County of Riverside Department of Public Health
Epidemiology & Program Evaluation

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# Gastric Bypass Surgery in Riverside County, 2003-2005

## Introduction

As levels of obesity have risen in recent years, gastric bypass surgery (GBS) has gained popularity as a weight-loss treatment option for thousands of people across the country. This brief will examine this trend in Riverside County and incorporate an analysis of the general characteristics of patients electing to undergo GBS. In addition, this report will explore costs of this procedure and the geographic areas where it is most often performed.

## Methods

Prevalence of gastric bypass surgeries among Riverside County residents was obtained from the Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Database files for 2003 to 2005. Surgeries were selected by using the dataset's principal diagnosis field which uses coding based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9CM). Gastric bypass was identified as ICD-9CM codes 44.31, 44.38, and 44.39 which includes the open-incision methods—High gastric bypass and Printen and Mason—and the recently popularized laparoscopic Roux-en-Y technique, which is less invasive and requires less recovery time. A variety of other bariatric procedures, such as gastric banding and biliopancreatic diversion, may also have been coded as 44.31 or 44.39 because codes for other specific bariatric procedures were not available during the study period.

## General Trends

In 2001, there were a total of 289 gastric bypass surgeries performed on Riverside County residents. More than 90 percent of these were classified as High gastric bypass (ICD 44.31), a procedure that connects the middle part of the small intestine to the upper stomach. In 2005, there were 826 bypasses performed, with only five classified as ICD 44.31. This reflects the national trend toward the use of less invasive and more sophisticated laparoscopic procedures classified under ICD 44.38. In 2005, 76 percent of the procedures were laparoscopic.

## Who's getting gastric bypass surgery?

### Sex

Gastric bypass patients were more likely to be female than male, with women accounting for over 80 percent of the patient population during the 3-year period.

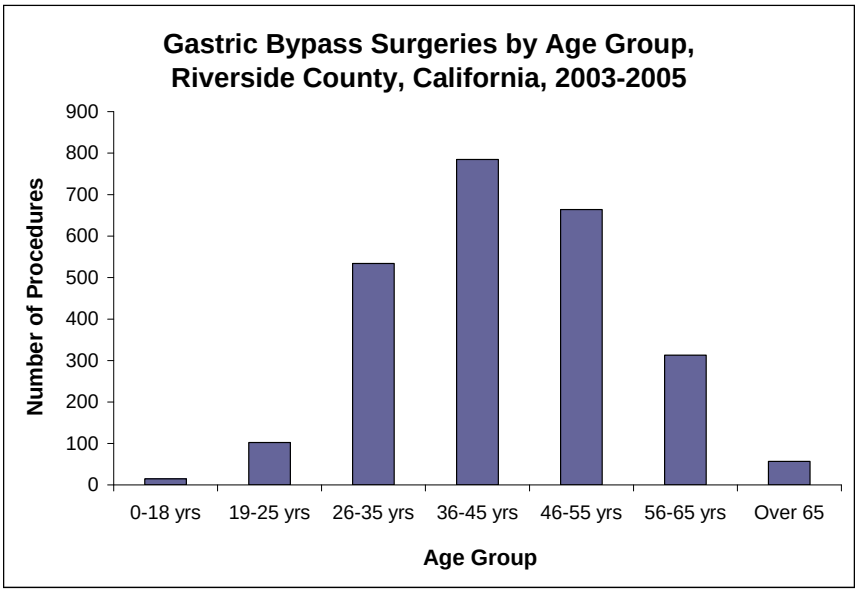
### Insurance Coverage

From 2003 through 2005, 84 percent of the bypass surgeries were covered by private insurance, and an additional 4 percent were billed directly to the patient.

### Age

As Exhibit 1 illustrates, most bypass patients fall into the middle aged categories, with the median patient age of 43 years.

**Exhibit 1**




Source: Office of Statewide Health Planning and Development (OSHPD) Hospital Discharge Files, 2003-2005

*(Continued on page 2)*

**Exhibit 2**

*(Continued from page 1)*

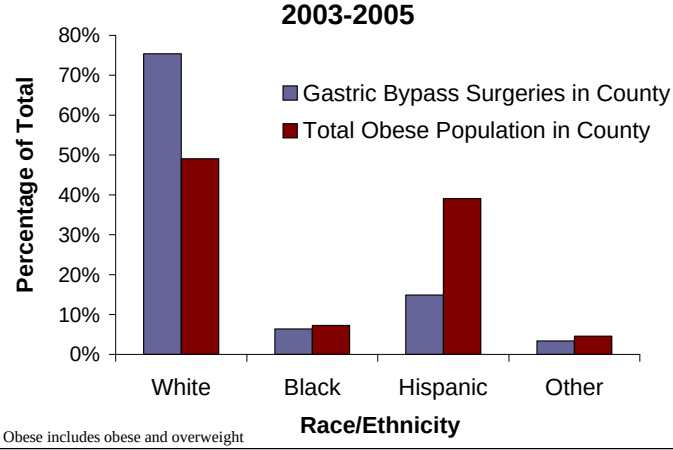
### Race/Ethnicity

Over the three year period nearly 80 percent of gastric bypass surgeries were performed on white patients. Using obesity prevalence estimates from the California Health Interview Survey (CHIS), whites account for less than 50 percent of the overweight/obese population in the county—suggesting that bypass surgery is performed more often among whites as compared to other racial/ethnic groups. This may be a reflection of racial/ethnic disparities in health insurance coverage.

## What's the cost?

Gastric bypass surgeries are technically sophisticated and can carry a significant medical cost. The median cost of a bypass in unadjusted hospital costs was $41,287 over the 3-year period. The total cost of the roughly 2,500 procedures was over 100 million dollars (unadjusted). Most of this cost was billed to private insurance.

**Gastric Bypass Surgeries and Obesity by Race/Ethnicity, Riverside County, California, 2003-2005**




Note: Obese includes obese and overweight

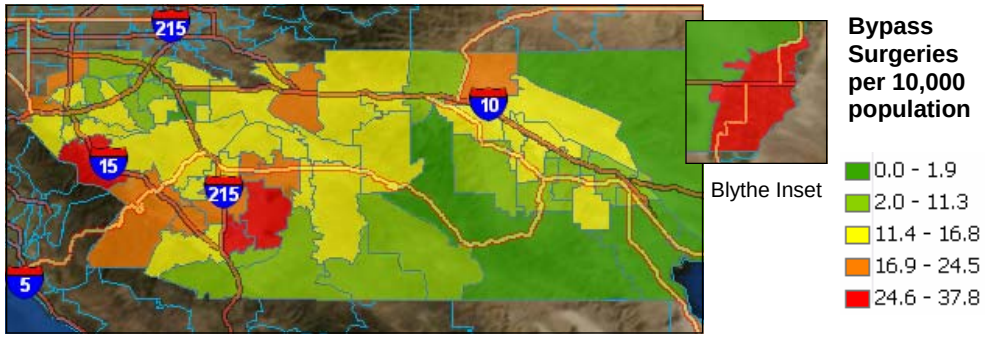
Source: Office of Statewide Health Planning and Development (OSHPD) Hospital Discharge Files, 2003-2005 and California Health Interview Survey (CHIS), 2005

**Exhibit 3**

## Are there any geographic trends?

Based on 3-year aggregated rates, calculated and mapped for each zip code in the county, there is a clear indication that gastric bypass surgeries were more likely to be performed among residents of the southwest region. High rates were observed in Corona and Murrieta zip codes. Blythe also had an elevated rate due to its total of 51 procedures.

**Gastric Bypass Surgery Aggregated Rates (per 10,000 population) by Zip Code, Riverside County, 2003-2005**




Source: Office of Statewide Health Planning and Development (OSHPD) Hospital Discharge Files, 2003-2005

## From the desk of David Herfindahl, MD—Deputy Public Health Officer

There is no doubt obesity is a public health epidemic. Public health problems of this magnitude require a variety of approaches—from medical interventions to broad-sweeping policy initiatives from the local to the national level. Gastric bypass surgery is a medical intervention that has demonstrated success in reducing morbidity and mortality for those at the extreme end of the weight spectrum (BMI 35 and higher). However, this perceived panacea to obesity can be routed if personal behavior does not change; patients are still capable of gaining weight and effectively 'bypassing the bypass' by snacking on high caloric foods throughout the day. Thus, at the heart of the issue is the need for public health and society to enable all citizens to make the appropriate life-style and behavior changes to avoid unhealthy weight gain and improve their quality of life.

**Suggested Citation**
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**Epidemiology and Program Evaluation Contributing Staff:**
Wendy Betancourt, MPH; Danyte Mockus, MPH, PhDc; Marshare Penny, MPH; Sarah Mack, MPH

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2. Shinogle JA, et al. *Gastric Bypass as Treatment for Obesity: trends characteristics and Complications*. Obesity Research. 2005; 13: 2202-2209.

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**4065 County Circle Drive**
**Riverside, CA 92503**
**Phone: 951-358-5557**
**Fax: 951-358-5348**
**www.rivcohealthdata.org**