HEALTH facts

Trends in Bariatric Surgery in California Hospitals, 2005 to 2009

Fall 2011

Executive Summary

Nearly one quarter of California's population is clinically obese. With the trend for morbid obesity rising, a growing number of Californians will seek surgical interventions to manage health-threatening weight problems. The greater availability, affordability (through insurance coverage), and increasing popularity of some weight-loss procedures has prompted the state to take a closer look at their utilization in recent years, focusing on patient characteristics, costs, outcomes, and the hospitals where they are performed.

Key Findings

- There was a four-fold increase in the number of Laparoscopic Adjustable Gastric Banding (Lap Band) surgeries performed from 2005 to 2009, coupled with a corresponding six-fold decrease in Open Roux-en-Y Gastric Bypass (Open RYGB) procedures. There was also a fourteen-fold increase in the number of Vertical Sleeve Gastrectomy (VSG) procedures performed, though the absolute numbers remain relatively small.
- Laparoscopic Roux-en-Y Gastric Bypass (Lap RYGB) surgery remains the most common type of surgery, comprising 73% of all bariatric surgeries performed in hospitals.
- Sixty-eight percent of bariatric surgery patients were White-Non Hispanic though they represent only 42% of California's population and have a relatively low obesity rate (20.4%). In contrast, 18.2% of bariatric patients were Hispanic though they represent 37.1% of the population and have a higher obesity rate (30.1%).
- Deaths within 30 days following bariatric surgery are quite rare (1.5 per 1,000 surgeries or about 20 per year) while hospital readmissions within 30 days following bariatric surgery were more common (6.5%).
- Approximately 13% of patients experienced complications following bariatric surgery.
- Open RYGB and Biliopancreatic Diversion (BPD) procedures were associated with the highest complication rates, death rates, and hospital length of stay while Lap Band procedures were associated with the lowest complication rates, readmission rates, death rates, and length of stay.
- Shorter hospital stays for bariatric surgery patients did not result in more unplanned readmissions to the hospital. Average patient length of stay decreased by more than half a day (-0.7 days) from 2005 to 2009 while readmissions within 30 days also declined slightly (-1.1%).
- Seventy-two percent of hospitals perform at least one Lap RYGB surgery, and for most hospitals, that is the bariatric procedure they perform most often. However, in 2009 there were six hospitals that only performed Lap Band surgeries, and at two high volume centers, Lap Band was the most common surgery performed.

Introduction

Obesity is a critical public health concern, contributing to serious health conditions such as type-2 diabetes, high blood pressure, coronary heart disease, sleep apnea, and asthma. In California, obesity is on the rise. From 1999 to 2009, the number of people classified as obese [Body Mass Index (BMI) ≥ 30)] increased almost seven percent from 18.7% to 25.5%.[1]

One intervention to reduce severe obesity is bariatric surgery, a group of life-changing and potentially life-saving procedures. Bariatric surgery is usually only recommended for morbidly obese (BMI ≥ 40) patients or those with a BMI ≥ 30 and a serious medical condition (e.g., diabetes, severe sleep apnea). It is performed as an open

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It is the mission of the Office of Statewide Health Planning and Development (OSHPD) to provide useful information about the quality and safety of healthcare in California. As part of this mission, OSHPD presents this Health Facts addressing key information about trends in bariatric surgery at California hospitals from 2005 to 2009.

surgical procedure (laparotomy) or by a laparoscopic procedure (minimally invasive using a fiber optic scope). While such surgery often results in significant weight reduction, serious complications such as hemorrhage or digestive problems and even post-operative mortality can occur. This report, covering bariatric surgeries performed in California hospitals from 2005 to 2009,[2] focuses on five main types of bariatric surgery: Open Roux-en-Y Gastric Bypass (Open RYGB) surgery, Laparoscopic RYGB (Lap RYGB), Laparoscopic Adjustable Gastric Banding (Lap Band), Vertical Sleeve Gastrectomy (VSG), and Biliopancreatic Diversion (BPD).

- **Open RYGB:** In this operation, the abdomen is opened with a standard surgical incision. A small pouch at the top of the stomach then is created using surgical stapling or banding and the rest of the stomach sealed off. The small intestine is then divided and one end brought up and connected to the newly created pouch. The intestine is then reconnected, bypassing the upper small intestine (duodenum). This leads to both restricted intake and absorption of food by the patient.

- **Lap RYGB:** This is similar to an Open RYGB; however, instead of using open abdominal surgery, the operation is done by making small incisions in the patient and introducing long and narrow fiber optic surgical instruments to perform the procedure.

- **Lap Band:** In this procedure, a fiber optic laparoscope and minimally invasive technique are used to place a silicone band around the upper part of the stomach, creating a small pouch and restricting the passage of food. The band size can be adjusted via a port that is sutured to the patient's abdominal wall. As food fills the pouch a sensation of "fullness" registers with the patient resulting in reduced food intake. While the technical term for this procedure is Laparoscopic Adjustable Gastric Banding, Lap Band is commonly used to refer to the generic procedure.

- **VSG:** This is an open surgical procedure that reduces the size of the stomach by removing the left side of the stomach, leaving it roughly the size and shape of a banana.

- **BPD:** This is a combined operation in which part of the stomach is removed and the remaining part of the stomach is connected to the lower portion of the small intestine, bypassing most of the small intestine so that fewer calories and nutrients are absorbed. This surgery carries more risks than other bariatric procedures and is generally reserved for morbidly obese patients who haven't been able to lose weight any other way.

Findings

From 2005 to 2009, the number of Californians undergoing bariatric surgery within a hospital increased by 6.8%, with an average of 13,614 surgeries (0.5% of all non-maternal hospital discharges) being performed annually in 94 California hospitals. The average number of procedures at hospitals in 2009 was 153 and ranged from one case to 878 cases. (See Appendix A for hospital listings.)

Leading Comorbid Conditions

The most common comorbid conditions[3] found in patients undergoing a bariatric procedure during this period were nutritional, endocrine and metabolic disorders, hypertension, non-traumatic joint disorder, upper gastrointestinal disorders, disorders of lipid metabolism, and diabetes. (Table 1)

Changes in Type of Bariatric Surgery

During the study period, there was a dramatic six-fold reduction in the number of patients who underwent Open RYGB surgery (2,289 in 2005 versus 367 in 2009) and a corresponding four-fold increase in the number of Lap Band surgeries performed (737 in 2005 versus 3,260 in 2009). In addition, there was a fourteen-fold increase in VSG procedures (61 in 2005 and 864 in 2009) with a two-fold reduction in BPD procedures (362 in 2005 and 153 in 2009). (Figure 1) Although Lap RYGB surgeries experienced a small decline (-2.7%), they remained the most common type of procedure, performed in seven out of ten cases.

Gender, Age and Race

Approximately 80% of patients who underwent bariatric procedures during the study period were female. However, the percentage of males undergoing bariatric surgery grew steadily from 18.3% in 2005 to 22.3% in 2009. Patient age ranged from 7 years to 82 years, with an average age of 44 years. The majority of patients undergoing bariatric surgery were between the ages of 45 and 54 (28.8%), followed by 35-44 year olds (28.2%). (Figure 2) Only 0.2% of bariatric surgery patients were youths under 18 years of age.

The racial and ethnic composition of bariatric surgery patients did not necessarily reflect their numbers in the general population. While 68.4% of patients were

Table 1. Top 10 Comorbid Conditions* for Patients Undergoing a Bariatric Surgery Procedure, California, 2005-2009	
Secondary Diagnosis	**Percentage* among Bariatric Surgery Patients**
Nutritional, Endocrine and Metabolic Disorders	71.4
Hypertension	52.0
Non-Traumatic Joint Disorders	43.7
Upper Gastrointestinal Metabolism	41.3
Disorders of Lipid Metabolism	33.6
Diabetes	30.9
Mood Disorders	19.4
Asthma	16.0
Spinal Osteoarthritis; Intervertebral Disc Disorders; Other Back Problems	16.0
Diseases of Female Genital Organs	15.0

**Patients may have more than one comorbid condition.*

Figure 1. Number of Patients Undergoing Bariatric Procedures, California, 2005-2009

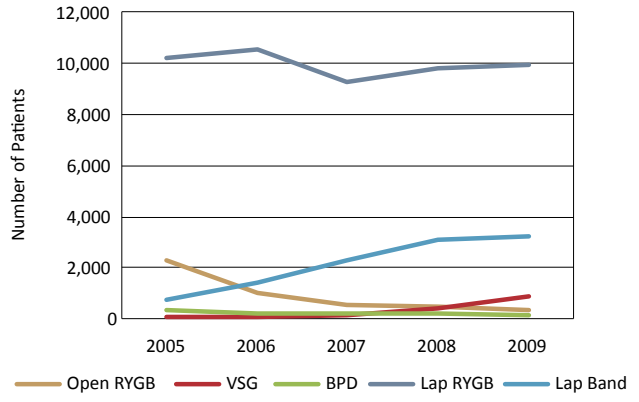
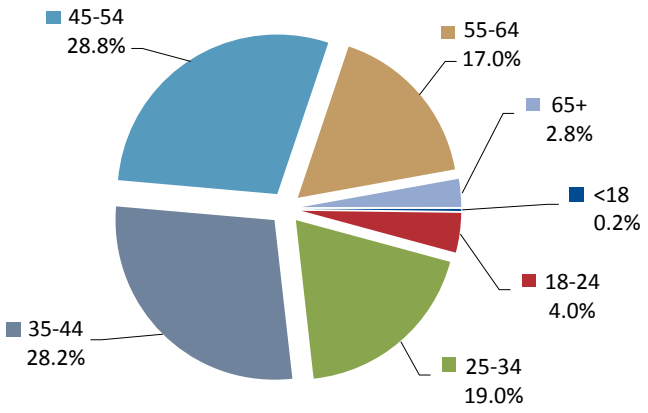
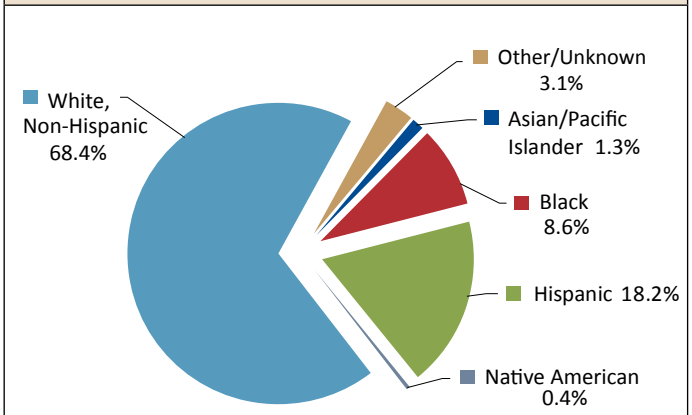


Figure 2. Percent of Patients Undergoing a Bariatric Procedure by Age Group, California, 2005-2009



White/Non-Hispanic, they represent only 42% of the California population.[4] Hispanics accounted for 18.2% of bariatric surgeries but they comprise 37% of the population. Blacks comprise 8.6% of bariatric patients and form nearly 6% of the total population while Asian and Pacific Islanders, comprising 12% of California's population, made up only 1.3% of those receiving bariatric surgery. The prevalence of obesity is also uneven across the groups[5] with Blacks having the highest rates (35%) followed by Native American (32.4%), Hispanics (30.1%), White Non-Hispanics (20.4%), and Asian/Pacific Islanders (6.7%). (Figure 3)

Figure 3. Percent of Patients Undergoing a Bariatric Procedure by Race/Ethnicity, California, 2005-2009



Hospital Charges and Length of Stay

During 2005-2009, the median hospital charge for all bariatric procedures ranged from $50,305 to $54,535. The median charge for Lap RYGB surgeries increased steadily from $50,342 in 2005 to $58,048 in 2009. In

contrast, there was a 41% decline in the median charge for VSG surgeries ($88,695 in 2005 and $52,359 in 2009), and a slight decline for BPD surgeries ($93,563 in 2005 to $85,164 in 2009). Hospital charges for Lap Band and Open RYGB procedures did not vary noticeably between 2005 and 2009. Hospital charges are not equivalent to hospital costs, which are not reported to the State. Charges may be two or more times higher than the actual costs hospitals negotiate for insured patients.

The average length of hospital stays declined for all bariatric surgery types during the study period. From 2005-2009, the length of stay for all bariatric surgeries ranged from less than one day to 308 days, with an average of 2.3 days. The sharpest decline was observed among VSG patients (3.8 days in 2005 and 2.4 days in 2009). Hospital stays were longest for patients undergoing Open RYGB and BPD, averaging 3.8 days and 3.9 days, respectively. Lap Band surgery patients had the shortest hospital stays, averaging 1.2 days. Consequently, patients receiving Lap Bands were charged an average $45,431, less than the other surgery types.

Expected Payer Source

Private insurance was the primary source of expected payment for approximately 80% of the bariatric procedures performed during the five-year study period. Other major payer categories included Medicare (7.2%), Medi-Cal (5.5%) and self-pay (4.3%). Medicare median hospital charges fell by $3,000 ($61,377 to $58,610), while Medi-Cal charges rose by roughly $7,000 ($50,250 to $57,664). Charges by private and self-pay sources increased approximately $5,000 over the time period ($49,000 to $54,000). "Other" sources (Worker's Compensation, County Indigent, Other Government Indigent, and sources not reported) fell by roughly $10,000 ($62,881 to $53,754).

Deaths Following Bariatric Surgery

From 2005 to 2009, there were 40 inpatient deaths associated with all bariatric surgeries, an average of eight inpatient deaths per year (0.6 per 1,000 surgeries). However, that number nearly doubles (79) when deaths occurring within 30 days following hospital discharge are included (1.2 per 1,000). While the rate of inpatient deaths fell slightly from 0.7 per 1,000 in 2005 to 0.5 per 1,000 in 2009, the 30-day death rate increased by the same amount from 1.3 in 2005 to 1.5 per 1,000 surgeries in 2008. (Figure 4) The 180-day death rate (2.8 per 1,000) was approximately double the 30-day death rate, and the 1-year death rate (3.3 per 1,000) was 18% higher than the 180-day death rate. Of course, some deaths occurring after hospital discharge may not be directly related to the bariatric procedure.

Overall, the highest rates of inpatient death were associated with Open RYGB and BPD operations (3.6 and 2.6 per 1,000, respectively), followed by VSG surgeries (1.3 per 1,000). The lowest rates of in-hospital death were associated with Lap RYGB surgeries (0.3 per 1,000) and Lap Band (0.1 per 1,000). These patterns are similar for 30-day deaths, with minor exceptions. The 30-day death rate for VSG surgeries was highest [4.4 per 1,000 (7 deaths)], followed by BPD and Open RYGB surgeries [4.3 and 4.2 per 1,000 (5 deaths and 20 deaths), respectively]. Lap RYGB and Lap Band procedures had the lowest 30-day death rates [0.9 and 0.3 per 1,000 (45 deaths and 3 deaths), respectively].

Complications Associated with Bariatric Surgery

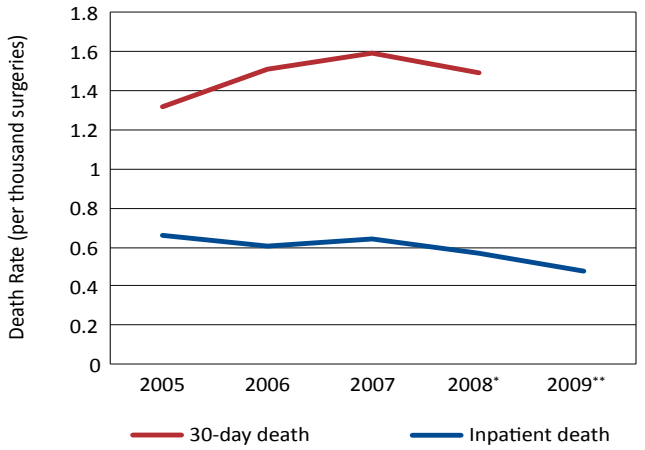
From 2005 to 2009, 8,945 patients (13%) experienced at least one documented complication[6,7] of bariatric surgery during their hospital stay. Patients may have had more than one type of complication, and trends in complication rates varied by type of procedure performed. Complication rates for Lap Band patients fell by more than half, from 13.7% in 2005 to 6.6% in 2009. Complication rates for Lap RYGB procedures increased slightly from 11.3% in 2005 to 13.2% in 2009. Complication rates across the years were highest for BPD surgeries (26.7%), followed by Open RYGB procedures (22.4%) and VSG surgeries (14.8%). BPD patients experienced an increase in complications during the study period, from 26.0% in 2005 to 38.6% in 2009.

Unexpected reoperations occurred more often than any other complication. BPD patients experienced the highest rate of unexpected reoperations (20.5%) followed by Open RYGB (13.7%) and VSG (10.7%) patients. In addition, BPD patients experienced the most hemorrhagic complications (4.0%). In contrast, Lap Band patients experienced the fewest reoperations (5.9%), hemorrhagic events (0.3%) and other types of complications (0.9%). (Figure 5)

Hospital Readmissions

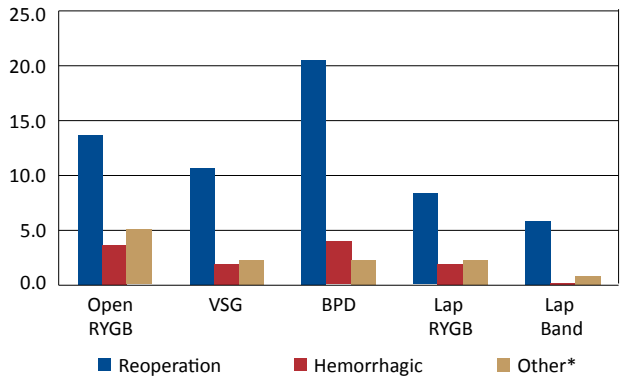
Another undesirable outcome of bariatric surgery is unplanned hospital readmission soon after the initial surgery. The average 30-day readmission rate for all bariatric surgeries across the study period was 6.4%, compared to a 2.6% readmission rate for all inpatient procedures, excluding admissions for childbirth, newborns, and cancer. Readmissions after Open RYGB operations were most frequent, averaging 10.5%. This is followed by readmissions after VSG (9.2%), BPD (9.0%), and Lap RYGB (6.8%). Lap Band patients ex-

Figure 4. Inpatient and 30-day Death Rate for Bariatric Surgery Patients, California, 2005-2009



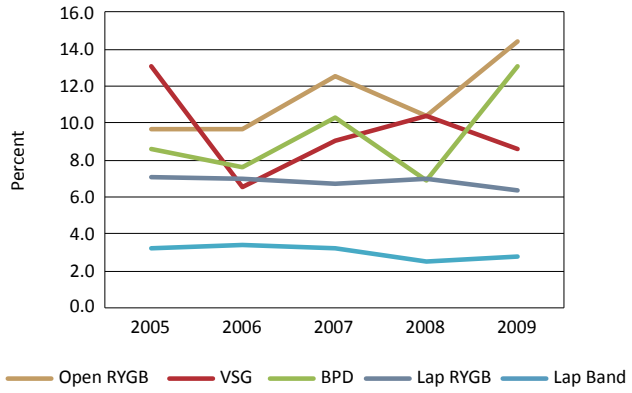
*For 2008, 30-day death rate based on 11 months of data.
**For 2009, 30-day death rate data not available.

Figure 5. Complication Rates Associated with Bariatric Procedures, California, 2005-2009



**"Other" type includes systemic complications (respiratory, cardiac, urinary tract or neurologic complications, heart attack, kidney failure, deep vein thrombosis, or post-operative shock) and technical complications (injury to spleen, wound infection, abdominal drainage, or obstruction).[6,7]*

Figure 6. Percent of Hospital Readmissions within 30-days following Bariatric Surgeries, California, 2005-2009



perienced the lowest readmission rates (2.9%). (Figure 6) Overall, readmissions following any bariatric surgery declined from 7.1% to 6.0% over the period while average length of stay also decreased by 0.7 days.

Variation in Number and Type of Bariatric Surgeries across Hospitals

Appendix A provides the number of bariatric surgeries performed by each hospital, by surgery type, and the percentage of their total bariatric surgeries these represent. Most hospitals did more Lap RYGBs than any other type of surgery – in only 27 hospitals were they a minority of the cases performed. Most hospitals performed several types of bariatric procedures but one hospital performed RYGB exclusively, four hospitals performed only Lap RYGB procedures, and six hospitals performed only Lap Band procedures. Of the 12 hospitals with largest case volume, nine performed Lap RYGB predominantly; however, at one high-volume hospital more than 50% of bariatric procedures were VSG and at two other high-volume centers more than 50% of cases were Lap Band.

Conclusion

This study looked at trends in hospitalizations for bariatric surgeries. It did not address surgeries performed in the outpatient setting so it does not capture the full picture of bariatric surgery in California. Only partial data are available on outpatient surgery centers in California, but national data and other sources confirm that nearly all procedures currently performed outside hospitals are Lap Band.[8] Data also point to at least twice as many Lap Band procedures being performed outside hospitals as inside them. This report is also limited by the hospital discharge data used in analyses, which do not include detailed clinical information that might have allowed for better classification of patient diseases and complications, as well as the procedures performed. Despite this lack of precision, they provide the best estimates on bariatric surgery currently available.

Important trends are identified in this report that may help inform California state health policy and planning. There has been a fairly rapid and recent shift away from open RYGB surgery and a rapid increase

in minimally invasive Lap Band procedures. This relatively new procedure demonstrates a favorable safety profile but its clinical effectiveness has yet to be fully evaluated. While the majority of surgery patients are White/Non-Hispanic and female, the number of Hispanics and males undergoing bariatric surgery has been increasing steadily. The report also confirms low inpatient and long-term mortality rates associated with bariatric procedures but highlights non-trivial complication and hospital readmission rates. Finally, the report details for the first time the number of bariatric surgeries performed at California-licensed hospitals. Consumers and purchasers of health care may find this information useful in helping inform decisions on where to obtain bariatric surgical care.

Acknowlegements

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References

[1] Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention 1999-2009. http://apps.nccd.cdc.gov/brfss/display.asp.

[2] The data source for this analysis was the 2005-2009 California Patient Discharge Data (PDD). In the analysis, all morbidly obese individuals who underwent at least one bariatric surgery during the study period were included in the study. Patients with multiple records (re-admissions) were linked via social security numbers, birthdates and sex within the PDD. In order to measure 30-day mortality, the California Vital Statistics Death Master file was linked to patient records via valid social security numbers. Analyses were done using SAS, version 9.2.

[3] Diagnostic categories for comorbid conditions were created using the Agency for Healthcare Research and Quality Clinical Classification Software (version 1.2), 2010.

[4] Population Projections by Race/Ethnicity for California and its Counties, 2000-2050, California Department of Finance, 2007. http://www.dof.ca.gov/research/demographic/reports/projections/p-1.

[5] Diamant AL, Babey SH, Wolstein J, and Jones M. *Obesity and Diabetes: Two Growing Epidemics in California*. Los Angeles, CA: UCLA Center for Health Policy Research, 2010.

[6] Complications were identified during the hospital admission in which the surgery occurred. Definitions for the types of complications were based on work by Santry et al., 2005. Hemorrhagic complications consisted of intraoperative hemorrhage, postoperative hematoma, and blood transfusion. Reoperation complications include procedures for wound dehiscence, lysis of adhesions, removal of foreign body, and laparotomy. Other complications involve both procedures (i.e., splenectomy, percutaneous abdominal drainage, tracheotomy, and acute dialysis) and diagnoses (i.e., wound infection; small bowel obstruction; shock; and pulmonary, cardiac, neurological, genitourinary tract, and thromboembolic complications).

[7] Santry HP, Gilen DL, Lauderdale DS, Trends in Bariatric Surgical Procedures, *JAMA*. 2005; 294:1909-1916.

[8] Personal Communication, John Morton, MD, MPH, FACS, Associate Professor of Surgery Section Chief, Director of Bariatric Surgery and Surgical Quality, Stanford School of Medicine, August 15, 2011.

APPENDIX

Number and Percent of Bariatric Surgeries Performed in California, by Hospital and Type of Surgery, 2009

County	Hospital Name	Open RYGB		VSG		BPD		Lap RYGB		Lap Band		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Statewide		**367**	**2.5**	**864**	**5.9**	**153**	**1.0**	**9,928**	**68.1**	**3,260**	**22.4**	**14,572**
Alameda	Kaiser Foundation Hospital – Oakland Campus			12	4.7			246	95.3			258
	Kaiser Foundation Hospital – Hayward	3	0.7	12	2.8			400	93.0	15	3.5	430
	Alta Bates Summit Medical Center – Summit Campus – Hawthorne	2	1.1	4	2.2	2	1.1	126	70.4	45	25.1	179
	Valleycare Medical Center	1	0.7					132	89.8	14	9.5	147
Butte	Enloe Medical Center – Esplanade Campus			6	5.4			98	88.3	7	6.3	111
Contra Costa	John Muir Medical Center – Concord Campus			13	13.3			85	86.7			98
Fresno	Clovis Community Medical Center	69	17.6	2	0.5			288	73.5	33	8.4	392
	Saint Agnes Medical Center	40	67.8					18	30.5	1	1.7	59
	Fresno Surgical Hospital	2	4.1					45	91.8	2	4.1	49
	Kaiser Foundation Hospital – Fresno	1	0.9	2	1.9			101	94.4	3	2.8	107
	Fresno Heart and Surgical Hospital	2	0.2	10	1.1	7	0.8	699	79.6	160	18.2	878
Humboldt	Saint Joseph Hospital – Eureka	3	13.0					19	82.6	1	4.3	23
Kern	Delano Regional Medical Center	1	1.2	1	1.2	58	69.9			23	27.7	83
	Kern Medical Center	10	100.0									10
	Mercy Hospital – Bakersfield	2	1.8					19	16.7	93	81.6	114
	San Joaquin Community Hospital	1	1.2					22	27.2	58	71.6	81
	Bakersfield Heart Hospital									24	100.0	24
Los Angeles	Saint Mary Medical Center	7	7.1	1	1.0			53	53.5	38	38.4	99

Note: Percentages may not total to 100% due to rounding.

Number and Percent of Bariatric Surgeries Performed in California, by Hospital and Type of Surgery, 2009 (continued)

County	Hospital Name	Open RYGB		VSG		BPD		Lap RYGB		Lap Band		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Statewide		**367**	**2.5**	**864**	**5.9**	**153**	**1.0**	**9,928**	**68.1**	**3,260**	**22.4**	**14,572**
Los Angeles (continued)	Bellflower Medical Center							1	100.0			1
	Brotman Medical Center							2	50.0	2	50.0	4
	Tri-City Regional Medical Center – Hawaiian Gardens	11	3.4	4	1.2			214	65.2	99	30.2	328
	Lakewood Regional Medical Center	1	8.3					11	91.7			12
	Huntington Memorial Hospital	1	0.5					150	74.3	51	25.2	202
	Torrance Memorial Medical Center	17	5.6	33	10.8			140	45.8	116	37.9	306
	Kaiser Foundation Hospital – Harbor City	10	2.5	237	59.3	3	0.8	140	35.0	10	2.5	400
	Kaiser Foundation Hospital – West Los Angeles	17	7.0	142	58.2			66	27.0	19	7.8	244
	Lancaster Community Hospital	3	3.3	12	13.2			76	83.5			91
	Community Hospital of Long Beach			13	30.2			29	67.4	1	2.3	43
	Marina Del Rey Hospital							10	25.0	30	75.0	40
	Methodist Hospital of Southern California							84	98.8	1	1.2	85
	Olympia Medical Center			1	8.3					11	91.7	12
	Cedars Sinai Medical Center	8	1.1	7	1.0			313	44.8	371	53.1	699
	Northridge Hospital Medical Center	1	1.5	9	13.4			28	41.8	29	43.3	67
	Silver Lake Medical Center – Downtown Campus			1	33.3			2	66.7			3
	Providence Saint Joseph Medical Center			5	0.9	2	0.4	383	69.3	163	29.5	553
	Coast Plaza Doctors Hospital	1	2.9					9	25.7	25	71.4	35
	Temple Community Hospital	1	7.7	1	7.7			8	61.5	3	23.1	13
	Ronald Reagan UCLA Medical Center			103	47.7			113	52.3			216

Note: Percentages may not total to 100% due to rounding.

Number and Percent of Bariatric Surgeries Performed in California, by Hospital and Type of Surgery, 2009 (continued)

County	Hospital Name	Open RYGB		VSG		BPD		Lap RYGB		Lap Band		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Statewide		**367**	**2.5**	**864**	**5.9**	**153**	**1.0**	**9,928**	**68.1**	**3,260**	**22.4**	**14,572**
Los Angeles (continued)	Verdugo Hills Hospital					3	75.0			1	25.0	4
	West Hills Hospital and Medical Center	3	3.9	5	6.5	1	1.3	51	66.2	17	22.1	77
	Harbor – UCLA Medical Center	1	11.1					8	88.9			9
	University of Southern California University Hospital	5	2.4	2	1.0	2	1.0	186	90.7	10	4.9	205
Mendocino	Ukiah Valley Medical Center									5	100.0	5
Monterey	Community Hospital Monterey Peninsula	1	1.1					62	66.7	30	32.3	93
	Natividad Medical Center									37	100.0	37
Orange	Orange Coast Memorial Medical Center	46	10.8					318	74.6	62	14.6	426
	Chapman Medical Center			6	2.0			195	65.7	96	32.3	297
	Fountain Valley Regional Hospital and Medical Center – Euclid	6	1.9					204	65.2	103	32.9	313
	UC Irvine Medical Center			17	14.3			31	26.1	71	59.7	119
	Placentia Linda Hospital									1	100.0	1
	Mission Hospital Laguna Beach	1	5.3			1	5.3	17	89.5			19
	Saint Joseph Hospital – Orange							5	12.8	34	87.2	39
Placer	Sutter Auburn Faith Hospital							23	92.0	2	8.0	25
	Sutter Roseville Medical Center							88	92.6	7	7.4	95
Riverside	Desert Regional Medical Center	1	1.5					43	64.2	23	34.3	67
	Eisenhower Medical Center	1	2.9					18	51.4	16	45.7	35
	Parkview Community Hospital Medical Center	6	1.7					121	33.5	234	64.8	361
	Southwest Healthcare System – Murrieta	1	0.2					510	94.1	31	5.7	542

Note: Percentages may not total to 100% due to rounding.

Number and Percent of Bariatric Surgeries Performed in California, by Hospital and Type of Surgery, 2009 (continued)

County	Hospital Name	Open RYGB		VSG		BPD		Lap RYGB		Lap Band		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Statewide		**367**	**2.5**	**864**	**5.9**	**153**	**1.0**	**9,928**	**68.1**	**3,260**	**22.4**	**14,572**
Sacramento	Mercy San Juan Hospital	1	0.4	1	0.4			208	77.3	59	21.9	269
	Methodist Hospital of Sacramento							109	69.9	47	30.1	156
	UC Davis Medical Center	2	0.7	12	4.1			274	94.5	2	0.7	290
	Sutter General Hospital	1	1.3					72	94.7	3	3.9	76
San Bernardino	Loma Linda University Medical Center							2	50.0	2	50.0	4
	Saint Bernadine Medical Center	9	3.7					121	49.6	114	46.7	244
	Rancho Specialty Hospital									27	100.0	27
San Diego	Alvarado Hospital	4	3.3					73	59.8	45	36.9	122
	Sharp Memorial Hospital			2	1.5			133	97.8	1	0.7	136
	Scripps Mercy Hospital	17	2.0					789	94.6	28	3.4	834
	Scripps Memorial Hospital – La Jolla					2	1.6	79	62.7	45	35.7	126
	UC San Diego Medical Center			22	68.8					10	31.3	32
	Sharp Chula Vista Medical Center							3	75.0	1	25.0	4
	Pomerado Hospital	2	1.1					177	97.8	2	1.1	181
	Scripps Green Hospital	1	0.7	13	8.7			62	41.6	73	49.0	149
San Francisco	California Pacific Medical Center – Pacific Campus			7	3.4	14	6.9	56	27.6	126	62.1	203
	Saint Mary's Medical Center, San Francisco			5	10.6	39	83.0	2	4.3	1	2.1	47
	UC San Francisco Medical Center	19	11.2	10	5.9			126	74.1	15	8.8	170
San Mateo	Kaiser Foundation Hospital – South San Francisco	1	0.3	26	6.8			261	68.1	95	24.8	383
	Peninsula Medical Center	2	1.3	45	28.7	3	1.9	61	38.9	46	29.3	157

Note: Percentages may not total to 100% due to rounding.

Number and Percent of Bariatric Surgeries Performed in California, by Hospital and Type of Surgery, 2009 (continued)

County	Hospital Name	Open RYGB		VSG		BPD		Lap RYGB		Lap Band		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Statewide		**367**	**2.5**	**864**	**5.9**	**153**	**1.0**	**9,928**	**68.1**	**3,260**	**22.4**	**14,572**
San Mateo (continued)	Sequoia Hospital	1	7.7	1	7.7			1	7.7	10	76.9	13
Santa Barbara	Santa Barbara Cottage Hospital			2	1.2			136	81.0	30	17.9	168
Santa Clara	El Camino Hospital	3	1.4	8	3.8	6	2.9	147	70.3	45	21.5	209
	Good Samaritan Hospital – San Jose	3	2.3	1	0.8	10	7.5	115	86.5	4	3.0	133
	Stanford Hospital	2	1.1	14	7.8			127	70.9	36	20.1	179
	Lucile Salter Packard Children's Hospital at Stanford			1	25.0			3	75.0			4
Shasta	Shasta Regional Medical Center							5	100.0			5
Sonoma	Sutter Medical Center of Santa Rosa	1	6.7	1	6.7			9	60.0	4	26.7	15
	Santa Rosa Memorial Hospital – Montgomery	1	2.0	21	42.0			24	48.0	4	8.0	50
Stanislaus	Memorial Hospital Medical Center – Modesto	5	0.7	10	1.5			599	89.7	54	8.1	668
	Stanislaus Surgical Hospital							2	100.0			2
Tulare	Kaweah Delta Medical Center			1	25.0					3	75.0	4
	Tulare District Hospital									8	100.0	8
Ventura	Community Memorial Hospital – San Buenaventura							7	53.8	6	46.2	13
	Saint John's Regional Medical Center	5	2.2					134	59.8	85	37.9	224
	Thousand Oaks Surgical Hospital							1	100.0			1

Note: Percentages may not total to 100% due to rounding.

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