

SINGLE PATIENT CASE STUDY

The Impact of Bariatric Surgery on Health Care Utilization



OBJECTIVES

- To investigate the impact of Bariatric Surgery on the health care utilization of a randomly selected BARI net PPN patient who underwent bariatric surgery.
- To compare the pre-surgical and post-surgical health care utilization costs of the randomly selected patient who underwent bariatric surgery, as it relates to pharmacy and medical plan expenses.

SUMMARY

Bariatric surgery's use to combat obesity has proven very effective in terms of weight loss, quality of life improvements, and improvements in disease risk factors. However, there is limited data showing the results regarding the effects of bariatric surgery on health care utilization for those who successfully undergo bariatric surgery. Using claims data provided by a BARI net PPN client, we calculated the impact of bariatric surgery on health care costs in a time period ranging from 2 years pre-surgery to 1 year post-surgery. The data set is focused specifically on pharmacy and medical plan claims data for the single, randomly-selected patient. Overall, we observed a significant decrease in pharmacy and medical plan expenditures after bariatric surgery.

PATIENT PROFILE

BEFORE UNDERGOING BARIATRIC SURGERY - 08/31/2018

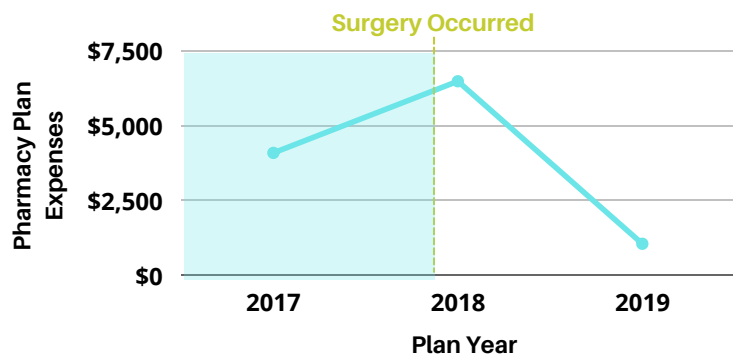
Age: 40
 Sex: Female
 Weight: 262 lbs
 BMI: 42
 Medical History:

- Morbid Obesity
- Diabetes
- Fatty Liver
- Back Pain
- GERD

Medication List:

- Acetaminophen-Codeine
- Allopurinol
- Ciprofloxacin
- Gabapentin
- GlipiZIDE
- Nitrofurantoin
- Famotidine
- Cefuroxime
- TiZANidine HCl
- Tradjenta
- Victoza SOLN
- Prednisone
- Clindamycin

(1a.) Annual Patient Pharmacy Plan Expenses



(1b.) Annual Patient Medical Plan Expenses

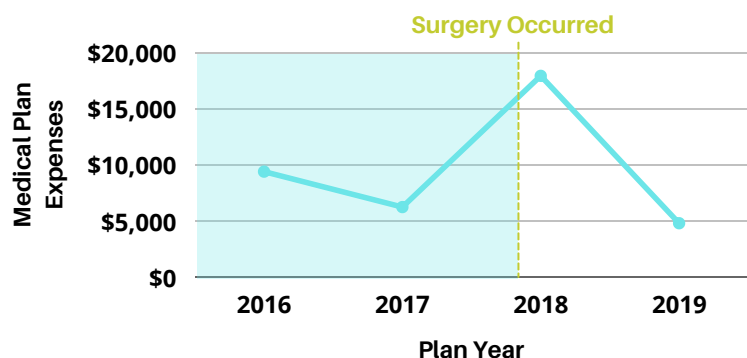


Figure 1.

(1a) Annual pharmacy plan expenses in each plan year before and after bariatric surgery. The dashed vertical line marks the time of the bariatric intervention. (1b) Annual medical plan expenses in each plan year before and after bariatric surgery. The highlighted portion of each graph marks the period used for pre-surgery data analysis.

DATA ANALYSIS (PRE-SURGERY)

The analysis is based on annual pre-surgery pharmacy and medical plan claims data provided on behalf of the patient subject, dating back two years pre-surgical intervention. We included data from the individual patient who underwent bariatric surgery at the end of the third quarter of 2018 (08/31/2018). Figure (1a) shows the patient's pharmacy plan expenses increasing annually from the \$4,088 in the 2017 plan year to \$6,483 through the 2018 plan year. These above average, annually increasing pharmacy plan expenses can mostly be attributed to medications being prescribed to treat the patient's obesity-related conditions such as diabetes, GERD, and chronic pain. Figure (1b) shows the patient's medical plan expenses increasing from an average of \$7,840 in plan years 2016 and 2017, to \$17,959 in the 2018 plan year. To exclude utilization that is directly related to the intervention, we omitted the charge for the bariatric surgery itself under 2018 medical plan expenses. These above average medical plan expenses can mostly be attributed to physician visits, hospital and outpatient treatment related the patient's obesity-related conditions such as diabetes, GERD, and chronic pain. The elevated 2018 medical plan expenses are due in large part to a hospital admission requiring surgery in December of 2017. This was a gastroesophageal procedure stemming as a result of the patient's obesity-related condition, GERD.

PATIENT PROFILE

AFTER UNDERGOING BARIATRIC SURGERY - 1 YEAR POST-SURGERY

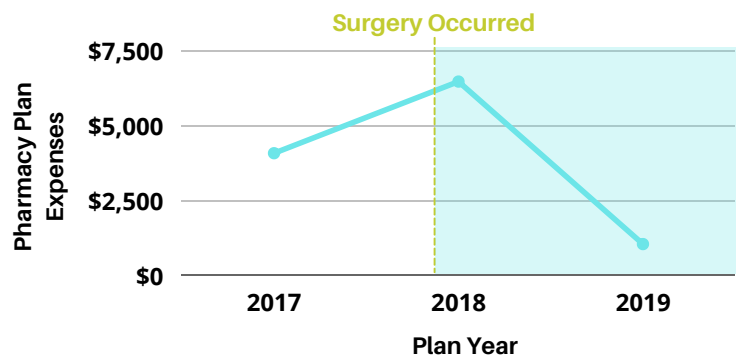
Age: 41
Sex: Female
Weight: ~~262 lbs~~ 176 lbs
BMI: ~~42~~ 28
Medical History:

- ~~Morbid Obesity~~
- ~~Diabetes~~
- ~~Fatty Liver~~
- ~~Back Pain~~
- GERD

Medication List:

- ~~Acetaminophen Codeine~~
- Allopurinol
- Ciprofloxacin
- ~~Gabapentin~~
- ~~GlipiZIDE~~
- Nitrofurantoin
- Famotidine
- ~~Cefuroxime~~
- TiZANidine HCl
- Tradjenta
- ~~Victoza SOLN~~
- ~~Prednisone~~
- Clindamycin

(2a.) Annual Patient Pharmacy Plan Expenses



(2b.) Annual Patient Medical Plan Expenses

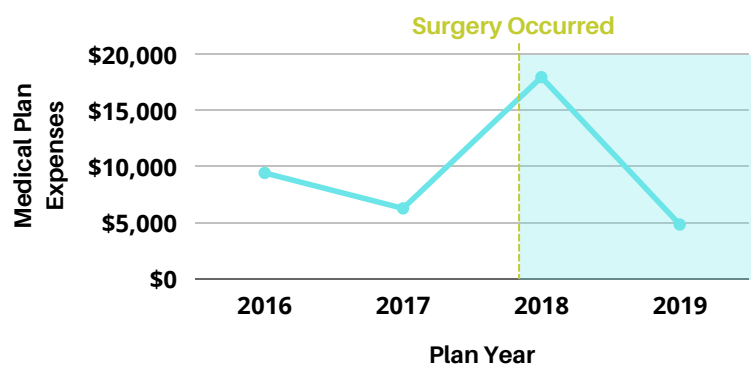


Figure 2.

(2a) Annual pharmacy plan expenses in each plan year before and after bariatric surgery. The dashed vertical line marks the time of the bariatric intervention. (2b) Annual medical plan expenses in each plan year before and after bariatric surgery. The highlighted portion of each graph marks the period used for post-surgery data analysis.

DATA ANALYSIS (POST-SURGERY) & CONCLUSION

The analysis is based on annual post-surgery pharmacy and medical plan claims data provided on behalf of the patient subject, dating one year post-surgical intervention. Figure (2a) shows the patient's pharmacy plan expenses decrease significantly following surgical intervention, from an average \$5,285 in plan years 2017 and 2018 to \$1,050 in the 2019 plan year. The decrease in pharmacy plan expenses can mostly be attributed to the reduction/resolution of medication usage previously being prescribed to treat the patient's obesity-related conditions such as diabetes, GERD, and chronic pain. Figure (2b) shows the patient's medical plan expenses decrease from an average of \$11,213 in plan years 2016 through 2018, to \$4,828 in the 2019 plan year. This reduction in medical plan expenses can mostly be attributed to a reduction in physician visits, hospital and outpatient treatment related the patient's obesity-related conditions such as diabetes, GERD, and chronic pain. In conclusion, our findings indicate that the effects of bariatric surgery on health care utilization resulted in substantial reductions in pharmacy and medical plan expenses. These cost reductions are shown to have direct correlation to the patient's reduction/resolution of obesity related conditions (diabetes, fatty liver and back pain) following successful bariatric surgery intervention.