

## Resource Document on Bariatric Surgery and Psychiatric Care

Approved by the Joint Reference Committee, June 2016

"The findings, opinions, and conclusions of this report do not necessarily represent the views of the officers, trustees, or all members of the American Psychiatric Association. Views expressed are those of the authors." -- *APA Operations Manual*.

Prepared by Sanjeev Sockalingam, M.D., Raed Hawa, M.D., Weronika Micula-Gondek, M.D., Wynn Lundblad, M.D., Alexis Fertig, M.D.

### Abstract

The purpose of this resource document is to highlight the role of psychiatrists in the care of patients undergoing bariatric surgery. The document identifies key psychiatric components to pre-bariatric surgery assessment and aftercare, which underscore the need for integrated psychiatric services throughout patients' bariatric surgery care.

### Introduction

Obesity is the fifth leading cause of global deaths and is associated with a myriad of serious health conditions, including coronary artery disease, type 2 diabetes and cancer (1). Moreover, global obesity rates have nearly doubled over the last 30 years giving rise to the "obesity epidemic" (2). Concerns about morbidity and mortality related to obesity are a significant concern in mental health populations, where obesity prevalence rates are as high as 60% in patients with severe mental illness (3).

Bariatric surgery is now recognized as an effective treatment for severe obesity for patients with a body mass index (BMI)  $\geq 40$  or  $\geq 35$  with one obesity related co-morbidity (4). Types of bariatric surgery include restrictive procedures (e.g., laparoscopic gastric banding or sleeve gastrectomy), or combined restrictive and malabsorptive procedures (e.g., Roux-en-Y gastric bypass) (a more detailed description of bariatric surgery procedures can be reviewed in bariatric surgery guidelines) (5). The benefits of bariatric surgery include sustained weight loss, resolution of obesity-related co-morbidities and improved quality of life (6-8). Despite the expansion of bariatric surgery procedures and their growing evidence, the role of psychiatric illness and interventions in bariatric surgery outcomes has been a less prominent focus in bariatric surgery programs and literature. Bariatric surgery guidelines recommend pre-surgery behavioral and psychosocial assessment; however, clear recommendations on post-operative psychosocial care are lacking (5). This is a concern given that up to 70% of bariatric surgery candidates have a history of a psychiatric illness according to structured psychiatric interview (9-11). Although the relationship between pre-existing psychiatric illness on weight loss outcomes is

unclear, there is emerging literature on the range of mental health complications and challenges that can emerge following bariatric surgery.

This resource document aims to summarize key psychiatric issues related to bariatric surgery and advocates for psychiatric care throughout a patient's bariatric surgery journey. The role for an integrated approach to bariatric surgery care involving psychiatric support will be highlighted based on the literature. Moreover, this resource document is aligned with the American Society for Metabolic and Bariatric Surgery Integrated Health Clinical Issues and Guidelines Committee "Recommendations for the Pre-Surgical Psychosocial Evaluation of Bariatric Surgery patients" (12).

### **Pre-Surgery Psychiatric Assessment**

Successful bariatric outcomes are not only dependent on the surgical procedures but also require significant and lifelong changes in eating patterns and physical activity. At the same time, weight loss surgery has wide-ranging and profound psychosocial effects. Thorough and specialized pre-operative psychosocial assessment is an important part of a comprehensive bariatric treatment protocol (13) and it has become the standard of care for bariatric surgery centers (14). Pre-surgical mental health assessment is not diagnostic and should not be seen as a gatekeeper, but as an opportunity to prepare bariatric surgery candidates for surgery. It is used to identify candidates' vulnerability (e.g., presence of disordered eating behaviors such as emotional eating), and to provide support and education (e.g., patients should be warned about increased risk for alcohol use disorders after the surgery) (15). It is used to identify possible contraindications for surgery, such as uncontrolled substance abuse or active mental illness. It helps guide treatment planning and provides recommendations that are aimed at facilitating the best possible outcome (16). The specific evaluation methods, evaluator credentials, and the degree to which assessment results influence surgical decision making vary among bariatric programs, and might be influenced by local or national quality criteria to which a particular center follows (17).

While there is a variability in the content of pre-surgical psychosocial assessment across different bariatric centers, information is typically gathered via clinical interview and administration of self-report questionnaires (18). There is a general consensus that a psychiatric disorder per se should not be viewed as an exclusion criterion for bariatric surgery. Nevertheless, there may be psychiatric reasons that prompt surgical delay (19). The most common reasons for deferring bariatric surgery are significant psychopathology such as active psychosis (including thought disorder symptoms), current substance dependence, untreated eating disorders (specifically anorexia nervosa or bulimia nervosa), untreated depression and/or active suicidal ideation (18). In addition, insufficient knowledge about the surgery and inability to provide informed consent, unrealistic expectations for weight loss, lack of understanding of post-surgical procedures, medical non-adherence and poor social support have been most frequently reported as general contraindications for bariatric surgery (14, 18-21).

To date, although a standardized protocol for preoperative psychological evaluation does not exist, there is a general consensus among bariatric surgery centers that evaluation should include

assessment of weight history, current and past weight loss attempts, eating and diet behavior, eating pathology, current and past psychiatric functioning, substance use, medical history, motivation and expectations about surgery, understanding and knowledge about the surgery and pre- and post-surgical behavioral change requirements, physical activity, and social support (5, 15, 17, 22-24).

Following a psychosocial evaluation, most mental health professionals make explicit recommendations about candidates' preparedness for bariatric surgery (20). The vast majority of programs unconditionally recommend most of the candidates and only a small percentage of pre-surgical mental health evaluations end up being "denied" bariatric surgery (25, 26). Some programs recommend postponing surgery for anywhere from 6 weeks to 6 months if the patients are judged to have poorly controlled psychopathology or little knowledge about the surgery or post-operative dietary changes (27). However, findings of recent studies suggest that deferring surgery until patient receives treatment for mental health issues greatly diminishes the chances that he will subsequently return for the surgery (15). In summary, the mental health clinician can contribute greatly to patients' preparation for the procedure by increasing knowledge about the surgery, post-surgical lifestyle changes and long-term adherence to behavioral regimen. Psychiatrists can be an asset to the bariatric program through providing guidance to the multidisciplinary teams, facilitating communication between the team and bariatric patients, and managing risk and liability (13).

### **Recommendations**

- Pre-surgical psychosocial assessment is not a diagnostic interview, rather a screening that helps identify poorly controlled mental illness or substance use disorders.
- Pre-surgical psychosocial assessment offers a unique opportunity to identify potential barriers to weight loss and an opportunity for education and support to help facilitate the best possible surgical outcome.
- Presence of a psychiatric disorder does not automatically exclude a patient's candidacy for bariatric surgery.
- Mental health providers play an integral role in facilitating communication between the candidates and bariatric teams, providing guidance to multidisciplinary teams, and managing risk and liability.

### **Psychiatric Disorders Following Bariatric Surgery**

Research consistently demonstrates a significantly higher rate of psychiatric illness, particularly depression, anxiety, and binge eating disorder, among patients who are candidates for bariatric surgery (28, 29). There is no clear evidence that having a psychiatric diagnosis prior to bariatric surgery impacts the rate, amount, or sustainability of weight loss after surgery. There is fair evidence that there is a significant initial decrease in the prevalence of psychiatric illnesses following bariatric surgery, although no evidence of causality (30). Amongst all psychiatric illnesses, anxiety disorders appear to improve the least post-bariatric surgery.

Long-term results from the Swedish Obese Subjects (SOS) study suggest that the greatest improvement in psychosocial measures occurs during the first year after surgery, which coincides with the greatest rate of weight loss. However, there is a decline in these measures from years one to six,

with eventual long-term stabilization. These trends mirror trajectories for weight loss following surgery. Overall, the SOS study demonstrated improvements in psychopathology post-surgery up to 10 years post-surgery, despite the declines in symptom improvement after the one-year, post-bariatric surgery peak (30).

More recent long-term studies indicate that this initial decrease in prevalence of psychiatric illnesses might reverse over time; however, these studies had significantly fewer patients. Herpertz et al. (2015) and Canetti et al. (2016) compared patients who received bariatric surgery to those in a weight loss program and found that after nine and 10 years respectively the bariatric surgery patients had significantly improved physical health compared to their baseline and the non-surgical group (31, 32). In both studies several measures of mental health showed that while these patients had improvement at one year after surgery, they had deterioration back to or below baseline by the end of the study period (31, 32).

Research is still needed regarding psychiatric disorders and their course after bariatric surgery. One of the limitations with current research is the variability in results based on the type of surgery and the timing of measurements after surgery (33).

### **Recommendations**

- It is important to assess for and monitor psychiatric disorders after bariatric surgery long term.
- Consider standardized instruments to monitor for presence and severity of psychiatric illness.
- Educate patients that it is normal to have an initial improvement in psychiatric illness and psychosocial functioning, which may be followed by a decline. Encourage them to discuss any changes in functioning with their providers.

### **Eating Disorders Following Bariatric Surgery**

The most common eating disorder prior to, and following, bariatric surgery is binge eating disorder (BED) (34). Actual rates are unclear for several reasons, including the fact that the diagnosis changed as the field transitioned from DSM-IV to DSM-5. The diagnosis is complicated by the physiological inability of patients to have objective binge episodes immediately following bariatric surgery. For some patients, the ability to binge after surgery can develop over time. Although there is a broad range in the prevalence found in studies it does seem to be higher than rates in the general population. Night eating syndrome, grazing, and loss of control with eating are all highly prevalent eating disorder behaviors in candidates for bariatric surgery (34). Again, the reported ranges are broad due to inconsistent methods of measuring these behaviors (35).

Bulimia nervosa and anorexia nervosa is uncommon after bariatric surgery; however, these disorders have been described in several case studies (36, 37). Moreover, various behaviors consistent with disordered eating occur in patients following bariatric surgery and it is important to differentiate eating behaviors that occur as side effects of the procedure from more pathological eating related behaviors. Evidence suggests that disordered eating following bariatric surgery, particularly grazing

and loss of control eating, can lead to worse outcomes in terms of overall weight loss and morbidity (38).

Kalarchian et al. (2010) describe some of the common behaviors that can be seen after gastric bypass surgery and are easily confused with disordered eating behaviors (39). Vomiting frequently occurs in the short term after bypass surgery as patients adjust to their diminished intake capacity. This can also be done in response to “plugging” when food seems to be stuck in their pouch. Dumping syndrome can occur when patients have foods with a high sugar or carbohydrate content and results in diarrhea. Vomiting and dumping syndrome typically decrease as patients adjust to their surgery and learn how to eat appropriately. However, these behaviors should be monitored as some patients will self-induce them as a means to continue weight loss or prevent weight gain (18, 36, 38). Grazing and loss of control eating are important to monitor following surgery as well, as they are also associated with worse outcomes following surgery (34).

Despite the impact of disordered eating on outcomes, there are no agreed upon self-report questionnaires or screening measures that are consistently used to assess or monitor behaviors either pre- or post-surgery (35, 40). A version of the Eating Disorder Examination (EDE) has been developed for evaluation following bariatric surgery. However, this is a time-intensive structured clinical interview (40).

### **Recommendations**

- Disordered eating behaviors and thoughts should be assessed both before and after bariatric surgery.
- Some eating disorder behaviors can be part of the normal course following bariatric surgery.
- Due to current limitations in disordered eating assessment tools, bariatric surgery patients should be assessed with a mix of clinician administered and self-report measures to assist with clinician assessment.

### **Post-Surgery Psychotropic Medication Issues**

The ability to absorb medications post-bariatric surgery depends on a number of factors including:

1. type of bariatric surgery (malabsorptive (e.g., Roux-en-Y gastric bypass) vs. restrictive (e.g., laparoscopic gastric banding))
2. medication solubility (aqueous vs. suspension)
3. medication availability (immediate release vs. extended release)
4. milieu changes (pH of stomach, loss of surface area of duodenum and stomach)

Given the high lifetime prevalence rates of psychiatric disorders in bariatric patients, many of bariatric surgery patients continue to take psychiatric medications post-surgery. Cunningham et al. (2012) suggest that antidepressant use does not decrease in the majority of patient who undergo

bariatric surgery (41), whereas Segal et al. (2009) report less than 10% reduction in antidepressant usage post-bariatric surgery (42). Although antidepressants are the most common psychiatric medication prescribed post-surgery, patients may also continue mood stabilizers or antipsychotic medications given their increasing use in treating psychiatric illness. Moreover, the formulation of psychotropic medications, specifically extended release formulations, can be problematic for patients after malabsorptive bariatric surgery procedures due to challenges with dissolution and subsequent absorption. Therefore, additional formulations or switching to another immediate release medication should be considered for patients on extended release psychiatric medications.

Studies support the need to be vigilant about psychiatric medication follow-up and ongoing monitoring of patients' psychiatric symptoms post-surgery, specifically in malabsorptive surgical procedures. Reports of reduced antidepressant levels can occur immediately post-surgery, leading to selective serotonin reuptake inhibitors (SSRI) discontinuation syndrome and adverse effects (43). Controlled studies for antidepressants suggest that antidepressant absorption can be reduced for up to one year post surgery. Furthermore, preliminary evidence suggests that absorption of SSRIs and to a lesser extent serotonin-norepinephrine reuptake inhibitors (SNRIs) is impaired for the first six months following bariatric surgery, with improvement over time (44).

Reports of lithium toxicity post-bariatric surgery provide further support for close monitoring of psychiatric medication regimen and use of available protocols to guide dosing (45, 46). Given this variability and preliminary evidence, psychiatrist involvement is essential post-surgery to monitor psychiatric medication efficacy and adverse effects.

### **Recommendations**

- Psychiatric medication monitoring is important post-bariatric surgery due to potential reductions in absorption of psychiatric medications.
- Monitor patients who are receiving psychiatric medications closely for the first 6-12 months given the risk of toxicity or lack of effect due to decreased drug levels.
- Physicians should consider using standardized tools for symptom evaluation and monitor the following psychiatric change.

### **Suicide and Self-Harm Risk After Bariatric Surgery**

Elevated rates of suicide and self-harm risk have attracted much attention in recent years. In a review of studies examining suicide rates after bariatric surgery, Peterhansel and colleagues found a total of 95 suicides when examining 190,000 person-years of post-bariatric surgery data with an estimated suicide rate of 4.1/10,000 person-years (47). The review identified limitation in information describing the reasons for suicide and the time-point of these events after surgery.

In 2015, Bhatti et al. studied a cohort of 8,814 patients and found that self-harm emergencies (which included medication overdoses) significantly increased from 2.33 per 1,000 patient years before surgery to 3.63 after surgery (relative risk [RR] 1.54) (48). Post-surgery emergencies for self-harm were

significantly higher among patients over 35 (RR 1.76), those with low-income (RR 2.09), and those who live in rural areas (RR 6.49).

The mechanism underlying these associations between suicide and self-harm, and bariatric surgery remain unclear. Researchers hypothesize that the persistence or recurrence of medical and psychiatric comorbidities (including anxiety, depression and stress) after bariatric surgery, post-surgical neuro-hormonal changes, the disinhibition secondary to loss of control, pharmacokinetic changes in the absorption of alcohol and psychiatric medications, and substitution of substance misuse for food could be contributing factors to increased suicide. Psychosocial issues including lack of improvement in quality of life post-surgery, lack of sustained weight loss or weight regain, unrealistic or unmet expectations regarding weight loss, continued or recurrent physical restrictions, and persistence or recurrence of relationship difficulties could play a role as well.

### **Recommendations**

- Patients require a comprehensive psychiatric assessment pre-surgery to identify modifiable risks for self-harm and suicide prior to surgery. Appropriate interventions should be implemented in advance of surgery.
- Patients should be educated about potential risks of self-harm and suicide pre-surgery and opportunities for follow-up support should be identified.
- Post-operative follow-up should continue to monitor for suicidal ideation and self-injury long-term.

### **Addictive Disorders and Bariatric Surgery**

Active substance use disorders are contraindications to bariatric surgery (49) and a history of a substance use disorder can increase patient non-completion of the pre-surgery assessment process (50, 51). Given that nearly 1 in 3 patients have a lifetime history of substance use disorders, psychiatric assessment of substance use is a core component of the pre-surgery assessment process (9). The importance of assessing for addictive disorders, specifically alcohol use disorder and tobacco use disorder, is related to the increased risk surgical complications, such as ulcerations, with these substances (52). As a result, patients should be supported to stop alcohol and nicotine use pre-surgery (5). Alcohol use disorder group programs focused in motivational interviewing and psycho-education can assist in increasing patient readiness to make behavioral changes related to substance use prior to surgery (53).

Following bariatric surgery, patients can also develop de novo substance use disorders (54). The rate of new onset alcohol use disorders after bariatric surgery is approximately 7%-8% based on existing studies (55, 56). Moreover, patients undergoing Roux-en-Y gastric bypass surgery may have higher absorption of alcohol and slower metabolism of alcohol after surgery as compared to pre-surgery (57). This alteration in alcohol absorption and metabolism may explain in part the development of new onset alcohol use disorders. Monitoring of alcohol use after surgery is needed to prevent substance use sequelae, such as nutritional deficiencies (e.g., thiamine or B12) or increased caloric consumption impacting weight loss.

In addition to alcohol use, data from a large retrospective study suggests that most pre-surgery chronic opioid users will continue to use opioids post-surgery, and likely in higher amounts (58). Approximately 4% of patients could become chronic opioid users in the post-operative period and risk factors for post-surgery emergence of opioid use include pre-surgery total days of opioid use, pre-surgery use of non-narcotic analgesics, antianxiety agents and tobacco use (59). A lower risk of chronic opioid use post-bariatric surgery was associated with older age and laparoscopic gastric banding procedure, which suggests that medication malabsorption could be a factor in chronic opioid use after roux-en-y versus gastric banding surgical procedures (59).

Studies suggest that bariatric gastric bypass and vertical banded gastroplasty surgery may confer a higher risk of alcohol use disorders compared to other weight loss surgery procedures such as gastric banding (60). Additional risk factors identified in large cohort studies include higher alcohol use pre-surgery, pre-surgery nicotine or other recreational drug use, male gender, younger age, comorbid psychiatric disorders pre-surgery and lower social support (55, 56).

Research has also explored the relationship between bariatric surgery and increases in other addictive disorders. Mitchell and colleagues showed that rates of behavioral addictive disorders pre-surgery (lifetime) and within the first 3-years post-surgery were 11.4% and 9.5%, respectively (56). Currently there is a paucity of data on behavioral addictive behaviors post-surgery and more research is needed to elucidate the risks of this disorder related to bariatric surgery.

## **Recommendations**

- Treatment of alcohol use problems before pursuing bariatric surgery is essential to reduce surgical health risks and to support long-term weight loss.
- Patients should be aware of changes to alcohol tolerance and absorption post-bariatric surgery and patients with a history of problem alcohol use should aim to abstain or limit alcohol use to the lowest possible amount after surgery.
- Bariatric surgery programs should continue to work with patients and offer interventions geared towards providing patients with information and coordinating psychosocial treatment for addictive disorders pre- and post-surgery.

## **Body Image Disturbances Post-Bariatric Surgery**

With the initial rapid weight loss post-bariatric surgery, studies suggest that up to 90% to 96% of individuals who receive bariatric surgery develop excess skin (61, 62). Not only does surplus skin cause rash, hygiene problems and mobility challenges (63), the aesthetically unappealing appearance of these folds negatively impacts the self-image and psychological well-being of the post-bariatric surgery patients (61, 64). Although patients' body image generally improves following weight loss surgery (65), isolated body parts (mainly the abdomen, breasts and thighs) can continue to be negatively evaluated as a result of excess skin (61). The perceptions of body image are highly complex, diverse and ambivalent, however, as the body is in a continuous state of shift and flux. The reliance on satisfaction assessment instruments underplays potential variability, running the risk of giving a false or superficial picture.



Body contouring surgery (BCS), which includes procedures such as abdominoplasty, brachioplasty and thigh lift, removes excess skin tissue, giving the remaining tissue a firmer appearance. Up to 90% of post-bariatric surgery patients have expressed a desire for BCS (61, 62). Several studies suggest that BCS post-bariatric surgery improves the quality of life and psychosocial functioning of patients (64, 66). Despite these reported benefits with BCS, there is a large disparity between the number of individuals getting BCS in comparison to those who desire this procedure. Studies suggest that approximately 25% of women and 6% of men ultimately obtain BCS, with cost being a significant barrier due to limited health coverage for this procedure in most countries (67, 68). Furthermore, studies suggest that increased education regarding the role of body contouring after surgery, the need for greater patient advocacy and patient fear about the safety of the procedure as additional barriers (69).

### **Recommendations**

- Body image disturbance can persist post-bariatric surgery as a result of excess skin.
- Body contouring surgery can improve psychological wellbeing of bariatric patients.
- Education of pre-surgical patients about excess skin as well as the potential limitations regarding body contouring surgery coverage.

### **The Role of Psychiatrists in Integrated Care Related to Bariatric Surgery**

Despite the high rates of psychiatric illness in patients who seek bariatric surgery (BS), little has been written about the role of the psychiatrist in evaluating and treating these patients within the bariatric surgery clinic. There is significant literature on the role of psychiatrists in outpatient medical settings, showing improved access to psychiatric services, favorable outcomes in chronic illness and quality of life, as well as reduced costs and care use (70-74). While many of these reports have come from primary care, there is increasing evidence that integrated psychiatric care has similarly positive outcomes in specialized clinics (75, 76).

A psychiatrist embedded in a bariatric surgery clinic serves as an important member of the interdisciplinary treatment team. While early models conceptualized psychiatrists and other behavioral health providers as “gatekeepers” (to clear the patient for surgery), increased recognition of psychiatric burden in this population have generated a role for psychiatrists with expertise in bariatric surgery to contribute to patients’ longitudinal care. As discussed above, certain psychiatric issues are specific to the bariatric population (alterations in medication absorption, body contouring surgery), while others are commonly encountered psychiatric issues for which bariatric surgery patients are at an increased risk. Understanding the interplay between bariatric surgery and psychiatry requires appreciation of the surgical process and the lifelong behavioral changes that are expected of these patients. While the literature is scant on psychiatric services in a bariatric surgery clinic, there is some evidence that engagement in pre-surgery mental health treatment may improve weight loss outcomes (77).

Further research is needed to address the role of the psychiatrist within a bariatric surgery clinic, but data from other specialties indicate that on-site psychiatric services reduce costs and improve care in this vulnerable population.

### **Recommendations**

- Psychiatric care of bariatric surgery patients requires expertise beyond the scope of regular psychiatric practice.
- Early and consistent psychiatric involvement helps to identify patients who require higher levels of care or service, potentially avoiding adverse outcomes.
- Embedded behavioral health services have been shown to improve outcomes and reduce costs in both primary care and subspecialty settings.
- More research is needed to identify the optimal role of psychiatrists in bariatric surgery programs.

## References

1. World Health Organization. Obesity. 2013.
2. Shields M, Tjepkema M. Trends in adult obesity. Health Reports (Statistics Canada, Catalogue 82-003). 2006;17:53-59.
3. Allison DB, Newcomer JW, Dunn AL, Blumenthal JA, Fabricatore AN, Daumit GL, Cope MB, Riley WT, Vreeland B, Hibbeln JR, Alpert JE. Obesity among those with mental disorders: a National Institute of Mental Health meeting report. Am J Prev Med. 2009;36:341-350.
4. Mechanick JI, Kushner RF, Sugerman HJ, Gonzalez-Campoy JM, Collazo-Clavell ML, Guven S, Spitz AF, Apovian CM, Livingston EH, Brolin R, Sarwer DB, Anderson WA, Dixon J. American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery Medical Guidelines for Clinical Practice for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient. Surg Obes Relat Dis. 2008;4:S109-184.
5. Mechanick JI, Youdim A, Jones DB, Timothy Garvey W, Hurley DL, Molly McMahon M, Heinberg LJ, Kushner R, Adams TD, Shikora S, Dixon JB, Brethauer S. Clinical practice guidelines for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient--2013 update: cosponsored by American Association of Clinical Endocrinologists, the Obesity Society, and American Society for Metabolic & Bariatric Surgery. Surg Obes Relat Dis. 2013;9:159-191.
6. Santry HP, Lauderdale DS, Cagney KA, Rathouz PJ, Alverdy JC, Chin MH. Predictors of patient selection in bariatric surgery. Ann Surg. 2007;245:59-67.
7. 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.
8. Greenway SE, Greenway FL, 3rd, Klein S. Effects of obesity surgery on non-insulin-dependent diabetes mellitus. Arch Surg. 2002;137:1109-1117.
9. Mitchell JE, Selzer F, Kalarchian MA, Devlin MJ, Strain GW, Elder KA, Marcus MD, Wonderlich S, Christian NJ, Yanovski SZ. Psychopathology before surgery in the Longitudinal Assessment of Bariatric Surgery-3 (LABS-3) Psychosocial Study. Surg Obes Relat Dis. 2012;8:533-541.
10. Muhlhans B, Horbach T, de Zwaan M. Psychiatric disorders in bariatric surgery candidates: a review of the literature and results of a German prebariatric surgery sample. Gen Hosp Psychiatry. 2009;31:414-421.
11. Kalarchian MA, Marcus MD, Levine MD, Courcoulas AP, Pilkonis PA, Ringham RM, Soulakova JN, Weissfeld LA, Rofey DL. Psychiatric disorders among bariatric surgery candidates: relationship to obesity and functional status. The American journal of psychiatry. 2007;164:328-334.
12. Sogg S, Lauretti J, West-Smith L. Recommendations for the presurgical psychosocial evaluation of bariatric surgery patients. Surg Obes Relat Dis. 2016 [epub].
13. Sogg S, Friedman KE. Getting Off on the Right Foot: The Many Roles of the Psychosocial Evaluation in the Bariatric Surgery Practice. Eur Eat Disord Rev. 2015;23:451-456.
14. Bauchowitz AU, Gonder-Frederick LA, Olbrisch M, Azarbad L, Ryee M, Woodson M, Miller A, Schirmer B. Psychosocial evaluation of bariatric surgery candidates: a survey of present practices. Psychom Med. 2005;67:825-832.
15. Sogg S, Mori DL. Psychosocial evaluation for bariatric surgery: the Boston interview and opportunities for intervention. Obes Surg. 2009;19:369-377.
16. Ghaferi AA, Lindsay-Westphal C. Bariatric Surgery-More Than Just an Operation. JAMA surgery. 2015;1.
17. Rouleau CR, Rash JA, Mothersill KJ. Ethical issues in the psychosocial assessment of bariatric surgery candidates. J Health Psychol. 2014.
18. Muller A, Mitchell JE, Sondag C, de Zwaan M. Psychiatric aspects of bariatric surgery. Curr Psychiatry Rep. 2013;15:397.

19. Marcus MD, Kalarchian MA, Courcoulas AP. Psychiatric evaluation and follow-up of bariatric surgery patients. *The American journal of psychiatry*. 2009;166:285-291.
20. Fabricatore AN, Crerand CE, Wadden TA, Sarwer DB, Krasucki JL. How do mental health professionals evaluate candidates for bariatric surgery? Survey results. *Obes Surg*. 2006;16:567-573.
21. Walfish S, Vance D, Fabricatore AN. Psychological evaluation of bariatric surgery applicants: procedures and reasons for delay or denial of surgery. *Obes Surg*. 2007;17:1578-1583.
22. Wadden TA, Sarwer DB. Behavioral assessment of candidates for bariatric surgery: a patient-oriented approach. *Surg Obes Relat Dis*. 2006;2:171-179.
23. Greenberg I, Sogg S, Perna FM. Behavioral and psychological care in weight loss surgery: best practice update. *Obesity (Silver Spring)*. 2009;17:880-884.
24. Edwards-Hampton SA, Wedin S. Preoperative psychological assessment of patients seeking weight-loss surgery: identifying challenges and solutions. *Psychol Res Behav Manag*. 2015;8:263-272.
25. Merrell J, Ashton K, Windover A, Heinberg L. Psychological risk may influence drop-out prior to bariatric surgery. *Surg Obes Relat Dis*. 2012.
26. Pitzul KB, Jackson T, Crawford S, Kwong JC, Sockalingam S, Hawa R, Urbach D, Okrainec A. Understanding disposition after referral for bariatric surgery: when and why patients referred do not undergo surgery. *Obes Surg*. 2014;24:134-140.
27. Sarwer DB, Cohn NI, Gibbons LM, Magee L, Crerand CE, Raper SE, Rosato EF, Williams NN, Wadden TA. Psychiatric diagnoses and psychiatric treatment among bariatric surgery candidates. *Obes Surg*. 2004;14:1148-1156.
28. Dawes AJ, Maggard-Gibbons M, Maher AR, Booth MJ, Miake-Lye I, Beroes JM, Shekelle PG. Mental Health Conditions Among Patients Seeking and Undergoing Bariatric Surgery: A Meta-analysis. *Jama*. 2016;315:150-163.
29. Yen YC, Huang CK, Tai CM. Psychiatric aspects of bariatric surgery. *Curr Opin Psychiatry*. 2014;27:374-379.
30. Karlsson J, Taft C, Ryden A, Sjostrom L, Sullivan M. Ten-year trends in health-related quality of life after surgical and conventional treatment for severe obesity: the SOS intervention study. *International journal of obesity*. 2007;31:1248-1261.
31. Herpertz S, Muller A, Burgmer R, Crosby RD, de Zwaan M, Legenbauer T. Health-related quality of life and psychological functioning 9 years after restrictive surgical treatment for obesity. *Surg Obes Relat Dis*. 2015;11:1361-1370.
32. Canetti L, Bachar E, Bonne O. Deterioration of mental health in bariatric surgery after 10 years despite successful weight loss. *Eur J Clin Nutr*. 2016;70:17-22.
33. Kalarchian MA, Marcus MD, Levine MD, Soulakova JN, Courcoulas AP, Wisinski MS. Relationship of psychiatric disorders to 6-month outcomes after gastric bypass. *Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery*. 2008;4:544-549.
34. Conceicao EM, Utzinger LM, Pisetsky EM. Eating Disorders and Problematic Eating Behaviours Before and After Bariatric Surgery: Characterization, Assessment and Association with Treatment Outcomes. *Eur Eat Disord Rev*. 2015;23:417-425.
35. Parker K, Brennan L. Measurement of disordered eating in bariatric surgery candidates: a systematic review of the literature. *Obesity research & clinical practice*. 2015;9:12-25.
36. Conceicao E, Orcutt M, Mitchell J, Engel S, Lahaise K, Jorgensen M, Woodbury K, Hass N, Garcia L, Wonderlich S. Eating disorders after bariatric surgery: a case series. *Int J Eat Disord*. 2013;46:274-279.
37. Segal A, Kinoshita Kusunoki D, Larino MA. Post-surgical refusal to eat: anorexia nervosa, bulimia nervosa or a new eating disorder? A case series. *Obesity surgery*. 2004;14:353-360.
38. de Zwaan M, Hilbert A, Swan-Kremeier L, Simonich H, Lancaster K, Howell LM, Monson T, Crosby RD, Mitchell JE. Comprehensive interview assessment of eating behavior 18-35 months after gastric bypass surgery for morbid obesity. *Surg Obes Relat Dis*. 2010;6:79-85.

39. Kalarchian M, Marcus MD, Courcoulas AP: Eating problems and bariatric surgery. in *The treatment of eating disorders: a clinical handbook*. Edited by Grilo C, Mitchell JE. New York, Guildford Press; 2010.
40. Peterson CB, Berg KC, Mitchell JE: Assessment of Bariatric Surgery Candidates: Structured Interviews and Self-Report Measures. in *Psychosocial Assessment and Treatment of Bariatric Surgery Patients*. Edited by Mitchell JE, de Zwaan M. New York, Taylor & Francis; 2012.
41. Cunningham JL, Merrell CC, Sarr M, Somers KJ, McAlpine D, Reese M, Stevens SR, Clark MM. Investigation of antidepressant medication usage after bariatric surgery. *Obes Surg*. 2012;22:530-535.
42. Segal JB, Clark JM, Shore AD, Dominici F, Magnuson T, Richards TM, Weiner JP, Bass EB, Wu AW, Makary MA. Prompt reduction in use of medications for comorbid conditions after bariatric surgery. *Obes Surg*. 2009;19:1646-1656.
43. Bingham K, Hawa R, Sockalingam S. SSRI discontinuation syndrome following bariatric surgery: a case report and focused literature review. *Psychosomatics*. 2014;55:692-697.
44. Hamad GG, Helsel JC, Perel JM, Kozak GM, McShea MC, Hughes C, Confer AL, Sit DK, McCloskey CA, Wisner KL. The effect of gastric bypass on the pharmacokinetics of serotonin reuptake inhibitors. *The American journal of psychiatry*. 2012;169:256-263.
45. Tripp AC. Lithium toxicity after Roux-en-Y gastric bypass surgery. *J Clin Psychopharmacol*. 2011;31:261-262.
46. Hawa R, Sockalingam S. Comments on: "Lithium toxicity following roux-en-y gastric bypass" including perioperative lithium dosing protocol. *Bariatr Surg Pract and Patient Care*. 2014;9:127-128.
47. Peterhansel C, Petroff D, Klinitzke G, Kersting A, Wagner B. Risk of completed suicide after bariatric surgery: a systematic review. *Obes Rev*. 2013;14:369-382.
48. Bhatti JA, Nathens AB, Thiruchelvam D, Grantcharov T, Goldstein BI, Redelmeier DA. Self-harm Emergencies After Bariatric Surgery: A Population-Based Cohort Study. *JAMA surgery*. 2015:1-7.
49. Norris L. Psychiatric issues in bariatric surgery. *The Psychiatric clinics of North America*. 2007;30:717-738.
50. Diamant A, Milner J, Cleghorn M, Sockalingam S, Okrainec A, Jackson TD, Quereshy FA. Analysis of patient attrition in a publicly funded bariatric surgery program. *J Am Coll Surg*. 2014;219:1047-1055.
51. Sockalingam S, Cassin S, Crawford SA, Pitzul K, Khan A, Hawa R, Jackson T, Okrainec A. Psychiatric predictors of surgery non-completion following suitability assessment for bariatric surgery. *Obes Surg*. 2013;23:205-211.
52. Scheffel O, Daskalakis M, Weiner RA. Two important criteria for reducing the risk of postoperative ulcers at the gastrojejunostomy site after gastric bypass: patient compliance and type of gastric bypass. *Obesity facts*. 2011;4 Suppl 1:39-41.
53. Ashton K, Heinberg L, Merrell J, Lavery M, Windover A, Alcorn K. Pilot evaluation of a substance abuse prevention group intervention for at-risk bariatric surgery candidates. *Surg Obes Relat Dis*. 2013;9:462-467.
54. Steffen KJ, Engel SG, Wonderlich JA, Pollert GA, Sondag C. Alcohol and Other Addictive Disorders Following Bariatric Surgery: Prevalence, Risk Factors and Possible Etiologies. *Eur Eat Disord Rev*. 2015;23:442-450.
55. King WC, Chen JY, Mitchell JE, Kalarchian MA, Steffen KJ, Engel SG, Courcoulas AP, Pories WJ, Yanovski SZ. Prevalence of alcohol use disorders before and after bariatric surgery. *Jama*. 2012;307:2516-2525.
56. Mitchell JE, Steffen K, Engel S, King WC, Chen JY, Winters K, Sogg S, Sondag C, Kalarchian M, Elder K. Addictive disorders after Roux-en-Y gastric bypass. *Surg Obes Relat Dis*. 2015;11:897-905.
57. Woodard GA, Downey J, Hernandez-Boussard T, Morton JM. Impaired alcohol metabolism after gastric bypass surgery: a case-crossover trial. *J Am Coll Surg*. 2011;212:209-214.

58. Raebel MA, Newcomer SR, Reifler LM, Boudreau D, Elliott TE, DeBar L, Ahmed A, Pawloski PA, Fisher D, Donahoo WT, Bayliss EA. Chronic use of opioid medications before and after bariatric surgery. *Jama*. 2013;310:1369-1376.
59. Raebel MA, Newcomer SR, Bayliss EA, Boudreau D, DeBar L, Elliott TE, Ahmed AT, Pawloski PA, Fisher D, Toh S, Donahoo WT. Chronic opioid use emerging after bariatric surgery. *Pharmacoepidemiol Drug Saf*. 2014;23:1247-1257.
60. Svensson PA, Anveden A, Romeo S, Peltonen M, Ahlin S, Burza MA, Carlsson B, Jacobson P, Lindroos AK, Lonroth H, Maglio C, Naslund I, Sjöholm K, Wedel H, Söderpalm B, Sjöström L, Carlsson LM. Alcohol consumption and alcohol problems after bariatric surgery in the Swedish obese subjects study. *Obesity (Silver Spring)*. 2013;21:2444-2451.
61. Kitzinger HB, Abayev S, Pittermann A, Karle B, Bohdjalian A, Langer FB, Prager G, Frey M. After massive weight loss: patients' expectations of body contouring surgery. *Obes Surg*. 2012;22:544-548.
62. Wagenblast AL, Laessle L, Printzlau A. Self-reported problems and wishes for plastic surgery after bariatric surgery. *J Plast Surg Hand Surg*. 2014;48:115-121.
63. Baillot A, Mampuya WM, Comeau E, Meziat-Burdin A, Langlois MF. Feasibility and impacts of supervised exercise training in subjects with obesity awaiting bariatric surgery: a pilot study. *Obes Surg*. 2013;23:882-891.
64. de Zwaan M, Georgiadou E, Stroh CE, Teufel M, Kohler H, Tengler M, Müller A. Body image and quality of life in patients with and without body contouring surgery following bariatric surgery: a comparison of pre- and post-surgery groups. *Front Psychol*. 2014;5:1310.
65. Song AY, Rubin JP, Thomas V, Dudas JR, Marra KG, Fernstrom MH. Body image and quality of life in post massive weight loss body contouring patients. *Obesity (Silver Spring)*. 2006;14:1626-1636.
66. Azin A, Zhou C, Jackson T, Cassin S, Sockalingam S, Hawa R. Body contouring surgery after bariatric surgery: a study of cost as a barrier and impact on psychological well-being. *Plast Reconstr Surg*. 2014;133:776e-782e.
67. Kitzinger HB, Abayev S, Pittermann A, Karle B, Kubiena H, Bohdjalian A, Langer FB, Prager G, Frey M. The prevalence of body contouring surgery after gastric bypass surgery. *Obes Surg*. 2012;22:8-12.
68. Gusenoff JA, Messing S, O'Malley W, Langstein HN. Temporal and demographic factors influencing the desire for plastic surgery after gastric bypass surgery. *Plast Reconstr Surg*. 2008;121:2120-2126.
69. Zhou C, Azin A, Okrainec A, Hawa R, Sockalingam S. Examining the barriers to accessing body contouring surgery: a qualitative study. *Bariatric Surg Pract and Patient Care*. 2015;10:24-29.
70. Raney LE. *Integrated care: working at the interface of primary care and behavioural health*. Edited by Association AP2015. pp. 1.
71. Katon W, Unutzer J, Fan MY, Williams JW, Jr., Schoenbaum M, Lin EH, Hunkeler EM. Cost-effectiveness and net benefit of enhanced treatment of depression for older adults with diabetes and depression. *Diabetes Care*. 2006;29:265-270.
72. Katon W, Russo J, Lin EH, Schmittdiel J, Ciechanowski P, Ludman E, Peterson D, Young B, Von Korff M. Cost-effectiveness of a multicondition collaborative care intervention: a randomized controlled trial. *Arch Gen Psychiatry*. 2012;69:506-514.
73. Norfleet KR, Ratzliff AD, Chan YF, Raney LE, Unutzer J. The Role of the Integrated Care Psychiatrist in Community Settings: A Survey of Psychiatrists' Perspectives. *Psychiatr Serv*. 2016;67:346-349.
74. Jacob V, Chattopadhyay SK, Sipe TA, Thota AB, Byard GJ, Chapman DP, Community Preventive Services Task F. Economics of collaborative care for management of depressive disorders: a community guide systematic review. *Am J Prev Med*. 2012;42:539-549.
75. Kruiemel J, Leue C, Winkens B, Marcus D, Schoon S, Dellink R, van Os J, Masclee A. Integrated medical-psychiatric outpatient care in functional gastrointestinal disorders improves outcome: a pilot study. *Eur J Gastroenterol Hepatol*. 2015;27:721-727.

76. Coleman SM, Blashill AJ, Gandhi RT, Safren SA, Freudenreich O. Impact of integrated and measurement-based depression care: clinical experience in an HIV clinic. *Psychosomatics*. 2012;53:51-57.
77. Shen SC, Lin HY, Huang CK, Yen YC. Adherence to Psychiatric Follow-up Predicts 1-Year BMI Loss in Gastric Bypass Surgery Patients. *Obes Surg*. 2015.