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Preliminary Cost Evaluation of Employee Benefits Division Bariatric Surgery Program

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ABSTRACT – In 2011 legislation (Act 855 of the 88th General Assembly) was passed in Arkansas creating a pilot program within the Department of Finance and Administration, Employee Benefits Division (EBD) that covers the expenses of bariatric surgery for qualified state employees and their covered spouses. This analysis examines the pre- and post-surgical medical costs among program participants in order to assess the short-term financial effects of bariatric surgery. Using medical claims data provided by the EBD, we find no significant variation in average monthly medical costs before and after surgery. However, these results should be interpreted with caution given the short duration of the follow-up time period.

INTRODUCTION AND BACKGROUND

Obesity and its attendant health consequences represent a significant public health problem. Given the high cost of health care incurred by individuals who are obese, policymakers and researchers are keen to identify interventions that reduce the cost burden of obesity and simultaneously lead to improvements in population health. One strategy is employer benefit-funded bariatric surgery programs. While surgery can be costly in the short-term, there may be long-term savings gained via reductions in obesity-related health problems such as diabetes and cardiovascular disease. In 2011, the Arkansas state legislature approved a pilot program within the EBD to provide financial support for bariatric surgery for state employees and covered spouses. In order to qualify for the program, individuals must have a body mass index (BMI) of 40 kg/m², or a BMI of 35 kg/m² and an existing comorbid condition. Enrollment in the program began in July 2011 and the program is scheduled to end in 2017. The first surgeries were performed in early 2012. Given the current cost of the program, plan providers and policymakers are keen to assess its efficacy.

Studies of the aggregate costs of obesity find that on average, weight related health problems account for approximately five percent of United States health spending annually.¹ Thus, some health plans have introduced subsidized bariatric surgery programs as a way to improve health and reduce costs to health plans. Prior studies of the cost savings resulting from bariatric surgery programs have mixed findings. For example, some note that within two to four years post-surgery, health plans recoup program costs depending on the type of surgery performed,² and still others find immediate savings within the first year of post-surgical medical care costs.³ However, there is evidence that the short-term savings do not necessarily persist. In the first few years post-surgery, program participants often have lower average health care costs, but in a six-year follow-up, there was no evidence that bariatric surgery significantly reduced health care costs among beneficiaries who formerly were obese.⁴ Yet, while some recipients do not maintain a healthy BMI and require costly follow-up care, overall, the long-term health benefits to individuals who are severely obese support bariatric surgery as an effective health intervention.⁵

Given the cost of bariatric surgery, it is essential that policymakers, payers and health care providers understand the effectiveness of surgery as both a cost-reducing tool and a health intervention. While surgery may provide lasting health benefits and short-term cost reductions, money may be better spent investing in preventive programs and lifestyle campaigns. This analysis

examines the cost effectiveness of bariatric surgery using average pre- and post-surgical monthly medical claims costs for program participants.

METHODS

To identify bariatric surgery participants and their attendant medical costs, data files containing participant identifiers provided by EBD were appended to medical claims information. The sample was limited to those beneficiaries with available pre- and post-surgical medical claims resulting in a final sample of N=230 individuals. Claims data were only available through June 26, 2013; thus, most of the sample consists only of individuals with 2012 surgery dates, with a few exceptions. For all participants, medical claims were pulled for the 12 months (adjusted for enrollment eligibility) preceding surgery up to the date of surgery. In the year prior to surgery, program participants were required to participate in additional health care services such as a psychological screening, a six-month physician supervised weight management program, and additional physical testing and screening. Thus, the program participants may have incurred pre-surgery claims that are slightly higher than what would typically be expected. All available claims were pulled for the post-surgical period through June 26, 2013. Claims billed on the participants' EBD identified surgery date were excluded from the analyses; however, post-surgical follow-up may be present in the post-surgical costs. Using the available data, we generated the average pre- and post-surgical monthly costs for program participants.

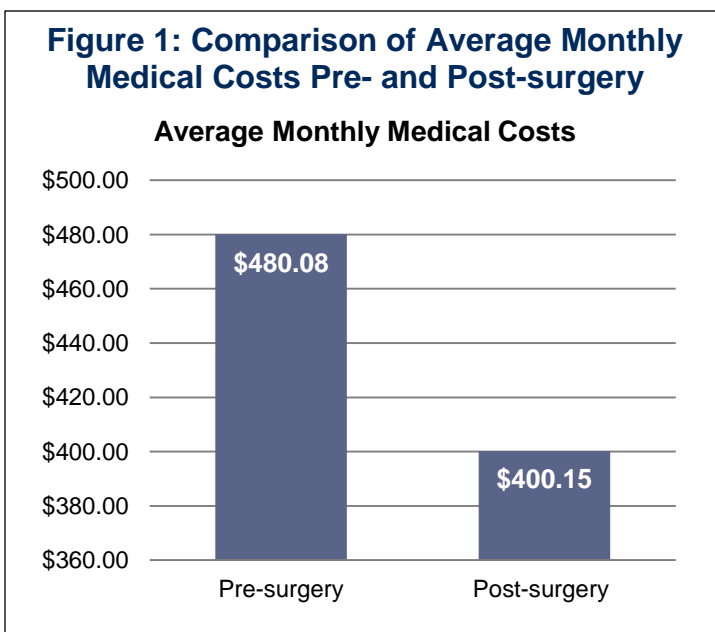
FINDINGS

While most individuals in the sample had about one year of pre-surgery claims, because of the variation in the timing of surgery dates, some participants had very limited post-surgical cost data. Of the sample, 98 percent had at least 11-12 months of pre-surgery claims. On average, the sample had 8.6 months of post-surgery claims, with a range of 0-16 or more (Table 1).

Table 1: Months of Pre- and Post-surgery Medical Claims

	Mean	Std. Dev.	Range
Pre-surgery	11.9	0.90	3-12
Post-surgery	8.6	2.50	0-16
N=230			

Figure 1: Comparison of Average Monthly Medical Costs Pre- and Post-surgery



Due to the variation in the number of post-surgical months of available medical claims, we used the average monthly cost of claims to examine whether there was a reduction in medical costs after bariatric surgery. On average, program participants had monthly pre-surgical medical claims of about \$480 per month, and average monthly post-surgical costs of around \$400 (Figure 1). Within the sample, there was quite a bit of variation in post-surgical medical costs. The range of values varied from a low of \$0 per month to a maximum of just over \$9,000 per month. Figure 2 displays the full distribution of post-surgical costs. Overall, most of the sample had relatively low average monthly

costs, but a small portion of the sample had extremely high post-surgical monthly costs, perhaps driven by complications following surgery. As seen in Figure 3, 80 percent of program participants had average post-surgical costs below \$500 per month and only 9 percent had values equal to or greater than \$1,000 per month.

Using a paired t-test, we assessed whether the reduction in average monthly medical costs was statistically significant. The results of the test suggest that the reduction in medical costs post-surgery was not a statistically significant change. However, this does not necessarily mean that the program was not cost effective. Rather, it may simply reflect the short time frame of available follow-up data.

Figure 2: Distribution of Post-surgical Average Monthly Medical Costs

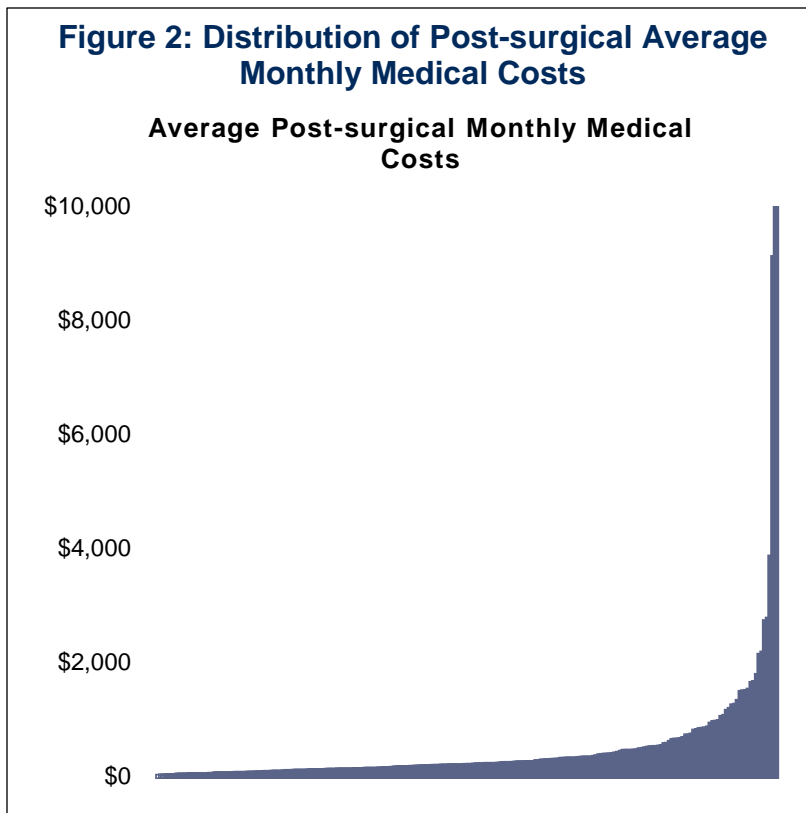
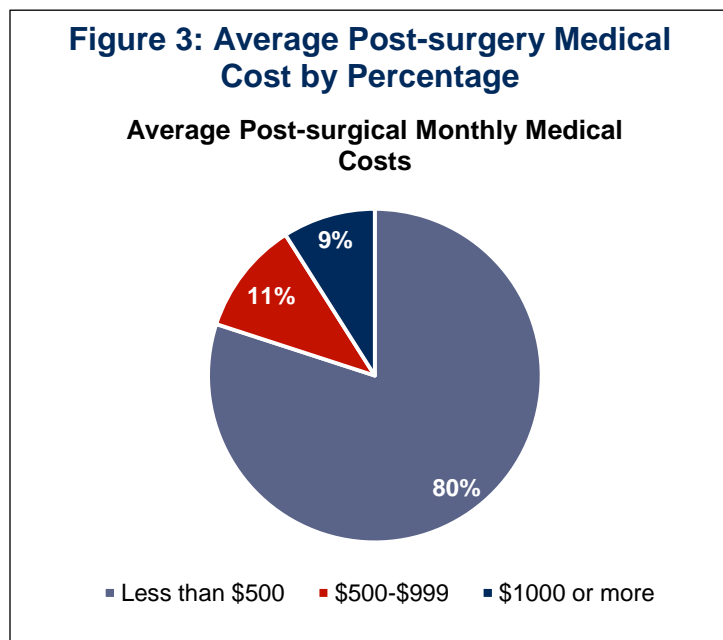


Figure 3: Average Post-surgery Medical Cost by Percentage



DISCUSSION

The aim of this analysis was to determine the short-term cost effectiveness of the EBD bariatric surgery program. The results of this evaluation indicate that average monthly medical costs were somewhat reduced in the time following surgery, but the reduction was not statistically significant. However, the findings of this research should be interpreted with caution given the limited period of post-surgical follow-up. In order to better understand the cost effectiveness of the bariatric surgery program, a more rigorous and long-term evaluation is needed.

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