Surgery for Obesity and Related Diseases ■ (2023) 1–8

SURGERY FOR OBESITY AND RELATED DISEASES

ASMBS Guidelines/Statements

ASMBS statement on metabolic and bariatric surgery for beneficiaries of Centers for Medicare and Medicaid Services with a review of the literature

Abdelrahman Nimeri, M.D.[a,*], Rodolfo Oviedo, M.D.[b], Wesley R. Vosburg, M.D.[c], John Fam, M.D.[d], Cynthia A. Blalock, M.S.N.[e], Maria S. Altieri, M.D., M.S.[f], Toms Augustin, M.D.[g], Peter Hallowell, M.D.[h], Jonathan T. Carter, M.D.[i], for the Clinical Issues Committee of the American Society for Metabolic and Bariatric Surgery

[a]*Department of Surgery, Brigham and Women's Hospital. Harvard Medical School, Boston, Massachusetts*
[b]*Department of Surgery, Nacogdoches Medical Center, University of Houston Tilman J. Fertitta Family College of Medicine, Nacogdoches, Texas*
[c]*Department of Surgery, Mount Auburn Hospital, Cambridge, Massachusetts, and Harvard Medical School, Boston, Massachusetts*
[d]*Department of Surgery, Drexel University College of Medicine, Reading, Pennsylvania*
[e]*Department of Surgery, Vanderbilt University Medical Center, Nashville, Tennessee*
[f]*Department of Surgery. University of Pennsylvania, Philadelphia, Pennsylvania*
[g]*Department of General Surgery, Digestive Disease and Surgery Institute, Cleveland Clinic, Cleveland, Ohio*
[h]*Department of Surgery, University of Virginia School of Medicine, Charlottesville, Virginia*
[i]*Department of Surgery, University of California San Francisco, San Francisco, California*

Received 12 September 2023; accepted 19 September 2023

Abstract This position statement is issued by the American Society for Metabolic and Bariatric.
Surgery in response to inquiries made to the Society by patients, physicians, Society members, hospitals, health insurance payors, the media, and others regarding the access and outcomes of metabolic and bariatric surgery for beneficiaries of Centers for Medicare and Medicaid Services. This position statement is based on current clinical knowledge, expert opinion, and published peer-reviewed scientific evidence available at this time. The statement is not intended to be and should not be construed as stating or establishing a local, regional, or national standard of care. This statement will be revised in the future as additional evidence becomes available. (Surg Obes Relat Dis 2023;■:1–8.) © 2023 American Society for Metabolic and Bariatric Surgery. Published by Elsevier Inc. All rights reserved.

Keywords: Metabolic and bariatric surgery; Centers for Medicare and Medicaid Services; Insurance; Outcomes; Access

Metabolic and bariatric surgery (MBS) was first offered to the public in the 1960s. The introduction of laparoscopy in the late 1990s revolutionized the field, resulting in a significant increase in the number of MBS procedures performed. The rapid growth of MBS led to more scrutiny regarding the outcomes of MBS, especially in Centers for Medicare and Medicaid Services (CMS) Medicare beneficiaries [1–3]. In November 2005, the CMS considered a proposal to end coverage for MBS for Medicare beneficiaries >65 years of age due to safety concerns and increased surgical risk [4]. In response to a request by the American Society for Metabolic and Bariatric Surgery (ASMBS), the American Obesity Association, and others, this was reversed when CMS published a National Coverage Decision (NCD) summary on February 21, 2006, concluding that there was

*Correspondence: Abdelrahman Nimeri, M.D., Department of Surgery, Brigham and Women's Hospital, Harvard Medical School, 75 Francis Street, Boston, MA 02115.

E-mail address: animeri@bwh.harvard.edu (A. Nimeri).

https://doi.org/10.1016/j.soard.2023.09.013
1550-7289/

sufficient evidence to cover MBS for CMS beneficiaries with a body mass index (BMI) of >35 kg/m^2 and at least 1 obesity-related medical disease [5]. CMS stipulated that MBS had to be performed in a Center of Excellence accredited by the American College of Surgeons or the ASMBS.

The value of Center of Excellence accreditation in improving the safety of MBS is well established and is considered one of the reasons for the improved safety in MBS. In 2011, Flum et al. [6] examined MBS in >47,000 Medicare beneficiaries at >900 sites before the NCD and >600 sites after the NCD. The analysis showed that rates of MBS decreased soon after the NCD in 2006 followed by a quick rebound in 2007–2008 to pre-NCD rates in 2005. After the NCD, more patients had laparoscopic Roux-en-Y gastric bypass (RYGB) than open RYGB, and in the interim, the laparoscopic adjustable gastric band (LAGB) was introduced. Additionally, 90-day mortality, readmission, reoperation, and cost of care decreased due to a shift in the type of MBS procedure offered and the patient population undergoing MBS. Nguyen et al. [7] published a similar study in a smaller cohort of >6000 Medicare beneficiaries who underwent surgery at 102 academic medical centers and 150 affiliated hospitals before and after the NCD. There was a similar drop followed by a rebound in the number of MBS procedures performed. During this time, more laparoscopic RYGBs were performed than open procedures, and LAGB was introduced. There was a decrease in length of stay (LOS) and complications without a change in mortality before and after the NCD. In contrast, Dimick et al. [8] published in 2013 an analysis of >20,000 Medicare beneficiaries undergoing MBS in 12 states, >6000 before and >15,000 after the NCD, showing no difference in outcomes and arguing that studies that showed a benefit lacked a control group. To compile all the published studies, Azagury et al. [9] performed a systematic review of 13 published studies including >1.5 million patients in 2016 showing that 10 of 13 studies show an overall benefit for accreditation [9]. Six of the 8 studies showed a lower mortality and 8 of 11 studies showed a lower morbidity with accreditation, whereas only 2 studies showed no benefit to accreditation. In the same year, both the ASMBS and the Society for American Gastrointestinal and Endoscopic Surgeons published a joint position statement in support of accreditation in MBS [10].

On April 1, 2012, the ASMBS joined forces with the American College of Surgeons to form the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) [11]. Despite the evidence supporting the MBS Center of Excellence concept, on June 27, 2013, CMS concluded that there is not sufficient evidence to continue to require facility accreditation in MBS and that accreditation would not improve outcomes of MBS [12]. In response, the ASMBS surveyed its members on July 26, 2013, and >80% of the expert responding members voted to embrace accreditation. By January 2023, >900 hospitals participate in the MBSAQIP from all 50 states as well as the District of Columbia and Puerto Rico and 6 international MBSAQIP data-reporting sites [13,14].

Even though the 2010 Patient Protection and Affordable Care Act (ACA) was aimed at comprehensive healthcare reform to expand overall healthcare coverage, MBS coverage did not expand in all states [15]. In 2012, the ACA was adopted by 33 states in order to create federally funded state health insurance plans that recognized obesity as a disease. Twenty-five states expanded coverage for MBS, and 16 states covered nutritional counseling for the disease of obesity. The 25 states that covered MBS in 2012 were Arizona, California, Delaware, Georgia, Hawaii, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Rhode Island, South Dakota, Vermont, Virginia, West Virginia, and Wyoming. Among these 25 states, only 5 states mandated that MBS be covered in their state health insurance plans, and most states did not cover obesity medications. By 2018, state healthcare plan coverage for nutritional counseling had increased from 24 to 42 states, coverage for obesity medications had increased from 14 to 23 states, and coverage for MBS had increased from 35 to 43 states [16]. In 2022, Jackson et al. [17] analyzed MBS utilization based on whether states opted for or against Medicaid expansion. Overall, Medicaid as the primary payor increased from 9% in 2012 to 19% in 2018, and there was a greater increase in the northeast and west compared with the midwest or south. Similarly, Gould et al. [18] compared 2 states that expanded Medicaid under the ACA with 2 states that did not. The adjusted incidence rate of MBS among Medicaid or uninsured and low-income patients increased by 15.8% in states with Medicaid expansion compared with 5.1% in states without Medicaid expansion. As obesity coverage has expanded over the years, so have the financial costs. In 2013, the direct costs of obesity care in the United States were $69 billion, with $41 billion paid by CMS ($11 billion by Medicaid and $30 billion by Medicare). Such costs are not spread evenly across the healthcare system; for example, the cost of care is lower at hospitals with fewer complications, and most costs during the 90-day global period are for readmissions and post–acute care services [19,20].

Although expansion of Medicaid and Medicare coverage has improved MBS access for many patients, disparities in MBS access still exist, and access to MBS in the United States appears to be the lowest for individuals most affected by the obesity epidemic. For example, despite an obesity prevalence that is >45% in Black and Hispanic populations, 2 recent studies showed that Black patients represent only 17% and Hispanic patients only 13% of the patients undergoing MBS in the United States [21,22]. Another study demonstrated that publicly insured patients by CMS were less likely to undergo MBS than patients with private insurance despite having similar outcomes [23]. Finally, CMS restriction of MBS to accredited Centers of Excellence in 2006 led to centralization and better outcomes but required patients to travel longer distances to access MBS [24,25].

Access to obesity care and MBS remains a concern, especially when access to MBS is based on the outdated National Institutes of Health consensus guidelines, which were based on expert opinion in 1991. In 2022, the ASMBS and the International Federation for Surgery of Obesity updated the guidelines for MBS to expand access. Using current scientific evidence rather than expert opinion, the MBS guidelines were updated and published to replace the outdated 1991 National Institutes of Health consensus conference [26,27]. Private and public insurers, including CMS, are encouraged to expand converge for MBS based on these newly published guidelines.

In this statement, we list the eligibility criteria for Medicare and Medicaid services and describe the prevalence of obesity and obesity-related diseases in this population. We then review MBS outcomes in Medicare and Medicaid beneficiaries, focusing on long-term benefits, short-term outcomes, the choice of MBS procedure, and the outcomes of revisions versus primary procedures.

Methods

A literature review was conducted using Ovid MEDLINE employing the search terms "dual Medicaid Medicare eligibility," "Medicare Part D," "Medicare assignment," "Medicare Part C," "Medicare Part A," "Medicare Part B," or "Medicare" and "bariatric" or "bariatrics" or "gastric bypass." The National Library of Medicine's PubMed database was also searched using "Medicare" and "Bariatrics." All literature searches were limited to articles published from 2000 to the present, those available in English, and those including patients aged 65 years and older. Inclusion criteria used for screening articles consisted of articles that reported data on MBS in patients 65 years of age and older with or without Medicare and those that presented level I–III evidence (Fig. 1).

Eligibility criteria for CMS Medicare and Medicaid

Patients may qualify for Medicare based on age that is ≥65 years or the presence of long-term disability. Patients younger than 65 years are entitled to Medicare if they have had Social Security Disability Insurance coverage for at least 24 months and have amyotrophic lateral sclerosis or end-stage renal disease (ESRD) requiring dialysis or a renal transplant. Patients may qualify for Social Security Disability Insurance coverage by meeting the definition of disability under the Social Security Act, which defines "disabled" as being unable to work due to a severe medical condition that has lasted or is expected to last at least 1 year or result in death [28,29]. In addition, some patients may also have the option of buying into Medicare plans [28]. As opposed to Medicare, Medicaid eligibility is independent of age, is mostly dependent on financial criteria, and has benefits that vary widely from state to state. In some cases, patients may also have dual eligibility and obtain benefits from both Medicare and Medicaid.

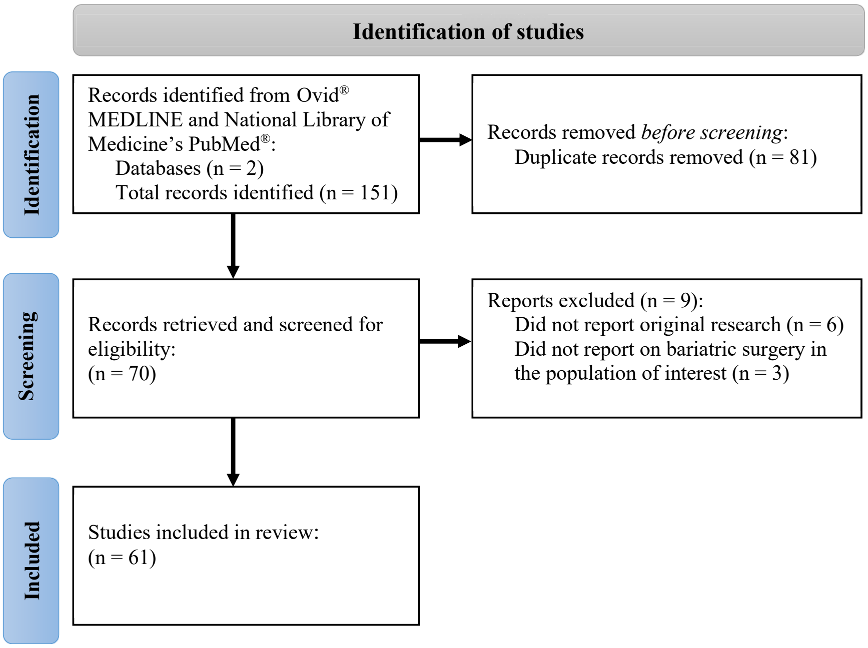

Fig. 1. Identification of studies.

There exists a significant heterogeneity of co-morbidities between patients who qualify for Medicare based on age and those who qualify based on disability, and these differences affect the rates of MBS in the CMS population. One study showed that 73% of Medicare patients who underwent MBS qualified based on disability as opposed to the remaining patients, who qualified based on age alone [30,31]. While all patients who qualify for MBS healthcare coverage have at least 1 co-morbidity (based on the 2006 CMS coverage decision), the most common obesity-associated medical diseases in descending order were hypertension, hyperlipidemia, type 2 diabetes (T2D), depression, chronic obstructive pulmonary disease, hypothyroidism, liver disease, congestive heart failure, and renal failure [31]. When comparing elderly versus disabled patients who qualify for Medicare, elderly patients had higher rates of hypertension, T2D without chronic complications, hypothyroidism, and renal failure than disabled patients. In contrast, patients with disability were younger and had higher rates of co-morbidities, especially ESRD [30,31]. For patients with ESRD, access to MBS is especially important because treatment of obesity in these patients may qualify them for renal transplantation [32]. In contrast, patients with ESRD are also known to be at higher risk of complications from MBS [32].

Demographics and obesity rates of CMS beneficiaries

Among CMS beneficiaries, in 2020, over 54 million were ≥65 years of age, 46% were female, 73% were non-Hispanic White, 11% were Black, 10% were Hispanic, and 4% were Asian/Pacific Islander [33]. Of patients with Medicare who were ≥65 years of age, 50% were 65–74 years old, 26% were 75–84 years old, 9% were 85–94 years old, and 1% were >94 years old [34].

The prevalence of obesity, defined as a BMI of ≥30 kg/m^2, was documented in ∼21% of Medicare beneficiaries as of 2019 [35]. These data may underrepresent obesity rates in the Medicare population given that only 33% of Medicare beneficiaries had annual wellness examinations in 2020 [33–35]. Obesity rates based on race and ethnicity were 24% in Black patients, 19% in non-Hispanic White patients, 18% in Hispanic patients, 17% in American Indian/Alaska Native patientse, and 7% in Asian/Pacific Islander patients [33–35]. In a review of patients with Medicare undergoing MBS between 2011 and 2015, Wirth et al. [31] evaluated the prevalence of obesity-related medical problems in disabled patients compared with patients with ESRD or patients who qualified based on age. Hypertension was the most common problem and was prevalent in 80%–90% of patients, followed by hyperlipidemia (60%–70%), and then gastroesophageal reflux disease and obstructive sleep apnea (50%–60% of patients). T2D was most common in patients with ESRD (>70%) compared with patients with a disability or elderly patients (50%–60%) [31].

Long-term benefits of MBS in CMS beneficiaries

While reports on long-term outcomes for Medicare patients undergoing MBS are sparse, the available evidence demonstrates the long-term safety and efficacy of MBS compared with nonsurgical treatment options. A systematic review by Panagiotou et al. [36] evaluated the data on Medicare-eligible patients who had MBS or nonsurgical treatment options. This review included 16 studies that met inclusion criteria and included both older and disabled patients. MBS patients had better weight loss, lower risk of cardiovascular disease (hazard ratio = .59; 95% CI, .44–.790, and significantly greater improvement in respiratory, metabolic, and renal outcomes compared with the nonsurgical cohort [36]. In the first 3 years, weight loss was greater after RYGB than after sleeve gastrectomy (SG) or LAGB [36]. After 1 year, clinical remission of T2D was higher after MBS than in the nonsurgical cohort. In addition, all 3 MBS operations studied (i.e., RYGB, SG, and LAGB) significantly reduced the hemoglobin A1C level [36].

Walker et al. [37] examined patients enrolled in the Longitudinal Assessment of Bariatric Surgery 2 (LABS-2) study to compare patients who qualified for Medicare due to age or disability with non-Medicare patients. In this study, 97 patients were age qualified, and 245 patients were disability qualified; these patients were compared with 1601 non-Medicare patients [37]. The study looked at patients who had primary RYGB or LAGB performed between March of 2006 and April of 2009. Patients with Medicare had substantial BMI loss and diabetes resolution, with similar adverse outcomes to non-Medicare patients. BMI loss after RYGB was 30% and was similar up to 5 years postoperatively for all age groups, whereas BMI loss after LAGB was 12%–14% [37]. In addition, diabetes remission after 5 years was similar among the 3 groups, with remission rates ranging from 33% to 40% after RYGB and 13% to 19% after LAGB. Regarding the safety of MBS, no patients in the age-qualified Medicare group died; 2 patients in the disability-qualified group died. Petrick et al. [38] reported a single-center comparison of outcomes of primary RYGB or SG between January 2007 and December 2017 for patients with Medicare (age or disability qualified) versus patients with Medicaid or commercial insurance. Of 3300 patients, they identified 154 age-qualified, 505 disability-qualified, and 2641 non-Medicare patients [38]. RYGB and SG were shown to be safe and effective in the Medicare patients of all ages, with a mortality rate of 1.3% at 90 days in the age >65-year age group compared with .6% in the <65-year age group. The overall complication rate for CMS patients >65 years of age was 20.1% (15.6% minor complications and 7.1% major complications), whereas the overall complication rate for CMS patients <65 years of age was 18.3% (minor, 14.3%; major, 4.7%). After adjusting for baseline differences and comparing with the Medicare group, the commercial insurance group was less likely to have a minor complication ($P = .019$) or any complication ($P = .007$) [38]. Although patients with Medicare were more likely to stay in the hospital >2 days, weight loss and diabetes remission rates were excellent and no different than those of patients with Medicaid or commercial insurance. Overall total body weight loss 3 years after MBS was 29% for patients >65 years of age and 31% for those <65 years of age; the difference was not statistically significant [38]. The authors analyzed diabetes remission and found a 23% complete and 45% partial remission rate in patients >65 years of age with diabetes. For patients <65 years of age, complete remission was seen in 45% and partial in 59% versus 46% complete and 70% partial remission in the commercial insurance group; there was significantly more complete/partial remission in the commercial group [38]. Taken in sum, these studies show dramatic improvements in obesity and metabolic disease when MBS is employed in the Medicare and Medicaid populations.

An important long-term benefit of MBS in Medicare patients is the improvement in mortality due to lower rates of major adverse cardiovascular events. It is important to note that most Medicare patients who currently receive MBS are qualified by disability rather than age [37–39]. Panagiotou et al. [36] demonstrated a lower risk of myocardial infarction after MBS compared with patients having orthopedic or gastrointestinal surgery. They also noted lower rates of coronary artery disease up to 2 years postoperatively versus non-surgically treated control individuals [36]. Scott et al. [40] showed that MBS is associated with a lower risk of myocardial infarction, stroke, or death. Similarly, Mentias et al. [39] matched 1:1 a cohort of 94,885 Medicare patients with a control group of patients with obesity. The patients with Medicare had MBS from 2013 to 2019 (65% had SG and 33% had RYGB) [39]. At a median follow-up of 4 years, MBS was associated with a 37% risk reduction in all-cause mortality, 54% reduction in new-onset congestive heart failure hospitalizations, 37% risk reduction of myocardial infarction, and 29% lower risk of stroke [39]. In aggregate, these studies show that MBS confers a longer lifespan and reduces the risk of cardiovascular events in the CMS population.

Short-term outcomes of MBS in CMS beneficiaries

Several studies have investigated complication and readmission rates for CMS beneficiaries who underwent MBS. Wirth et al. [31] examined trends, outcomes, and costs of 73,718 Medicare beneficiaries who underwent RYGB, SG, and LAGB. Thirty-day readmission rates were 8.24% for the disabled, 5.5% for the elderly, and 12.8% for patients with ESRD. Thirty-day mortality was .22% in the disabled and .28% in the elderly [31]. Walker et al. [37] further compared age- and disability-qualified Medicare recipients with non-Medicare patients undergoing primary MBS procedures. Medicare participants experienced substantial BMI loss and diabetes remission. In addition, the frequency of adverse events was similar to that of non-Medicare participants [37].

Most patients on Medicare are >65 years of age, and older age is a known risk factor for complications after MBS [40]. Mabeza et al. [41] studied MBS in patients >65 years of age and compared them with a younger cohort aged 45–64 years. The older cohort had a very low in-hospital mortality rate of .3%, but compared with the younger cohort, this represented an increased adjusted odds ratio (AOR) of 2.39 (95% CI, 1.33–4.30). There were also increased odds of respiratory complications (AOR = 1.34; 95% CI, 1.13–1.59), infectious complications (AOR = 1.65; 95% CI, 1.25–2.17), renal complications (AOR = 1.27; 95% CI, 1.12–1.46), and prolonged hospitalization (AOR = 1.35; 95% CI, 1.24–1.48) [27]. Additional studies have shown that geriatric status is associated with a similar 2.5-fold increased odds of mortality after MBS compared with younger adults [30,42]. Nelson et al. [43] described their experience with 25 patients >65 years of age undergoing RYGB. The authors report an overall complication rate and mortality of 20% and 4%, respectively. They also examined the Florida Discharge Database, which had 231 patients >65 years of age who had undergone RYGB. The overall complication rate was 15%, and the in-hospital mortality rate was 1.3% [43]. Mabeza et al. [41] examined whether there was an inflection point for increased morbidity and mortality after MBS as age increased and found an inflection point at 59 years of age. In addition to mortality rates, Medicare beneficiaries have experienced longer average LOSs than privately insured patients [42]. One study showed that Medicare beneficiaries were 6 times as likely to have an LOS of >7 days with a 30% increased risk of a prolonged LOS for every 10-year increase in age [44].

Because of these risks, physicians may be less likely to recommend MBS as a treatment for obesity in older patients because 1 study showed that MBS in geriatric patients represented only 2.7% of all bariatric surgeries performed at academic centers [43]. It is important to realize, however, that while there is increased relative risk of complications in geriatric patients after MBS, the overall absolute risk is low and clinically acceptable, especially in light of the risks of untreated obesity. For example, Mabeza et al. [41] reported an in-hospital mortality rate of only .3% after MBS in patients >65 years of age. As discussed previously, once a patient has recovered from MBS, there is a strong beneficial effect on mortality such that patients who undergo MBS live significantly longer than similar patients with obesity who do not have MBS. In addition, MBS also has been shown to provide sustained reduction in medication use and significant improvement in quality of life [41].

The risk of MBS in CMS beneficiaries is not related to age exclusively because patients who quality for Medicare based on disability have more obesity-related medical diseases than patients who qualify based on age alone [30,31]. Early postoperative complications after MBS have been studied in the Medicare population stratified by age- or disability-based enrollment [30,37,42,45]. These studies noted that patients with Medicare due to disability had an overall 6.7% rate of short-term postoperative complications and had a reoperation rate of 3% after LAGB and 6.1% after RYGB. In contrast, patients with Medicare due to older age and patients without Medicare had a slightly lower short-term overall complication rate of 4% and a reoperation rate of 0% after LAGB and 2.6% after RYGB [37]. The higher observed complication rate in patients with Medicare due to disability may have been the result of a higher burden of co-morbid conditions compared with patients with Medicare due to age alone [44].

Choice of surgery for CMS beneficiaries

The ASMBS currently endorses 8 different MBS procedures for patients with obesity. These include LAGB, SG, RYGB, biliopancreatic diversion with duodenal switch, single-anastomosis duodenoileostomy with SG, revisional MBS, intragastric balloon, and one-anastomosis gastric bypass (OAGB) [46]. SG has been the most performed MBS procedure in the United States since 2013, making up 61% of surgeries in 2020, with RYGB second, accounting for 21% of cases [47]. Recent investigations have evaluated SG outcomes specifically in Medicare beneficiaries. Chao et al. [30] examined outcomes of SG and RYGB in Medicare claims from 2012 to 2017 for 30,105 patients with 3-year follow-up. No significant difference was found with respect to mortality, complications, or reinterventions within 30 days of surgery. For the group of patients who were enrolled in Medicare due to disability, but not older age, mortality was significantly lower over the first 3 years after SG (2.1%) than after RYGB (3.2%). Additionally, 3-year complication rates were lower after SG (22.2%) than after RYGB (27.7%). For patients enrolled in Medicare due to age, there was no difference in mortality after SG and RYGB after 3 years. In this group, complication rates after 3 years remained significantly lower after SG (20.1%) than after RYGB (24.7%) [30]. Chao et al. [30] showed that SG had a better safety profile and similar healthcare resource utilization among Medicare patients than RYGB. In addition, SG had lower complications, reinterventions, emergency department visits, and rehospitalizations in the first 3 years [30]. Taken as a whole, these studies reported advantages to SG for high-risk patients and patients with preexisting co-morbidities when considering MBS for the Medicare population [30].

SG has also been compared with RYGB with respect to medication usage, particularly for gastroesophageal reflux disease and T2D. Howard et al. [48] examined a cohort of 43,364 Medicare beneficiaries after SG or RYGB in terms of antireflux medication use after MBS. The proportion of SG to RYGB was 2:1, patients after RYGB used more antireflux medications prior to MBS, and two thirds of patients were on antireflux medications at the time of surgery. After 5-year follow-up, both SG and RYGB patients took fewer antireflux medications than at the time of surgery. In addition, RYGB was associated with significantly lower antireflux medication use (46% for RYGB versus 60% for SG patients) [48]. Similarly, a significant decrease in the use of proton pump inhibitors specifically in RYGB versus SG patients after 3, 4 and 5 years was observed [34]. This difference may be of importance in procedure selection in patients concerned regarding long-term proton pump inhibitor use. In a different study, the same authors compared medication use for T2D, hypertension, and hyperlipidemia as well as the outcomes of SG and RYGB in Medicare beneficiaries between 2012 and 2018 [49]. The study also examined restarting medications for those who were able to stop them after SG and RYGB. Patients after RYGB were more likely, after 5 years, to discontinue diabetes medications (discontinuation rates of 74.7% after RYGB versus 72% after SG), and fewer patients after RYGB restarted their diabetes medication (30.2% after RYGB and 35.6% after SG). Similarly, patients after RYGB were more likely to discontinue their antihypertensive medications after 5 years (53.3% after RYGB versus 49.4% after SG). There was no significant difference in the number of patients who needed to restart antihypertensive medications in the RYGB and SG cohorts and no difference in discontinuation of hyperlipemia medications at 5 years after RYGB and SG [30,49]. In aggregate, these studies demonstrate advantages to RYGB over SG with respect to medication use in the CMS population.

There are limited data available on OAGB in the Medicare population. A small single-center study on 88 patients who were ≥60 years of age revealed no major complications [50]. Minor complications occurred in 4.5% of patients. There was a 1.2% readmission rate. After 1-year follow-up, diabetes and hypertension resolution occurred in 84% and 76% of patients, respectively. No comparison was made between OAGB and other types of MBS in this study [50].

Outcomes of primary and revisional MBS in CMS beneficiaries

While there is some literature on outcomes following primary MBS procedures in the Medicare population, studies regarding the efficacy and safety of revisional MBS surgery in this population are scarce. A recent systematic review showed an increased rate of revisional MBS in the Medicare population [36]. However, this may simply be due to revisional MBS becoming more common in general. In 2005, Flum et al. [3] examined all fee-for-service Medicare claims via the CMS database [51]. There was no difference in early mortality rates between primary and revisional MBS in the Medicare population. Only 7.6% of the 16,155 Medicare patients had undergone revision of a gastric restrictive procedure [51]. In another study, Holtestaul et al. [51] examined outcomes of bariatric surgery revisions. Only 10% of the patients were >65 years of age. There were no differences in mortality between patients >65 years of age versus younger patients. However, the number of patients was relatively small in the >65-year group. These limited studies show that revisional MBS is safe in the Medicare population, but further research is needed.

Summary and conclusions

The two major milestones in expanding national healthcare coverage for MBS were the 2006 decision from CMS and the 2010 Patient Protection and Affordable Care Act (ACA). Although most CMS beneficiaries are aged >65 years, most CMS beneficiaries who underwent MBS qualified for CMS benefits based on disability, not age. MBS in CMS beneficiaries has been shown to result in dramatic weight loss, significant metabolic disease improvement, and improved overall survival, with lower rates of major adverse cardiovascular events, when compared with CMS beneficiaries who do not undergo surgery. CMS beneficiaries have been shown to be at a higher risk of complications after MBS, the result of older age and a higher comorbid disease burden, when compared with the general population. Both SG and RYGB have been shown to be safe and effective in CMS beneficiaries, with short-term complication rates favoring SG and medication use reduction favoring RYGB. Future CMS coverage for MBS should follow the recently published ASMBS–International Federation for Surgery of Obesity guidelines for MBS, which are based on the most recent scientific evidence,

Disclosures

John Fam is a consultant for Intuitive Surgical and Boehringer Laboratories.

References

[1] Nguyen NT, Root J, Zainabadi K, et al. Accelerated growth of bariatric surgery with the introduction of minimally invasive surgery. Arch Surg 2005;140(12):1198–203.

[2] Flum DR, Dellinger EP. Impact of gastric bypass operation on survival: a population-based analysis. J Am Coll Surg 2004;199(4):543–51.

[3] Flum DR, Salem L, Elrod JA, Dellinger EP, Cheadle A, Chan L. Early mortality among Medicare beneficiaries undergoing bariatric surgical procedures. JAMA 2005;294(15):1903–8.

[4] Centers for Medicare and Medicaid Services (CMS) [Internet]. Baltimore (MD): CMS; [cited 2023 Jun 15]. Medicare proposes new coverage policy for bariatric surgery procedures; [about # screens]. Available from: https://www.cms.gov/newsroom/press-releases/medicare-proposes-new-coverage-policy-bariatric-surgery-procedures.

[5] Centers for Medicare and Medicaid Services (CMS) [Internet]. Baltimore (MD): CMS; [cited 2023 Jun 15]. Bariatric surgery for the treatment of morbid obesity (CAG-00250R); [about # screens]. Available from: https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=57&ncdver=4&

[6] Flum DR, Kwon S, MacLeod K, et al. The use, safety and cost of bariatric surgery before and after Medicare's national coverage decision. Ann Surg 2011;254(6):860–5.

[7] Nguyen NT, Hohmann S, Slone J, Varela E, Smith BR, Hoyt D. Improved bariatric surgery outcomes for Medicare beneficiaries after implementation of the medicare national coverage determination. Arch Surg 2010;145(1):72–8.

[8] Dimick JB, Nicholas LH, Ryan AM, Thumma JR, Birkmeyer JD. Bariatric surgery complication before and after implementation of a national restricting coverage to centers of excellence. JAMA 2013;309:792–9.

[9] Azagury D, Morton JM. Bariatric surgery outcomes in US accredited vs non-accredited centers: a systematic review. J Am Coll Surg 2016;223(3):469–77.

[10] DeMaria E, El Chaar M, Rogers AM, Eisenberg D, Kallies KJ, Kothari SN. ASMBS position statement on accreditation of bariatric surgery centers endorsed by SAGES. Surg Obes Relat Dis 2016;12(5):946–954. Joint Task Force Recommendations for Credentialing of Bariatric Surgeons—a SAGES publication.

[11] American Society for Metabolic and Bariatric Surgery [Internet]. Gainesville (FL): ASMBS; [cited 2023 Jun 15]. MBSAQIP; [about # screens]. Available from: https://asmbs.org/integrated-health/mbsaqip

[12] Medicare Coverage Database (MCD) [Internet]. Baltimore (MD): Centers for Medicare and Medicaid Services; [cited 2023 Jun 15]. Bariatric surgery for the treatment of morbid obesity - facility certification requirement (CAG-00250R3); [about 35 screens]. Available from: https://www.cms.gov/medicare-coverage-database/view/ncacal-decision-memo.aspx?proposed=Y&ncaid=266.

[13] American Society for Metabolic and Bariatric Surgery (ASMBS) [Internet]. City (ST): ASMBS; [cited 2023 Jun 15]. ASMBS comment to CMS on accreditation; [about # screens]. Available from:

[14] American College of Surgeons (ACS) [Internet]. Chicago (IL): ACS; 2023 [cited 2023 Jun 15]. Review and reflection: MBSAQIP January 2023 semiannual report (SAR); [about # screens]. Available from: https://www.google.com/search?q=Review+and+reflection%3A+MBSAQIP+January+2023+semiannual+report&rlz=1C5CHFA_enUS856US863&oq=Review+and+reflection%3A+MBSAQIP+January+2023+semiannual+report&gs_lcrp=EgZjaHJvbWUyBggAEEUYOdIBCDE0NDhqMGo0qAIAsAIA&sourceid=chrome&ie=UTF-8

[15] Kaiser Family Foundation [Internet]. City (ST): Kaiser Family Foundation; [cited 2023 Jun 15]. Status of State Medicaid Expansion Decisions: interactive Map; [about # screens]. Available from: https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/

[16] Jannah N, Hild J, Gallagher C, Dietz W. Coverage for obesity prevention and treatment services: analysis of Medicaid and state employee health insurance programs. Obesity (Silver Spring) 2018;26(12):1834–40.

[17] Jackson TN, Grinberg G, Khorgami Z, Shiraga S, Yenumula P. Medicaid expansion: the impact of health policy on bariatric surgery. Surg Obes Relat Dis 2023;19(1):20–6.

[18] Gould KM, Zeymo A, Chan KS, et al. Bariatric surgery among vulnerable populations: the effect of the Affordable Care Act's Medicaid expansion. Surgery 2019;166(5):820–8.

[19] Wang YC, Pamplin J, Long MW, Ward ZJ, Gortmaker SL, Andreyeva T. Severe obesity in adults cost state medicaid programs nearly $8 billion in 2013. Health Aff (Millwood) 2015;34(11):1923–31.

[20] Chhabra KR, Ghaferi AA, Yang J, Thumma JR, Dimick JB, Tsai TC. Relationship between health care spending and clinical outcomes in bariatric surgery: implications for Medicare bundled payments. Ann Surg 2022;275(2):356–62.

[21] Sundaresan N, Roberts A, Thompson KJ, McKillop IH, Barbat S, Nimeri A. Examining the Hispanic paradox in bariatric surgery. Surg Obes Relat Dis 2020;16(10):1392–400.

[22] Hui BY, Roberts A, Thompson KJ, et al. Outcomes of bariatric surgery in African Americans: an analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) data registry. Obes Surg 2020;30(11):4275–85.
[23] Hennings DL, Baimas-George M, Al-Quarayshi Z, Moore R, Kandil E, DuCoin CG. The inequity of bariatric surgery: publicly insured patients undergo lower rates of bariatric surgery with worse outcomes. Obes Surg 2018;28(1):44–51.
[24] Hayes S, Napolitano MA, Lent MR, et al. The effect of insurance status on pre- and post-operative bariatric surgery outcomes. Obes Surg 2015;25(1):191–4.
[25] Altieri MS, Yang J, Yin D, Talamini MA, Spaniolas K, Pryor AD. Patients insured by Medicare and Medicaid undergo lower rates of bariatric surgery. Surg Obes Relat Dis 2019;15(12):2109–14.
[26] Eisenberg D, Shikora SA, Aarts E, et al. 2022 American Society of Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) indications for metabolic and bariatric surgery. Obes Surg 2023;33(1):15–6.
[27] Eisenberg D, Shikora SA, Aarts E, et al. 2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): indications for metabolic and bariatric surgery. Surg Obes Relat Dis 2022;18(12):1345–56.
[28] Center on Budget and Policy Priorities [Internet]. Washington, DC: Center on Budget and Policy Priorities; 2023 [cited 2023 Jun 15]. House GOP's first bill: a misleading gambit to protect interests of wealthy tax cheats; [about 4 screens]. Available from: https://www.cbpp.org/blog/house-gops-first-bill-a-misleading-gambit-to-protect-interests-of-wealthy-tax-cheats.
[29] Social Security Administration (SSA) [Internet]. City (ST): SSA; [cited 2023 Jun 15]. The faces and facts of disability: facts; [about 4 screens]. Available from: https://www.ssa.gov/disabilityfacts/facts.html.
[30] Chao GF, Chhabra KR, Yang J, et al. Bariatric surgery in Medicare patients: examining safety and healthcare utilization in the disabled and elderly. Ann Surg 2022;276(1):133–9.
[31] Wirth K, Kizy S, Abdelwahab H, et al. Bariatric surgery outcomes in Medicare beneficiaries. Obes Sci Pract 2021;7(2):176–91.
[32] Al-Bahri S, Fakhry TK, Gonzalvo JP, Murr MM. Bariatric surgery as a bridge to renal transplantation in patients with end-stage renal disease. Obes Surg 2017;27(11):2951–5.
[33] Data.CMS.gov [Internet]. Baltimore (MD): Centers for Medicare & Medicaid Services; 2023 [cited 2023 Jun 15]. CMS Program Statistics – Medicare Total Enrollment; [about 4 screens]. Available from: https://data.cms.gov/summary-statistics-on-beneficiary-enrollment/medicare-and-medicaid-reports/cms-program-statistics-medicare-total-enrollment.
[34] CMS Office of Minority Health. Obesity disparities in Medicare fee-for-service beneficiaries [monograph on the Internet]. Baltimore (MD): Centers for Medicare & Medicaid Services; 2022 [cited 2023 Jun 15]. Available from: https://www.cms.gov/files/document/omh-datasnapshot-obesity.pdf.
[35] Data.CMS.gov [Internet]. Baltimore (MD): Centers for Medicare & Medicaid Services; 2023 [cited 2023 Jun 15]. Medicare beneficiaries at a glance; [about 4 screens]. Available from: https://data.cms.gov/infographic/medicare-beneficiaries-at-a-glance.
[36] Panagiotou OA, Markozannes G, Adam GP, et al. Comparative effectiveness and safety of bariatric procedures in Medicare-eligible patients. JAMA Surg 2018;153(11):e183326.
[37] Walker E, Elman M, Takemoto EE, et al. Bariatric surgery among Medicare subgroups: short- and long-term outcomes. Obesity (Silver Spring) 2019;27(11):1820–7.
[38] Petrick AT, Kuhn JE, Parker DM, Prasad J, Still C, Wood GC. Bariatric surgery is safe and effective in Medicare patients regardless of age: an analysis of primary gastric bypass and sleeve gastrectomy outcomes. Surg Obes Relat Dis 2019;15(10):1704–11.
[39] Mentias A, Aminian A, Youssef D, et al. Long-term cardiovascular outcomes after bariatric surgery in the Medicare population. J Am Coll Cardiol 2022;79(15):1429–37.
[40] Scott JD, Johnson BL, Blackhurst DW, Bour ES. Does bariatric surgery reduce the risk of major cardiovascular events? A retrospective cohort study of morbidly obese surgical patients. Surg Obes Relat Dis 2013;9(1):32–9.
[41] Mabeza RM, Mao Y, Maynard K, Lee C, Benharash P, Yetasook A. Bariatric surgery outcomes in geriatric patients: a contemporary, nationwide analysis. Surg Obes Relat Dis 2022;18(8):1005–11.
[42] Yu EW, Kim SC, Sturgeon DJ, Lindeman KG, Weissman JS. Fracture risk after Roux-en-Y gastric bypass vs adjustable gastric banding among Medicare beneficiaries. JAMA Surg 2019;154(8):746–53.
[43] Nelson LG, Lopez PP, Haines K, et al. Outcomes of bariatric surgery in patients $\geq$65 years. Surg Obes Relat Dis 2006;2(3):384–8.
[44] Livingston EH, Langert J. The impact of age and Medicare status on bariatric surgical outcomes. Arch Surg 2006;141(11):1115–20. discussion 1121.
[45] Wittgrove AC, Martinez T. Laparoscopic gastric bypass in patients 60 years and older: early postoperative morbidity and resolution of comorbidities. Obes Surg 2009;19(11):1472–6.
[46] American Society for Metabolic and Bariatric Surgery (ASMBS) [Internet]. Newberry (FL): ASMBS; 2022 [cited 2023 Jun 15]. ASMBS Endorsed Procedures and FDA Approved Devices; [about 2 screens]. Available from: https://asmbs.org/resources/endorsed-procedures-and-devices.
[47] American Society for Metabolic and Bariatric Surgery (ASMBS) [Internet]. Newberry (FL): ASMBS; 2022 [cited 2023 Jun 15]. Estimate of Bariatric Surgery Numbers, 2011-2020; [about 3 screens]. Available from: https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers.
[48] Howard R, Yang J, Thumma J, et al. Long-term comparative effectiveness of gastric bypass and sleeve gastrectomy on use of antireflux medication: a difference-in-differences analysis. Surg Obes Relat Dis 2022;18(8):1033–41.
[49] Howard R, Chao GF, Yang J, et al. Medication use for obesity-related comorbidities after sleeve gastrectomy or gastric bypass. JAMA Surg 2022;157(3):248–56.
[50] Peraglie C. Laparoscopic mini-gastric bypass in patients aged 60 and older. Surg Endosc 2016;30(1):38–43.
[51] Holtestaul T, Kuckelman J, Derickson M, et al. Efficacy and safety of bariatric revisions in patients older than 65 years old. Am J Surg 2021;221(6):1221–7.