

# TREAT Severe Obesity Network

Advancing Policies to Reduce Disparities and Advance the Treatment of Severe Obesity

January 31, 2012

The Honorable Kathleen Sebelius  
Secretary of Health and Human Services  
The U.S. Department of Health and Human Services  
200 Independence Avenue, S.W.  
Washington, D.C. 20201  
Transmitted via: EssentialHealthBenefits@cms.hhs.gov.

Re: Comments Regarding the Essential Health Benefits Bulletin, December 16, 2011

Dear Secretary Sebelius:

We, the undersigned, are members of an alliance of obesity, nutrition, public health, minority health, chronic disease and consumer organizations and experts, called *The Network to Reduce Disparities and Advance the Treatment of Severe Obesity* or TREAT Severe Obesity, formed to advance national and state policies that will reduce the burden of clinically severe obesity (BMI  $\geq 40$  kg/m<sup>2</sup>, or  $\geq 35$  kg/m<sup>2</sup> with co-morbid conditions)<sup>1</sup> in the United States. The mission of this new alliance is to elevate severe obesity on the national agenda so the estimated 15 million adults<sup>2</sup> and 2.7 million children<sup>3</sup> with this serious condition will receive timely and effective treatment.

Although often overlooked as a public health concern, severe obesity (formerly known as morbid obesity) is reaching crisis proportions – even though this condition can be successfully treated. Severe obesity: 1) is increasing at rates much greater than overweight and simple obesity;<sup>4</sup> 2) disproportionately affects women, minorities and the medically underserved; and 3) consumes a large portion of health-care expenditures. Moreover, severe obesity is directly linked to disability and death from type 2 diabetes mellitus, cardiovascular disease, osteoarthritis and other obesity-related chronic diseases.<sup>5</sup> Based on 2008 and 2009 data, eleven of the top 15 causes of death (excluding accidents, suicide and assault) are directly associated with obesity.<sup>6</sup> These obesity-related conditions represent the leading causes of healthcare expenses overall and for chronic diseases specifically (heart disease, malignant neoplasms, chronic lower respiratory disease, cerebrovascular disease, Alzheimer's disease, diabetes mellitus etc).

Thus, as HHS defines the essential health benefits that will be required when the new health insurance exchanges go into effect in 2014, designating the comprehensive treatment of severe obesity as an essential health benefit – specifically, obesity screening, weight management counseling and the option of bariatric surgery followed by appropriate lifelong medical care and nutritional monitoring– is warranted within the category of chronic disease management services to save lives, to improve chronic disease outcomes and to reduce the spiraling costs associated with obesity-related chronic diseases and maternity and neonatal care. Evidence supporting this action is summarized below.

## 1. Treating Severe Obesity Reduces the Burden of Chronic Disease

Based on a recent projection, national expenditures on chronic disease management will surpass \$4 trillion by 2015<sup>7</sup> and be largely driven by the costs of obesity due to the strong association between unhealthy weight and the increased incidence of type 2 diabetes mellitus, cardiovascular disease, stroke, osteoarthritis, prevalent cancers, dyslipidemia, hypertension, asthma, liver disease and numerous other chronic conditions.<sup>5,8</sup> In fact,

obesity alone is estimated to cost the healthcare system \$215 billion<sup>9</sup> a year in increased medical expenditures, disability and higher rates of preventable death.<sup>10</sup>

To reduce these costs, research has documented the effectiveness of treatment for severe obesity by quantifying the magnitude and durability of the weight loss produced and the effectiveness of the treatment in preventing disease. Beginning in 1998 when the National Heart, Lung and Blood Institute's (NHLBI) first evidence-based obesity treatment guidelines recommended surgical therapy for patients with BMI >40 kg/m<sup>2</sup> or >35 kg/m<sup>2</sup> with serious co-morbidities,<sup>11</sup> there has been a growing body of clinical evidence that surgery produces significant durable weight loss accompanied by improvements in co-morbidities that are maintained over time in the majority of operated patients. Supportive evidence includes the results of a meta-analysis of 136 studies, reported in 2004, which found that an average percent excess body weight loss of 61% was accompanied by improvements in type 2 diabetes mellitus, systemic hypertension, obstructive sleep apnea, and dyslipidemia.<sup>12</sup>

Complementing this body of evidence, surgical treatment has been shown to be effective in ameliorating or resolving diabetes mellitus (type 2) and reversing the prevalence of metabolic syndrome as defined by National Cholesterol Education Program Adult Treatment Panel III criteria.<sup>13,14</sup> In a large, long-term, controlled study comparing bariatric surgery and conventional therapy for severe obesity, established diabetes mellitus was reversed in 72% of the surgical group at 2 years of follow-up compared to only 21% of the control group. At 10 years of follow-up, diabetes mellitus was reversed in 36% of the surgical group compared to 13% of the control group.<sup>15</sup> Findings from the same research group documented significant reductions in cancer incidence in the surgically treated group versus the unoperated controls.<sup>16</sup>

In addition, surgical weight loss has been shown to reduce cardiovascular disease incidence (myocardial infarction and stroke) and mortality in the severely obese.<sup>17</sup> Other benefits of weight loss surgery include the ability to discontinue lipid-lowering drugs after weight loss surgery,<sup>18</sup> to increase HDL cholesterol levels (13% to 47%),<sup>19,20,21,22,23</sup> and to improve heart function in patients with severe cardiomyopathy such as patients awaiting heart transplantation,<sup>24,25</sup> which reduces the need for heart transplants.

Data also show that surgical treatment of severe obesity reduces the need for costly medical interventions, such as the need for kidney transplantation by staving off severe kidney failure and the need for liver transplantation by preventing and treating fatty liver disease and cirrhosis. The durable weight loss after obesity surgery also dramatically reduces the need for costly hip and knee replacements and can improve outcomes of oncologic treatments.<sup>26</sup>

Based on this body of data, a number of independent professional medical societies have published scientific statements and clinical practice recommendations supporting the use of weight-loss surgical procedures as effective treatment for the severely obese: the American Academy for Clinical Endocrinologists (AACE), The Obesity Society (TOS), the American Society for Metabolic & Bariatric Surgery (ASMBS),<sup>27</sup> the American Diabetes Association<sup>28</sup> and the American Heart Association.<sup>29</sup>

## **2. Treating Severe Obesity Improves Maternity, Neonatal Care and Child Health Outcomes**

Compared to the rest of the obese population where rates of obesity may be stabilizing, rates of severe obesity are rapidly increasing.<sup>30</sup> Between 1986 and 2000, the numbers of Americans with BMI >30, 40, and 50 kg/m<sup>2</sup> have doubled, quadrupled, and quintupled in the United States.<sup>31</sup> These rates are especially high among women and ethnic minorities. According to the latest estimates, severe obesity (BMI ≥40) afflicts 7.1% of adult white women, 6.0% of Hispanic women and 17.8% of black women.<sup>4</sup>

In terms of women's health, these trends are troubling beyond the obvious association between severe obesity and higher rates of chronic disease. There is now ample evidence that severe obesity negatively affects maternal mortality, the course of pregnancy and the development of the offspring.<sup>32,33,34</sup> Serious complications of pregnancy (gestational hypertension, diabetes, pre-eclampsia, caesarian delivery, fetal malformations, injury to the infant during birth and lower newborn APGAR scores) are more frequently observed in severely obese pregnant women

than in those at a healthy weight.<sup>35,36,37,38,39</sup> The consequence is a higher frequency of Caesarean section and substantially increased charges, costs and length of stay associated with gestational obesity.<sup>40</sup>

At the same time, compelling data reveal a correlation between the extent of obesity in parents and the increased risk of obesity in their offspring.<sup>41,42,43,44</sup> One study of 162,000 mothers and their first-born offspring showed a clear relationship between pre-pregnancy obesity and the numbers of babies born large-for-gestational age (LGA) in whom the risk of obesity was significantly elevated in young adulthood.<sup>45</sup> The effects were graded based on maternal BMI, with the most significant effects in those with BMI of 35 or higher.

In light of these research findings, it is justified to designate the comprehensive treatment of severe obesity as an essential health benefit within the category of maternity and newborn care to improve women's health and the course of pregnancy in addition to improving fetal and infant outcomes. Along with obesity screenings and weight management counseling for obese women of childbearing age, recent studies show that successful pre-pregnancy treatment of severely obese women has positive effects on the course of the pregnancy<sup>46</sup> with a much lower prevalence of obesity in the offspring<sup>47,48</sup> including greater insulin sensitivity and improved lipid profile.<sup>48</sup>

### **3. Treating Severe Obesity Is Cost-Effective**

Today's emphasis on controlling healthcare spending has led to new thinking about the application of cost-effectiveness analysis – defined as an assessment of the added improvement in health outcomes relative to cost – to guide U.S. policy.<sup>49</sup> Applying this definition to the treatment of severe obesity, cost-effectiveness can be determined by examining the current cost of obesity-related chronic disease in conjunction with evidence-based data on the effectiveness of treatment to decrease weight-related co-morbidities.

On the cost side of the equation, healthcare spending associated with severe obesity – which is typically associated with multiple co-morbid conditions – is greater than for any medical condition.<sup>50</sup> But what is even more troubling are projections for future spending. One joint report from the United Health Foundation, the American Public Health Association and Partnership for Prevention predicts that by 2018, the U.S. will spend as much as \$344 billion on health care costs attributable to obesity, or 21% of direct health care spending.<sup>51</sup>

Regarding health interventions that will control these costs, there is growing evidence that weight-loss surgery is cost-effective, as measured by the time it takes to recoup the direct costs of the surgical procedure. This includes a recent systematic review of the literature which documented a return on investment (ROI) after as little as 2-4 years.<sup>52</sup> Looking specifically at severely obese patients with diabetes, a 2010 study found the costs of treatment were fully recovered after 26 months for laparoscopic surgery and that even after including the costs of follow-up care or adverse events, there was a 23% reduction in the average annual costs for diabetes medications (from \$678 annually to \$550 annually) in the 5 years after surgery.<sup>53</sup>

Putting these findings into perspective, a rigorous cost-effectiveness analysis conducted for the National Health Service (NHS) in the United Kingdom estimated that if only 5% of severely obese patients were to be treated with bariatric surgery, the net savings over 3 years would more than cover the costs to the NHS<sup>54</sup> and would yield other valuable economic benefits. Thus, ample evidence exists for applying cost-effectiveness as a criterion for including the treatment of severe obesity within the category of chronic disease management services.

### **4. There Is Existing Precedent for Designating Obesity Treatment As An Essential Health Benefit**

Along with the clinical evidence, existing government and private coverage policies establish a solid foundation for HHS to designate obesity treatment as an essential health benefit. Currently, the Centers for Medicare and Medicaid Services (CMS) has implemented a national coverage policy for weight-loss surgery to help reduce significant health risks associated with severe obesity<sup>55,56</sup> and in 2011, issued a coverage decision to reimburse the costs of providing obesity screenings and intensive behavioral counseling to obese Medicare beneficiaries (BMI  $\geq$  30 kg/m<sup>2</sup>),<sup>57</sup> although such counseling is ineffective for the severely obese.

Looking at commercial payers, a recent analysis of 119 large employers found that 74% offered bariatric surgery as a benefit while the Federal Employees Health Benefits Program provides coverage of bariatric surgery for the severely obese. Thus, there is a growing recognition within the public and commercial sectors that treating severe obesity is a cost-effective intervention that improves metabolic and clinical outcomes.

## 5. Summary

The facts are clear: severe obesity is no longer rare and has profound health and economic consequences. Accordingly, designating the timely and comprehensive treatment of severe obesity as an essential health benefit is justified to improve the health outcomes and reduce the costs of chronic diseases that are associated with severe obesity – especially those that are the primary drivers of health care costs (type 2 diabetes, cardiovascular disease, prevalent cancers and osteoarthritis), conditions that are *prevented* as well as treated by surgical weight loss.

In addition, bariatric surgery produces healthier pregnancy outcomes for both mother and child and stems the intergenerational transmission of obesity from parent to child. For the many severely obese adults of reproductive potential, effective treatment is urgently needed and is both effective and cost-effective.

We urge HHS to ensure that the essential health benefits package reflects current CMS coverage for obesity screenings, weight management counseling and the option of bariatric surgery.

Thank you for the opportunity to share our thoughts and for your consideration of these comments.

Respectfully submitted,



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On behalf of Shape Up America! and the obesity, nutrition, public health, minority health, and women's health organizations and experts listed below:

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**Organizations:**

- American Society of Bariatric Physicians
- American Society for Nutrition
- COSHAR Foundation
- Institute for the Advancement of Multicultural & Minority Medicine
- National Hispanic Medical Association
- National Medical Association
- National Congress of American Indians
- Shape Up America!
- Society for Women's Health Research

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- 1 Centers for Disease Control and Prevention. Overweight and Obesity: Defining overweight and obesity. Internet: <http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm> (Accessed January 17, 2012).
- 2 National Center for Health Statistics NCHS Health E-Stat: Prevalence of overweight, obesity and extreme obesity among adults: United States, trends 1976-80 through 2005-2006.
- 3 In 2006 there were 73.7 million U.S. children according to the testimony of WH Dietz [Dietz WH. CDC Congressional Testimony: Innovative childhood obesity practices. Testimony to Subcommittees on Health, and Oversight and Investigations: Committee on Energy and Commerce, US House of Representatives Washington DC. December 16, 2009] and the prevalence of severe childhood obesity was approximately 3.8% (BMI  $\geq$  99th percentile) according to one estimate based on NHANES data by Skelton et al. *Academic Ped* 2009;9(5):322-329.
- 4 Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. *JAMA*. 2012;307(5): doi:10.1001/jama.2012.39.
- 5 Guh DP, Zhang W, Bansback N et al. The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health* 2009;9:88-108.
- 6 Kochanek KD, Xu JX, Murphy SL, Minino AM, Kung H-C, Division of Vital Statistics. Deaths: preliminary data for 2009. *National Vital Statistics Reports* vol. 59, no. 4. [[http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59\\_04.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_04.pdf); accessed Jan 21, 2012.]
- 7 Borger C, Smith S, Truffer C, Keehan S, Sisko A, Poisal J, Clemens MK. [Health Spending Projections Through 2015: Changes on the Horizon](#). *Health Affairs*. 2006; Vol. 25, No. 2, pp. w61-w73
- 8 Wang YC, McPherson K, Marsh T, Gortmaker SL, Brown M. Health and economic burden of the projected obesity trends in the USA and the UK. *Lancet* 2011; 378:815-825.
- 9 Hammond RA, Levine R. The economic impact of obesity in the United States. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy* 2010; 3:285-295
- 10 Behan DF, Cox SH. Obesity and its relation to mortality and morbidity costs. *Society of Actuaries*, Dec. 2010, p 59. available at: [www.soa.org/files/pdf/research-2011-obesity-relation-mortality.pdf](http://www.soa.org/files/pdf/research-2011-obesity-relation-mortality.pdf)
- 11 National Heart, Lung and Blood Institute, The Practical Guide: Identification, Evaluation and Treatment of Overweight and Obesity in Adults. June 1998. <http://www.nhlbi.nih.gov/guidelines/obesity/practgde.htm>. Accessed January 17, 2012.
- 12 Buchwald H, Avidor Y, Braunwald E, Jensen MD, Pories W, Fahrbach K, Schoelles K. Bariatric surgery: a systematic review and meta-analysis. *JAMA* 2004; 292:1724-1737
- 13 Batsis JA, Romero-Corral A, Collazo-Clavell ML, Sarr MG, Somers VK, Lopez-Jimenez F. Effect of bariatric surgery on the metabolic syndrome: a population-based, long-term controlled study. *Mayo Clin Proc*. 2008;83:897-907
- 14 Madan AK, Orth W, Ternovits CA, Tichansky DS. Metabolic syndrome: yet another co-morbidity gastric bypass helps cure. *Surg Obes Relat Dis*. 2006;2:48-51
- 15 Sjostrom L, Lindroos AK, Peltonen M, Torgerson J, Bouchard C, Carlsson B, Dahlgren S, Larsson B, Narbro K, Sjostrom CD, Sullivan M, Wedel H; Swedish Obese Subjects Study Scientific Group. Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *N Engl J Med*. 2004;351:2683-2693
- 16 Sjostrom L, Narbro K, Sjostrom DC, et al. Swedish Obese Subjects Study. Effects of bariatric surgery on cancer incidence in obese patients in Sweden (Swedish Obese Subjects Study): a prospective controlled intervention trial. *Lancet Oncol*. 2009; 10(7):653-662.
- 17 Sjostrom L, Peltonen M, Jacobson P, et al. Bariatric surgery and long-term cardiovascular events. *JAMA* 2012; 307(1):56-65.
- 18 Nguyen NT, Varela E, Sabio A, Tran CL, Stamos M, Wilson SE. Resolution of hyperlipidemia after laparoscopic Roux-en-Y gastric bypass. *J Am Coll Surg*. 2006;203:24-29
- 19 Brolin RE, Kenler HA, Wilson AC, Kuo PT, Cody RP. Serum lipids after gastric bypass surgery for morbid obesity. *Int J Obes*. 1990;14:939-950
- 20 Gleysteen JJ, Barboriak JJ, Sasse EA. Sustained coronary-risk-factor reduction after gastric bypass for morbid obesity. *Am J Clin Nutr*. 1990;51:774-778
- 21 Gleysteen JJ. Results of surgery: long-term effects on hyperlipidemia. *Am J Clin Nutr*. 1992;55(suppl):591S-593S
- 22 Dixon JB, O'Brien PE. Lipid profile in the severely obese: changes with weight loss after lap-band surgery. *Obes Res*. 2002;10:903-910
- 23 O'Brien PE, Dixon JB, Laurie C, Skinner S, Proietto J, McNeil J, Strauss B, Marks S, Schachter L,

Chapman L, Anderson M. Treatment of mild to moderate obesity with laparoscopic adjustable gastric banding or an intensive medical program: a randomized trial. *Ann Intern Med*. 2006;144:625-633

24 Alpert MA, Lambert CR, Terry BE, Cohen MV, Mulekar M, Massey CV, Hashimi MW, Panayiotou H, Mukerji V. Effect of weight loss on left ventricular diastolic filling in morbid obesity. *Am J Cardiol*. 1995;76:1198-1201

25 Alpert MA, Terry BE, Lambert CR, Kelly DL, Panayiotou H, Mukerji V, Massey CV, Cohen MV. Factors influencing left ventricular systolic function in nonhypertensive morbidly obese patients, and effect of weight loss induced by gastroplasty. *Am J Cardiol*. 1993;71:733-737

26 Reviewed in Kral JG, Otterbeck P, Touza MG. Preventing and treating the accelerated ageing of obesity. *Maturitas* 2010; 66(3):223-230.

27 Handelsman Y, et al. American Association of Clinical Endocrinologists Medical Guidelines for Clinical Practice for Developing a Diabetes Mellitus Comprehensive Care Plan. *Endocr Pract*. 2011;17(Suppl 2):1-53.

28 American Diabetes Association. Standards of Medical Care in Diabetes - 2011. *Diabetes Care* 2011; 34(Suppl 1):S11-S61

29 Poirier P, Cornier MA, Mazzone T, et al; on behalf of the American Heart Association Obesity Committee of the Council on Nutrition, Physical Activity, and Metabolism. Bariatric surgery and cardiovascular risk factors: a scientific statement from the American Heart Association. *Circulation*. 2011; published online before print March 14, 2011, 10.1161/CIR.0b013e3182149099.

30 Ruhm CJ. Current and future prevalence of obesity and severe obesity in the United States. *Forum Health Econ & Policy* 2007;10 (2,Art.6): DOI:10.2202/1558-9544.1086

31 Sturm R. Increases in clinically severe obesity in the United States, 1986-2000. *Arch Intern Med*. 2003;163:2146-2148

32 Li L, Law C, LoConte R, Power, C. Intergenerational influences on childhood body mass index: the effect of parental body mass index trajectories. *Am J Clin Nutr* 2009; 89:551-557

33 Jacobson P, Torgerson JS, Sjöström L, Bouchard C. Spouse resemblance in body mass index: effects on adult obesity prevalence in the offspring generation. *Am J Epidemiol*. 2007 Jan 1;165(1):101-108.

34 Adams TD, Hunt SC, Mason LA, Ramirez ME, Fisher AG, Williams RR. Familial aggregation of morbid obesity. *Obes Res*. 1993 Jul;1(4):261-270

35 Mills JL, Troendle J, Conley MR, Carter T, Druschel CM. Maternal obesity and congenital heart defects: a population-based study. *Am J Clin Nutr* 2010;91:1543-1549.

36 Satpathy HK, Fleming A, Frey D et al. Maternal obesity and pregnancy. *Postgrad Med*. 2008; 120(3):E01-09 PMID 18824817

37 Cogswell M and Dietz P report summarized as: Influence of Pregnancy Weight on Maternal and Child Health: Workshop Report [<http://www.nap.edu/catalog/11817.html>]

38 Blomberg MI, Kallen B. Maternal obesity and morbid obesity: the risk for birth defects in the offspring. *Birth Defects Res A Clin Mol Teratol* 2010; 88:35-40.

39 Alanis MC, Goodnight WH, Hill EG, et al. Maternal super-obesity (body mass index  $\geq$  50) and adverse pregnancy outcomes. *Acta Obstet Gynecol Scand* 2010; 89(7):924-930

40 Trasande L, Lee M, Liu Y, Weitzman M, Savits D. Incremental charges, costs, and length of stay associated with obesity as a secondary diagnosis among pregnant women. *Med Care* 47(10):1046-1052.

41 Whitaker RC. Predicting preschooler obesity at birth: the role of maternal obesity in early pregnancy. *Pediatrics*. 2004 Jul;114(1):e29-36

42 [Sewell MF](#), [Huston-Presley L](#), [Super DM](#), [Catalano P](#). Increased neonatal fat mass, not lean body mass, is associated with maternal obesity. *Am J Obstet Gynecol*. 2006;195(4):1100-3.

43 Catalano PM, Farrell K, Thomas A, Huston-Presley L, Mencin P, de Mouzon SH, Amini SB. Perinatal risk factors for childhood obesity and metabolic dysregulation. *Am J Clin Nutr* 2009;90(5):1303-1313

44 Whitaker KL, Jarvis MJ, Beeken RJ, Boniface D, Wardle J. Comparing maternal and paternal intergenerational transmission of obesity risk in a large population-based sample. *Am J Clin Nutr* 2010; 91:1560-1567.

45 Cnattingius S, Villamor E, Lagerros YT, Wikstrom A-K, Granath F. High birth weight and obesity - a vicious circle across generations. *Int J Obes*. 2011 (December 13) doi:10.1038/ijo.2011.248

46 Sheiner E, Edri A, Balaban E, Levi I, Aricha-Tamir B. Pregnancy outcome of patients who conceive during or after the first year following bariatric surgery. *Am J Obstet Gynecol* 2011:

204:50.e1-6

47 Smith J, Cianflone K, Biron S et al. Effects of maternal surgical weight loss in mothers on intergenerational transmission of obesity. *J Clin Endocrin Metab.* (2009) vol. 94 (11) [doi:10.1210/jc.2009-0709]

48 Dixon JB, Dixon ME, O'Brien PE. Birth outcomes in obese women after laparoscopic adjustable gastric banding. *Obstet Gynecol.* 2005 Nov;106(5 Pt 1):965-72.

49 Weinstein MC, Skinner JA. Comparative Effectiveness and Health Care Spending — Implications for Reform. *N Engl J Med* 2010; 362:460-465 [February 4, 2010](#)

50 Hensrud DD, Klein S. Extreme obesity: a new medical crisis in the United States. *Mayo Clin Proc.* 2006; 81(10, suppl):S5-S10

51 Thorpe KE. The future costs of obesity: National and state estimates of the impact of obesity on direct health care expenses. United Health Foundation, American Public Health Association and Partnership for Prevention. November 2009

52 [Picot J](#), [Jones J](#), [Colquitt JL](#), [Gospodarevskaya E](#), [Loveman E](#), [Baxter L](#), [Clegg AJ](#). The clinical effectiveness and cost-effectiveness of bariatric (weight loss) surgery for obesity: a systematic review and economic evaluation. *Health Technol Assess (Winchester)* 2009;13(41):1-190

53 Finkelstein EA, Allaire BT, Burgess SM, Hale BC. Financial implications of coverage for laparoscopic adjustable gastric banding. [Surg Obes Relat Dis.](#) 2011 May-Jun;7(3):295-303. Epub 2010 Oct 29.

54 Office of Health Economics (OHE). Shedding the Pounds: Obesity management, NICE guidance and bariatric surgery in England. November 2010. Office of Health Economics 12 Whitehall, London SW1A2DY

55 Decision Memo for Bariatric Surgery for the Treatment of Morbid Obesity (CAG-00250R), February 21, 2006

56 Centers for Medicare & Medicaid Services. Decision Memo for Surgery for Diabetes (CAG-00397N), February 12, 2009

57 Centers for Medicare & Medicaid Services. Decision Memo for Intensive Behavioral Therapy for Obesity (CAG-00423N), November 29, 2012