The Evolution of Bariatric Surgery

History of the Development of a Successful Bariatric Program at the University of Iowa Hospitals & Clinics
It’s a BIG Problem & it’s Getting Worse
Obesity is now a disease

• In 2004 Medicare updated its coverage manual, removing the statement that obesity was NOT a disease & the IRS said obesity treatments are tax deductible.

• In 2008 the Obesity Society officially announced support of calling obesity a disease

• June 2013 American Medical Association officially recognized obesity as a disease
American College of Cardiology & American Association of Clinical Endocrinologists:

“The suggestion that obesity is not a disease but rather a consequence of a chosen lifestyle exemplified by overeating and/or inactivity is equivalent to suggesting that lung cancer is not a disease but it was brought about by individual choice to smoke cigarettes.”
Merriam-Webster: disease
noun \di-'zēz\: an illness that affects a person, animal, or plant: a condition that prevents the body or mind from working normally: a problem that a person, group, organization, or society has and cannot stop
1954

• First article written linking surgery and weight loss. They described a dramatic decrease in weight for patients who had undergone extensive small bowel resection due to poor blood supply to the intestines. The “Intestinal Bypass” was born.

1963

- 10 morbidly obese patients had surgery with a nearly complete bypass of the small bowel.
- They all suffered from diarrhea, metabolic, fluid, and electrolyte problems, but lost A LOT of weight.
- Every one of these 10 patients had a surgical reversal of their bypass.
- ALL 10 subjects rapidly gained back the weight they had lost.

1967

- Dr.’s Mason & Ito, at the University of Iowa, published results of a different kind of gastric bypass procedure.
- A loop of small bowel was sewn to the side of a small (15-20 cc) gastric pouch at the top of the stomach.

Gastric transection with loop gastrojejunostomy
1967 – Mason & Ito, Iowa
Payne & colleagues @ USC revised the operation to an end-to-side jejunoileostomy.

Up to 90% of the small intestine was routinely bypassed.

Weight loss was probably due to poor food absorption and diarrhea.

Severe problems were noted: fluid/electrolyte imbalances (esp Vit B-12, Vit A & Vit E), fatty infiltration of the liver w/ some cirrhosis, low blood protein, kidney stones, arthritis & arthralgia, bone demineralization,
1969

Classic
“14 + 4” end-to-side jejunoileostomy

1969 – Payne & DeWind
1973-1982

• Dr. Mason developed the gastroplasty and later the Vertical Banded Gastroplasty, using a small stomach pouch with a circumferential Marlex band around the outlet.
Vertical Banded Gastroplasty

- Esophagus
- Small Stomach Pouch
- Pylorus
- Outlet
- Stomach
- Duodenum
1977

• Dr. Ward Griffen @ University of Kentucky wrote about a randomized control trial, modifying Dr. Mason’s gastric bypass to a Roux-en-Y gastric bypass.

• This is now the most common surgical bariatric procedure performed in the USA
Roux-en-Y Gastric Bypass
1986

- Kuzmac & Yap created first inflatable gastric band
1992

- NIH held a Consensus Conference with medical experts to evaluate bariatric surgery and its role in treating morbid obesity.

- They voted 2 procedures as safe & effective:
  1. VBG
  2. Roux Gastric Bypass
1992 continued

The NIH Consensus Conference set patient surgical standards:

a. 100 lbs over ideal body weight or
b. BMI of 40 without health issues or
c. BMI btw 35-59 with co-morbidities

This same criteria exists today
1994

The 1\textsuperscript{st} Laparoscopic Gastric Bypass was performed and the laparoscopic approach was quickly adopted for the VBG.
2000

• First Laparoscopic Roux-en-Y gastric bypass in Iowa was performed by Dr. James Maher & Dr. Isaac Samuel
Other Types of Bariatric Surgery

• The **Duodenal Switch** was created in 1990’s for the Super Obese (BMI > 60; 600-800 lbs) but has never been widely accepted due to its significant risk of malnutrition and frequent watery diarrhea.

• It combined the Gastric Bypass with the Intestinal Bypass, to reduce stomach volume and bypassing all but 3-5 feet of the small bowel.

• The **Gastric Sleeve** procedure was born from this initial concept.
Sleeve Gastrectomy
Risks of Bariatric Surgery

- Bleeding
- Bowel Leak
- Anastomotic stricture
- Wound infection
- DVT or PE
- Marginal ulcers
- Cholelithiasis
- Bowel obstruction
- Nutritional deficiencies
- Death
Benefits of Bariatric Surgery

Co-morbidity Reduction after Bariatric Surgery

- Migraines
  - 57% resolved

- Pseudotumor cerebri
  - 96% resolved

- Dyslipidemia, hypercholesterolemia
  - 63% resolved

- Non-alcoholic fatty liver disease
  - 90% improved steatosis
  - 37% resolution of inflammation
  - 20% resolution of fibrosis

- Metabolic syndrome
  - 80% resolved

- Type II diabetes mellitus
  - 83% resolved

- Polycystic ovarian syndrome
  - 79% resolution of hirsutism
  - 100% resolution of menstrual dysfunction

- Venous stasis disease
  - 95% resolved

- Gout
  - 72% resolved

- Depression
  - 55% resolved

- Obstructive sleep apnea
  - 74-98% resolved

- Asthma
  - 82% improved or resolved

- Cardiovascular disease
  - 82% risk reduction

- Hypertension
  - 52-92% resolved

- GERD
  - 72-98% resolved

- Stress urinary incontinence
  - 44-88% resolved

- Degenerative joint disease
  - 41-76% resolved

Quality of life improved in 95% of patients

Mortality

89% reduction in 5-year mortality
# Pros and Cons of Bariatric Surgery

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tr>
<td>Initial &amp; sustained weight loss</td>
<td>Initial failure to lose weight</td>
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<tr>
<td>Resolution of obesity-related comorbidities</td>
<td>Potential complication: perioperative, surgical, gastrointestinal, nutritional, psychological</td>
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<tr>
<td>Improved mortality</td>
<td>Initial costs</td>
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<tr>
<td>Reduction in obesity-related health risks</td>
<td>Weight regain</td>
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<tr>
<td>Improved quality of life</td>
<td>Permanency</td>
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<td>Psychosocial benefit</td>
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How Do We Measure Success?

• **Gastric bypass surgery** causes an average loss of 61-65% of excess weight

• **Sleeve gastrectomy** surgery causes an average loss of 57.4% of excess weight

• **Gastric banding surgery** causes an average loss of 47% of excess weight
Bariatric Surgical Standards

• American College of Surgeons (ACS) was founded in 1913 to improve surgical care and set standards.

• American Society for Metabolic and Bariatric Surgery (ASMBS) was founded in 1983 to advance the art and science of metabolic and bariatric surgery by continually improving quality and safety of care for people with obesity.
Center of Excellence

So, are TWO governing bodies necessary to ensure safe bariatric surgery standards?
Center of Excellence

• 2012 The ACS signed a memorandum of understanding with ASMBS to unify the 2 bariatric surgery center accreditation programs.
• The UIHC has been a certified Bariatric Center of Excellence since 2007.
Where do we go from here?

• Should Adolescents get bariatric surgery?
• Should the mentally ill have bariatric surgery?
• Should transplant patients have bariatric surgery? Prisoners?
Typical Clinic Day
History of Changes @ UIHC w/ Bariatric Surgery Patients
Before and After

Who Will Succeed?

“The most successful bariatric surgery patients are those who also demonstrate active lifestyle changes regarding both improved eating patterns and physical activity.”

DUH?! No surprise there.

Celebs Who Had Weight Loss Surgery

• The Talk’s Sharon Osbourne
• TV Celebrity Star Jones
• Singer Carnie Wilson
• Masterchef Graham Elliott
• The Today Show’s Al Roker
• American Idol Judge Randy Jackson
• Comedian Lisa Lampanelli
• Actress/Comedian Roseanne Barr