

# To Pay or Not to Pay: Public Perception Regarding Insurance Coverage of Obesity Treatment

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**Objective:** To explore public opinion regarding insurance coverage for obesity treatment among severely obese adolescents.

**Design and Methods:** The National Poll on Children's Health was fielded to a nationally representative sample of US adults, January 2011. Respondents ( $n = 2150$ ) indicated whether insurance should cover specific weight management services for obese adolescents and whether private insurance and Medicaid should cover bariatric surgery. Sampling weights were applied to generate nationally representative results. Linear and logistic regression analyses were performed to assess associations.

**Results:** More respondents endorsed insurance coverage for traditional healthcare services (mental health 86%, dietitian 84%) than for services generally viewed as outside the healthcare arena (exercise programs 65%, group programs 60%). For bariatric surgery, 81% endorsed private insurance coverage; 55% endorsed Medicaid coverage. Medicaid enrollees, black, Hispanic, and low-income respondents had greater odds ( $P < 0.05$ ) of endorsing bariatric surgery coverage by Medicaid, compared to the referent groups (non-Hispanic white, income  $\geq$ \$60K, private insurance).

**Conclusion:** Although public support for insurance coverage of traditional weight management services appears high, support for Medicaid coverage for bariatric surgery is lower and varies by demographics. If public opinion is a harbinger of future coverage, low-income adolescents could experience disparities in access to treatments like bariatric surgery.

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## Introduction

The dramatic increase in the prevalence of childhood obesity over the later part of the 20th century is well documented (1,2). This epidemic is particularly concerning because of the high prevalence of severe obesity among children. Data from 2009 to 2010 show that 13% of adolescents in the US are severely obese (i.e., have a BMI at or above the 97th percentile for age and gender). The prevalence and severity of obesity is even greater among minority children, particularly African-American adolescent boys (18.3%) and Mexican American adolescent boys (20.2%) (2).

Despite evidence of the numerous consequences associated with severe obesity among adolescents, insurance coverage for the treat-

ment of obesity remains inconsistent with some insurers providing plans with obesity coverage and others not (3-8). This may impact obese adolescents' ability to access appropriate treatment, which often requires the involvement of a number of health professionals. Indeed, the 2007 Expert Committee guidelines for the treatment and prevention of childhood obesity recommends additional services such as referrals to a dietitian, an exercise specialist, or to a group-based weight management program, when primary care efforts fail to achieve adequate results (9). Furthermore, for severe cases of obesity (i.e., a BMI of 40 or greater), when intensive efforts (if they are available in the geographic region) have not led to appropriate improvement in an adolescent's comorbidities, bariatric surgery is a recommended option (9).

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In response to the increased need for obesity treatment for children and adolescents, a number of academic centers have developed weight management programs, some of which also provide bariatric surgery (10). However, though the insurance landscape regarding obesity coverage is changing, it is believed that cost may be a barrier to participation, as many children do not have insurance that pays for weight management services (8,11). The extent to which specific services are covered by insurance is a complex issue affected by a number of factors including the disease prevalence, the degree of associated morbidity with the condition, the availability of other treatment options, the perceived cost-effectiveness of the service in question, whether employers request the service to be included in coverage, and the level of demand for that service.

Public opinion may also play a role, both directly and indirectly, in the care typically covered by insurance (12). For private insurance, employee desire for services to be covered has the potential to influence the plans offered by insurance companies (13). For public insurance (i.e., Medicaid), public opinion expressed through endorsement of public officials or state-level insurance mandates may also have an impact (e.g., support for or against Medicaid coverage of expensive or controversial services such as fertility treatment) (11,14).

Given the potential role of public opinion and the lack of available data regarding the public's view of childhood obesity and the treatment of obesity, we conducted a survey with a nationally representative sample that explored public perceptions regarding insurance coverage for obesity treatment for adolescents. Specifically, we ascertained the extent of public support for private insurance coverage of obesity treatment, and whether for the more expensive option of bariatric surgery, the level of support for private and public insurance differed.

## Methods

### Study design

We conducted a cross-sectional, Internet-based survey of a nationally representative sample of the US population. The study was approved by the University of Michigan Medical School Institutional Review Board.

### Sample

As part of the C.S. Mott Children's Hospital National Poll on Children's Health (NPCH), a recurring online survey of parents and non-parents, we conducted a cross-sectional study of adults in January 2011. The NPCH is conducted using Knowledge Networks (KN) web-enabled KnowledgePanel®, a probability-based panel designed to be representative of the US population. The KnowledgePanel® is the only nationally representative online panel that covers 97% of the US population, including cell phone-only households (15). Initially, participants are chosen scientifically by a random selection of telephone numbers and residential addresses. Persons in selected households are then invited by telephone or by mail to participate in the web-enabled KnowledgePanel®. For those who agree to participate, but do not already have Internet access, KN provides at no cost a laptop and ISP connection. People who already have computers and Internet service are permitted to participate using their own equipment. Panelists then receive unique log-in information for accessing surveys online, and then are sent emails each month inviting them to participate in the research.

For the January 2011 NPCH survey, a unique KnowledgePanel® sample was drawn. The introductory email invited participation in a survey about child health. The specific topics included in the NPCH survey were not mentioned. No additional incentive participation was offered, beyond the usual KN participation points. The NPCH sample includes oversampling of parents (vs. adults without children 0-17 years in the household), as well as individuals of racial/ethnic minorities, to ensure adequate representation of these groups. The NPCH/KnowledgePanel® data collection method has served as the data source for several other national peer-reviewed studies about health-related issues (15-18).

### Survey items

Within the broader NPCH survey (including questions about physical activity, over the counter cough and cold medications and participation in research), items related to insurance coverage of weight-related treatment asked respondents to indicate whether specific services should be covered by private insurance by checking Yes or No for each component of treatment (*Q: Which components of obesity treatment for severely obese adolescents should be covered by health insurance plans? 1) Group weight loss programs (like Weight Watchers), 2) Nutritionist or dietitian visits, 3) Counseling/mental health visits, and 4) Exercise programs (such as YMCA programs)*). In addition, respondents were asked, *Should bariatric surgery for severely obese adolescents be covered by: a) private insurance and b) Medicaid.*

### Survey administration

The NPCH, including questions on pediatric weight management, was pilot tested by KN in November 2010 with a separate convenience sample of 100 KnowledgePanel® members to ensure that questions were clearly worded and captured the desired topic focus. KN fielded the final NPCH survey in January 2011, with a completion rate of 60%.

### Statistical analyses

KN provided the study team with de-identified data, along with Census-based post-stratification weights used to match the US population distribution on gender, age, race/ethnicity, education, census region, and urban versus rural location. Frequency distributions were calculated on all weighted items. Adult respondents' weight status was determined from self-reported height and weight at the time of the survey, based on CDC BMI cut points (overweight = BMI of 25-<30 and obese = 30 or greater). Bivariate analysis of respondent endorsement of insurance coverage for the services studied versus the demographic and anthropometric variables of interest was performed using chi square analyses. Only the statistically significant predictors from the bivariate analyses ( $P < 0.05$ ) were included in the multivariate logistic regression analyses. All analyses were conducted with Stata 10 (Stata, College Station, TX, USA). All results reflect statistically weighted data to permit national inferences.

## Results

### Sample characteristics

For this nationally representative sample of adults ( $n = 2150$ ), the majority were white (70%), had private insurance (53.2%), and were overweight or obese (76.3%) as calculated from respondent report of height and weight (Table 1). Most respondents had family incomes

of less than \$60,000 per annum (Table 1). These characteristics are all consistent with sociodemographic and weight patterns of the US population gathered from other sources (19).

### Coverage of non-surgical weight management services

Most respondents endorsed private insurance coverage for traditional health care services such as visits to a mental health specialist (86%) or a dietitian (85%). Fewer respondents endorsed coverage for services outside the health care arena such as exercise programs (65%) and group programs (e.g., Weight Watchers) (60%).

When the levels of support were examined by the covariates of interest (where statistically significant differences were noted), a greater percentage of African Americans, Hispanics, lower income respondents, and those who were overweight/obese endorsed coverage for weight management services (Table 2).

### Coverage of surgical weight management

A large majority of respondents (81%) endorsed coverage of bariatric surgery by private insurance. This degree of support for private insurance coverage did not differ significantly by the covariates studied, with the exception of income. In this case, those in the middle income category had the highest level of support for private insurance coverage of bariatric surgery for adolescents (Table 3).

By contrast, the support for coverage by Medicaid was markedly lower at 55%. In addition, findings regarding Medicaid coverage of bariatric surgery varied significantly by most of the covariates studied, including income, race/ethnicity, and insurance status. A higher percentage of African-American and Hispanic respondents, low-income respondents, and those with Medicaid insurance endorsed Medicaid coverage of bariatric surgery for adolescents (Table 3).

In the multivariate logistic regression (using only those variables that were significant in the bivariate analyses), statistically significant differences in the odds of endorsing Medicaid coverage for bariatric surgery by race/ethnicity, income, and insurance status, were noted (Figure 1).

## Discussion

In this nationally representative study of public perceptions regarding insurance coverage of weight management services for the treatment of obesity among adolescents, we found broad support for treatment coverage, but the strength of this support varied by the type of treatment, by the type of insurance, and by sociodemographic/anthropometric characteristics. Overall, there was more support for insurance coverage of nonsurgical services traditionally associated with medical care such as nutrition and mental health services, than for group weight management sessions such as Weight Watchers or exercise programs. However, expert recommendations suggest that nutrition and mental health interventions may not be sufficient, but rather multidisciplinary approaches that include group sessions and exercise programs may be required for effective treatment of obese adolescents (9).

Though changing over time, health insurance has not generally covered either multidisciplinary or primary care obesity interventions, despite the fact that the expert committee recommendations support a staged approach to obesity treatment utilizing both settings as needed (9,20). Although we did not specifically explore the question of primary care obesity treatment in our study, our findings may suggest that the general public might support coverage of such services as they are nonsurgical and delivered in a traditional medical setting. Conversely, there seemed to be less support for insurance coverage of community-based efforts (e.g., group programs like Weight Watchers or exercise programs like those offered by the YMCA). However, recent efforts to disseminate effective lifestyle interventions for the treatment of obesity-related illnesses such as the Diabetes Prevention Program, through community agencies such as the YMCA, have revealed promising results (21). Additional work is required to determine whether insurance coverage for interventions in traditional and nontraditional settings will impact the prevalence of childhood obesity.

With regard to adolescent bariatric surgery, this is the first study to our knowledge to document differences in public support for coverage based on insurance type (private vs. public). This difference in the support may reflect public understanding that not all services can be covered by insurance, and that public insurance suffers from very limited resources. Our survey was fielded in January 2011, less than a year after the Patient Protection and Affordable Care Act was signed into law. It is unknown whether respondents' perceptions may have been influenced by the ubiquitous media discussions of public insurance coverage and the national debt. Polls suggest that some Americans were opposed to the Act because of a belief that it would increase health care costs and increase the debt over time (22). Though this study did not explore the etiology of participants' perceptions, it is possible that concern about an increased burden for tax payers to bear, may have contributed to the differences in support elicited in this study.

This difference in support based on private versus public insurance raises a number of issues. The fact that over two-thirds of respondents supported coverage by private insurance might suggest that

**TABLE 1** Characteristics of study respondents (n = 2,150)

	Respondents (weighted proportion)
<b>Race/Ethnicity</b>	
Non-Hispanic white	1,587 (70.4%)
Non-Hispanic black	190 (10.5%)
Hispanic	227 (12.3%)
Non-Hispanic other	146 (6.8%)
<b>Annual Household Income</b>	
\$60,000 or more	957 (35.4%)
\$30,000 – \$59,999	651 (31.0%)
Less than \$30,000	542 (33.6%)
<b>Insurance Status</b>	
Private insurance	1,334 (53.2%)
Medicaid	215 (11.3%)
Medicare	137 (11.7%)
Other government insurance	170 (8.2%)
Uninsured	273 (15.6%)
<b>Weight Status</b>	
Underweight/normal weight	523 (23.7%)
Obese/overweight	1,529 (76.3%)

**TABLE 2** Differences in endorsement of weight management services for obese adolescents by respondent characteristics

Characteristics	Dietitian services (%)	Mental health services (%)	Group weight loss programs (%)	Exercise programs (%)
<b>Race/ethnicity</b>				
Non-Hispanic white	83	85	57	64
Non-Hispanic black	84	88	74	68
Hispanic	93	92	70	73
Non-Hispanic other	82 ( <i>P</i> = 0.08)	77 ( <i>P</i> = 0.05)	50 ( <i>P</i> = 0.001)	65 ( <i>P</i> = 0.36)
<b>Income</b>				
\$60,000 or more	84	84	54	60
\$30,000–\$59,999	87	90	58	68
Less than \$30,000	81 ( <i>P</i> = 0.17)	84 ( <i>P</i> = 0.06)	68 ( <i>P</i> = 0.002)	68 ( <i>P</i> = 0.08)
<b>Insurance status</b>				
Private insurance	84	88	56	64
Medicaid	81	83	69	69
Medicare	86	88	57	58
Other government insurance	90	90	64	70
Uninsured	84 ( <i>P</i> = 0.67)	79 ( <i>P</i> = 0.07)	65 ( <i>P</i> = 0.08)	70 ( <i>P</i> = 0.23)
<b>Weight status</b>				
Underweight/normal weight	79	80	54	62
Obese/overweight	8588 ( <i>P</i> = 0.04)	88 ( <i>P</i> = 0.005)	61 ( <i>P</i> = 0.06)	66 ( <i>P</i> = 0.3)

bariatric surgery is viewed as an effective approach to treatment for severely obese adolescents. It is therefore interesting that the respondents appeared to suggest that Medicaid enrollees should have

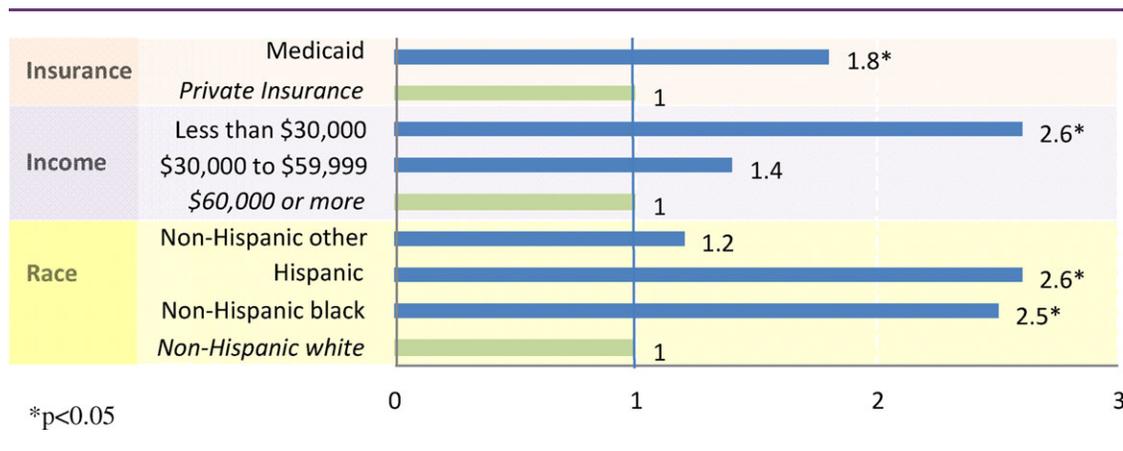
less access to bariatric surgery, than those with private coverage. This finding is particularly significant in light of the fact that obesity disproportionately affects patients who are more likely to be eligible for Medicaid, that is, children from low-income and low-education households, who have 3.4-4.3 times higher odds of obesity than children from higher socioeconomic households (23). If support for Medicaid coverage of bariatric surgery is low and Medicaid coverage were limited, this may impact the ability of those at greatest risk of obesity to access surgical treatment.

**TABLE 3** Percentage of respondents who supported coverage of bariatric surgery by respondents' characteristics

Characteristics	Support for coverage by private insurance (%)	Support for coverage by Medicaid (%)
<b>Race/ethnicity</b>		
Non-Hispanic white	80	48
Non-Hispanic black	81	77
Hispanic	87	74
Non-Hispanic other	79 ( <i>P</i> = 0.46)	56 ( <i>P</i> < 0.0001)
<b>Income</b>		
\$60,000 or more	77	42
\$30,000–\$59,999	86	53
Less than \$30,000	80 ( <i>P</i> < 0.05)	71 ( <i>P</i> < 0.0001)
<b>Insurance status</b>		
Private insurance	80	47
Medicaid	82	78
Medicare	83	54
Other government insurance	78	60
Uninsured	84 ( <i>P</i> = 0.82)	63 ( <i>P</i> < 0.0001)
<b>Weight status</b>		
Underweight/normal weight	77	56
Obese/overweight	82 ( <i>P</i> = 0.07)	55 ( <i>P</i> = 0.85)

We found that support for coverage of bariatric surgery by private insurance did not vary by most of the covariates studied. The only exception was income, where a significantly greater percentage of those in the middle-income group (\$30,000-\$59,000) supported private coverage compared to the higher and lower income groups. This finding is difficult to explain and we can only speculate about the underlying reasons. Possibly, respondents in this group are likely to have private insurance but may not be wealthy enough to pay for bariatric surgery out of pocket, if it were needed. Whereas, those in the highest income group (income of \$60,000 or greater) might have the resources to pay out of their pocket for bariatric surgery, and those in the lowest-income group are more likely to be covered by Medicaid, leading both of these groups to be less concerned with private insurance coverage.

Unlike the almost uniform support for coverage of bariatric surgery by private insurance, support for coverage by Medicaid varied significantly by race, income, and type of insurance. Although it might be expected that a greater percentage of those with Medicaid insurance would want bariatric surgery to be covered by Medicaid, it is less clear why significant differences were seen by race/ethnicity and income (even when controlling for insurance status). This may be because black, Hispanic, and low-income respondents (who had statistically greater odds than the referent groups of endorsing



**FIGURE 1** Odds of respondents' endorsement of Medicaid coverage for bariatric surgery by respondents' demographic characteristics, from multivariate analysis (*Referent Group in italics*) \*P < 0.05.

coverage by Medicaid) are more familiar with the challenges of obesity in general, because of the disproportionately high prevalence of obesity in these populations.

When one considers that the cost of obesity-related medical expenditure was estimated to be \$147 billion in 2009 and that approximately half of all obesity-attributable medical expenses for adults are believed to be financed by Medicare or Medicaid, paying for the surgery for adolescents might be advantageous the long run (24,25). Although long-term results are not currently available, research suggests that for severely obese adolescents with comorbid conditions, bariatric surgery can be an effective means to improve their prognosis (26-28). However, previous studies also suggest barriers such as reticence among primary care physicians to refer adolescents for bariatric surgery, and the perception from parents that surgery should not be performed on patients less than 18 years old (29,30). The findings of this study highlight the need for additional research to explore perceptions of bariatric surgery for adolescents, along with its risks and benefits.

As a cross-sectional survey, this study has certain limitations. It was a brief, national survey that explored public opinion regarding a number of pediatric health issues. Consequently, it was not possible to explore the reasons underlying respondents' preferences in greater depth. In addition, web-based surveys may be particularly susceptible to response bias. However, this potential problem was mitigated by the probability sampling employed by KN and the use of census-based post-stratification weights to match the US population distribution on gender, age, race/ethnicity, education, census region, and urban versus rural location. However, consistent with the nature of surveys, there is the potential for response bias because of other unmeasured factors, which may have led to the participation of people with a particular interest in weight management. However, the response rate for the survey was high for Internet-based surveys and because the survey covered a number of pediatric topics, it is unlikely that the majority of respondents had a specific interest in this topic. Of note, the BMI data utilized in this study were calculated from self-reported height and weight, which can be biased and typically underestimates the prevalence of overweight and obesity. However, for this Internet-based study the prevalence was in keeping with national estimates of overweight and obesity determined via measured BMI. Furthermore,

the findings in this study—while statistically significant—are associations and cannot be interpreted as causal.

## Conclusion

Although support for private insurance coverage of weight management services is high, coverage of bariatric surgery for Medicaid enrollees has less support. If public opinion is a harbinger of future coverage decisions, low-income adolescents (who are disproportionately affected by obesity) could experience even greater disparities in access to weight management services. Further work should explore the financial and nonfinancial factors that affect access to treatment options such as bariatric surgery for severely obese adolescents. **O**

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## Abbreviations:

- BMI Body Mass Index
- NPCH National Poll of Children's Health
- KN Knowledge Networks
- CDC Centers for Disease Control and Prevention

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