Bariatric Program | Provider Seminar
The First Step in your Weight-loss Journey

Anirban Gupta, MD, FRCSC, FACS, FASMBS | Medical Director, Bariatric
Shireesh Saurabh, MD, FACS, FASMBS | Bariatric Surgeon
Perspectives on Metabolic & Bariatric Surgery
Agenda

Program History & Data
Our Team
The KPWA Program
The Scope of the Disease
Treatment Options
Making a Treatment Decision
Weight Loss & Maintenance
Next Steps: Your Journey to Success
Our Performance and Outcomes

- **Vertical Sleeve Gastrectomy**
- **Roux en Y Gastric Bypass**
- **Revisional Surgery**

We perform 400+ cases per year

- The Only 5-Star Center (based at Overlake) in all of Washington State
- Recognized as top 5% of programs in the U.S.
- #1 Program in Washington State for overall and risk-adjusted outcomes
So, what’s the key to our success?

We are a **truly integrated program** with a multi-disciplinary team that leverages best practice and evidence-based care to deliver a **comprehensive experience** designed to meet our members’ individual needs and **promote long-term success**.
Your Bariatric Care Team

Expert Surgeons & Advanced Practice Providers
- Anirban Gupta, MD
- Shireesh Saurabh, MD
- Lori Gokee, ARNP
- Kat Cozza, PA-C
- William Young, PA-C
- Travis Sears, PA-C
- Lynda Crescenzi, PA-C
- Heather Vincent, PA-C

Specialized Nurses & Medical Assistants
- Elizabeth Puckett, RN
- Sarah Chan, RN
- Liam Malpass, RN
- Karen Kucera, MA-C
- Sara Hernandez, MA-C

Bariatric Trained Dietitians
- Lisa Stariha, RD
- Fionna Marave, RD

Bariatric Focused Psychologist
- Janet Ng, PhD
The KP Washington Bariatric Program

Phase 1: Optimize for Success
- Provider Seminar
- Coordinated Initial Visit & Nutrition Class
- Psychology Consultation
- Optimization
- Coordinated Secondary Visit
- Case Review
- Pre-op Visit

Phase 2: Surgery
- Pre-op Preparation
- Surgery & Hospital Stay
- Discharge to Home

Phase 3: Follow Up Care
- 3-Day Phone Visit
- 2-Week Post-op Visit
- 2, 6, & 12 Month Visit
- Annual Visits for Life
Rather than using “body” types to determine who is overweight, we use a simple calculation called **Body Mass Index** or BMI.

- BMI relates a person’s weight to their height.
- BMI is not the only measure of health. Other important measures include:
  - Waist circumference
  - Body composition
Obesity Trends* Among U.S. Adults
BRFSS, 1990, 2000, 2010
(*BMI ≥30, or about 30 lbs. overweight for 5’4” person)
**Obesity Trends* Among U.S. Adults**  
**BRFSS, 2005**

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person*)

<table>
<thead>
<tr>
<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
<th>15%–19%</th>
<th>20%–24%</th>
<th>25%–29%</th>
<th>≥30%</th>
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[Map of Obesity Trends in the U.S.](#)
Obesity Trends* Among U.S. Adults
BRFSS, 2006

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2007

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2008

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2009

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2010

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

[Map showing obesity trends across the United States]
Prevalence* of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2017

*Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
How does the growing rate of obesity impact us?

Each year, 400,000 Americans die prematurely due to obesity-related diseases. This number is increasing rapidly and soon obesity will replace tobacco and smoking as the number one preventable health problem in the United States.
What medical complications are related to obesity?
When obesity is so severe that it threatens one’s health and affects the lifespan of the individual.
How did we get here?

- Neonatal factors-exposures in utero
- Obesogenic environment
  - Food
  - City Planning
- Social structure
- Emotional and psychologic factors
- Lifestyle decisions & factors
- Genetics
Cumulative Lifetime Effect: Simplified Model

Cumulative Factors → Calorie Surplus → Weight Gain → Increase in Total Body Inflammation → Disease → Obesity & Related Illnesses
How can I lose weight and keep it off?

The Answer: Create and maintain a healthy calorie deficit.
Understanding Your Treatment Options
Weight Loss Options | An Integrated Continuum for a Chronic Illness

- Medical
  - Diet
  - Exercise

- Emotional
  - Psychology
  - Social Work

- Surgical
  - Laparoscopic procedure
Bariatric Surgery Options at KP Washington

- Laparoscopic roux en y gastric bypass
- Laparoscopic Vertical Sleeve Gastrectomy
- Revisional Surgery
Normal Anatomy

- **Esophagus**: transports food from mouth to stomach
- **Stomach**: creates and secretes acid and digestive hormones and enzymes
- **Liver**: creates and secretes bile
- **Gallbladder**: stores bile that was made in the liver
- **Duodenum**: 1\textsuperscript{st} part of small intestine, connected to the stomach, pancreas, bile & pancreatic ducts
- **Pancreas**: creates and secretes enzymes and hormones to digest starches, carbs, sugars
Normal Anatomy

Pyloric Valve – controls the rate of the release of food and liquid from stomach to the duodenum
Normal Anatomy

- **Ghrelin**: Hunger Hormone. Mostly secreted in the **fundus** of the stomach.
- **Acid**: Helps digest food. Mostly secreted in the body of the stomach.
- **Bile**: Made in the liver and stored in the gallbladder. Released in the duodenum to help absorb fat.
- **Pancreatic Enzymes**: Made in the pancreas and released in the duodenum to absorb carbs, starches, and sugars.
GERD: Gastroesophageal Reflux Disease

• Occurs when stomach acid flows back into the tube connecting your mouth to your stomach (esophagus).

• Symptoms
  ▪ Typical
    • Burning sensation in your chest (heartburn)
    • Chest pain
    • Difficulty swallowing
    • Regurgitation of food or sour liquid
    • Sensation of a lump in your throat
  ▪ Atypical
    • Chronic cough
    • Laryngitis
    • New or worsening asthma
    • Disrupted sleep
Hiatal Hernia

- Occurs when a weakness/gap in the diaphragm results in a portion of the stomach migrating into the chest from the abdominal cavity.
- Seen in at least 40% of bariatric patients
- Can cause GERD or make symptoms worse
- If present, hiatal hernia is corrected during bariatric surgery
Laparoscopic Adjustable Band, “Lap Band”
Lap Band | Components

- Small stomach pouch
- Gastric Band
- Larger Stomach Portion
- Tubing
- Injection port
Lap Band | Outcomes

- Patients with lap band achieve less than 50% excess weight loss over two years
- The band can be “cheated” if you eat carbs / high-calorie liquid / pureed food
- 50% 10-Year Removal Rate
  - Mechanical and other complications
    - Pseudo achalasia
    - GERD
    - Barrett’s
    - Other esophageal motility disorders
    - Slipped, eroded, migrated band causing one or more the following:
      - Gastric obstruction
      - Hemorrhage
      - Sepsis / infectious complications
- Inability to lose or maintain weight loss
- Lap band is falling into disfavor around the world
The Roux en Y (RNY) Gastric Bypass Procedure
The **Roux en Y (RNY)** Gastric Bypass Procedure

- The stomach is stapled into 2 pieces, one small and one large. The small piece becomes the “new” stomach pouch.
- The pouch is 5% of the size of the old stomach, therefore holds much less food - generally about 1.5-2 oz in size.
- The larger portion of the stomach stays in place, however will lie dormant for the remainder of the patient’s life.
The Roux en Y (RNY) Gastric Bypass Procedure

• The beginning section of the small intestine (the jejunum) is divided using a surgical stapler approximately 40-60 cm from the end of the stomach.
The **Roux en Y (RNY)** Gastric Bypass Procedure

- The end of the Roux limb is then attached to the newly formed pouch (red arrow)
- The Roux limb carries food to the intestines
- The Y limb carries digestive juices from the pancreas, gall bladder, liver and duodenum to the intestines
- The food and the digestive juices mix where the Roux limb and Y limb meet ("A") – this is referred to as the "common channel" – where the food and the digestive juices finally meet or are “re-united”.

![Diagram of the Roux en Y (RNY) Gastric Bypass Procedure](image)
The Roux en Y (RNY) Gastric Bypass Procedure

The final arrangement of the lap RNYGB.
The Roux en Y (RNY) Gastric Bypass Procedure

Consequences for GERD

The Pylorus
The **Roux en Y (RNY)** Gastric Bypass Procedure

- Food separated from digestive juices **UPSTREAM**
- Results in decreased GHRELIN ➔ Decreased appetite (hormonal effect)
- Small 1-2 oz pouch ➔ less food consumed (restriction effect)
- Food reunified with digestive juices **DOWNSTREAM** (less absorption & hormonally mediated effects on blood glucose, metabolism, etc.)
The Roux en Y (RNY) Gastric Bypass Procedure

The Bottom Line:
• RNYGB is the gold standard procedure.
• It has existed for over 50 years in various forms.
• It is a laparoscopic procedure, with 6 small incisions.
• The procedure lasts about 2 hours.
• Requires a 1-2 night hospital stay.
• Requires liquid diet (stage 2 post-op) for two weeks after surgery.
• Requires 2-4 weeks recovery, away from work.
• Accounts for 18-20% of all procedures in the US and the world.
The Vertical Sleeve Gastrectomy (VSG) Procedure
The **Vertical Sleeve Gastrectomy (VSG)** Procedure

- The esophagus is still connected to the acid-producing portion of the stomach *
- The sleeve capacity is 3-6 oz *
- Pylorus/Pyloric valve still part of the circuit*
- The sequence in which food mixes with gastric juices (acid, bile, pancreatic enzymes) does not change *
- Fundus is resected (whereas in bypass fundus is preserved) *
The **Vertical Sleeve Gastrectomy (VSG)** Procedure

**Consequences and Important Differences from RNYGB:**

- GERD (Heartburn and reflux) is a potential consequence of the VSG procedure.
- The VSG is larger than the gastric pouch of the RNYGB → **less weight loss** than RNYGB.
- The “brake” is still present, which means “dumping” is **not an issue**. This also creates more pressure, which is what increases the likelihood of reflux.
- **Malabsorption is not an issue.**
- Results in **decreased hunger**, similar to the RNYGB.
The **Vertical Sleeve Gastrectomy (VSG)** Procedure

**RECAP**

- The VSG creates a 3-6 oz capacity narrow high-pressure tube that maintains relationship between the esophagus, stomach, pylorus, duodenum, and pancreas.
- Preserves normal mixing of food with gastric juices (acid, bile, pancreatic enzymes)
- Fundus resected ➔ Less Ghrelin ➔ decreased hunger
- Restriction ➔ less consumption
- Narrow tube ➔ faster transit ➔ less absorption
The Vertical Sleeve Gastrectomy (VSG) Procedure

The Bottom Line:
• VSG is the relatively new kid on the block.
• The procedure has existed for about 13 years.
• It is a laparoscopic procedure with 6 small incisions.
• The procedure lasts 1 hour.
• Requires a 1-2 night hospital stay.
• Requires liquid diet (stage 2 post-op) for 4 weeks after surgery.
• Requires 2-4 weeks recovery, away from work.
• Accounts for 60-70% of all bariatric procedures in the US and in the world.
Revisional Bariatric Surgery

Conversion  Corrective  Reversal
## Revisional Bariatric Surgery | Common Types

<table>
<thead>
<tr>
<th>Conversion</th>
<th>Corrective</th>
<th>Reversal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Band to bypass</td>
<td>• Conversion procedures for patient who didn’t meet weight loss goals</td>
<td></td>
</tr>
<tr>
<td>• Sleeve to bypass</td>
<td>• Re-pouch</td>
<td></td>
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<tr>
<td>• Nissen to bypass</td>
<td>• Re-sleeve</td>
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<tr>
<td>• VBG to bypass</td>
<td>• Fistula resection</td>
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<td></td>
<td>• Limb lengthening/adjustment</td>
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Revisional Bariatric Surgery | Common Questions

Can a band be converted to a sleeve?

Can the band removed at the same time as the bypass?

What situations require conversion of a sleeve to a bypass?
Revisional Bariatric Surgery

Important Considerations Based on Recent Studies:

• Conversion of band to VSG may be associated with a higher risk of short term complications, such as leak, when compared to band to RNYGB conversion.

• Conversion of band to VSG done in two stages may result in lower complication rates.

• Band to RNYGB done in two stages may result in lower complication rates.
Making a Decision about Treatment
How to decide on an operation?

- Which is the best option?
- Which is the safest option?
- Which will provide me the best results?
- Which operation is the least invasive?
How to decide on an operation? **Let’s reframe the questions**…

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which is the best option?</td>
<td>• There’s no “best” option</td>
</tr>
<tr>
<td>Which is the safest option?</td>
<td>• They’re equally safe overall</td>
</tr>
<tr>
<td>Which will provide me the best results?</td>
<td>• No operation can provide the best results</td>
</tr>
<tr>
<td>Which operation is the least invasive?</td>
<td>• They are both equally invasive in terms of incisions and recovery</td>
</tr>
</tbody>
</table>
So then how do I decide?

The decision to choose a bariatric operation is aligning your personal convictions with the balance that exists for each operation, in terms of benefits and risks.
# Bariatric Surgery | Outcomes & Risks

<table>
<thead>
<tr>
<th>Operation</th>
<th>RNYGB</th>
<th>VSG</th>
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<tbody>
<tr>
<td><strong>OUTCOMES</strong></td>
<td></td>
<td></td>
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<tr>
<td>Excess Weight Loss (EWL)</td>
<td>65-75%</td>
<td>60-65%</td>
</tr>
<tr>
<td>Diabetes Resolution</td>
<td>62-94%</td>
<td>26-75%</td>
</tr>
<tr>
<td>Time to Plateau</td>
<td>18-24 months</td>
<td>12 months</td>
</tr>
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</table>

| **COMPLICATIONS**       |           |          |
| Overall Complication Rate| 8%        | 5%       |
| Short-Term Complications|           |          |
| Leak                    | 0.3%      | 0.3%     |
| Bleeding                | 1%        | 2%       |
| PE/DVT                  | 1%        | 1%       |
| Death                   | 0.3%      | 0.3%     |

| Medium-Long Term Complications|           |          |
| Ulcer                       | 1-16%     | Minimal  |
| Stricture                   | 1-2%      | 1-2%     |
| Fistula                     | 1-2.6%    | Minimal  |
| Dumping                     | 5%        | Minimal  |
| Small Bowel Obstruction     | 1.2-4.5%  | 0%       |
| Malnutrition                | 5-7%      | Minimal  |
| Reflux/GERD                 | Treatment | 10-30%   |
Other Considerations

- RNYGB is associated with a higher risk of kidney stones.
- RNYGB is associated with a higher risk of anemia and iron deficiency, and in some cases, may require iron transfusion post-operatively.
Bariatric Surgery | Decision Analysis

- Those patients who are more interested in the potential greater weight loss and reversal of medical problems AND are more tolerant of the specific long-term risks and required lifestyle will choose a RNYGB.
- Those patient who don’t need the greater benefit of the RNYGB and/or are less risk-tolerant of the long term consequences and lifestyle of the RNYGB, will choose a VSG.
- It would appear that in the past 5 years, the national trend has been towards the latter, where around 65-70% of all bariatric procedures performed is the VSG.
There are other factors which may impact treatment choice…

- **NSAIDS**
- **GERD**
- **Type 2 Diabetes**
- **Previous Abdominal Surgery**
Cleveland Clinic Risk Calculator Library

Bariatric Surgery Decision-Making Calculators

Individualized Metabolic Surgery Score for Procedure Selection
For Patients With Type 2 Diabetes
Individualized Metabolic Surgery Score categorizes patients with type 2 diabetes into three validated stages for evidence-based bariatric procedure selection (Roux-en-Y gastric bypass [RYGB] vs. sleeve gastrectomy [SG]).

Postdischarge VTE Risk Assessment
For Patients Immediately Following Bariatric Surgery
Venous thromboembolism (VTE) is the most common cause of death after bariatric surgery and most events occur after hospital discharge. The VTE risk assessment tool utilizes ten independent risk factors and identifies high-risk patients who would benefit from post-discharge extended VTE thromboprophylaxis.
Individualized Metabolic Surgery Score for Procedure Selection for Patients with Type 2 Diabetes

- Preop # diabetes medications (oral and injectable)
- Preop Insulin use
- Preop Duration of Diabetes (years)
- Preop Glycemic control (A1c < 7%)

Score helps determine severity of disease. Severity of disease impacts likelihood of long term resolution of T2D.

This impacts how suitable a bypass, which may have higher risk, is for a patient with T2D (risk vs. benefit)

Risk Calculator
Resolution of Co-morbidities after Bariatric Surgery

- **Quality of Life Improved** in 95% of patients.\(^5\)
- **Mortality Reduced** by 89% in five-year period.\(^1\)

- **Migraines** 57% resolved\(^6\)
- **Depression** 47% reduced\(^5,6\)
- **Pseudotumor cerebri** 96% resolved\(^7\)
- **Obstructive sleep apnea** 74% to 98% resolved\(^3,4\)
- **Hypercholesterolemia** 63% resolved\(^3,5,6\)
- **Asthma** 69% resolved\(^6\)
- **Hypertension** 69% resolved\(^4,6\)
- **Nonalcoholic fatty liver disease** 90% reduced\(^*\)
- **Metabolic syndrome** 80% resolved\(^8\)
- **GERD** 72% resolved\(^5,6\)
- **Type 2 diabetes** 82% to 98% resolved\(^6,7\)
- **Polycystic ovarian syndrome** 79% resolution of hirsutism\(^9/\)
  100% resolution of menstrual dysfunction\(^9\)
- **Urinary stress incontinence** 44% resolved\(^1\)
- **Venous stasis disease** 95% resolved\(^1\)
- **Osteoarthritis/degenerative joint disease** 41% resolved\(^2,7\)
- **Gout** 72% resolved\(^2\)
The Bottom Line

• Roux en y gastric bypass (RNYGB) may provide greater reward for the right patient, but also comes with slightly higher risk.

• Sleeve gastrectomy (VSG) provides a bit less weight loss, may be less durable, and less effective in terms of resolution of co-morbidities, but for the right patient it is a good operation with less risk than the roux en y gastric bypass.
Weight-loss and Weight-loss Maintenance
How to create a calorie deficit

Eat fewer calories + Burn more calories = Calorie Deficit
The downside of calorie deficit

• Calorie deficit ALSO results in **muscle loss** (you don’t just lose fat)

• **MUSCLE MASS** is the #1 determinant of your metabolism

• Muscle loss ➔ decrease in basal metabolic rate (BMR)

• Decrease in BMR ➔ decrease in calorie deficit ➔ plateau and you hit a wall
How do you delay the plateau and maximize weight loss?
You can control your muscle mass, which is the #1 driver of your basal metabolic rate.
How do you build muscle mass?

Adequate Fuel

• At least 1-1.5 gm protein/kg body mass/day

• For example, a 90 kg individual would have at least 90, but as high as 135 grams of protein per day

Adequate Exercise (Resistance Training)

• At least 90 + minutes of resistance training a week, in addition to “cardio”
  ▪ Free weights/body weight/machine weights/resistance bands/Pilates/yoga/swimming
  ▪ Personal trainer who can tailor a plan for you with these goals in mind of functional fitness and high quality muscle mass retention
Maintaining Healthy Weight-Loss

The American College of Sports Medicine and the National Weight Control Registry Recommend:

- Routinely self-monitor protein, calories, and fluid intake for the rest of your life.
- Weigh yourself once a week.
- Achieve 300+ mins of exercise per week with at least 90 mins to maintain lean muscle.
Next Steps: Paving the Path to Success
Your journey starts today

- Evaluate your commitment to the journey
- Start keeping records of your current lifestyle & habits
- Start making changes today
- Build a good social support structure
- Plan groceries and meal prep
- Take ownership of your journey and don’t lose momentum
- Read the Bariatric Binder and ask questions
- Take advantage of the many resources available to you in the program
## IMPORTANT CONSIDERATIONS

<table>
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<tr>
<th>STOP</th>
<th>CONTRAINDICATIONS FOR SURGERY</th>
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<tr>
<td>• Use of any tobacco or nicotine products creates a significant safety risk both before and after surgery. If you need resources to quit, please inform a member of our team.</td>
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<tr>
<td>• Avoid marijuana or other recreational drug use, which can also create risks for surgery and be counter-productive to your weight-loss.</td>
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<tr>
<td>• Carbonated beverages, sugary beverages, caffeinated, and alcoholic beverages must be eliminated prior to surgery. Work on eliminating these from your diet now.</td>
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<tr>
<td>• Consider contraception carefully. Pregnancy immediately after bariatric surgery could be high risk for both mother and child.</td>
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<tr>
<td>• Individuals with a substance use disorder, eating disorder, or major psychiatric illness must receive treatment and resolution prior to be considered for surgery.</td>
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<tr>
<td>• Individuals actively using tobacco or nicotine products cannot have surgery.</td>
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<tr>
<td>• Women who may become pregnant (within 2 years) are not eligible for surgery.</td>
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<tr>
<td>• Individuals who are looking for a quick-fix and are unwilling to engage in all aspects of the program and care management plan may wish to consider alternative options to surgery.</td>
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Next Steps

Before leaving today:

1. Schedule your next appointment for a coordinated initial visit. This appointment will include both a morning visit in clinic as well as an afternoon nutrition education class.

2. Ensure you receive your questionnaires for your next visit. Please complete them and bring them to your CIV appointment.

Before your next appointment:

1. Contact Member Services at 1-888-844-4607 if you have questions regarding your coverage & benefits for Bariatric Care and Surgery.

2. Complete your questionnaires and bring them with you to your appointment.