Endocrinology & Metabolism Institute
Measuring Outcomes Promotes Quality Improvement
Measuring and understanding outcomes of medical treatments promotes quality improvement. Cleveland Clinic has created a series of Outcomes books similar to this one for its clinical institutes. Designed for a physician audience, the Outcomes books contain a summary of many of our surgical and medical treatments, with a focus on outcomes data and a review of new technologies and innovations.

The Outcomes books are not a comprehensive analysis of all treatments provided at Cleveland Clinic, and omission of a particular treatment does not necessarily mean we do not offer that treatment. When there are no recognized clinical outcome measures for a specific treatment, we may report process measures associated with improved outcomes. When process measures are unavailable, we may report volume measures; a relationship has been demonstrated between volume and improved outcomes for many treatments, particularly those involving surgical and procedural techniques.

In addition to these institute-based books of clinical outcomes, Cleveland Clinic supports transparent public reporting of healthcare quality data. The following reports are available to the public:

- Joint Commission Performance Measurement Initiative (qualitycheck.org)
- Centers for Medicare and Medicaid Services (CMS) Hospital Compare (HospitalCompare.hhs.gov), and Physician Compare (medicare.gov/PhysicianCompare)
- Cleveland Clinic Quality Performance Report (clevelandclinic.org/QPR)

Our commitment to transparent reporting of accurate, timely information about patient care reflects Cleveland Clinic’s culture of continuous improvement and may help referring physicians make informed decisions.

We hope you find these data valuable, and we invite your feedback. Please send your comments and questions via email to:

OutcomesBooksFeedback@ccf.org or scan here.

To view all of our Outcomes books, please visit clevelandclinic.org/outcomes.
Dear Colleague:

Welcome to this 2014 Cleveland Clinic Outcomes book. Every year, we publish Outcomes books for 14 clinical institutes with multiple specialty services. These publications are unique in healthcare. Each one provides an overview of medical or surgical trends, innovations, and clinical data for a particular specialty over the past year. We are pleased to make this information available.

Cleveland Clinic uses data to manage outcomes across the full continuum of care. Our unique organizational structure contributes to our success. Patient services at Cleveland Clinic are delivered through institutes, and each institute is based on a single disease or organ system. Institutes combine medical and surgical services, along with research and education, under unified leadership. Institutes define quality benchmarks for their specialty services and report on longitudinal progress.

All Cleveland Clinic Outcomes books are available in print and online. Additional data are available through our online Quality Performance Report (clevelandclinic.org/QPR). The site offers process measure, outcome measure, and patient experience data in advance of national and state public reporting sites.

Our practice of releasing annual outcomes books has become increasingly relevant as healthcare transforms from a volume-based to a value-based system. We appreciate your interest and hope you find this information useful and informative.

Sincerely,

Delos M. Cosgrove, MD
CEO and President


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Prefer an e-version?
Visit clevelandclinic.org/OutcomesOnline, and we’ll remove you from the hard copy mailing list and email you when next year’s books are online.
Dear Colleagues,

On behalf of Cleveland Clinic’s Endocrinology & Metabolism Institute, I am pleased to share our 2014 Outcomes book. Transformation of care, continuous improvement, quality outcomes, patient experience and safety, and caregiver engagement remain our top priorities. Management of chronic disease is our focus. In 2014, we maintained our U.S. News & World Report rankings at No. 2 in the country and No. 1 in Ohio. Continuing a strong record of accomplishments, our staff:

• Established a regional hospital thyroid/parathyroid surgery center, resulting in a 16 percent decrease in cost per case, and began expansion of our endocrine surgery program at Cleveland Clinic Florida

• Participated in a MyCare Online (virtual visit) pilot

• Introduced the Cleveland Clinic diabetes education guide, “Healthy You: A Guide to Diabetes Self-Care”

• Authored a book titled DXA Primer for the Practicing Clinician, wrote 8 book chapters, and published more than 100 journal articles on endocrinology, diabetes, and bariatric and endocrine surgery

• Introduced our nonsurgical medical weight management program

• Continued to play a critical role in Cleveland Clinic Lerner College of Medicine’s curriculum by directing courses, mentoring student research and clinical activities, and directing administrative projects

• Continued to train endocrinologists and general surgeons in our Endocrinology and Endocrine Surgery Fellowship programs

We welcome your feedback, questions, and ideas for collaboration. Please contact me via email at OutcomesBooksFeedback@ccf.org and reference the Endocrinology & Metabolism Institute book in your message.

Sincerely,

James B. Young, MD
Chairman, Endocrinology & Metabolism Institute
Professor of Medicine and Executive Dean, Cleveland Clinic Lerner College of Medicine
Institute Overview

Cleveland Clinic’s Endocrinology & Metabolism Institute is committed to providing the highest-quality healthcare for patients with diabetes, endocrine and metabolic disorders, and obesity. The Endocrinology & Metabolism Institute’s staff of more than 100 caregivers, located on the main campus and throughout Cleveland Clinic’s enterprise, is dedicated to exploring ways to improve the care of these patients and to teaching the best methods for treating them. Cleveland Clinic’s diabetes and endocrinology services are ranked second in the nation by *U.S. News & World Report*.

### 2014 Department of Endocrinology, Diabetes and Metabolism

The Department of Endocrinology, Diabetes, and Metabolism conducts disease-specific clinics for patients with type 1 or type 2 diabetes, pituitary disorders, thyroid/parathyroid disorders, post-pancreas transplant diabetes, and post-pancreas transplant and liver/adrenal tumor care needs. In addition, it offers clinics for obesity treatment with Mediterranean, protein sparing modified fast, and meal replacement programs. The department also offers a pituitary clinic staffed by endocrine medicine and surgical specialists, a preventive cardiology clinic, a calcium clinic, insulin pump classes, and a transitional diabetes clinic for adolescents ready for adult endocrine care.

<table>
<thead>
<tr>
<th>Endocrinology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patient visits</td>
<td>45,309</td>
</tr>
<tr>
<td>Patient consults and new visits</td>
<td>10,062</td>
</tr>
<tr>
<td>Total patients having fine needle aspiration biopsy of the thyroid</td>
<td>870</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diabetes Center</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patient visits</td>
<td>9137</td>
</tr>
<tr>
<td>Patient consults and new visits</td>
<td>2167</td>
</tr>
<tr>
<td>Education visits</td>
<td>2769</td>
</tr>
</tbody>
</table>

### 2014 Center for Endocrine Surgery

The center’s endocrine surgery service has the greatest amount of experience in the world. Cleveland Clinic often utilizes advanced minimally invasive technology for surgical care of thyroid, parathyroid, adrenal, liver, endocrine, and pancreas disorders, including robotic adrenalectomy. The endocrine surgery team’s thyroid and parathyroid case volume continues to grow. The endocrine surgery service increasingly treats patients referred for complex conditions such as reoperative problems, advanced cancers, and hereditary endocrine syndromes.

<table>
<thead>
<tr>
<th>Endocrine Surgery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patient visits</td>
<td>6266</td>
</tr>
<tr>
<td>Patient consults and new visits</td>
<td>1759</td>
</tr>
<tr>
<td>Total endocrine surgery cases</td>
<td>1071</td>
</tr>
<tr>
<td>Neck (Robotic)</td>
<td>921 (1)</td>
</tr>
<tr>
<td>Abdominal (Robotic)</td>
<td>110 (19)</td>
</tr>
<tr>
<td>Total patients having fine needle aspiration biopsy of the thyroid</td>
<td>722</td>
</tr>
</tbody>
</table>
Comparing Surgical Approaches for Patients Undergoing Robotic Adrenalectomy: Lateral Transabdominal vs Posterior Retroperitoneal

2008 – 2014

<table>
<thead>
<tr>
<th></th>
<th>Lateral (N = 73)</th>
<th>Posterior (N = 67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean</td>
<td>49.3</td>
<td>55.2</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Male</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Body mass index, kg/m², mean</td>
<td>32.1</td>
<td>29.8</td>
</tr>
<tr>
<td>Side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Right</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>Bilateral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tumor size, cm, mean</td>
<td>4.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Total operative time, hours</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Estimated blood loss, mL, mean</td>
<td>47.1</td>
<td>27.5</td>
</tr>
<tr>
<td>Hospital stay, days</td>
<td>1.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Conversion to open surgery, N (%)</td>
<td>3 (4.1)</td>
<td>1 (1.4)</td>
</tr>
<tr>
<td>Complications, N (%)</td>
<td>3 (4.1)</td>
<td>3 (4.5)</td>
</tr>
</tbody>
</table>

The total robotic operative time for the posterior approach was shorter than for the lateral approach by approximately 18 minutes ($P < 0.068$). The lateral approach is used for larger tumor sizes and select obese patients with a BMI > 30. No significant differences were observed for length of hospital stay, conversion to open surgery, and complications.
During a 6-year period, 132 robotic adrenalectomies were performed at the Department of Endocrine Surgery. With experience, the time required to complete different components of the procedure decreased steadily. Overall, 20 procedures were required by the surgeons to be proficient at the surgical console.

Docking time = Time required for setting up the robot

Console time = Time spent by the surgeon at the robotic console for the entire procedure

Total time = Total operative time
Outcomes 2014

Diabetes

ACO 24: Blood Pressure Control in Patients With Diabetes
2012 – 2014

Maintaining blood pressure < 140/90 mm Hg is recommended for most patients with diabetes. Institute physicians make every effort to achieve the best blood pressure control possible in patients. Through consistent monitoring, awareness, and patient education, a high level of success is achieved. The Centers for Medicare & Medicaid Services has retired this measure effective Jan. 1, 2015.

The epidemic of type 2 diabetes mellitus is of great concern. Institute physicians closely monitor how the care of patients with diabetes adheres to guidelines and targets promoted by prominent organizations, most notably the American Diabetes Association. These targets are often difficult to achieve in actual clinical practice. Given the limitations of currently available treatments and patient factors, controlling diabetes remains a major challenge for patients and their physicians. Results are reported for all patients with diabetes aged 18 to 75.

ACO 22: Blood Sugar Control in Patients With Diabetes (HbA1c < 8%) 2012 – 2014

ACO 27: Blood Sugar Control in Patients With Diabetes (HbA1c > 9%) 2012 – 2014

The percentage of patients with diabetes whose glucose is inadequately controlled (HbA1c > 9%), as well as the percentage of those patients with good control (HbA1c < 8%), was examined. Institute performance was compared with established national group practice reporting option (GPRO) benchmarks. The Centers for Medicare & Medicaid Services has retired this measure effective January 1, 2015.

ACO = Accountable Care Organization, GPRO = group practice reporting option
ACO 23: Lipid (LDL Cholesterol) Control in Patients With Diabetes

2012 – 2014

Aggressive control of high cholesterol, specifically low-density lipoprotein (LDL) cholesterol, has been shown to prevent or delay atherosclerosis and improve outcomes in patients with existing atherosclerosis. Excellent cholesterol control (LDL < 100 mg/dL) is the institute’s goal for patients with diabetes. Institute performance was compared with GPRO benchmarks. The Centers for Medicare & Medicaid Services has retired this measure effective Jan. 1, 2015.

ACO = Accountable Care Organization, GPRO = group practice reporting option

HbA₁c Change From Baseline for Endocrinology Patients

2014

Of 3972 patients seen by the Department of Endocrinology, Diabetes, and Metabolism, 1894 (48%) have been actively under the care of a primary care physician within the Medicine Institute during 2014. Improvement in mean baseline HbA₁c is noted in all groups of patients. The improvement is more pronounced among patients with A₁c > 11%, who also show the greatest risk reduction of complications from diabetes.
Of 9076 patients seen in 2014, 35% had currently well controlled HbA1c values < 7%. For these patients, baseline entry HbA1c upon visiting endocrinology was 7.3%.

### Relationship Between Diabetes Education Visits and HbA1c Values

**January 2014 – July 2014**

<table>
<thead>
<tr>
<th>Education Visits (N)</th>
<th>Patients (N)</th>
<th>Baseline HbA1c Average (%)</th>
<th>Most Recent Follow-up HbA1c Average (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1874</td>
<td>9.9</td>
<td>8.7</td>
</tr>
<tr>
<td>1</td>
<td>257</td>
<td>9.9</td>
<td>8.7</td>
</tr>
<tr>
<td>≥ 2</td>
<td>233</td>
<td>10.0</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Patients’ HbA1c values obtained from January 2014–July 2014 were compared with baseline values and number of diabetes education visits. Patients with 2 or more visits with diabetes educators achieved greater HbA1c reduction, regardless of the frequency of medical provider visits. Similarly, the Look AHEAD trial showed benefits from frequent diabetes education visits, with patients achieving better HbA1c values while using fewer medications.

Look AHEAD = Action for Health in Diabetes

Over the past 11 years, approximately 77% of obese diabetic patients had laparoscopic Roux-en-Y gastric bypass, 11% had sleeve gastrectomy, and 8% had gastric banding. The mean body mass index (BMI) difference before and after surgery was statistically significant with baseline BMI at 46.6 and follow-up at 35.4. The mean follow-up duration was 5.5 years.

Since 2004, Cleveland Clinic has performed bariatric surgery on 1914 obese diabetic patients. Of these patients, 1011 (58%) had baseline HbA1c values > 6.5%. Of the 1011 patients, 39% (N = 394) had recent HbA1c values available at least 90 days postsurgery. Improvement from baseline values was statistically significant, with a mean A1c baseline of 8.3% before surgery and most recently available A1c of 6.5% after surgery. The average time between pre- and postoperative HbA1c values was 16 months.
**Bariatric Surgery**

In 2014, Cleveland Clinic’s Bariatric and Metabolic Institute marked its 9th anniversary and continued to be accredited as a designated Bariatric Surgery Center of Excellence by the American Society for Metabolic & Bariatric Surgery and the American College of Surgeons. This designation is awarded to programs that meet high quality standards and perform a minimum of 125 procedures annually.

**Bariatric Surgery Cases by Type**

In 2014, laparoscopic Roux-en-Y gastric bypass accounted for 56% of all cases and was the most frequently performed bariatric procedure at Cleveland Clinic. Laparoscopic sleeve gastrectomy continued to grow and was the 2nd most commonly performed procedure (36% of all cases). Due to patient preference, laparoscopic adjustable gastric banding has shown large declines over the past several years. Nine percent, or 72 cases, were performed at a Cleveland Clinic regional hospital.

SINCE 2012, 92 BARIATRIC CASES WERE PERFORMED ROBOTICALLY.

**More Common Procedures**

- Bypass
- Sleeve
- Duodenal Switch
- Ringed Bypass

**Less Common Procedures**

- Banded Plication
- Gastric Plication
- Band
In 2014, laparoscopic Roux-en-Y gastric bypass accounted for 56% of all cases and was the most frequently performed bariatric procedure at Cleveland Clinic. Laparoscopic sleeve gastrectomy continued to grow and was the 2nd most commonly performed procedure (36% of all cases). Due to patient preference, laparoscopic adjustable gastric banding has shown large declines over the past several years. Nine percent, or 72 cases, were performed at a Cleveland Clinic regional hospital.

Comorbidities at Baseline Among Patients Undergoing Laparoscopic Roux-en-Y Gastric Bypass

2014

Comorbidities at Baseline Among Patients Undergoing Laparoscopic Sleeve Gastrectomy

2014

\[\text{Percent}\]

\begin{tabular}{|l|c|c|}
\hline
 & Cleveland Clinic (N = 357) & MBSC\(^a\) (N = 2949) \\
Obstructive & 60 & 0.3 \\
Sleep Apnea & 60 & 0.2 \\
Hypertension & 80 & 0.3 \\
Diabetes Mellitus & 20 & 0.3 \\
Hyperlipidemia & 40 & 0.3 \\
Smoking & 0 & 0 \\
Venous Thromboembolism & 2.3 & 0.3 \\
Renal Failure & 0 & 0 \\
\hline
\end{tabular}

\(^a\)MBSC = Michigan Bariatric Surgery Collaborative

Laparoscopic Sleeve Gastrectomy and Roux-en-Y Length of Stay

2012 – 2014

Days

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>551</td>
<td>589</td>
<td>559</td>
</tr>
<tr>
<td>N</td>
<td>600</td>
<td>663</td>
<td>694</td>
</tr>
</tbody>
</table>

*These data are prepared using the University HealthSystem Consortium (UHC) Clinical Database. uhc.edu*

30-Day Complication Rate for All Bariatric Cases

2014

Percent

<table>
<thead>
<tr>
<th></th>
<th>Cleveland Clinic&lt;sup&gt;a&lt;/sup&gt; (N = 619)</th>
<th>MBSC&lt;sup&gt;b&lt;/sup&gt; (N = 2929)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intestinal Obstruction</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Anastomotic Leak</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Bleeding</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Deep Vein Thrombosis</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Respiratory Failure</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Wound Infection/Evisceration</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

<sup>a</sup>Cleveland Clinic data are non-risk-adjusted.

<sup>b</sup>MBSC = Michigan Bariatric Surgery Collaborative

### Robotic Bariatric Surgery Roux-en-Y Complications (N = 92)

#### 2012 – 2014

<table>
<thead>
<tr>
<th>In-Hospital Types of Complication</th>
<th>Number</th>
<th>Complications (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>82</td>
<td>89.0</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Hypoxia</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Other&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>30-day all-cause readmissions</strong></td>
<td>6</td>
<td>6.5</td>
</tr>
</tbody>
</table>

<sup>a</sup>Other includes bleed, superficial wound infection, delirium, and urinary tract infection.

### Percentage of Patients Requiring Intensive Care Unit Admission:

#### Laparoscopic Roux-en-Y Gastric Bypass and Laparoscopic Sleeve Gastrectomy

#### 2012 – 2014

<table>
<thead>
<tr>
<th>Percent</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>551</td>
<td>589</td>
<td>559</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*UHC Top Hospitals<sup>a</sup>*

<sup>a</sup>These data are prepared using the University HealthSystem Consortium (UHC) Clinical Database. [uhc.edu](http://uhc.edu)
30-Day Mortality Rates for Bariatric Surgery

<table>
<thead>
<tr>
<th>Type</th>
<th>Cleveland Clinic</th>
<th>BOLD&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>All bariatric surgeries % (N)</td>
<td>0.0 (680)</td>
<td>0.1 (186,567)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Laparoscopic Roux-en-Y gastric bypass % (N)</td>
<td>0.0 (382)</td>
<td>0.14 (136,036)</td>
</tr>
<tr>
<td>Laparoscopic sleeve gastrectomy % (N)</td>
<td>0.0 (244)</td>
<td>0.08 (15,964)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Benchmark: BOLD = Bariatric Outcomes Longitudinal Database, a database of the American Society for Metabolic & Bariatric Surgery


Comorbidity Resolution at 3-Year Follow-Up for All Bariatric Surgery Cases

2008 – 2014

<table>
<thead>
<tr>
<th>Percent</th>
<th>Sleep Apnea 161</th>
<th>Diabetes 178</th>
<th>Hyperlipidemia 192</th>
<th>Hypertension 273</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>161</td>
<td>178</td>
<td>192</td>
<td>273</td>
</tr>
</tbody>
</table>

Outcomes 2014
Mean Percent Weight Loss\(^a\) Toward Ideal Body Mass Index at Follow-Up (All Case Types)

2008 – 2014

<table>
<thead>
<tr>
<th>Percent</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>2220</td>
<td>1399</td>
<td>764</td>
<td>412</td>
<td>213</td>
</tr>
</tbody>
</table>

\(^a\)Weight loss formula: \(\frac{\text{baseline BMI} - \text{follow-up BMI}}{\text{baseline BMI} - 25} \times 100\)

For cases followed ≤ 5 years, the weight loss toward ideal BMI was 51%. The laparoscopic Roux-en-Y gastric bypass at 5 years had the highest percentage of weight loss toward ideal BMI at 59%.
Bariatric Surgery Outcomes in Patients With Psychotic Disorders
2008 – 2014

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Psychosis Cohort (N = 11)</th>
<th>Nonpsychosis Control Cohort (N = 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean, years)</td>
<td>45.8</td>
<td>46.1</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>36.4</td>
<td>36.4</td>
</tr>
<tr>
<td>BMI (mean, kg/m²)</td>
<td>57.8</td>
<td>57.3</td>
</tr>
<tr>
<td>Length of stay (mean, days)</td>
<td>3.7</td>
<td>3.0</td>
</tr>
<tr>
<td>60-day morbidity</td>
<td>18.2</td>
<td>12.0</td>
</tr>
<tr>
<td>Readmission rate (%)</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Excess weight loss (mean %)</td>
<td>44.6</td>
<td>50.1</td>
</tr>
</tbody>
</table>

Patients with psychiatric disorders that include psychotic features (e.g., delusions and auditory or visual hallucinations) are at high risk of morbid obesity. Most bariatric surgery programs do not consider these patients as surgical candidates. The institute assessed outcomes in bariatric surgery patients with well-stabilized psychotic disorders, comparing a study cohort with a matched control group of bariatric patients without psychotic disorders.

All study cohort patients were on psychiatric medications (median of 3), with 91% taking antipsychotic medications and 46% with a previous suicide attempt. Two patients had perioperative complications (18%), namely, respiratory failure and rhabdomyolysis, and 1 patient had a marginal ulcer 2 years after Roux-en-Y gastric bypass. No statistical differences occurred between the groups in length of stay, 60-day morbidity, late complications, or readmission. Although not all patients with psychotic features are candidates for bariatric surgery, appropriately screened candidates, with intensive multidisciplinary assessment, can cope successfully with weight-loss surgery.
Impact of a History of Eating Disordered Behaviors on Weight Loss and Early Adjustment After Bariatric Surgery (N = 221)

2010 – 2014

Eating disorders (ED) (e.g., loss of control over eating, grazing, and vomiting to control weight) after bariatric surgery may be common. Staff examined the prevalence of purging behaviors and past treatment of ED in 870 bariatric surgery candidates and the impact of this history on 1-month psychological adjustment and BMI loss in the 1st year in a subset of 221 patients.

A reported history of purging and/or eating disorders treatment was rare (8.9%). Women and African Americans were more likely to have an ED history. Baseline scores on a measure of binge eating and clinician ratings of ED pathology were significantly higher for those with an ED history. No differences were found in weight loss at any time. Patients with an ED history indicated greater fear of failure and greater grieving over the loss of food at their 1-month follow-up visit. Although weight loss in the 1st year was equivalent, those with an ED history may have greater difficulty with the early postoperative psychological adjustment.
Psychosocial Factors Between First-Time Bariatric Patients and Revisional Bariatric Patients

2010 – 2014

<table>
<thead>
<tr>
<th>Psychosocial Factor</th>
<th>First-Time Bariatric Surgery (%) (N = 1311)</th>
<th>Revisional Bariatric Surgery (%) (N = 57)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past alcohol abuse</td>
<td>12.9</td>
<td>21.1</td>
</tr>
<tr>
<td>Past substance abuse</td>
<td>13.7</td>
<td>20</td>
</tr>
<tr>
<td>Use of psychotropic medicines</td>
<td>56.3</td>
<td>76.2</td>
</tr>
<tr>
<td>Inpatient psychiatric treatment</td>
<td>11.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Use of laxatives/diuretics</td>
<td>6.3</td>
<td>6.7</td>
</tr>
<tr>
<td>History of vomiting</td>
<td>4.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Number of psychotropic medicines</td>
<td>0.7</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Patients presenting for revisional bariatric surgery because of inadequate weight loss were compared with first-time bariatric candidates. Groups did not differ on BMI, gender, ethnicity, or history of outpatient psychiatric treatment. However, patients seeking a revision of previous bariatric surgery may have more complicated psychiatric histories than bariatric populations as a whole.
Brief 4-Session Cognitive Behavioral Training Group Increases Knowledge and Coping Skills in a High-Risk Bariatric Surgery Population (N = 77)

March 2013 – March 2014

The effectiveness of a brief, 4-session group called “Getting Expertise Today for a Successful Experience Tomorrow” (GET SET) was examined for bariatric surgery candidates deemed to have limited knowledge or coping skills. Pre- and post-group measures were completed by participants to evaluate knowledge using a 15-item quiz. Participants also completed the Brief COPE, a measure used to assess a range of coping strategies.

Participants’ mean knowledge quiz scores increased, and several subscales of the Brief COPE also demonstrated significant change.
Following pituitary surgery, there has only been 1 surgical inpatient mortality in the past 5 years, and actual length of stay (LOS) has been below or close to expected LOS.

Thirty- and 180-day (for the first 6 months of 2014) survival rates have remained above 98% over the past 5 years.

N = number of pituitary tumor surgeries per year, based on available data.
In 92% of patients, performance status, as measured by the Karnofsky Performance Scale (KPS), either remained stable (86%) or improved (5.5%) within 30 days of pituitary surgery. Change in KPS status was defined as a change of 20 points or more.

**Gamma Knife Radiosurgery: Pituitary Tumor Survival**

Survival (%)
Thyroid

Thyroglobulin Levels Among Papillary Thyroid Cancer Patients 6 Months Post-Total Thyroidectomy (N = 50)

2012 – 2014

For post-total thyroidectomy patients, completeness of thyroid surgery is assessed by the serum thyroglobulin levels in follow-up care. Generally, an undetectable level (≤ 2 ng/mL) is a good indication of successful surgical treatment of thyroid cancer.

Percent Radioactive Iodine Uptake in Papillary Thyroid Cancer Patients Post-Total Thyroidectomy (N = 50)

2012 – 2014

< 4% uptake on the radioactive iodine scan represents a more complete removal of thyroid tissue.
**Parathyroid**

**Conversion Rates From First Negative to Subsequent Positive Sestamibi Scans in Different Primary Hyperparathyroidism Patients (N = 195)**

*1996 – 2014*

This study shows the value in obtaining repeat sestamibi scans in patients with initially negative studies. The patients who had early disease and were asymptomatic benefited the most.

**Localization Studies of Identified Glands Among Secondary and Tertiary Hyperparathyroidism Patients (N = 103)**

*1996 – 2014*

Cleveland Clinic is dedicated to delivering excellent clinical outcomes surrounded by the best possible experience for patients and their families. Reported patient experiences are shared with caregivers and used to identify opportunities to improve care. Cleveland Clinic’s Office of Patient Experience supports caregivers through education and guidance to help them deliver consistent, patient-centered care.

Outpatient Office Visit Survey — Endocrinology & Metabolism Institute

**CG-CAHPS Assessment**

**2013 – 2014**

**Percent Best Response**

| Category                               | 2013 (N = 1101) | 2014 (N = 2883) | CG-CAHPS 2013 database average (all practices)**
|----------------------------------------|-----------------|-----------------|-----------------------------------------------------------------------
| Appointment Access (% Always)c         |                 |                 |                                                                       
| Doctor Communication (% Yes, Definitely)d |                 |                 |                                                                       
| Doctor Rating (% 9 or 10) 0 – 10 Scale |                 |                 |                                                                       
| Clerical Staff (% Yes, Definitely)d    |                 |                 |                                                                       
| Test Results Communication (% Yes)e   |                 |                 |                                                                       

*aIn 2013, Cleveland Clinic began administering the Clinician and Group Practice Consumer Assessment of Healthcare Providers and Systems surveys (CG-CAHPS), standardized instruments developed by the Agency for Healthcare Research and Quality and supported by the Centers for Medicare & Medicaid Services for use in the physician office setting to measure patients’ perspectives of outpatient care.

**Based on results submitted to the CG-CAHPS database from 2172 medical practices in 2013.

*Response options: Always, Usually, Sometimes, Never

*Response options: Yes, definitely; Yes, somewhat; No

*Response options: Yes, No

Source: Press Ganey, a national hospital survey vendor
Focus on Value

Cleveland Clinic is developing and implementing new models of care that focus on “Patients First” and aim to deliver on the Institute of Medicine goal of Safe, Timely, Effective, Efficient, Equitable, Patient-centered care. Creating new models of Value-Based Care is a strategic priority for Cleveland Clinic. As care delivery shifts from fee-for-service to a population health and bundled payment delivery system, Cleveland Clinic is focused on concurrently improving patient safety, outcomes, and experience.

What does this new model of care look like?

- The Cleveland Clinic Integrated Care Model (CCICM) is a value-based model of care, designed to improve outcomes while reducing cost. It is designed to deliver value in both population health and specialty care.
- The patient remains at the heart of the CCICM.
- The blue band represents the care system, which is a seamless pathway that patients move along as they receive care in different settings. The care system represents integration of care across the continuum.
- Critical competencies are required to build this new care system. Cleveland Clinic is creating disease- and condition-specific care paths for a variety of procedures and chronic diseases. Another facet is implementing comprehensive care coordination for high-risk patients to prevent unnecessary hospitalizations and emergency department visits. Efforts include managing transitions in care, optimizing access and flow for patients through the CCICM, and developing novel tactics to engage patients and caregivers in this work.
- Measuring performance around quality, safety, utilization, cost, appropriateness of care, and patient and caregiver experience is an essential component of this work.
**Access Improvement: No-Show Letters Reduce No-Show Rates**

During 2013, the baseline no-show rate for endocrinology and diabetes appointments was 14.4%; that is, 3975 patients did not cancel their scheduled appointments, preventing other patients from using these appointment times. In 2014, with review and approval from the ombudsman office, the institute sent over 3600 no-show letters to patients informing them of the no-show policy and the importance of canceling appointments. The no-show policy allows 3 consecutive no-shows within 1 year. A 4th no-show results in discharge from the endocrinology practice. By the end of 2014, 12 patients had been discharged. The no-show rate dropped 12.3%, resulting in 375 fewer no-shows. The institute plans to continue sending no-show letters in 2015.

**Weight Management Program via Shared Medical Appointments**

Starting in August 2014, a shared medical appointment (SMA) approach to weight loss was initiated. SMAs offer efficient access to healthcare that brings patients and healthcare providers together in a 90-minute group appointment. During the SMAs, patients can voice their questions and concerns and provide support for one another. Patients also have additional time individually with healthcare professionals.

This SMA weight management program meets every 2 weeks, rotating between the physician and dietitian for the first 6 months, then monthly for up to 3 years. Patients are also referred to an exercise physiologist to assist in developing an exercise program and a psychologist to help in acquiring coping skills with stressors in life.

Three SMA weight-loss options are offered:

- The Mediterranean diet, focused on plant-based foods, healthy fats, controlled poultry and dairy intake, and limited red meat intake
- Meal replacement, using shakes or bars at breakfast and lunch, balanced eating at dinner, and one to two snacks per day
- Protein-sparing modified fast, using lean proteins and vegetables only, with no carbohydrates. Weight-loss medications are also prescribed.

At the end of 2014, preliminary outcome data showed 62 new patients starting the SMA program. Shared medical appointments were well attended, showing high interest, and 7 SMAs had 100% attendance. The average BMI was down 0.72 units for 53 patients at their approximate 3-month follow-up. Long-term outcomes will be followed via SMAs.
First Beta Cell Therapy Symposium

The first Cleveland Clinic Beta Cell Therapy Symposium took place in November 2014. The meeting focused on advances in management of diabetes. It brought together national and international researchers covering a variety of topics, including beta cell isolation/purification techniques, stem cell to beta cell advances, results of current clinical and basic science interventions, development of new drugs, understanding of diabetes pathobiology, clinical outcomes and challenges of autologous and allogeneic islet cell transplant, use of bionic pancreas, and pancreas transplant. The chairman of the Juvenile Diabetes Research Foundation reviewed prevention trials for type 1 diabetes.

Adrenal Surgery: A New Risk Stratification Model

The management of patients with adrenal masses that are discovered incidentally after an imaging procedure unrelated to the adrenal gland is challenging. With an aging population and increased use of imaging modalities, it is believed that the occurrences of incidental adrenal masses will increase. In well-selected patients, existing guidelines recommend surgical treatment.

Cleveland Clinic surgeons have developed a new scoring system for patients with incidentally found adrenal masses. When compared with existing guidelines, the new scoring model has the potential to spare many patients from unnecessary diagnostic surgery.
Contact Information

Endocrinology, Diabetes and Metabolism
Appointments/Referrals
216.444.6568 or 800.223.2273, ext. 46568

Endocrine Surgery
Appointments/Referrals
216.444.6568 or 800.223.2273, ext. 46568

On the Web at clevelandclinic.org/endo

Staff Listing
For a complete listing of Cleveland Clinic’s Endocrinology & Metabolism Institute staff, please visit clevelandclinic.org/staff.

Publications
Endocrinology & Metabolism Institute staff authored 142 publications in 2014.
For a complete list, go to clevelandclinic.org/outcomes.

Locations
For a complete listing of Endocrinology & Metabolism Institute locations, please visit clevelandclinic.org/endo.
Additional Contact Information

General Patient Referral
24/7 hospital transfers or physician consults
800.553.5056

General Information
216.444.2200

Hospital Patient Information
216.444.2000

General Patient Appointments
216.444.2273 or 800.223.2273

Referring Physician Center and Hotline
855.REFER.123 (855.733.3712)
Or email refdr@ccf.org or visit clevelandclinic.org/refer123

Request for Medical Records
216.444.2640 or
800.223.2273, ext. 42640

Same-Day Appointments
216.444.CARE (2273)

Global Patient Services/International Center
Complimentary assistance for international patients and families
001.216.444.8184 or visit clevelandclinic.org/gps

Medical Concierge
Complimentary assistance for out-of-state patients and families
800.223.2273, ext. 55580, or email medicalconcierge@ccf.org

Cleveland Clinic Abu Dhabi
clevelandclinicabudhabi.ae

Cleveland Clinic Canada
888.507.6885

Cleveland Clinic Florida
866.293.7866

Cleveland Clinic Nevada
702.483.6000

For address corrections or changes, please call
800.890.2467
Overview

Cleveland Clinic is an academic medical center offering patient care services supported by research and education in a nonprofit group practice setting. More than 3200 Cleveland Clinic staff physicians and scientists in 130 medical specialties and subspecialties care for more than 5.9 million patients across the system, performing more than 192,000 surgeries and conducting more than 497,000 emergency department visits. Patients come to Cleveland Clinic from all 50 states and more than 147 nations.

Cleveland Clinic is an integrated healthcare delivery system with local, national, and international reach. The main campus in midtown Cleveland, Ohio, has a 1400-bed hospital, outpatient clinic, specialty institutes, labs, classrooms, and research facilities in 42 buildings on 165 acres. Cleveland Clinic’s CMS case-mix index is the second highest in the nation. Cleveland Clinic encompasses more than 90 northern Ohio outpatient locations, including 18 full-service family health centers, 8 regional hospitals, an affiliate hospital, and a rehabilitation hospital for children. Cleveland Clinic also includes Cleveland Clinic Florida; Cleveland Clinic Nevada, which includes the Lou Ruvo Center for Brain Health in Las Vegas, and urology and nephrology services; Cleveland Clinic Canada; and Sheikh Khalifa Medical City (management contract). Cleveland Clinic Abu Dhabi is a full-service hospital and outpatient center in the United Arab Emirates (UAE), which began offering services in spring 2015. Cleveland Clinic is the second-largest employer in Ohio, with more than 42,500 employees. It generates $12.6 billion of economic activity a year.

Cleveland Clinic Global Solutions supports physician education, training and consulting, and patient services around the world through offices in Canada, China, the Dominican Republic, El Salvador, Guatemala, Honduras, Panama, Peru, Saudi Arabia, Turkey, UAE, and the United Kingdom.

The Cleveland Clinic Model

Cleveland Clinic was founded in 1921 by 4 physicians who had served in World War I and hoped to replicate the organizational efficiency of military medicine. The organization has grown through the years by adhering to the model set forth by the founders. All Cleveland Clinic staff physicians receive a straight salary with no bonuses or other financial incentives. The hospital and physicians share a financial interest in controlling costs, and profits are reinvested in research and education.

The Cleveland Clinic health system began to grow in 1987 with the founding of Cleveland Clinic Florida and expanded in the 1990s with the development of 18 family health centers across Northeast Ohio. Fairview Hospital, Hillcrest Hospital, and 6 other regional hospitals have joined Cleveland Clinic over the past 2 decades, offering Cleveland Clinic institute services in heart and neurological care, physical rehabilitation, and more. Clinical and support services were reorganized into 27 patient-centered institutes beginning in 2007. Institutes combine medical and surgical specialists for specific diseases or organ systems under unified leadership and in a shared location to provide optimal team care for every patient. Institutes work with the Office of Patient Experience to give every patient the best outcome and experience.

A Clinically Integrated Network

Cleveland Clinic is committed to providing value-based care, and it has grown the Cleveland Clinic Quality Alliance into the nation’s second-largest and Northeast Ohio’s largest clinically integrated network. The network comprises more than 5400 physician members, both employed and independent physicians from the community. Led by its physician members, the Quality Alliance strives to improve quality and consistency of care; reduce costs and increase efficiency; and provide access to expertise, data, and experience.
Cleveland Clinic Lerner College of Medicine

Lerner College of Medicine is known for its small class sizes, unique curriculum, and full-tuition scholarships for all students. Each new class accepts 32 students who are preparing to be physician investigators. Cleveland Clinic is building a multidisciplinary Health Education Campus as the new home of the Case Western Reserve University (CWRU) School of Medicine and Cleveland Clinic’s Lerner College of Medicine, as well as the CWRU School of Dental Medicine, the Frances Payne Bolton School of Nursing, and physician assistant and allied health training programs.

Graduate Medical Education

In 2014, nearly 1800 residents and fellows trained at Cleveland Clinic and Cleveland Clinic Florida, which is part of a continuing upward trend.

U.S. News & World Report Ranking

Cleveland Clinic is consistently ranked among the top hospitals in America by *U.S. News & World Report*. It is ranked No. 1 in urology and has ranked No. 1 in heart care and heart surgery since 1995. In 2014, 4 of its programs were ranked No. 2 in the nation: diabetes and endocrinology, gastroenterology and GI surgery, nephrology, and rheumatology.

For more information about Cleveland Clinic, please visit [clevelandclinic.org](http://clevelandclinic.org).

Cleveland Clinic Physician Ratings

At Cleveland Clinic, we believe in transparency. We also believe in the positive influence of the physician-patient relationship on healthcare outcomes. To continue to meet the highest standards of patient satisfaction, we now publish Cleveland Clinic physician ratings, based on nationally recognized Press Ganey patient satisfaction surveys, online at [clevelandclinic.org/staff](http://clevelandclinic.org/staff).
Referring Physician Center and Hotline

Call 24/7 for access to medical services or to schedule patient appointments: 855.REFER.123 (855.733.3712), email refdr@ccf.org, or go to clevelandclinic.org/Refer123. The free Cleveland Clinic Physician Referral App, available for mobile devices, gives you 1-click access. Available at the App Store or Google Play.

Remote Consults

Anybody anywhere can get an online second opinion from a Cleveland Clinic specialist through our MyConsult service. For more information, go to clevelandclinic.org/myconsult, email elevelandclinic.org, or call 800.223.2273, ext. 43223.

Request Medical Records

216.444.2640 or 800.223.2273, ext. 42640

Track Your Patients’ Care Online

Cleveland Clinic offers an array of secure online services that allow referring physicians to monitor their patients’ treatment while under Cleveland Clinic care, as well as access test results, medications, and treatment plans. my.clevelandclinic.org/online-services

DrConnect (online access to patients’ treatment progress while under referred care): 877.224.7367; drconnect@ccf.org

MyPractice Community (affordable electronic medical records system for physicians in private practice): 866.320.4573

eRadiology (teleradiology consultation provided nationwide by board-certified radiologists with specialty training, within 24 hours or stat): 216.986.2915; starimaging@ccf.org

Medical Records Online

Patients can view portions of their medical record, receive diagnostic images and test results, make appointments, and renew prescriptions through MyChart, a secure online portal. All new Cleveland Clinic patients are automatically registered for MyChart. clevelandclinic.org/mychart

Critical Care Transport Worldwide

Cleveland Clinic’s fleet of ground and air transport vehicles is ready to transfer patients at any level of acuity anywhere on earth. Specially trained crews provide Cleveland Clinic care protocols from first contact. To arrange a transfer for STEMI (ST-elevation myocardial infarction), acute stroke, ICH (intracerebral hemorrhage), SAH (subarachnoid hemorrhage), or aortic syndrome, call 877.379.CODE (2633). For all other critical care transfers, call 216.444.8302 or 800.553.5056.

CME Opportunities: Live and Online

Cleveland Clinic’s Center for Continuing Education operates the largest CME program in the country. Live courses are offered in Cleveland and cities around the nation and the world. The center’s website (ccfcme.org) is an educational resource for healthcare providers and the public. It has a calendar of upcoming courses, online programs on topics in 30 areas, and the award-winning virtual textbook of medicine, The Disease Management Project.

Clinical Trials

Cleveland Clinic is running more than 2100 clinical trials at any given time for conditions including breast and liver cancer, coronary artery disease, heart failure, epilepsy, Parkinson disease, chronic obstructive pulmonary disease, asthma, high blood pressure, diabetes, depression, and eating disorders. Cancer Clinical Trials is a mobile app that provides information on the more than 100 active clinical trials available to cancer patients at Cleveland Clinic. clevelandclinic.org/cancertrialapp.
Healthcare Executive Education

Cleveland Clinic has programs to teach people from outside the organization how it operates a major medical center. The Executive Visitors’ Program is an intensive 3-day behind-the-scenes view of the Cleveland Clinic organization for the busy executive. The Samson Global Leadership Academy is a 2-week immersion in challenges of leadership, management, and innovation taught by Cleveland Clinic leaders, administrators, and clinicians. Curriculum includes coaching and a personalized 3-year leadership development plan. Learn more at clevelandclinic.org/executiveeducation.

Consult QD Physician Blog

A singular blog for physicians and healthcare professionals from Cleveland Clinic. Discover the latest research insights, innovations, treatment trends, and more for all specialties. Join the conversation: consultqd.clevelandclinic.org.

Social Media

Cleveland Clinic uses social media to help caregivers everywhere provide better patient care. Millions of people currently like, friend, or link to Cleveland Clinic social media — including leaders in medicine.

Facebook for Medical Professionals facebook.com/CMEclevelandclinic

Follow us on Twitter @cleclinicMD

Connect with us on LinkedIn Clevelandclinic.org/Mdlinkedin
This project would not have been possible without the commitment and expertise of a team led by Marwan Hamaty, MD, MBA; Eren Berber, MD; and Ronald R. Gambino, RN, BSN, MPA.

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