



Controversies in the Management of Obesity

Final Background and Scope

Background:

It is estimated that more than one-third of American adults and about 17% of adolescents are obese (Ogden, 2014). The health effects of obesity are myriad and include the development of type 2 diabetes, hypertension, cardiovascular disease, cancer, high blood pressure, and sleep apnea. Obesity and its sequelae are estimated to generate \$147 billion in health care costs in the US alone (Finkelstein, 2009). The complexity involved in managing obesity may affect both patient candidacy for certain treatment options as well as adherence to lifestyle changes necessary to sustain weight loss and improve health outcomes (Magro, 2008). Clinical interest is therefore high in treatments that may be used for patients at multiple levels of obesity, as well as in interventions that promote better adherence to lifestyle change.

Project Aim:

The focus of attention for this project will be on controversies in the management of obesity. While we will assess the evidence on comparative effectiveness and value of surgical procedures, devices, and medications across all relevant populations, we will pay particular attention to: 1) the use of these interventions in patients with levels of obesity lower than historical thresholds for major interventions (i.e., body mass index [BMI] 25-35 kg/m²), 2) evidence on the durability of treatment effect over multiple periods of follow-up, and 3) information on new devices and medications that have generated clinical interest but also uncertainty as to their proper place in the treatment continuum.

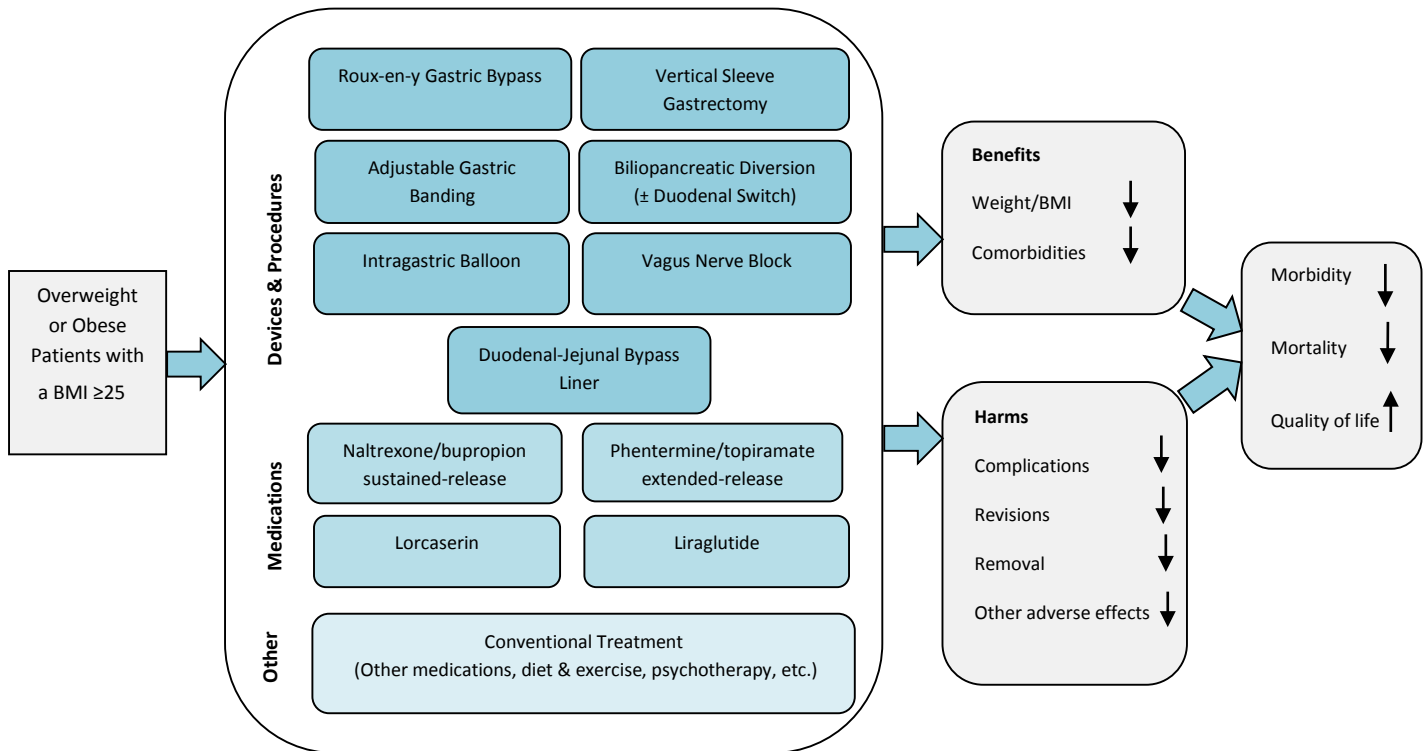
Scope of the Assessment:

The proposed scope for this assessment is described below using the PICOTS (Population, Intervention, Comparators, Outcomes, Timing, Settings) framework. Available evidence will be culled from recent high-quality systematic reviews as well as randomized controlled trials and comparative cohort studies. We will also include case series with adequate sample size (>50 patients) that also meet certain quality criteria (e.g., sample retention, consecutive patients, clearly defined entry criteria). For the surgical literature, we will focus attention on case series with longer-term follow-up (i.e., 2+ years), given the maturity of this evidence base and uncertainty around durability of benefit. However, we recognize that follow-up for emerging therapies may not be adequate to impose such a threshold, and/or may be limited by the intervention approach itself (e.g., temporary balloon insertion); as such, we will not impose a strict follow-up limit on case series of devices or drugs.

Analytic Framework:

The analytic framework for this evaluation is depicted in Figure 1 on the following page. As noted in the figure, we expect data to be limited on the impact of obesity-interventions on long-term measures of morbidity, mortality, and health-related quality of life. Instead, a series of conceptual links will be required to link shorter-term impact on measures of body weight and resolution of or improvement in key comorbidities to longer-term outcomes.

Figure 1. Proposed Analytic Framework for CTAF Evaluation of Obesity-related Treatments



Population

The population of interest will include adolescent (i.e., age 12-17) and adult (age 18+) individuals classified as overweight or obese (i.e., BMI ≥ 25) who received an intervention of interest for this assessment (see “Interventions” below).

Interventions

For assessment of surgery, studies will be limited to those that involve the four bariatric procedures commonly used in the US: Roux-en-y gastric bypass, laparoscopic adjustable gastric banding, vertical sleeve gastrectomy, and biliopancreatic diversion (with or without duodenal switch). We will also consider the evidence for three newer types of devices and four medications, as listed below.

Devices

- Temporary intra-gastric balloon systems (e.g., Silimed[®], ReShape[®])
- Vagus nerve block devices (e.g., Maestro[®] system)
- Duodenal-jejunal bypass liner (EndoBarrier[®])

Medications

- Naltrexone/bupropion sustained-release (Contrave[®])
- Phentermine/topiramate extended-release (Qsymia[®])
- Lorcaserin (Belviq[®])
- Liraglutide (Saxenda[®])

We will focus on devices and medications that are FDA-approved for weight loss or are imminently expecting FDA approval. Note that interventions will differ in terms of their approved indications; as such, we will clearly identify evidence that represents on- vs. off-label uses of each intervention.

Comparators

Wherever feasible, we will seek head-to-head studies of these interventions as well as studies comparing one or more interventions to an active comparator; these latter studies may include comparisons to so-called “lifestyle interventions” (e.g., diet, exercise, counseling). We note, however, that many studies will compare an intervention of interest to usual care, placebo, and/or sham devices. If feasible, we will make use of validated techniques for indirect comparisons (e.g., network meta-analysis) in these circumstances.

Outcomes

Outcomes of interest will include the impact of obesity-related interventions on:

- Mortality
- Weight loss related outcomes (e.g., reduction in BMI, % excess weight lost)
- Improvement/resolution of comorbidities
- Measures of pain, function, health-related quality of life, and/or patient satisfaction
- Short- and long-term complications and adverse events
- Economic outcomes, including payer costs, patient productivity, and cost-effectiveness

We will assess the evidence on an overall basis as well as stratified by important baseline (e.g., pre-intervention BMI, age, presence of selected comorbidities) and program (e.g., pre-operative weight loss, multidisciplinary care, pre-surgery waiting period) characteristics.

Timing

Evidence on intervention effectiveness will be limited to comparative studies with at least six months of follow-up as a gauge of the durability of weight-loss and related outcomes. Evidence on harms will be derived from comparative studies of any duration, as surgical and device-based interventions typically report complications at the greatest level of detail during the peri-procedure period (i.e., within 30 days after surgery or minimally-invasive intervention). As described previously, evidence on effectiveness and harms from case series will focus on studies meeting sample-size and quality criteria.

Settings

All relevant settings will be considered, including inpatient, clinic, and outpatient settings.

References:

1. Finkelstein EA, Trogon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: Payer- and service-specific estimates. *Health Affairs*, 2009; 28(5):w822-w831.
2. Magro, DO, Geloneze, B, Delfini R, et al. Long-term weight regain after gastric bypass: A 5-year prospective study. *Obesity Surgery*, 2008;18:648–651.
3. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA*, 2014; 311:806–14.