# Saint Vincent Grand Rounds 7/8/2011

**Muhammad Asad MD**

**Bariatric and Laparoscopic Surgeon**

## Muhammad Asad MD

Greater Erie Niagara Surgery
Saint Vincent Health Center Erie, PA

| | |
|---|---|
| • 1988 | MBBS King Edward Medical University Lahore |
| • 1989 to 1994 | Residency Pediatric Surgery Mayo Hospital LHR |
| • 1994 | Fellowship Pediatric Surgery (FCPS - PAK) |
| • 2001 | Fellowship Royal college of Surgery (FRCS - UK) |
| • 2002 to 2008 | Residency General Surgery BLHC NY |
| • 2008 | Certification American Board of Surgery |
| • 2009 | Fellowship Minimally Invasive Bariatric Surgery |

## What Is Obesity?

- Obesity is a chronic, life-threatening disease
- Excessive body fat that often results in serious health problems
- Independent risk factor or aggravating agent for approximately 30 health conditions
- Leads to significant medical, psychological, social, physical and economic impacts



## Energy Imbalance

### A Modern Society with Stone Age Genes

- Copious supply of food, low in cost, always available, attractive, tasty, hygienic
- Labor-saving technologies have virtually eliminated the need for physical activity in everyday life - activity is now optional

The Net Result = Increased Caloric Intake
Reduced Energy Expenditure



## Changing Perceptions of the Seriously Overweight

**Past**

- Obesity seen as a weakness or failure of individual
- Diet and exercise were prescribed treatments
- Weight loss surgery viewed as dangerous and extreme

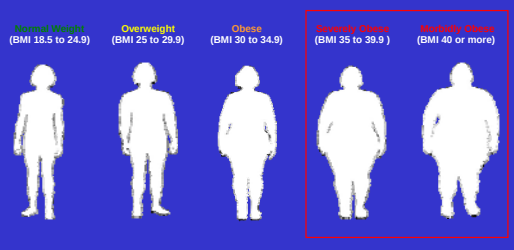
**Present**

- Obesity is considered a disease and the cause of many serious health conditions
- Surgery has gained acceptance as the only proven method to treat this disease



## Who Qualifies for Weight-Loss Surgery?

Clinical Terms Used to Describe Various Levels of Body Fat



# Sizing Up Your Level of Body Fat

**Using the Body Mass Index (BMI)**

- Used to determine if you qualify for surgery
- Measures obesity based on weight and height

| Weight Category | BMI |
|---|---|
| Normal Weight | 18.5 - 24.9 |
| Overweight | 25 - 29.9 |
| Obesity | 30 - 34.9 |
| Severe Obesity | 35 - 39.9 |
| Morbid Obesity | ≥40 |

Height (ft/in)

| Weight (lbs) | 4'9" | 4'10" | 5'1" | 5'3" | 5'5" | 5'7" | 5'9" | 5'11" | 6'1" | 6'3" |
|---|---|---|---|---|---|---|---|---|---|---|
| 154 | 33 | 31 | 29 | 27 | 26 | 24 | 23 | 22 | 20 | 19 |
| 165 | 36 | 33 | 31 | 29 | 28 | 26 | 24 | 23 | 22 | 21 |
| 176 | 38 | 36 | 33 | 31 | 29 | 28 | 26 | 25 | 23 | 22 |
| 187 | 40 | 38 | 35 | 33 | 31 | 29 | 28 | 26 | 25 | 24 |
| 198 | 43 | 40 | 37 | 35 | 33 | 31 | 29 | 28 | 26 | 25 |
| 209 | 45 | 42 | 40 | 37 | 35 | 33 | 31 | 29 | 28 | 26 |
| 220 | 48 | 44 | 42 | 39 | 37 | 35 | 33 | 31 | 29 | 28 |
| 231 | 50 | 47 | 44 | 41 | 39 | 36 | 34 | 32 | 31 | 29 |
| 242 | 52 | 49 | 46 | 43 | 40 | 38 | 36 | 34 | 32 | 30 |
| 254 | 55 | 51 | 48 | 45 | 42 | 40 | 38 | 35 | 34 | 32 |
| 265 | 57 | 53 | 50 | 47 | 44 | 42 | 39 | 37 | 35 | 33 |
| 276 | 59 | 56 | 52 | 49 | 46 | 43 | 41 | 39 | 37 | 35 |
| 287 | 62 | 58 | 54 | 51 | 48 | 45 | 42 | 40 | 38 | 36 |
| 298 | 64 | 60 | 56 | 53 | 50 | 47 | 44 | 42 | 39 | 37 |
| 309 | 67 | 62 | 58 | 55 | 51 | 48 | 46 | 43 | 41 | 39 |
| 320 | 69 | 64 | 60 | 57 | 53 | 50 | 47 | 45 | 42 | 40 |

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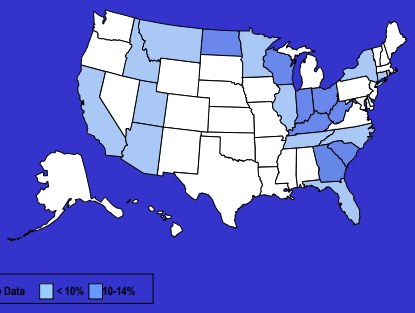
## Obesity Trends* Among U.S. Adults
### BRFSS, 1985
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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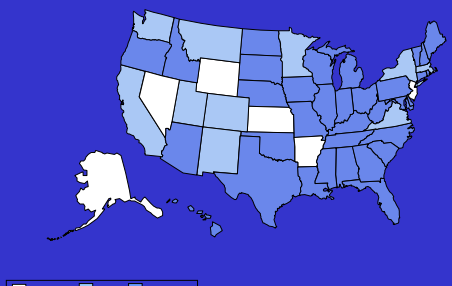
## Obesity Trends* Among U.S. Adults
### BRFSS, 1990
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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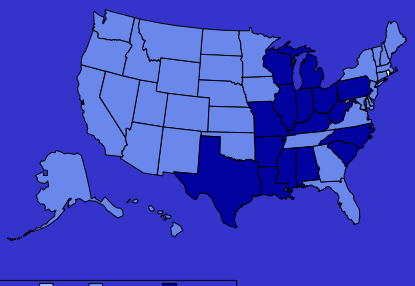
## Obesity Trends* Among U.S. Adults
### BRFSS, 1994
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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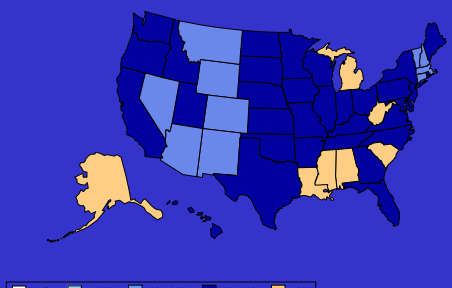
## Obesity Trends* Among U.S. Adults
### BRFSS, 1998
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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## Obesity Trends* Among U.S. Adults
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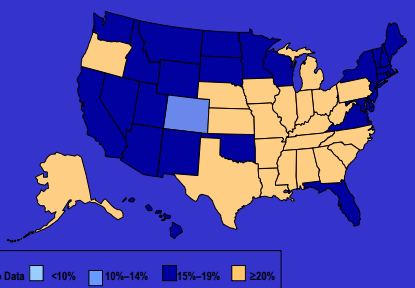
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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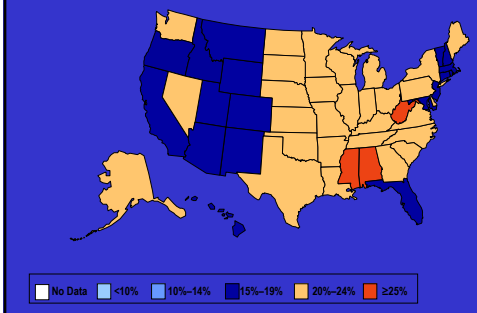
## Obesity Trends* Among U.S. Adults
### BRFSS, 2002
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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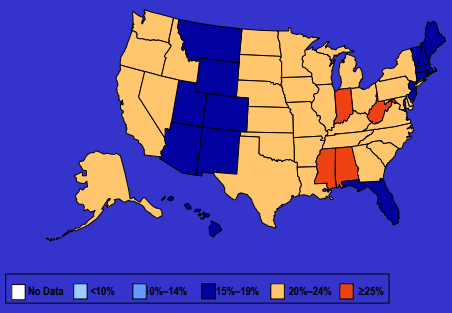
## Obesity Trends* Among U.S. Adults
### BRFSS, 2003
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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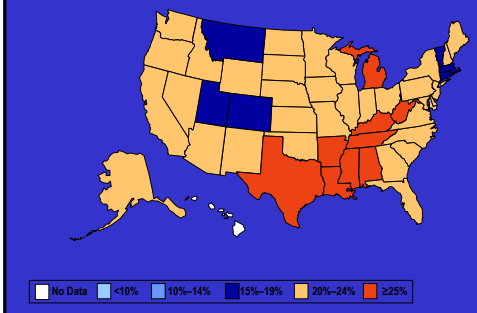
## Obesity Trends* Among U.S. Adults
### BRFSS, 2004
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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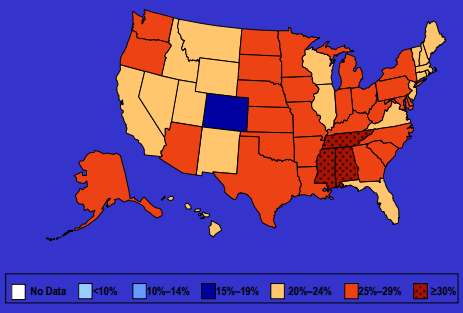
## Obesity Trends* Among U.S. Adults
### BRFSS, 2007
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

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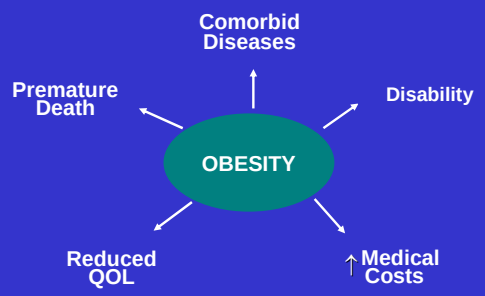
## Impact of Obesity

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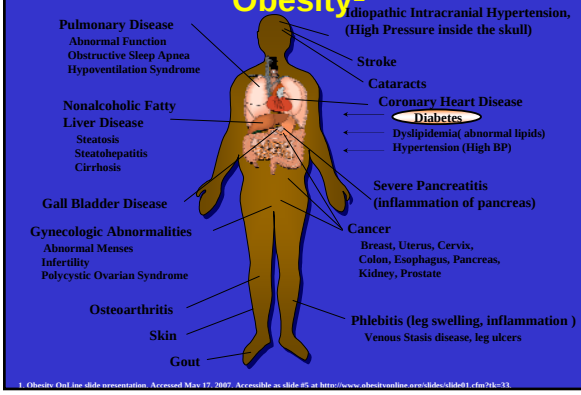
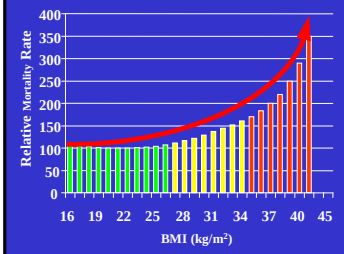
## Medical Complications of Obesity[1]




1. Obesity OnLine slide presentation. Accessed May 17, 2007. Accessible as slide #5 at http://www.obesityonline.org/slides/slide01.cfm?tk=33

## Health Risks & Increased Risk of Mortality




- Diabetes
- Hypertension
- Sleep apnea
- Depression
- Joint Pain
- Infertility
- Cancer
- GERD
- Asthma

Source: *The Surgeon General's Call to Action to Prevent Overweight and Obesity & NIH, NEJM, 1995.*



## Medical Implications of Obesity

- **Diabetes**
- **Hypertension**
- Lipid disorders
- **Heart disease**
- **Asthma**
- **Sleep apnea**
- Gallstones
- NASH (non-alcoholic steatohepatitis)
- Urinary incontinence
- **Gastroesophageal reflux**
- Osteoarthritis and gout
- **Infertility and menstrual problems**
- Obstetric complications
- Low back pain
- DVT & thromboembolism
- Depression
- Immobility
- **Cancer (breast, colorectal, prostate, endometrial, etc.)**
- Venous/stasis ulcers
- Skin infections
- Intertrigo
- Accident proneness



## Impacts of Obesity

- **Social Implications**
  - *Still an acceptable form of social discrimination*
- **Economic Implications**
  - *Personal cost = $15,568 per year (diets, food, prescriptions)*
  - *National cost = $200 billion*
    - $93 billion in medical bills
    - $33 billion on weight-loss products/services
- **Medical and Health Implications**
  - *With BMI > 30*
    - 70% increase in coronary artery disease
    - 75% increase in stroke
    - 400% increase in diabetes
    - 55% increase in mortality



## Social Implications of Obesity

- **Unable to**
  - *Go to movies*
  - *Sit on bus or in theater/plane seat*
  - *Use seat belt*
  - *Fit through turnstile*
  - *Play/pick up children*
  - *Maintain adequate hygiene*
  - *Buy stylish clothes*

Obesity: the last bastion of discrimination



## The Personal Cost of Obesity

*Change in the cost of living after weight-loss surgery can be dramatic*

| *ITEMS* | *Estimated Annual Costs* |
|---|---|
| Mean medical/drug costs (BMI ≥ 35)[1] | $ 7,337 |
| Out-of-pocket healthcare expenses[2] | $ 2,684 |
| Employment inactivity costs[3] | $ 1,017 |
| Commercial weight loss program fees[4] | $ 678 |
| Prescription co-pays (5 meds at $10) | $ 738 |
| Grocery and dining costs[5] | $ 6,012 |
| *TOTAL* | *$18,466* |

References: 1. Health Management Research Center, University of Michigan, 2001; 2. U.S. Bureau of Labor Statistics, *Consumer Expenditures* in 2006; 3. Source: Colditz, GA. "Economic costs of obesity and inactivity," *Med Science Sports Exercise*, 1999; 4. Marketdata Enterprises, Inc., 10/02; 5. U.S. Bureau of Labor Statistics, *Consumer Expenditures* in 2006



## Weight Loss Options

- **Diets, exercise, and behavioral change**
  - *Up to 10% loss of excess body weight*
  - *Ineffective long-term: less than 5% sustain any significant weight loss*
- **Weight Loss Drugs**
  - *Minimal sustained weight loss*
- **Weight Loss Surgery**
  - *Average 55% loss of excess body weight*

Source: *Adkinson, Am J. Clinical Nutrition, 1994*

## Surgical Therapy for Obesity

GOAL of Weight-Loss Surgery:

- Improve Health
- Improve Quality of Life
- Increase Lifespan
- Not cosmetic—this is only a side effect



## Surgical Options to Treat Obesity

- Types of weight loss surgeries
  - *Malabsorptive* ***procedures shorten the digestive tract***
    - Biliopancreatic diversion with/without duodenal switch (BPD/DS)
  - *Restrictive* ***procedures reduce how much the stomach can hold***
    - Vertical Banded Gastroplasty (VBG)
    - Adjustable Gastric Bands
  - *Combined* ***procedures shorten the digestive tract and reduce how much the stomach can hold***
    - Roux-en Y Gastric Bypass



## Attributes of Ideal Bariatric Operation

- Least invasive surgical option
- Safe
- Effective - weight, comorbidities, quality of life
- Effective over time
- Low re-operation/revision
- Minimal side effects
- Easily reproducible
- Adjustable
- Reversible



## Adjustable Gastric Band

**Advantages**

- Lowest mortality and complication rate
- Least invasive surgical approach
- No stapling, cutting, or intestinal re-routing
- Adjustable
- Reversible
- Low malnutrition risk

**Disadvantages**

- Slower initial weight loss than Gastric Bypass
- Regular follow-up critical for optimal results
- Requires implanted medical device



## Adjustable Gastric Band

- Performed laparoscopically
- Band is wrapped around the upper part of the stomach
- Small pouch is created
- Your stomach holds less food
- You feel full faster and longer



## Adjustable Gastric Band

- The silicone band around the stomach is hollow
- It is filled with a saline solution
- By adding or removing the saline, the band can be made tighter or looser
- Adjustments are made to meet individual weight loss needs

## Adjustable Gastric Band


## Benefits of an Adjustable Procedure

- Gradual, healthy weight loss
- Customized rate of weight loss
- Prolonged sense of fullness after small meals



## A Well-Adjusted Band

- Good weight loss
  - *Steady*
  - *Amount depends on BMI and dietary habits*
- Able to eat most solid foods
  - *Exceptions thick breads and thick meats*
  - *Must thoroughly chew food and eat slowly*
  - *Comfortably eat a small selected solid meal*
- No limitations of liquids
  - *Except during meals*
  - *Never recommend high calorie liquids*



## BAND Adjustments

**Initial band adjustment at 4 weeks post-op**

Insufficient Weight Loss

Food Intake is Too Much

Decrease Stoma (Inflate Band)

NOTE: May need a physiological/nutritional adjustment in lieu of a band inflation



## Possible Risks and Complications

- Risks associated with any surgery
  - *Major surgery*
  - *General anesthesia*
- Slippage/Prolapse (< 2%)
- Erosion (less than 1%)
- Access port problems
- Foreign object



## Possible Risks and Complications

Remember: There are risks associated with any surgery.

| *Categories* | *LAP-BAND* | *Gastric Bypass* |
|---|---|---|
| Total Complications | 9% | 23% |
| Major Complications | 0.2% | 2.1% |
| Mortality Rate | 0.05% | 0.5 - 2% |

Sources: *Ren CJ, Laker S, Weiner M, Hajoseuedjavadi O, J Am Coll Surg, v 202, No 2, Feb 2006; ASERNIPS Executive Summary, 2002.*

## ADJUSTABLE BAND Weight-Loss Results

| Average Excess Weight Loss: Published Results from Around the World | | | | | |
|---|---|---|---|---|---|
| Published Study | Number of Patients | Years after Weight-Loss Surgery | | | |
| | | 1 | 2 | 3 | >4 |
| Ponce, Paynter, From, US | 1,014 | 40.5% | 52.9% | 62% | 64.3% |
| Rubin, Spivak et al, US | 250 | 42.1% | 51.4% | 55.5% | - |
| Rubenstein et al, US | 63 | 38.3% | 46.6% | 53.6% | - |
| Jan, Patterson, US | 154 | 36% | 45% | 57% | |
| Vertruyen, Belgium (up to 86 mo) | 543 | 38% | 61% | 62% | 52% |
| Zinzindohoue et al, France | 500 | 42.8% | 52% | 54.8% | |
| Fielding et al, Australia | 620 | - | - | 68% | - |
| Korenkov, Germany | 106 | - | - | 52.1% | - |
| Weiner et al, Austria (up to 8 yr) | 984 | - | - | - | 59.3% |



## ADJUSTABLE BAND System Candidates

- Meet the BMI criteria
  - *Your BMI is at least 40, or*
  - *You are at least 100 pounds more than your ideal weight, or*
  - *Your BMI is at least 35 and you are suffering from serious health problems*
- Are at least 18 years old
- Medically supervised weight loss program
  - *Documentation*
  - *Length depends on insurance plan*
- Have been overweight for more than 5 years
- Are prepared to attend regular follow-up sessions and make lifestyle changes



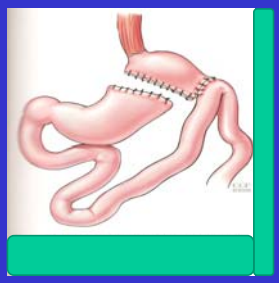
# Restrictive and Malabsorptive Options

## Evolution of Bariatric Minimally Invasive Surgery

- 1950s
- Jejunocolic bypass

## Evolution of Bariatric Minimally Invasive Surgery

- Late 1960s Mason and Ito (University of Iowa)
- Gastric pouch + Billroth II Gastrectomy + loop gastrojejunostomy



## Evolution of Bariatric Minimally Invasive Surgery

- 1960s and early 1970s
- Jejunoileal bypass
- 65% of patients with mean loss of 50% or more excess body wt

## Evolution of Bariatric Minimally Invasive Surgery

- Gastroplasty with Horizontal Partial Transection

## Evolution of Bariatric Minimally Invasive Surgery

- Mason and others
- Vertical Banded Gastroplasty
- It became popular in 1980s
- Several randomized trials lead to Roux-en-Y Gastric Bypass as the predominant bariatric procedure in 1990s

## Evolution of Bariatric Minimally Invasive Surgery

- Scopinaro et al popularize biliopancreatic bypass

## Evolution of Bariatric Minimally Invasive Surgery

- BPD further modified by Marceau et al to include a duodenal switch

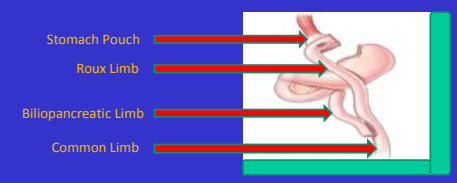
## Evolution of Bariatric Minimally Invasive Surgery

- 1979 Mason and Ito (University of Iowa)
- Roux - en – Y gastric bypass

César Roux
Swiss surgeon, born 1857, Mont-la-Ville; died 1934.

## Roux-en-Y Gastric Bypass

- *A small, 15 to 20cc, pouch is created at the top of the stomach.*
- *The small bowel is divided. The biliopancreatic limb is reattached to the small bowel.*
- *The other end is connected to the pouch, creating the Roux limb.*
- *The small pouch releases food slowly, causing a sensation of fullness with very little food.*
- *The biliopancreatic limb preserves the action of the digestive tract.*



## Roux-en-Y Outcomes

**Resolution of Comorbidities**

- **Metabolic syndrome** — **95.6% decrease after LRYGBP**
- **Diabetes** — **82 to 98.8 %**
- **Hypertension** — **52 to 91.5%**
- **Gastroesophageal reflux** — **72 to 97.8%**
- **Hypercholesterolemia** — **63 to 97%**
- **Sleep apnea** — **74 to 97.8%**
- **Stress urinary incontinence** — **44 to 97%**
- **Arthritis** — **41 to 90.3%**
- **Migraine headache** — **57%**

## Roux-en-Y Gastric Bypass Complications 251 Cases (Michael Schweitzer et all)

| Complications | |
|---|---|
| Stomal Stenosis | 10 (4%) |
| Marginal Ulcer | 11 (4%) |
| Symptomatic Gall Stones | 8 (3%) |
| Internal Hernia | 4 (2%) |
| Post Op Bleeding | 5 (2%) |
| Stroke | 1 (0.4%) |
| DVT | 0% |
| PE | 0% |
| Wound Infection | 0% |
| Leaks | 0% |
| Death | 1 (0.4%) |

## Roux-en-Y Gastric Bypass Complications

***Leaks***

**pain**
**fever**
**sustained tachycardia ----- 110 and above**
**feeling of "impending doom"**

**1- Identify 2- drainage 3- enteral access for decompression/feeding**

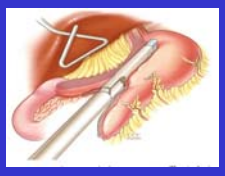
## New Techniques

## Sleeve Gastrectomy

- ***Indications***

1. ***super obese (BMI > 60)***
2. ***high risk comorbid conditions***
3. ***unfavorable anatomy***
4. ***inflammatory bowel disease***
5. ***gastric nodules needing surveillance***

## Sleeve Gastrectomy



**% EWL**
**varies from 41 to 62 % in different studies**

## Robotic Bariatric Surgery

## Comparing Different Bariatric Surgical Procedures

- Buchwald and Colleagues
- Metanalysis

| | AGB | RYGBP | BPD/DS |
|---|---|---|---|
| Mean Excess Wt Loss | 48% | 62% | 70% |
| Mortality | 0.1% | 0.5% | 1.1% |
| Hyperlipedemia, HTN, Sleep Apnea | 70% | 79% | 84% |
| | | | |

## St Vincent's Specific Criteria

- BMI of 35-50
- Maximum weight for our facility is 400 lbs.
- Patients weighing 350 - 400 lbs will be considered on a case to case basis. As well as BMI 50-60.
- Attend at least 1 support group meeting prior to surgery.
- If you gain weight during the pre-op period, we will not proceed with the surgery.



## The Truth about Surgery

- Surgery is successful but not perfect
  - *Patient selection*
  - *Patient counseling*
  - *Access to multi-disciplinary program*
- Some surgeries may need to be reversed or revised
  - *Medical complications*
  - *Psychological complications*
  - *Social complications*
- Overwhelming majority of patients are happy and healthy



## Our Vision

AMERICAN SOCIETY FOR BARIATRIC SURGERY
Bariatric Surgery
CENTER OF EXCELLENCE
SURGICAL REVIEW CORPORATION
SM