The number of reloads for endoscopic devices was the major driver of supply costs in a new benchmarking report on laparoscopic gastric bypass surgery.

Supply costs varied widely, from $1,918 to $8,509, for the 8 facilities participating. The study was conducted by OR Benchmarks, a service of OR Manager, Inc.

The study compared costs for the Roux-en-Y laparoscopic gastric bypass for 33 cases. Roux-en-Y is the most common and successful type of malabsorptive surgery for obesity, according to the National Institutes of Health.

The surgery involves constructing a 15-mm stomach pouch (about the size of a small plastic medicine cup) and bypassing a segment of the intestines by constructing a Y-shaped limb of small bowel. Patients lose weight because the procedure restricts the amount of food they can eat and nutrients they can absorb.

About 56% of weight-loss surgery is performed laparoscopically, according to the American Society for Bariatric Surgery. Laparoscopic gastric bypass has advantages over the open approach, including fewer wound infections, abdominal wall complications, and shorter hospital stays. Weight loss is similar for open and closed surgery. Laparoscopic obesity surgery, which may be associated with more complications than other types of minimally invasive surgery, has a steep learning curve. It takes 120 cases before a surgeon’s complication rate begins to decline, according to Perugini et al.

An experienced surgeon can routinely perform a laparoscopic gastric bypass in less than 1 1/2 hours. The average hospital stay is 1.6 to 3.6 days, according to the literature.

### Supply costs

The facility with the lowest total supply costs in this benchmarking study used a custom bariatric kit and 2 to 10 additional reloads. In contrast, the facility with the highest costs paid list price for its laparoscopic supplies and used a higher-than-average number of reloads—16 to 19 (chart).

All participants used a combination of reusable and disposable trocars and other instruments. An ultrasonic scalpel was used in all cases at a median cost of $340 per case. The percentage of facilities using disposable instruments was:

- trocars 88%
- scissors 38%
- graspers 100%
- Verres needles 63%.

### Specialized trays

Two facilities used specialized bariatric surgery trays, with a wide range in costs:

- Facility A: $2,613 per kit
- Facility B: $865 per kit.

Facility A performed 2 of its study cases without the kit, which wasn’t available, pulling individual supplies, which cost $1,490 more than the kit.

Facility B, which had the lowest total supply costs, is Medical Center East in Birmingham, Ala. The hospital’s surgical services director, DeNene Cofield, RN,

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**Laparoscopic gastric bypass**

<table>
<thead>
<tr>
<th></th>
<th>Range</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total supply costs</td>
<td>$1,918-$8,599</td>
<td>$3,675</td>
</tr>
<tr>
<td>Procedure time</td>
<td>78-150 min</td>
<td>116 min</td>
</tr>
<tr>
<td>Turnover time</td>
<td>39-83 min</td>
<td>52 min</td>
</tr>
<tr>
<td>Labor costs</td>
<td>$184-$722/case</td>
<td>$370/case</td>
</tr>
</tbody>
</table>

*Source: OR Benchmarks. www.orbenchmarks.com*
BSN, CNOR, says items included in the kit must be used “100% of the time for 100% of the patients. We don’t do any convenience packaging for our kits.”

Medical Center East has been performing bariatric surgery since 2001 and expects to do 1,000 of the procedures this year. The hospital also had the shortest procedure time, averaging 78 minutes. The current procedure time is even shorter at 55 minutes.

The second lowest supply cost, $2,403 per case, was entered by Poudre Valley Hospital, Fort Collins, Colo, which has an annual bariatric surgery volume of 284 cases performed by one group of surgeons.

The same custom pack is used for bariatric surgery as for the rest of general surgery, explains Steve Stout, RN, BSN, business associate for surgical services. Instrument sets are standardized. Disposable instruments are standardized to the surgeon who uses the least number of reloads, though additional reloads can be added if needed. The hospital uses a combination of disposable and reposable trocars and disposables for the rest of the instrumentation. Supplies are purchased through a Novation contract. Fibrin sealant is used for all procedures at a cost of $425 as insurance against bleeding.

### Custom kits for laparoscopic gastric bypass

<table>
<thead>
<tr>
<th>Kit A</th>
<th>Kit B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,612.97</td>
<td>$865.37</td>
</tr>
<tr>
<td>9 Endo GIA Roticulators</td>
<td>1 Endopath linear cutter needle</td>
</tr>
<tr>
<td>5 Endo Stitch Surgidac sutures</td>
<td>1 Endopath linear cutter reload</td>
</tr>
<tr>
<td>1 Endo GIA Universal</td>
<td>3 trocars</td>
</tr>
<tr>
<td>2 Endo Stitch suturing devices</td>
<td>1 trocar sleeve</td>
</tr>
<tr>
<td>1 Endo Clip applier</td>
<td>2 trocar obturators</td>
</tr>
<tr>
<td>5 trocars</td>
<td>4 standard reloads</td>
</tr>
<tr>
<td>1 Surgineedle insufflation needle</td>
<td>4 standard reloads</td>
</tr>
</tbody>
</table>

Source: OR Benchmarks. www.orbenchmarks.com

### Four decisions that affect supply costs

To help manage costs, Cofield suggested discussing the following issues with surgeons:

1. **Disposables or reposables?**

   Savings can come if surgeons agree to use reposable rather than disposable instrumentation. With reposable devices, only the tip is discarded, and the rest of the instrument is reused. An example is reposable trocars, which have replaceable points and reusable handles.

   In Cofield’s opinion, “There’s no reason to use disposables. You almost can’t afford to.”

2. **What is the DVT prophylaxis strategy?**

   Surgeons must achieve a delicate balance between preventing deep vein thrombosis (DVT) and avoiding bleeding along the staple lines. Either event can lead to serious, potentially fatal complications.

   To guard against bleeding, some surgeons use double suture lines, which involve more stapler reloads, or reinforcing material, such as Peri-Strips (strips of pericardium) or fibrin sealant. These can add several hundred dollars to a case.

   Medical Center East’s surgeons use DVT prophylaxis with low molecular-weight heparin only in selected cases and are meticulous in drying the gastric staple line and oversewing the line manually if bleeding persists. They use reinforcing material only in these selected cases.

   Leading predictors of DVT are the length of the procedure and patient immobility.

   “One of the strategies should be to minimize the operative length of case—anything you can do to minimize the length of surgery is going to pay for itself,” Cofield says.

   Patients have their Foley catheters removed as soon as they leave the recovery area and are encouraged to be up and walking within 2 to 4 hours. They also have TED stockings and sequential compression devices for DVT prevention.

3. **How will you check for leaks?**

   Surgeons at Medical Center East use methylene blue intraoperatively to check for leaks in the gastroenterostomy. The stoma is formed around a nasogastric tube,
which is inserted orally. Other surgeons may use special tubes for creating the stoma and upper GI endoscopy to check the stoma.

“We don’t buy any special tubes. We are using the NG tube for everything,” Cofield says.

To avoid staining the patient’s face and hair with the methylene blue, Vaseline is applied preoperatively, and the hair is banded on the top of the head. The anesthetist removes the tube onto a towel and wraps it in a Chux to discard so dye will not get on the patient’s face.

4. How many reloads will you need?

The number of stapler reloads is governed by surgeons’ technique and preferences. In Cofield’s opinion, typically 3 to 4 stapler fires should be needed to complete the gastric division.

“More than this may indicate a technique issue,” she says.

At Medical Center East, the average number of stapler reloads is 10:

1 reload for transecting the jejunum
2 reloads for transecting the mesentery
1 reload for the jejunojejunostomy
2 reloads to close the jejunal common enterostomy
3 reloads for the gastric transection
1 reload for the gastrojejunostomy

Cofield also recommends making sure the stapler vendor provides support to help keep the surgeons and staff properly trained in the firing of staplers. Her facility evaluates every stapler incident as a user error, knowledge deficit, or product failure, and every stapler misfire is treated as an incident reportable to the vendor. When there is a stapler incident, Cofield says the hospital has negotiated for a one-for-one stapler replacement “so we share some of the risk with the vendor.” Though most misfires are user errors, she believes the replacement policy provides an incentive to vendors to make sure staff and surgeons are trained.

References


The benchmarking study for bariatric surgery is still open. For information about participating, visit www.orbenchmarks.com or phone 800/442-9918.
New consensus guidelines in New York State were developed by 9 health plans and 12 bariatric surgeons.

The guidelines were developed after the health plans’ medical directors observed that the field was growing rapidly with “considerable variation in operative techniques, surgeon skill, and institutional commitment.

Patient selection
The guidelines’ absolute criteria for patient selection are:
• a body mass index (BMI) of 40 or greater or
• a BMI of 35 or greater with a life-threatening or disabling comorbid condition.

Among 10 other considerations are long-standing obesity and reasonable attempts to lose weight in a structured and documented program.

Surgeon requirements
Among requirements for surgeons are:
• completing a fellowship or preceptorship in bariatric surgery that includes patient education, support groups, operative techniques, and postop follow-up, with at least 25 bariatric procedures performed during the training
• performing a minimum of 25 bariatric surgical cases a year
• recognizing that 100 cases are needed to master basic procedures and technology
• obtaining 25 CME credits in bariatric surgery every 2 years
• using a multidisciplinary approach and having an infrastructure in place to provide lifelong follow-up to bariatric patients.

Facility requirements
Facility requirements include, among others:
• a specially equipped OR for bariatric surgery with tables and equipment for the morbidly obese and super obese
• hospital beds, air-pressure mattresses, commodes, stretchers, wheelchairs, and gowns to accommodate bariatric patients.

The consensus guidelines and a primer on bariatric surgery are at www.nyhpa.org