

## **Bariatric Surgery Experience: A Retrospective Review**

**Purpose:** To determine if and how bariatric surgery benefits the Good Samaritan Hospital Community

**Goal:** Analyze and compare the changes in patients' body mass index (BMI {calculated as weight in kilograms divided by height in meters squared} and comorbidities pre vs. post operatively

**Materials and Methods:** A retrospective review was performed on patients treated at The Bariatric Surgery Center of Good Samaritan Hospital, Suffern, New York; from January 1, 2017 to December 31, 2019. Data Source: The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) Summary 2017-2019.

Patients were evaluated and treated in a community clinical setting with a sleeve gastrectomy or gastric bypass. None of the patients had a de novo lap band placed.

Patients were followed at 6 months (n=487), 1 year (n=213), and 2 years (n= 47). BMI (Body Mass Index), and pre-existing comorbidities were reviewed and compared to postoperative conditions.

**Data:** 651 procedures were performed by the Good Samaritan Hospital Bariatric team (Dr. Ramon Rivera and Dr. Wayne Weiss).

The mean age and preoperative BMI of the patients were 42.5 years old and 42.5 years old respectively. Thirty or 4.6% of the patients were over the age of 65. Females (488 or 75%) outnumbered males (162 or 25%).

Racial composition varied with the majority being white (376 or 58%), Hispanic (156 or 24%), and Black or African American (130 or 20%). The remainder of the patient population consisted of Unknown (136 or 21%), and Asian (5 or 0.8%), and American Indian or Alaska native (4 or 0.6%).

Preoperative Comorbidities of the patient population were separated by disease specific:

- 1.) Pulmonary 40% (23% patients obstructive sleep apnea requiring CPAP or BiPAP),
- 2.) Gastrointestinal (30% required GERD medication),
- 3.) Musculoskeletal (0.3% required a mobility device),
- 4.) Renal (0.5% with 2 patients requiring dialysis),
- 5.) Cardiac History (61%, including 41 patients with a history of MI; 19 had previous PCI, and 9 patients had previous cardiac surgery).
- 6.) DVT (8 patients or 1.2%) had a history of requiring therapy, with (28 patients or 4.3%) requiring chronic therapeutic anticoagulation.
- 7.) Diabetes Mellitus- present in 22% or 145 patients.
- 8.) Hyperlipidemia- present in 18% or 119 of patients.

**Results:**

**A.) BMI Mean (Reduction)**

The BMI declined (Lap Roux-en-Y, and Sleeve Gastrectomy) after six months from a preoperative baseline mean BMI of 43 to a postoperative BMI of 34. There was a further decline in the mean BMI after one year to 33, while after two years the mean BMI remained stable at 33.

The maximum postoperative BMI mean reduction was experienced at 1 year and remained relatively unchanged at 2 years. This mirrors the national BMI reduction data.

After 1 year, the sleeve gastrectomy patients had a greater reduction in mean BMI compared to gastric bypass patients (32.27 vs 36.71, respectively)

**B.) Reduction in Comorbidities (see Table 1) (1 year n=211 pts; 2 years n=46 pts)**

Sleep Apnea resolved in 56% patients at one year with a further decline to 85% of patients at the 2 year mark.

There was a 30% decline of GERD after two years in the national population. The GERD information was not recorded in the GSH data base, and therefore cannot be compared.

Hyperlipidemia in the GSH population recorded a 23% decline after one year, while there was a reduction of 45% in the national population vs baseline after 2 years.

Hypertension occurrence had a reduction in the GSH patient population after one year by 32% compared to a 46% reduction in the national population.

Diabetes Mellitus also experienced a significant reduction from baseline in disease occurrence, with 54% reduction in the GSH population vs 68% reduction in the national population one year after surgery.

**C.) Mortality; Readmissions; and Reoperations (see Table 2)**

The 30 day measure comparing Good Samaritan Hospital's experience of mortality, readmission, and reoperation rates were lower when compared to available national data.

Readmissions within 30 days post-op included fluid, electrolyte or nutritional depletion, dysphagia, abdominal pain, surgical site infections, and deep venous thrombosis/pulmonary embolism/portal vein thrombosis.

Re-operations within 30 days post-op included anastomotic leaks/hemorrhage; intestinal obstructions; exploratory laparotomy; repair of gastric fistula; wound dehiscence; hernia repairs; stricture/ stomal obstruction with EGD/dilatation; marginal ulcer/perforated viscus; cholecystectomy (unplanned) less than 30 days after bariatric surgery.

**Conclusion/Discussion:** One year postoperatively, 59% of the Good Samaritan Hospital bariatric patient population experienced a reduction of one or more comorbidities.

Patients pursue bariatric surgery to help attain medical and personal objectives. Some patients aspire to improve their health, and longevity, while others want to improve their own perception of a preferred physical appearance. There are few medications or procedures which can have a profound effect on one's overall health and appearance simultaneously. Bariatric surgery is performed to facilitate a patient's desire for weight loss with the additional benefit to reduce the risk of potentially life-threatening weight related health problems.

There is increasing evidence that bariatric procedures should also be considered for patients with type 2 diabetes and a BMI of 30.0 to 35.0 kg if hyperglycemia is inadequately controlled, despite optimal medical treatment of type 2 diabetes.<sup>2</sup>

Obesity is associated with an increased risk of several types of cancer including postmenopausal breast, endometrial, colon, liver, pancreatic, and ovarian cancers.<sup>3-5</sup> Data from 8 observational studies involving 635,642 patients suggest that bariatric surgery is associated with a reduced risk of all types of cancer and a reduced risk of obesity-associated cancer, including breast cancer.<sup>6</sup>

Obesity is a known increased risk for respiratory infections, and to negatively impact pulmonary function. Recent retrospective data on the treatment of COVID-19 patients reveals the negative health outcomes and increased risk leading to intubation and ventilator dependence. A recent study published in the Annals Internal Medicine of 2,466 patients found that obesity is associated with increased risk for intubation or death in time-to-event analysis.<sup>7</sup>

All patients with significant obesity, especially those with existing comorbidities, should be invited into a shared decision process on pursuing bariatric surgery. Patients deserve to be provided with information and alternatives to current medical therapy.

A future study of interest would be to perform a prospective nonrandomized age matched control with similar race, gender, and comorbidities for patients who do not have bariatric surgery, and compare future medical costs, emergency room visits, and life expectancy to those patients who do have bariatric treatment

The results and outcomes revealed here, reflect the success of the Bariatric Surgery Program at Good Samaritan Hospital. The surgical skill and supervision of Dr. Ramon Rivera, and Dr. Wayne Weiss have rewarded our patients with successful outcomes as demonstrated by significant improvements in lifestyle and reduction in preexisting comorbidities. Most importantly, their morbidity and complications have been, and remain well below those of the respective national rates.

**Table 1 REDUCTIONS COMORBIDITIES OVERTIME**

Sleep Apnea		Present at Baseline		Present 1 Yr.		Reduction 1 Yr.
	GSH	22.90%		7.60%		
	National	35.80%		19.50%		52.30%
<b>GERD</b>						
	GSH	30.30%		***		***
	National	31.70%		33.20%		29.20%
<b>Hyperlipidemia</b>						
	GSH	18.30%		14.20%		23.10%
	National	22.60%		14.50%		43.50%
<b>Hypertension</b>						
	GSH	37%		25.10%		32.10%
	National	46%		26.90%		46.10%
<b>Diabetes</b>						
	GSH	22%		9.00%		53.70%
	National	24.40%		9%		67.80%
<b>Co'mbd</b>	<b>GSH</b>					58.80%
<b>Reduction</b>	<b>National</b>					76.10%
<b>Summary</b>						
(reduction of one or more comorbidities)						
*** Not Available						

**Table 2 30 DAY MEASURE GSH vs NATIONAL**

Mortality		2017		2018		2019
	<b>GSH</b>	0.40%		0%		0%
	<b>National</b>	NA		NA		0.10%
<b>Readmissions</b>						
	<b>GSH</b>	2.50%		2.30%		2.90%
	<b>National</b>	NA		NA		4.50%
<b>Reoperations</b>						
	<b>GSH</b>	0.80%		0.80%		0.40%
	<b>National</b>	***		***		2%

\*\*\*Not Available

- <sup>1</sup> Horecki Lopez EK, Helm MC, Gould JC, Lak KL.
- <sup>2</sup> Primary care providers' attitudes and knowledge of bariatric surgery. *Surgt Endosc.* 2020;34(5):2273-2278.
- <sup>3</sup> Arterburn AD, Telem DA, Kushner RF, Courcoulas AP. Benefits and Risks of Bariatric Surgery in Adults A Review. *JAMA* v324; N0. 9; 879-885
- <sup>4</sup> Wiggins T, Antonowicz SS, Markar SR. Cancer risk following bariatric surgery-systemic review and meta-analysis of national population based cohort studies. *Obes Surg.* 2019;29(3):1031-1039.
- <sup>5</sup> Schauer DP, Feigelson HS, Koebnick C, et al. Bariatric surgery and the risk of cancer in a large multisite cohort. *Ann Surg.* 2019;269(1):95-101
- <sup>6</sup> Feigelson HS, Caan B, Weinmann S, et al. Bariatric surgery is associated with reduced risk of breast cancer in both premenopausal and postmenopausal women. *Ann Surg.* 2019.
- <sup>7</sup> Anderson RA, Geleris J, Anderson DR, Zucker J, Nobel YR, Freedberg D, et al. Body Mass Index and Risk for intubation or death in SARS-CoV-2 Infection: A retrospective Cohort Study. *Ann Intern Med.* 2020 Jul 29;M20-3214

## FAQs to Dr. Rivera and Dr. Weiss:

- 1.) What is the age range of patients who have bariatric surgery at GSH:  
Answer: 18 to 76 years old
- 2.) Are lap bands still utilized?  
Answer: No- they are not effective. Long term complications are experienced, such as dysphagia (difficulty swallowing), vomiting, and slippage.
- 3.) What is the average hospital length of stay following bariatric surgery:  
Answer: Typically 1 day (Sleeve) to 2 days (Bypass).
- 4.) What is the range and average weight loss of patients? What is the weight loss goal for bariatric patients?  
Answer: Fifty to one hundred pounds the first year (70-80% of excess weight).
- 5.) How long does it take for patients to lose their max weight?  
Answer: Approximately 12-18 months
- 6.) Is emotional health evaluated?  
Answer: Yes, every patient is required to have a psychiatric preoperative evaluation.
- 7.) What sort of improvement in sleep apnea are seen?  
Answer: 90 to 95% patients eventually have resolution.
- 8.) Are any fertility issues evaluated pre and post operatively?  
Answer: Yes, fertility does improve. Also, pregnancy issues of vitamin deficiency, low birth weight, and microcephaly improve as well.
- 9.) Who is deemed a candidate for bariatric surgery? What is your BMI guideline?  
Answer: Patients with a BMI of 35+ with comorbid condition or BMI 40+.
- 10.) Who is not a candidate?  
Answer: Patients with active cancer, prior stomach surgery, esophageal disorder, end stage cirrhosis with portal hypertension, severe heart failure, unstable coronary heart disease, end stage lung disease, uncontrolled drug or alcohol; dependency, Crohn disease, severely impaired intellectual capacity, or current or planned pregnancy within the next 1-2 years.
- 11.) What is the youngest age that a patient can be considered for bariatric surgery?  
Answer: 18 years old
- 12.) Oldest age?  
Answer: 76 years old. We do attempt to analyze and decide on a case by case basis, but these are the general parameters.
- 13.) Can a Jehovah's Witness patient have bariatric surgery? Are you part of the Bloodless Medicine Surgery Program at Good Samaritan Hospital?  
Answer: Yes, our team is onboard with the program. Blood loss in our experience, and in our series is quite minimal. There is an extremely low risk for significant blood loss in our hands.