Bariatric Safe Patient Handling and Mobility Guidebook: A Resource Guide for Care of Persons of Size

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Executive Summary

Establishing a culture of safety pertaining to patient care is challenging in any setting; however, special challenges arise in the presence of obesity because excess weight and weight distribution often interfere with the caregiver's ability to provide the most basic care. This is especially true when considering patient handling and mobility. The risks associated with bariatric patient handling and mobility are complex, and each patient must be considered individually.

The purpose of this Bariatric Safe Patient Handling and Mobility (SPHM) Guidebook is to provide best practice guidance to address the needs of bariatric patients, their families, and those who care for them. It presents emerging science, practical information, and a collection of tools and information that enable members of the greater health care community to: assess their current organizational capacity; plan and implement safe care of bariatric patients throughout the continuum of health care; and evaluate both patient and program outcomes. It includes space and design recommendations, guidance for selection of appropriately-sized technology (equipment and devices), communication tools, and other essential information; along with a comprehensive list of references and links.

This guidebook is designed as a first step to safely accommodate the physical, emotional, and spiritual needs of our patients of size; however, it is not a prescription for care. Readers are encouraged to seek new and emerging science as a way to continue the journey toward further improving patient care and promoting caregiver safety, irrespective of patient size.

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Peggy Bone, MSN, RN, CSPHP, CIC, Safe Patient Handling and Mobility Coordinator, Birmingham VA Medical Center, Birmingham, AL

Tim Buchanan, RN-BC, MSN, Safe Patient Handling and Mobility Facility Coordinator, VA St Louis Health Care System, St. Louis, MO

Judee Gozzard, RN, MSN, CSPHP, Former Safe Patient Handling Coordinator, C.W. Bill Young VA Medical Center, Bay Pines, FL

Tony Hilton, DrPH, MSN, FNP, CRRN, RN, Safe Patient Handling Coordinator, VA Loma Linda Healthcare System, Loma Linda, CA

Valerie Kelleher, Visual Information Specialist, VISN 8 Patient Safety Center of Inquiry, Tampa, FL

Nancy Kirchner, MA, RN, Safe Patient Handling Coordinator/VISN 23 Safe Patient Handling Point of Contact, Minneapolis VA Health Care System, Minneapolis, MN

***Charlotte Lynch, MS, CNS, CSPHP,** Safe Patient Handling Coordinator, Dayton VA Medical Center, Dayton, OH

Marie Martin, Ph.D., Acting National Program Manager, Patient Care Ergonomics (10P3D) and Industrial Hygienist/Safe Patient Handling Facility Coordinator, VA North Texas Health Care System, Dallas, TX

Mary W. Matz, MSPH, CPE, CSPHP, former VHA Safe Patient Handling National Program Manager, James A. Haley Veterans' Hospital, Tampa, FL

Lisa Milstead, RN, MSN-ED, MHA, CHPN, Nurse Manager Special Programs/Medical Specialty, Huntington VA Medical Center, Huntington, WV

Mary Lou Muir, RN, COHN, Former Bariatric Patient Handling Consultant, Winnipeg, MB

Lynne Olson, ARNP, Bariatric Coordinator/Bariatric Nurse Practitioner**,** Bay Pines Health Care System, Bay Pines, FL

Val Posa, MSN, RN, Special Projects Clinical Coordinator, VA Pittsburgh Healthcare Center, Pittsburgh PA

Frank Rossi, Physical Therapist, C.W. Bill Young VA Medical Center, Bay Pines, FL

A special thanks is extended to the following individuals for their contributions to this guidebook and to management at their respective VISNs and VA/VHA facilities for their support.

Sylvia Baack, PhD, RN, Chief, Nursing Education, VA North Texas Health Care System, Dallas, TX

Lois Barkman-Soloman, RN, Fargo VA Health Care System, Fargo, ND

Roberta Capewell, PhD, RN, Quality Assurance & Program Integrity Dept., Visiting Nurse Association of Greater Philadelphia, Philadelphia, PA

Lena Deter, **RN, MPH, CSPHP,** DELHEC, LLC. Educational Services & Consulting, Hermitage, TN

Michelle Franklin, RN, BSN, Safe Patient Handling Coordinator, Captain James A. Lovell Federal Health Care Center, Chicago, IL

Traci Galinsky, Ph.D., Captain, U.S. Public Health Service, Research Psychologist, NIOSH, Cincinnati, OH

Susan Gallagher, PhD, MSN, MA, RN, CBN, CSPHP, Founder, Celebration Institute, Inc., Sierra Madre, CA

Kimberly A. Hudson, MSN, RN, CCRN, SPHM-Fall Prevention Coordinator, Marion VA Medical Center, Marion, IL

Christina McCullough, R.T.(R)(M)(CT), Radiology Technologist, C.W. Bill Young VA Medical Center, Bay Pines, FL

Roberta Oeser, RN, Former Safe Patient Handling Coordinator, Jack C. Montgomery VA Medical Center, Muskogee, OK

Lynn Salazar, MSN, RN, Safe Patient Handling/Falls Prevention Coordinator, South Texas Veterans Health Care System, San Antonio, TX

Susan Wyatt, BSN, RN, Safe Patient Handling Coordinator, Phoenix VA Health Care System, Phoenix, AZ

CEOSH Publishing Staff

Tina Beckner, Lead Technical Information Specialist, St. Louis, MO

Lesley Luscri, Technical Information Specialist, St. Louis, MO

Melody Watts, Technical Information Specialist, St. Louis, MO

Connie Young, Chief, Publishing Services, St. Louis, MO

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Alpha Modalities, LLC
3110 Judson Street, Suite 149
Gig Harbor, WA 98335
http://alphamodalities.com/

HumanFit, LLC
15401 S. Len Avenue
Oregon City, OR 97045

Hignett, et al.
Loughborough University

LiftSeat Corporation, Inc.
2001 Midwest Road
Suite 204
Oak Brook, IL 60523
http://www.liftseat.com/

MedCare Products
151 East Cliff Road
Burnsville, MN 55337
www.medcarelifts.com

Patran/Jamar Health Products, Inc.
http://www.patran.net/index.html

Stryker Medical
3800 East Centre Ave.
Portage, Michigan 49002
http://www.stryker.com/en-us/index.htm

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Each guidebook has three sections:

- **Preface:** Disclaimers, Executive Summary *(summary of how this book supports each program)*, Acknowledgements, How to Use This Guidebook, Update Listing *(list of any online updates made to the guidebook prior to a new publication),* and Acronyms and Abbreviations, *(list of acronyms and abbreviations used in the guidebook).*
- **Chapter Contents:** Each chapter contains a general discussion that provides VA-specific guidance on the topic.
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References and Web site links within each chapter and enclosure/attachment were current at the time of publication.

Update Listing

The following listing identifies online updates since the initial publication of the July 2015 edition of this guidebook. It is designed to assist the reader in verifying the most current information available.

Update Number	Date Updated	Remarks	Chapter

Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
A/E	Architect/Engineer
AAR	After Action Review
ADA	Americans with Disabilities Act
ADL	Aids to Daily Living
AHRQ	Agency for Healthcare Research and Quality
AIA	American Institute of Architects
ANA	American Nurses Association
AOHP	Association of Occupational Health Professionals
ASISTS	Automated Safety Incident Surveillance Tracking System
BMI	Body Mass Index
BMS	Bed Management System
BP	Blood Pressure
CARF	Commission on Accreditation of Rehabilitation Facilities
CAUTI	Catheter Associated Urinary Tract Infection
CBOC	Community-Based Outpatient Clinic
CEOSH	Center for Engineering & Occupational Safety and Health
CHF	Congestive Heart Failure
CLC	Community Living Center
cm	Centimeter
CMS	Centers for Medicare and Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease

Acronym/ Abbreviation	Definition
CPAP	Continuous Positive Airway Pressure
CPR	Cardiopulmonary Resuscitation
CT	Computerized Tomography
DEOSH	Department of Environmental & Occupational Health Science
DHHS	Department of Health and Human Services
DVT	Deep Vein Thrombosis
EC	Expanded Capacity
ED	Emergency Department
EMS	Emergency Medical Service
EMS	Environmental Management Service
FDA	Food and Drug Administration
FGI	The Facility Guidelines Institute
FMS	Facilities Management Service
GERD	Gastroesophageal Reflux Disease
GI	Gastrointestinal
GU	Genitourinary
GYN	Gynecological
HAPU	Healthcare Acquired Pressure Ulcer
HBPC	Home Based Primary Care
HCS	Health Care System
ICU	Intensive Care Unit
ID	Identification
IDF	International Diabetes Foundation
in.	Inch

Acronym/ Abbreviation	Definition
ISO	International Organization for Standardization
IV	Intravenous
IT	Information Technology
kg	Kilogram
KT	Kinesiotherapy
lb.	Pound
LOC	Level of Consciousness
LTC	Long Term Care
m	Meter
MD	Doctor of Medicine
mg	Milligram
MRI	Magnetic Resonance Imaging
MSD	Musculoskeletal Disorder
MSI	Musculoskeletal Injury
NCPS	National Center for Patient Safety
NFPA®	National Fire Protection Association
NG	Nasogastric
NHANES	National Health and Nutrition Examination Survey
NHS	National Health Service
NIOSH	National Institute for Occupational Safety and Health
NPSF	National Patient Safety Foundation
OCHE	Oregon Coalition for Health Care Ergonomics
OHSAH	Occupational Health & Safety Agency for Healthcare

Acronym/ Abbreviation	Definition
OJIN	Online Journal of Issues in Nursing
OPC	Outpatient Clinic
OR	Operating Room
OSHA	Occupational Safety & Health Administration
OT	Occupational Therapy
OWCP	Office of Workers' Compensation Programs
PAG	Professional Advisory Group
PCE	Patient Care Encounter
PE	Pulmonary Embolism
PET	Positron Emission Tomography
PHAM	Patient Handling and Movement
PHAMA	Patient Handling and Movement Assessment
PHAMP	Patient Handling and Movement Program
PM&R	Physical Medicine and Rehabilitation
PSI	Pounds per Square Inch
PT	Physical Therapy
RME	Reusable Medical Equipment
RN	Registered Nurse
ROM	Range of Motion
SBAR	Situation, Background, Assessment, and Recommendations
sf	Square Foot
SOB	Shortness of Breath
SOP	Standard Operating Procedure
SPH	Safe Patient Handling

Acronym/ Abbreviation	Definition
SPHM	Safe Patient Handling and Mobility
SPS	Sterile Processing Service
UL	Underwriters Laboratory
UPL	Unit Peer Leader
UTI	Urinary Tract Infection
VA	Department of Veterans Affairs
VAP	Ventilator-Associated Pneumonia
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
WHO	World Healthcare Organization
WOC	Wound, Ostomy, and Continence
WOCN®	Wound, Ostomy, and Continence Nurses Society
XL	Extra Large

Introduction

1.1. Overview

Obesity is one of today's most significant health problems. Handling and mobility tasks associated with bariatric populations are complex because of excess patient weight and weight distribution, decreased mobility, and numerous co-morbid conditions. Evidence demonstrates the benefit of a multifaceted, inter-professional, comprehensive Safe Patient Handling and Mobility (SPHM) Program that utilizes appropriate technology necessary to safely lift, move, and mobilize patients (American Nurses Association, 2013). The use of SPHM policies and procedures, technology, and training are especially critical when providing care to the bariatric patient.

The World Health Organization recognizes the pandemic nature of obesity and contends that obesity in adults now affects three times more people than it did 20 years ago. Obesity exists regardless of gender, race, age, or regional location. The proportion of Americans who are severely obese continues to increase rapidly and much faster than those with moderate obesity according to a RAND Corporation study (Hattori & Sturm, 2013). The RAND study also states that severe obesity is no longer a rare pathological condition among genetically vulnerable individuals; instead the condition affects all groups of individuals. The RAND study goes on to state that from 2000 to 2010, the proportion of Americans who were severely obese rose from 3.9 percent of the population to 6.6 percent, an increase of about 70 percent. The RAND study found that more than 15 million adult Americans are morbidly obese with a body mass index (BMI) of 40 or more. It has been estimated that by 2030, 50 percent of the population will be obese (Finkelstein et al., 2012). The implication to SPHM planning teams is that programs best serve patients and caregivers when they address issues of size.

There are a number of ways to measure and define obesity. The value of a standardized measurement and/or definition is that care concerns can be anticipated simply because of an established criterion. The following are some of the recognized standard definitions within the health care setting.

- Body weight greater than 300 pounds [137 kilograms (kg)] (Muir, 2009).
- BMI of 40 or more or large physical dimensions (World Health Organization, 2000).
- Overweight by greater than 100-200 pounds (45-90 kg) (ARJO, 2005).
- Those with limitations in health due to physical size, health, mobility, and environmental access (Bushard, 2002).

Each of these definitions has value and tends to help caregivers recognize the patient who is at-risk simply because of body weight. However, for purposes of providing reasonable accommodation to patients who are challenged by excess weight or weight distribution and for the purpose of this document, the bariatric patient is defined as:

Any individual whose weight and/or size interferes with the ability to provide safe, reasonable care (Gallagher, 2012).

This may be the patient who has a normal range BMI because of excess height, yet their body weight cannot be accommodated with standard equipment because the patient's weight exceeds the weight capacity of the bedframe. Conversely, this may be the patient with a low body weight but because of short stature, has a very high BMI and hip width, and cannot be accommodated safely in a standard bedframe because hip width exceeds width of the standard bedframe (see Enclosure 1-1 for examples of BMI Charts). The broad definition adopted by this guidebook allows caregivers the ability to create meaningful criteria to identify the patient at-risk for the common, predictable, and preventable consequences of immobility associated with size (Gallagher, 2011).

Statistics reveal that patients with a BMI greater than 35 are associated with nearly 30 percent of patient handling injuries (Drake, 2009). In addition, research shows that safer environments of care increase the quality of patient care as noted in recent publications by The Joint Commission (2012) and the Lucian Leape Institute publications (Lucian Leape Institute and National Patient Safety Foundation, 2013). To address the issues associated with patient and employee safety, the American Nurses Association (ANA) recently published Safe Patient Handling and Mobility: Interprofessional National Standards (ANA, 2013) and the corresponding Implementation Guide (Gallagher, 2013). These standards can be applied to all health care settings and used by all health care workers across the continuum of care to support improving the safety of both the health care worker and the patient, including the bariatric patient.

Increasing interest in health care safety and quality in a general sense, along with legislative movement pertaining to SPHM, and bariatrics emerging as a health care specialty, have worked synergistically to call for a safer care environment for the bariatric patient. As with all patients, the bariatric population is best served when treated with dignity and respect. This is accomplished when health care facilities have a plan in place that supports bariatric safe patient handling and mobility to optimize patient outcomes, reduce the risk of caregiver injury, and promote a size-sensitive culture.

1.2. Enclosure

1-1 BMI Tables

Assessing the Organizational Capacity for Bariatric Care

The first step to a successful bariatric Safe Patient Handling and Mobility (SPHM) Program is an organizational assessment to determine the extent the facility has the space and capacity to care for larger, heavier individuals across disciplines and settings. Assessing the facility's capacity for bariatric care should occur in every area where caregivers provide direct or indirect contact with patients. The first step in assessing the facility's capacity begins with knowing your facility and equipment. A bariatric equipment safety checklist (Enclosure 2-1) is a good starting point in determining dimensions and weight capacity of patient care areas and equipment. In addition, it will be helpful for staff to know what equipment is available, where it is located, and how many are on hand. The facility bariatric equipment inventory (Enclosure 2-2) is a tool that can be used to inventory facility bariatric equipment on hand. The needs of family members and friends that may be of larger size must also be considered. This should include an assessment of the organization's emergency response process both within the facility and outside in the parking areas or walkways. Injuries often occur when caregivers and others take risks because of their inherent drive to rescue. Further, consider post-acute care areas when assessing and planning across the continuum of care. This level of assessment presents a particularly complex challenge in older buildings and structures where rooms are small and standard equipment often has a maximum weight capacity of 250 or 300 pounds.

Despite this realistic concern, the challenge must be met as Department of Veterans Affairs (VA) facilities report higher rates of overweight and obesity as compared to the general population. For example, the Architectural Design Manual published by the Department of Veteran Affairs Office of Construction & Facilities Management (2012) explains:

> "Veterans who receive care at VA Facilities have higher rates of overweight and obesity than the general population. As the largest integrated U.S. health system, the VA has a unique opportunity to respond to the epidemic of obesity. Therefore, the Architect/Engineer (A/E) shall incorporate bariatric accommodations into all types of VA facilities: hospitals, clinics, ambulatory surgical centers, community living centers, etc. Accommodations for each type of VA facility shall be designed on an individual basis specific to that locality and bariatric census."

With that in mind, a comprehensive policy should be based on a facility assessment that includes: realistic resources, structural limitations, and capacity for care. The purpose of this assessment-driven policy is to identify both the risks of handling and mobilizing bariatric patients and strategies to minimize these risks

to patients and caregivers. Once these key steps are taken, the process will continue with planning and implementing safe and dignified care.

2.1. Bariatric Equipment, Space, and Design

2.1.1. Planning for the Future

The dimensions and weight capacity of the necessary bariatric technology will drive space and design planning. This guidebook offers a starting point to that end; however, it must be understood that dimensions change regularly and vary from one manufacturer to another. Illustrations that demonstrate space needs can be found in the 2014 Arjo Huntleigh Guidebook for Architects and Planners: Functional Design for Mobilisation and Ergonomics.

Most stakeholders in health care facilities recognize that over 40 percent of Americans are obese and 67 percent are overweight or obese, and the proportion is rising over time [National Health and Nutrition Examination Survey (NHANES), 2012]. Once facility leadership acknowledges the need to address the bariatric population, planning can begin. When creating a bariatric SPHM plan, plan for more patients than are currently served. Recognize the growth of this patient population and forecast the percent of bariatric patients expected at least 5 years beyond the anticipated completion dates of any planned renovations. Retrofitting is considerably more expensive than designing from the beginning.

Bariatric patients are treated across all practice settings, including outpatient clinics, laboratories, radiology, surgery, inpatient rooms, isolation rooms, and morgue areas [American Nurses Association (ANA) 2013]. The design plan must include the entire health care facility or system. If the facility is not equipped to provide certain categories of intervention, treatment, or diagnostic procedures, develop a written plan that outlines alternate methods or locations to provide this service for the obese patient.

Patient room design should be flexible. For example, rooms may be designed to be used with either one bariatric patient or two standard patients, if adequate privacy. Make electrical and medical gas available for either use (Gabel & Musheno, 2010). The plan must consider treatment of individual patients. When patients need special accommodations, plan to use spaces where their particular needs will be met. For example, if not all clinic rooms or offices are designed for bariatric patients, arrange to see these patients in adequately-sized and outfitted rooms.

Oscar Wilde said, “To expect the unexpected shows a thoroughly modern intellect.” Applying this concept to the care of bariatric patients, health care providers must plan for unexpected patients and ensure that emergency and admissions staff members have access to procedures, plans, and necessary technology for care and mobility of unexpected bariatric patient care (Gabel and Musheno, 2010). It is also important to plan for emergencies that may occur after the patient has been admitted. Emergency centers must accommodate bariatric

patients. Preplanning for care can prevent unnecessary scrambling for resources after the patient's arrival. Further, a written plan that outlines a process to emergently evacuate bariatric patients, if necessary, is another important step in designing and planning for the unexpected.

Incorporate direct caregivers into the planning process. Mock-ups can help direct caregivers to visualize motion better than written plans. As early as 2006, Audrey Nelson explained that successful SPHM efforts include input from direct caregivers of multiple disciplines, including nursing, therapy, and others (Nelson, 2006).

2.1.2. Technology

Technology (equipment, devices, and tools) is an essential element for safely handling and mobilizing bariatric patients. Lifting equipment, EC commodes, powered lifts, and walkers, along with bariatric-sized gowns, socks, needles, cuffs, etc., will need to be available. For a starting point on what technology is available, refer to Enclosure 2-3, Bariatric Technology Resource Guide. This resource includes many categories of available technology, including lifts, transport equipment, mobility aids, education and consultation, aids to daily living (ADL) supplies, linens, and clothing manufacturers. Once you have an idea of what items you need to purchase, Enclosure 2-4, Equipment Purchasing Checklist, offers help in determining what equipment will best meet the facility's needs. While this checklist is not all inclusive, it begins the collaborative approach to equipment procurement to ensure the equipment choices fit the patient, caregivers, and facility needs. Further, the ANA Standards describe specific steps for introducing new technology into the patient care area (ANA, 2013; Gallagher 2013).

While equipment and devices may be referred to as bariatric, one size does not fit all patients. It is important to match the size, width, depth, and weight limit of the technology to the patient's weight and weight distribution. The following is a list and explanation of equipment to consider when caring for the bariatric patient.

2.1.3. Bedframe and Support Surface

Perhaps the first item to consider for any inpatient setting is the bedframe and support surface. Hospital beds are available in a variety of sizes ranging from 37 to 54 inches wide (Gallagher 2014). Many bariatric beds manufactured today can be adjusted in width to meet the needs of the patient. The typical width starts at approximately 40 inches wide with the rails down and can be expanded up to 61 inches wide with the safety sides in place (Collignon, 2012). In addition to width, the length of the bed must be considered. A bed with power assist or power drive and/or a mechanical support surface with a pump may increase the bed length up to 9 feet (Collignon, 2012). Bed frames with a power drive feature are essential for bariatric patients and can reduce space needed during transportation by reducing the number of employees required and by avoiding separate bed mover

equipment that may take up more space. A 72-inch turning radius is needed for most rolling bed maneuvers (Gallagher, 2014).

2.1.4. Bedside Chairs

A bedside chair is typically 36 inches wide (Muir, 2009) but may be wider if the patient requires more width. Practically speaking, many bariatric patients have trouble sleeping in a flat supine position and may be more comfortable sleeping in a recliner. This practice should be discouraged for several reasons. In an emergency situation, it is impossible to perform cardiopulmonary resuscitation (CPR), intubation, or other emergency procedures in a seated position. The ceiling lift may not be located for use, and the base of the floor-based lift is likely incompatible with the recliner. Skin health is compromised by constant contact with a surface not designed to provide pressure redistribution, such as the surface of a recliner. Consider a size-appropriate bed frame and pressure redistribution surface if the patient requires a semi-Fowler's position for adequate ventilation (Gallagher, 2011). Another consideration of the bedside reclining chair is the height of the chair. A bariatric patient may have difficulty stepping up to get on a chair that is too high. A number of bariatric bedframes can lower to within 12-14 inches from the floor, offering a safer alternative to the chair. Talk with the manufacturer to identify a method to meet the patient's expressed needs with clinically sound technology and practices.

2.1.5. Commodes or Shower Chairs

The next important piece of furniture is the commode. Many bariatric patients cannot walk great distances, so having a bedside commode is critical to reduce falls. If the patient is able to walk to the bathroom, it is important to consider that the weight capacity of most ceramic or vitreous china toilets is approximately 300 pounds. However, a 300 pound weight capacity may not safety accommodate a 300 pound patient because a patient "dropping" onto a toilet may exert a force greater than their body weight. A bariatric commode that can be used over the toilet will provide adequate weight capacity and allow the patient to use the bathroom.

Bariatric commodes or shower chairs range from 26 to 46 inches wide and 23 to 30 inches long. The door width must allow the commode to fit into the bathroom. Another consideration is the direction of the wheels, because even though the commode may be able to fit through the door sideways, the wheels do not always move in that direction. When choosing a shower chair, one that is height adjustable and/or allows powered tilting is desirable, but the space must accommodate the chair when it is fully tilted and legs are extended. Additionally, thresholds present a significant hazard when moving patients in and out of the bathroom and shower. Ideally, the bathroom and shower would be large enough to eliminate the need for thresholds.

2.1.6. Portable Floor-Based Lifts

Powered floor-based portable or mobile lifts are used for patients who are dependent or who require moderate to maximum/extensive assistance. These floor-based lifts may be 27 to 40 inches wide and 54 to 72 inches long. Additional space may be needed while mechanically lifting if the lift must have the legs fully spread for stability while performing the lift. As compared to ceiling lifts, these lifts take up much storage room and need extra room when moving a patient within a patient room or bathroom due to their expanded capacity. Remember when designing for floor-based equipment to include enough room for the caregivers to maneuver the equipment. Limit turning and twisting of equipment under load and keep in mind that a ceiling lift is always preferable to a portable floor-based due to the potential for push/pull injuries (Marras, 2014). If the lift is to be used to assist patients in the bathroom, be sure that the lift will fit into the bathroom, will accommodate sharp corners, and that the castors are designed for smooth movement across surfaces.

2.1.7. Gantry Lifts

A gantry lift is used for patients who are dependent or who require moderate to maximum/extensive assistance. It is considered an overhead lift, but it is portable and can be moved from room to room. However, it is never moved with a patient attached to it, i.e., in a sling attached to the motor/hanger bar. It is only moved to another room without a patient. This type of lift is placed over the bed of a patient and functions similarly to an overhead/ceiling lift. Although a gantry lift can be moved from room to room if necessary, it is not designed to move freely through the patient care area like the portable or mobile lift. Gantry lifts are often provided when a bariatric patient presents and there is not a patient room with a ceiling lift with an adequate weight capacity.

2.1.8. Wheelchairs

Bariatric wheelchairs range from 34 to 48 inches wide and up to 52 inches long. Again, one size does not fit all bariatric patients. The width of the wheelchair should closely match the width of the patient without causing pressure points. A wheelchair that is too narrow could lead to skin injury, such as bilateral pressure ulcers over the hips. A wheelchair should also not be too wide for a patient. Further, consider seat depth, weight capacity, and positioning on the foot plates to ensure proper function. Removable chair arms/side rails are also helpful. If the wheelchair is manually operated, consider the use of a wheelchair mover but keep in mind that the mover could add up to 12 inches to the length. Electrically-operated wheelchairs are typically 39 inches wide and 44 to 49 inches long (Gabel & Musheno, 2010). In addition to the footprint of the wheelchair, consider the need for at least a 6 foot turning radius (Collignon, 2012). Patients may also have electric scooters that require additional front-to-back clearance. Clearance of 72 inches may be sufficient.

2.1.9. Walkers

Walkers vary considerably both in width and weight capacity. A typical rolling walker that has a 1000-pound capacity is 36 to 42 inches wide. Again, it is important to note if the wheels only move in one direction, the door widths must accommodate the width of the walker and additional space for the caregivers who are walking beside the patient.

Specially designed walkers are available to accommodate the unique needs of the bariatric patient. For example, consider the patient with a large abdominal pannus; a walker is available that supports a large pannus that otherwise would displace the patient's center of gravity placing the patient at risk for falls. Unit-specific walkers are designed to support the goals of early progressive mobility and may accommodate the patient's excess weight and weight distribution, and may also provide a mechanism to attach a ventilator, chest tubes, catheters, and others, thus facilitating safe mobility.

2.1.10. Scales

One of the most embarrassing moments for a bariatric patient is the process of obtaining body weight. Caregivers must have provisions in place to weigh any patient in a private and dignified manner. Scales for bariatric patients need adequate width for body mass, foot placement, and/or a wheelchair or scooter and grab bars to support patient balance and mobility. Preferred options are in-floor scales or scales built into the bedframe, exam table, or lifting equipment. Precise weights are often a critical part of the assessment of bariatric patients, especially in locations such as the Emergency Department (ED), critical care, or dialysis where weight must be exact. Consider a scale with a higher weight capacity in the ED, ideally 1800 pounds (Gabel & Musheno, 2010). Diverting patients to scales on the loading dock impairs patients' dignity, removes a caregiver from the patient care area, and slows patient care operations. Additionally, scales, whether a floor-based scale or a bed or lift feature, should be kept out of public view.

2.1.11. Stretchers and Stretcher Chairs

Stretchers or stretcher chairs may be up to 39 inches wide and 70-82 inches long. Keep in mind that the width of a stretcher may not accommodate the width of the patient. Confirm the weight capacity of the stretcher and observe the general condition of the wheels/castors. Motorization is a must for bariatric patients. Other transportation means may also be considered. Some companies offer products that are a combination of bedside chair, exam table, and power-drive transportation all in one. Another transport option is to transport in the patient bed if it has a power-drive system.

2.1.12. Space and Design Considerations

Once a facility and the caregivers identify necessary size-sensitive technology, a plan can be developed to determine space requirements. Every area of the facility will need to be addressed from the entrances to the patient rooms. Space

should be designed to allow the bariatric patient independence in general and personal tasks. Enabling patients to maintain or regain their abilities will promote autonomy (Gabel & Musheno, 2010). When patients have space that promotes mobility, the risk of immobility-related consequences of care is reduced. These risks include ventilator-associated pneumonia (VAP), deep vein thrombosis (DVT)/pulmonary embolism (PE), catheter associated urinary tract infection (CAUTI), pressure ulcers, fall-related injury, depression, and threats to quality of life, among others.

When designing a bariatric room, design for access and dignity. Design standard rooms for patients weighing up to 330 pounds and bariatric rooms for patients weighing up to 1000 pounds. This recommendation comes from the American Institute of Architects (AIA)'s Planning and Design Guidelines for Bariatric Healthcare Spaces (Andrade, 2006). The Facility Guidelines Institute (FGI) (2010) standard design recommendation is 500-600 pound weight capacity and at least 1,000 pounds for bariatric rooms. Further, each inpatient area should include a minimum of 10-20 percent of the rooms supporting bariatric patients (Stroupe & Sarbaugh, 2008).

2.1.13. Public Areas

All areas of the hospital must be prepared to treat bariatric patients and allow bariatric access. This includes the non-patient care areas, such as the parking garage, chapel, cashier, pharmacy, registration/admitting, food service, and more (Gabel & Musheno, 2010). Avoid creating an obvious division between general and bariatric areas. Bariatric patients will be found throughout the system, so adequate seating and space should be interspersed throughout all areas. Bear in mind furniture should be designed to address additional wear and tear (Stroupe & Sarbaugh, 2008). Entrances and egress routes must accommodate bariatric patients. Facility doors, stairways, and elevators require a minimum clearance of 44 inches (Gabel & Musheno, 2010); however, this may be too small. A bariatric wheelchair can be as wide as 48 inches, so a wheelchair ramp must be wide enough for the chair and room to maneuver. A 72 inch turning radius is needed to allow bariatric wheelchairs to maneuver and turn (Stroupe and Sarbaugh, 2008). In addition to the size of the wheelchairs, space must also accommodate those assisting the patients into and around the facility. Facilities and caregivers must consider suitable technology at the front entrance to assist patients in and out of vehicles and also at the emergency entrance for semi-ambulatory and dependent patients. If volunteers are used for this task, consider focused SPHM training to promote safety, dignity, and comfort. Emergency spaces should include safe ways to extract incapacitated bariatric patients from vehicles. This may include lifts mounted in the ambulance bay or over the emergency loading area.

Public restrooms are best designed when they meet the needs of all those who enter the facility. While handicapped bathroom stalls offer additional space, Americans with Disabilities Act (ADA) requirements are different than bariatric requirements, so both must be available. Toilets that are rated with higher weight

capacity than the standard ceramic wall mounted toilets need to be identified. Additional space behind and beside an EC toilet is necessary. Grab bars and reinforced sinks are also important to include in public bariatric bathrooms. Consider the placement of grab bars and toilet paper dispensers. Occasionally these are located level with the hip area and skin damage may occur to the patient with excessively wide hips as the soft tissue rubs against these stationary metal items. Public toilets should be set up for obese patients, but the accessible stalls should not be hostile to non-obese patients.

Elevators with a weight capacity of 6000 to 6500 pounds with space for an occupied 40 inch by 90 inch bed, 2 staff, and any additional technology needed during transport must be available (Collignon, 2012). Bariatric beds are both larger and heavier and therefore a wider path is needed to maneuver. Door widths should be at least 54 inches, but 60 inches is preferred (Collignon, 2012). Using freight elevators for bariatric patients may be necessary to ensure adequate weight capacity, but it does not offer dignified care. If this is the only elevator available, consider improvements that can be made to make the elevator look more like those used for all other patients.

Waiting areas are another area to consider where suitable seating for obese people as well as others must be provided. It is not recommended that separate "obese only" areas are created (Gallagher, 2010). Love seats are an excellent option that does not advertise that the seats are specifically for bariatric patients. At least 10 percent of a waiting area should be built for a bariatric population, and more in emergency areas. Higher proportions of up to 50 percent bariatric may be warranted in cardiology and bariatric units (Collignon, 2012). Consider performing a unit-specific point prevalence survey to determine actual needs in a particular area. Patient seating with and without arms will accommodate a variety of individuals regardless of their unique body weight or weight distribution.

2.1.14. Design for Patient Rooms

Patient rooms need space for patients, family members, and caregivers (Stroupe & Sarbaugh, 2008). Space is needed for repositioning, wound care, bathing, and feeding within the bed; transfer next to the bed; care at the bedside; assistance in a wheelchair; mobilization to other areas, including bathrooms; assisting patients in other parts of the room, including lifting patients from the floor; and assisting the patient to stand (Muir, 2009). Arjo Huntleigh (2012) recommends 39 inches for a caregiver working at the side of the patient bed. Staff support areas also need to account for the increased number of personnel required to handle and care for bariatric patients, such as charting alcoves nearby that maintain close proximity (Gabel & Musheno, 2010). Bariatric room design suggestions can be found in the 2014 Arjo Huntleigh Guidebook for Architects and Planners: Functional Design for Mobilisation and Ergonomics (Arjo Huntleigh, 2014). This guidebook provides very helpful drawings that help understand the space needs at the bedside for patient care and transfers, along with images of space requirements in the bathroom for toileting and showering. These drawings show space requirements

for ideal conditions with access to both sides of the patient and also minimum space requirements when ideal space is not available. The minimal space allows access only from one side of the patient.

Other room considerations include bariatric seating for family and friends. Strategic placement of the patient on the unit, and utilizing bedside testing and procedures will minimize transportation requirements. Avoid placing bariatric patients in a room that requires much maneuvering and multiple turns to reach the room. Also consider a room at the end of a hallway that might allow a straight path when placing the bed in the room. Bariatric rooms should include adequate ventilation to quickly cool patients who may overheat (Gabel & Musheno, 2010). Consider dialysis connections in bariatric rooms because renal disease is common (Gabel & Musheno, 2010).

The following chart created by Villeneuve provides recommended workspaces for patient handling tasks (Nelson, 2006).

Table 2-1: Recommended Workspaces for Patient Handling Tasks

Caregiver Task	Workspace for Non-Bariatric Patient	Suggested Bariatric Space
1 person working in front of patient	At least 32 inches; 39 optimal	Add 12 inches to workspace
1 person working at side of patient	At least 24 inches; 30 optimal	Add 12 inches to workspace
Circulation space for bed or stretcher	At least 36 inches; 39 optimal	Add 12 inches to workspace
Pivot floor lift to equipment at bedside	6 feet	8 feet for bariatric floor lift

2.1.15. Bariatric Room Dimensions

There are many recommendations for bariatric room size. The AIA recommends adding 100 square feet to inpatient rooms and leaving 5 feet of clearance around beds to allow for caregivers and technology, as compared to 3 feet for standard rooms. Hill-Rom recommends inpatient rooms sized at 272 square feet compared with a 176 square foot normal room (Collignon, 2012). Arjo Huntleigh (2012) recommends dimensions of 20.7 feet (6.3 meters) by 14.8 feet (4.5 meters) with a perimeter around the bed of 6.6 feet (2 meters), as illustrated in Bariatrics: Space Requirements. Stroupe and Sarbaugh (2008) recommend a room at least 13 feet wide (ideally 14 feet wide) and 15 feet deep from corridor to external wall. Enders (2011) described patient handling operations in room mock-ups designed for these standard recommendations and subsequently recommended a 6.6 feet (2 meter) perimeter around the bed, with as few walls as possible, and fixtures placed outside the room where functional and appropriate. Muir (2009) recommends minimum dimensions for acute care of 17 feet by 13 feet 7 inches, including space for staff members and technology. Gabel and Musheno (2010),

who also provide graphic examples of bariatric rooms, recommend that in some single-patient bariatric rooms 150 square feet may be adequate. AIA published a general patient room prototype, recommending adjustment of wider clearances for bariatric patients (Battisto & Allison, 2013). AIA also noted that bathrooms at inboard headwalls (in single rooms) allow minimum distance for patients to travel as well as minimum equipment and family to dodge. This single room design did assume that bathroom doors could be open while staff members were assisting patients and beds could be moved near the bathroom door.

Acute care rooms may require more space than critical care rooms because the patient is more active, and more mobility equipment and furniture may be kept in the room. More visitors may also be present. Allow space for ambulation accompanied by one caregiver beside and one behind with equipment. Allow a 72 inch turning radius for floor-based equipment. Space needs to be adequate for transfers between bed, chair, wheelchair, commode, or stretcher; transport in a wheelchair to the toilet; repositioning in bed; wound care in bed or chair; or assisted ambulation. Two caregivers on either side of the patient may be required for assisted ambulation, or three caregivers may be required to use a floor lift or sit-to-stand lift. Ceiling lifts may reduce the space required for both caregivers and rehab equipment (Muir, 2009).

Because of the urgent and critical nature of care performed in the critical care areas, such as intensive care or the ED, life support equipment may crowd the room and impede safe handling tasks if proper technology is not in place. In these areas, repositioning a dependent patient may require more caregivers because tubes, catheters, and lines need to be monitored during activities; however, it is important to recognize that space constraints must not preclude use of size-appropriate technology. When performing a lateral transfer, allow space at the head of the bed in addition to the space around the bed. Fewer caregivers are required when using ceiling lifts than floor-based equipment. Be sure to include space at the foot of the bed when the bed has features such as foot egress or cardiac chair (Muir, 2009). Compared to ordinary critical care rooms, add width to account for 54 inches for a full-width bariatric bed, 78 inches to allow caregivers on both sides, and a 36 inch wide chair. If using floor-based lifts, add 36 inches to allow for a 72 inch turning radius beside the bed. This results in a minimum 14 foot room width if ceiling lifts are used, or 17 feet if floor lifts are used. If storage cabinets take up space, add more space to compensate. These dimensions assume that chairs and other equipment are removed from the area when not in use.

In diagnostic and treatment areas such as Dialysis, Oncology, GI Laboratory, Nuclear Medicine, Imaging, Positron Emission Tomography (PET) scanner, and Physical Medicine and Rehabilitation (PM&R) Clinics, consider a minimum clear area of 200 square feet, and a minimum clear dimension of 12 feet or 5 feet on each side and foot of table/bed. The ingress/egress path must include a minimum of 44 inches clear width of doors, corridors, and elevators. Determine ahead of

time whether equipment [magnetic resonance imaging (MRI) or computerized tomography (CT) scanner] can accommodate the patient's width, weight, and girth (Gallagher, 2010). In clinic settings, exam tables with appropriate weight capacity rating and width along with power up/down control and powered backrests and leg lifters should be available. Alternately, ceiling lifts and limb slings can be used safely to raise the legs for purposes of assessment or treatment. Keep in mind that the weight of the limb is generally 15 percent of the total body weight; therefore, the limb of a 300 pound person weighs at least 45 pounds. This weight exceeds the patient lift limit as determined by the National Institute for Occupational Safety and Health (NIOSH) (Waters, 2007). Further, limb lifting typically includes awkward and static positioning, both of which exacerbate risks of musculoskeletal injuries.

Operating rooms need safe ways to move and handle patients of all sizes. Air-powered technology is often used for lateral transfer, but a lift is important to elevate limbs for catheter placement, skin preparation, or to reposition patients of size. Planning for ceiling-mounted lifts that do not interfere with other ceiling-mounted apparatus, such as overhead lights and radiology equipment, is important. Surgical tables rated for 1000 pounds should be available to safely accommodate patients.

2.1.16. Storage

Easy access to storage space for larger, complex bariatric equipment must be included in the facility design process because easy access to equipment facilitates regular use (Gabel & Musheno, 2010). Some facilities have considered use of bariatric equipment for all patients but, just as standard equipment cannot meet the needs of the obese individual, neither does bariatric equipment serve the needs of the non-obese patient. Use of standard equipment for non-obese patients reduces the risk of caregiver injuries by preventing excessive reaching when using technology such as wheelchairs and beds. Additionally, bariatric commodes may be too wide and the seat depth will displace the non-obese patient. Keep in mind, technology should be tailored to the body weight and weight distribution to promote the most appropriate outcome.

Storing specialized technology in patient rooms may make it more accessible and take less space in central equipment storage areas (Stroupe and Sarbaugh, 2008). However, equipment crowding may create hazards. Some facilities consider renting bariatric technology to address the issue of storage. While the bariatric patient is in the facility, allow at least 25 square feet per bed for areas with built-in or ceiling lifts or 35 square feet per bed for areas using portable lifts. In addition to storage space needed for equipment, include space for linen and sterile supply storage as well (Gabel & Musheno, 2010). One option to provide access to needed bariatric supplies without bringing it into the patient room or over-crowding the central storage area is to implement a mobile cart that can be called for as needed. For examples of items to include in the cart, refer to Enclosure2-5, Bariatric Expanded Capacity Cart. Other facilities that do not have

the space for carts have gone to a single request form to get all the necessary supplies and equipment to the bedside. This form can include information about who to call and what equipment/supplies are available. See Enclosure 2-6 for a sample bariatric equipment request form.

2.1.17. Doors

As previously stated, doors must be widened to accommodate the width of the patient and/or the equipment along with those assisting the patient during transportation. Exam rooms and bathroom doors should be at least 42 inches wide (Muir, 2009), and doors for patient rooms and procedure areas should be ideally 60 inches (Stroupe & Sarbaugh, 2008). This may be accomplished with a bi-fold door, second "leaf" opening, a pocket door, or a sliding barn door.

Evaluate the motion of doors for safety and interference with care. Avoid doors that have to be held open. Accordion or pocket doors that can be cleaned may allow less space obstruction than swinging doors. Door design must accommodate the ceiling lift and tracks if it is designed to carry a patient through the door.

2.1.18. Flooring

Flooring must be assessed when planning for bariatric patient care. Carpet can create dragging forces that impede easy movement of the castors when rolled over the surface. If carpet is present, transportation equipment must include power drive. Expect sheet vinyl to be damaged by technology bearing bariatric patients (Gabel & Musheno, 2010). Options to minimize displacement include epoxy adhesive or rubber or impregnated wood plank flooring (Gabel & Musheno, 2010). Consider removing raised thresholds because bariatric patients often cannot see the floor in front of them because of their body configuration. A smooth, even surface may be the first step in avoiding slips, trips, and falls (Gabel & Musheno, 2010).

2.1.19. Bathrooms

The ideal bathroom would have 60 inch doors, full ceiling lift coverage, and be of an adequate size to provide enough open space so no thresholds are needed going into the shower. In addition, a larger bathroom may eliminate the need for a shower curtain that could interfere with the ceiling lift. Stroupe and Sarbaugh (2008) offer many considerations for designing bariatric inpatient bathrooms. Whenever possible, ceiling lifts should connect from the bedroom into the bathroom to avoid repeated transfers. Careful planning is needed to determine if the ceiling lifts that connect directly from the bed to the bathroom, ideally over the toilet, can allow quick transfers without multiple handling operations, and allow patients the dignity of using an actual toilet. Turning and limb holding activities often occur while showering a patient, so patient lifts and task-specific slings are critical. Stroupe and Sarbaugh further identify that the bathroom dimensions should be at least 45 square feet, the walls should be waterproof, and floors should be non-skid and slope to the drain.

The properties of physics help us understand that the force of an 800 pound person falling may influence the weight capacity requirements of equipment, such as grab bars, hand rails, sinks, and other supportive structures. Such movement may double the impact forces on equipment (Gabel & Musheno, 2010). Grab bars need to be rated for 800 pounds or more, depending on pre-determined design capacity requirements (Collignon, 2012) and should be placed near the toilet, sink, and shower (Stroupe & Sarbaugh, 2008). Floor-mounted toilets and sinks must also be included to support the bariatric patient weight capacity. Recessed shelving reduces the likelihood that patients will use them for weight bearing.

2.1.20. Public Showers and Bathrooms

Ideally, bariatric patients should have a private room with an attached bathroom, enclosed for privacy, including a size- and weight-appropriate shower, toilet, and sink. Ceiling lifts with adequate capacities and clearances should cover both the bedroom and the bathroom. If the bathroom within the inpatient room does not allow for bathing the patient, an additional shower or bathing room must be available. Shower stalls should be at least 4 feet by 6 feet (Gabel & Musheno, 2010), with adequate room for caregivers on all sides of a patient, and free of thresholds (Stroupe & Sarbaugh, 2008). This room should also include multiple handrails and grab bars rated for 1000 pounds (Gabel & Musheno, 2010). Showers should include handheld spray nozzles mounted on a side along with shower seating with adequate weight capacity. If shower curtains are in use, they should allow for use of ceiling lifts.

2.1.21. Toilets

Toilets should not only meet the weight capacity needed for the patient, but also include larger seats, with bars on both sides and enough room for caregivers outside the bars on both sides (Stroupe & Sarbaugh, 2008). Toilet centerlines should be 24 inches from the wall, which is 6 inches more than the ADA requires (Gabel & Musheno, 2010). Floor-mounted stainless steel toilets can hold up to 5000 pounds and may be sold with enamel coating. To provide increased weight capacity of some newer wall-mounted toilets, place floor post-style supports under the toilet; however, older ceramic wall-mounted toilet bowls may still collapse under the weight of the patient's body. Vertical grab bars that include toilet paper dispensers should be at arms' reach (Stroupe & Sarbaugh, 2008). Consider the threat to the skin tissue when the toilet paper holder is at hip level and rubs the skin surface when the patient is sitting on the toilet. Include a larger person on the team to identify the real-life toileting challenges associated with obesity (Gallagher, 2015).

Gable and Musheno (2010) offer guidelines and a diagram from Hill-Rom for a patient toilet room, as well as diagrams of the space needed within a bariatric bathroom and the difference between ADA and bariatric bathrooms. These guidelines include: space for caregiver on each side, floor mounted toilet and sink rated for 1000 pounds, 44 inches clear space opposite toilet, 24 inches centerline

toilet from wall, hand rail at sink area, flush mounted dispensers, hand wands or bidets for hygiene and dignity, direct access from the door, and a 60 inches door opening and turning radius. Stroupe and Sarbaugh, (2008) go even further, recommending a 6-foot turning radius in toilet rooms. Additional diagrams of bathroom design can be found in the Arjo Huntleigh's Bariatrics - Space Requirements Publication (2012).

2.1.22. Ceiling or Wall-Mounted Lifts

Structurally, plan for ceiling or wall mounted lifts (ANA, 2013). Permanently installed lifts require fewer personnel and less space than floor-based lifts. Allow enough structural capacity for your design weight (such as a 1000 pound patient) and allow for seismic structural enhancements where necessary.

Plan additional space for multiple caregivers, including room to bend and move, as well as room to operate any wheeled equipment safely with adequate numbers of caregivers. Mobilizing patients in small spaces, especially bariatric patients, increases risk of injury. Patients who fall in small spaces may be more likely to fall onto fixtures or furniture where they can get hurt, and they may be more likely to pin staff as they fall. Patient falls in small areas result in more difficulty in lifting/retrieval. If equipment must be moved multiple times to clear a path, it can increase the time and risk of the task. Mobile or floor-based lifts, which take up more space, may not serve as a safe alternative in small spaces (Enders, 2011; Marras, 2014).

Overhead lifts can be mounted using ceiling attachments or wall attachments, depending on the building structure, design of the room, and the presence of physical hazards, such as asbestos and lead. Ceilings in all areas where patient handling occurs should be at least 8 feet. Ideally, 9 foot ceilings are recommended to accommodate ceiling lifts. Consult with the manufacturer for lifting heights and compare to room ceiling heights. Low ceilings may interfere with the ability to handle, lift, or mobilize patients safely. If ceilings in the bathroom are lower than the bedroom, the lift system in the bedroom may have to be lowered in order to create a direct connection between bedroom and bathroom. Items such as scales or low-hanging hanger bars can also reduce lifting height. Ceiling lift and curtain systems must be designed to work around each other, as systems that are difficult to use are less likely to be used.

Ceiling lift coverage must be designed to allow access to any point where a bariatric patient goes, including transfer from bed into chair or stretcher, into bathroom, seating area, and entry or door (Gabel & Musheno, 2010). Room-covering systems are necessary for bariatric patients as they allow patients to be handled anywhere in the room. They also allow more flexibility and easier positioning in bed or bathroom. Repositioning slings and strap/limb support slings are used frequently to turn and move bariatric patients, as well as lift appendages. They are utilized much more efficiently with room-covering systems. Ceiling lift systems should allow 360 degree rotation, even for twin-motor systems. Dual motor systems or wide-set four-point hanger bars can allow space for breathing

(Enders, 2011). A caution when using dual motors on a curved track is that the curve must allow both motors to smoothly traverse. If the curve is too sharp, the motors may get stuck. For drawings on various ceiling lift designs, refer to the full article by Gabel and Musheno (2010), including X/Y traverse, switch tracks, curved rails, and turntables.

It is possible to include ceiling lifts in rooms, such as operating rooms, that have existing boom systems, other ceiling-mounted equipment, or other obstructions. Ceiling lifts can be incorporated into the boom system, or the ceiling lift track can be placed strategically within the other equipment tracks. Consider the tasks being done in these areas, because lifts incorporated into boom systems will most likely be straight track and offer limited usage. Portable gantries can also be used in these areas.

2.2. Bariatric Safe Patient Handling and Mobility (SPHM) Policy

A bariatric SPHM policy helps to reinforce accountability by identifying the responsibilities of the interprofessional team members. The policy provides direction for front line caregivers, managers, and members of the leadership team. It is recognized that there are unique issues associated with caring for the bariatric patient. The purpose of a bariatric SPHM policy is to minimize or eliminate foreseeable handling risks to staff members and patients by ensuring that specialized tools, advice, equipment, and mobility aids for the bariatric patient are available within the organization. Gallagher (2014) highlights the need for a suitable policy from admission to discharge. She argues that coordinating resources in the form of a comprehensive SPHM policy may ensure the most favorable outcome for the patient. The obese patient presents numerous care challenges. It is in the interest of health care organizations to meet these care challenges in a dignified and sensitive manner. Further, failure to preplan may lead to unsafe practices that impact the patient, caregiver, and organization.

Dr. Tom Waters (2007), provided evidence that there is no safe way to manually lift a patient who weighs more than 35 pounds. Thus, any SPHM policy should require that no more than 35 pounds be lifted when handling patients under the best of circumstances (no tubes, lines, dementia, contractures, etc.). This will lend credence to the organization to have adequate and available technology (including bariatric equipment) and for caregivers to receive training that allows safe use of the technology. It also allows the organization to create a culture of safety through compliance with policy contents. Admission assessment criteria will ensure improved communications between caregivers, the family, and other departments. A bariatric SPHM policy should also identify bariatric high-risk patient handling tasks and include algorithms and/or scoring processes based on medical, cognitive, and physical conditions of the patient that set standards for number of caregivers and technology needed to safely move the patient. In addition, the policy should identify facility structural capacities, include safe and adequate pathways from/to destination points/areas, and other elements pertinent to your organization/facility that will address potential barriers. (See Enclosure2-7

for an example of a bariatric policy that may be modified to meet the needs of your facility.)

2.3. Addressing SPHM Needs During Emergencies

Patients are indeed getting heavier (Gallagher, 2015). When a patient gets into a medical crisis and is obese, emergency medical service (EMS) is challenged with transporting that patient safely.

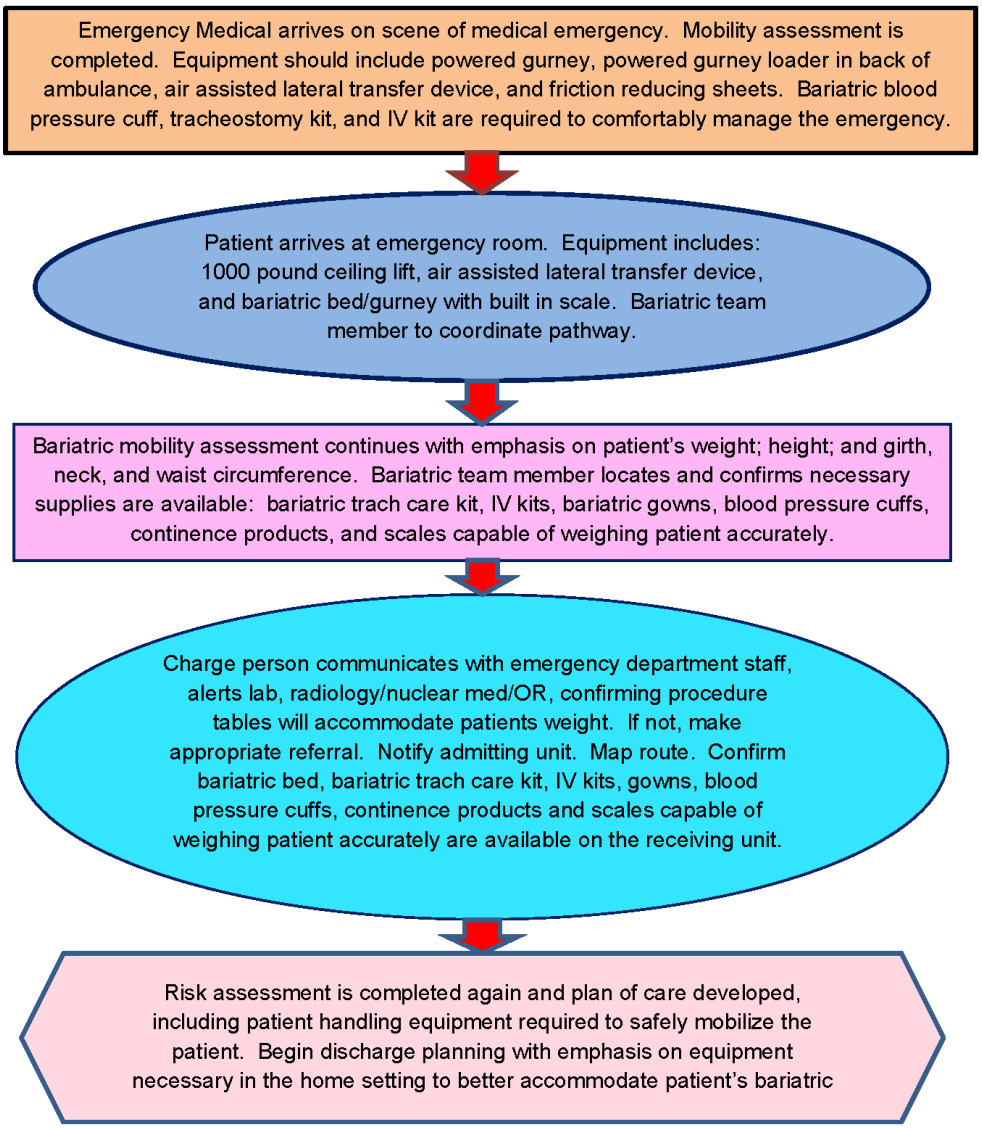
Caregivers of bariatric patients are exposed to the potential for manual handling injuries along the entire patient care continuum. In focusing on paramedics and fire service first responders as key participants of the journey, it was found that the risks are significant but are seldom quantifiable. The injury risk is influenced by the nature and design of the range of environments within which patient movement is undertaken, the limited range of handling technology available for use with bariatric patients, and the efficacy of organizational procedures and training (Cowley & Leggett, 2010).

Historically, we know there has been lack of knowledge about how to safely manage the unique needs of bariatric patients during emergency events. It appears that very little research has been done to identify best practices when mobilizing the bariatric patient. Recently, there is more information available on how to handle high risk patient handling tasks in the emergency setting. Safe handling of the bariatric patient begins upon the initial contact with the patient in the field. The biggest challenge in an emergency situation is transporting the larger, heavier patient quickly and safely. Time is of the essence and may mean the difference between life and death. It is imperative that emergency protocols and mobility pathways are in place prior to encountering the need to transport bariatric patients who may be severely injured or critically ill. Emergency medical teams would benefit greatly from powered ambulance gurney loaders as well as powered ambulance gurneys. Air assisted lateral transfer devices are a must for transferring the patient out of a bed and onto the gurney in the home setting. (Doormaal, Driessen, Landeweerd, & Drost, 1995; Furber, Moore, Williamson & Barry, 1997; Massad, Gambin, & Duval, 2000).

As part of a larger research project, a patient pathway was mapped for an emergency admission to identify the manual handling major risks. Focus group interviews were held with 25 key stakeholders from the acute, community, and ambulance health care sectors and social services at three venues across the United Kingdom. A detailed qualitative iterative analysis used cause and effect or fishbone (Ishikawa) diagrams to identify key issues. Five themes emerged as generic risks throughout the bariatric patient pathway, these were: patient factors, including body weight distribution (shape), mobility, pain, cooperation, privacy, comfort, and dignity; building (or vehicle) space and design, including space, clearance, floor surface, and safe working load of floor; equipment (manual handling and clinical) and furniture, including fit, maximum weight capacity, availability, suitability, compatibility, size, and effort to move; communication both within and between organizations; and organizational and staff issues, including

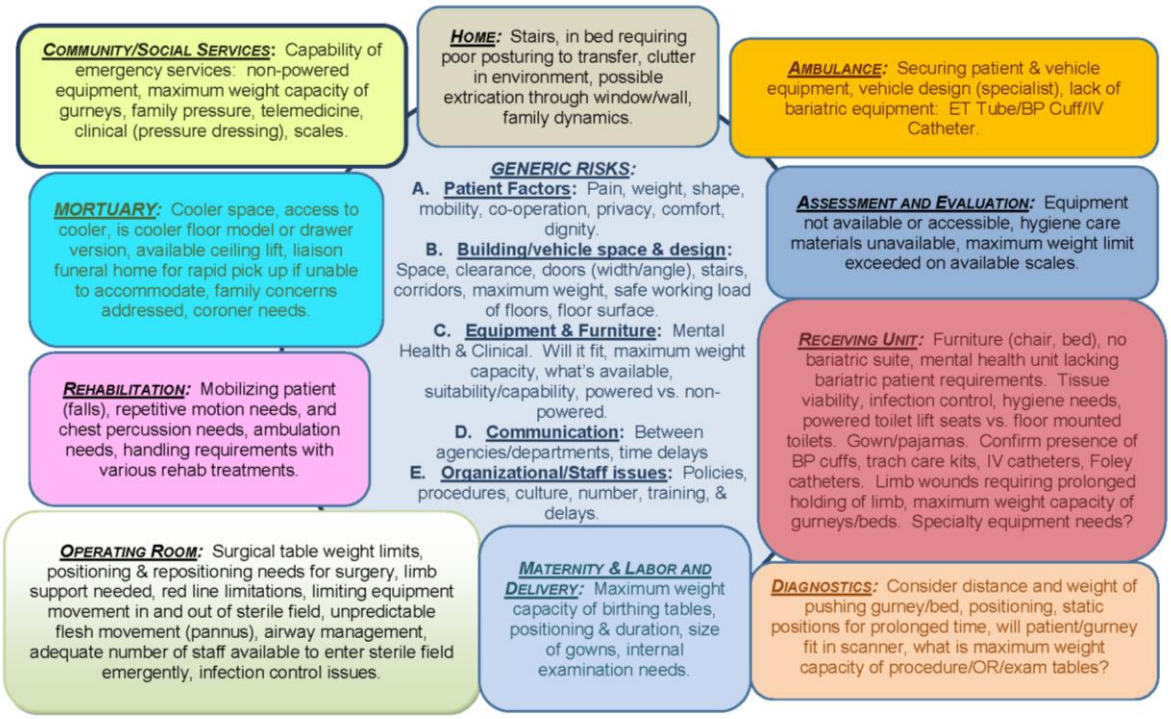
policies, culture, staff availability, and training. It was concluded that buildings, vehicles, and technology need to be tailored to a wide range of bariatric shapes and sizes so that bariatric patients are cared for in safety and comfort, and with minimal loss of dignity (Hignett, 2009).

When an emergency admission is required, the pathway for providing safe and dignified care is complex and can be very hazardous for both the patient and caregivers. It is imperative that a facility has a functioning SPHM program to minimize the risks. Facilities must develop a process or plan of care that starts from the time the patient arrives at the emergency room and continues to follow the patient until discharge (Gallagher, 2005). The following two charts, the Mobility Pathway for the Emergency Bariatric Patient and the Frequent Barriers Encountered when Delivering Bariatric Patient Care, identify considerations to be included when planning for the emergency admission of a bariatric patient.



*Created by Charlotte Lynch

Figure 2-1: Mobility Pathway for the Emergency Bariatric Patient



*Modified with permission from Hignett et al (2007)

Figure 2-2: Frequent Barriers Encountered when Delivering Bariatric Patient Care

2.4. Enclosures

2-1 Bariatric Equipment Safety Checklist

2-2 Facility Bariatric Equipment Inventory

2-3 Bariatric Technology Resource Guide

2-4 Safe Patient Handling (SPH) - Equipment Purchasing Checklist

2-5 Bariatric Expanded Capacity Cart

2-6 Sample Bariatric Equipment Request Form

2-7 Sample Bariatric Safe Patient Handling and Mobility (SPHM) Policy


EOSH

Planning for Bariatric Patients

The management process for providing a safe patient culture that supports safe patient handling and mobility of the bariatric patient can present a challenge. There are multiple issues that are best addressed before admission or patient arrival and communicated with every point of contact for safe patient transfer or discharge. The issues to address include appropriate space, design, and staff; access to and provision of safe patient handling (SPH) equipment; and effective communication regarding patient needs during transitions of care, such as patient admission and discharge and transfers between departments, agencies, or to/from the home. In order to ensure that all staff involved in resolving these issues are present at the patient's arrival, it is recommended that a bariatric admitting team is formed. This team includes the Safe Patient Handling and Mobility (SPHM) Facility Coordinator or designee; the House Supervisor and/or bed flow coordinator; the admitting Registered Nurse (RN) and/or the caregiver at the bedside; Sterile Processing Services and/or Logistics; Wound, Ostomy, and Continence (WOCN); Occupational Therapy (OT)/Physical Therapy (PT)/Kinesiotherapy (KT); transport/escort staff; case manager and/or social worker and/or discharge planner; and Housekeeping/EMS. For a list of these roles and responsibilities, see Enclosure 3-1 for an example of a bariatric admitting team list.

3.1. Developing a Bariatric Clinical Pathway

Clinical pathways or set plans for providing patient care are necessary to establish a consistent standard of care for patient populations. Clinical pathways typically improve the quality of patient care and support reproducible and positive patient outcomes. A clinical pathway may include use of tools, strategies, and resources to support plans for mobilizing and handling the patient (Quan, 2014).

For the bariatric population it is especially important to plan all the stages and facility requirements from admission to discharge. The organization should ensure that the supporting structures, such as appropriate facilities, technology, communication tools, and staff expertise, are in place for support. The New Zealand Guidelines (2012) suggests an eight-stage bariatric clinical pathway:

- Notification of admission prior to arrival.
- Admission procedures, including transport from vehicle to admission area for receipt of patient.
- Access from patient receiving area to the unit or bed.
- Access to specialist clinical facilities.
- Rehabilitation and mobilization services.

- Discharge planning.
- Discharge.
- Communication with other agencies working with bariatric clients.

Hignett, et al. (2007) goes on to suggest the five key components necessary to consider when developing/identifying a clinical pathway include:

1. Patient factors.
2. Building/vehicle space and design.
3. Manual handling/clinical equipment and furniture.
4. Communication.
5. Organizational and staff issues.

A bariatric pathway assists in consistently describing the route the bariatric patient will take from initial contact to treatment completion or facility discharge (see Enclosure 3-2 for an example of a bariatric clinical pathway).

The American Nurses Association (ANA) 2013 recently released new standards that support safe patient handling and mobility. The standards support policy and procedures that designate how to evaluate a patient's SPHM status, establish goals, and select SPH technology for specific care tasks and to address roles and responsibilities of the health care worker related to assessment and scoring, plan of care, and documentation. The standards also suggest individual plans established for each patient based on individual characteristics of the patient, goals of the activity, patient assessment and evaluation or scoring system, and the use of algorithms or other decision-making tools. SPHM technology and equipment available must be safe and of the appropriate weight capacity for the bariatric patient, task, or mobilization activity (ANA, 2013).

3.2. Admission and Room Preparation

Evidence that the bariatric population is increasing drives a proactive approach to ensure that processes are in place to safely accommodate patients of all sizes. In regard to having appropriate patient rooms, certain aspects related to the room, furnishings, patient characteristics, and necessary patient materials must be considered (see Enclosure 3-3 for considerations to assist with room selection and inpatient care environmental preparations.)

During the pre-admission process it is important to acquire a current weight, note the patient's shape/size, and measure the patient at their widest point (Gallagher, 2010). Also, prior to patient room assignment, perform a room assessment to determine that the patient furniture and equipment support the size and weight capacity of the individual patient. Ensure that support technology is all of appropriate weight capacity and dimensions, including the bedframe, support

surface, bedside furniture or recliners, shower bench, grab bars, toilet, and/or sinks (Gallagher, 2012).

For smooth patient care upon room assignment, ensure the following patient items are available and easily accessible: gown, slippers, robe, blood pressure cuff, identification (ID) wristband, bed pan, abdominal binder, continuous positive airway pressure (CPAP), and a scale accessible by standing or wheel chair.

For patients who meet the definition of bariatric, a larger room is indicated. Most facilities currently do not have a dedicated unit for bariatric patients and most bariatric rooms that are available are standard private or semiprivate rooms with width modifications (headwall to footwall dimension) of around 12 feet. Increasing emphasis on consistent standards of care and updated facility design guidelines has led facilities to include larger room dimensions in construction or renovation designs. Added space is needed to accommodate bariatric patient care needs [The Facility Guidelines Institute (FGI), 2010].

Because much of the severely obese population may be hypersensitive to warm room temperatures, it is optimal to provide some control over the climate. If allowed, an additional enhancement to patient comfort may be placement of a ceiling fan mounted directly over or near the bed.

It has been suggested that when making plans for room furniture, consideration should be given to accommodating the two common body types of severely obese people. Those who carry weight in the hips and upper legs (sometimes referred to having a pear shape) typically cannot tolerate chairs with arms, whereas those with upper body obesity (apple-shaped bodies) will do well in seating with or without arms, but may require more seat depth. Offering both types of seating serves the general population. Some patients may prefer to have a recliner in the room to facilitate respiratory function and comfort. Bariatric patients commonly have visitors who are also severely obese, so it is important to plan clearances to allow their mobility and to provide for oversized seating.

In exam, diagnostic, or treatment rooms, a height-adjustable exam and treatment table with appropriate weight limits provide the safest solutions. In waiting areas, conference rooms, and offices, ensure bariatric patients, staff, and visitors have oversize chairs without arm rests (Harrell, 2011).

3.3. Technology Needs for Patient Safety

The rising population of bariatric patients creates an urgent need for modernized and safer options in assistive technology for mobilizing and handling patients. It is clear the health care industry must rely on technology to make patient handling and mobility safe. However, there must be sufficient technology at each facility that specifically addresses the high-risk tasks, the high-risk populations, and the high-risk units (Gallagher, 2013). An evidenced-based system should be used to determine the types and quantity of SPHM technology and equipment indicated. Consider utilizing an experienced SPHM professional who may assist in

technology selection and program implementation (ANA, 2013). Input from staff members who will use the equipment is also essential.

The options in SPHM technology continue to evolve as manufacturers strive to keep up with the demand to meet patient handling goals. A number of professionals and professional organizations are calling for use of technology as an alternative for manual handling and mobility tasks such as: self-ambulation, assisted and independent mobility, lifts, and repositioning. Manufacturers have become sensitive to this need by responding accordingly. Companies are developing lifts and slings that allow mobility without putting the caregivers at risk. Further, this impetus to develop new technology comes from recognition of the relationship between mobility and better patient outcomes (FGI, 2010). Industry standards have also been updated to support replacement of outdated manual equipment with ceiling-mounted and powered technology.

To encourage these trends, the White Paper prepared by FGI (2010) suggests that equipment and accessory designers and manufacturers must set a reasonable purchase cost for their systems to be purchased and installed, and user-friendly enough for caregivers and patients to embrace their use. Manufacturers and vendors must collaborate with facility planners and designers to make them attractive enough to be selected for use in such environments deemed patient-centered or homelike and with a location convenient enough to encourage use and appropriate for use throughout the spectrum of health care facilities.

The FGI (2010) published detailed guidance regarding SPHM equipment categories. Many manufacturers and vendors have introduced size-sensitive versions of the following (see Bariatric Technology Resource Guide):

- Ambulation/ fall prevention/mobility aids (such as ambulator or walker).
- Patient transportation chair with motorized lift or transportation feature.
- Lateral or vertical air-assisted transfer equipment.
- Bathing equipment aids.
- Bedframes with repositioning and bariatric features.
- Bedframes with a low bed feature.
- Specialty mattress, pressure redistribution surface, or support surface.
- Patient evacuation device.
- Overhead lift (ceiling mounted, wall mounted, or portable lift).
- Floor-based sling lift or multipurpose portable mobile lift.

- Sit-to-stand (stand assist or standing) lift.
- Lateral transfer (slide) device.
- Mechanical lateral transfer device.
- Friction-reducing device (sliding board, roller board, slippery sheet, etc.).
- Transfer chairs.
- Non-powered standing aids.
- Beds/mattresses.
- Stretchers/gurneys.

Selecting proper technology can be overwhelming for those not experienced in the process. Completing a basic ergonomic assessment survey is the first step to identifying unit-specific technology needs. Patient populations, lifts, transfers, and other patient handling tasks should all be considered (refer to Chapter 2 for additional information on equipment/technology needs/resources and tools to complete a facility inventory). During the assessment, determine who the direct care providers are for each area that will use the SPHM technology for patient handling and mobility. Next, consider current and future lifting and transferring needs for the unit and facility, including the changing population, clinical procedures, and facility renovation or construction plans. The assessment continues with seeking input from those with experience and knowledge regarding equipment procurement and usage. Lessons learned regarding vendor performance, such as durability of equipment and availability and follow through of support personnel, will be critical when selecting technology. Again, the final step of the assessment is to obtain input from those who will be using and/or maintaining the technology. Direct caregivers must provide input as to which equipment best meets their needs, maintenance staff must be given the opportunity to provide input regarding the ease and frequency of maintenance required, and input from environmental staff members is needed to determine which technology is the best choice based on cleaning procedures required between patient uses.

For units undergoing renovation or for new construction, consulting with the existing unit staff members and/or other staff who are aware of projected patient population characteristics is very useful. Staff members should be able to advise regarding quantity and types of existing technology that will be reused in areas being renovated or construction projects, if any, and/or assist in determining the need for new or updated equipment (FGI, 2010).

When considering equipment needs, it is important to note that any equipment introduced into the environment of care of a behavioral health inpatient unit must be suitably tamper-resistant and compatible with other design choices intended to

reduce/eliminate the availability of points of attachment and thus the risk of suicide/self-injury.

It is also important to realize that although bariatric floor-based lifts may be available, pushing/pulling such equipment, added to considerable patient weight, can exert a significant force on the caregiver's spine (Marras, 2014). Bariatric lifts also have a substantial footprint that must be considered when planning space needs or storage and use in patient rooms. Alternatives to bariatric floor-based lifts are ceiling lifts and gantry lifts (see Chapter 8, Definitions and Glossary of Terms).

Ceiling lifts are considered the gold standard, are the preferred solution for patient handling equipment, and generally have a 500 to 600 pound weight capacity. If bariatric admissions warrant, a minimum of one EC/bariatric ceiling lift (800-1200 pound capacity) per unit should be included, in addition to the lower weight capacity lifts. Depending on the setting, there may also be issues that complicate installation, such as ownership of property, building configuration, and structural issues that may necessitate the use of floor-based or portable lift solutions (FGI, 2010).

In closing, it is important to note that purchase of SPHM equipment is vital to an SPHM Program; however, equipment alone is not enough for program success. There must be a comprehensive SPHM Program in place that includes a commitment to a culture of safety with components of leadership support, knowledge transfer, program support structures, and change strategies. Change takes time and resources in order to create a safe environment of care (Gallagher, 2013). Organizations must establish priorities, goals, and objectives, and set a timeline for implementation and evaluation based on evidenced-based guidelines.

3.4. Enclosures

3-1 Bariatric Admitting Team List

3-2 Bariatric Clinical Pathway

3-3 Bariatric Room and Environment Preparation

Implementing Bariatric Patient Care

4.1. Assessment Criteria, Care Planning, and Use of Safe Patient Handling and Mobility (SPHM)/Algorithms

A complete and accurate assessment of a bariatric patient's psychological state and physical activity is essential to providing appropriate care while maintaining a safe environment for both patient and caregiver. A comprehensive bariatric patient assessment can identify factors that may require mechanical assistance or the need for additional social support services. Some of the factors to include in the assessment are age, history of falls, difficulty walking, activity restrictions, or balance issues (The American Geriatrics Society, 2014). For an example of a bariatric SPHM admission data base, see Enclosure 4-1.

The Department of Veterans Affairs (VA)-developed patient-specific SPHM assessment evaluates physical, mental, cognitive, and medical conditions of a patient. Important factors to consider in completing the bariatric client's assessment include the required level of assistance, weight-bearing capability, height, weight, and body circumference. Also consider patient conditions that will likely affect transfer or repositioning activities. These include hip and knee replacement, paralysis, amputations, contractures, osteoporosis, respiratory and cardiac conditions, skin/wound conditions, and spinal stability. It is also important to assess and document the bariatric patients' ability to participate during repositioning, transferring, and ambulation. Their ability may be impaired by pain, medication, level of consciousness, or mobility limitations secondary to their other medical condition(s) (Gallagher, 2014). These abilities can change daily in acute care settings, or even hourly in critical care settings.

Additionally, a consultation from a professional who is trained to assess bariatric patients' physical function and strength as it relates to mobility is required. Some physical therapists have the tools and skills to meet this need. Facilities that have patient handling programs in place will have protocols and tools already available for assessing the patient needs related to safe patient handling.

By following a path of questions that target critical aspects of patient care and ability (such as within an SPHM algorithm or scoring tool), difficult decisions can be made and quality of care can be maintained with limited variation between patients (University of Washington, 2011).

Incorporation of the assessment findings into algorithms and scoring tools assist caregivers in planning the safe handling and mobility of bariatric patients and selecting the safest technology and techniques based on specific patient characteristics (Department of Veterans Affairs, 2007). The SPHM algorithms and scoring tools should be used as guides when planning the performance of

high-risk tasks and are targeted to be used by registered nurses, licensed practical nurses, nursing assistants, orderlies, physical/occupational therapists, radiology technicians, patient care technicians, as well as caregivers in the home. However, the assessment is limited to nursing, physical therapists, and similarly trained staff.

These guidelines are prepared based on the scientific and professional information available in December 2014; users of this guidebook should periodically review the material to ensure guidelines are consistent with current, reasonable clinical practice. As with any guideline, this content provides general direction, and professional judgment is needed to ensure safety of patients and caregivers. In December of 2014, the Veterans Health Administration (VHA) SPHM algorithms were updated and the standard algorithms and bariatric algorithms were combined. There are now a total of 13 SPHM algorithms (see Enclosure 4-2):

Algorithm 1: Transfer to/from Seated Positions: Bed to Chair, Chair to Chair, Chair to Exam Table

Algorithm 2: Lateral Transfer to/from Supine Positions: Bed, Stretcher, Trolley, Procedure Table

Algorithm 3: Repositioning in Bed

Algorithm 4: Reposition in Chair: Wheelchair, Dependency Chair, or Other Chair

Algorithm 5: Transport in Bed/Stretcher/Wheelchair

Algorithm 6: Toileting

Algorithm 7: Showering and Bathing

Algorithm 8: Floor/Fall Recovery

Algorithm 9: Transfer between Vehicle and Wheelchair, Powered Wheelchair, or Stretcher

Algorithm 10: Ambulation

Algorithm 11: Patient Handling Task Requiring Lifting of Extremities

Algorithm 12: Bariatric Patient Handling Task Requiring Access to Abdominal Area

Algorithm 13: Bariatric Patient Handling Task Requiring Access to Perineal Area

The following are some basic considerations and cautions that are found within the VA algorithms:

- Provide patient and family education regarding safe techniques and technology for SPHM tasks.
- Ensure that space is adequate for patient care and technology needs, remove clutter and obstacles.
- Ensure that all equipment and slings meet weight and width requirements.
- Check that safe patient handling (SPH) equipment is charged and in working order.
- Ensure that adequate caregivers are available; multiple caregivers may be needed.
- Patient care tasks should be performed at waist level and avoid reaching.
- To optimize the patient's respirations, elevate head of bed 45 degrees and avoid prolonged flat lying position.
- If the caregiver is required to lift greater than 35 pounds of patient body weight, the patient should be considered to be fully dependent and assistive devices must be used.
- If the patient can assist when repositioning in bed, ask the patient to assist in the task by flexing the knees and pushing.
- Ask the patient to assist whenever possible.
- For seated transfer aid, consider a chair with arms that recess or are removable.
- If a patient has partial weight bearing capacity, transfer towards the stronger side.
- If a patient starts to fall, move any items that could cause injury, try to protect the patient's head from striking any objects or the floor and call for assistance. DO NOT TRY TO CATCH A FALLING PATIENT.
- Ceiling lifts are preferred. Floor-based lifts require more push and pull force and more room to maneuver.
- Avoid using floor based lifts with combative patients; this may increase risk of tipping.

The following are considerations and cautions specific to bariatric patient handling found within the VA algorithms:

- For patient handling purposes, any patient that weighs more than 300 pounds, or 100 pounds over ideal weight, or who has a BMI over 40 is considered a patient that increases the risk for caregivers while performing

patient handling. Waist circumference is also used to identify bariatric patients. Weight, height, waist diameter, and waist circumference should be collected on these patients to provide safe care and selection of appropriate equipment, beds, stretchers, wheelchairs, lifts, and other devices.

- Confirm that patient handling equipment, supplies, slings, and destination locations (bed, commode, wheelchair, etc.) meet weight, width, and height requirements of patient.
- Bariatric patients require more caregivers. Using expanded capacity (EC) equipment and applying slings will require multiple caregivers.
- Identify a leader when performing tasks with multiple caregivers in order to synchronize efforts and increase safety.
- When using assistive devices with bariatric/obese patients, the number of caregivers required is determined by the task and the patient's weight and ability to assist.
- Abdominal binder/pannus sling may be necessary to prevent abdominal area from interfering with patient handling task/transfer.
- A friction-reducing device will facilitate insertion and removal of a sling under a bariatric patient.
- Suggest applying a sticker to all bariatric equipment with EC and the weight capacity of the equipment.

Research shows that an SPHM Program that includes the use of a patient-specific assessment and algorithms significantly reduced staff injuries and lost work days and nearly eliminated restricted duty days associated with these injuries at multiple VHA sites.

Using algorithms when caring for bariatric patients.

Figure 4-1 is an example of how to apply Algorithm #4, Repositioning in a Chair.

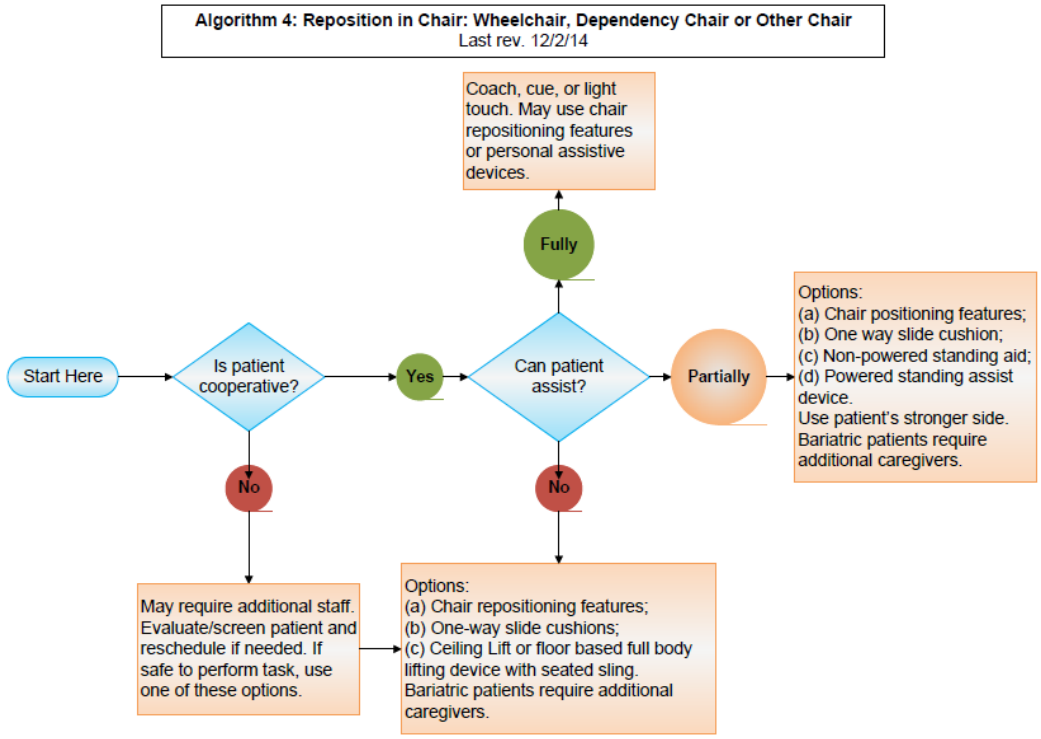


Figure 4-1: Algorithm 4, Repositioning in a Chair: Wheelchair, Dependency Chair, or Other Chair

Mrs. Smith needs to be repositioned in a chair. The first question asked "Is Mrs. Smith cooperative?" If the answer is no, she is not cooperative, three options are given: use chair repositioning features, one-way slide cushions, or use a ceiling lift or total body lift. If Mrs. Smith is cooperative, go to the next question, "Can she assist?" There are three ways to answer this question, either yes, partially, or no. If she can assist fully, caregiver should provide cues and ensure that personal assistive devices are available. If Mrs. Smith can partially assist, use chair positioning features, a one way slide cushion, a non-powered standing aid, or a powered standing assist device. Providers are reminded to use Mrs. Smith's stronger side and have additional caregivers for bariatric patients. If Mrs. Smith is cooperative but cannot assist, the same options apply as if she were not cooperative (chair repositioning features, one-way slide cushions, or use a ceiling lift or total body lift). Each algorithm includes notes; see Figure 4-2 for notes for Algorithm 4.

Algorithm 4 Notes

SPECIFIC

- Take full advantage of chair functions, such as a chair that reclines.
- May use arm rest to facilitate repositioning.
- Make sure chair wheels are locked.
- Friction reducing devices for seated repositioning vary greatly. One way slides, slide sheets, or thin, small slide boards may be appropriate.
- Do NOT push on knees without friction reduction or manually lift a patient up in a chair.
- NEVER use a gait belt to lift, transfer, or catch a patient.
- Caregivers should avoid push or pull forces greater than 20% of their own weight.
- Avoid shearing forces.
- Always be aware of and use stronger side, if appropriate.

GENERAL

- NEVER lift patients manually except under emergency situations such as during an active patient code.
- NEVER catch a falling patient! A caregiver probably cannot stop a patient from falling. Quickly remove obstacles out of the way that may injure the patient's head.
- Prior to starting task, CONFIRM patient handling equipment, slings, and destination locations (bed, commode, wheelchair, etc.) meet WEIGHT, WIDTH, AND HEIGHT requirements of patient.
- Do not allow patient to lean or pull/grab on caregiver for support in movements.
- Allow and encourage patients to move on their own as much as it is safe to do so.
- Ask patient what steps can be taken to facilitate ease and comfort in their movement and mobility as they typically understand their strengths and weaknesses.
- Avoid shearing forces, especially for patients with delicate skin or pressure ulcers.
- Increase ease in inserting slings by using friction reducing device or lateral transfer device.
- If using seated sling, air assisted lateral transfer device or friction reducing device, obtain facility direction for leaving under patient.
- Utilize one way slide cushion as much as possible to minimize repositioning needs in chair.
- During any patient task, under the best of circumstances (no lines, tubes, contractures, etc.), a caregiver may lift no more than 35 pounds of a patient's weight (body, head, appendages). If tubes, lines and other patient items or conditions influencing patient handling are present, or staff must bend, twist or reach, the permissible lifting weight is decreased. If weight limit is exceeded, assistive devices must be used if possible.
- Conditions likely to affect transfer/repositioning techniques.

_____ Hip/Knee/Shoulder Replacements	_____ Respiratory/Cardiac Compromise	_____ Fractures
_____ History of Falls	_____ Wounds Affecting Transfer/Positioning	_____ Splints/Traction
_____ Paralysis/Paresis	_____ Amputation	_____ Severe Osteoporosis
_____ Unstable Spine	_____ Urinary/Fecal Stoma	_____ Severe Pain/Discomfort
_____ Severe Edema	_____ Contractures/Spasms	_____ Postural Hypotension
_____ Very Fragile Skin	_____ Tubes (IV, Chest, etc.)	

BARIATRIC

- For patient handling purposes, any patient that weighs more than 300 pounds, or 100 pounds over ideal weight, or who has a BMI over 40 is considered to increase the risk for caregivers while performing patient handling. Waist circumference is also used to identify bariatric patients. Weight, height, waist diameter, and waist circumference should be collected on these patients in order to provide safe care and select appropriate equipment, beds, stretchers, wheelchairs, lifts, and other devices.
- Most bariatric patients are unable to sit upright in seated position due to large abdomen obstructing sitting, so facilitate seating in modified recline for patient comfort and ease in breathing.
- Verify the bariatric chair meets patient's weight and width at widest part of body, and facilitate ability of patients' feet to reach the floor for safety and comfort.
- Utilize the seated full body sling that fits the patient's size to position patient during repositioning of patient in chair. Avoid having patient sit on the sling for prolonged periods in a way that would create pressure points.
- Most bariatric patients require padded slings during positioning in chair.
- Encourage patient to reposition self as much as possible independently.
- Often bariatric patients have swelling and poor circulation in the legs, so consider keeping legs elevated on pillows, using limb sling to reposition legs as needed.
- Bariatric patients require more caregivers. Identify a leader when performing tasks with multiple caregivers in order to synchronize efforts and increase safety.
- Abdominal binder/pannus sling may be necessary to prevent abdominal area from interfering with patient handling task/transfer.
- A friction reducing device will facilitate insertion and removal of a sling under a bariatric patient.
- Suggest applying a sticker to all bariatric equipment with 'EC' (expanded capacity) and the weight capacity of the equipment.
- A multidisciplinary team should problem solve these tasks, communicate to all caregivers, refine as needed and perform consistently.

Figure 4-2: Algorithm 4 Notes

4.2. Co-morbid Conditions

Obesity is recognized as one of the most common chronic health problems in the United States. Because of the many diseases associated with obesity, an increasing number of obese individuals are in need of health care services. Providing health care for the obese or bariatric patient requires knowledge of the co-morbidities associated with obesity and the impact these conditions have on care individually and collectively. Bariatric patients may have larger, heavier body parts, skin folds, and a larger abdominal girth, all of which increase the difficulty of managing their self-care. Medical professionals have been aware of the connection between obesity and morbidity/mortality for greater than 2,000 years (Bray, 2007). Obesity places physiological demands on nearly every body system. A collaborative study published by Prospective Studies Collaboration in The Lancet (2009) suggested that having a BMI score above 25 decreases life expectancy. This study goes on to show that once the BMI reaches 30-35, the median survival is reduced by 2-4 years and a BMI of 40-45 reduces life expectancy by 8-10 years. This is comparable to the effects of smoking (Prospective Studies Collaboration, 2009). A complete and accurate clinical assessment of the patient is essential to provide comprehensive care in an

environment that is safe both for the patient and the caregiver. The assessment should include complete medical and social history, complete physical exam, nutritional assessment, pressure ulcer risk assessment, and mobility and functional capacity assessment. Additionally, patients must be reassessed frequently. This section will briefly go over each body system affected and provide considerations for caregivers when assessing and monitoring the patient. For more detailed and comprehensive information, additional references may be required.

4.2.1. Cardiovascular System

The first system reviewed is the cardiovascular system. The workload on the heart of an obese person is increased by the strain of supplying oxygen to a larger volume of tissue. When a patient is lying flat, the weight of the pannus may reduce or impede circulation to lower extremities. Some of the cardiovascular-related concerns include deep vein thrombosis (DVT), hypertension, coronary artery disease, pulmonary embolism, congestive heart failure (CHF) and stroke (Holsworth & Gallagher, 2015). Monitoring the bariatric patient's cardiac status is critical. Consistent and accurate vital signs must be monitored and evaluated. Placement of a blood pressure (BP) cuff that is of appropriate size for the patient is essential or the BP value may reveal an inaccurate, falsely high reading. Another option for determining BP may include placement of a thigh cuff or a regular-sized cuff on the patient's forearm. Additionally, the assessment should include accurate weights, monitoring of edema if present, capillary refill time of fingers and toes, hematocrit and hemoglobin to assess anemia, and monitoring for signs of DVT to include redness, tenderness, and/or warmth palpated in the patient's calf or lower extremities.

4.2.2. Respiratory System

The respiratory system can also be challenged in the bariatric patient due to decreased pulmonary function along with increased oxygen consumption. The chest wall's ability to expand may be severely limited due to enlarged size of chest and abdomen. The weight of abdominal tissue may compress the diaphragm and obstruct the breathing. A common symptom of respiratory compromise in the bariatric patient is acute and chronic shortness of breath (SOB). When a patient is experiencing SOB, it starts a cycle of inactivity that leads to deconditioning, that leads to increased weight gain, which leads to more shortness of breath (Zammit, Liddicoat, Moonsie, & Makker, 2010). In addition, fat deposits in the diaphragm and intercostal muscles may further impair breathing. Pneumonia or atelectasis may occur secondarily to hypoventilation. Care providers should closely monitor the respiratory status by regularly assessing the respiratory rate and depth, monitor the color of patient's skin and nail beds for pallor or cyanosis, and also watch for the use of accessory muscles. Lung sounds should be auscultated regularly. Keep in mind bariatric patients may require rest periods between auscultations of various areas. Crackles may indicate pneumonia or heart failure. Wheezes and rhonchi may indicate asthma or chronic obstructive pulmonary disease (Zammit et al., 2010). When respiratory

compromise is suspected, obtain oxygen saturation levels & look for signs of hypoxia, such as restlessness and a decreasing level of consciousness (LOC). Keep in mind, chronic obesity hypoventilation syndrome can lead to chronic hypercapnia. If pneumonia is suspected, assess the characteristics of sputum (color, quantity, and amount) and send a specimen to the laboratory if required. Encourage deep breathing and coughing hourly while your patient is awake and teach him how to use an incentive spirometer to prevent pneumonia and expand their lungs. Sleep apnea is very common in the obese patient due to airway narrowing from fat distribution in the upper airway and tongue. As a result of hypoxia, daytime sleepiness can occur, along with irritability, confusion, memory lapses, agitation, and poor judgment. Continuous positive airway pressure (CPAP) may be used to treat the obstructive sleep apnea. Body position influences the respiratory status. Patient and clinical education is critical for patient repositioning. The obese patient may be fearful of position changes, especially when lowering the head of bed. Maintaining the head of the bed at 30 degrees can facilitate lung expansion. Many bariatric patients may prefer sleeping or resting in a recliner. However, this positioning may place the patient at higher risk for pressure-related skin injury.

4.2.3. Genitourinary (GU) System

The next system reviewed is the GU system. Morbidly obese patients may experience urinary incontinence related to difficulty sitting on a standard-sized bedpan/commode/toilet, the time it takes to move the patient onto the bedpan or commode, the pressure on the bladder from an enlarged abdomen, or skin folds in the perineal area that tend to impede the voiding process. Obesity is also linked to the risk of developing kidney stones (Taylor, Stampfer, and Curhan, 2005). Other GU and gynecological (GYN) issues include renal failure, infertility, and obstetric complications. Consider monitoring for increased clearance of drug excretion if the patient exhibits signs of renal failure. In regard to the GU system, assess the characteristics of urine (color, clarity, amount, and odor) and monitor intake and output, according to medical doctor orders. Even though it may be difficult and require additional staff, it can be important to offer frequent toileting. If the patient can independently transfer to a bedside commode, ease of use and convenience is important. Other alternatives to increase safety of the patient may include use of a raised toilet seat item or powered toilet lift seat. These items may be placed over the current toilet or used in place of the standard bedside toilet to ease the burden associated with toileting in this population. Men may prefer to sit at the edge of the bed or stand when using a urinal. If the patient has a catheter, monitor for signs or symptoms of urinary tract infection.

4.2.4. Gastrointestinal (GI) System

The gastrointestinal (GI) system is another system that has many concerns. The bariatric patient may have an increased incidence of both gastroesophageal reflux (GERD) and hiatal hernia, both of which put the patient at risk for aspiration (El-Serag, 2008). Bariatric patients are three times more likely to develop gallbladder disease, particularly if they have experienced a rapid weight loss through diet or

surgery (Méndez-Sánchez, Chávez-Tapia, & Uribe 2004). Additionally, the bariatric patient may experience either constipation or fecal incontinence. Incontinence may occur due to the pressure of an enlarged abdomen on the bowel, especially when the patient lies on their back. Assessment of the gastrointestinal system includes auscultation of the bowel sounds and monitoring the bowel status. Accurate records should be maintained recording how often, the amount, and the characteristics of stool. If constipation is a problem, a daily stool softener may be indicated.

4.2.5. Medication Absorption

Consider the effect of both obesity and gastric bypass procedures on medication absorption. Drugs may be either sub-therapeutic or become toxic to the patient. Dosing and administration schedules may need to be adjusted. After bypass surgery, the decreased amount of functioning gastrointestinal tract and changes in pH may affect the absorption of medications (Miller & Smith, 2006). Monitoring of clinical endpoints, signs of toxicity, clinical response, and serum drug levels, as appropriate, are essential components of care.

4.2.6. Endocrine System

Bariatric patients may also have co-morbid conditions related to the endocrine system. According to the Centers for Disease Control and Prevention (2012), the incidence of Type 2 Diabetes has tripled in the last 30 years, primarily due to an epidemic of obesity. Obesity leads to increased insulin resistance, so it is important to monitor the patient's blood glucose levels and watch for signs of hypoglycemia and hyperglycemia. Patients should be instructed to eat small meals at regular intervals to help maintain blood glucose level. Health care providers tend to suggest weight reduction diet changes for the bariatric patient, but it is important to consume sufficient calories for wound healing (Wilson & Clark, 2003). The obese patient has higher nutritional needs and this directly contradicts the common belief that a weight loss diet is indicated for bariatric patients. Laboratory tests such as Pre-albumin, Transferrin, and Albumin can be helpful to determine nutritional status and needs. A dietary consultation is critical upon admission as they can assist the patient in healthy eating habits. Caregivers should remember to be sensitive and understanding that eating habits are often difficult to change.

4.2.7. Integumentary System

Skin is the largest organ in the body. In addition to serving as a barrier, the skin also stores water and fat, is a sensory organ, regulates body temperature, eliminates toxins, and prevents water loss (Blackett et al., 2011). As far back as 1997, obesity-related skin issues have been documented (Gallagher, 1997). Fluid retention due to poor circulation may result in bodily congestion. This congestion can cause the leaking of fluid from pores throughout the body, leaving the skin at high risk for irritation, breakdown, and ulceration (Muir & Haney, 2004). Bariatric patients also have skin folds in and around the perineum, breasts, legs, and/or abdominal areas. Skin folds create a dark, warm, moist environment that

frequently results in bacterial, fungal, or viral infections (Gallagher, 2014). It is not uncommon to find skin excoriation, rashes (also known as intertrigo), or ulcers in deep tissue folds (Muir & Archer-Heese, 2009).

One of the largest skin folds typically appears in the abdomen. This skin fold may be called a pannus, a panniculus, or the abdominal apron. A pannus varies in size and shape, and may even hang below knees. A large abdominal pannus may make hygiene difficult, impact clothing options, and can impede walking, sitting, and standing.

Bariatric patients are also at a much higher risk for developing pressure ulcers. Pressure ulcers are caused by pressure over time, friction, and shearing. Adipose tissue is particularly susceptible to pressure ulcers due to poor vascularity. It is important to look for pressure ulcers in unusual places such as hips and thighs from ill-fitting chairs/beds, under tubes or catheters, any place where the CPAP touches, in skin folds, or on the sides of feet.

4.2.8. Lymphatic System

The lymphatic system can be compromised in the bariatric patient. The weight of the body's excess tissue may constrict the drainage or flow of the lymphatic fluid, which results in reduced immunity, and the patient is at high risk of infection. Lymphedema is a condition that results from obstruction of the lymph system (Yosipovitch, DeVore, and Dawn, 2007). Swelling may occur in the arms or legs. Chronic lymphedema and repeated inflammation of the tissue may lead to elephantiasis nostra, a non-pitting edema with plaque, nodules, papules, and lichenification (Fredman & Tenenhaus, 2012).

4.2.9. Hygiene

Hygiene is difficult, which may lead to odor problems. Unpleasant smells can arise from incontinence, skin infections, and other wounds that can be devastating for the bariatric patient, their family members and friends, and nursing staff. While other issues may be equally challenging, odor may cause embarrassment and humiliation. Skin care products are available that can be placed in skin folds to manage odor, decrease bacterial load and wick the moisture. Addressing incontinence promptly will also help in odor control.

4.2.10. Musculoskeletal System

Obesity accelerates cumulative damage to the skeletal structure. The force on one's knees is 3 to 6 times the body weight with walking and can reach 8 times the body weight with climbing (Holsworth & Gallagher, 2015). This means that the force on the knees of a person who weighs 200 pounds is approximately 600 pounds and approaches 1600 pounds with more strenuous activities. Walking, even for short distances, may lead to fatigue and respiratory distress and simple acts, such as bending and lifting, may be difficult. The disuse of muscles can lead to atrophy and muscle weakness; bones may become brittle, making the patient prone to fractures. If a fracture occurs, the difficult task of supporting limbs and controlling weight bearing become a concern. Low back pain is a common

complaint of the bariatric patient. The presence of a pannus may cause anterior bending and compressive forces on the spinal column, leading to disc pathology and back pain. Imagine wearing a backpack backwards with 50-75 pounds in it even for just one day. Other orthopedic concerns include carpal tunnel syndrome that occurs four times more often than the incidence for workplace repetitive traumas, gout, and foot pain (Bergkvist, Hekmat, Svensson, & Dahlberg, 2009). Be aware that many tasks can be extremely painful for the obese patient. Include the patient when dealing with pain issues and utilize strategies that have worked in the past.

4.2.11. Surgical Complications

The bariatric patient is also at high risk for many surgical complications such as infection, seromas, anastomotic leaks, and incision dehiscence. Wound healing is an enormous challenge when working with the obese patient, partly due to inadequate oxygenation and nutrition. Incisions must be monitored closely and patients must also be monitored for internal infections (Gallagher, 2012). Consult Wound, Ostomy, and Continence (WOC) nurses early on and maintain vigilance for wound and skin issues.

4.2.12. Body Shape

Body shape plays an important role in the patient's ability to assist with personal cares, mobility, and in the selection of appropriate equipment. Patients with an apple shape carry their weight high. Legs may be relatively normal-sized and the patient may have intact hip and knee flexion. Ambulation may be difficult and the patient may become short of breath if the apple shape is due to ascites. The patient may be susceptible to skin damage between the thighs and pannus due to friction and moisture. The apple shape is also associated with higher morbidity and mortality (University of California – Davis Health System, 2013). Women with a waist size 35 inches or higher and men with a waist size of 40 inches or higher are at 2-3 times higher risk of premature cardiovascular disease and an increased risk of type 2 diabetes (Harvard School of Public Health, 2014). Another body shape is the pear shape. Patients with a pear shape carry their weight in the thighs and buttocks. Those individuals carrying weight in their lower bodies are typically unable to reach their perineal region and excoriation is a risk due to groin moisture and elimination problems. Knowledge of the patient's body shape will help in the planning of the patient's care.

All these conditions make caring for the bariatric patient complex and challenging. However, the ability to successfully address these challenges and complexities can be very rewarding for caregivers. It is important to ensure that staff members who care for larger, heavier patients and their family members understand the co-morbidities and complexities so that they can plan the care of the patient accordingly (see Enclosure 4-3 for a concise chart of co-morbid conditions, assessments, and reportable conditions.)

4.3. Critical Aspects of Communication

Communication is a critical aspect for the success of a Bariatric SPHM Program. Literature indicates that ineffective communication among caregivers is one of the leading causes of medical errors and patient harm (Dingley, 2013). Communication creates linkages between people and helps to establish a common understanding within organizations of what elements are involved in a comprehensive SPHM Program. Any changes in the patient's mobility status should be clearly communicated during admission and transfer handoffs as well in written documents, such as patient medical records (New England Standards, 2012). Systems that provide written guidance prior to receipt of bariatric patients in acute and outpatient settings help ensure a seamless continuum of care.

4.3.1. Communication Tools

Human factors, such as stress, distraction, and communication problems, increase the errors during routine shift changes; therefore, it is critical for caregivers to include strategies and timely and accurate communication of complete and accurate patient information (Popovich, 2011). Direct care communication tools should be a combined process, including written, verbal, and nonverbal symbols between caregivers to maintain a standard for consistent care. Some examples of tools include patient assessment or a patient plan of care that supports technology and mobility throughout each setting, utilizing handoff communication tools (see Enclosure 4-4, Bariatric Handoff Communication Tool, for an example). Situation, Background, Assessment, and Recommendations (SBAR) is a classic tool suggested for use by The Joint Commission. Scheduled and unscheduled staff safety huddles facilitate the engagement of staff members in communicating incidents, root causes, and updated interventions. These huddles can be brief in time and conducted at the bedside. Rapid response activities and code blue communication events should be integrated into safety huddles between shifts (Dingley, 2013).

Some items are included in the permanent medical record and others are used to facilitate transfer of information, such as communication boards, pictorial representation posted at the bedside and attached to equipment, wrist bands, socks, and other identifiers that may standout to caregivers (Muir, 2009).

Non-direct patient care and organizational communication tools include bariatric care policies, protocols, standard operation procedures, handbooks, manufacturer guidelines and care requirements, video illustrations, live education sessions, interdisciplinary staff competency checklists, demonstration of equipment maintenance and care, quick reference guides, reporting forms for sentinel events, and Internet and Intranet Web pages that support a safe environment of care. These communication tools directly support the direct care caregivers and other support departments to maintain standardization and also to meet facility regulatory requirements. An example of regulatory oversight in communication is safety goal #2 set by The Joint Commission. It focuses on improved communication effectiveness amongst caregivers because ineffective

communication had been cited as the most frequent root cause of sentinel events (Popovich, 2011).

Person to person verbal and nonverbal communication and cues from leadership, service chiefs, managers, supervisors, charge nurses and unit champions all convey daily powerful messages to support or create barriers for the bariatric population. It is important that all understand the basic elements for safe bariatric care in order to support a safe and sensitive working environment.

Finally, continuity of care is reflected when ongoing communication is established with outpatient clinic providers on the disposition of patient upon discharge to include family members and significant others as the patient moves and remains in the community care setting. When a patient has complex needs, the most effective and time efficient means of communication can be a face-to-face family/team conference jointly done with inpatient and outpatient team members. Telehealth services can often support this effort when distance is a barrier. This interdisciplinary team could include home health nursing, home equipment providers, pharmacist, social worker, case manager, physical medicine staff, nutrition, physicians, Emergency Medical Service (EMS)/transport staff, clinic staff, and psychologists, as appropriate.

Bariatric care presents ongoing challenges to all caregivers, and joint efforts of communication between these providers, including health care providers, manufacturers, engineers, space designers, and funders need to meet and address common concerns on a routine basis to minimize planning in silos. There is much more to be learned and developed to improve bariatric care and much success can be achieved by joint efforts and strategic planning where mutual goals and objectives can be addressed.

Ongoing efforts in research and development on the topic of bariatrics that is communicated widely will bring us more evidence-based practice and speed up resources that will help us keep up with the growing population of bariatrics.

4.4. Safe Patient Handling and Mobility (SPHM): The Key to Better Patient Outcomes and Fall Prevention

SPH supports the basic human need to maintain independence through patient mobility. It is a key component to include in measures to improve patient and employee safety. It is also an important component to reducing patient falls, and hence, patient harm resulting from a fall, which is one of the national patient safety goals set by The Joint Commission. An SPHM Program can also be used to demonstrate an example of workplace safety improvements for nurses, i.e., a model necessary to achieve *Magnet* designation through the American Nurses Credentialing Center (Association of Occupational Health Professionals, 2014).

When the human body is immobile, it deteriorates after a short period of time. Early and frequent patient mobility is essential to maintaining or restoring patient health. Many providers observe that the earlier a patient is mobilized (particularly

getting the patient up on his or her feet and walking), the better the outcome. Conversely, many immobility-related adverse events, some with long-lasting consequences, are linked to late or insufficient mobilization.

As it relates to SPHM, early and progressive mobility include the following:

- Moving the limbs of dependent, non-weight bearing patients to preserve joint flexibility. This involves taking limbs through their full range of motion.
- Ambulating patients as early and as often as possible to maintain mobility and manage the immobility-related consequences of care.

There has been recent attention in medical and nursing journals that stress that the outdated model of "not getting patients up out of bed" and allowing patients to remain sedentary during hospitalization is dangerous and should not be tolerated. Medical professionals recognize it is time for a change. Mobilizing patients must be placed at a higher priority similar to use of engineering controls to provide for infection control, such as use of hand washing and other measures. The weight of evidence supports the positive effect of mobility on the quality and speed of a patients' recovery and on the patient's ability to preserve current levels of physical capability [The Facility Guidelines Institute (FGI), 2010].

Recent evidence suggests that the need for early, progressive mobility may apply to the very sickest or highest acuity patients, such as ventilator-bound patients in the Intensive Care Unit (ICU), who in the past were immobile and sedentary. In the past, patient ambulation typically involved a caregiver(s) supporting a patient on one or both sides, with the risk that an unanticipated patient fall could suddenly occur, with the potential to injure both patient and caregiver.

It is well documented throughout medical literature that when mobility is limited, patients suffer more from diminished health status and physical functioning. This often leads to extended and/or repeated stays in health care facilities with associated costs. Getting the patient moving reduces the risk for immobility-related consequences, such as diminished functioning of the patient and overall diminished health status. Incorporating a comprehensive SPHM Program into the progressive mobility effort is thought to minimize immobility-related and other adverse patient outcomes that result in increased costs for the organization.

Among the complications known to arise from immobility are:

- Ventilator-associated pneumonia, atelectasis, pneumonia.
- Embolic conditions (deep vein thrombosis, pulmonary embolus).
- Insulin resistance.
- Pressure ulcers.
- Increased dependency.

ICU stays during which patients are not mobilized can have devastating long-term physical and emotional effects that last beyond the illnesses that necessitated hospitalization. The conditions described above may occur in any direct patient care environment. The implementation of an effective SPHM Program coupled with proper technology and adequate training and support, will minimize above complications, resulting in real cost savings to a health care organization (FGI, 2010).

Fall prevention must be balanced with the need to mobilize patients. It may be tempting to leave patients in bed to prevent falls, but patients need to transfer and ambulate in order to maintain their strength and to avoid complications of bed rest. Use of SPH should be included as part of universal fall precaution protocols that are applicable for every patient, but especially the obese patient who may be at risk for falls simply because of their body weight distribution (Gallagher, 2009). If staff members are not trained in SPH, a patient could fall or staff members could be injured because appropriate assistive equipment was not used [Agency for Healthcare Research and Quality (AHRQ), 2013].

An additional challenge when considering the connection between early mobility and safer patient handling is to apply the concept of SPH and maintaining patient mobility to a variety of settings, which includes home care and rehabilitation. Each of these settings provides its own unique set of challenges. For the home care setting, it is important to support not only patient and caregiver safety but particularly in the home care setting there are concerns for the safety of the family members. Family and staff members must be provided the means to prevent the risk for injuries related to moving and transferring tasks performed to support the care of loved ones in the home.

In rehabilitation settings, it was traditionally thought that use of SPH technology could hinder patients in meeting their rehabilitation goals; however, there is no evidence to support this misconception. There is strong evidence instead, that use of SPH equipment enhances the safety of the patient and the caregiver. The shortage of experienced rehabilitation staff members means we must take the measures to ensure the health of staff. Injured workers are not available to provide patient care and some injuries can end careers.

In summary, carefully planned, interprofessional mobility activities are thought to reduce incidence in hospital-acquired pneumonia, hospital-acquired pressure ulcers, improve function and early independence, facilitate toileting activities and potentially reduce incontinence, reduce fall-related injuries, improve quality of life, shorten hospital stays, and reduce rates of hospital readmissions in 30 days. SPHM early mobility programs can significantly contribute to bottom line of health care organizations that can be penalized or provided incentives by positive outcomes, particularly in the private sector (Nelson & Harwood, 2008).

4.5. Planning for Discharge

The transition of the bariatric patient from hospital to home or another patient care facility can create additional issues unique to this population. Placement issues can be difficult due to the inability or unwillingness of nursing homes or extended care facilities to accommodate morbidly obese patients. Barriers can lead to prolonged hospital stays when a patient becomes "stranded in the hospital" sometimes/often times resulting in a gradual patient decline. Barriers to placement often stem from receiving facility equipment concerns, increased costs without commensurate reimbursement, safety concerns, and the need for increased numbers of staff members. There are instances when the only skilled care facility placement option is a long distance from the patient's home and family (Miles et al., 2012).

Discharge planning starts on the day of admission. Once the initial assessment has been completed by the case manager, proposed discharge and home care plans can be identified. The following activities should be addressed prior to discharge, preferably during the admission stage:

- Communicate with other agencies and services. Appropriate notifications and referrals should be initiated upon admission.
- Determine SPHM equipment needs that are necessary to maintain patient mobility and patient activities of daily living, then determine whether appropriate equipment is available in the receiving facility or home care environment. Will equipment be needed temporarily or long term?
- Explore funding resources to obtain SPHM equipment that is not available in the receiving facility.
- Assess the physical environment that is maintaining or receiving the patient for ergonomic risks for moving and transferring tasks; small spaces, steps, ramps, and/or small doorways that may create a hazard for moving and transferring patients.
- Ensure that equipment and furniture in receiving facility or home are appropriate to accommodate comfort and repositioning and also meet patient weight and size requirements.
- Determine whether the receiving physical environment has adequate access to and space for storage of SPHM equipment; especially if new equipment is to be installed.
- Review support services for the patient. Home care staff and caregivers may require specific training before patient discharge.

Environmental hazards may be present inside or outside the home. They need to be considered to decrease risk of injury while transferring patients to and from vehicles (such as steps or ramps) and to determine the number of caregivers required and assistive technology needed. This is very important information if

transportation staff is required to enter a home to access a totally dependent patient for transportation purposes.

4.6. Bariatric Community Care

Consideration should be given to discharge planning and care of the bariatric patient in post-acute care settings, such as the outpatient setting, long term care, home, primary care and clinic settings, assisted living, etc. Poor preparation for discharge can be disastrous for the patient and their family members. Lack of planning for mobility and assistance in performing tasks could result in poor recovery or a worsening of condition, which could lead to re-admission. Maintaining patient mobility is a medical necessity and must be accomplished in a way that is safe for both caregivers and the patients who depend on them.

Topics that need to be assessed and managed (changes made, technology or services provided) before a patient's discharge include:

- Patient/resident characteristics may vary widely between settings and it is critical to base SPH equipment decisions on timely and appropriate patient characteristics.
- Technology decisions should not only provide for the safety of the patient but also staff and caregivers that perform patient handling and mobility tasks.
- Ensure that technology and furniture used by the patient are adequate for patient's weight and height. Consider the possibility that family members may also require furniture of increased weight capacity when selecting furniture for waiting areas and/or interview rooms.
- Homecare support services may require specific training for patient and caregiver before discharge (see Enclosure 4-5 for an example of a Home Care SPHM Checklist for Bariatric Patients).
- Home assessments should address whether the home is owned or leased by patient. Decisions to install a fixed overhead lift, provide a temporary overhead gantry lift, or provide a floor-based lift will require all stakeholders to be involved in the decision-making process.
- If a ceiling lift is preferred, structural load testing may be required. Ensure that ceiling height and other structural components and factors above and below the ceiling are able to accept it. If a gantry lift is being considered, ensure adequate space, ceiling height, and other structural components and factors below the ceiling are able to accept it. If the decision is leaning toward floor-based lifts, review outpatient and home care environments for adequate space and safe design. Moving floor-based lifts in tight spaces or carpeted areas, or pushing the patient up and down

ramps in a wheelchair or stretcher, will increase risk of injuries (Marras, 2014), especially with bariatric patients.

- An inspection of each fixed overhead lift is recommended in any setting, which includes home, long term care, or community living centers, and should be completed and documented after installation and before initial use of technology.
- Communication may be indicated with local agencies to plan ahead for access to necessary assistive devices for patient transportation to and from the home and/or emergency evacuations from the home.
- Communication with other agencies and services is indicated to ensure that the appropriate notifications and referrals have been made to the patient's general practitioner, home support agencies, and the community nurse.

Barriers to ensure adequate community care may include inadequate access to housing or social support, lack of funds to support short or long term technology options, and lack of patient and caregiver knowledge regarding disease processes, home care, and requirements for psychological, emotional, and spiritual support.

4.6.1. General Patient Handling Recommendations for Community Care Settings

Recommendations for technology for new construction and renovation areas will vary according to patient population, patient assessment, tasks performed in each setting, and building features. In outpatient facilities, a central storage may be helpful for storage of portable SPHM equipment. Storage areas require an electrical receptacle for charging equipment and/or batteries.

The obese patient with mobility disabilities in any outpatient clinic setting will require an accessible exam room with adjustable-height exam tables and chairs with additional features that allow for easy access while facilitating use of transfer technology, such as transfer boards or patient lifts. In addition, a patient's weight is essential information used for treatment and care decisions. Patients should have access to a specially-designed scale, such as a platform scale large enough to fit a wheelchair with a high weight capacity for weighing while seated in his or her wheelchair. Other options may include a scale integrated into a patient lift or exam table.

4.6.2. Outpatient/Primary Care Clinics

Depending on patient population, one or more regular and/or EC bariatric ceiling lifts are suggested. For tasks performed outside the parameter of the ceiling lift, at least one floor-based lift per clinic is recommended. The clinic may require additional lifts if clinics are not in close proximity to one another. Exam tables must accommodate the lift base. Clinics may also consider air-assisted lifting

devices for lifting patients up from the floor in areas not covered by a ceiling lift or accessible with a floor-based lift.

4.6.3. Specialty Outpatient Areas

In Hemodialysis, where lateral transfers of patients from stretchers to dialysis beds occur, all dialysis beds should have ceiling lifts. One straight track over several dialysis chairs/bays is also suggested. Consider one sit-to-stand lift per clinic, and if necessary, one floor-based lift for moving and lifting tasks performed outside the parameter of the ceiling lift/s. Clinics may also consider air-assisted lifting devices for lifting patients up from the floor in areas not covered by the ceiling lift or accessible with a floor-based lift.

4.6.4. Physical Therapy Clinics

Physical Therapy clinics should have maximum ceiling or wall-mounted lift coverage. This means the parallel bars should have a straight track ceiling lift above them and treatment tables should have traverse tracks above them or throughout the clinic. Determine weight capacity of the lifts based on point prevalence of obesity in the targeted area. Consider one mobile floor unit per clinic as the minimal patient coverage for moving and lifting tasks performed outside the parameter of the ceiling lift. Clinics may also consider air-assisted lifting devices for lifting patients up from the floor in areas not covered by the ceiling lift or accessible with a floor-based lift, or additional lifts if clinics are not in close proximity to one another.

4.6.5. Nursing Home/Long-Term Care

Seventy to one-hundred percent of long-term care patient beds should have a ceiling lift, with less coverage for primarily dementia units. Coverage into the bathroom is ideal. One portable/floor-based lift is recommended per every 8-10 partially weight-bearing patients. One air-assisted lifting device is recommended for lifting patients up from the floor in areas not covered by the ceiling lift or accessible with a floor-based lift.

4.7. Steps in the Bariatric Discharge Process

1. Determine discharge destination - coordinated by Case Manager.

2. Evaluate prior to discharge - Occupational Therapy (OT)/Physical Therapy (PT)/Home Based Primary Care (HBPC) staff to determine the appropriate SPHM technology to meet safety and mobility needs of the patient and review for any adaptations that may be needed for home and/or long term care environment (see Enclosure 4-5 for an SPHM checklist).

3. Short-term and long-term planning.

4. Consult provider to place order for recommended technology.

5. Consult Prosthetics to provide short-term and long-term home technology needed.

6. For overhead lift recommendations, an inspection by facility engineering and/or vendor (as determined by facility) is indicated to assist OT/PT/HBPC or clinic staff in the decision-making process to determine appropriate lift for patient and mobility goals based on home structural environment. Options for overhead lifts include fixed ceiling-mounted or wall-mounted lifts or portable gantry lifts. Free standing, nonpermanent overhead track gantry lifts are a good solution when the existing ceiling structure cannot support a ceiling-mounted overhead lift.

7. A plan for annual and preventive maintenance of SPHM equipment and equipment safety is recommended as part of the planning and procurement process for overhead lifts.

8. Vendor and therapist to coordinate provision of initial SPHM equipment training prior to use for patient and caregiver in the home care setting.

9. Home care agency to provide discharge summary when case is closed, indicating success/issues/concerns with equipment utilized by patient. (Discharge summary may be used for future admissions.)

4.8. Long Term Care (LTC) or Community Living Center (CLC) Considerations

- Case manager provides LTC options to families.
- Family chooses LTC facility.
- Accepting LTC facility intake staff evaluates patient prior to discharge. Case Manager provides SPHM hand off communication tool.
- Case Manager facilitates discharge to LTC facility, including transportation, required SPHM equipment, etc.
- Inter-facility transfer to include SPHM in handoff communication.
- Transportation services.
- Ambulances must have stretchers of appropriate weight and height for patient.
- Assess patient and task and whether assistance is required for patient extraction to and from personal or other transportation vehicles.
- Determine what SPHM technology is required for transfer to and from transportation vehicle.
- SPH communication should be included in handoff communication to transportation staff.

4.9. Enclosures


EOSH

Education and Competency Training

One of the most important aspects of any bariatric program is education, training, and competence. The first step is to bring facility-wide awareness of the bias and discrimination that most bariatric patients experience. Sensitivity training is critical to ensure that every aspect of a patient's journey is healthy and respectful (Gallagher, 2011). There are many other aspects of caring for bariatric patients that caregivers will need as well, such as information on technology and safe patient handling and mobility (SPHM) techniques, along with education regarding the many co-morbid conditions that bariatric patients face. Lastly, education would not be complete if we did not address the learning needs of the patients and their families or caregivers. This chapter will provide information on what to include in the education, training, and competence.

5.1. Sensitivity

In a society that generally relates beauty, intelligence, and success with thinness, being overweight has emotional, financial, and social consequences. It is not uncommon for overweight individuals to experience psychological stress, reduced income, and overall discrimination. One of the greatest sources of harm for the bariatric patient is the emotional harm that occurs as a consequence of bias and discrimination. Empathy training provides caregivers the opportunity to better understand the lived experience of being a person of size.

Caregivers best serve bariatric patients when they recognize the real and painful bias obese patients experience every day. Studies as far back as 1982 found that subjects identified the obese individual as lazy, dirty, and ugly (Klein, Najman, Kohrman, Munro, 1982). The concept of "otherness" is often assigned to the obese person individually and obesity collectively (Gallagher, 2015). Otherness allows society to blame the patient for their condition of obesity, rather than seek ways to improve care through reasonable accommodation, which is common practice when caring for others who suffer from a disability.

Studies show that health care providers view obese persons as unintelligent, non-compliant, indulgent, hostile, dishonest, unsuccessful, inactive, and weak-willed (Vacek, 2007). These studies also indicate that physicians preferred not to treat obese patients and did not expect success when they were responsible for the management of a bariatric patient's care. Nurses also have many biases, and nearly half of those surveyed stated they were uncomfortable caring for obese patients. Nurses indicated that they believe obesity can be prevented by self-control and obese patients are over-indulgent, non-compliant, and lazy. These biases leave the bariatric patient filled with fear and isolation. Obese people often delay going to see their primary provider because they are afraid of being embarrassed or humiliated.

A brief glimpse into a bariatric patient's hospital or clinic visit starts out with a public weighing and possibly even a loud conversation about the weight capacity of the scale. Next, the individual may be directed to furniture that is too small, asked to climb onto an exam table that is too narrow, and given an ill-fitting gown. Obese individuals face constant lecturing regarding weight loss, and they often hold the perception that caregivers dislike them, and in fact, as the previously mentioned studies show, they are often correct.

An all-new view of the bariatric patient based on respect, care, and compassion is needed. Sensitivity starts with empathy and understanding the bariatric patient first as a human being. The relationship established with the patient starts with a friendly approach, being fully present, and willing to explore mutually-responsive decision making. Caregivers who focus on the patient, not their obesity, are more likely to see positive results. Some additional things to challenge the bias include weighing the patient in a private area and not stating the weight aloud in public, and also avoiding loud requests for help and overhead pages, as these can be extremely embarrassing for the patient. Ensure that bariatric supplies (i.e., gown and blood pressure cuff) and furniture are available; this will send the message that you are ready and able to take care of their needs. Caregivers must also become aware of their body language, facial expressions, and tone of voice. They should challenge others' language that is hurtful, even when it is done away from the patient.

Another aspect of sensitive care is focusing on the patient's chief complaint, especially in the primary or clinic care setting. Health care providers in the post-acute care environment often assume that weight loss is the top priority for all bariatric patients and focus on this, but it is important to take the time to fully understand what the patient feels is important. A common issue faced by most bariatric patients is that regardless of the presenting problem, the solution offered by health care providers is weight loss. Patients coming into the clinic for foot pain are told if they lose weight, the condition will improve. While in reality, the weight loss would help the foot pain; the patient leaves the appointment thinking that their weight was all that was addressed. Allowing the bariatric patient to identify what is important to them in their health care plan is part of sensitive care. Some bariatric patients may be working toward increasing their independence and mobility, including getting in/out of a chair independently, getting on/off the commode independently, being able to wash/dress with minimal help, to walk short distances, or to go to public places with minimal assistance. Other bariatric patients may be independent and able to attend to all the activities of daily living but are working on other medical challenges, such as diabetes or cardiac issues. Sensitive care begins with learning what is important to the patient, finding out their definition of health, and assisting them towards their goals to attain a healthy lifestyle.

An early step in sensitivity training is to define bias and stigma. Bias is described as the negative attitudes that influence interactions. Weight bias leads to

stereotypes, rejection, prejudice, and discrimination (retrieved from http://www.obesity.org/resources-for/obesity-bias-and-stigmatization.htm). A stigma creates an atmosphere of blame and intolerance, reduces quality of life, and results in serious psychological, social, and physical health consequences (Puhl & Heuer, 2010). Awareness of both personal biases and those present in the occupational setting is the next step in creating a respectful environment for the bariatric patient. What are your first thoughts when you find out you will be caring for a bariatric patient? What language do you use when working with a bariatric patient? Does your work area have access to basic SPHM technology and supplies that accommodate a bariatric patient? How is this technology identified? Understanding bias both from a caregiver and a patient perspective begin the journey to more mindful patient care.

In summary, the biases and stigma that bariatric patients experience are real and often have a detrimental effect on their health. Bariatric patients have a right to the same quality of care, provided in a safe and dignified manner, as any other patient with a chronic disease. Many factors contribute to the causes of obesity, and it is time to move beyond the focus of who is to blame and work to treat the whole patient. Sensitivity training will make available the necessary tools health care providers and caregivers need to provide respectful, compassionate care for the bariatric patient.

5.2. Staff Education and Training

All bariatric patient handling and mobility tasks require specialized knowledge and training to ensure safe and effective care. Various modalities and levels of training are needed, and the objectives will guide the method, format, and duration of the training. This training may include just-in-time training, classroom, electronic computer modules, hands-on training, peer-to-peer coaching, or a blended combination.

If the objective is to promote awareness, classroom sessions providing a comprehensive overview of the complexity of care of the bariatric patient may be the best method to achieve the goal. Awareness training sessions should include a foundation that defines the obesity epidemic and sensitivity training regarding the bias and negative judgments often directed towards bariatric patients. This training is required for all staff, including all direct care providers, physicians, housekeepers, managers, and new employees. A more advanced training should include information on the space and technology needs for safe bariatric care, an understanding of the co-morbidities that occur in the bariatric patient, and assessment and decision making tools, such as algorithms. This training is required for all direct care providers and Unit Peer Leaders (UPLs), with the UPL training being more advanced and a longer duration. Enclosure 5-1 is an example of a Power Point Presentation that includes an overview of bariatrics and detailed space and design criteria. This presentation may be used in PDF format but not modified. Enclosure 5-2 is another example of a Power Point presentation that includes an overview of bariatrics, bariatric technology and equipment,

comorbid conditions, and sensitivity/dignity/respect. This presentation can be used and/or modified to meet your needs. Pictures have been removed due to copyright issues, but may be added for increased visualization of content. If the objective is to develop skills, hands-on technology training is the best method. This may occur as an annual competency training or "just-in-time" if rental equipment is being used. A bariatric simulation manikin may be an effective method for practice with SPHM tasks in a safe setting.

As with all SPHM education, the concepts of adult learning need to be incorporated into the training. Adults learn best when they are able to integrate life experiences into their learning, and a variety of teaching strategies are used. Interactive and participatory training is preferred. Examples of this include asking the participants to share past experiences with bariatric patients. Sharing stories of what has worked, as well as barriers to safe care, provide an effective learning strategy. Simulation training is also an effective way to demonstrate how to perform patient handling tasks in a safe environment before being faced with the challenges of real-life experiences.

Education, training, and competency evaluations must be provided for all health care workers across the continuum of care who have direct clinical contact with bariatric patients, including, but not limited to, nurses, nursing assistants, health technicians, radiology technicians, and physical and occupational therapists (see Enclosure 5-3 for an example of a Bariatric Training Competency Template). Training needs to be provided annually, if not more frequently, since training may be forgotten if not used regularly and equipment and technology are constantly changing. Annual competencies on technology are particularly important for both the safety of the patient and the staff. It is also essential to educate and involve leadership in the Bariatric SPHM Program so that they understand the challenges faced when caring for the bariatric patient.

Ensuring that the training has been completed by all staff in settings where care is provided 24/7 can be challenging. Management must be involved to make sure all staff are given time to complete the training. The use of peer experts who are trained in bariatric patient care can be an effective means to bring the training to the bedside. Peer leaders are trained to be content experts, as well as technology super-users so that staff has a resource readily available. Managers can support the process by attending the training themselves and also validating the credibility of the peer leaders as experts.

Once the basic knowledge and skills have been developed, it will be important to follow-up with real life reinforcement to ensure the content moves to a level of critical thinking and comprehension. Mock drills or simulation training on the unit are great ways to allow staff to get comfortable with their knowledge and skills. As units receive bariatric patients, refresher training needs to be made available. Techniques that have been individualized for a specific patient based on their mobility and capability to attend to activities of daily living need to be communicated.

Education on the care of bariatric patients should be included in new clinical employee orientation and student orientation and updated with annual training and competency evaluations through a variety of modalities to support staff awareness and proficiency. Records to document completion of competency training should be maintained as appropriate to the facility, which may be facilitated by the unit manager, unit or staff development educator, or the SPHM Coordinator. By incorporating a variety of training strategies, facilities can ensure that bariatric patients will receive compassionate care that is designed to meet the patient handling needs and effectively manage their medical needs. The following table may help determine what training needs to be provided and who should be required to complete it.

Table 5-1: Training Required for Care of Bariatric Patients

Content	Direct Clinical Staff	Unit Peer Leaders	Safety & Emergency Management	Engineering and Projects Team	All Employees, Includes: Leadership, Managers, Physicians, Housekeeping, New Employees
Awareness (Background and Sensitivity)	X	X	X	X	X
Space and Equipment	X	X	X	X	
Simulation, Mock Drills, and Case Studies	X	X	X		
Equipment Training	X	X			
Co-morbidities	X	X			

5.3. Patient and Family Education

Patient education is a key component for the management of many acute and chronic conditions. For the bariatric patient, even a simple wellness check with a primary care provider can be very stressful and uncomfortable. The patient may encounter bias and judgment, along with lack of appropriately-sized furniture and equipment, which may lead to distrust of the health care system. Many bariatric patients opt to avoid health care until their condition becomes critical. One way to stop the avoidance cycle is to empower bariatric patients by providing them with the knowledge they need to make sound health care decisions. Having easily understood care instructions and other information can put them on the right track for health.

Patients seek information about wellness, illness and disease, health promotion, and health care risks in many ways. The availability of health care information to patients has changed dramatically over the past several decades. Gone are the days when patients take what their doctor says as unquestionable truth. Patients and their family members are active participants in medical decision-making and will use all available resources to make informed decisions. Often patients start with information attained through TV, radio, co-workers, friends, family, and the Internet. Unfortunately, many patients and their families cannot discern between credible and non-credible information. It is the job of the health care provider to ensure that the patient and their family have accurate and easily understood education materials.

Providing education materials in a wide array of formats can further promote the patient's maximum confidence and cooperation. The educational materials should include definitions of the SPHM and bariatric terminology used, information about the Bariatric SPHM Program, and the available resources and technology they can expect to encounter during their hospital stay. It will be helpful to include rationale for why the technology is needed. Patients and their families will also need information to help them cope with the numerous co-morbidities that are often experienced by this population. A bariatric patient who holds this knowledge will be able to participate in their care, and the result is improved overall outcomes.

Health care education materials should be available in a variety of modalities, such as patient education brochures (see Enclosure 5-4), Web-based interactive tools, or education programs broadcast on patient TVs. Literacy must be considered when developing written patient education tools. Patients with less than basic literacy are not likely to choose written materials, such as books, magazines, or brochures. These patients often look for their facts on television or radio or from friends and family members (Kutner, Greenberg, Jin, & Paulsen, 2006). It is important to allow the patient time during the appointment for reviewing educational materials and time afterward to ask questions of the provider. Ongoing patient teaching may be necessary and offered at every encounter.

How does a provider know which education modality will best meet the patient's needs? The simple answer is to have many options available and ask the patient which one they prefer. Ask the patient how they learn best and match that style. In this electronic age, many patients prefer to get their information electronically. When using electronic teaching tools, ensure that the materials are user-friendly, convenient, easily accessible, and available in real time. If the patient prefers written instructions or desires to take notes, have brochures and a pen and paper available. If teaching new skills, provide a demonstration followed by return demonstration of the skill. Give the patient and family time to become comfortable with new SPHM technology or other equipment. If they have questions or problems, encourage them to work through their problems so that

they can be self-sufficient in the home setting. Providing adequate instructions and training, engaging the patient, and allowing time to feel confident in self-care are critical in supporting our bariatric patients to wellness.

5.4. Enclosures

5-1 Understanding the Special Needs of the Bariatric Population: Design, Innovation, and Respect

5-2 Sample PowerPoint Presentation: Safe Handling and the Patient of Size

5-3 Competency Template

5-4 Sample Bariatric Patient Education Brochure


EOSH

Monitoring and Evaluating Patient and Program Outcomes

All Bariatric Safe Patient Handling and Mobility (SPHM) Program managers will want to evaluate the program processes and outcomes (Gallagher, 2013). For many years there have been multiple standards that health care facilities have monitored. Until recently, there have been very few that focused on the bariatric population and even fewer evaluating SPHM. As the safe patient handling arena has grown, there is an ever demanding need for program evaluation and outcome measurement. The American Nurses Association (ANA) has recently published the Safe Patient Handling and Mobility, Interprofessional National Standards, with Standard 8 being: Comprehensive SPHM Evaluation Program. In this standard, the employer and health care workers partner to establish a comprehensive system to evaluate the SPHM Program status using staff performance, staff injury incidence and severity, and health care recipient outcome metrics (ANA, 2013).

Program evaluation provides visible results organizations need to ensure successful outcomes. Outcome evaluations are a means of providing documentation that often change clinical practice and/or make a difference in financial, clinical, and/or employee and patient satisfaction. By measuring the status of program elements, leadership will be able to determine if they have partially or fully achieved goals. Analysis of the findings will identify future needs and performance improvement plans that need to be developed. Changes in the Bariatric SPHM Strategic Plan may occur with the findings. Challenges will be encountered, but with persistence and a willingness to take a critical/objective review of the Bariatric SPHM Program, changes can be made to improve employee injury rates as well as the quality of care rendered to the patient.

As in any Ergonomics Program, evaluation is essential to determine if the program is effective in meeting the desired outcomes. Measures for evaluating a bariatric program would include those used in evaluating any safe patient handling program to assess effectiveness in preventing and reducing injuries. Specific data relative to a bariatric program would include patient satisfaction and comfort with technology. To identify technology shortages and predict future needs, the facility may track the number of bariatric admissions and patient demographics. This information may be helpful in identifying future needs for the program and making a business case for additional technology or environmental space design (see Enclosure 6-1 for the Brief Summary - Space and Facility Design Considerations). From time to time there are unforeseen issues specific to the patient size, equipment fit, and/or the task being performed, i.e., a poor sling fit or equipment failure that can cause a poor outcome during a transfer to a chair. These unforeseen events may result in injury to personnel as they exert themselves in attempt to resolve the situation. Collection of injury data should identify patient size and mobility status (Muir & Archer-Heese, 2009).

Enclosure 6-2 provides a performance matrix and monitoring tool for evaluating a Bariatric SPHM Program on a quarterly basis.

6.1. Enclosures

6-1 Brief Summary - Space and Facility Design Considerations

6-2 Bariatric Safe Patient Handling and Mobility (SPHM) Program Key Performance Metrics

Conclusions and Final Thoughts

Care of the bariatric patient continues to be a significant challenge for health care workers but is an outstanding opportunity to develop best practices in the world of safe patient handling and mobility (SPHM) across all settings. Bariatric care needs are destined to increase across all health care organizations and it behooves us to be proactive in Bariatric SPHM Program development by including these key elements.

This guidebook is a follow up to the first one developed by the Veterans Integrated Service Network (VISN) 8 Patient Safety Center of Inquiry in 2006. The authors and contributors discussed numerous components to care that is currently provided but also care anticipated over the next 10 years. The focus was on organizational program development; patient and staff education and training; staff competency; and planning and delivery of bariatric care across the continuum of health care settings. We provided several templates that may be customized by organizations to meet their specific needs, bariatric resources for equipment technology, as well as relevant literature on this topic (refer to Chapter 9 for additional helpful links and a bibliography of available literature). The authors believe in the interdisciplinary approach to support and maintain bariatric care delivery by including specialists in facility design and engineering, multi-professional health care providers, support staff, community support systems, and equipment technology design partnerships that provide a powerful base for finding care solutions.

Many of our authors and contributors come with a variety of personal experiences in bariatric care and wish to share this passion of excellence with all those who value our special population of size. In no way have the authors exhausted the topic, including pediatric, pregnancy, mental health, and specialty procedures for this population in this guidebook. There is also a growing body of knowledge related to supporting secondary patient benefits of safe patient handling and mobility, which includes benefits related to fall prevention, pressure ulcers, incontinence, hospital-acquired pneumonia, functional improvements, reduction in length of stay, readmissions, and other related topics. This guidebook provides a body of knowledge for health care providers to facilitate an ongoing discussion regarding excellent bariatric care.

The following are considerations for our readers and leaders to explore further as we continue our journey not only to reduce the incidence of obesity but to care for those who live with these day-to-day challenges:

1. Pursue evidence-based practice for secondary patient benefits, including skin integrity, falls, hospital-acquired pneumonia, incontinence, patient satisfaction, functional improvement and independence, length of stay, mental health benefits, and many undiscovered benefits for the obese patients that experience many co-morbid conditions.

2. Begin to quantify bariatric SPHM benefits utilizing return-on-investment strategies that target staff and patient outcomes over short term and long term periods of time across multiple settings.

3. Facilitate a change to the culture of safety so that caregivers and health care organizations (and patients) view and utilize bariatric SPHM equipment just as they view and utilize personal and patient protective devices, such as wearing gloves, masks, and gowns for infection control.

4. Empower our patients with the ability to insist on safe use of SPHM equipment as a first line to handling and mobility for all bariatric patients.

5. Partner with knowledgeable architects and engineers to think outside of the box and challenge them to find cost-effective, intuitive, and multi-purpose functions for space and SPHM technology design.

6. Challenge schools of nursing, physical therapy, and other direct care providers to *end* manual handling of all patients as part of their training requirements by utilizing bariatric simulation laboratories that will preserve our future health care workers for a long-lasting, safe, and meaningful career.

7. Facilitate SPHM into national legislation, inspection, and accreditation bodies to support bariatric care standards and elements into practice.

8. Workplace safety is inextricably linked to patient safety. Unless caregivers are given the protection, respect, and support they need, they are more likely to make errors, fail to follow safe practices, and not work well in teams [National Patient Safety Foundation (NPSF), 2014].

We still have a long way to go as leaders in SPHM bariatric care. This guidebook is designed to serve as a resource to caregivers as they embark on the journey toward safer patient handling and mobility. Readers are encouraged to seek new and emerging science as a way to continue the journey toward further improving patient care and promoting caregiver safety, irrespective of patient size. Please join us as we press forward to break down barriers to safe and dignified care and build bridges of compassion, respect, and excellence. This will ensure the next generations of bariatric patients and health care providers have a bright and meaningful future.

Definitions and Glossary of Terms

Air-assisted lateral transfer device: A patient transfer mattress that utilizes the force of air to decrease friction and result in ease in movement of patients (in a supine position) from one flat surface to another. It also decreases shear forces on the skin of patients during these lateral transfers.

Figure 8-1: Air Assisted Lateral Transfer Device
Photo courtesy of Alpha Modalities, LLC

Ambulate: To walk or move about from place to place with or without assistance.

Figure 8-2: Ambulation with a Portable Lift
Photo courtesy of Alpha Modalities, LLC

Bariatric patient: A person whose body weight or body weight distribution or size interferes with the ability to provide reasonable care. Persons overweight by greater than 100 pounds or with a body weight greater than 300 pounds, or, more commonly, with a body mass index (BMI) greater than 40.

Bariatric shapes (weight distribution)

Apple shaped: Refers to central obesity where excessive adipose tissue is located in the viscera or abdominal area.

Pear shaped: Excessive adipose tissue is primarily located 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 percent of obese individuals have pear-shaped body types (Andrade 2004).

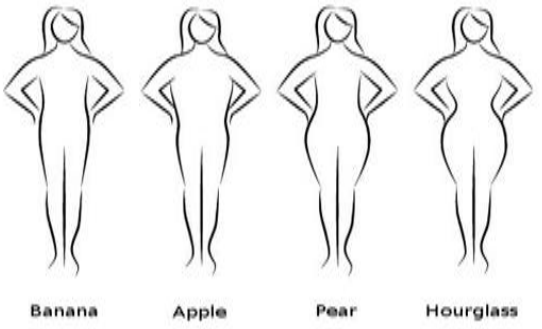


Figure 8-3: Examples of Bariatric Shapes

Bariatric algorithms: A flow chart/decision tree that asks specific questions on bariatric patient characteristics and guides the caregiver to determine the technology of choice, number of required caregivers, and level of patient assistance for the proposed patient movement/task.

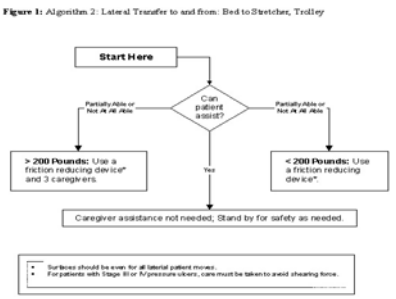


Figure 8-4: Bariatric Algorithm

Bariatric ambulance: A specialized ambulance that has characteristics including wider wheelbase, heavy duty suspension and air shocks, outfitted with size-appropriate resuscitation technology. The bariatric ambulance best serves safety needs when the following are included: winch system and motorized pulleys for lifting assistance, specialized ramps or hydraulic lifts for loading, provisions for semi-Fowlers patient positioning, and extra width to provide working room around the patient.

Figure 8-5: Bariatric Ambulance Power Load Systems
Photo courtesy of Stryker Medical

Biomechanics: Applied science based on the laws of physics and engineering to define and describe movement of the body and the forces that act upon the musculoskeletal system.

Bedframe: Frame of a bed that has additional functions other than just support. Some frames are able to assist in bariatric SPHM tasks, such as lateral rotation therapy, transportation, percussion, bringing patients to sitting positions, etc.

Figure 8-6: Bedframe with Additional Functions
Photo courtesy of Stryker Medical

Body Mass Index (BMI): The most common and recognized method to predict morbidity and mortality based on a numeric value reached by dividing the person's weight by meters squared. Preferred use is in clinical determinations as opposed to use as patient handling criteria.

Table 8-1: BMI Classifications

BMI Classification	Underweight	Normal weight	Overweight	Obese	Morbid Obesity
	Less than 18.5	18.5 – 24.9	25 – 29.9	30 – 39.9	Greater than 40

BMI Calculator:
http://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm.

Bulbous Gluteal/Bulbous Gluteal Region: Excessive buttock tissues that create a protruding shelf. An adjustable seat depth or curved/cut out section in the backrest allows the gluteal shelf room, yet is still supportive for the mid/upper back.

Car Extractor Lift: A lift used to get patients in and out of their cars. There are many options available that vary in size, complexity, and weight capacity. Lifts may be portable or ceiling mounted.

Figure 8-7: Car Extractor Lifts
Photos courtesy of MedCare Products (left) and Alpha Modalities, LLC (right)

Caregiver: For purposes of this document, caregiver is the term used for health care worker, provider, worker, and refers to any licensed or unlicensed person who provides direct patient care, including the moving and handling of patients. Caregivers who comprise the patient care team represent a variety of clinical disciplines and educational levels and may work in long-term care, acute care, home-based care, dental, radiology/diagnostics, therapies, and any other patient care areas.

Ceiling or overhead sling lift: Lifting equipment designed for patients who require moderate to maximum/extensive assistance. With this type of lift, the motor that lifts the patient is attached to a track or rail suspended from the ceiling or attached to the wall. The motor functions to raise or lower the patient. Some ceiling lifts move the patient horizontally, or room to room. Lifts require sling attachments that provide specific support or movement for a variety of patient handling tasks.

Figure 8-8: Overhead Lift Options: Ceiling Lift with Curved Track and Portable Overhead Gantry
Photos courtesy of MedCare Products

Example: Ceiling lift goes over bed through bathroom door over toilet, in shower and back to bed in one single move.

Figure 8-9: Ceiling Lift
Photos courtesy of Loma Linda Department of Veterans Affairs (VA) Health Care System (HCS)

Change agent: A person within an organization who facilitates a desired change in the organization, such as use of new processes and/or technology, by utilizing change strategies and a systematic planning process.

Client: A recipient of health care; a consumer of health care services.

Cost-benefit analysis: A method of reaching a fiscal decision by comparing cost versus financial benefit of introducing a change, such as purchasing patient handling technology or offering unit-based training. A cost-benefit analysis should also include the cost-benefit of making no change.

Culture of safety: In the world of SPHM, a culture of safety is considered the collective belief of those within a work environment that safety is a shared responsibility, an overriding priority, and is integral to providing a safe environment of care for themselves, co-workers, and patients/residents.

Cumulative trauma disorder: The outcome of repeated damage, or an accumulation of damage over time, to a specific area of the musculoskeletal system. This damage includes micro-injuries, such as micro-tears to the muscles and micro-fractures to the vertebral endplates of the spine. If uncontrolled, such micro-injuries result in more significant injuries that often appear to be acute.

Ergonomics: The scientific study of the relationship between work being performed, the physical environment where the work is performed, the unique characteristics of the individual performing the work, and the tools used to help perform the work. The goal of ergonomics is to provide a workplace that is designed to ensure the biomechanical, physiological, and psychosocial limits of people are not exceeded, thus, risk of musculoskeletal injuries is diminished.

Ergonomic shower chair: A powered commode/shower chair that is height and longitudinally adjustable that places a patient in the best position for ease in personal care.

Expanded/Extended capacity: Devices, equipment, supplies, furniture, and technology designed to accommodate a patient whose weight or weight distribution or size interferes with use of standard sized tools.

Facility champions/coordinators: Staff members with expertise in SPHM techniques and knowledge of patient handling technology and other programmatic

elements. They manage facility SPHM Programs, track/trend injury data, and act as facility and staff leaders and champions of their facility SPHM Program.

Facility Safe Patient Handling Team/Committee: An interprofessional team comprised of clinical staff members, facilities management staff, infection control staff, union representative, safety, and others responsible for assisting in implementing and sustaining the SPHM Program.

Floor-based sling lift: Lifting equipment used for patients who are dependent, or who require moderate/maximum or extensive assistance. This style of lift has a wheeled base that rolls on the floor and can be moved from room to room or area to area. The lift motor functions to raise or lower the patient, but caregivers must manually push the lift and patient to the desired location.

Figure 8-10: Floor-Based Sling Lifts
Photos courtesy of MedCare Products

Friction: The resistance to motion between two materials in contact (e.g., bed sheet and skin tissue).

Friction reducing device: Devices made of slippery materials designed to reduce friction during sliding movements. This technology creates a safer environment to move or reposition a patient and for sling placement.

Figure 8-11: Friction Reducing Devices
Photos courtesy of Patran/Jamar Health Products, Inc.

Gantry lift: Lifting equipment used for patients who are dependent or who require moderate to maximum/extensive assistance. This type of lift is placed over the bed of a patient and functions similar to an overhead/ceiling lift.

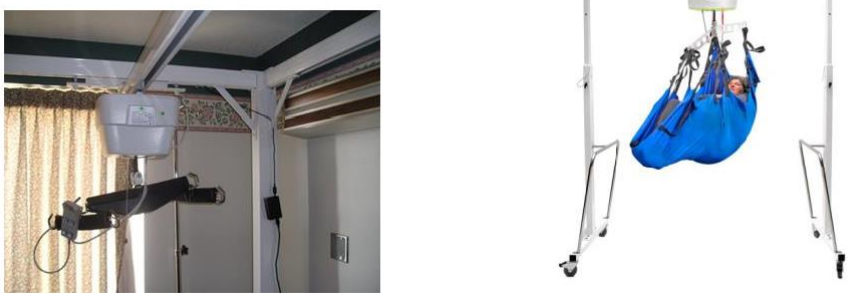


Figure 8-12: Gantry Lifts
Photos courtesy of MedCare Products

High risk patient handling tasks: Patient handling tasks that have a high risk of musculoskeletal injury for staff members performing the tasks. These include, but are not limited to, transferring tasks, lifting tasks, ambulation, rehabilitation therapy, repositioning tasks, bathing patients in bed, making occupied beds, ambulating patients, dressing patients, turning patients in bed, tasks with long durations, standing for long periods of time, bariatric, and other patient handling tasks. Activities that require lifting 35 pounds or more of patient weight are high risk. All patient handling, movement, and mobility tasks involving bariatric patients are considered high risk. See Enclosure 2-7, Attachment A, for a list of high-risk tasks and prohibited procedures.

Incident: An unplanned and adverse event resulting in, or having a potential for injury, ill health, damage, or other loss.

Infection control: Methods that decrease the risk or prevent the invasion and multiplication of microorganisms in body tissues or that decrease the risk of the release of microbiological materials into the environment.

Ladder device: Device that attaches to a fixed surface and assists with sitting, standing, and/or raising legs.


Figure 8-13: Ladder Aids Assisting from Supine to Sit
Photos courtesy of MedCare Products

Lateral transfer device: A device designed to assist in the horizontal movement from one flat surface to another in a supine position, for example, from a bed to a stretcher.


Figure 8-14: Lateral Transfer Device
Photos courtesy of Alpha Modalities, LLC and HumanFit, LLC

Lifting technology: Mechanical equipment or devices used to assist caregivers in performing patient handling tasks, including lifting, transferring, wound care, ambulation, catheterization, and others. There are at least two major categories: powered or non-powered, and total body lifts or sit-to-stand lifts. Lifting technology is further broken down to overhead/ceiling, gantry, and floor-based lifts. Another less common category is air-assisted lifting devices.

Figure 8-15: Air Assisted Lifting Device
Photo courtesy of Minneapolis VA Health Care System

Lift/mobility team: Specially trained teams of two or more whose responsibility is to move and handle patients throughout the facility. This model includes: the

patient, SPHM equipment, caregiver, and specially trained mobility coach who is the technology and technique expert, serves as a resource, and offers training.

Manual patient handling: Unsafe lifting, transferring, repositioning, or moving patients without mechanical assistance.

Mechanical lateral transfer devices: Specially designed technology that is powered by an electric motor or manual crank. The device attaches to a draw sheet or something similar and moves the patient from one horizontal surface to another.

Mobilize: Moving the patient either with assistance or independently with the aim of preventing immobility-related consequences of care.

Morbid obesity: Having a BMI greater than 40.

Musculoskeletal Disorder (MSD)/Musculoskeletal Injury (MSI): An injury to or disorder of the musculoskeletal system, including muscles, bones, joints, tendons, ligaments, nerves, cartilage, and spine. Most work-related MSDs are cumulative and develop over time.

National Institute for Occupational Safety and Health (NIOSH): Federal agency established to ensure safe and healthful work environments by conducting research and providing information, education, and training in occupational safety and health: http://www.cdc.gov/niosh/topics/safepatient/.

Obesity: A condition characterized by an excessive amount of body fat that presents a risk to a person's health; a person having a BMI of 30-39.9.

Panniculus or Pannus: A panniculus, or pannus, is also referred to as an abdominal apron. This weight distribution manifests as excess skin and tissue at the bottom of the abdomen. A large abdominal panniculus can have SPHM, circulatory, pain, skin, center of gravity, respiratory, and falls implications.

Figure 8-16: Panniculus (Pannus) Sling
Photo courtesy of Alpha Modalities, LLC

Patient: A health care recipient; also referred to as a client or resident.

Patient care ergonomic evaluation: Use of ergonomic principles to evaluate the ergonomic hazards in a patient care environment in order to generate recommendations for control measures, usually patient handling equipment, but

also programmatic recommendations, such as institution of an SPHM Program or Bariatric Program. Recommendations also include standard operating procedures for maintenance/repair, storage, etc.

Patient handling and movement assessment (**PHAMA):** Structured guidance to direct and assist the design team in incorporating appropriate patient handling and mobility technology into the health care environment. There are two phases (Phase 1: Patient Handling and Movement Needs Assessment and Phase 2: Design Considerations). Both bariatric and non-bariatric patient care is addressed in a PHAMA.

Patient handling aids: Specially designed, non-powered technology used to assist in the transfer or mobilization process. Examples include non-powered stand assist aids, sliding board, and friction-reducing devices.

Person of size: A description of a person who is larger in size by height, weight, body width, and/or body proportions.

Powered Toilet Lift: A commode that can be used either bedside, over a toilet, or attached to a toilet with the added benefit of assisting the patient to standing. Available in standard and bariatric sizes.

Figure 8-17: Powered Lift Seat Commode
Photo courtesy of LiftSeat Corporation, Inc.

Prone: A position in which the body is lying face down. It is the preferred position from a respiratory perspective, especially in the presence of a large abdominal pannus that could interfere with breathing. The challenge to SPHM is the process to move the patient onto his abdomen without injury to the patient or caregiver.

Repositioning aids: Specially designed technology that provides assistance in positioning, turning, or moving patients up toward the head of the bed and upright in chairs.

Figure 8-18: Repositioning Aid
Photo courtesy of Alpha Modalities, LLC and HumanFit, LLC

Repositioning/Positioning: Adjusting a patient's position in bed or chair to prevent pressure ulcers, promote comfort, accommodate physiological functioning, or rise to eye level to facilitate communication.

Resident: A health care recipient in a long-term/residential care facility.

Risk assessment: The overall process of risk identification, risk analysis, and risk evaluation, i.e., estimating the magnitude of risk and deciding what actions to take.

Safe patient handling and mobility (SPHM): Evidenced-based principles and techniques for safely handling, moving, and mobilizing patients in clinical situations.

Safety Huddle/After Action Review (AAR): An SPHM Program element that is a powerful method to share knowledge between staff members. This approach incorporates the interprofessional team into the problem-solving process. Safety huddles are held as a result of an injury incident, near-miss/close-call incident, or a safety concern to decrease the chance of the recurrence.

Sit-to-stand lift: Specially designed technology using a powered or non-powered lift that raises and lowers a patient from a seated position. In order for this to work properly, the patient must have some upper body strength, cognitive ability, weight-bearing capability, and the ability to grasp with at least one hand.

Figure 8-19: Sit-to-Stand Lifts
Photos courtesy of Alpha Modalities, LLC (left) and MedCare Products (right)

Skin folds: A source of intertriginous dermatitis where excess skin overlaps over body parts or has constant skin-to-skin contact that can make it difficult to maintain hygiene, control odor, or facilitate mobility.

Sling: Specially designed technology comprised of fabric used with mechanical lifts to temporarily lift or suspend a patient or body part to perform a patient handling task. Sling styles include seated, standing, ambulation, repositioning, turning, pannus holder, limb support/strap, supine, toileting, bathing, and others.

Figure 8-20: Slings
Photos courtesy of Alpha Modalities, LLC and HumanFit, LLC

SPHM or Minimal-Lift Policy: A written policy that prohibits unsafe manual lifting, movement, or handling by outlining and committing to a comprehensive SPHM Program.

SPHM Program: An evidence-based approach to reducing ergonomic risk from patient handling activities for caregivers and patients. These programs also result in improved clinical outcomes and mobilization for patients. Such a program includes support structures and change management strategies that facilitate use of patient handling technology and foster a culture of safety in the patient care environment.

Supine: A position in which the body is lying face up. Lying on the back with the face upward is the most challenging position for obese patients who carry their weight in the abdominal area because their weight displaces into the thoracic cavity. Semi-Fowlers positioning promotes the greatest air exchange for the obese patient in the supine position.

Technology: The term adopted by the American Nurses Association (ANA) in the 2013 SPHM Interprofessional National Standards to describe equipment, devices, aids, and resources designed as an alternative to manual handling.

Transfer: The movement of a patient from one place to another, for instance, from a wheelchair to a toilet (vertical transfer) or from a bed to a stretcher (lateral transfer).

Transfer chair: Specially designed technology that converts from a chair into a stretcher and back. In the stretcher position, the device facilitates lateral transfers.

Transport assistive device: Usually battery-powered devices used to assist caregivers in moving patients from one location to another. The device attaches

onto handles of wheelchairs and/or beds and the caregiver simply guides the direction of the bed or wheelchair.

Transport technology: Equipment, devices, and technology designed specifically to transport a patient from one location to another, such as wheelchairs, gurneys, vehicles. For optimal patient handling, optional power drive may be available.

Figure 8-21: Stretcher
Photo courtesy of Stryker Medical

Unit Peer Leaders (UPLs): Staff members from clinical units/areas where patient handling occurs, including nursing, therapy, radiology, the morgue, and other diagnostic, treatment, and procedure areas. They act as the patient handling and movement unit/area champion and resource person.

Vehicle (Bariatric) Design: Plans and drawings that illustrate the proposed space and accommodation to safely transport bariatric patients and caregivers.

Weight capacity: The amount of weight a support surface (grab bar, hand rail) or piece of equipment (lift) can safely carry based on the manufacturer's recommendations.

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9.1. Helpful Links

American Association of Legal Nurse Consultants: http://www.aalnc.org/

American Medical Association: http://www.ama-assn.org/ama

American Society of Bariatric Physicians: http://www.asbp.org/

American Society for Bariatric Surgery: http://www.ASBS.org/

Arjohuntleigh Guidebook Architects and Planners Functional Design: http://www.arjohuntleighlibrary.com/ExternalLink/ShowFile.aspx?Id=c0448746-7b42-495b-9d6c-a833a90174be

National Association of Bariatric Nurses (NABN): http://www.bariatricnurses.org/

Bariatric Mobility and Rehab – Michael Dionne: http://www.bariatricrehab.com/

United States Department of Labor, Bureau of Labor Statistics: http://www.bls.gov/

Center for Disease Control and Prevention: http://www.cdc.gov/nccdphp/dnpa/obesity

Council on Size and Weight Discrimination: http://www.cswd.org/

Oregon Coalition for Healthcare Ergonomics Bariatrics: http://www.hcergo.org/Bariatrics.htm

Dietary Guidelines for Americans: http://www.health.gov/dietaryguidelines/

Wellness Technology and Coaches: http://www.howtobefit.com/

National Association to Advance Fat Acceptance: http://www.naafaonline.com/dev2/index.html

Practice guidelines for physicians treating overweight and obese adults: http://www.nhlbi.nih.gov/

National Institutes of Health: http://www.nih.gov/

American Nurses Association (ANA) Safe Patient Handling and Movement: http://www.nursingworld.org/handlewithcare

Obesity Society: Research, Education, Action: http://www.obesity.org/

Significant patient resources for bariatric surgery: http://www.obesityhelp.com/

U.S. Department of VA, National Patient Safety Center: http://www.patientsafetycenter.com

Safe Patient Handling and Movement. VISN 8 Patient Safety Center of Inquiry, Tampa: http://www.visn8.va.gov/visn8/patientsafetycenter/safePtHandling/default.asp

Original (2006) Safe Bariatric Patient Handling Toolkit, VISN 8 Patient Safety Center of Inquiry, Tampa: http://www.visn8.va.gov/visn8/patientsafetycenter/safePtHandling/toolkitBariatrics.asp

9.2. Links to SPHM and/or Bariatric Guidebooks

Bariatric Guidelines: Adapted from NHS Grampian Bariatric Protocol. Prepared by NHS Shetland 2009: http://www.shb.scot.nhs.uk/board/

Bariatric Patient Management Policy. Prepared by Sydney South West Area Health Service NSW Health 2008: http://www.sswahs.nsw.gov.au/pdf/policy/pd2008041.pdf.

Bariatric Patients Policy: Management of Bariatric Patients. Prepared by Tameside Hospital NHS Foundation Trust 2009: http://www.tamesidehospital.nhs.uk/

Guidelines for the Care of Bariatric Patients. Prepared by Dartford and Gravesham NHS Trust 2006: http://www.safeliftingportal.com/hottopics/documents/0RAPY8V7X0_Guidelines_on_the_Care_of_Bariatric_Patients.pdf.

Occupational Health & Safety Issues Associated with Management of Bariatric (Severely Obese) Patients. Prepared by Department of Health, New South Wales (NSW) 2005: http://www.nursesreg.health.nsw.gov.au/policies/gl/2005/pdf/GL2005_070.pdf.

Risk assessment and process planning for bariatric patient handling pathways. Prepared by Loughborough University for the Health and Safety Executive 2007: http://www.hse.gov.uk/research/rrpdf/rr573.pdf.

Safe Patient Handling Programs: A Best Practices Guide for Washington Hospitals. Prepared by Washington Safe Patient Handling Steering Committee University of Washington Northwest Center for Occupational Health and Safety 2006: http://washingtonsafepatienthandling.org/images/best_practices/SPH_BPGuide_v2(ES)_FINAL%205.6.2011.pdf.

The Guide to Handling of People: A Systems Approach. 6th Edition (includes Chapter 12, People Handling for Bariatrics, A Systems Approach). Published by Backcare: http://www.hop6.org/.

The New Zealand Patient Handling Guidelines (includes Section 14, Bariatric Clients): http://www.acc.co.nz/PRD_EXT_CSMP/idcplg?IdcService=GET_FILE&dID=3833&dDocName=PI00212&allowInterrupt=1.

Enclosures

Enclosures can only be printed by accessing links online.

1-1 BMI Tables

2-1 Bariatric Equipment Safety Checklist

2-2 Facility Bariatric Equipment Inventory

2-3 Bariatric Technology Resource Guide

2-4 Safe Patient Handling (SPH) - Equipment Purchasing Checklist

2-5 Bariatric Expanded Capacity Cart

2-6 Sample Bariatric Equipment Request Form

2-7 Sample Bariatric Safe Patient Handling and Mobility (SPHM) Policy

3-1 Bariatric Admitting Team List

3-2 Bariatric Clinical Pathway

3-3 Bariatric Room and Environment Preparation

4-1 Veterans Health Administration (VHA) Safe Patient Handling and Movement Evaluation Tool

4-2 Veterans Health Administration (VHA) Safe Patient Handling and Mobility (SPHM) Algorithms

4-3 Comorbidities Associated with Bariatric Patients

4-4 Bariatric Handoff Communication Tool

4-5 Home Care Safe Patient Handling and Mobility (SPHM) Checklist for Bariatric Patients

5-1 Understanding the Special Needs of the Bariatric Population: Design, Innovation, and Respect

5-2 Sample PowerPoint Presentation: Safe Handling and the Patient of Size

5-3 Competency Template

5-4 Sample Bariatric Patient Education Brochure

6-1 Brief Summary - Space and Facility Design Considerations

6-2 Bariatric Safe Patient Handling and Mobility (SPHM) Program Key Performance Metrics


EOSH