

Examining the Long-Term Costs of Bariatric Surgery in the Elderly: an HCUP Analysis

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Introduction

- Bariatric surgery is increasingly performed in older adults, but the downstream financial impact of surgery in this population remains poorly characterized.
- Bariatric surgery is the most effective treatment for severe obesity, producing sustained weight loss of 25-30% of total body weight over decades
- The elderly population (≥65 years) is the fastest-growing demographic, with obesity prevalence in this age group exceeding 40% in many developed countries.
- Obesity in older adults is associated with increased disability, reduced quality of life, and higher healthcare costs compared to normal-weight peers
- Recent data suggest elderly patients may achieve comparable weight loss and metabolic improvements to younger cohorts.

Objective

To evaluate differences in postoperative healthcare utilization, discharge disposition, and one-year healthcare charges between elderly (≥65 years) and non-elderly (<65 years) patients undergoing bariatric surgery.

Methods

- The 2017–2018 HCUP State Inpatient (SID), State Ambulatory Surgery (SASD), and State Emergency Department (SEDD) databases from Florida, Georgia, Maryland, and Wisconsin were queried to identify patients undergoing primary sleeve gastrectomy or Roux-en-Y gastric bypass.
- Patients were stratified into elderly (≥65 years) and non-elderly (<65 years) cohorts.
- A 1:1 propensity match was performed using demographic and clinical variables including sex, race, procedure type, and Charlson comorbidity scores.
- Outcomes included index hospitalization charges, aggregate charges, readmissions, and postoperative inpatient, outpatient, and emergency department utilization.

Results

Procedure Group	N	Not Elderly (<65) N = 34,027	Elderly (>65) N = 2,858	p-value
Procedure Type	36,885			0.050
Gastric Bypass		7,723 (23%)	695 (24%)	
Sleeve Gastrectomy		26,304 (77%)	2,163 (76%)	
Age (years)	36,885	44 ± 11	68 ± 3	<0.001
Sex	36,885			<0.001
Female		27,815 (82%)	1,997 (70%)	
Male		6,212 (18%)	861 (30%)	
Race/Ethnicity	36,885			<0.001
White		17,574 (52%)	2,209 (77%)	
Black		11,068 (33%)	338 (12%)	
Hispanic		4,162 (12%)	213 (7.5%)	
Asian or Pacific Islander		138 (0.4%)	6 (0.2%)	
Other		1,085 (3.2%)	92 (3.2%)	
Payment Type	36,853			<0.001
Private Insurance		21,520 (63%)	208 (7.3%)	
Medicaid		4,491 (13%)	6 (0.2%)	
Medicare		3,902 (11%)	2,584 (90%)	
Self-Pay		2,512 (7.4%)	33 (1.2%)	
Other		1,570 (4.6%)	27 (0.9%)	
Median Household Income Quartile	36,534			<0.001
First Quartile		8,999 (27%)	608 (22%)	
Second Quartile		8,742 (26%)	765 (27%)	
Third Quartile		8,806 (26%)	792 (28%)	
Fourth Quartile		7,164 (21%)	658 (23%)	
Case Priority	36,885			
Elective		34,027 (100%)	2,858 (100%)	
Charlson Comorbidity Index	36,885	0.65 ± 1.03	1.44 ± 1.69	<0.001
Charlson Comorbidity Risk Category	36,885			<0.001
No risk		19,668 (58%)	936 (33%)	
Intermediate risk		12,709 (37%)	1,386 (48%)	
High risk		1,650 (4.8%)	536 (19%)	

Table 1. Baseline characteristics of each group				
Patient Type	N	Not Elderly (N = 2,779)	Elderly (N = 2,779)	p-value
≥1 Inpatient Readmission (n, %)	5,558			0.068
No		2,233 (80%)	2,178 (78%)	
Yes		546 (20%)	601 (22%)	
≥1 Outpatient Visit (n, %)	5,558			0.006
No		2,706 (97%)	2,663 (96%)	
Yes		56 (2.0%)	85 (3.1%)	
≥1 ED Visit (n, %)	5,558			<0.001
No		2,418 (87%)	2,457 (88%)	
Yes		361 (13%)	322 (12%)	
≥1 Procedural Post-op Visit (n, %)	5,558			<0.001
No		1,983 (71%)	1,910 (69%)	
Yes		796 (29%)	869 (31%)	
Index Visit Cost (USD)	5,558	68,893 (64,564)	76,465 (64,165)	<0.001
Total 1-Year Charges (USD)	5,558	97,080 (137,656)	106,898 (136,154)	<0.001
Mean Post-op Charges (USD)	5,558	28,187 (108,723)	30,433 (108,689)	0.018
Length of Stay (days)	5,558			0.2
Mean ± SD		2 ± 3	2 ± 3	
Discharge Disposition	5,558			<0.001
Expired		5 (0.2%)	3 (0.1%)	
Home		2,431 (95%)	2,361 (92%)	
Home Health Care		100 (3.9%)	158 (6.2%)	
Other		2 (<0.1%)	2 (<0.1%)	
Skilled Nursing Facility		18 (0.7%)	32 (1.3%)	

Table 2 : Primary outcomes

- After propensity matching, 5,558 patients were included, with 2,779 elderly patients and 2,779 non-elderly patients.
- Inpatient readmission rates were similar between groups (22% vs 20%, p=0.068).
- Elderly patients had more outpatient postoperative visits (3.1% vs 2.0%, p=0.006).
- Elderly patients had fewer emergency department visits (12% vs 13%, p<0.001).
- Overall postoperative utilization was higher in elderly patients, with 31% having at least one postoperative visit compared with 29% of non-elderly patients (p<0.001).
- Index hospitalization costs were higher in elderly patients (\$76,465 ± 64,165 vs \$68,893 ± 64,564, p<0.001).
- Total 1-year charges were also higher among elderly patients (\$106,898 ± 136,154 vs \$97,080 ± 137,656, p<0.001).
- Mean postoperative charges were higher in elderly patients (\$30,433 ± 108,689 vs \$28,187 ± 108,723, p=0.018).
- Length of stay was similar between groups (2 ± 3 days vs 2 ± 3 days, p=0.2).
- Discharge disposition differed significantly, with elderly patients more frequently discharged to home health care (6.2% vs 3.9%) or a skilled nursing facility (1.3% vs 0.7%) (p<0.001).

Conclusion

- Elderly patients undergoing bariatric surgery had similar inpatient readmission rates compared with non-elderly patients.
- Although elderly patients had fewer ED visits, they had more outpatient encounters and more overall postoperative visits for procedures.
- Elderly patients generated higher index hospitalization costs, suggesting greater upfront resource utilization at the time of surgery.
- Total 1-year charges and mean postoperative charges were also higher in elderly patients, indicating a greater overall financial burden in this population.
- Differences in discharge disposition suggest that elderly patients may require more post-acute support, including home health services or skilled nursing care.
- Bariatric surgery remains feasible in elderly patients, but surgeons and health systems should recognize that postoperative utilization patterns and overall charges differ from younger patients.

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