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BACKGROUND

- Morbid obesity currently affects at least 1 out of 11 adults in the United States. According to the Centers for Disease Control and Prevention, the age-adjusted prevalence of severe obesity in adults is 9.2% and is higher in women than in men.
- Bariatric surgery is an invasive method of precipitating rapid weight loss by partially or completely removing obese patient's stomach.
- The available literature and previous analyses tend to focus on social and quality-of-life aspect of the bariatric surgery for weight loss.

Objective: This study aims to evaluate the plan costs of bariatric surgeries using data from the Arkansas Employee Benefits Division (EBD) Claims Database to offer insights for developing coverage criteria.

METHODS

- **Data Sources:**
- The Arkansas Employee Benefits Division (EBD) claims records from January 2018 through December 2021 were extracted to identify eligible patients.
- **Study Sample:**
- Patients who underwent bariatric surgery in 2019 and who have continuous enrollment for both medical and pharmacy EBD benefits for at least one year pre-surgery and two years post-surgery were included.
- Types of surgery considered include Vertical Sleeve Gastrectomy (VSG) and Roux-en-Y Gastric Bypass (RYGB).
- Individuals with surgeries unrelated to morbid obesity were excluded.
- **Study Measures:**
- The outcome variable was Return on Investment (ROI), which was calculated as the Net ROI (difference between pre-and post-surgery plan paid amounts) divided by the Cost of Investment (total plan payment for surgery), multiplied by 100%.
- Patient age, surgery types, and pre-surgery obesity-associated comorbidity were also collected.
- **Statistical Analysis:**
- t-tests or one-way ANOVA was performed to compare ROIs across age groups, surgery types, and pre-surgery obesity-associated comorbidity.

RESULTS

- Among 41 eligible patients, 24.39% were aged 20-39, 56.10% were aged 40-59, and 19.51% were aged 60-79.
- The oldest age group exhibited the highest ROI (M=0.61, SD=0.97) due to high pre-surgery pharmacy spending and Medicare's significant contribution to the cost of surgery.
- No significant difference in ROI was observed between VSG (M=0.15, SD=0.84) and RYGB (M=-0.04, SD=1.30) surgery types.
- Prior to surgery, 41.4% of participants had diabetes, a rate that decreased to 31.7% post-procedure.
- Diabetes before surgery had a significant impact on one-year ROI (p=0.038).
- Insulin-dependent diabetics experienced the highest ROIs post-bariatric surgery (M=1.86 after 1 year (average savings of \$19,881) and M=4.05 after 2 years from surgery (average savings of \$43,561)).
- No other comorbidity had a statistically significant impact of this magnitude.

Table 1: Patient Characteristics and 1-year ROI

Characteristic	Total N = 41 (%)	1-year ROI Mean (SD)	p-value ^a
Age range			0.207
20-39	10 (24.39)	-0.31 (0.56)	
40-59	23 (56.10)	0.02 (1.25)	
60-79	8 (19.51)	0.61 (0.97)	
Surgery type			0.599
VSG	20 (48.78)	0.15 (0.84)	
RYGB	21 (51.22)	-0.04 (1.30)	
Before surgery cardiovascular disease			0.335
No	8 (19.51)	-0.28 (0.66)	
Yes	33 (80.49)	0.14 (1.16)	
Before surgery diabetes			0.038
No	24 (58.54)	-0.24 (1.10)	
Yes	17 (41.46)	0.47 (0.96)	
Before surgery musculoskeletal disease			0.530
No	21 (51.22)	-0.05 (1.50)	
Yes	20 (48.78)	0.16 (0.30)	
Before surgery cancer/immune disease			0.641
No	14 (34.15)	-0.08 (1.48)	
Yes	27 (65.85)	0.12 (0.85)	
Before surgery sleep and psychiatric disorders			0.209
No	11 (26.83)	0.41 (1.09)	
Yes	30 (73.17)	-0.08 (1.08)	
Before surgery digestive disorders/ malabsorption			0.342
No	18 (43.9)	-0.15 (1.50)	
Yes	23 (56.1)	0.21 (0.60)	

Notes: ^a Groups were compared using t-tests or one-way ANOVA.

CONCLUSION

✓Bariatric surgery's financial benefits for insulin-dependent diabetics underscore its viability as a coverage option.

✓The study recommends not differentiating between surgery types in terms of coverage.