

## Preventing EMS Injury Associated with Bariatric Transport

The increasing rate of obesity (34% of adults in 2004) poses a challenge for emergency medical personnel. Emergency medical services may need to provide transfer and care for patients weighing more than 500 pounds. Mobilizing the appropriate equipment and personnel through dispatch, utilizing special techniques and protocols and maintaining patient dignity are necessary to provide safe, quality prehospital service to individuals in our communities.

### Personnel

Planning is essential. Many times there is only one bariatric transferring device, stretcher or ambulance in a region. It is important to know who has the equipment and how long it will take to have it delivered. To respond to the needs of injured or ill obese patients and prevent injury to EMS personnel, an adequate number of EMS and fire rescue staff must be available to extricate and/or move patients. *Involve the patient.* They may be able to provide suggestions for transfer. If possible, let the patient assist with transfer.

### Appropriate Type and Size of Equipment and Weight Limits

Use the correct size blood pressure cuffs, cervical collars, intravenous catheters and back boards. Be aware of equipment weight limits. Many

stretchers have higher weight limits in the lowest position.

### Transferring and Transporting Devices

A variety of transferring devices are now available to move the patient from the floor, bed or cot to the transport stretcher.

- The *HoverTech HoverJack* is an air patient lift for moving the patient from the floor to a bed or stretcher through a series of inflatable cushions. The device lifts the patient to the proper height.
- The *HoverMatt* by HoverTech is an air patient lateral transfer and positioning device. It has no weight restrictions and has handles sewn on the mattress and around the perimeter for easier transfer.
- The *Fresno Manta Rescue Aid/Transfer Sheet* can be used to transfer patients up to 800 pounds. It is compact, fire retardant and lightweight with holes at each end to allow water to drain and pockets at both ends to hold the patients head, feet and backboard.
- The *Stryker Transfer-Flat* and *Graham Mega Mover Plus Handling & Transport* are compact transfer devices for moving patients to stretchers or other transfer devices. They have maximum weight limits of 1600 and 1500 pounds respectively.

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### Large Body Surface Boards and Bariatric Wheelchairs and Stretchers

Bariatric stretchers provide wider frames and mattresses, oversized wheels, winch attachments, and push-pull handles for safer transport. Heavy-duty bariatric wheelchairs provide an option for transporting obese patients.

- The *Ferno LBS and LBS Jr. Bariatric Boards* mount on Ferno stretchers which hold 700 pounds in the raised position to 1000 pounds in the lowest positions and include 5 extension spots to secure the patient.
- The *Stryker MX-Pro Bariatric Transport* holds 850 pounds raised and 1600 pounds in its lowest position. It includes a towing package and rigid handles.
- If the patient is in a bariatric wheelchair, metro systems with wheelchair lifts can be relatively quickly mobilized to aid in transport.

### Bariatric Ambulances

Bariatric ambulances and care units are designed with the obese patient's needs and EMS personnel safety in mind.

- The ambulances generally have a wider wheel base, heavy-duty suspension and air shocks.
- Winch systems and motorized pulleys assist with loading and unloading.
- Specialized ramps that attach to the rear of the ambulances provide a safe method for loading patients. Some ambulances are being fitted with hydraulic lifts. As an alternative for patients who can be placed in a bariatric wheelchair, metro handicapped buses can be used.
- The specialized ambulances provide extra width for improved workspace around patients.

Remember, morbid obesity is a disease. Genetics, physiology, sociocultural, environmental and individual behavior contribute to obesity. Advanced planning to mobilize the appropriate equipment and personnel and education on patient movement strategies are essential for treating and transporting morbidly obese patients effectively, safely and with dignity. Around the country, bariatric special response teams are being formed to provide care and transport for morbidly obese individuals.



*Hoverjack bariatric lifting device.*

# LEVEL ONE

**CASE STUDY**

**SPRING 2009**

## Dealing with Obese Patients

EMS personnel responded to a male patient complaining of difficulty breathing. On arrival, they were directed to a bedroom where they found the patient lying on the bed with several pillows under his head and upper torso. Initial assessment showed:

- Pulse of 130, regular
- Respirations 26; shallow, non-labored
- Oxygen saturation 97% room air.

Blood pressure couldn't be assessed because of the patient's size. Upon questioning, the patient said his weight was approximately 770 pounds.

Health care personnel are increasingly called upon to deal with overweight people. An entire branch of medicine, bariatrics, is dedicated to dealing with the causes, prevention and treatment of obesity. Obesity affects patients as well as health care providers.

**Definition:** Traditional height-weight charts are being used less frequently than a newer formula called body

Adult table of Body Mass Index	
BMI of	Is considered
< 18.5	Underweight
18.5-24.9	Healthy weight
24.9-29.9	Overweight
>30	Obese

mass index (BMI). BMI measures body fat.

BMI is calculated by taking a person's weight in kilograms and dividing by height in meters squared. A BMI calculator can be found at [www.cdc.gov/nccdphp/dnpa/obesity/defining.htm](http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm).

**Prevalence:** The Centers for Disease Control (CDC) began monitoring the prevalence of obesity in 1985 by using a Behavioral Risk Factor Surveillance System (BRFSS). It involves monthly telephone interviews conducted by state health departments. Of states participating in 1990, 10 states had a prevalence of obesity less than 10% and no state had a prevalence of obesity greater than 15%. By 2007 only one state (Colorado) had a prevalence of obesity less than 20%; 30 states had a prevalence of obesity greater than or equal to 25%, and three states (Alabama, Mississippi and Tennessee) had a prevalence of obesity greater than or equal to 30%. In 2007, the prevalence of obesity in Wisconsin was 24.7%.

**Causes of obesity:** A person's body weight is the result of several factors—genetics, behavior, environment, culture and socioeconomic status. In addition, some disease states or medications may be factors in obesity. The most controllable factors in weight

gain are behavior and environment. Being overweight or obese is the result of an energy imbalance. If a person consumes more calories than he or she expends, weight gain will occur.

**Health issues:** Obesity can lead to other medical problems. These include:

- Hypertension
- Osteoarthritis
- Type 2 diabetes
- Coronary artery disease
- Stroke
- Sleep apnea
- Respiratory problems

**Concerns for health care workers:**

Overweight patients present difficulties for health care providers in all areas. Pre-hospital workers must know the weight limits of their equipment. This includes long boards, cots and stair chairs, as well as the ambulance itself. Specially designed bariatric ambulances are now being manufactured. They include design features such as a heavy duty chassis, ramps for access and a wider interior. If the ambulance is not able to accommodate the weight of the patient and crew, an alternate mode of transportation to the hospital should be considered. Another concern of all providers is the moving of patients. Many obese patients face mobility problems. Walking, use of stairs and climbing into an ambulance

may not be options. Adequate personnel must be on scene to limit the risk of injury to patients and staff. Proper body mechanics while lifting cannot be over emphasized. Specially designed air mattresses are available to assist in moving the patient. **See Prevention Post, page 4, for transport solutions.**

**Case conclusion:** On scene time to arrival at the hospital was 1.5 hours as EMS and fire personnel brainstormed several ideas for transporting the patient. The 911 center was asked to find a bariatric ambulance. One was not available. The local bus service was contacted and provided a full-size bus. However, it was determined the door was not wide enough for the patient. The bus company was able to locate a paratransit bus with a hydraulic lift. The receiving hospital was alerted early so a properly sized bed could be obtained. The patient was able to walk only into the living room and then out the front door. He was then lowered onto a tarp and dragged to the paratransit bus. Vitals were reassessed en route with no significant changes.

Dealing with overweight patients can tax the problem-solving abilities of health care providers. Knowing one's resources and planning ahead can alleviate some of the obstacles involved.

### OBESITY BIAS

Obese children and adults face weight bias and discrimination every day in every aspect of their lives including health care. The Centers for Disease Control says 5% of the 93 million overweight Americans are morbidly obese, defined as 100 pounds over ideal weights or a body mass index (BMI) of 40 or higher.

Surveys of health care professionals reveal continued and persistent bias against the obese. The surveys show physicians feel that people who are obese are noncompliant, weak and lack self control; 63% of nurses agreed obesity can be prevented by self-control; and noncompliance is thought to be the most likely reason for an obese patient's inability to lose weight. The frustration that clinicians feel when trying to help patients lose weight may contribute to this bias. Rather than acknowledging the limited effectiveness of current weight loss treatments, health care professionals tend to blame their patients for non-compliance and lack of self-discipline.

*Bias can be communicated in a roll of the eyes, a reference to the 'jumbo' or 'big-boy' piece of equipment, inappropriately sized medical equipment or the tone in the voice when calling for back-up.*

### WEIGHS HEAVILY FOR EMS

People's perceptions about causes of a person's weight are at the root of obesity bias. It is important to understand that there are many complex causes. They can be genetic, metabolic, hormonal, psychological, physiological, environmental, cultural or a variety of other factors.

Persistent discrimination may actually backfire on health care professionals. An overweight person may not seek care because of the fear of bias and humiliation. It's not uncommon for obese people, who have not gotten follow up medical care for chronic conditions, to call EMS when there is an emergency or trauma. First responders must take into consideration that they are dealing with more than just a trauma patient

but also a patient with unmanaged and evolving medical issues.

Weight discrimination can be subtle or overt. Bias can be communicated in a roll of the eyes, a reference to the 'jumbo' or 'big-boy' piece of equipment, inappropriately sized medical equipment or the tone in the voice when calling for back-up.

There are a variety of ways to be more sensitive to obesity discrimination:

- Respect the individual and their privacy
- Treat them with dignity and compassion
- Avoid remarks or derogatory terms about size of equipment
- Ask the patient how to make the transport easier for them
- Plan ahead and communicate the plan to your team and patient when possible

Addressing and anticipating issues for morbidly obese patients, including patient movement strategies, will increase safety for you and the patient.

### RTAC REPORT

#### SCRTAC Trauma Education Program

The South Central Regional Trauma Advisory Council (SCRTAC) EMS staff is traveling throughout our region presenting the 2008-2009 SCRTAC Trauma Education Program (TEP). This interactive session addresses many of the trauma care challenges that our prehospital and ED providers may encounter on any given day:

- Managing the Multi-Victim Incident
- Trauma Patient Assessment
- Airway Management
- Traumatic Head Injuries
- Hypovolemic Shock
- Triage and Transport Considerations

Our goal is for each prehospital provider to be invited to at least one of these sessions over the next 6 months. Hospitals of the SCRTAC have hosted several of these programs, and we hope this will continue into 2009. If your hospital, EMS agency, fire department and/or county EMS association would like to host a SCRTAC TEP, please contact the SCRTAC EMS Coordinator, Dan Williams; [dan@scrtac.org](mailto:dan@scrtac.org)

### ED UPDATE

#### Help Us Help Your Patient

Please help us ensure continuity of care for the patients you transport to UW Hospital and Clinics (UWHC) or who eventually receive care at UWHC.

**After transporting a patient to UWHC:** Before you leave the emergency department, please leave your completed run report with the charge nurse. This ensures that the report is scanned in the patient's chart and assists with continuation

of care. We understand that there are times when reports are completed back at the station. If this is the case, please fax the report to the UWHC emergency department at **(608) 262-9999**.

**If you are transporting a patient to your area hospital,** but are aware that the patient will be transferred to UWHC, please fax the report to the UWHC emergency department: **(608) 262-9999**.



## UW MED FLIGHT LANDING ZONE (LZ) SAFETY

**CONTACT MED FLIGHT**  
800-472-0111

**Provide:** Name of requestor, call back number, nature of incident, number of patients (if known), LZ location (town, intersection, landmarks, lat/long), radio frequency of LZ Commander.

**LZ Commander:** Should be familiar with area and have good communication skills. Once the landing zone is established, He/she is responsible for the LZ. He/she will control entry to LZ and should make him/herself known to the pilot after landing.

**LZ Selection, Protection, and Monitoring:** 100 ft x 100 ft, flat, hard surface preferred. Avoid tall grass/crops, mud and loose surfaces (sand, dirt, snow). LZ must be free of obstacles (fences, traffic signs/markers, debris and loose objects). Identify all hazards and obstacles in the vicinity and communicate those hazards to the pilot upon establishing radio contact. Keep all personnel and vehicles out of the LZ from the approach of the aircraft until the aircraft has departed.

**No smoking or open flame within 50 ft of the aircraft.**

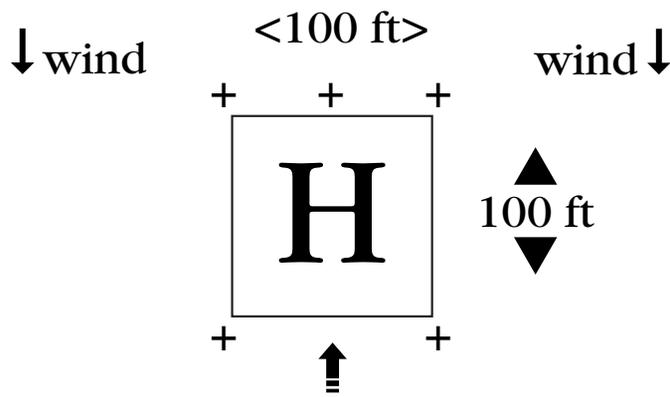
**The pilot may decide that the LZ is unsuitable due to hazards seen from the air or other concerns.**

### LZ Marking & Lighting:

**Day:** Use cones or other markers to designate the perimeter of the LZ to the pilot overhead. Keep open flame, flares and smoke generators 50 ft from the aircraft. **Do not use flares if dry grass or other fire hazards are present.** If flares are used, be prepared to extinguish all flame when aircraft has landed.

**Night:** Use LZ marker lights, strobes or vehicle headlights. Do not use high beams. Avoid bright lights which may interfere with the pilot's night vision.

**Aircraft Approach Path: into wind**



**Communication:** Inform the pilot when you see or hear the aircraft approaching. Identify hazards. Describe LZ and any landmarks. **DO NOT USE HAND SIGNALS.** If you cannot communicate directly with the pilot, contact your Comm Center or Med Flight Comm Center at (608) 263-3258 to set up a phone relay.

### Med Flight Radio

**Frequencies:** Mark II (151.280 tone 136.5), WI State EMS (155.340 no tone) or VHF 123.05

### Approaching The Aircraft:

**DO NOT APPROACH THE AIRCRAFT.** Only Med Flight personnel may direct personnel or vehicles to approach the aircraft. Keep all vehicles, including emergency vehicles, 50 ft from aircraft. Upon landing, Med Flight crew will deplane and come to you. Do not bring the patient to the aircraft until directed by Med Flight personnel.

**NEVER APPROACH THE REAR OF THE AIRCRAFT.**

### CRITERIA FOR AIR MEDICAL TRANSPORT

- Prolonged extrication
- Severity of injury requiring critical care intervention
- Vehicular intrusion
- Ejection
- Unrestrained occupant, rollover
- Motorcycle accident
- Significant vehicle damage
- Fall from greater than 15 ft
- Penetrating injury to head, neck, torso
- Amputation or near amputation
- Scalping or de-gloving injury
- Severe blood loss
- Hypotension
- Severe burns, especially to face/airway involvement
- GCS less than 13
- Unstable or potentially unstable airway
- Multisystem trauma
- STEMI
- Access to scene prohibits safe ground transport
- Farm, industrial, PTO, animal attack

## UW HEALTH BARIATRIC SURGERY PROGRAM

Obesity is this country's number one public health crisis affecting millions of people. The disease is complicated, progressive, can be life-threatening and may be caused by a variety of factors.

For some, the struggle with their weight and suffering, the associated health problems and social isolation lead them to consider a surgical solution to weight loss and improved quality of life. The UW Health Bariatric Surgery Program is a regional and state leader in Bariatric Surgery and a strong advocate for the Bariatric patient.

The UW Health Bariatric Surgery Program uses a team approach to address the devastating impact of severe obesity. Our patients work with Surgeons, Nurse Practitioners, Registered Nurses, Dietitians, Health Psychologists, and other essential support staff at a single location, making it easier and more convenient for patients.

With over seven hundred bariatric surgeries performed to date, the UW Health Bariatric Surgery Program has consistently demonstrated outcomes and complication rates better than most available published data. The Program is deemed a Center of Excellence by the American Society for Metabolic & Bariatric Surgery (ASMBS).

Our multidisciplinary team of compassionate and experienced healthcare professionals is dedicated to providing patients the best care possible. For more information go to [uwhealth.org/bariatricsurgery](http://uwhealth.org/bariatricsurgery).



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