



2012 Cost of Obesity – State of Kansas

Review of Costs Related to Obese Persons and those Eligible for Bariatric Surgery

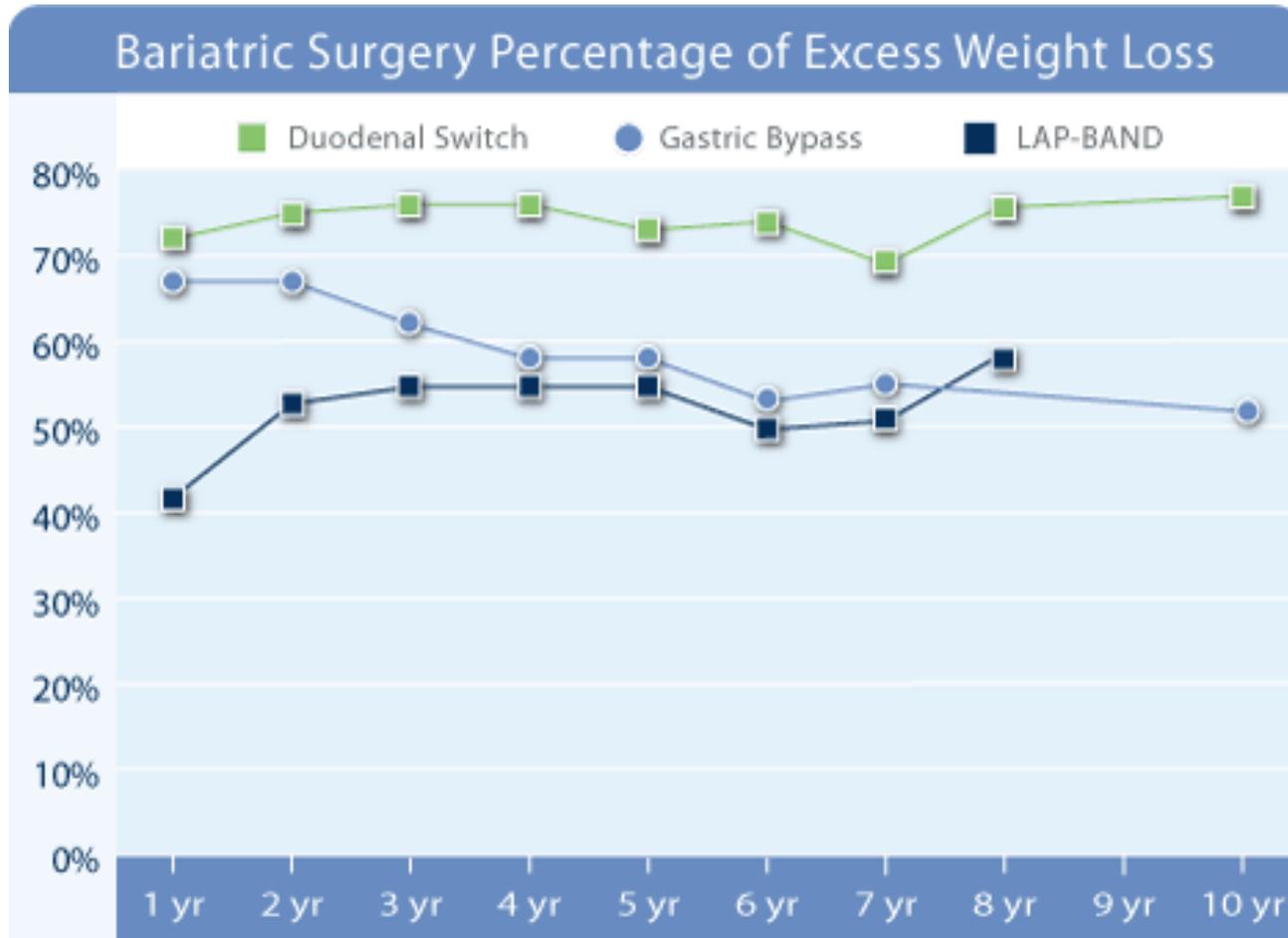
April 12, 2013



Sustainable Weight Loss

- Bariatric surgery can result in substantial and sustainable weight loss results. The rate of weight loss and amount of lost excess weight will vary from patient to patient, but overall the weight loss results are significant and life-changing after having bariatric surgery.
- The use of bariatric surgery is considered the only permanent treatment for morbid obesity (100 pounds or more over healthy weight), according to the National Institute of Health (NIH).
- Diet and exercise alone achieve an average long-term weight loss of only 10 percent
- Although bariatric surgery helps with weight loss, many individuals struggle with weight gain and have difficulty keeping the weight off.
- According to some estimates, about 95% of bariatric patients are able to maintain long-term weight loss, but 5% of bariatric patients gain back the weight.
- Surveys have shown that those who are eligible for bariatric surgery only 1.42% to 1.71% actually receive the surgery.

Bariatric Surgery Percentage of Excess Weight Loss



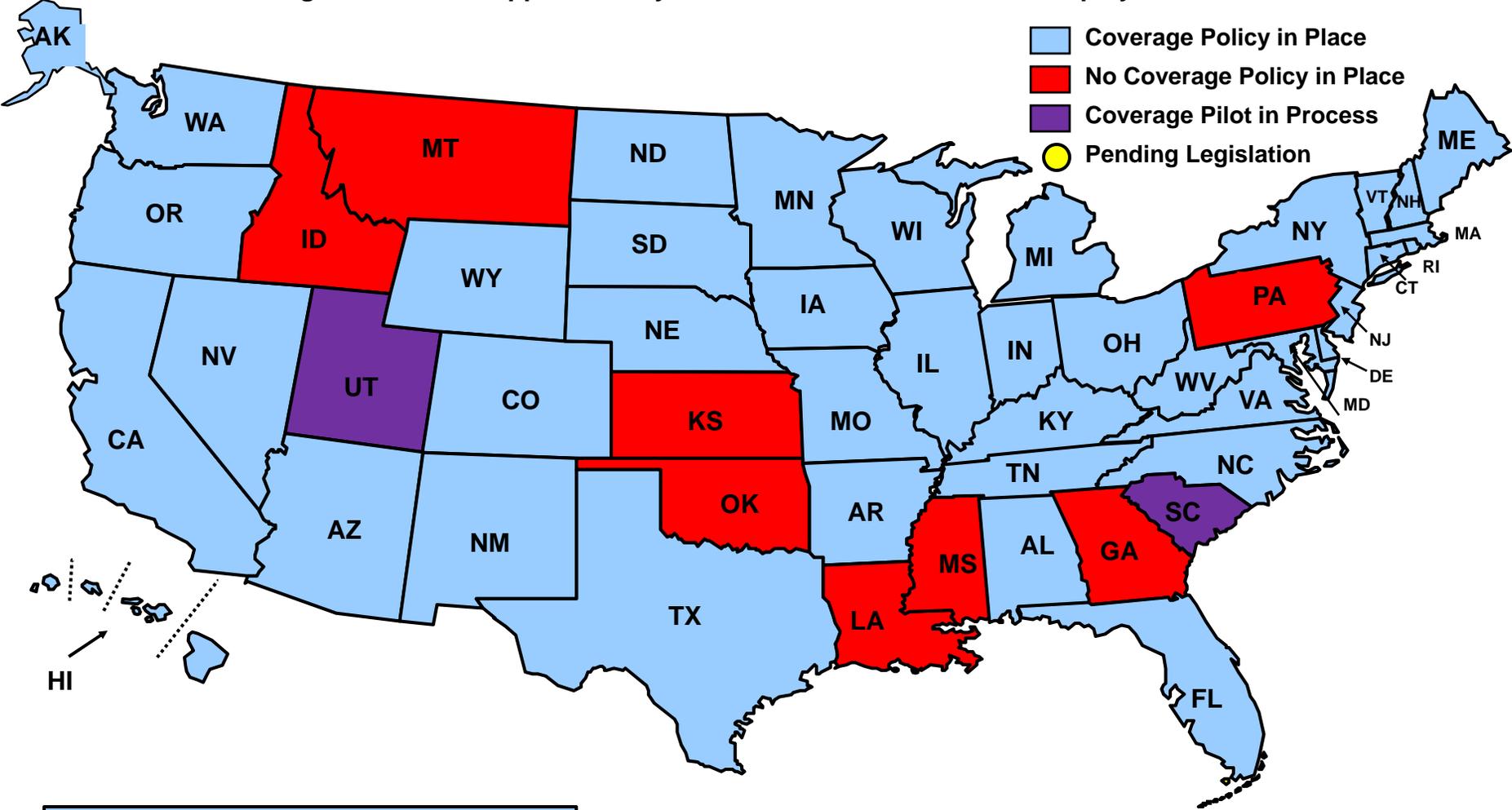
Source: Systematic Review, Professor Paul O'Brien, Centre for Obesity Research and Education © bariatric.us

Sustained Excess Weight Loss

Procedure	1 Year	5 Years	10 Years
Gastric Bypass	63%	60%	58%
Laparoscopic Band	40%	45%	47%
Vertical Sleeve	46%	42%	Data not available
Biliopancreatic Diversion	63-75%	69%	75%

Public Employer Coverage Policy for Obesity Surgery

Coverage is offered to approximately 75% of all active State Public Employees in the US.



Partial Coverage: (<50% of population) WI
 State Mandates: IN, MD, NH, CA (HMOs only)
 MS: Coverage Policy in Place effective 1/2013

Metabolic & Bariatric Surgery COEs in Colorado

Centers of Excellence	Accredited
Centura Health-St. Thomas More Hospital Canon City, CO ACS BSCN - Level 2	Fully Accredited September 17, 2012
Exempla Saint Joseph Hospital Denver, CO ASMBS BSCOE - Inpatient	Fully Accredited December 15, 2009
North Colorado Medical Center Greeley, CO ASMBS BSCOE - Inpatient	Fully Accredited October 28, 2005
Parker Adventist Hospital Parker, CO ASMBS BSCOE - Inpatient	Fully Accredited November 18, 2011
Penrose-St. Francis Health Services Colorado Springs, CO ASMBS BSCOE - Inpatient	Fully Accredited November 18, 2005
Poudre Valley Hospital Fort Collins, CO ASMBS BSCOE - Inpatient	Fully Accredited November 4, 2005
Presbyterian/St. Luke's Medical Center Denver, CO ASMBS BSCOE - Inpatient	Fully Accredited October 28, 2005
Rose Medical Center Denver, CO ASMBS BSCOE - Inpatient	Fully Accredited October 14, 2005
Sky Ridge Medical Center Lone Tree, CO ASMBS BSCOE - Inpatient	Full Accredited October 30, 2007
Swedish Medical Center Englewood, CO ASMBS BSCOE - Inpatient	Fully Accredited June 19, 2006
University of Colorado Hospital Aurora, CO ACS BSCN Level 1	Fully Accredited October 14, 2011

Metabolic & Bariatric Surgery COEs in Kansas

Centers of Excellence	Accredited
Minimally Invasive Surgery Hospital Lenexa, KS ASNBS BSCOPE - Inpatient	Fully Accredited June 25, 2007
NewHope KC, LLC Overland Park, KS ACS BSCN - Outpatient	Fully Accredited March 25, 2008
Shawnee Mission Medical Center Shawnee Mission, KS ASMBS BSCOPE - Inpatient	Fully Accredited January 22, 2007
St. Francis Health Center Topeka, KS ASMBS BSCOPE - Inpatient	Fully Accredited April 23, 2007
Tallgrass Surgical Center Topeka, KS ASMBS BSCOPE - Freestanding	Fully Accredited July 13, 2009
Wichita Surgical Specialists, P.A. Via Christi Regional Medical Center Wichita, KS ASMBS BSCOPE - Inpatient	Provisionally Approved April 23, 2010
Olathe Medical Center Olathe, KS	Working towards COE Accreditation

Metabolic & Bariatric Surgery COEs in Missouri

Centers of Excellence	Accredited
Barnes Jewish Hospital St. Louis, MO ASMBS BSCOPE - Inpatient	Fully Accredited August 29, 2006
Des Peres Hospital St. Louis, MO ASMBS BSCOPE - Inpatient	Fully Accredited June 5, 2009
Heartland Regional Medical Center St. Joseph, MO ASMBS BSCOPE - Inpatient	Fully Accredited September 17, 2012
Jefferson Regional Medical Crystal City, MO ASMBS BSCOPE - Inpatient	Fully Accredited December 4, 2012
Mercy Hospital, Springfield Springfield, MO ASMBS BSCOPE - Inpatient	Fully Accredited March 5, 2008
Saint Luke's Hospital of Kansas City Kansas City, MO ASMBS BSCOPE - Inpatient	Fully Accredited January 28, 2010
SSM DePaul Health Center Bridgeton, MO ASMBS BSCOPE - Inpatient	Fully Accredited January 13, 2006
St. Alexius Hospital - NewStart St. Louis, MO ASMBS BSCOPE - Inpatient	Fully Accredited August 29, 2006
University of Missouri Columbia Columbia, MO ASMBS BSCOPE - Inpatient	Fully Accredited October 10, 2007

Metabolic & Bariatric Surgery COEs in Nebraska

Centers of Excellence	Accredited
Alegent Health Immanuel Medical Center Omaha, NE ASMBS BSCOE - Inpatient	Fully Accredited August 29, 2008
Great Plains Regional Medical Center North Platte, NE ACS BSCN - Level 2	Fully Accredited December 4, 2012
Nebraska Methodist Hospital Omaha, NE ASMBS BSCOE - Inpatient	Fully Accredited August 7, 2008
Regional West Medical Center Scottsbluff, NE ASMBS BSCOE - Inpatient	Fully Accredited July 26, 2006
Saint Elizabeth Regional Medical Center Lincoln, NE ASMBS BSCOE - Inpatient	Fully Accredited July 21, 2008
The Nebraska Medical Center Omaha, NE ASMBS BSCOE - Inpatient	Fully Accredited June 29, 2009

Metabolic & Bariatric Surgery COEs in Oklahoma

Centers of Excellence	Accredited
Bailey Medical Center, LLC Tulsa, OK ACS BSCN - Level 1	Fully Accredited June 6, 2011
INTEGRIS Baptist Medical Center Oklahoma City, OK ACS BSCN - Level 1	Fully Accredited February 7, 2008
Norman Regional Hospital Norman, OK ASMBS BSCOPE - Inpatient	Fully Accredited March 10, 2006
Saint Francis Hospital Tulsa, OK ACS BSCN - Level 1	Fully Accredited October 23, 2006

Criteria for Coverage Comparison

Kansas Medicaid	Medicare	State of Kansas - Bariatric Surgery Recommend Requirements
Body mass index \geq 35 with at least two obesity-related co-morbidities or one severe co-morbidity (coronary heart disease, Type 2 diabetes mellitus, obstructive sleep apnea, obesity related cardiomyopathy, hypertension)	Body mass index \geq 35 and have at least one co-morbidity related to obesity (hypertension, coronary artery disease or osteoarthritis)	Body mass index greater than or equal to 35 and less than 40 with two or more co-morbid chronic medical conditions
Or	Medical and psychological assessment	Or
Body mass index (BMI) > 40 and at risk for severe co-morbidity	Have been previously unsuccessful with medical treatment for obesity	Body mass index greater than 40 with one or more co-morbid chronic medical conditions
Failed participation in medically supervised weight loss program for at least six months	Effective 2/12/09 - persons with type 2 diabetes mellitus (T2DM) is considered a co-morbidity	Co-morbid chronic medical conditions include: Cardiomyopathy, Type 2 Diabetes, Coronary Heart Disease, Hypertension, Osteoarthritis, Obstructive Sleep Apnea.
Medical assessment and psychological assessment of patient ability to adhere to pre and post operative		Failed participation in medically supervised weight loss program
Prior authorization by the plan		Medical assessment and psychological assessment of patient ability to adhere to pre and post operative requirements
		<p>Pre-operative requirements: member must participate in organized multi-disciplinary surgical preparatory regimen of at least three months duration meeting all of the following criteria, in order to improve surgical outcomes, reduce the potential for surgical complications and establish the member's ability to comply with post operative medical care and dietary restrictions:</p> <ul style="list-style-type: none"> a) Behavioral modification program supervised by a qualified professional b) Consultation with a dietician or nutritionist c) Documentation in the medical record of the member's participation in the multi-disciplinary surgical preparatory regimen at each visit. Documentation should include medical records of the physician's initial assessment of the member, and the physician's assessment of the member's progress at the completion of the surgical preparatory regimen. d) Exercise regimen to improve pulmonary reserve prior to surgery, supervised by exercise therapist or qualified professional. e) Reduced calorie diet program supervised by dietician or nutritionist.
		<p>Post Operative requirements: Case Manager will:</p> <ul style="list-style-type: none"> a) Post discharge assessments at 48 hours, 30 days, six months b) Monitor for signs and symptoms of complications c) Advises when to call doctor e) Reviews diet, weight, BMI, lifestyle changes

Covered Procedures and Facilities

Kansas Medicaid	Medicare	State of Kansas - Bariatric Surgery Recommend Requirements
Covered Procedures		
Open or Laparoscopic Roux-en-Y bypass (RYGB), Open or laparoscopic biliopancreatic diversion (BPD), with or without duodenal switch (DS), or laparoscopic adjustable silicone gastric banding (LASGB)	Effective 2/21/2006 - RYGBP, BPD/DS Effective 6/27/12 - LAGB	Open or Laparoscopic Roux-en-Y bypass (RYGB), Open or laparoscopic biliopancreatic diversion (BPD), with or without duodenal switch (DS), Sleeve Gastrectomy, or laparoscopic adjustable silicone gastric banding (LASGB)
Facilities covered		
Bariatric surgery is covered only when performed at a Center of Excellence	Level 1 Bariatric Surgery Center certified by the American College of Surgeons	Bariatric surgery is covered only when performed at a Center of Excellence
	Bariatric Surgery Center of Excellence certified by the American Society of Bariatric Surgery	

Non-Covered Services

Kansas Medicaid	Medicare	State of Kansas - Bariatric Surgery Recommend Requirements
<p>Bariatric surgery as a treatment for idiopathic intracranial hypertension</p> <p>Gastroplasty, more commonly known as "stomach stapling"</p> <p>Intragastric balloon</p> <p>Laparoscopic gastric ligation</p> <p>LASGB, RYGB, and BPD/DS procedures not meeting the medical necessity criteria above</p> <p>Loop gastric bypass</p> <p>Mini gastric bypass</p> <p>Roux-en-Y gastric bypass as a treatment for gastroesophageal reflux in non-obese persons</p> <p>Silastic ring vertical gastric bypass (Fobi pouch)</p> <p>Transoral endoscopic surgery (e.g. the stomach X device/procedure)</p> <p>Vertical Banded Gastroplasty VBG</p> <p>Open or laparoscopic sleeve gastrectomy</p>	<p>Open adjustable gastric banding</p> <p>Open sleeve gastrectomy</p> <p>Laparoscopic sleeve gastrectomy prior to 6/27/12</p> <p>Open and laparoscopic vertical banded gastroplasty</p> <p>Intestinal bypass surgery</p> <p>Gastric balloon for treatment of obesity</p> <p>Effective 2/12/09 LAGB are not covered for members who have a BMI < 35 and T2DM</p>	<p>Gastroplasty, more commonly known as "stomach stapling"</p> <p>Intragastric balloon</p> <p>Laparoscopic gastric ligation</p> <p>LASGB, RYGB, and BPD/DS procedures not meeting the medical necessity criteria above</p> <p>Loop gastric bypass</p> <p>Mini gastric bypass</p> <p>Roux-en-Y gastric bypass as a treatment for gastroesophageal reflux in non-obese persons</p> <p>Silastic ring vertical gastric bypass (Fobi pouch)</p> <p>Transoral endoscopic surgery (e.g. the stomach X device/procedure)</p> <p>Vertical Banded Gastroplasty VBG</p> <p>Open or laparoscopic sleeve gastrectomy</p>
Resources		
MMIS Policy# E2012-083 pages 2 to 11	Medicare National Coverage Determination Manual - Rev. 149, 11-30-12	

Aon Hewitt/Truven – Costs Related to Obese Persons and those Eligible for Bariatric Study

Analysis Methodology

- **Source data from Truven**
 - Paid claims incurred in 2012
 - Members included in study had reported BMI score (~26.9K employees)

- **Defining Obese**
 - Obese persons defined as those with BMI score ≥ 30

- **Defining Bariatric Surgery Eligible**
 - Must meet the following criteria
 - $35 \leq \text{BMI} < 40$ with 2 or more comorbid chronic medical conditions
 - $\text{BMI} \geq 40$ with 1 or more comorbid chronic medical conditions
 - Comorbid chronic medical conditions included were – Cardiomyopathy, Type II Diabetes, Coronary Heart Disease, Hypertension, Osteoarthritis, Obstructive Sleep Apnea

- **Total Costs were extrapolated to the entire active employee population and their covered spouses using enrollment as of January 2013**

High Level Results

- **~40% of employees have BMI ≥ 30**
 - 21.3% with $30 \leq \text{BMI} < 35$
 - 10.6% with $35 \leq \text{BMI} < 40$
 - 8.6% with $\text{BMI} \geq 40$
- **Obese people exhibit costs that are ~36% higher than non-obese persons on a PMPM basis**
 - 22% higher for those with $30 \leq \text{BMI} < 35$
 - 42% higher for those with $35 \leq \text{BMI} < 40$
 - 64% higher for those with $\text{BMI} \geq 40$
- **Despite only representing 40% of the population, obese persons account for over 48% of the costs**
- **Obese persons are 24% more likely to have comorbid chronic medical conditions than non-obese persons**

Estimated Excess Cost of Obese Persons in 2012

Category	Member Months	% of Total Members	Paid PMPM Cost	Total Costs	% of Total Cost
Non-Obese Persons (18.5=<BMI<30)	187,053	60%	\$ 304.96	\$57,043,895	52%
Obese Persons (BMI>=30)	126,950	40%	\$ 415.96	\$52,805,935	48%
Excess PMPY Costs for Obese Persons			\$1,332		
Excess Total Costs for Identified Obese Persons			\$14,091,119		
Excess Total Costs for Estimated Total Obese Persons			\$30,525,929		

**Total Costs for Estimated Total Obese Persons was derived from assuming the entire population of employees and spouses had the same distribution obese / non-obese makeup as the persons we had BMI data on.*

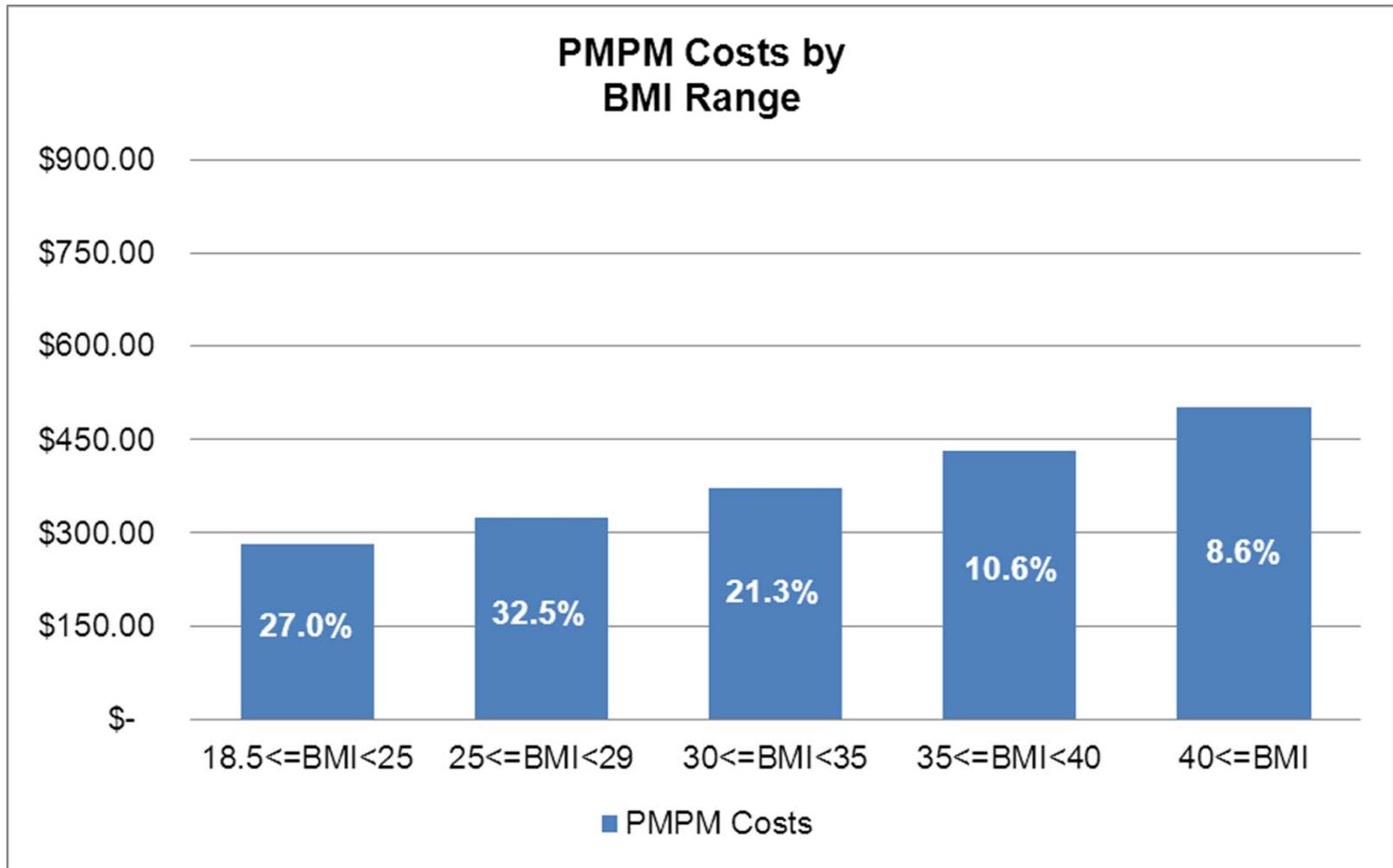
Estimated Excess Costs of Bariatric Surgery Eligibles in 2012

Category	Member Months	% of Total Members	Paid PMPM Cost	Total Costs	% of Total Cost
Non-Surgery Eligibles	290,701	93%	\$315.88	\$91,825,954	84%
Surgery Eligibles	23,302	7%	\$773.49	\$18,023,876	16%
Excess PMPY Costs for Surgery Eligible Obese Persons			\$5,491		
Excess Total Costs for Identified Surgery Eligible Obese Persons			\$10,663,295		
Excess Total Costs for Estimated Total Surgery Eligible Obese Persons			\$23,100,152		

**Surgery eligibles are those with $35 \leq \text{BMI} < 40$ with 2 or more comorbid chronic medical conditions or those with $\text{BMI} \geq 40$ with at least one comorbid chronic medical condition.*

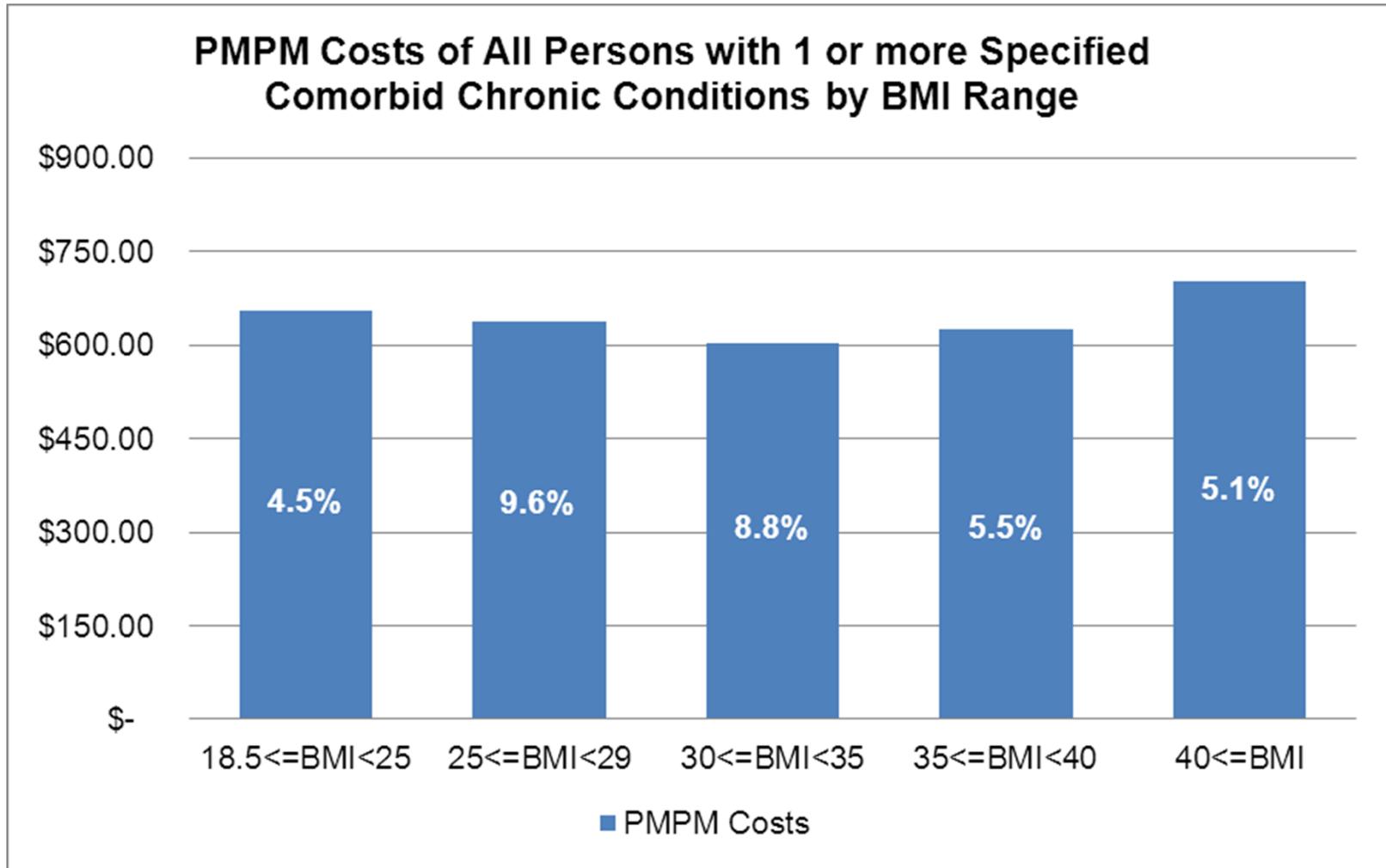
**Total Costs for Estimated Total Obese Persons was derived from assuming the entire population of employees and spouses had the same distribution obese / non-obese makeup as the persons we had BMI data on.*

Costs by BMI Range for All Persons



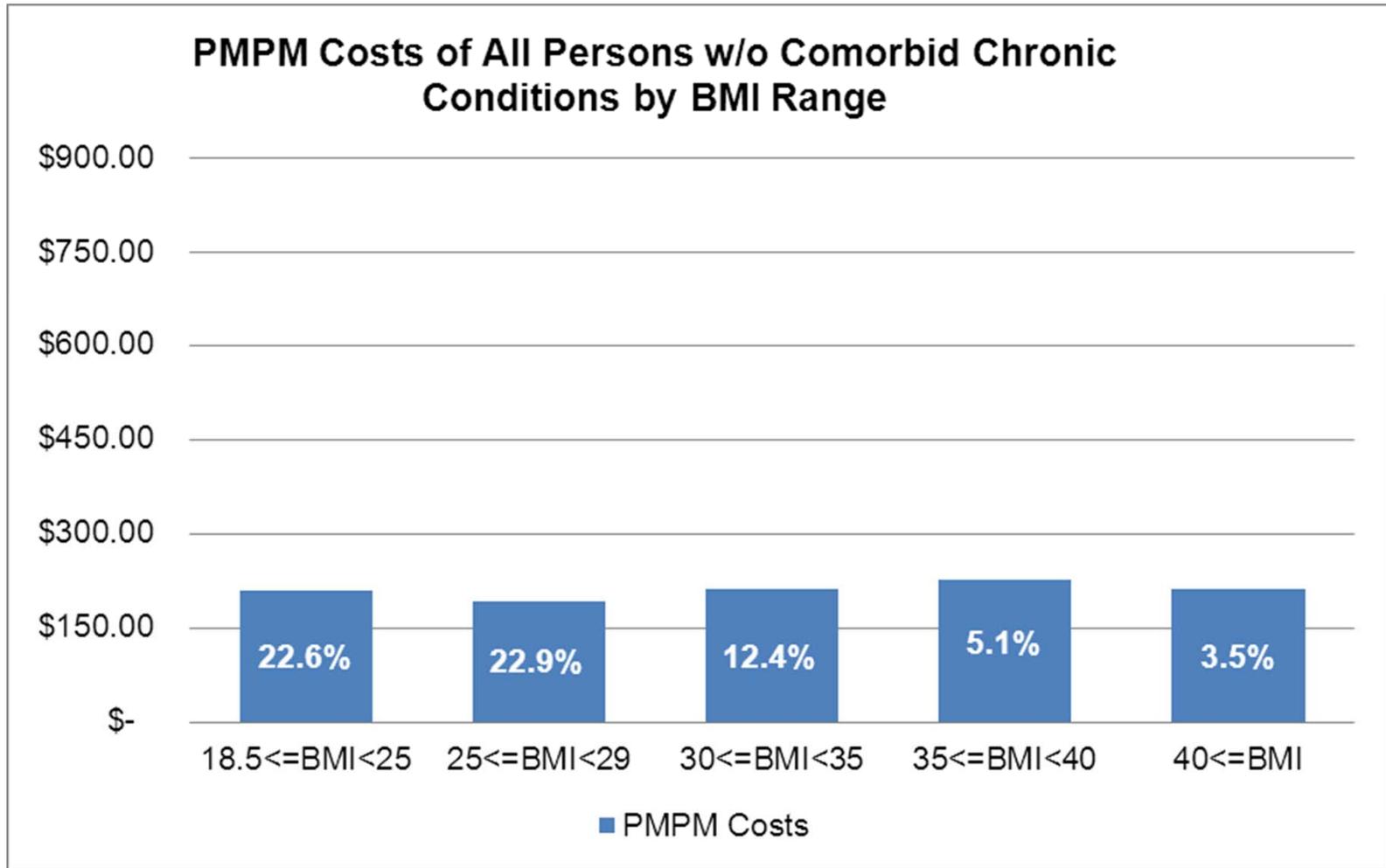
*percentages represent percentage of total study population in each grouping

Costs by BMI Range for Those With Comorbidities



*percentages represent percentage of total study population in each grouping

Costs by BMI Range for Those Without Comorbidities



*percentages represent percentage of total study population in each grouping

Condition Prevalence by BMI Range

Percent of Persons within BMI Range with Condition

BMI Range	Osteo.	Obstr. Sleep Apnea	Hypertension	Type II Diabetes	Coronary Heart Disease	Cardio.	Any Condition
18.5<=BMI<25	4.7%	0.8%	10.6%	2.1%	1.5%	0.2%	16.2%
25<=BMI<29	6.8%	2.5%	21.3%	5.3%	2.4%	0.2%	29.2%
30<=BMI<35	8.4%	5.1%	31.6%	11.3%	3.4%	0.4%	41.1%
35<=BMI<40	10.6%	9.4%	38.9%	17.5%	3.4%	0.6%	51.4%
40<=BMI	13.2%	16.2%	44.9%	25.2%	3.4%	0.9%	58.9%
Total	7.5%	4.5%	24.4%	8.7%	2.6%	0.3%	33.1%

Key Takeaways

- **Obese persons do exhibit 36% higher costs than non-obese persons, however, only ~18% of all obese persons would be eligible for the bariatric surgery benefit as we have defined eligibility**
- **Surgery eligible persons cost exceed non-eligible persons costs by 145% or \$5,491 annually, and their costs are 130% or \$5,254 higher annually than non eligible obese persons**
- **Cost reductions associated with a bariatric surgery benefit will be maximized if the costs associated with comorbid chronic medical conditions are reduced.**
 - Surgery eligible persons cost exceed non eligible persons with 1 or more chronic conditions by only 29%, or \$2,088 higher annually
 - Prevalence of any of the six comorbid chronic medical conditions identified is ~48% for obese persons compared to ~23% for non-obese persons
- **Based on several assumptions, our estimates indicate that adding a bariatric surgery benefit would generate 6M in savings over a 10 year period when the costs of bariatric surgery are taken into account.**

Caveats

- Cost differences included are based on actual data, future experience could differ from past actuals
- Total cost estimates assume that the population which we did not have BMI data for exhibits the same prevalence of obesity and cost patterns as the study population
- Identification of comorbid chronic medical conditions was based on a simplistic approach using primary and secondary ICD9 diagnosis codes found in the claim data. A person was tagged as having a specified condition if they had any claim with either primary or secondary diagnosis code included in the list of ICD9 codes. Other condition identification logic could produce different results.
- The estimated 10 year savings of 6M for adding a bariatric surgery was based on a number of assumptions. Actual experience will vary from this estimate. Please see Bariatric Surgery Savings Model for the estimate and underlying assumptions.