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Reasons for Underutilization of Bariatric Surgery: The Role of Insurance Benefit Design

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Abstract

Despite the effectiveness of bariatric surgery, both with respect to weight loss and improvements in obesity-related comorbidities, it remains underutilized. Only 1% of the currently eligible population undergoes surgical treatment for obesity, with roughly 228,000 individuals receiving bariatric surgery in the United States each year. Several barriers to bariatric surgery have been identified including limited patient and referring physician knowledge as well attitudes regarding the effectiveness and safety of bariatric surgery. However, the role of insurance coverage and benefit design as a barrier to access to care has received less attention to date.

Bariatric surgery is cost-effective compared to non-surgical treatments among individuals with extreme obesity and type II diabetes mellitus. While it may not result in cost-savings among all bariatric surgery eligible patients, for certain patient subgroups, bariatric surgery may be cost neutral compared with traditional treatment options. In addition, longer term outcomes of bariatric surgery suggest decreased or stable costs in the long run.

The purpose of this review paper is to synthesize the existing knowledge on why bariatric surgery remains largely underutilized in the United States with a focus on health insurance benefits and design. In addition, the review discusses the applicability of value-based insurance design (VBID) to bariatric surgery.

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VBITD has been previously applied to bariatric surgery coverage with a use of incentive-based cost-sharing adjustments. Its application could be further extended, since the postoperative clinical outcomes and costs vary among the different sub-groups of bariatric surgery eligible patients.

Keywords

Bariatric surgery; Utilization; Access to care; Barriers; Value-based Insurance Design

INTRODUCTION

Approximately 38% of American adults have obesity, defined by a body mass index (BMI) ≥ 30 kg/m².¹ The age-adjusted prevalence of extreme obesity (BMI ≥ 40 kg/m²) among adults is 7.7%; among men, it is 5.5%; and among women, it is 9.9%.¹ The health risks associated with obesity are well documented and include type II diabetes mellitus (T2D), hypertension, coronary heart disease, stroke, osteoarthritis, obstructive sleep apnea and asthma, among other major health complications.^{2,3}

The impact of obesity on medical spending has been well-documented. Almost all the costs attributable to obesity are due to obesity-related diseases (ORD).⁴ The annual incremental costs of obesity per person was \$1901 in 2014 USD, and \$149.4 billion at the national level.⁴ These cost estimates vary significantly when age and ORDs are considered. For example, while there is no significant difference in costs attributable to obesity in children and adolescents, the incremental costs of obesity are significantly higher among adults (aged 18 – 65); those costs are even higher among older adults, most likely due to the increased burden of ORDs.⁴

There are a wide range of treatments for obesity, including lifestyle modification (which includes caloric restriction, increased physical activity, and behavioral modification), pharmacotherapy, and bariatric surgery. Bariatric surgery is currently recommended for adults with extreme obesity (BMI ≥ 40 kg/m²), or those with a BMI ≥ 35 kg/m² in the presence of at least one significant comorbidity associated with obesity.⁵ Bariatric surgery is the most effective treatment for obesity, resulting in much larger and longer lasting weight loss compared with those seen with conventional treatment.⁶ The most common surgical procedures are laparoscopic and include the Roux-en-Y gastric bypass (RYGB) and the sleeve gastrectomy (SG).⁷ Within the past several years, SG has surpassed the RYGB in popularity.⁸ With both procedures, patients typically reach their maximum of weight loss of 20–35% of initial body weight 6–24 months after surgery.^{7,9,10} These weight losses are durable for the majority of patients throughout the first postoperative decade.^{10–12} Bariatric surgery also results in significant improvements in the metabolic profile among patients with insulin-treated T2D and long-lasting remission for some individuals.¹³ Patients with diabetes who underwent RYGB or SG were reported to be 43 times and 17 times more likely to achieve remission, respectively, than those who did not undergo surgery.¹⁴ The postoperative weight loss is also associated with significant improvements in other obesity-related comorbidities as well as decreased risk of mortality.^{15,16}

Despite the safety of bariatric surgery¹⁷ and the postoperative success, both in terms of weight loss and improvement in obesity-related comorbidities, the procedures remain profoundly underutilized. At present, only 1% of the clinically eligible population undergoes surgical treatment for obesity, with roughly 228,000 individuals receiving bariatric surgery in the United States each year. However, compared to the 2011 data (158,000 procedures/year), this represents a 44.3% increase in the overall number of procedures performed annually⁸ The reasons for underutilization of bariatric surgery are not well understood, but likely include a number of factors.

This review paper intends to synthesize the existing knowledge on why bariatric surgery remains largely underutilized in the United States with a focus on health insurance benefits and design. In addition, the paper will describe the application of value-based insurance design (VBID) to bariatric surgery, which holds potential to increase utilization and contain relevant health care costs.

POTENTIAL BARRIERS TO THE UTILIZATION OF BARIATRIC SURGERY

There are both contextual and individual barriers that lead to the limited uptake of bariatric surgery.¹⁸ Some of the key limiting factors have been reported to be patient and physician views and attitudes, patient-physician communication, as well as cost and insurance benefits structure.

Patient-physician communication

Most primary care and subspecialist physicians do not discuss bariatric surgery as a treatment option,^{19,20} despite the majority indicating positive attitude toward bariatric surgery.^{19,21,22} For example, 71.1% of 388 patients surveyed at a US-based multidisciplinary, private bariatric center of excellence indicated that their primary care physician did not start a conversation regarding bariatric surgery as a treatment option. However, when the discussion was initiated by the patient, 80.6% of their physicians were supportive of such treatment course and 18.4% provided a referral to a bariatric practice.¹⁹

Patient and physician views and attitudes

Limited patient and referring physician knowledge regarding the effectiveness and safety of bariatric surgery are key barriers to bariatric surgery utilization.^{18,23,24} Few individuals with obesity who also have T2D have positive views about bariatric surgery, generally due to the concerns about the surgery's safety and efficacy. Sarwer and colleagues reported results of a survey conducted among 130 individuals with BMI of 30–40 kg/m² and T2D, identified from the Pennsylvania Integrated Clinical and Administrative Research Database (US). Only 20.3% of survey participants thought positively of bariatric surgery, with only 17.5% of them willing to be randomly assigned to undergo bariatric surgery (or non-surgical weight management) for the treatment of obesity and 16.1% for the treatment of T2D.²⁵ In addition, some patients who are eligible don't consider themselves to be candidates for bariatric surgery.²⁶ Some individuals may not be aware of their BMI while others may not perceive themselves to be heavy enough for surgery. While patient's race was not found to

be linked with surgeon decisions to operate, BMI, age and social support were reported to be most influential predictors of patient selection among US-based bariatric surgeons.²⁷

Cost and insurance benefits

While variety of socioeconomic factors may contribute to disparities in receipt of bariatric surgery,²⁸ lack of health insurance is likely a reason for blacks undergoing bariatric surgery at lower levels than whites.²⁹ Approximately 60–65 % of bariatric surgery patients in 2009–2012 were white; the majority of patients were mid-aged (median age 44 to 45 years) women who typically suffer from one or more obesity-related comorbidities.³⁰ In contrast, among those eligible for surgery in 2005–2006, the majority were non-white, with significantly lower family incomes and education levels, as well as less access to healthcare, compared to the adult noneligible population.²⁸ Furthermore, 35% of patients eligible for bariatric surgery either did not have health insurance or were underinsured.²⁸ However, 75% of those who received bariatric surgery were white, 82% had private insurance, and 80% had greater median incomes.²⁸ Nevertheless, the association between race and bariatric surgery uptake remains unclear.¹⁸ In a study of patients across two academic medical centers, no racial differences were found in the likelihood of proceeding with bariatric surgery after adjusting for socioeconomic factors, health insurance status, and co-morbidities.³¹

Lack of knowledge about insurance coverage for bariatric surgery, coupled with out-of-pocket costs can pose limitations to referrals and the treatment. In a national survey of primary care providers, 53% believed that most of their patients could not afford the surgery.²¹ The uncertainty on whether insurance would pay for bariatric surgery was reported as one of the five key factors that made primary care providers from Wisconsin hesitate to recommend bariatric surgery. Other factors were physicians' wish to "do no harm", questioning the long-term results of the surgical treatment, limited knowledge about bariatric surgery as a treatment option, and trying to avoid pursuing surgical treatment too early.²⁴

Patient cost-sharing has been also identified as a barrier to utilization of bariatric surgery.³² Kim and colleagues reported that the uptake of bariatric surgery could be potentially increased if costsharing for patients was reduced. More specifically, they predicted that if cost-sharing was reduced from 6% (2014 average) to 0%, utilization of bariatric surgery among individuals with BMI ≥ 40 and T2D could increase by approximately 17% from 121.3 to 141.9 cases per 100,000, respectively.³²

ATTEMPTS TO PROMOTE HIGH-VALUE CARE AND ITS APPLICATION TO BARIATRIC SURGERY

Alternative payment models for healthcare services have received attention from payers and policymakers to contain health care spending and promote high-value services. One promising approach, value-based insurance design (VBID), reflects setting patient costs (e.g., copayments) based on the value of a clinical service.³³ VBID aligns cost sharing and clinical value by moving high-value services and medications into lower-priced tiers, adjusting cost-sharing based on patient characteristics, and incentivizing patients to seek high-performing providers.^{34,35} VBID recognizes that: a) not all medical services produce

the same amount of health; and b) the clinical benefits of medical services vary based on who is receiving it, who is providing the service, and the setting where the service is provided.^{33,36}

To date, VBID has been applied mostly to low-cost preventive tests and chronic care medications.³⁵ The results were favorable in promoting the use of targeted services and adherence to medications for chronic conditions but less conclusive in cost savings.^{35,37,38} To observe major cost savings and stronger clinical impact, VBID should be extended to expensive services, such as major surgical procedures, which are more controversial than those traditionally targeted by VBID initiatives.³⁹

Some employers have already incorporated bariatric surgery into their self-administered benefit plans via utilizing VBID. For example, MGM Resorts International, a global hospitality and entertainment company, introduced it for employees and dependents in 2010.⁴⁰ The plan offered coverage for bariatric surgery at a designated center of excellence, a medically supervised weight-loss program, and reversal procedures in case of medically necessity. As a cost-sharing adjustment, the company offered the following: At two years, if a planned weight reduction goal is achieved, reimbursement of \$5,000 out-of-pocket copayment; and at four years, \$5,000 incentive that could be used to pay for excess skin removal cosmetic procedures. Early results of the program indicated positive clinical outcomes (via reduction in comorbidities) and return on investment (via reduced direct claims costs, indirect costs, and prescription drug costs). Interestingly, the company decided to introduce the program since it was —the right thing to do.‖⁴⁰ A business case for providing bariatric surgery coverage for employees could be further argued, since an association has been shown between bariatric surgery and a decrease in lost workdays.⁴¹

VBID could be applied to bariatric surgery because the postoperative clinical outcomes and costs vary among the different sub-groups of bariatric surgery eligible patients. There is substantial evidence of the cost-effectiveness of bariatric surgery for adults with severe obesity who also have diabetes compared with usual medical care or intensive lifestyle interventions.^{32,42–44} The obesity-related comorbidities are often debilitating for patients and create a significant financial incentive to cover effective treatments by the payers. Payers would achieve higher return on investment if the utilization of bariatric surgery increases among these sub-groups of bariatric surgery eligible patients (BMI 40 and T2D); such result could be achieved via optimal health insurance benefit design.^{32,45}

It is important to note that when assessing cost-effectiveness, those studies considered not only the costs but also health outcomes of the compared treatment alternatives^{42,44} or compared costeffectiveness ratios (cost / quality-adjusted life-years (QALY) gained) among different treatment approaches (surgery vs conventional) and patient groups.^{32,43} For example, among patients with newly diagnosed diabetes, RYGB results in a cost-effectiveness ratio of \$7,000/QALY, which is lower than what has been reported for traditional diabetes interventions.⁴³ Among 53 year old female patients with severe obesity and T2D, lifetime cost-effectiveness of RYGB, compared with nonsurgical treatment, was \$5,804/QALY.³²

While bariatric surgery is cost-effective compared to non-surgical treatments over a period of a few years, it may not result in cost-savings among the general population of individuals eligible for surgery. However, among certain patient subgroups, bariatric surgery may be cost neutral compared with more conservative treatment options, which may not lead to clinically significant improvements in comorbidities that would significantly reduce health care costs over time. Large-scale prospective studies support prioritization of patients with obesity and T2D for bariatric surgery, based on the analysis of the long-term health-care costs. Keating and colleagues, for example, assessed the health-care costs for 2,010 Swedish adults who had bariatric surgery and 2,037 individuals who were treated conventionally over 15 years. They reported that while the total health-care expenditures were higher in the surgery group compared to the conventional treatment group in the euglycaemic and prediabetes subgroups, there was no statistically significant difference in health-care expenditures between surgery and conventional treatment groups in patients with diabetes (\$88,572 vs \$79,967, respectively; difference of \$9,081 [95% CI, -\$1,419 to \$19,581]).⁴²

Long-term outcomes of bariatric surgery suggest decreased or stable health care costs in the long run. Bariatric surgery patients use more non-primary outpatient and inpatient care during the first 6-year period following bariatric surgery, compared with conventional obesity treatment patients, but not thereafter.⁴⁶ Medication-related expenditures are generally lower for surgery patients than for conventional obesity treatment patients from years 7 through 20.⁴⁶ A longitudinal study by Weiner and colleagues analyzed 2002–2008 claims data from seven BlueCross BlueShield health insurance plans comparing 29,820 plan members who received bariatric surgery to a matched non-surgery group. Health care services utilization by patients undergoing bariatric surgery was relatively stable in the period of six years after bariatric surgery.⁴⁷ While a decrease in costs for filled prescriptions and office-based visits was recorded in the postoperative period in the surgery group compared with the preoperative baseline, these savings were offset by considerable increases in inpatient services costs associated with the bariatric surgery.⁴⁷

Since commercially insured individuals may show turnover across insurance plans over time, early cost neutrality is probably more imperative for commercial payers to demonstrate a value of increasing the coverage for bariatric surgery. Government payers, such as Medicare or the Veterans Health Administration, on the other hand, may look at a longer time frame in anticipation for cost savings, since their cohort of enrollees is generally more stable.⁴⁵

DISCUSSION

The value of bariatric surgery may vary based on who is undergoing the surgery. More specifically, individuals with extreme obesity who also have T2D represent a —high value patient sub-group. The provision of medical services also needs to be considered when determining the value of bariatric surgery. This issue becomes particularly important for insurers, hospital administrators, and policy makers as they consider readmission rates as a metrics for quality bariatric surgery.⁴⁸ For example, the use of a Centers of Excellence model for bariatric surgery has been indicated as a strategy to address low value care⁴⁹ and has been incorporated into VBID for bariatric surgery coverage by self-insured employers.⁴⁰

Prior to 2012, two agencies provided accreditation for bariatric surgery centers in the United States: American Society for Metabolic and Bariatric Surgery and the American College of Surgeons. From 2012 to 2014, the two organizations combined to create one accrediting body, the Metabolic and Bariatric Surgery Accreditation Program (MBSAQIP).⁵⁰ Accreditation from this program is required by most private payers and is based on established quality standards. These standards include comprehensive preoperative assessment, continuous quality metrics reporting, adequate bariatric specific resources and equipment, required team trainings, and continuous quality improvement.

CONCLUSIONS

There has been a prior successful experience of VBID application to bariatric surgery coverage with a use of incentive-based cost-sharing adjustments. Its application could be further extended, since the postoperative clinical outcomes and costs vary among the different sub-groups of bariatric surgery eligible patients. Incentives for the utilization of bariatric surgery, for example via removing the patient cost-share, would result in higher return of investment particularly among individuals with extreme obesity and T2D, since the value and expected benefits of bariatric surgery are much higher among these patient sub-groups. Additional research is required to determine metrics that could be used in the future to assess whether application of VBID to bariatric surgery is effective. Ideally, this research will help guide insurers, the health system, and providers to develop better-defined pathways to bring the most impactful obesity treatment—bariatric surgery—to the millions of individuals around the world who would experience improvements in morbidity and mortality from its increased use.

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