuals up to 250-300 lbs. Even a standard commode in most hospitals is only designed for a maximum of 350 lbs. When an individual exceeds this amount, specialized equipment is usually indicated. It is an error to think that an individual just needs a “larger size” of whatever piece of equipment you are considering. Other safety considerations must be addressed. Considerations such as seat height and depth, arm supports, pressure relief, is it adjustable, will it fit through the door are among some of the considerations when addressing equipment needs. Items such as mechanical lifts, wheelchairs, sliding sheets, special commodes improve the care of the client and reduce the risk of injury to both client and staff. One ergonomist lists the following items as possible equipment needs of a morbidly obese individual:

- Ambulation/Mobility Aids
- Bathing Equipment
- Beds/Mattresses/Transportation
- Ceiling Lifts
- Commode/Shower Chairs
- Lateral Transfer Aids
- Multi-Use/Portable Lifts
- Powered Lifts
- Stand Assist Aids
- Transfer/Geri Chairs and Cushions
- Wheelchairs
- Transport Devices

Items identified as the most beneficial include proper beds, transport devices and turning and repositioning slings. (Baptiste, 2007) Other hints for equipment include:

An appropriate bed size is one that allows the client the ability to turn independently
Mattresses must be able to maintain the individual’s weight as well as provide pressure relief
Chairs that are located in the client’s room must be determined to be
safe for the individual both in size (seat depth, width, height) as well as in weight capacity and pressure relieving properties. Walkers must support the weight of the person as well as be wide enough to accommodate the person’s body frame. (Dartford, 2006)

VI. Stigma and Psychosocial Implications

There is a lot of prejudice and stigma surrounding obesity. One reason for this is because the condition is seen to be “under the control” of the individual. Recently, you may have heard the news story of a woman who was 5 feet tall and 275 lbs. The woman had a tumor that needed treatment but was told by a hospital that their equipment could not handle her and that she needed to go to the zoo to get an MRI. There is evidence that social stigma related to obesity has an impact on employment, education, and interpersonal relationships. In the area of employment, obese individuals are less likely to be hired, make less money, receive fewer promotions and have increased occurrences of being fired. In the area of education, overweight children tend to be “picked on”, teachers have been shown to have a bias against overweight students and obese individuals have lower educational attainment levels. In interpersonal relationships, the obese individual generally has fewer relationships and is more socially isolated. All of this has obvious psychosocial impact on the bariatric client. Not only are they dealing with the negative perceptions of others, but also with their own negative perceptions as well as the environmental constraints. This often leads the individual to isolate themselves. It is not uncommon for them to exhibit low self esteem, anxiety, depression and even suicidal thoughts and actions. Not only is there evidence of prejudice and stigma in the general population, but it has also been observed in the healthcare settings. There have been studies that include nurses, doctors and even dieticians and psychologists that have shown a bias when dealing with overweight patients. Some of the attitudes noted amongst these and other healthcare workers include belief that the obese individual is:

- Emotionally unstable
- Unable to adhere to a diet
- Lacking self control and will power
- Insecure
- Unattractive
- Slow
- Non-compliant
- Over-indulgent
- Lazy
- Sloppy
• Unpleasant
• Unintelligent

One study done with nurses revealed 31% preferred not to care for obese patients, 24% said they felt repulsed by obese patients and 12% said they preferred not to touch obese patients. These attitudes often cause obese patients to not seek medical care, including preventative care and needed tests and treatments. (Brownell, 2005)

Therefore, any care given the bariatric client needs to involve meeting their psychological needs and encouraging staff to see the person as an individual, not just someone who is morbidly obese.

**VII. General Treatment (including Surgeries)**

Millions of dollars are sent each year in diet books, diet foods and diet pills. However, treatment for obesity mainly involves correcting the imbalance between the number of calories consumed and the number of calories expended. Many people are unaware of the number of calories contained in, for example, a regular fast food meal. The Surgeon General’s office gives the following as an example – A typical fast food meal of a double patty cheeseburger, extra large fries and a large soft drink is approximately 1500 calories. After consuming that amount of calories an individual would need run for 2 ½ hours at a fairly fast pace to utilize that same amount of calories. The Surgeon General recommends the following plan for individuals who suffer from obesity:

- “Physical activity should be initiated slowly, and the intensity should be increased gradually (e.g., start with a 10-minute walk three times a week and work your way up to 30 minutes of brisk walking or other form of moderate activity five times a week).
- Activities can be split into several short periods (e.g., 10 minutes 3 times a day) instead of one longer period (e.g., 30 minutes once a day).
- You should select activities that you **ENJOY** and can fit into your daily life.
• It may take time to incorporate more activity into your daily life. Don't get discouraged if at first you miss a day or two; just keep trying and do your best to make it a regular part of your life. You will soon realize how good it feels to be physically active and fit.
• Ask for support from friends and family; likewise, support the people in your life who are trying to be physically active.
• Many forms of physical activity can be social, allowing you to converse and spend time with family or friends or to develop new relationships.
• Make fitness a priority…**COMMIT TO IT.**” (Surgeon General, January 2007)

**Weight loss medications**

It may be necessary for some individuals, in addition to healthy eating, to utilize a medication to assist with weight loss – In particular, those individuals who have a high risk of medical issues due to their obesity such as high blood pressure or diabetes. Generally, weight loss drugs fall into one of 2 categories, appetite suppressants or lipase inhibitors (blocks the body’s absorption of fat). Appetite suppressants are by far the most common type of weight loss medications prescribed and they assist by making the person feel less hungry. As with any medications, side effects and risks must be anticipated. Common side effects include nervousness and increased blood pressure. Risks include the potential for medication dependence, potential for drug tolerance to occur, and the potential to rely on the medications and not make needed behavioral changes. (NIH, December 2007)

**Surgery**

It may be necessary for the individual who is obese to utilize surgery as a treatment option. These surgeries are referred to as bariatric surgery. Generally, an individual must fit into one of the following categories) before being considered a candidate for bariatric surgery.

1) be classified as morbidly obese (BMI of 40 or above)
2) be 100 pounds over your ideal weight
3) have a BMI of 35 or above and a co-morbid condition (diabetes, heart disease, hypertension, etc...)

There are 2 surgical options that have gained in popularity in recent years. The first is based on malabsorption, in other words, a surgery that causes your body to limit the amount of calories and nutrients it absorbs. This is
usually done by “re-routing” the small intestines. The second type of surgery is based on restriction, or limiting the amount of food you can eat. This is usually accomplished by decreasing the size of the stomach by banding or creating a smaller stomach surgically. (Bariatric Edge, 2009)

The four most common surgical procedures are:

- Adjustable Gastric Band (AGB)
- Gastric Bypass (RYBG)
- Gastric Sleeve (GS)
- Biliopancreatic Bypass With a Duodenal Switch (BPD)

The following diagram illustrates the four procedures:

![Diagram of Surgical Options](image-source)

**Figure 1**
Diagram of Surgical Options. Image credit: Walter Pories, M.D. FACS.

Source: National Institutes of Health

In an Adjustable Gastric Band procedure a small band is placed around the stomach leaving an area the size of a thumb for actual food to be stored. In a Gastric Bypass procedure a similar thumb size small pouch is created but food is then re-routed to the small intestines. In a Gastric Sleeve procedure most of the stomach is removed. Finally, the most complicated bariatric surgery is the Biliopancreatic Bypass with a Duodenal Switch which involves removing most of the stomach and re-routing food to the lower small intestines. This surgery provides the most dramatic results but also carries the highest risk. (NIH, March 2008)

**VIII. Therapy Involvement with the Obese Client**

Physical and Occupational Therapists both have a role in assisting in the care and management of the bariatric client. Physical therapy often addresses...
areas such as postural stability and control and increasing physical activity and exercise (flexibility, strength, endurance and balance). (Burlis, 2006) Occupational therapy often addresses equipment and adaptations, ADL compensatory training and the development of new lifestyles. (Clark, 2007, AOTA Position Paper) Following are some specific interventions that therapy may utilize.

**Pressure Care:**

One important aspect of treatment involves the prevention of skin breakdown and this must be addressed by all persons involved in the care of the bariatric client, including therapy. As has been previously noted, decreased mobility, increased pressure, increased sheer and yeast build-up in skin folds are all aspects that can lead to skin breakdown. It is important to teach staff to inspect skin regularly during care. Pressure ulcers can be found in both typical areas as well as atypical areas. In addition to the typical locations for pressure sores, atypical areas might include:

* within skin folds
* where a catheter line runs
* on the sides of both hips due to pressure from a chair or from side rails

Interventions that therapy can assist with to ensure proper skin care include acquiring appropriate equipment, making sure tubes are placed where the individual does not lay on them, schedules for repositioning every 2 hours or teaching and instructing the client themselves in repositioning, ADL training including washing and drying appropriately during ADL regimes. (Camden, 2007)

**Respiratory Care**

Shortness of breath is a common occurrence in the obese individual and can affect the therapy process. The person may need to be instructed in energy conservation and work simplification principles and techniques to help manage the shortness of breath. The following are some principles for the individuals to incorporate into their daily living that can help when managing shortness of breath:

1- **Limiting the amount of work** by eliminating steps that are non-essential.
2- **Prioritizing** by doing the most important things first. That may mean making a list of things to do and then beginning to cross off those that don’t have to be done or that someone else can do for you.
3- **Planning ahead** so that you can space out essential tasks as well as determining the best time of day to do certain tasks. Planning also involves making sure you have all the necessary tools to complete a task in an easily
accessible location.

4- **Incorporating rest breaks** to help prevent fatigue. Keep a moderate pace when completing tasks and allow for 10 minute breaks as necessary. (Asthma Foundations Australia)

Decreased oxygenation due to altered breathing patterns may occur. For this reason, it may be important to regularly check oxygen saturation levels, particularly during periods of exertion. Because the obese individual can desaturate at a rapid pace, if saturation levels begin to fall, the activity will need to be temporarily halted to allow for recovery.

**Functional Mobility**

Sitting up in bed, rolling over and going to the bathroom can all be challenges for the individual with obesity. These skills need to be addressed to make sure the individual is able to perform them as independently and safely as possible. Utilizing a trapeze and /or side rails is often helpful for bed mobility. If the person is utilizing a wheelchair, they will need good upper body strength to self propel. In addition, teaching may be necessary in how to navigate within a facility. The person will need a large turning circle to accommodate for a larger wheelchair. If the individual is ambulating with a walker they will need to be taught to utilize a wide base of support in order to support a larger top mass as well as accommodate for large thigh mass.

**Transfers:**

Transfers of bariatric clients can involve risk for both the client and the caregiver/staff. Some of the complications that may occur include increased pain, fall risk, shearing, pulling on joints, pressure from equipment, respiratory distress and angina. When assisting a client with a transfer, it is important to establish 2 preliminary facts that can affect the number of staff required to assist:

1- Is the client able to assist?
2- Is the client cooperative?
3- Does the client have upper body strength?

Other important considerations for safe transfers include:

- Make sure chair wheels are locked
- Transfer toward the stronger side
- Utilize chair arms to assist with repositioning
• If using a sliding board, must have chairs arms that are removable
• If transferring to a bed, make sure the side rails are down
• The destination surface for lateral transfers should be approximately ½ inch lower than originating surface
• Consider using an abdominal binder if the clients abdomen impedes client handling
• Avoid shearing effects
• Make sure the surface you are transferring to has sufficient weight limits for the particular client
• Make sure surface you are transferring to is stabilized, ie won’t move with the weight of the individual during the transfer
• When using multiple staff to transfer, best to delegate a leader to coordinate transfer efforts
• Unless contraindicated, when pulling a client up in bed make sure the bed is positioned flat or with the head even lower than the feet (Trendenlenburg position)
• If a bariatric client does begin to fall, it is not usually possible to stop the fall. The best method is to lower safely to the floor while making sure that the client’s head does not hit any objects. (Baptiste, 2007)

Activities of Daily Living

There are two considerations when dealing with ADL participation for the obese client. The first consideration is the need to encourage independence. At the same time, it is also important to assure that staff are assisting as necessary with ADL care to ensure good hygiene. It is not uncommon that they may need a bed bath or at least assisted with washing areas of their body. Staff should be taught to assist by washing underneath skin folds and to dry underneath the folds thoroughly as leaving them wet will contribute to bacteria growth. If the individual is able to bathe out of the bed, a shower is obviously preferred as getting in and out of a bathtub is an increased safety risk. Shower chairs will most likely be needed. Although managing toileting can also be a challenge, it is better to encourage the individual to urinate in a toilet if able as opposed to using a bedpan in order to prevent skin breakdown. Finally, the client should be encouraged to dress in street clothes as opposed to remaining in hospital gowns as much as possible

Weight Management

It is important to realize that small reductions in weight can have a significant impact on health. Even a loss of 5-10% of initial body weight (15 to 30 pounds for a 300 pound individual, for example) can significantly
reduce the risk of hypertension, high cholesterol and other health issues. (Clark, 2007, AOTA Position Paper) For this reason, therapy should be a part of the multidisciplinary approach in helping the individual design and maintain a healthy eating and exercise plan. One PT describes an exercise program at her facility for bariatric clients as follows:

“At our facility, we have developed a group-exercise program, On the Move™, that is led by PTs with assistance from PTs in training. Participants have the opportunity to attend 60-minute exercise sessions held one to four times per week. Prior to entering and exiting the program, each participant has an individualized assessment of their musculoskeletal status with regard to flexibility, strength, endurance, and balance. This enables the exercise-session leaders to screen each participant and tailor exercise sessions to the needs of the individuals in each class. The On the Move program uses various types of programming and educational materials to improve musculoskeletal status: low-impact aerobics in sitting and standing for endurance; exercise balls for balance and coordination; resistive bands and free weights for strengthening; self-stretching for flexibility; and slow, controlled movement for posture and body control. Education is provided during class sessions as take-home materials, and we email participants weekly to promote interactive education and communication.” (Burlis, 2006)

Therapist Sensitivity:

It is important for the therapist to identify one’s own negative attitudes and biases where obesity is concerned. Ask yourself if you have some preconceived ideas about intelligence, character and other aspects of the overweight individual. When you are treating the obese client are you sensitive to their needs and do you give appropriate encouragement and feedback? Ask yourself what you are doing to help to empower the patient! Below are some suggestions as you “integrate sensitivity into practice”:

- Consider patients previous negative experiences
- Recognize that being overweight is the product of many factors
- Explore all causes of presenting problems, not just weight
- Recognize that many patients have tried to lose weight repeatedly
• Emphasize the importance of behavior changes rather than weight
• Acknowledge the difficulty of making lifestyle changes
• Recognize that small weight changes can improve health
• Ask for permission to discuss weight (Brownell, 2005)

IX. Conclusion

Obesity is a growing healthcare concern in the United States. It has high economic, psychosocial and physical costs to both the individual and to society. Morbid obesity in particular is on the rise and carries with it the risk of major co-morbidities that further compromise health and quality of life. Although, this individual is often reluctant to seek medical care, eventually, they will need the care that a hospital or even a long term care facility may provide. Therefore, healthcare workers will have to become skilled at treating this specialized client. In addition, hospitals, long term care facilities, and even out patient clinics will need to be aware of whether they can adequately serve and meet the needs of the obese client, in particular the morbidly obese client. Assessments must be thorough and identify the various health needs as well as any special equipment and handling needs of the client. If these needs are not addressed initially, there may be increased risks for both the client and the healthcare professional. Therapists must also understand the unique challenges faced by the obese client and be proactive in learning how to care and treat this specialized client in our various healthcare settings.

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