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October 2008

Bariatric Surgery

Quick Facts

About Obesity and Bariatric Surgery

- An estimated 5.1% or more of adults in the United States have a body mass index (BMI) > 40 (about 100 pounds overweight) and are severely or severely obese.
- Overweight and obese individuals incur 36% greater annual medical expenditures than normal weight individuals, accounting for more than 9% of total annual medical expenditures in the U.S.¹ and for approximately 27% of year-over-year trend for employer-sponsored medical care.²
- Evidence suggests that bariatric surgery is more effective than conventional diet and lifestyle approaches for weight loss in severe obesity. It is commonly accepted that adequate weight loss following bariatric surgery is achieved when a patient loses at least 50% of his/her excess weight or achieves a body weight that is within 30% of his/her ideal weight.
- The initial per patient cost for bariatric surgery ranges from \$15,000 to \$25,000, not including the cost of complications, revisions or plastic surgery post-weight loss.³ In cases of early or late complications, costs can range from \$36,000 to \$65,000.⁴ Total national inpatient hospital costs for bariatric surgeries increased by more than eight times, from \$147 million in 1998 to \$1.26 billion in 2004 (in 2004 dollars).⁵

Introduction

Roughly 65% of adults in the U.S. are either overweight or obese. The prevalence of obesity among U.S. adults has increased from 22.9% in 1994 to 30.5% in 2000 and to 33% in 2005, according to the most recent government statistics that are available. The percentage of adults in the severe* (BMI > 40) and super (BMI > 50) obese categories has increased two and three times faster, respectively, than those with moderate obesity. Among middle-aged adults, a BMI of 35-40 is associated with twice the increase in health care expenditure than that for normal weight individuals and a 25% increase above the expenditures for adults with a BMI of 30-35. As Figure 1 (pg. 2) shows, obese adults in the 18-65 age group incur annual medical expenses that are approximately 37% higher than their normal-weight counterparts. Health care costs for people in this age group with a BMI of over 40 are double that of normal weight individuals, or about 100% higher.⁶

In addition, severely obese individuals have been found to have higher dysfunction in psychosocial performance, lower mental well-being, lower work output and 118% greater lost time from work.⁷ What's more, findings from the National Health and Nutrition Examination Survey (NHANES) revealed that obese employees had 6.9% work limitations compared to 3% for normal weight workers.⁸ In other words, the amount of time obese employees worked at less than their full work capacity is double that of non-obese employees.

Increasingly, bariatric surgery is becoming a viable treatment option for the severely obese. For this

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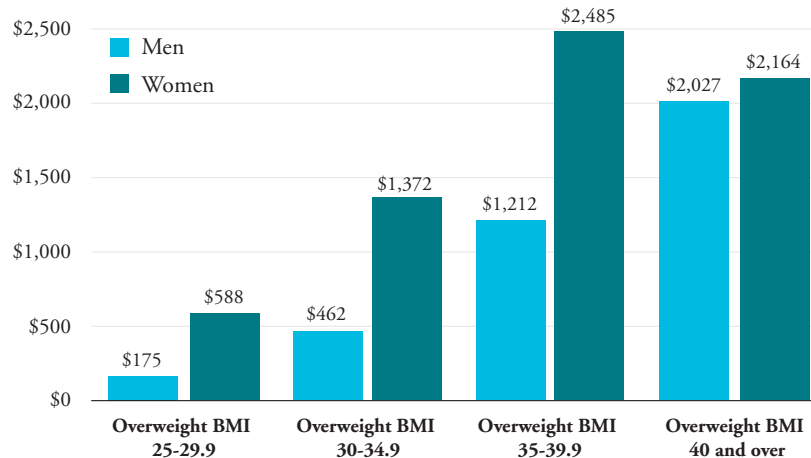
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* Throughout this guide, the term severe obesity is used instead of morbid obesity.

Figure 1. Financial Impact of Obesity

Additional medical and absenteeism expenditures attributable to excess overweight and obesity

Obese adults in the 18-65 age group incur annual medical expenditures approximately 37% higher than their normal-weight counterparts.



*Body mass index = a measure comparing weight relative to height

Source: National Business Group on Health, Issue Brief "Addressing Obesity and Enhancing Productivity", Vol. 3, October, 2005

population, data reveal that patients achieve and sustain greater weight loss after surgery than those following a regimen of diet, exercise and/or prescription medication. Successful post-bariatric surgery outcomes, however, are dependent on a variety of complex factors, ranging from patient selection criteria to the quality of care provided in treatment settings. Nonetheless, the number of procedures performed has increased tenfold between 1995 and 2008, going from 20,000 surgeries to 220,000 (see fig. 2, pg. 3).

Across all age groups, the fastest growth in bariatric surgeries occurred among adults aged 55 to 64, increasing from 772 surgeries in 1998 to nearly 16,000 surgeries in 2004. A growing number of adolescents (12-17 years old) are receiving bariatric surgery, estimated at roughly 350 surgeries in 2004, despite lack of consensus on the optimal approach to treatment for this population group. Women accounted for 82% of all bariatric surgeries in 2004.⁵

This Benefit Manager Guide examines the growing frequency of bariatric surgery and provides relevant information and recommendations. Benefit managers can use this information to design and administer optimal

benefits related to bariatric surgery in their unique work settings.

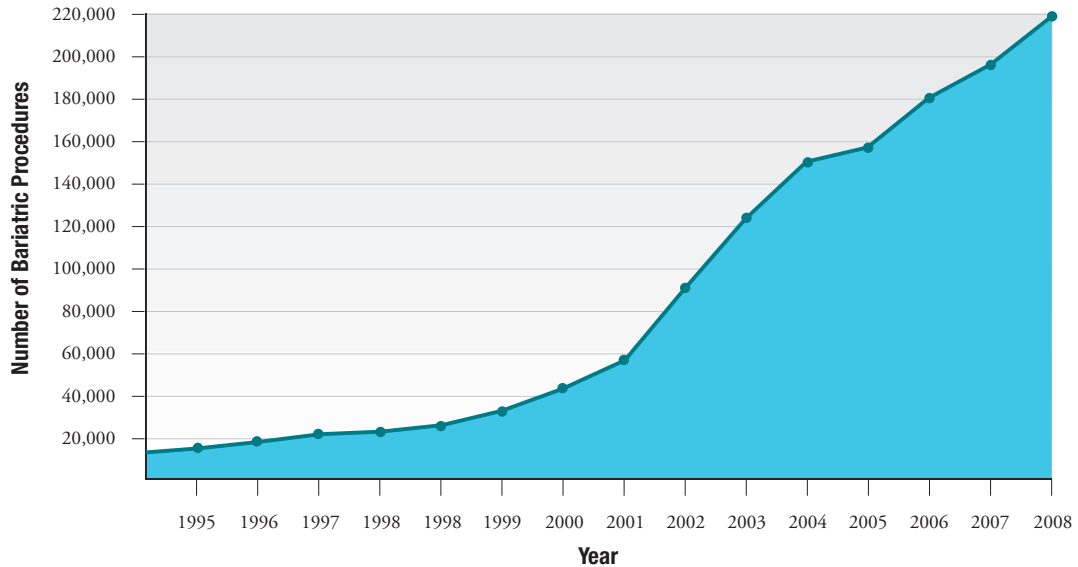
Recommendations Summary

Bariatric surgery is the most effective treatment to date for significant sustained weight reduction in severely obese individuals. Therefore, U.S. employers should expect demand for these surgeries to grow and should be prepared with a carefully considered strategy for addressing this demand. Although employers may consider requiring additional pre-surgical weight loss efforts, there is no evidence supporting the effectiveness of this approach in reducing the number of required/approved surgeries, costs or clinical outcomes.

If an employer decides to offer health benefit coverage, the plan design should do the following:

- Ensure that only eligible patients who meet recommended selection criteria, whose physicians have deemed weight loss surgery medically necessary and who are likely to benefit from the procedure, are approved for surgery. (See the section

Figure 2. Estimated Number of Bariatric Procedures Performed in the United States: 1992–2008



on patient selection criteria on pg. 9 of this guide.)

- Require that employees or eligible individuals under consideration for weight loss surgery receive a comprehensive multidisciplinary evaluation, including a medical, nutritional, psychological and weight history assessment (encompassing weight trends, previous weight loss efforts, BMI and perceived obstacles to successful weight management). A psychological evaluation is considered essential to determine a potential patient’s response to weight loss and change in body image and to identify mental health conditions that may require intervention or preclude eligibility for bariatric surgery.
- Require that only experienced, high-volume surgeons who demonstrate a minimal number of post-operative hospitalizations and mortality rates are approved to conduct the procedure; this is important because surgery outcomes and post-surgical complications vary based on the skill of

the surgeon performing the operation and the facility used. Centers that are certified as a Bariatric Surgery Center of Excellence (COE) generally provide well-documented consistent quality of care. (See the section on features of Bariatric Centers of Excellence for more information.)

It is highly recommended that coverage of bariatric surgery be extended only when performed at Centers of Excellence in Bariatric Surgery.

In a recent National Business Group on Health employer survey, 86% of the respondents provided coverage for gastric bypass surgery and 66% for laparoscopic adjustable gastric banding

Plan Design & Administration

To date, employers are highly variable in their benefit coverage. When bariatric surgery is a covered benefit, often there is a requirement to use COEs and to participate in both pre- and post-bariatric surgery coaching programs. Once

Table 1. Plan Design Options

Objective	Plan Design Feature				
	Provider Qualification	Facility Certification	Member Support	Prior Authorization	Cost Sharing
Optimal Patient Selection			■	■	■
Reduced Complications	■	■	■		
Optimal Procedure Selection	■		■	■	
Sufficient Patient Commitment			■	■	■
Purchaser Cost and Quality Management	■	■		■	■
Achieving Procedure Cost Targets				■	■

these criteria are met, the coverage is typically 80%, assuming that any deductible has already been met. Typically there is no benefit for out-of-network care or care outside of the COE. Most employers require prior authorization as administered by their carrier before providing any coverage. Some employers have life limits but not many.

Table 1 summarizes health plan design features that influence patient decision-making and support cost containment and quality health care purchasing. This information will help benefit managers optimize plan design for bariatric surgery benefits. In some instances, purchasers will have to rely on health plans to determine and administer the best mix of plan features. Other, larger purchasers have the option of customizing their plan design to achieve their objectives.

There is considerable variation in plan design and administration for severe obesity, a complex condition, and bariatric surgery, an equally complex procedure. This is an

evolving area, requiring plan design and administration to keep pace with advancing science and experience.

The key plan design attributes that are commonly used are prior authorization, patient eligibility and cost-sharing. Most insurers have similar prior authorization procedures and eligibility criteria, and the majority of employer plan designs incorporate them. The patient selection criteria are documented later in this guide.

Another key plan design attribute involves the certification of the provider and the facility. In order for patients to get the optimum coverage (usually 80%), COEs are required in most plan designs. A discussion of the criteria needed for certification as a COE is found on page 5 of this guide.

Plan designs address member support in different ways. Members may be required to use the health advocates provided by the insurer or employer for support throughout the process. Other plan designs will require

documented conversations with the case managers and submission of biometric data.

All of the plan designs require an administrative platform that can support these rules and criteria. Although most major insurers administer their plan designs on their end-state systems, it is highly recommended that they be tested rigorously prior to implementation to avoid member confusion and claims errors.

Finally, benefit managers need to be aware that disability and even workers compensation can be involved. Therefore, plan design and coverage for these two benefits should be reviewed together to avoid duplication or contradictory provisions. Towers Perrin recommends that employers cover bariatric surgery for disability purposes under any circumstances in which it would be covered under the medical plan.

State Mandates

State mandates legislated for bariatric surgery are in place in Indiana and New Hampshire. Partial mandates are in place in California, Maryland, Michigan, Virginia and Georgia.

California has a state directive calling for bariatric surgery coverage. In Maryland, coverage is required for all employees in firms with more than 50 employees. In Georgia and Virginia, coverage is offered as a rider (high premiums). In Michigan, all medically necessary procedures must be covered.

Criteria for Bariatric Surgery Centers of Excellence

Essential Features of Bariatric Surgery COEs

- Institutional commitment to follow credentialing guidelines for bariatric surgery staff and to have a designated physician medical director of bariatric surgery, who participates in decision making and provides program oversight.
- Expectation that the institution will perform at least 125 bariatric surgical cases per year.
- Presence of written clinical standards and procedures that facilitate standardized quality care for all patients and include processes for managing the evaluation and correction of adverse events.
- Comprehensive multidisciplinary approach to caring for patients before, during and after the procedure.
- Proficiency in bariatric surgery, equipped with adequate facilities, furniture and instruments suitable for severely obese patients. The center should be staffed by bariatric surgery teams comprised of experienced skilled surgeons and physicians, nurses, specialty-educated nutritionists and anesthesiologists, all of whom complete periodic continuing education in the care of bariatric patients.
- Qualified and comprehensive credentialing program that ensures bariatric surgeons have performed and continue to perform at least 50 bariatric surgeries per year and have a history of having performed at least 125 bariatric surgery cases in the past. Ideally, the bariatric surgeon should be board-certified (or in the process of certification) by the American Board of Surgery, the American Osteopathic Board of Surgery (AOBS) and/or the Royal College of Physicians and Surgeons of Canada (RCPSC). In addition, surgeons should acquire additional certification (e.g., completion of course requirement) for the particular type of bariatric surgery to be performed.
- Immediate access—within 30 minutes—to needed specialists, such as cardiologists, pulmonologists, rehabilitation therapists, psychiatrists and support staff.

- Legally acceptable process for monitoring and outcomes follow-up for the majority of bariatric surgery recipients for 5 years post-intervention.

Bariatric surgery COEs are certified by two organizations: the American College of Surgeons (ACS) and the American Society for Bariatric and Metabolic Surgery (ASBMS). The Centers for Medicare & Medicaid Services (CMS) endorses covered bariatric surgeries only when conducted at facilities that are: (1) certified by the ACS as a Level 1 Bariatric Surgery Center (For more information, go to ACS's Web site at <http://www.facs.org/cqi/bscn/index.html>) or (2) certified by the ASBMS as a Bariatric Surgery Center of Excellence (BSCOE). (Go to <http://www.surgicalreview.org/locate.aspx> for additional information.)

A list of CMS-approved facilities and their approval dates are displayed and maintained on the CMS Coverage Web site at <http://www.cms.hhs.gov/MedicareApprovedFacilities/BSF/list.asp>.

Bariatric Surgery Overview and Medical Evidence

Table 2 shows recommended weight loss treatments based on BMI category and definitions.

Obesity Treatment Options

Obesity treatment options range from non-invasive methods such as diet, exercise and pharmacological therapies to invasive procedures such as bariatric surgery. Below is a description of each of these approaches.

Diet and exercise. Even modest weight loss, identified at 5 to 10% of an individual's body weight, is associated with improved clinical measures, such as glucose metabolism, lipid levels and blood pressure. These outcome measures can be as important to a patient's well-being as actual weight lost. The U.S. Preventive Services Task Force recommends that all overweight and obese patients receive counseling to promote healthy lifestyle and behavioral modifications. Individuals can achieve weight loss and weight management through reduced-calorie diets and exercise therapy. Studies have shown, however, that

Table 2. Weight Loss Treatment Options by BMI Category and Definitions

BMI Category	Definition	Recommendation
<25	Desirable weight	Maintain
25-29	Overweight	Reduce or prevent additional weight gain by focusing on lifestyle changes
30-34.5	Class I obesity	Weight reduction via lifestyle changes plus pharmaceutical agents if appropriate
35-39.5	Class II obesity	Weight reduction candidate for bariatric surgery if individual also has serious medical conditions
40-50	Class III obesity / severe obesity	At this level, bariatric surgery is more effective than lifestyle changes.
>50	Class IV super obese	Bariatric surgery

Note: This table represents a summary of various expert recommendations.

BMI = Body Mass Index, defined as weight in kilograms divided by height in meters squared. Online BMI calculator at www.nhlbisupport.com/bmi/

for most people, dieting yields temporary results; approximately 20% of patients who lose weight are able to sustain the loss over time, with a majority regaining the weight lost during the subsequent five-year period.

Weight loss medication. Pharmacologic therapy can be offered to obese patients if dieting and exercise fail to produce the desired results. In recent years, drugs such as sibutramine and orlistat have become available.⁹ Pharmacologic therapy may result in temporary weight loss and cause varying side effects, depending on the prescribed medication. Studies have shown that weight loss medications produce modestly effective results (<5 kg at 1 year).⁹ As discussed with diet and exercise, however, even modest weight loss associated with weight loss medications can improve intermediate outcomes, such as lipid levels and hypertension.

Bariatric surgery. For Class II, III and IV obese patients who are also at high risk for morbidity and mortality, bariatric surgery should be evaluated as a treatment option when less invasive methods of weight loss have failed; it should not be considered a first treatment option.

Studies indicate that surgery is more effective than non-invasive methods for weight loss and management of obesity-related diseases in patients with a BMI of 40 or greater.

Average weight loss at 12 months for diet alone ranges from 2-5 kg (5 to 10 lbs); for diet and medications, about 7-10 kg (15 to 22 lbs); and for bariatric surgery, about 20-50 kg (44 to 110 lbs), depending on the type of procedure.¹⁰

Increasing Utilization of Bariatric Surgery

From 1998 to 2004, the total number of surgeries increased ninefold, from 13,386 to 121,055, with Roux-en-Y gastric bypass (malabsorptive) operations accounting for the majority (92%) of the procedures. Restrictive procedures constitute a small percentage (8%) of the surgeries.⁴

The number of bariatric surgeries between 1998 and 2004 increased for all age groups. In 2004, patients aged 18-54 accounted for 85.2% of all surgeries, while the near elderly (55-64) accounted for 13.1%. Adolescents and the elderly accounted for the remaining 1.5%. The fastest growth in bariatric surgeries, however, occurred among the near elderly, from 772 surgeries in 1998 to nearly 16,000 in 2004. An increasing number of adolescents (12-17) are receiving bariatric surgery, estimated at roughly 350 surgeries in 2004. Studies indicate that obesity is quickly becoming the most common chronic medical condition affecting children and adolescents. Childhood obesity is associated with increasing rates of conditions that have historically been associated with adults, such as type 2 diabetes.¹¹

Women are undergoing bariatric surgery at much higher rates than men; women accounted for 82% of all bariatric surgeries in 2004.⁵

While length of stay and mortality decreased for all age groups over time, older patients had longer lengths of stay and higher inpatient mortality rates than younger patients.⁵

Bariatric Surgical Procedures.

The term “bariatric surgery” is often used to describe several weight loss surgical procedures. Table 3 describes both common and less common procedures along with other pertinent information. Following the table is additional information about each procedure.

Laparoscopic Bariatric Surgery

This procedure requires only one or more small incisions through which surgical instruments are passed; laparoscopic surgery does not involve a large incision. Adjustable gastric banding and Roux-en-Y gastric bypass procedures are often performed through laparoscopic surgery.

Gastric banding and gastric bypass are the most common bariatric surgical procedures. Gastric bypass often results in greater weight loss.

Table 3. Bariatric Surgical Procedures

Type & Common Name	Technique	Facility Type	Cost of Surgery	Excess Weight Lost	Advantages	Disadvantages
Most Common						
Restrictive Laparoscopic adjustable gastric banding	Silicone band is placed around the upper portion of the stomach to reduce the amount of food the stomach can hold.	Inpatient and outpatient surgical units Laparoscopic approach to surgery	\$15,000	40% loss of excess weight at 12 months	Short hospital stay Least invasive Adjustable	Risk of band displacement Less weight loss Nausea and vomiting Additional surgical procedures
Restrictive and Malabsorptive Roux-en-Y gastric bypass	A small stomach pouch created to limit food quantity. The stomach pouch is attached farther down the intestine to reduce food absorption.	Inpatient Laparoscopic or standard open surgical approaches	\$20,000 (laparoscopic) to \$25,000 (open)	63% loss of excess weight at 12 months	Greater and more sustainable weight loss	Nausea and vomiting Nutritional deficiencies Gallstones
Less Common/Rare						
Restrictive Sleeve gastrectomy	A large portion of the stomach is removed to reduce amount of food it can hold. The sleeve gastrectomy can be combined with a bypass procedure to also reduce food absorption.	Inpatient and outpatient Laparoscopic or standard open surgical approaches	\$15,000 to \$20,000			Higher rates of infection Acid reflux
Malabsorptive Biliopancreatic with duodenal switch	Sleeve gastrectomy combined with significant reduction of length of intestine	Inpatient Laparoscopic or standard surgical approaches	\$20,000 (laparoscopic) to \$25,000 (open)	63% - 75% loss of excess weight at 12 months	Fewer gallbladder-related complications	Nutritional deficiencies Gallstones

Laparoscopic approaches reduce operating time, inpatient length of stay and cost. But not all patients are good candidates for laparoscopic weight loss surgery.

According to CMS, there is not adequate evidence that the following bariatric surgery procedures are reasonable and necessary; therefore, these surgeries are not covered by CMS:

1. open vertical banded gastroplasty;
2. laparoscopic vertical banded gastroplasty;
3. open sleeve gastrectomy;
4. laparoscopic sleeve gastrectomy; and
5. open adjustable gastric banding.

Member Supports

Patient Support and Education

Bariatric surgery patients have a multitude of educational resources available to them in preparation for lifestyle and dietary changes before the surgery and maintenance strategies post-surgery. The following list is a sampling of organizations that maintain useful and readily accessible information on their Web sites about obesity, weight loss and bariatric surgery.

- Mayo Clinic: www.mayoclinic.com
- BariatricEdge, supported by Ethicon Endo-Surgery: www.bariatricedge.com
- Obesity Action Coalition: www.obesityaction.org
- Health Grades: www.healthgrades.com
- American Society for Metabolic and Bariatric Surgery: www.asbs.org

Member support also includes health advocates and health case managers provided by the health plan and/or the treatment center.

Candidate Selection

Patient Selection Criteria

- At least 18 years of age.
- BMI of at least 40, or a BMI greater than 35, with one or more serious medical conditions (co-morbidity).
- Previous active participation in a non-surgical, physician-directed weight-management program may be required, though evidence of effectiveness is lacking.
- A well-informed patient ready to commit to a significant level of diet and exercise change.
- Medical evaluation sufficient to determine acceptable operative risks, how to manage the co-existing medical conditions throughout the bariatric surgical treatment process and which bariatric procedure to apply.
- Evaluation by a multidisciplinary team, including a psychological assessment of mental health or substance abuse conditions and a nutritional assessment to educate and implement needed pre- and post-surgical lifestyle changes.

Surgical Needs Post-Bariatric Surgery Weight Loss

Under certain conditions, bariatric surgery patients may be eligible for insurance coverage for re-operative or revision surgeries. If a bariatric surgery patient has not achieved adequate weight loss within 1-2 years following the operation, or suffers severe post-surgery complications due to technical failure of the initial operation, it may be necessary to re-operate or revise the original procedure. Examples of post-bariatric surgery complications that could warrant re-operative procedures include

pouch obstruction, band slippage, alkaline or acid reflux esophagitis, band erosion, stricture, anastomatic ulcer or gastric pouch dilatation.

In addition, many patients fail to achieve adequate weight loss even when fully compliant with post-operative nutritional and exercise recommendations. These patients, who are potentially eligible for corrective bariatric surgery, are required to demonstrate full compliance with the recommended post-operative nutritional and exercise regimen. Conversion to Roux-en-Y is a common revision or re-operative follow-up procedure in these cases.

Common procedures following significant weight loss, usually 3 to 5 years after bariatric surgery, include abdominoplasty and panniculectomy. Abdominoplasty is a surgical procedure that tightens lax anterior abdominal wall muscles and removes excess abdominal skin and fat. Panniculectomy is the surgical removal of a large overhanging area of skin and subcutaneous fat located in the lower abdominal area. This redundant skin and fat may result in chronic and persistent local skin conditions in the abdominal folds, often interfering with daily activities and personal hygiene. Many employers would consider these cosmetic and would not be covered benefits.

Coverage of abdominoplasty and panniculectomy for bariatric surgery patients is recommended when deemed medically necessary by a physician. Abdominoplasty/panniculectomy should not be performed until at least 18 months after bariatric surgery and only when weight has been stable for a specified period of time (e.g., previous 6 months at minimum).

Outlook and Conclusion

Bariatric surgery is a viable treatment option for severely obese patients who have failed at previous attempts to lose weight through non-invasive therapies. The trend of bariatric surgery rates is expected to increase as Bariatric Surgery Centers of Excellence are established, post-operative complications decrease and surgery outcomes improve. Technological advances are shifting weight-loss surgeries toward less invasive procedures. In the near future, bariatric surgery may be performed without incisions, using an endoscope inserted through the patient's mouth. Minimally invasive therapies will dramatically reduce pain and recovery time. Patients may be able to return home the same day and resume work the day following the procedure. With increased frequency and more data regarding surgery outcomes and ROI, employers will gain a clearer understanding of the clinical and financial benefits associated with bariatric surgery.

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Resources

Agency for Healthcare Research and Quality

www.ahrq.gov

Centers for Disease Control and Prevention (CDC)

www.cdc.gov

Centers for Medicare and Medicaid Services (CMS)

The Mayo Clinic

www.mayoclinic.com

National Institutes of Health (NIH)

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INSTITUTE ON
**The Costs
AND Health
Effects
OF Obesity**



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About The Institute on the Costs and Health Effects of Obesity

The Institute on the Costs and Health Effects of Obesity is part of the National Business Group on Health. The Institute works with large employers to develop practical and cost-effective solutions to reduce the health and cost impact of overweight and obesity on workers and their families.

LuAnn Heinen, Director, Institute on the Costs and Health Effects of Obesity, and Vice President, National Business Group on Health.

Benefit Manager Guide

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