

REDUCING STIGMATIZATION: REMODELING AUBURN MEMORIAL HOSPITAL FOR THE BARIATRIC PATIENT



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Executive Summary

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Class: DEA 6530 Planning and
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Client: HOLT Architects

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Focus Area: Stigmatization of the Bariatric Patient

Project Summary

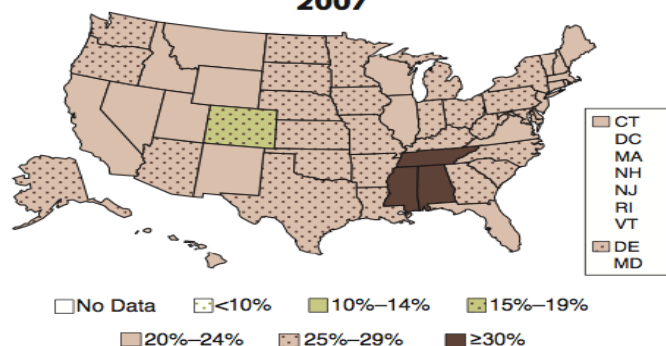
The focus of this project was to investigate the issue of stigmatization in healthcare settings for the bariatric patient and make recommendations to reduce stigmatization at the Auburn Memorial Hospital. Many bariatric patients are affected by stigmatization to a large degree and are wary of going to hospitals because of the fear of being exposed to the public and even healthcare workers. This study found ignorance amongst caregivers and the public, challenges in providing care and inadequate facilities and equipment to be the three main contributors driving bariatric patient stigma and impede the delivery of safe, comfortable and pleasant experiences at the hospital. Hence, the solution should address these three areas. By systematically examining the complete pathway of the bariatric patient in the hospital and noting the issues that they face in each of the areas, suitable recommendations were made. These recommendations include improving accessibility of corridor spaces, spaces in inpatient rooms and bathrooms, acquisition of appropriate furniture and equipment, introducing bariatric acuity-adaptable rooms, ensuring dignity in transporting and storing bariatric bodies, and developing an obesity education center to help reduce stigma associated with obesity.

INTRODUCTION

FACTS & FIGURES

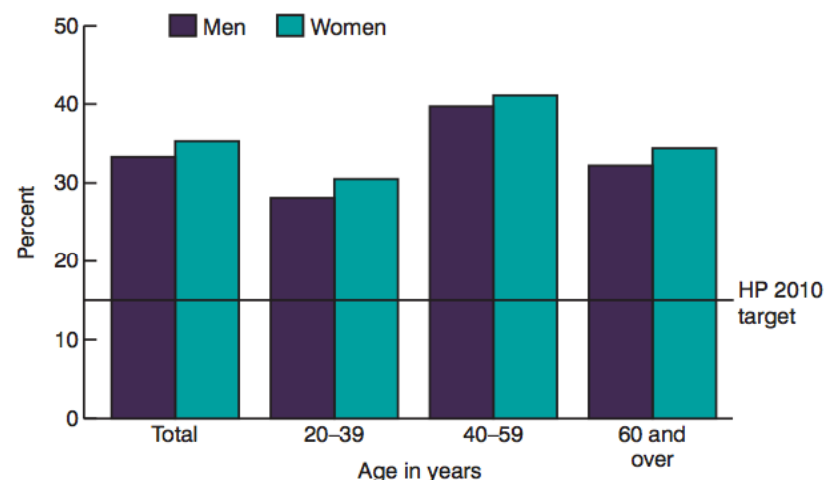
1. Approximately one-third of adults in the United States are obese and this number has nearly doubled in the last 20 years and will continue to grow (CDC 2009). As of 2009, about 25-29% of people in State of NY are obese (*ibid*).
2. More startlingly, the jump in the number of morbidly obese people, those who are 100 pounds or more overweight is even greater. Between 1996-2000, about 1 in 80 men weighs more than 300 pounds, a 50% increase between 1996 and 2000 while 1 in 200 women weighs more than 300 pounds, a 67% increase over the same period (Strum 2007).

**Percentage of Adults Who Are Obese,* by State
2007**



* Body mass index (BMI) ≥ 30 , or about 30 lbs. overweight for 5' 4" person, based on self-reported weight and height.
Source: CDC, Behavioral Risk Factor Surveillance System.

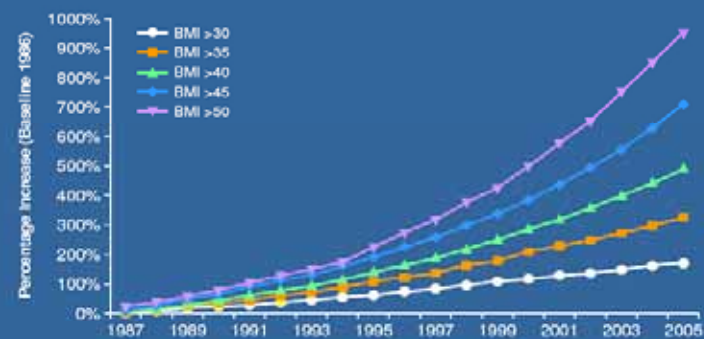
Percentage of Adults Who are Obese by State in 2007
(Source: CDC (2009) Obesity- At A Glance)



NOTE: Obesity is defined as body mass index ≥ 30 .
SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.

Obesity Prevalence by Age and Sex (Source: Ogel et al 2007)

Increasing Prevalence of Extreme Obesity



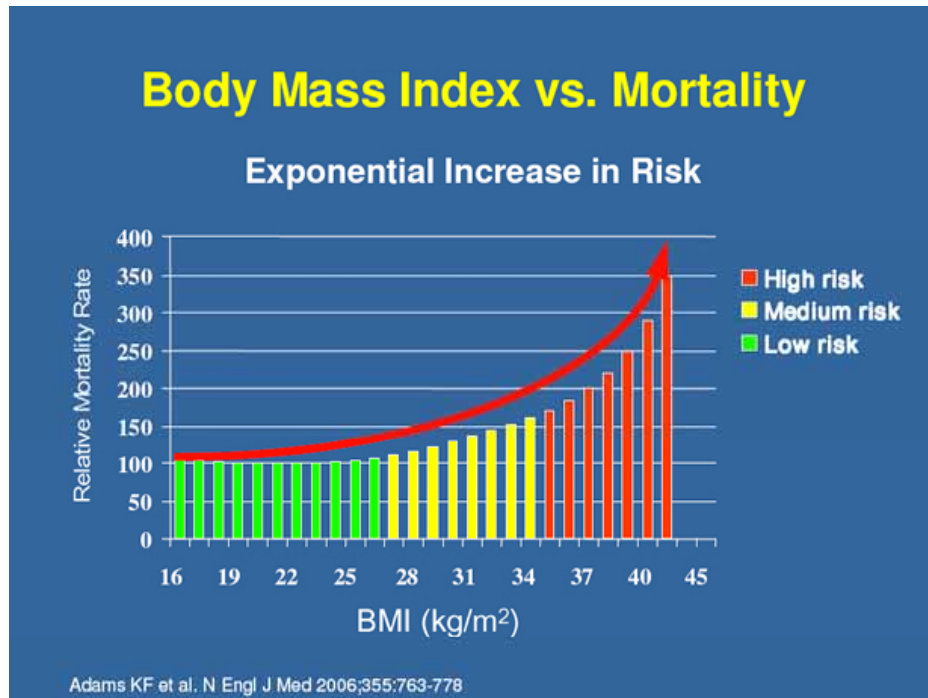
Strum PL. Public Health 2007;121:492-496.

Increasing Prevalence of Extreme obesity
(Source: Strum 2007)

DEMAND FOR BARIATRIC-FRIENDLY HOSPITALS IS INCREASING

INTRODUCTION

ASSOCIATED COMORBIDITIES & DISEASES



Number of Bariatric Surgery Discharges in the US, 1995-2005.
(Source: Strum 2007).

People affected by extreme obesity are at risk of premature death. People with a BMI >35 have twice the risk of death at any age when compared to people who have a BMI within the normal range (Strum 2007).

Physical Symptoms	Metabolic Problems	Endocrine Problems	Anesthetic & Surgical
Tiredness Breathlessness Varicose Veins Back pain Arthritis Edema Cellulitis Sweating Intertrigo Stress Incontinence	Hypertension Hyperlipidaemia Hypercoagulation Type II Diabetes Coronary Heart Disease Stroke Hepatic Steatosis	Hirsutism Oligomenorrhea Infertility Menstruomenorrheagia Estrogen-dependent Cancers: Breast, Uterus, Prostate, Polycystic ovarian syndrome	Sleep apnoea Chest Infections Wound dehiscence Hernia Venous Thrombosis

Health Consequences of Overweight and Obesity (Rush 2005)

Obese patients are at greater risk of diabetes, asthma, heart failure and osteoarthritis and other non-fatal debilitating diseases that can seriously impact the person's quality of life. The higher the BMI of the person, the greater the risk of adverse the health effects, lowered bodily functions and physical impairments (Rush 2005).

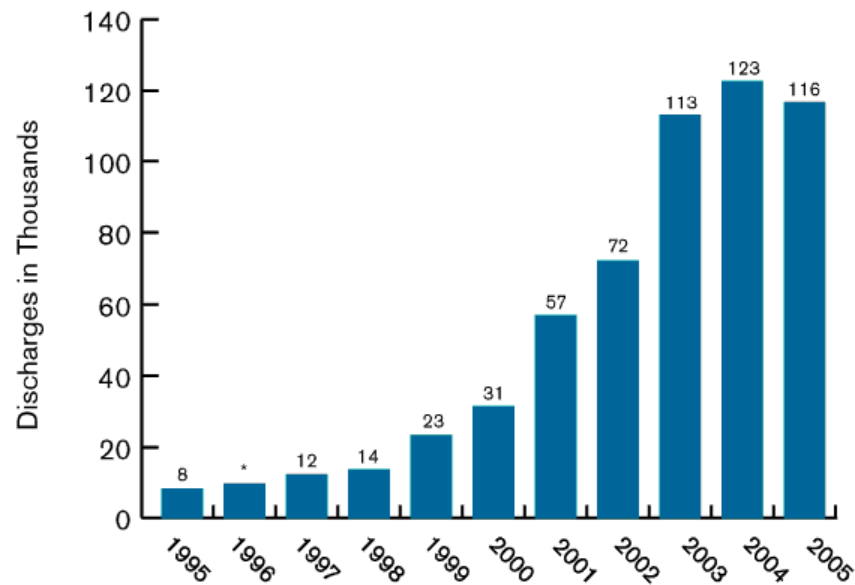
OBESSE PATIENTS ENCOUNTER MORE THAN JUST ONE DISEASE

INTRODUCTION

INCREASE IN DEMAND FOR BARIATRIC SERVICES

1. Given that obesity is associated with many diseases and comorbid conditions such as diabetes and cardiovascular disease, healthcare institutions can expect to have more bariatric patients seeking their expert care for a variety of clinical reasons.
2. In addition, given the boom in gastric bypass and its profitability, even larger numbers of bariatric patients will be drawn to health care providers. AMH has its bariatric surgery program and forms about 5% of the total patients going to the hospital (Dr. Carl Weiss, Bariatric Surgeon at AMH, p.c.)
3. Currently about 40% of all patients in AMH are obese and the volume of bariatric patients at AHM will continue to grow over the next decade (*ibid*). The rise in obesity numbers and the multiple specialists that they need to see due to their co-morbidities presents a strong business case for AMH to incorporate bariatric

Number of Bariatric Surgery Discharges, 1995–2005



Number of Bariatric Surgery Discharges in the US, 1995-2005
(Source: AHRQ, Center for Delivery, Organization and Markets, Healthcare Cost and Utilization Project)

DEMAND FOR BARIATRIC-FRIENDLY HOSPITALS IS INCREASING

Ethnography: The Case with Ms. Jones

1. Ms. Jones is a 57-year-old woman who weighs 315 pounds.
2. As she stands at the receptionist window waiting to check in, her knees and back hurt.
3. After signing in, she looks for a comfortable chair in the waiting area, but the only chair available was too narrow and has armrests. She is aware of the stares of other patients as she squeezes into the available chair.
4. She picks up a magazine to distract herself while waiting. It is replete with photos of thin, attractive and young women and articles about food.
5. When she needs to use the rest room, she finds it small and unaccommodating. She finds it difficult to adequately attend to her personal hygiene in the limited personal space.
6. At last a nurse calls her and takes her through a narrow door to a scale in a hallway. She feels exposed, aware that others will be able to see her weigh in. She feels embarrassed and hesitates to get on it.
7. The nurse asks if she is above 300 pounds. When she says yes, the nurse declares, "You are too heavy for this scale." The nurse looks exasperated as she notes a weight of "300+" in the medical chart.
8. The nurse takes Ms. Jones to the triage room where she looks for a large blood pressure cuff. When she can't find one, she calls to a medical assistant across the corridor, "Have you seen the large cuff?" When she finally measures Ms. Jones' blood pressure, it is 190/105.
9. As the nurse goes to tell the doctor about this reading, the patient thinks she knows why her blood pressure is high; she has come in today for the "female" examination she has been avoiding for years. Her doctor told her how important it is for her to have regular preventive examinations, but she remembers the pain, discomfort and embarrassment of her last exam.



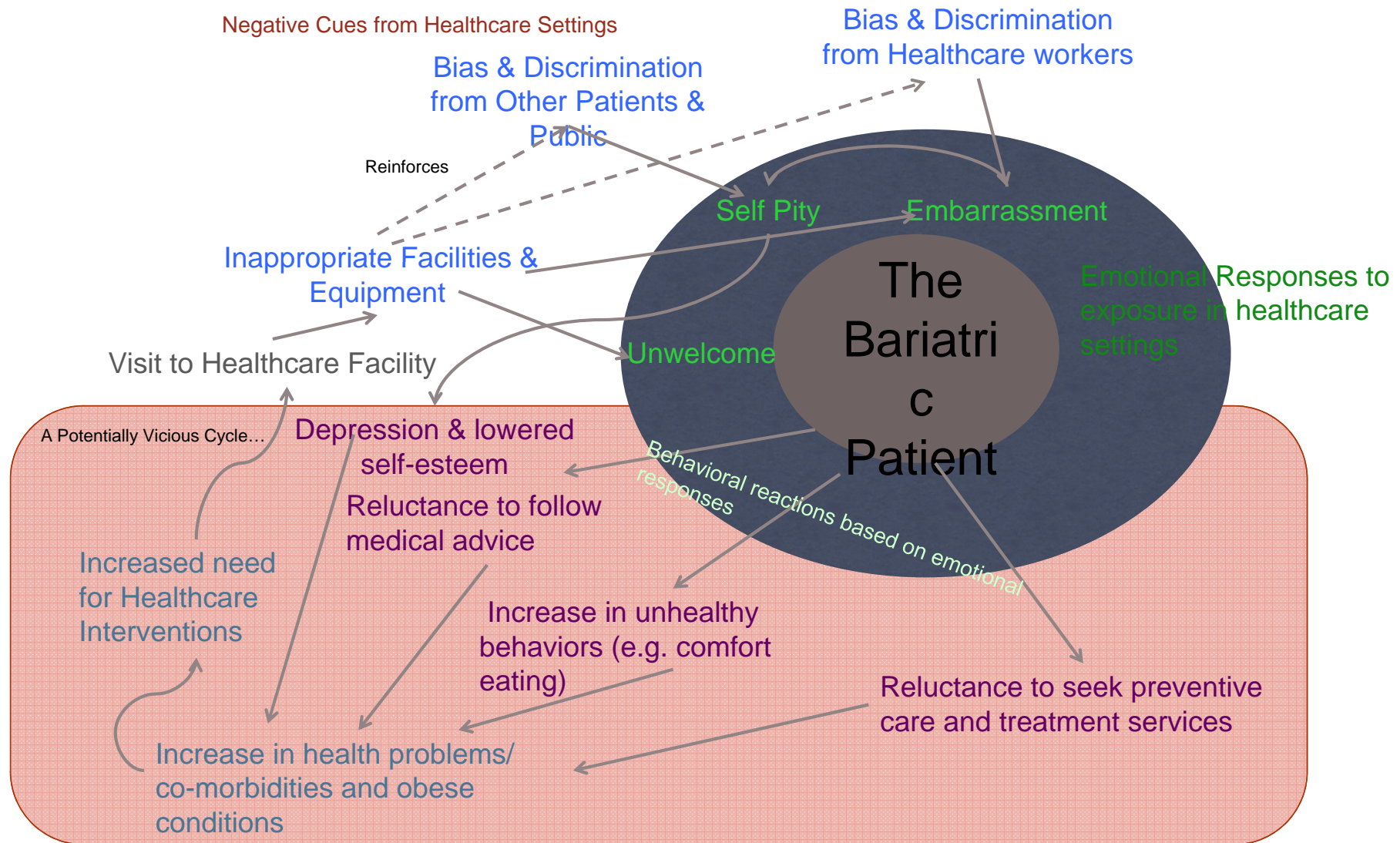
Ethnography: The Case with Ms. Jones

10. She bathed well today but does not know if it was good enough. She worries, not wanting the physician whom she likes to have an unpleasant experience examining her. She starts feeling nauseous and shares this with the nurse who writes “nausea” as a complaint in her chart.
11. Once in the examination room, she is told to change into a gown, which appears to her to be two small pieces of paper. She puts on the one with sleeve holes, but it barely covers her; she feels exposed. The second piece is just a paper sheet that she puts on her lap. After 15 minutes of sitting in this gown, she is chilled and uncomfortable.
12. The doctor comes in with the nurse. He remarks that he is pleased she has come for a well-woman examination after all his encouragement. He talks briefly about her blood pressure and asks her about her symptoms. He then asks her to lie down on the examining table.
13. The doctor starts examining her breasts. She wonders whether he knows where to start or end this breast exam. He asks if she does monthly self-examinations. She says no and feels ashamed. She does not know how to examine her large breasts. The doctor talks to her about how to do a self-examination of her breasts, but she is too nervous and nauseous thinking about the pelvic examination to take it in.
14. The doctor then moves down to the end of the table and asks the nurse to help the patient put her feet in the stirrups. Ms. Jones is asked to slide down to the edge of the table, and she struggles to assume the required posture.
15. At last she is in the correct position, and the doctor begins the pelvic examination. The doctor asks for a larger speculum. She can tell the doctor is having difficulty finding her cervix. She is uncomfortable but bears the procedure.
16. She notices the doctor wiping perspiration from his forehead after he completes the exam. She too has sweated through the entire experience.
17. He reassures her that everything looked good, discusses the importance of a screening mammogram, and assures her that he will call her if there is any problem with the Pap test.
18. She goes home with some suppositories for her nausea. When she tries to use one, she finds it impossible to insert. She feels too shy to call the doctor’s office for an oral alternative pill, but by the end of the day the nausea improves by itself. This was one of her better visits to a doctor’s office...

*Adapted from Ahmed, Lemkau and Burt’s (2002) article describing the emotional roller coaster that a bariatric patient goes through when visiting a healthcare facility.

INTRODUCTION

FACTORS CAUSING STIGMATIZATION



The Effects of Stigmatization

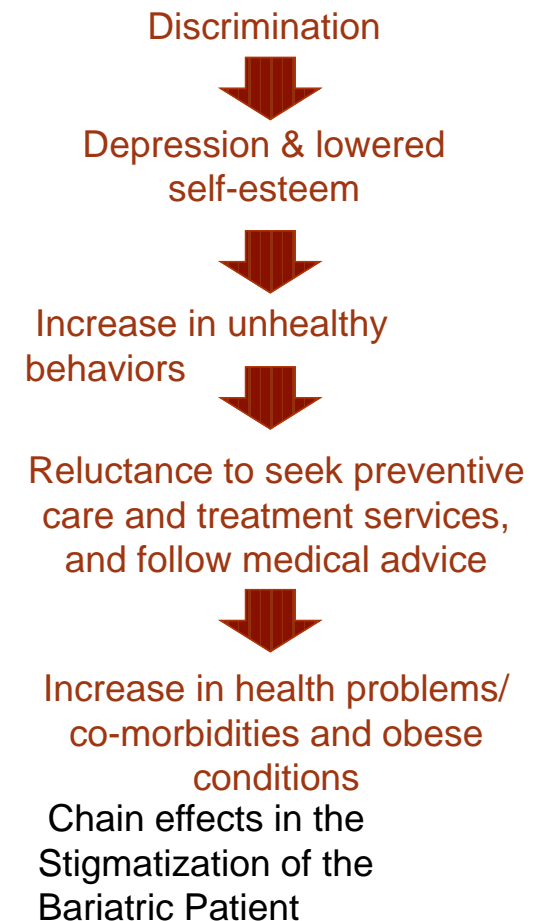
A Model of Cause and Effect in the Stigmatization of the Bariatric Patient (adapted from Bejciy-Spring 2008)

INTRODUCTION

THE EFFECTS OF STIGMATIZATION ON PATIENTS

Obese patients face discrimination not just in healthcare settings, but also in the workplace, in school and in many other public areas (Brown and Pull 2001). In addition, some obese patients may face harassment and rejection from their peers, and lower successes in gaining job or school opportunities and wrongful dismissals (*ibid*). The rejection can lead to the following numerous psychological and behavioral consequences (adapted from Bejciy-Spring 2008):

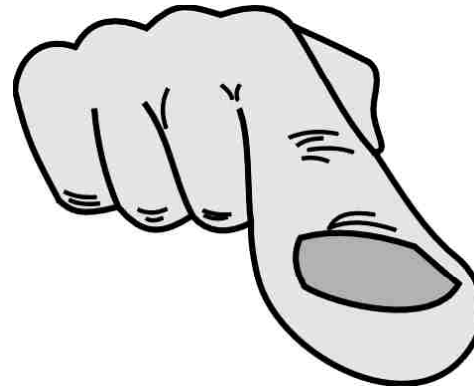
1. **Depression and lowered self-esteem.** Obese people who are discriminated against for their weight experience higher rates of depression, anxiety, social isolation and poorer psychological adjustment. They may react by internalizing and accepting negative attitudes about themselves, which in turn lowers their self esteem.
2. Their negative self-image may **increase unhealthy behaviors and reduction in self esteem.** Obese persons may turn to maladaptive coping strategies such as avoidance of social interaction, overeating and not attempting exercise.
3. **Reluctance in seeking healthcare.** Studies have shown that bariatric patients are more likely to delay seeking important healthcare interventions and cancel appointments for a variety of reasons including being seen in public and bias amongst healthcare workers. They may also be reluctant to follow medical advice when they have been confronted with prejudices and discrimination in healthcare settings.
4. As a result of the above effects, obese patients' condition will **deteriorate further: co-morbidities and worsening of obese conditions.**



INTRODUCTION

FACTORS CAUSING STIGMATIZATION: IGNORANCE

1. The bias against obese people is considered one of the most complicated social phenomena and it stems from ignorance of the causes of obesity.
2. Many people believe that obesity is personally changeable and therefore their weight problem is the fault of the individuals.
3. In the US, the obese person is perceived to be different from a person from normal weight because of one or more undesirable characteristics, which lead to the perception of a devalued or deviant identity. Numerous studies have shown that there is a widespread perception of obese persons as lazy, incompetent and lacking in self-discipline.
4. There have also been numerous reports of bias among physicians, nurses, psychologists, dieticians, and medical students in healthcare settings, which includes perceptions that obese people are unintelligent, unsuccessful, weak-willed and lazy (Stugard 1996).
5. These negative attitudes can cause obese patients to avoid medical care as mentioned earlier.



INTRODUCTION

FACTORS CAUSING STIGMATIZATION: CHALLENGES IN CARE

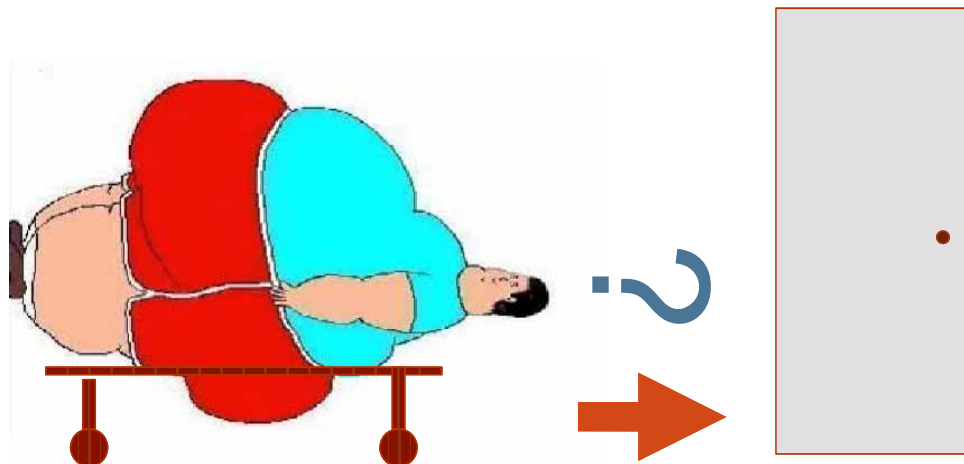
1. Bariatric patients poses many challenges for staff and attendants in administering care to them. The exertion, awkward postures, and spinal loads associated with bariatric care can put the patient and health workers at risk of injury. The University Health System consortium indicated that 39% of reported incidents were either accidents or problems with equipment related to bariatric and that 55% of workers reported injuries related to providing patient care. In addition, bariatric patients have also filed claims indicating injuries related to inadequacies in equipment.
2. Moving a bariatric patient requires special training and equipment, and even then, nurses are still at a greater risk for injury and stress from handling and caring for bariatric patients due to their special needs.
3. The difficulties and challenges with providing nursing and healthcare to the bariatric patient can be overwhelming and may elicit feelings of inadequacy, powerlessness, and fear amongst healthcare workers. These negative psychological effects then may contribute to the expression of negative attitudes such as stereotypes, fear of injury, disgust, blame or anger. These negative attitudes will then impact the patient's care and could result in less than respectful care (Muir and Heese, 2008).



INTRODUCTION

FACTORS CAUSING STIGMATIZATION: INADEQUATE FACILITIES & EQUIPMENT

1. Most facilities currently do not have equipment, facilities or staff dedicated to serving bariatric patients, and handled on ad-hoc basis with existing hospital equipment that are reinforced or lashed together as needed (Harrell 2004). Some obese patients even had to suffer the indignity of being transported to the hospital's loading dock to be weighed or transported using freight elevators (Collignon 2008).
2. The following lists some of the inadequate facilities and equipment that must be dealt with to retain the patient's dignity.
 - Patient Rooms are often not large enough to house bariatric equipment, beds and required care givers. Floors often deform or peel-up from beds when they are moved.
 - Toilet rooms are too small, doors are not wide enough and toilet fixtures unable to support bariatric patients. Handrails are often pulled from the wall when used by bariatric patients, and toilet seats often break as they are mounted on walls.
 - Inadequate or inappropriate lifting devices such as transferring a patient using a mechanical floor lift, which is both difficult for staff and risky.
3. Not having adequate facilities and equipment for bariatric patients adds to the stigmatization of patients as it implies that the hospital excluded them in the design considerations.



THE BUSINESS CASE FOR ACCOMMODATING TO BARIATRIC PATIENTS' NEEDS

THE BUSINESS CASE

The Financial Impact of not providing adequate bariatric facilities

1) Profitability in Treating Bariatric Patients.

Obesity is an extremely costly disease. Obesity-related diseases account for nearly 10 percent of all medical spending in the United States or an estimated \$147 billion a year and obese people spend 40 percent more -- or \$1,429 more per year - in healthcare costs than people of normal weight (Reuters Jul 27, 2009). By making facilities accessible to bariatric patients and providing a stigma-free environment, AMH would be able to win over loyal patients from their competitors and increase their branding. Conversely, if facilities in AMH are not bariatric-friendly, bariatric patients may choose to go to other hospitals near Auburn to seek medical treatment, and the lost revenue for AMH would be costly.

2) Saving patient's medical costs:

Bariatric patients are at an increased risk of pressure sores due to prolonged unrelieved pressure from a side rail, wheelchair or commode, which can cost more than \$70,000 to treat in USA (Braun et al 1992). To prevent pressure ulcers, patients may need turning or repositioning, requiring immense physical effort by care-givers. Techniques used with non-obese patients may not be feasible with a very large patient and specialized equipment may be required.

3) Saving on compensation costs for staff injuries

Staff Injuries resulting from handling bariatric patients due to inappropriate or inadequate facilities or equipment can be extremely high for the organization. Back injuries in moving patients account for between 33%-65% of a hospital's expenses in compensation costs. The average cost per injury can range from \$8250 to \$25090 depending on whether surgery is needed (Charney and Hudson 2004).

THE BUSINESS CASE

The Financial Impact of not providing adequate bariatric facilities

4) The American Disability Act and potential for litigation charges

The American Disability Act (ADA), passed by the House of Representatives in 1990, require all public services equal access to all services and programs or activities provided by the entity. This means that the hospital is required to remove existing architectural and communication barriers in existing facilities where such removable is readily achievable, or if the means are not readily achievable, it must provide alternative service that is equal in kind. Failing to meet ADA guidelines for these facilities may result in litigation suits from \$50,000 for a first offence and up to \$100,000 for subsequent violations. In 2003, four patients of the 907-bed Washington Hospital Center (WHC) filed a lawsuit in 2003 under the Americans with Disabilities Act (ADA), alleging that patients with disabilities were unable to receive the level of care deserved due to inadequate examination rooms and tables, and other medical equipment. The hospital settled the lawsuit in 2005 and will make changes to its facilities, equipment, policies and procedures to ensure an improvement in the accessibility of facilities for patients with disabilities (Adler 2005). Although obesity is not considered a legal disability courts are taking ADA claims based on obesity more seriously. For example, in a 1993 case arising out of Rhode Island, the federal court concluded that, “although simple obesity probably would not qualify, morbid obesity caused by a physiological disorder would be a disability entitling the plaintiff to ADA protection.” The court's finding was based on the reasoning that the disorder was permanent, and that the claimant's weight gain was not meaningfully voluntary (FindLaw).

5) Liability for Personal Injuries

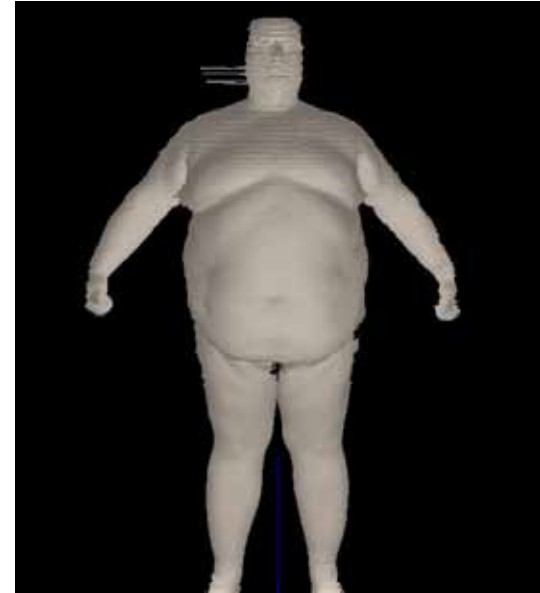
Hospitals can be held legally responsible for injury caused by inadequate policies and practices, or the acts of their employees. This means that if a bariatric patient suffers due to mishandling by hospital staff, or falls due to inadequate facilities in place, the patient or his/her surviving family members can sue the institution for damages.

DEFINITIONS

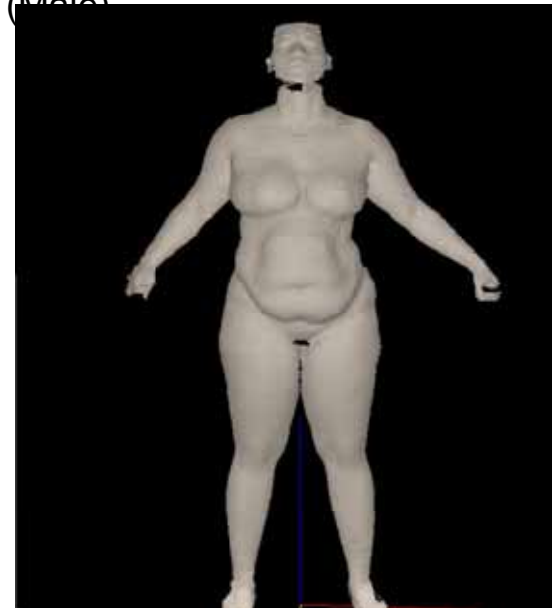
DEFINING THE BARIATRIC PATIENT

Anthropometrics

1. There is no consistency in what is considered “bariatric.” The body mass index (BMI) was accepted world-wide as the measurement of choice. People with a BMI above 40 are considered bariatric.
2. Waist to hip ratios, a waist circumference larger than 40 inches in a male and 35 inches in a female are also recognized measurements of obesity.
3. A bariatric patient’s weight ranges from 250 pounds to over 1,200 pounds.
4. According to Andrade (2004), the average bariatric patient weights 330 pounds.
5. Bariatric patients come in all sizes and shapes. According to Rush (2005), there are four main bariatric body types:
 - Anasarca – Severe generalized edema.
 - Apple – excessive adipose tissue in the viscera or abdominal area, which can press on the aorta, vena cava and small capillaries, causing increased stress on the cardiovascular and respiratory systems. Males are predominantly apple-shaped.
 - Pear – excessive adipose tissue in the gluteal-femoral region of the body. Pear-shaped persons can move fairly easily and can get from sitting to standing as they can push their center of mass over their legs. Pear-shaped obesity is more common amongst females. About 86% of obese individuals have pear-shaped body types (Andrade 2004).
 - Bulbous Gluteal Region – Excessive buttock tissues creating protruding shelf.



Apple-Shaped Bariatric Patient
(Male)



Pear-Shaped Bariatric Patient
(Female)

DEFINING THE BARIATRIC PATIENT

Needs of the Bariatric Patient

- Physical Care – Bariatric patients face difficulty in doing the most basic of tasks such as sitting up and getting out of bed, standing, going to the bathroom, bathing, hygienic care of skin and wounds, repositioning in bed and toileting.
- Emotional Care – Stigmatization and embarrassment of their weight has caused bariatric patients to avoid going out of their homes, sometimes only until the very last minute.
- Access – Due to the weight and sizes of bariatric patients, they pose access problems to hospitals that are not designed to accommodate their profile. The very fact that hospitals that are not designed with bariatric patients in mind adds to their stigmatization (unwelcome, self-pity).

“Bariatric patients has the right to be treated as a unique individual and receive competent healthcare and medical treatments with the same attention to quality, comfort, safety, privacy, and dignity as all other patients”

(Bejciy-Spring 2002)

DEFINING THE OTHER STAKEHOLDERS

Family

1. Getting family members (some of whom may also be obese) to participate more in the recovery process of the bariatric patient.
2. Concern for the wellbeing, respect & dignity of the bariatric patient throughout the hospital stay

Nurses

1. Ensuring comfort and support of patient and their families
2. Ensuring personal and patient safety
3. Adequate transportation, equipment and facilities
4. Staffing issues – more staff will be required to care for the bariatric patient

Doctors

1. Ability to provide effective care throughout treatment
2. Number of bariatric patients
3. Adequate medical equipment and facilities

Administrators

1. Financial Considerations: Profit, Cost, Efficiency, Balancing with other patients needs
2. Creating loyalty to hospitals among bariatric population
3. Ensuring accreditation
4. How far do you take it? In which areas of the hospital do you provide accommodations?

DEFINING THE ORGANIZATION CONTEXT

AUBURN MEMORIAL HOSPITAL

- Small (99 beds), rural community non-profit hospital that recently emerged from bankruptcy.
- Serves rural, non-affluent population
- Competing with larger, newer hospitals in its market
- Difficulty in recruiting new doctors and nurses
- Struggling to change its image within the community
- New, Energetic, ambitious CEO

BARIATRIC PATIENT DEMOGRAPHICS

- 40%-50% of patients visiting AMH are obese, of which 10% are morbidly obese (Dr Carl Weiss, p.c.).
- The number of bariatric patients are expected to double over the next decade (*ibid*).
- The average BMI of the bariatric patient is 43 and is expected to stay the same or decrease slightly over the next decade.
- AMH performs 2 bariatric procedures per week.
- Bariatric patients are seen throughout all departments- cardiology, pulmonary, phlebotomy, radiology and use pre-admission testing, outpatient lab tests, imaging services.

EXISTING BARIATRIC FACILITIES

- Installed a few floor-mounted toilets.
- Replaced some furniture in waiting areas with chairs and loveseats that are wide enough and strong enough to support a bariatric guest/patient.
- Nothing bariatric patient-friendly in inpatient facilities.

IMPLICATIONS FOR THIS PROJECT

- Designing for bariatric patients cannot be confined to any one department/area.
- Value for money – selection of features to accommodate bariatric patients must be cost-efficient
- Design must accommodate bariatric patients needs without increasing their stigma

PRINCIPLES IN SENSITIVE BARIATRIC DESIGN

PRINCIPLES IN BARIATRIC DESIGN

RESPECT Model

In 2004, the National Association of Bariatric Nurses (NABN) established a model termed RESPECT for the sensitive treatment of the bariatric patient as a framework for establishing and maintaining successful professional relationships with bariatric patients. These principles will be incorporated when applicable in the design of bariatric facilities. The principles are as follows:

1. Rapport (R) – interpersonal relationship, connection, empathy and understanding that establishes a foundation for trust, confidence and collaboration.
2. Environment/Equipment (E) – The environment are intrinsic elements of care in which appreciation and concern for the bariatric patient's physical, comfort and safety needs.
3. Safety (S) – Healthcare professionals have to be especially careful when assisting bariatric patients due to their unique weight and morphologies. The knowledge of the weight capacities and limitations of conventional and bariatric equipments, the use of bariatric equipment, proper mechanics in assisting bariatric patients are important. This can also reduce the stress of nurses, and may help to improve the quality of interaction with bariatric patients.
4. Privacy (P) – The safeguarding of the bariatric patient's privacy is especially crucial in situations that require exposing the patient to the public and ensuring confidentiality of patient information.
5. Encouragement (E) – Motivation for the bariatric patient can play important roles in the success of treatments and improvement in the quality of life of the bariatric patient as improvements in their health status are usually slow and can lead to feelings of discouragement, disappointment, and frustration.
6. Caring/Compassion (C) – Concern and sympathy for the patient contribute to the worth and comfort for the bariatric patient. These form the foundational qualities of sensitive and respectful care that can alleviate stigmatization for the bariatric patient.
7. Tact (T) – As bariatric patients are often targets of bias and discriminations, tactful interactions are pivotal to establishing trust and rapport with healthcare professionals.

PRINCIPLES IN BARIATRIC DESIGN

Selection of Features According to Universal Design Principles

Designing for bariatric patients can be expensive. Universal design allows AMH to incorporate features that not only benefits bariatric patients but also patients with other disabilities such as elderly or the non-ambulant since it does not focus on creating products and environments for an individual disability. It also allows for the utilization of existing products in different ways and provides standardization that can benefit everyone. To determine whether a design feature is universal, Null and Cherry (1996) suggests evaluating them on the basis of the following all four principles:

Supportive	The design should provide a necessary aid to function, and must not in providing such aid, create any undue burden on any user.
Adaptable	The product or environment should serve a majority of individuals who have a variety of changing needs.
Accessible	The design should remove barriers (both attitudinal and physical). Therefore, it should encompass a wider range of human abilities and improve on a physical environment that currently hinders or harms many people unnecessarily.
Safety-oriented	Promotes health and wellbeing by being corrective and preventative.

PRINCIPLES IN BARIATRIC DESIGN

Selection of Features in meeting AIA and ADA Compliance

Currently, neither the American Institute of Architects nor the American Disabilities Act provide specific guidance on physical design associated with the care of bariatric patients. Current guidelines in place for both the AIA and ADA only addresses the legal disabilities, and since obesity is not yet a considered a legal disability, architects and designers only have to meet the legal disabilities requirements in designing hospitals. Facilities that can accommodate bariatric patients are often one step beyond what is required for patients with officially recognized disabilities. The AIA is proposing new bariatric guidelines completely separate from the ADA rules but will not be published until 2010.

For the interim, two unofficial guidelines have been developed by the AIA – 1) “Planning and Design Guidelines for Bariatric Healthcare Facilities” by Susan Andrade in 2004 and 2) “Strategies for Accommodating Obese Patients in an Acute Care Setting” by Collignon in 2008. The recommendations set out in this report will adhere to these guidelines set forth by AIA.

PRINCIPLES IN SENSITIVE BARIATRIC DESIGN

Process Mapping: A Systemic Approach in Designing Bariatric Care Facilities

By mapping a bariatric patient's needs from admission through discharge or death, and by considering each part of the facility that might be used during the patient's stay, the planner can identify space and capacity problems that may be encountered and develop corrective solutions.⁸ The flowchart below provides an indication of which stage in the bariatric patient's experience the recommendation fits.



Department Legend

- 1.0 INPATIENT CARE
- 2.0 AMBULATORY CARE
- 3.0 DIAGNOSTIC / THERAPY SERVICES
- 4.0 PATIENT SUPPORT SERVICES
- 5.0 LOGISTICAL SERVICES
- 6.0 ADMINISTRATIVE SERVICES
- 7.0 EDUCATIONAL SERVICES
- 8.0 BUILDING SUPPORT
- 9.0

Pre-admissions

Admissions

Movement/
Transport

Waiting/Resting/
Sleeping

Medical

Hygiene

Discharge/
Death

ISSUES AND RECOMMENDATIONS

ISSUE 1: Which facilities in hospitals do we need to look at bariatric design? How can inadequacies in facilities and equipment be addressed systematically?

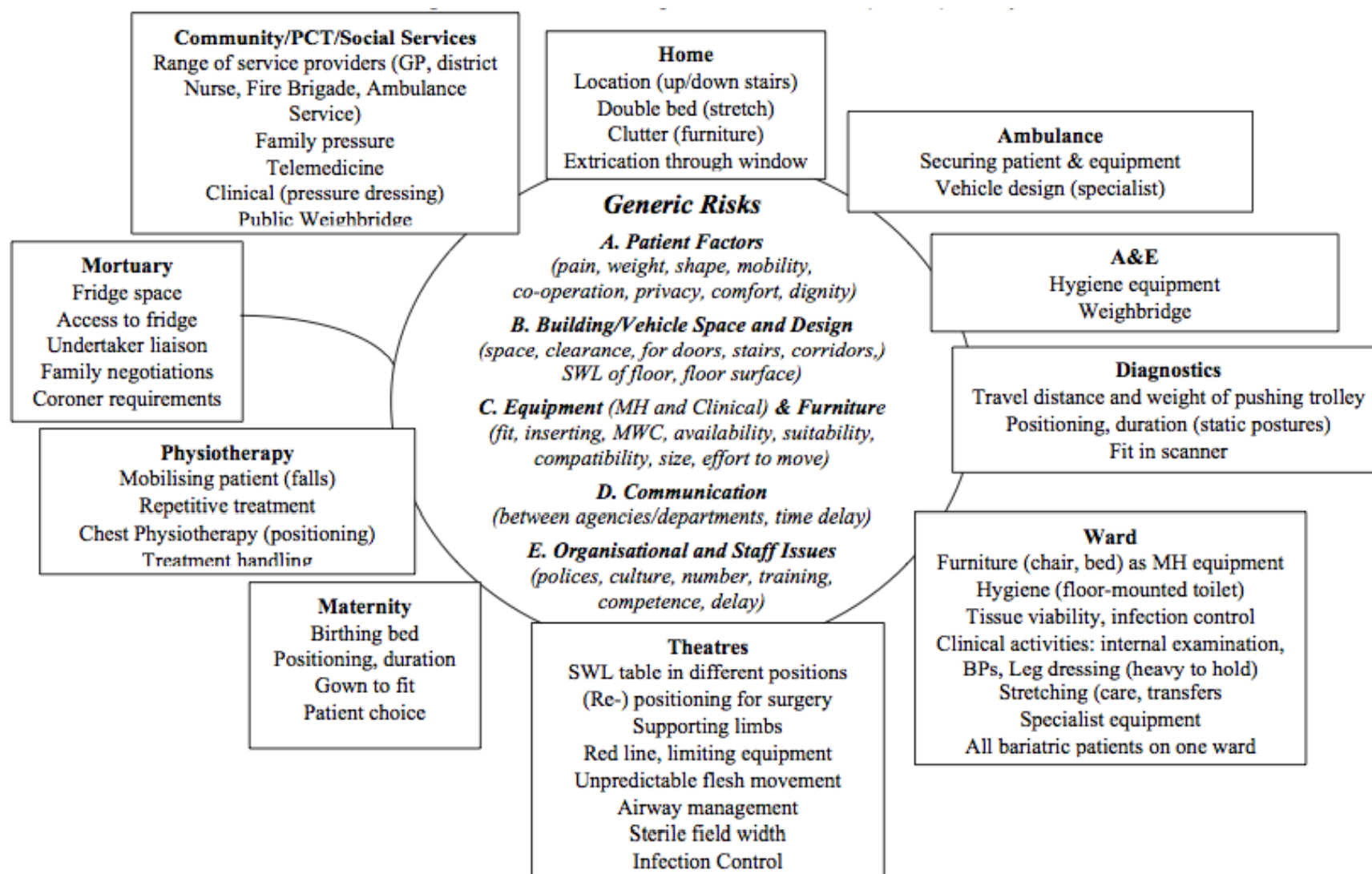
Hignett et al (2007)'s studied on bariatric patients' Pathways from an Emergency Medical Admission to Identify the Major Risks e.g. space, equipment and organizational interfaces.

Method: The study was developed using interviews using the critical incident technique (CIT) to determine significant incidences experienced by patients. 10 participants from the UK were selected and their responses were used to map problems associated with 4 pathways and other department/unit/service areas that cannot be mapped:

- 1) A&E → X-Ray → Ward → Discharge/nursing home
- 2) Patient Home → Ambulance → Hospital → Home
- 3) Bed and Breakfast Bedroom → Ambulance → Maternity → Ultrasound → Delivery → Home
- 4) To/From Theaters → Operating Table → Position on table → Recovery
- 5) Ward Hygiene
- 6) Diagnostics
- 7) Mortuary
- 8) Community

PATHWAY OF BARIATRIC PATIENT IN HOSPITAL

Hignett and colleagues mapped ten bariatric patients' pathways from their home to a hospital to identify the major risks associated with bariatric patient's pathways in hospitals (Hignett et al 2007).



PATHWAY THROUGH THE HOSPITAL IN HIGNETT ET AL'S STUDY

Pathway Location	Facilities and Equipment Issues	Human Issues:
A&E	<p>Building design:</p> <ol style="list-style-type: none"> 1. Corridors were not wide enough or high enough for bariatric equipments 2. Maximum weight capacity for lifts insufficient 3. Height of ceiling to use gantry hoists insufficient <p>Equipment:</p> <ol style="list-style-type: none"> 1. Size and weight capacity of stretchers and trolleys 2. Time to get the correct equipment caused patient getting stuck in A&E if ward did not have the right equipment to receive the patient. 3. Some A&E departments have weighbridges but went unused due to Gung-ho culture amongst staff who handled patients manually. 	<p>Patients:</p> <ol style="list-style-type: none"> 1. Encountered pain, lack of willingness and ability to cooperate <p>Nurses:</p> <ol style="list-style-type: none"> 1. Confusion with the expected time of arrival in directing ambulance to the correct receiving department 2. Manual handling risks.
Diagnostics	<p>Building design:</p> <ol style="list-style-type: none"> 1. Insufficient load bearing of floor 2. Confined spaces hindering patient transfer 3. Inadequate allowance for access to Departments <p>Equipment:</p> <ol style="list-style-type: none"> 1. Patient unable to fit into scanner or stay on the trolley. 2. Patient unable to adopt the required positions (e.g. side lying for cardiac ultrasonography) 	<p>Patient handlers: There were difficulties in positioning the bariatric patient. Moreover, there was a lack of communication when transferring patients to X-Ray department, resulting in delays or inappropriate equipment used.</p>
Wards (inpatient room and bathroom)	<p>Building Design:</p> <p>Spatial constraints in accommodating bariatric patients in the bedroom. Risks associated with wall-mounted toilets.</p> <p>Equipment:</p> <ol style="list-style-type: none"> 1. Lack of available equipment for manual handling (including hoist, stand-aid, belt, lift pants) and furniture (chair shape, fit/design) and bed. 2. Personal care and hygiene issues (toileting) 	<p>Patient handlers: When the patients had to be moved there were problems with inter-departmental communication about patient's weight and the type of equipment to be used.</p>

PATHWAY THROUGH THE HOSPITAL IN HIGNETT ET AL'S STUDY

Pathway Location	Facilities and Equipment Issues	Human Issues:
Physiotherapy	Equipment: The lack of equipment delays discharge. Lack of specialized equipment, e.g. chair for sitt-stand Reluctance of patient in using equipment Unable to use lifts with some patients due to pressure sores Standard Weight Limit for parallel bars	Physiotherapists: Pushing patient to rehabilitation limits increases their risks of falling. Risk of patient falling on therapist.
Operating Theaters	Equipment: Due to other ceiling mounted equipment in an OT, not always possible to have a ceiling mounted equipment in an OT so sliding boards were used for lateral horizontal transfers (supine patient). On the table, there were difficulties positioning the patient due to unpredictable movements of the excess flesh changing the weight distribution of the table. Width of sterile field due to the patient width and airway management risks limited movement options.	Doctor: Anesthetists and surgeons were not trained in handling patients even though the management of transfer fell into their jurisdiction. Nurses: Staffing levels were inadequate
Maternity	Equipment: Endo-tracheal (ET) tubes and needles for effective treatment Building Design: Safe Working Loads of Maternity equipment (including birthing bed and theater table) in different positions Door Width	Nurses: Additional manual handling risks for taking patient for ultrasound due to weight of trolley (with patient) for pushing and the distance between departments.

PATHWAY THROUGH THE HOSPITAL IN HIGNETT ET AL'S STUDY

Pathway Location	Facilities and Equipment Issues	Human Issues
Discharge	<p>Building Design: Mobility for post-caesarean section bariatric patient</p> <p>Equipment:</p> <ol style="list-style-type: none"> 1. Lack of available equipment for manual handling (including lifts, stand-aid, belt, lift pants) and furniture (chair shape, fit/design) and bed. 2. Personal care and hygiene issues (toileting) 	
Mortuary	<p>Building Design: Inadequate pathways in hospital to prevent public from view of bariatric body.</p> <p>Equipment: Suitable lifts, standard weight limit of mortuary trolley Fridge space, access to fridge and space for bariatric trolley</p>	<p>Staff: Communication issues: Advance notice not given to mortuary department and undertaker.</p> <p>Response to family/caregiver issues relating to death</p>

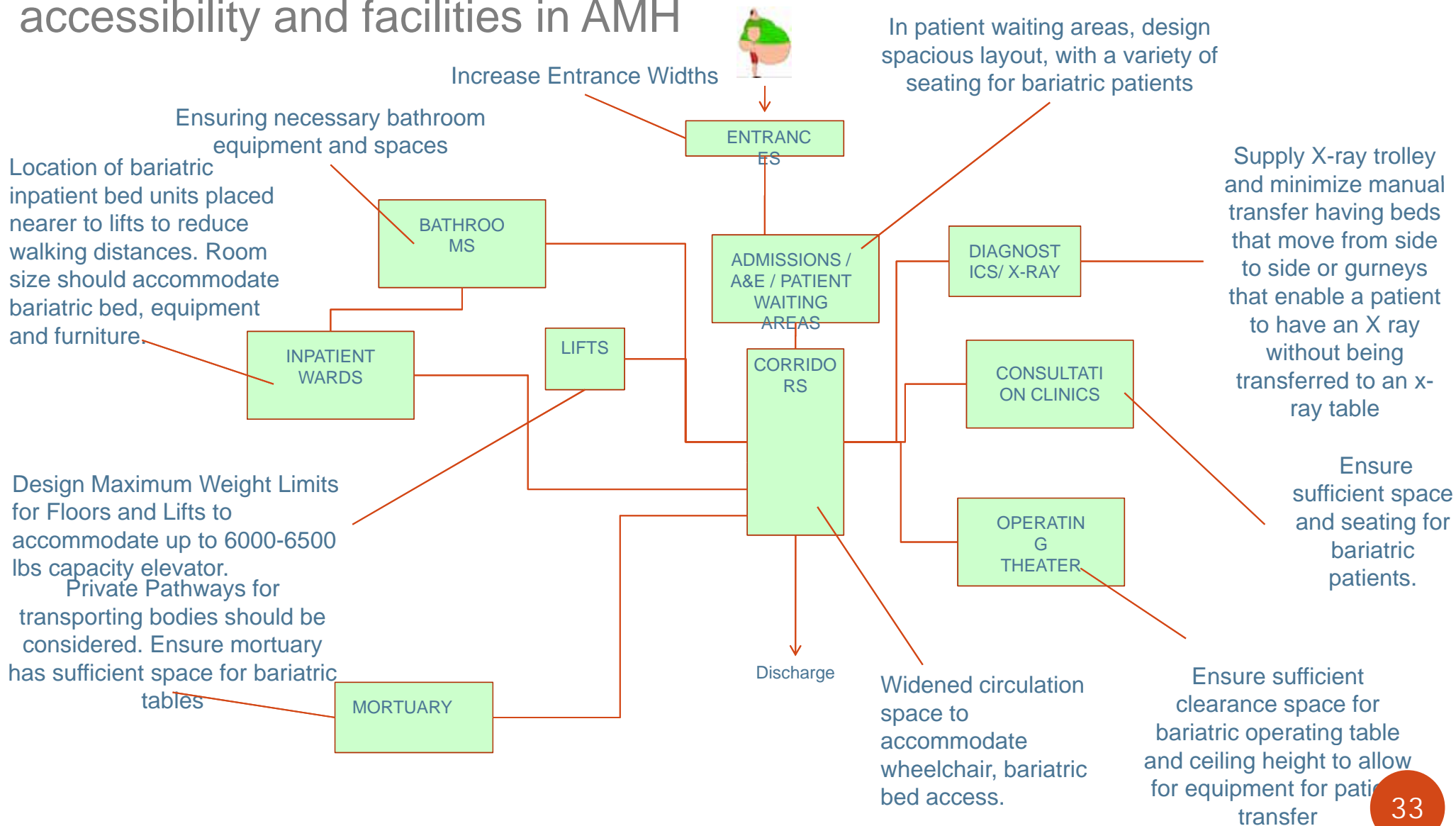
ISSUE 1: ACCESSIBILITY AND FACILITIES

A systematic solution to optimize accessibility and facilities in AMH

Hospital Wide Issues:

Remove Stigma
of Bariatric
Furniture

Ensure availability of
Suitable bariatric
equipment and
processes to ensure
correct usage



BARIATRIC FURNITURE

Issue

Some bariatric furniture can be designed insensitively by incorporating elements that draws attention to their weight (Bejciy-Spring 2008).

Recommendation

Provide adequate and appropriate seating for family and visitors (more than one bariatric furniture may be needed given that some forms of obesity runs in the family); The selection of seating should address the comfort and safety needs while not drawing attention. As such, a variety of seating alternatives (chairs, loveseats, and sofas) with a residential design that fits with existing furniture styles should be made available. The seats should also accommodate different proportions, sizes and weights, given the diversity in morphology of bariatric patients. Equipment that are designed to accommodate body shapes that do not fit comfortably into the seats (armless chairs) but with features that do not draw unnecessary attention should be used. AIA recommends a minimum chair width of 32.5" to accommodate pear-shaped bodies. Love seats such as the one on the right are great universally-designed pieces of furniture that does not draw unnecessary attention and can be used by other visitors to the hospital.

The issue then becomes how do bariatric patients or their families recognize these kind of furniture if they blend in with the rest? A possible solution would be to color-code the furniture and have patient aides inform them about the color during their first visit of the special color. The drawback of this approach is that the public may soon recognize that the different colors represent. Another solution would be to use an "all or nothing" approach and ensure that all furniture that the bariatric patient perceives that would fit them, should be bariatric supportable.



Bariatric Chair that may encourage stigma due to "heavy-duty" appearance



A bariatric Chair that is sensitively designed

BARIATRIC EQUIPMENT

Issue:

Adequate and appropriate use of equipment to handle bariatric patients have been lacking in hospitals. Adequate space to store and move the equipments was also a problem. A survey among British hospitals showed that the availability of equipment for moving and handling bariatric patients was poor and least likely to be used with every patient even if it was available (Hignett et al 2007).

Bariatric patients are more likely to develop injuries from falls, or develop pressure ulcers if they do not have appropriate equipment. Falls in obese patients can often be severe due to their additional weight (Harrell 2004). A report showed that patients are more likely to get pressure ulcers than thinner patients due typically to prolonged unrelieved pressure from a side rail, wheelchair or commode especially if they have wide hips (Hignett et al 2007). Another study showed that tissue death leading to pressure ulcers can develop in as little as 2 hours over pressure points if pressure is unrelieved (Hignett et al 2007). The cost of equipment to assist with the movement of obese patients can be significantly less than the costs of worker's compensation claims related to staff injuries arising from assisting in the movement of bariatric patients. Costs associated with each back injury can cost from \$5000 to \$100,000 per worker, plus lost workdays (Collignon 2008). In addition, an estimated 12 % turnover due to back injuries, and more than 50% suffer chronic back pain. (*ibid*). Musculoskeletal injuries in staff are often caused or aggravated by improper patient handling (Ulrich et al 2008). The use of assistive devices such as ceiling lifts and mobile lifts can reduce back injuries.

Recommended Equipment:

The list are the recommended types of bariatric equipment required for Auburn Memorial hospital which can reduce patient transfer falls, As these equipment are larger, spaces would have to accommodate the clearances around the furniture and equipment for the team to maneuver. Sufficient storage spaces should be made for bariatric equipments should be in individual hospital wards and central storage room on the hospital site.

Moving and Handling		Furniture	Theater and X-Ray
Bariatric sling for lifts	Wide Slide Sheets	Bariatric Arm Chair	Bariatric theater table
Bariatric mobile lift	Bariatric Patslide	Bariatric Bed	Bariatric ceiling hoist
Bariatric ceiling lift	Bariatric Bed Mover	Bariatric electric profiling bed	Bariatric radio translucent bed/trolley
Mangar cushion Elk/ Camel	Bariatric A&E Trolley	Bariatric Commode	Bariatric weighing scales
Bariatric stand aid			Bariatric X-ray table

BARIATRIC EQUIPMENT

Other Considerations:

Portability of Equipment

Instead of purchasing all necessary equipment, AMH could explore with other non-acute facilities if the costs of portable bariatric equipment could be shared. Michael, Dionne, Director at Choice Physical Therapy, Gainesville, GA, recommended hospitals to consider a bariatric patient triad, which includes an expendable support surface bariatric bed, ceiling lifts or weight-rated portable bedside lifts, and a weight-rated wheelchair, that is portable and is able to transit with the patient through multiple levels of health care (e.g., transitional care, long-term care, and home care) in a cost-effective manner (Saffari 2007)

Ceiling Lifts vs. Mobile lifts.

Choosing one type of lifts over another may save costs and storage space for the hospital. A Canadian study found that the installation of ceiling lifts reduced the claims costs by 70% and saved 18 working days over the previous year from the reduced number of injuries, while the facility without the ceiling lifts experienced 241% increase in claim costs and had 499 additional days lost over the previous year (Miller et al. 2006). Several studies have found that ceiling lifts were more effective than mobile lifts at reducing injuries (Ulrich et al 2008). However, a mobile lift would still be needed if the patient fell in an area not in the range of the ceiling mounted lift (Harrell 2004). Hence, both types of lifts are still required. If there are budget constraints, AMH can consider building in structural support above the ceiling during construction of its new tower, with the option of installing the actual lift equipment sometime in the future. Certain states have grant programs to provide financial assistance in installing patient lifts. For example, the State of Washington provides \$1,000 to install each patient lift. The cost to install a lift (excluding the lift system) was only \$1,500 to \$1,800 per room (Collignon 2008).



Rail Lines for Ceiling lifts

BARIATRIC EQUIPMENT

Other Considerations:

Risk Assessment for Equipment Use and Communication

Grimshaw's (2003) study showed that even with using standard bariatric equipment to transport bariatric patients, breakage may still occur. A risk assessment by a healthcare professional trained in mobility is required to determine the type of equipment and number of people to perform tasks. The assessment should be documented on the patient's chart and also communicated effectively to relevant parties who will be handling bariatric patients so that necessary preparations can be made. Assessing the weight and shape/width of bariatric patients will help to determine the appropriate type and capacity of equipment to use. To start with, equipment that can accommodate both pear and apple-shaped bodies should be selected. Future assessments of bariatric patients at AMH will allow the hospital to determine whether equipments with greater MWL are required.

Maximum Weight Limit

AMH should select equipment with a maximum weight limit (MWL) of 1000 pounds (as per the recommended maximum for bariatric design by the BRDAB group). Given the upward growth in the morbidly obese, this weight capacity allowance would ensure adequate capacity for heavier patients in the future. All tables, beds, stretchers, and lifting devices should mark their weight capacity to allow staff to know whether the equipment is appropriate to the weight of the patient, although it should not be too obvious.

Policies and Training in use of Equipment

Having the equipments available are just part of the solution. There needs to be adequate policies relating specifically to manual handling of bariatric patients and sufficient training of staff in handling patients using these equipment. The procurement of suitable equipment may delay the extrication of the patient and in the majority of cases, it can take up to two hours to access bariatric equipment (Hignett et al 2007). Hignett et al's study found that less than a third of respondents said that hospital staff were trained on how to use bariatric equipment (*ibid*).

A bariatric manual handling policy provides guidance as to how many staff is required, documents the minimal lift policies, roles and responsibilities of workers and the management, how to procure equipment, its cleaning and maintenance, the importance of procuring appropriate equipment for these patients and the need for communication with manual handling advisors prior to admission of the bariatric patients, and with relevant personnel prior to discharge of such a patient. Muir and Heese (2008)'s paper on bariatric algorithms provide a standardized approach to making decisions and recommendations regarding the number of people required for assisting, which equipment to use based on patient's ability to assist, and procedure suggestions.

ENTRANCES

Issue:

Typical Hospital door widths of 36" are insufficient for the physical requirements of the bariatric patient due to the larger transport equipment sizes (e.g. bariatric wheelchairs and tables) (Wilson 2006).

Recommendation: Increase Entry/ Door Widths

Sliding ICU-style doors have been employed in some bariatric room designs that would require an overall opening of between 9 to 12 feet. A more optimal solution would be a pair of unequal-leaf swinging doors with one leaf 48 inches wide and between 12-24 inches wide since it yields the desired clear opening with the least overall width, allowing more wall space for supporting functions (Harrell 2004, Wilson 2006). Ample-sized wheelchairs should also be made available at the hospital entrance.

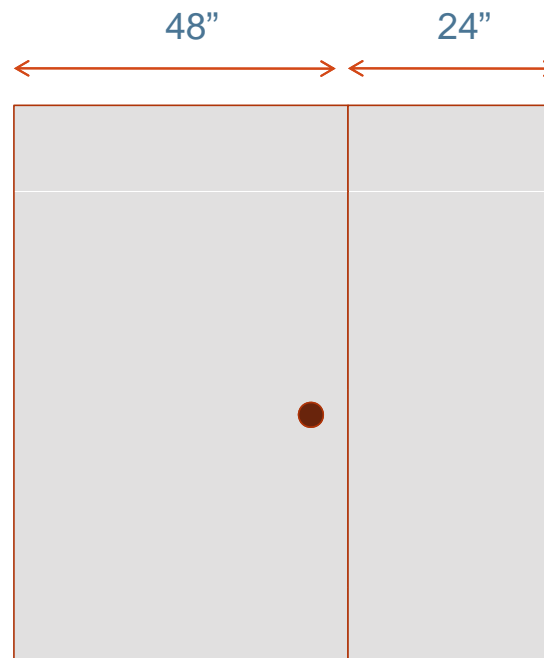
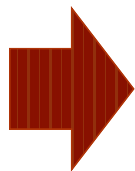


Fig. 9 Standard Hospital inpatient unit door of 36" width

Fig. 10 Dimensions for Bariatric Accessible doors

PATIENT WAITING AREAS

Issue

Bariatric patients experience stigmatization from the public due to inadequate seating, insufficient space, and lack of privacy in exam areas (Bejciy-Spring 2008).

Recommendations:

The waiting areas of the hospital should be spacious, and have a variety of seating options such as comfortable and roomy chairs and sofas (which can support bariatric weight of patient). AIA recommends 10-20% of general seating to be specified in bariatric sizes (Collignon 2008). For Emergency Department waiting areas, cardiac and bariatric units, the proportion of bariatric seats should be higher (up to 50%) (*ibid*). This will allow the bariatric patient to find a seat comfortably and not draw undue attention to himself/herself.

The exam room where medical assessments take place (e.g. weight measurements) should have visual and acoustical privacy from the waiting areas. This allows the exchange of personal information to be kept private.

At scale alcoves, three-side enclosure and handrails at each side should be provided. The screen of the bariatric weighing scales should face the opposite direction of the main traffic. The walls of the alcoves should have a STC of 45 for acoustical privacy (Andrade 2004).



View of Ideal Patient Waiting Room (Modeled using Google Sketchup).

ELEVATORS

Issue

Standard elevator dimensions and weight capacity will not allow for the transport of bariatric patient in their own beds.

Recommendation

Special elevators that are able to accommodate 6,000 to 6,500 pounds is needed to provide sufficient weight capacity and space for a bed that is 40" wide and 90" long (Collignon 2008). The elevator doors must have a minimum width of 54" although 60" is preferable (*ibid*). These elevators should be able to hold the obese patient, bed equipment and two staff. Also, the elevator should have a private lift function to disable stops on levels once the patient is in the lift. This is to prevent other hospital users from entering the lift and coming too close to the bariatric patient, causing discomfort and embarrassment for the bariatric patient.



CORRIDOR SPACE

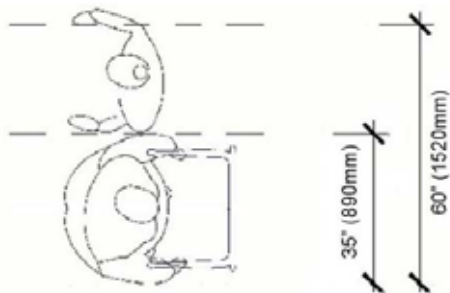
Issue

AMH's corridors are currently insufficient for bariatric transportation equipment such as beds, stretchers, wheelchairs, and lift devices. Bariatric chairs have expanded widths of up to 36 inches as do other pieces of bariatric furniture and equipment. Bariatric beds can range up to 54 inches and 88 inches long when overhead bars are included. Some types of wheelchairs, with the bariatric patient in them, are too heavy and wide for one person to push, and was found to require large turning circles (Rush 2005).

Recommendation: Increase Corridor Widths

The room and corridor should allow for beds, stretchers, wheelchairs, and lift devices to turn and store (Wilson 2006). Hence, the minimum width for corridors should be 60 inches (Andrade 2004) to accommodate the widest piece of equipment to pass through as well as to allow passage for other traffic. A minimum turning radius of 72" is recommended in lieu of the 60" radius required by the ADA (Collignon 2008).

Corridor Widths



In order to accommodate a patient with a bariatric walker and allow passage for other foot traffic, a minimum of 5ft (60" or 1520mm) is required for the width of a corridor.



AIA Guidelines for Corridors (2004) Ensure sufficiently wide hospital corridors and allow for large turning circles

OPERATING THEATER

Issue

Standard operating theaters pose challenges in accommodating bariatric patients. In the preoperative holding area, patient scales are of inadequate capacity for patients. In the operating room, standard operating tables do not allow for weights of bariatric patients weighing up to 1000 pounds. Also there are problems with transferring patients from the gurney to the operating table and back as ceiling lifts cannot be used due to other ceiling structures in the operating room.

Recommendations

In the preoperative holding area, specialized equipment such as a high-capacity patient scale, appropriately sized wheelchairs and gunneys, and bariatric -size sequential compression devices should be made available (Inabnet et al 2005, pp. 28-29). The size of the preoperative holding area should also be increased to accommodate larger pieces of equipment. The AIA advises that the stretcher station to be a minimum of 80 ft² and shall have a minimum clearance of 4 feet on the sides of the stretchers and the foot of the stretcher.

In the operating room, an operating table with appropriate capacity (up to 1000 pounds and wide enough to accommodate widest patients comfortably should be acquired). To facilitate moving the patient from the gurney to the operating table and back, a specialized air mattress that has no weight limit can be used to avoid occupational injuries caused in moving bariatric patients. Based on web research of bariatric equipment manufacturers (e.g. Vision Equip, IL), bariatric operating tables are about 79 inches long by 26 inches wide. The 2001 edition of the AIA Guidelines for Design and Construction of Hospital and Healthcare Facilities requires a minimum clear area of 600 ft with a minimum of 20 ft clearance excluding fixed or wall mounted cabinets and built-in shelves (Andrade 2004).

Bariatric surgery tables that can convert to transportation chairs can be used to minimize patient transfers. However, a web survey showed that the highest weight capacity for mobile surgery tables can only accommodate patients of weights up to only 770 lbs. Therefore, AMH can consider obtaining a mix of mobile and non-mobile operating



Specialized Air
Mattresses



Convertible Bariatric Surgery Table

DIAGNOSTICS

Issue

Bariatric patients often require diagnostic studies such as fluoroscopy and CT scanning during their hospital stay. However, the standard equipment in AMH does not have the adequate equipment in place to accommodate patients exceeding 450 lbs in weight.

Recommendations:

AMH should acquire diagnostic devices must be of high quality and provide strong enough beams to penetrate the patient (which may be larger than normal). The diagnostic room must have adequate space to accommodate the larger equipment. X-Ray trolleys such as the one from Burmark, New Zealand can be used for full body scans of the bariatric patient without having to move the patient, thereby reducing manual handling risks.

Although the hospital should try to accommodate the largest bariatric patient with equipment and facilities as economically technologically feasible to reduce systematic discrimination of the bariatric patient, the medical chief should set an upper weight limit on patients entering hospital programs based on the constraints of the imaging equipment available. However, this can have undesirable repercussions if patients that exceed the maximum weight of the hospital shows up.



X-Ray Trolley for Bariatric Patients

EXAM ROOMS & CONSULTATION CLINICS

Issue

Insufficient door width, lack of bariatric furniture, and inadequate space to accommodate bariatric equipment are several common problems that consultation clinics and exam rooms face with other facilities in the hospital.

Recommendations:

Other than increasing door widths, placing a variety of bariatric furniture and increasing clinic space to accommodate turning radius of equipment which have been addressed in earlier slides, the question is which clinics should be remodeled to fit these requirements? Departments that receive more bariatric patients should have facilities and equipment in place to accommodate more patients. At least 10-20% of all consultation and exam rooms should be bariatric accessible, with higher percentages in emergency department, bariatric and cardiology units.



BARIATRIC INPATIENT ROOMS

Issue:

Standard single patient rooms in AMH are often not large enough to house bariatric equipment, beds and accommodate tasks performed by care givers.

Recommendations:

A room configured for the bariatric patient should be able to accommodate the bed, stretcher, lift and several care givers simultaneously, without obstructions (Wilson 2006).

The minimum space needs are 120 inches in width, allowing 36 inches on either side of the bed for the nurses to be able to move, bend and move effectively while providing patient care, and a range of 43-54 inches (most commonly 48 inches) for the bed width (Muir and Heese 2008).

The in-bed space must have 6 inches of clear space on either side of the patient when he is supine to allow for repositioning (Muir and Heese 2008)..

Further allowance for bedside stretcher or wheelchair commonly up to 42 inches in width for the patient to be transferred out of the bed at the bedside (Muir and Heese 2008).

Within the room, a diameter space of 72 inches is required for maneuvering equipment such as the floor lifter or wheel chair (Muir and Heese 2008).

To accommodate AHM's existing facilities, a second bed space in a two bed inpatient unit may be converted into additional space for bariatric patient requirements.



Ensure sufficient clearance space in inpatient room for bariatric equipment

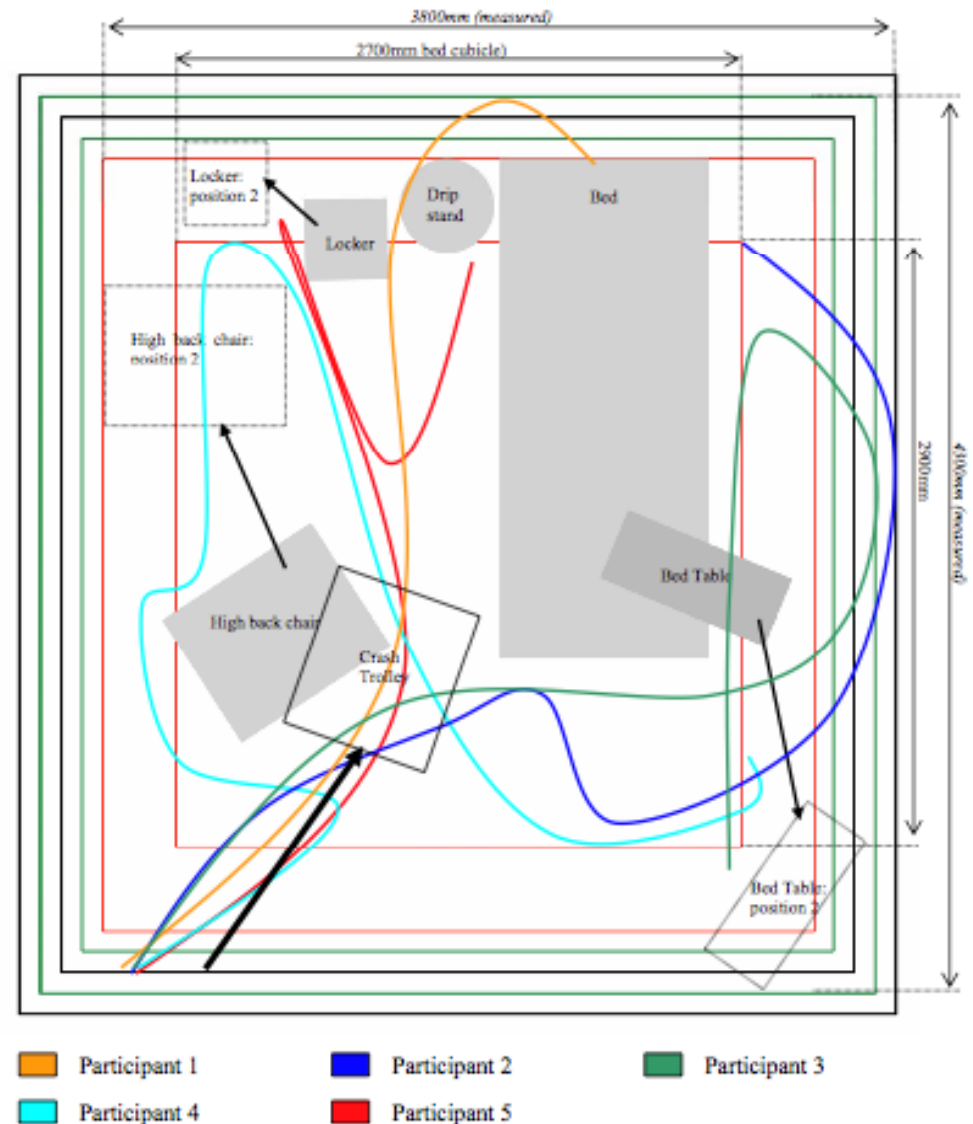
BARIATRIC INPATIENT ROOMS

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.



BARIATRIC INPATIENT ROOMS

Issue:

Should AMH centralize bariatric inpatient units, have acuity-adaptable bariatric room, or have bariatric facilities in every department? Choice will depend on which reduces stigmatization the most and is relatively beneficial. Based on analysis, bariatric-acuity adaptable rooms appear to reduce stigma the most while having relatively high benefits to drawbacks

	Centralized (Bariatric wards)	Bariatric-Acuity Adaptable Rooms	Decentralized (One Bariatric Room in Every Department/Ward)
PROS	Consolidating all bariatric wards can allow for economies of scale (e.g. equipment can be shared, room layout maximized). Some hospitals like St Vincent Carmel in Indiana felt that placing bariatric patients together allows them to provide each other with mutual support (Thrall 2005).	Patients do not need to leave their room. Reduced likelihood of patient falls, stigmatization and staff injuries.	Patients will be close to their departments.
CONS	Patients will need to be transported to departments. Departments located far away will pose transportation challenges.	More difficult to operate than surgical / medical units. Higher capital and maintenance costs.	Patients with multiple medical problems will need to be moved. Patients with
Effects on Stigmatization	Transporting patients out of ward will expose them to public. Clustering bariatric patients together would separate them from the rest of the patient population.	Minimal effects on stigmatization without separating them from the rest of the patient population.	Transporting patients out of inpatient room exposes them to public.

BARIATRIC INPATIENT ROOMS

Feasibility of the Bariatric Acuity-Adaptable Inpatient Room

Adapting the Acuity-adaptable room concept for the Bariatric Patient can avert some of the costly arguments against building acuity adaptable rooms. Acuity-adaptable rooms mean that patients remain in one room throughout their entire hospitalization while the required level of care are brought to them. The acuity-adaptable room offers multiple benefits including reduced patient transfers, medical errors, falls patient dissatisfaction, and staff stress (Evans et al 2008). Controversial findings on the acuity-adaptable nursing model however, found that the acuity-adaptable nursing model was not easy to implement from an operational standpoint.

Universal inpatient rooms or acuity-adaptable rooms as their names implies, can adapt to varying acuity levels demand of patients. As such, it would require different levels of skill and expertise for the room to be operational and logistically difficult to enforce. The following details some of the arguments against the implementation of acuity-adaptable rooms.

Drawbacks	Description
Cross-training staff	The acuity-adaptable model requires nurses who are cross-trained (or willing to be cross-trained) to address all levels of acuity. This is challenging as most nurses prefer to specialize and have a certain type of care environment, injury, illness, or levels of acuity. Alternatively, if multiple staff members are involved, there is potential for miscommunication which can result in errors.
Collaboration, peer support and mentoring	A mix of cross-trained staff on acuity-adaptable units reduces the opportunities for mentoring and support of other intensive care nurses since intensive care patients are not congregated, but separated from other intensive care patients by sometimes six to seven rooms.
Physician's perception	Physicians prefer to have their intensive care patients cohorted, but in the acuity-adaptable model, intensive care patients can be located in any of the inpatient units within the hospital. Some physicians (called the intensivists) require strong relationships, confidence and knowledge of the intensive care nurses in their ability to care for intensive patients, and such opportunities to get to know nurses would be as likely in the acuity-adaptable rooms
Perceived Workload	Acuity-adaptable intensive care nurses have been perceived to have less workload than typical medical/surgical nurses. However, this is plausible since intensive care nurses also only treat one to two patients as opposed to the five to six patients for typical medical/surgical nurses.
Equipment Cost	The acuity-adaptable model requires access to critical care equipment on each unit – more IV pumps, ventilators, and other pieces of equipment required to support a changing acuity. If these rooms are not used 24/7, the costs of equipping these rooms can be prohibitive.
Physical design response	The patient room size and support space to house the acuity adaptable model requires a larger floor plat, increasing walking distance between rooms and support spaces as well as decentralized nursing stations, which creates isolation and lack of visibility among staff.
Maintaining staff competency and intensive care admissions	Maintaining intensive care nursing competencies may not be practical in an acuity-adaptable model especially in community hospitals, where the number of intensive care patient admissions may not be enough to sustain the competencies required by intensive care nurses.

BARIATRIC INPATIENT ROOMS

Feasibility of the Bariatric Acuity-Adaptable Inpatient Room

Despite the arguments against the acuity-adaptable care model, I will argue that the benefits of adapting the acuity-adaptable room to bariatric patients can outweigh the challenges posed on the operations due to the following reasons:

Benefits Vs. Drawbacks	Description
Co-morbidities of bariatric patients justifies cost of cross-trained staffing	Given that bariatric patients tend to have co-morbidities such as hypertension, colorectal and prostate cancers for men, cervical, ovarian, gall bladder and breast cancers for women, osteoarthritis, gout, increased risks with surgery, the acuity-adaptable room concept may be very applicable (Stunkard 1996). Also given that bariatric patients may often have pressure ulcers and other wounds, reducing transfers can prevent aggravating those wounds from manual handling/
Reduced bed transfers, medical errors, miscommunication, labor and injuries.	With the acuity-adaptable room, the bariatric patient would not require as many transfers and movement, reducing the likelihood of falls. Hendrich, Fay and Sorrells (2004)'s three-year post-intervention data show considerable reduction in transfers (90%), medical errors (70%) and number of falls. The number of staff required to move bariatric patients each time is 2-4 depending on the patients and the needs for labor would be drastically reduced if bariatric patients remain in the same room throughout the entire length of stay. Staff injuries would also be reduced given reduced need for transfers and transportation. Given that the equipment needs for bariatric patients can be overwhelming and has the potential to cause miscommunication among staff in between transfers about what equipment is required (Hignett et al 2007), having bariatric patients in the same room can reduce chances of communication errors.
Increased patient satisfaction and reduced length of stay	A study in maternity care shown that single rooms significantly improved client satisfaction due to increased privacy, avoidance of transfers, and improved continuity of nursing care (Janssen et al 2000). Having the same staff caring for a bariatric patient may also reduce stigmatization since they do not have to deal with caregivers new to them. A study at the Linda Loma Hospital in California showed that patients tend to recover faster if they stayed in private acuity adaptable rooms. Patient stays reduced from 9.5 days to 5.4 days in five diagnostic related groups (Gallant and Lanning 2001).
Increased privacy and reduced occurrences for stigmatization	Since bariatric patients do not need to get out of their rooms, this reduces the chances of being in sight by the public and therefore reduces incidences of stigmatization.
Return on Investment	For some hospitals, the return on investment can be high as demonstrated by their occupancy rates of 75-85% (Miovski 2009). Geisinger Medical Center in Danville, Pennsylvania was able to mitigate staffing issues and derive greater job satisfaction by changing their operations. There, nurses move from room to room within the acuity-adaptable unit. For every 10 patient rooms there is a nursing pod, and outside every two rooms, there is a decentralized nursing station. A classroom was located in the unit for education (Minovski 2008). Given the universality of the acuity-adaptable room (i.e., it can be used for other patient types at AMH as well), the occupancy rates could be maximized further.

BARIATRIC INPATIENT ROOMS

Recommendation: The Bariatric Acuity-Adaptable Inpatient Room

There are several prototypes that support the acuity-adaptable nursing model that were developed based on the principles of operational efficiency, quality, patient safety and family-centered care (Lipschutz 2009). Features that are common amongst the prototypes (see below) are recommended for the bariatric acuity-adaptable inpatient room.

Common features of Acuity-Adaptable Rooms:

- 1) Adequate square footage for several clinical activities to minimize move of patient
- 2) Clear, well-defined zones for patient care activities
- 3) A hand-washing sink in the staff zone
- 4) Convenient staff access to medication and supplies
- 5) Headwalls designed with adequate critical care services, including medical gas and electrical capacities often duplicated on each side of the patient's bed to eliminate the need for staff to reach across the patient
- 6) Decentralized nursing stations that also maintain common team workplace
- 7) Maximum patient visibility by outboard toilet location and adequate glazing along the corridor, while maintaining options for patient and family privacy
- 8) In-room family requirements and family participation in care
- 9) Patient lift (both ceiling lift and mobile lift) to ease strain on nurses



Example of an acuity-adaptable inpatient room

BARIATRIC INPATIENT ROOMS

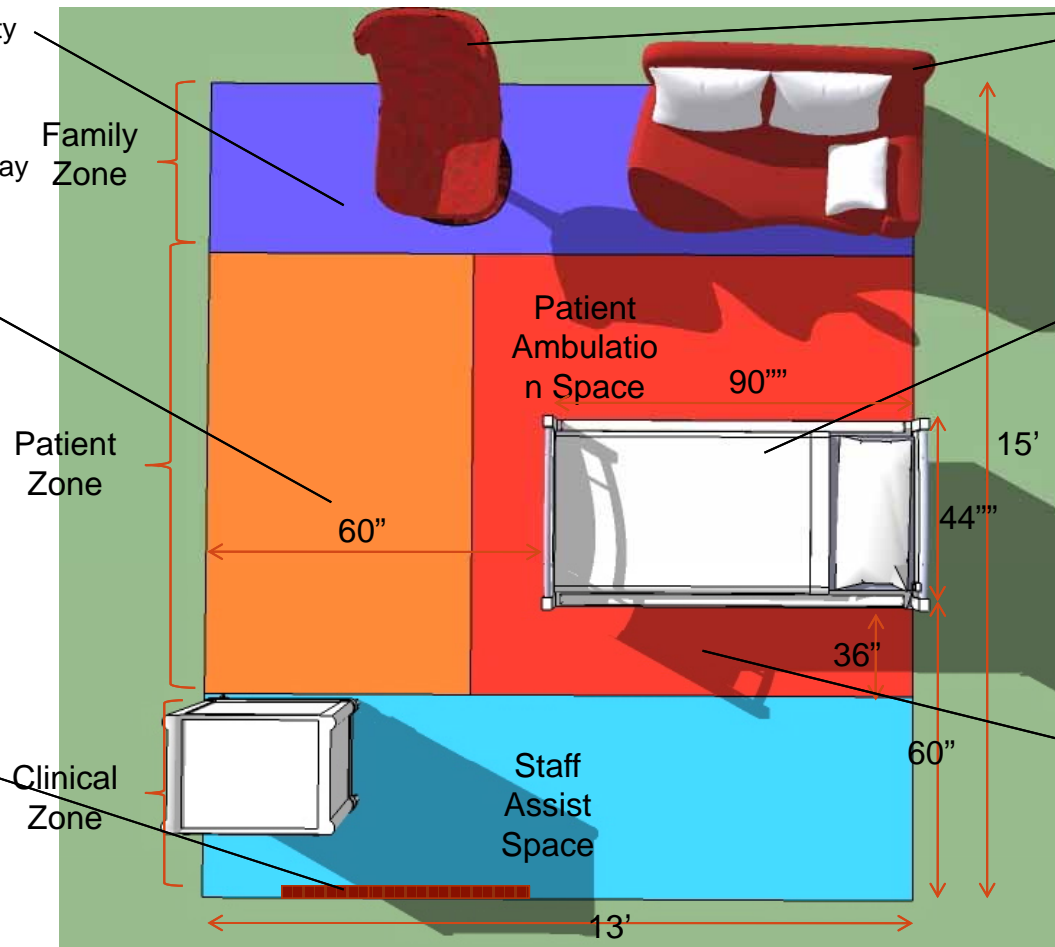
Recommendation: The Bariatric Acuity-Adaptable Inpatient Room

Family-centered Care: because of stigmatization, the bariatric patient's anxiety levels are high when admitted to hospital. Consequently, needs for family support during the stay are real and acute (Harrell and Miller 2004).

A width of 60 inches is considered sufficient to comfortably allow passage for oversized equipment.

A pair of unequal-leaf swinging doors – one 42" wide and the other 18" wide to yield the desired clear opening with the least overall width to allow passage for a bariatric stretcher which are 44.5" wide.

Additional features to be incorporated for acuity-adaptable rooms



Provide a variety of bariatric furniture For Family Members. Bariatric patients commonly have severely obese family members. In order to welcome and encourage family members to participate in caregiving during hospitalization.

The composite bariatric patient bed for planning purposes is 90" long and 44" wide in the normal position and 98" long by 61" wide when extended and with safety sides in place. Larger beds and larger equipment will drive larger room dimensions due to need for clearances around furniture and equipment for the care team to maneuver. The care team can consist of up to three or more caregivers if the patient's weight approaches 1000 pounds.

Clearance should be 5 feet on the sides and at the foot of the bed to ensure adequate clearance for the care team to assist the patient in and out of the room or to the toilet room.

Layout of a Bariatric Acuity-Adaptable Inpatient Room (Modeled using Google Sketchup). Dimensions are not the recommended room dimensions, just the incompressible functional space. Additional space would be needed for storage and hygiene space. (Based on recommendations by Hignett et al 2007 and the BRDAB, using a Room Builder ® workshop at Hill-Rom- Harrell and Miller 2004).

BARIATRIC INPATIENT ROOMS

Recommendation: The Bariatric Acuity-Adaptable Inpatient Room

Needs and considerations

- 1) AMH must also consider changing the operational model for some caregivers to accommodate the bariatric acuity-adaptable rooms (e.g. cross-training nurses, convincing physicians) to fit model of acuity adaptable inpatient units.
- 2) The bariatric acuity-adaptable inpatient room would require more space (about 100 sq ft more) and more services than the single-patient medical-surgical room → Higher capital cost
- 3) How many? Due to financial and manpower limitations, it may not be feasible to convert all inpatient rooms to acuity-adaptable rooms. Nonetheless, given that 31% of the population is obese, AHM should have at least 30 bariatric patient supportable rooms. AMH can consider placing at least two bariatric acuity-adaptable rooms in the medical / surgical units on 2nd , 3rd , and 4th floor. Bariatric patients can be allocated to rooms that closer to where most appropriate care givers are to mitigate logistical issues. AHM could convert existing double-occupancy rooms (23' x 13') into private rooms for obese patients. Froedtert Memorial Lutheran Hospital opened a new patient tower in 2002 with 12 rooms meet the needs of obese patients. Instead of clustering bariatric patient rooms together, they were scattered around the tower with six rooms on the surgery floor, two each were built on three other floors, with the intention to blend obese patients with the rest of the patient population (Thrall 2005)
- 4) AMH may consider renovating an older nursing unit to provide acuity-adaptable rooms
- 5) Depending on budget availability, AMH may opt for additional features such as a simple recliner, daybed or individual room-lighting controls for families, privacy curtains around the family sleeping space, supplemental family storage, a safe for personal belongings and a dedicated work space with task lighting.

BATHROOMS

Issue:

Typical Bathrooms are not designed to support the weights of bariatric patients and as such can be very risky to them and for caregivers assisting them. If a person of normal weight slips in the bathroom, a nearby sink or toilet makes a great grab bar. But if a bariatric person leans on a sink for support or even sits on a standard toilet, it is highly likely that bathroom fixtures will not be able hold up. This issue is further compounded given the mobility issues of someone who is morbidly obese.

Moreover, standard china toilets in hospital bathrooms only have a maximum capacity of 300 pounds and with additional weight of the bariatric patient, it can fail both by falling off the wall and by developing cracks in the material (Collignon 2008).

BATHROOMS

Recommendations: Bathroom Design

Sinks should be reinforced up to 300 lbs, but far enough away from the toilet so that it is not used as a substitute handrail.

Handrails should be reinforced and located in both horizontal and vertical positions.

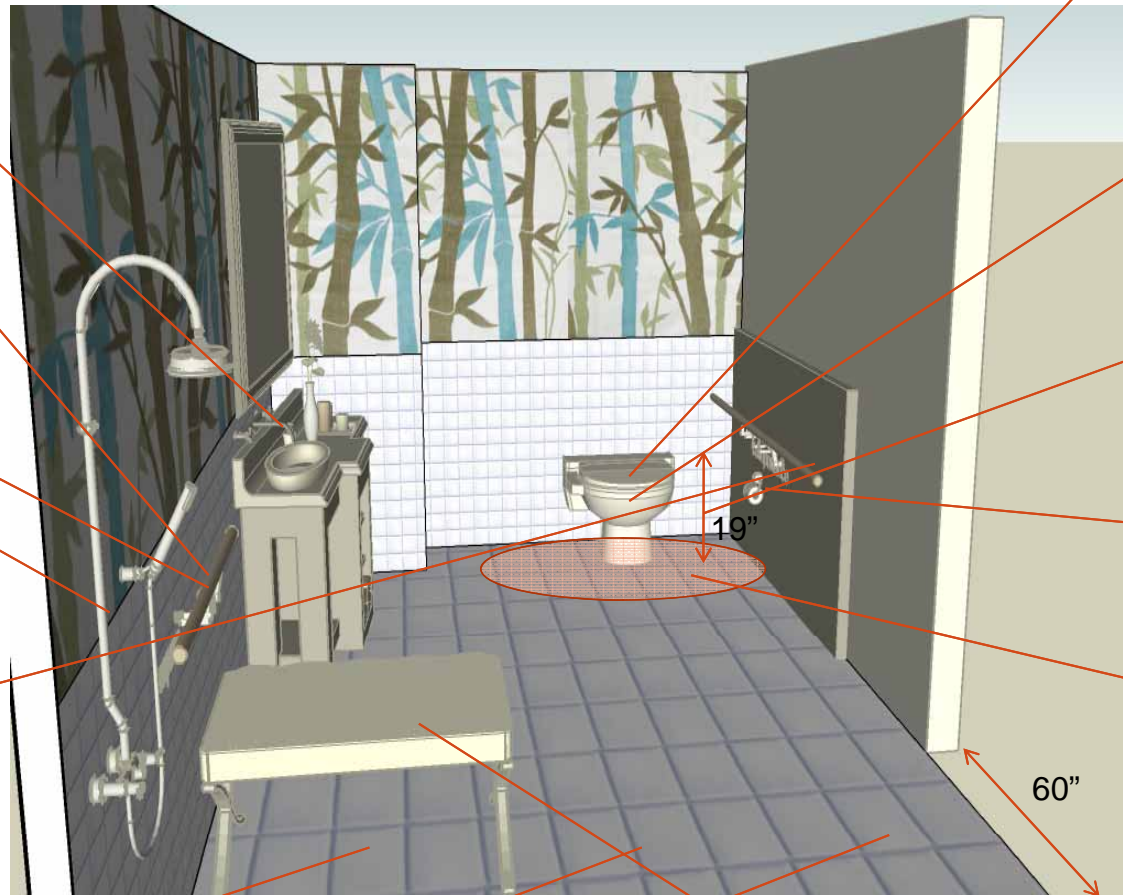
Towel racks should not be placed near the hand rails in case they are grabbed by mistake.

Showers instead of bathtubs should be used. ADA recommends a 30" by 60" shower area as recommended by ADA.

Horizontal rails should be placed to the sides of the commode and extending 6-8 inches above seat height to facilitate patient mobility.

Strategic Placement of fixtures and sloping of the floor to a drain, allowing the entire room to become the shower.

Waterproof walls and floor



View of Ideal Bariatric Patient Bath Room (Modeled using Google Sketchup).

The bathroom should have at least 45 ft² to allow the patient to be assisted by 2 care givers.

Comfortable and sufficiently wide waterproof bariatric shower bench that can support up to 1000 lbs.

Given the difficulty cleansing themselves after toileting, the addition of a bidet function would facilitate patient hygiene and dignity.

The most common solution on the market are floor-mounted stainless steel toilets with a weight capacity of 5000 lbs. The center line for toilets should be 24" Vs. 18" on the center line for a standard toilet.

Seat height should be at least 17-19 inches to aid the patient to rise and reduce chance of injury or fall.

The toilet tissue dispenser should be mounted sufficiently in front of the water closet to allow the patient east of access

There needs to be a 5 feet clearance space around the toilet to allow caregivers to stand on both sides to assist the patient.

A 60" opening would allow for the greatest level of accessibility and safety for caregivers to assist the patient into the toilet room. Another option is to provide a retractable or foldaway wall separating the bathroom area from the regular room, allowing the actual room space to be

BATHROOMS

Reducing Stigma of Bariatric 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.



Heavy-duty grab bars that look trendy and are functional



Sinks located away from toilet and

DEATH OF BARIATRIC PATIENT

Issue

The transportation of bodies of bariatric patients can draw undue attention from the public. Also, there may be situations where mortuary facilities are unable to accommodate the bodies of bariatric patient, and compromise the dignity of bariatric patients (Mulvihill 2006). The mistreatment of corpses by the hospital is liable for litigation (www.legalmatch.com).

Recommendation: Ensuring Dignity

- 1) AHM can consider building or converting existing spaces to private access routes that is closed off from the public in hospitals. This would help to ensure patient dignity when transferring the deceased bariatric patient to the mortuary. If this is not possible, an oxygen mask should be put onto the body and have a nurse escort them so as not to draw attention from the public to the demise of the patient.
- 2) Ensure sufficient storage and handling facilities in the mortuary for obese bodies, which can withstand their weight. As 31% of the population is obese, the same percentage must apply for cadavers (Andrade 2004). If post mortem is necessary, ensure that all surfaces are able to support the weight of the deceased. If this is not possible, the procedure can be carried out on a bariatric bed.
- 3) Transport to the mortuary should be used with appropriate equipment such as a heavy duty bed. The bed must be moved with at least four staff to minimize the risk of injury.
- 4) The Mortuary department also needs to inform the undertaker of the patient's weight in order to ensure that adequate equipment, staff and transportation is available.



RECOMMENDATIONS BEYOND PHYSICAL FACILITIES AND EQUIPMENT

In addition to the recommended facilities and equipment, a bariatric handling program used by all hospital staff would also be needed for the facilities and equipments are used appropriately. The following table lists elements to be included in the bariatric patient handling program.

Policy and guidelines for safe patient handling and movement	A bariatric patient handling policy is required to identify the process for the entire care process for the bariatric patient including admissions. It should document the minimal lift policies, roles and responsibilities of workers and the management, how to access equipment and its cleaning and maintenance, as well as expectations for respectful care.
Patient Risk Assessment Tool	An assessment by a healthcare professional trained in mobility is required to determine the type of equipment and number of people to perform tasks. The assessment takes into account the patient's weight, body shape, BMI, manual handling requirements, ability to weight bear and any other issues that will impact the choice of equipment used. The assessment should be documented on the patient's chart and also communicated effectively.
Communication Tool	When a bariatric patient has to be transferred to another department in the hospital, detailed information on the patients weight and handling needs must be communicated to the other department before hand and ensure that appropriate equipment and techniques are in place before transferring the equipment.
Education and Training	Although AMH has basic patient handling training programs in place, all employees should be trained and regularly updated on correct procedures and techniques in handling bariatric patients and the appropriate selection and use of bariatric equipment.
Appropriate staffing	Inadequate number of staff presents increased risks of patient handling and therefore the right number of staff appropriate determined by the risk assessment will be required. If staffing requirements are unable to be met, Muir and Heese suggested scheduling all staff in the hospitals for assisting duties in intervals of 30 min (Muir and Hesse 2008). A lift team comprised of hospital and medical assistants with specialized training to assist the nursing staff in caring for obese patients can also be implemented. Sutter Health instituted its first team in 1992 and since then it experienced a 60% drop in the frequency of workplace injury claims (Collignon 2008).
System for evaluation (injury tracking)	Tracking injuries in spite of the above handling policies can be an invaluable tool to identify and trend the causes (including patient characteristics) and allow improvements to be made to patient handling policies.

ISSUE 2: DEALING WITH IGNORANCE

Case Study: Mayo Clinic – Public Education

Like Obesity, Cancer is a stigmatizing disease (Sontag 1989). Mayo Clinic developed a cancer education center to help reduce the stigma for cancer patients in the hospital because, as one administrator put it, “the more visible the center, the more you remove the stigma of having cancer” (Berry 2003).

Mayo Clinic’s Cancer Education Center offers many complimentary public education programs about cancer prevention, detection and treatment, connect the patients and interested members of the public to educational sessions and support groups, address survivorship issues and locate additional support resources.



ISSUE 2: DEALING WITH IGNORANCE

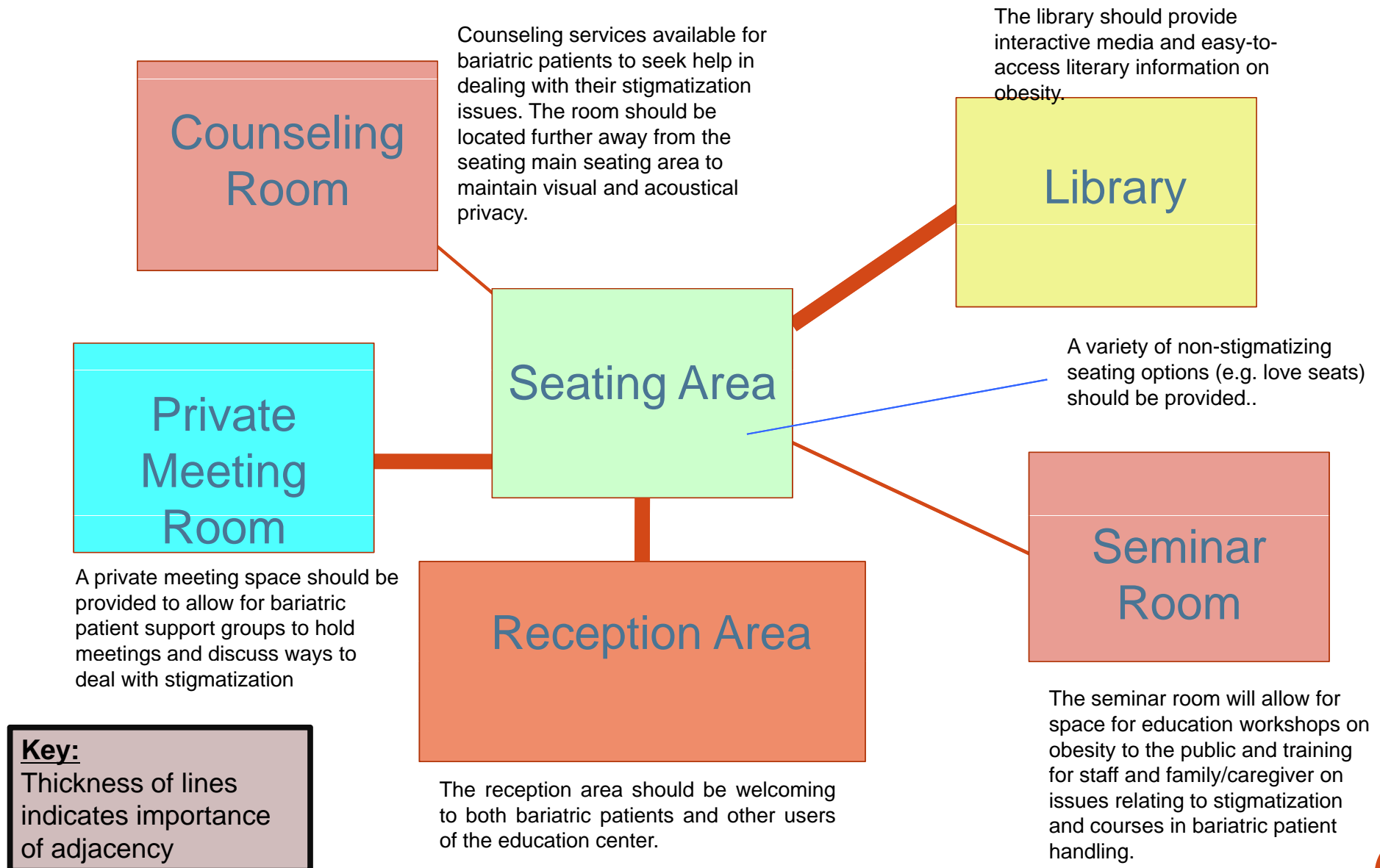
Addressing Ignorance by developing an Obesity Education Center

There is evidence to show that education can reduce bias and discrimination. An intervention study among medical students was conducted in 1992 to reduce stigma toward obese patients among medical students. Before intervention, the majority of medical students in the study characterized obese individuals as lazy, sloppy, and lacking in self-control, despite the students indicating that they had an accurate understanding of obesity's cause. The students were then shown videos, written materials, and role-playing exercises to change their attitudes and bias. After the intervention, students demonstrated significantly improved attitudes and beliefs about obesity compared with the control group. One year later, the effectiveness of the intervention was still evident (Wiese et al 1992). In addition to the education of the public and staff, Rebecca Puhl also suggested support groups can help bariatric patients who are struggling with weight stigma to become advocates for themselves and join support groups that can aid in identifying situations in which they have been stigmatized because of their weight and deciding how best to handle the situation to achieve positive emotional health to help prevent additional stigma from occurring.

An obesity education center is proposed to serve as an education resource for the public and medical staff to change their attitudes towards obese patients and help them understand the etiology of obesity and the negative effects that stigma has on obese people. A library to include videos, written materials and informational sessions. The center can also serve as a resource for bariatric patients and their families to find out more information about their condition and associated co-morbidities, be more engaged in their recovery process. In addition, the center can help patients find connections to support groups and provide spaces for them to meet. Counseling services to deal with stigmatization and their effects can also be offered. Moreover, the education center can provide education and training center to staff and family/caregivers on managing and handling bariatric patients sensitively as well as techniques in using bariatric equipment.

OBESITY EDUCATION CENTER

Bubble Diagram

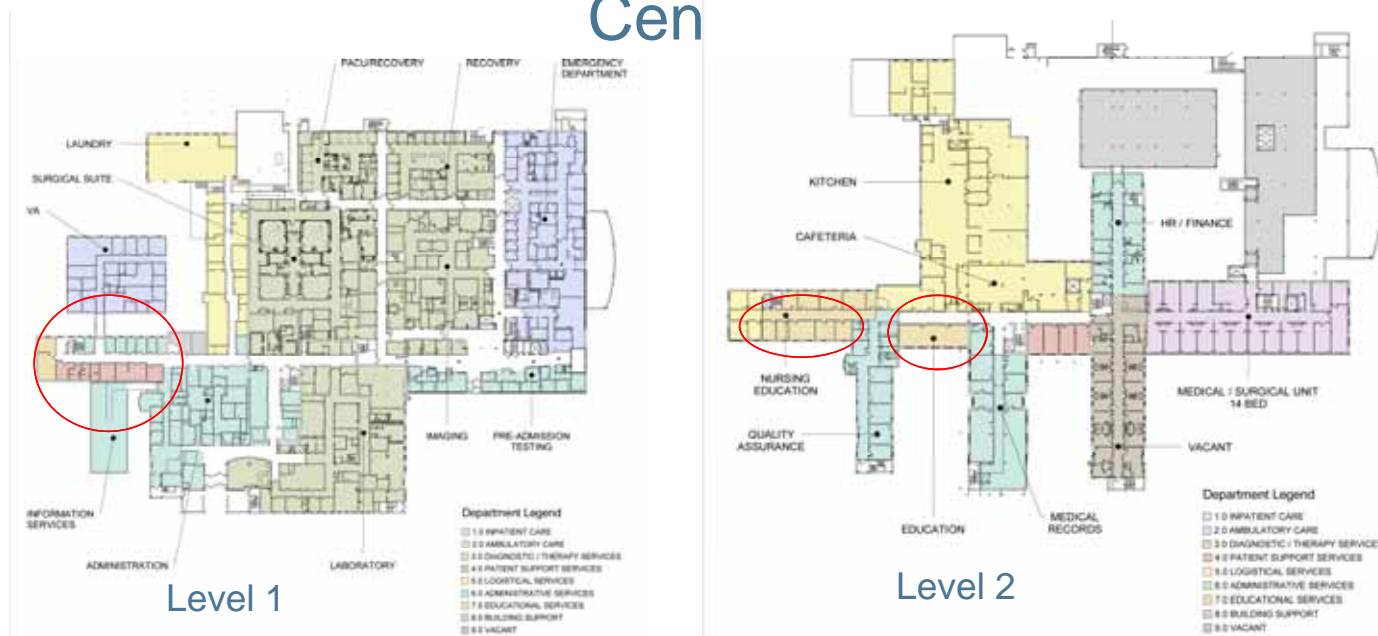


OBESITY EDUCATION CENTER

Choice of Site

Given that education services centers already exist in AHM, the additional costs for setting up the center can be reduced if existing spaces could be converted. The Obesity Education Center should be sited in a prominent area that is accessible to the public. Therefore a possible site would be to incorporate the center into the informational services, or convert the nursing education or the educational services center on level 2 specifically for this purpose. If this is not possible, the obesity education center can be sited in the new patient tower in an accessible and visible location, and meet requirements listed in the bubble diagram.

Possible sites for Obesity Education Cen



Floor Plan of Auburn Memorial Hospital

CONCLUSION

CONCLUSION

Why Should A Stakeholder Care?

The growing obesity population and their demands for healthcare is a great opportunity for AMH to increase their revenue by gaining the loyalty of bariatric patients by creating bariatric-friendly facilities. However, bariatric patients can also pose many challenges in being able to provide a high level of care. ADA requirements and hospital liabilities for personal injuries adds further pressure for the AMH to ensure that adequate policies and practices, and facilities and equipment are in place to provide a safe and friendly environment for bariatric patients.

More importantly, as Collignon aptly puts it, “when bariatric patients have the rightly-sized rooms and equipment specific to their needs, their better feelings about their surroundings will contribute to an improved healing process.” (Collignon 2008)

CONCLUSION

Dealing with factors causing stigmatization: Ignorance, Challenges in Providing Care and Inadequate Facilities and Equipment

Ignorance about obesity can cause bias and discrimination in the hospital setting. The stress involved and the difficulties in handling patients may also cause healthcare workers to form negative attitudes towards obese patients. To improve understanding amongst the public and caregivers, an obesity education center should be set up, following Mayo Clinic's example in dealing with cancer stigma.

Inadequate facilities and equipment may encourage the systematic discrimination of bariatric patients and may cause serious injury amongst both the patient and their caregivers. The space requirements and types of equipment needed, as well as a bariatric patient handling program were recommended suggestions to ensure the safe and respectful handling of bariatric patients. Many of the recommendations such as bathroom design, acuity-adaptable rooms, corridor widths are universal designs and can meet the requirements for other disabled users (e.g., wheel-chair bound patients). Universal design features will help to defray the costs of increasing space and acquiring equipment.

CONCLUSION

Approach to Recommendations:

Bearing the cost and labor implications for implementing a hospital-wide bariatric program, AMH can consider approaching the recommendations in two phases: short-term and long-term. Short-term recommendations are those recommendations that are easy to implement and are important to meeting the basic accessibility requirements. Longer-term solutions are those recommendations that are good to have but not of immediate importance.

SHORT-TERM	LONGER-TERM
Bariatric Patient Handling Program (Policy, risk assessment, training, communication, evaluation)	Developing Bariatric acuity-adaptable inpatient rooms
Acquisition of adequate bariatric equipment (e.g. bariatric operating tables, beds, mobile lifts, X-ray tables, etc)	Obesity Education Center
Acquisition of non-stigmatizing furniture	Enlarge patient waiting areas and improve privacy of examination area
Retrofitting bathrooms for bariatric patient accessibility	Private pathways to mortuary for transporting bariatric bodies
Increasing weight capacity of lifts and floor areas of essential spaces (e.g. operating theater, diagnostics).	Installation of ceiling lifts
Widening entry and corridors	

CONCLUSION

Limitations of the Study

The new 2010 American Institute of Architect (AIA) Guidelines for the Design and Construction of Healthcare Facilities will only be published in Jan 2010 (AIA 2009; FGI 2009). The guidelines will detail new requirements and recommendations for the design and construction of healthcare facilities in regards to bariatric equipment and bariatric patient accommodations. As the guidelines were not available at the time of this study, some of the recommendations may be superseded or may not meet requirements of the new guidelines. Efforts to use the most current guidelines by AIA were made to ensure that the space recommendations were as up to date as possible.

As this project is based on using secondary evidence to guide recommendations, they may not be as feasible when applied to the Auburn hospital context (i.e. site-specific data of bariatric patients). Conducting primary research at AMH would strengthen the recommendations and see if they fit into the hospital's context.

Moreover, given the breadth of equipment and facilities in the scope of reducing stigmatization, not every specific facility could be covered in adequate detail in this study due to the schedule of the project (e.g. car park, specialists clinics, etc.). Wherever possible, general guidelines for design have been provided and these can be applied or adapted to specific areas of the hospital as appropriate.

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