Providing Pharmacy Services to Bariatric Surgery Patients

Goal: To provide an overview of the types of bariatric surgeries and the support that needs to be provided to post-operative patients.

Objectives: After reading and studying the article, the reader will be able to:
1. Describe the different types of bariatric surgeries commonly performed in the United States.
2. List the vitamin and mineral supplements required by post-surgical bariatric patients.
3. Choose and recommend supplements with the optimal bioavailability.
4. Discuss options available to compound medications that may be needed by bariatric patients.
5. Discuss common physical problems experienced by post-surgical bariatric patients and recommend options to resolve them.
6. List at least 6 classes of drugs that may not be well-absorbed in bariatric patients.

INTRODUCTION
According to the World Health Organization (WHO), worldwide obesity (having a body mass index or BMI greater than or equal to 30) has more than doubled since 1980.1 In 2014, more than 1.9 billion adults, 18 years and older, were overweight (BMI 25 to < 30) and of these adults, over 600 million were obese. Overweight and obesity are linked to more deaths than underweight. Globally there are more people who are obese and overweight than underweight, with the exception of parts of sub-Saharan Africa and Asia. Being overweight and obese is a major risk factor in developing:
- Cardiovascular diseases such as heart disease and stroke, which were the leading cause of death in 2012.
- Diabetes
- Musculoskeletal disorders, such as osteoarthritis
- Some cancers including endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, colon.

Fortunately, obesity is preventable. Environments and communities share a responsibility in shaping people’s choices and encouraging a healthier lifestyle, by making the choice of healthier foods and regular physical activity the easiest choice. Individually, people can:
- Limit eating fats and sugars for energy
- Increase consumption of fruits and vegetables, as well as legumes, whole grains, and nuts
- Engage in regular physical activity (60 minutes a day for children and 150 minutes throughout the week for adults).

Diet and exercise are not always the answer for some people. According to the American Society for Metabolic and Bariatric Surgery, individuals affected by severe obesity are resistant to long-term weight-loss by diet and exercise and it is nearly impossible to achieve a much lower BMI or BMI below 25 without metabolic and bariatric surgery.2 Diet and exercise alone has a high failure rate and...
less than 10% long-term excess weight loss in obese patients. Bariatric surgery is not “taking the easy way out” for these individuals to lose weight. It is common for people who are interested in bariatric surgery to do a lot of research online and talk to post-op bariatric patients for an extended period of time before making the decision to consult with a bariatric surgeon for help.

Types of Bariatric Surgeries
There are basically two types of bariatric surgeries performed: restrictive and malabsorptive. In a restrictive procedure, the gastrointestinal (GI) tract is altered resulting in a physical reduction in the amount of food that can be ingested. The size of the stomach is reduced using devices, such as a band or staples, or actually removing part of the stomach. In a malabsorptive procedure the GI tract is altered so that the ingested food cannot be absorbed well. This is achieved by bypassing segments of the small intestine preventing digestion and intestinal absorption of nutrients. Most of these procedures are done laparoscopically because it allows the surgeon excellent visualization, minimal wound complications for the patient, and shorter hospital admissions.

The most common procedures performed in the U.S. are the Roux-en-Y gastric bypass and vertical sleeve gastrectomy (VSG). Gastric banding was popular in the 1990s and early 2000s with the FDA approval of the Lap-Band®, but has fallen out of favor due to complications with the device itself and the close and continuous follow-up that is required. It is, however, one of the procedures that is reversible. Table 1 lists all of the bariatric surgeries available.

In the Roux-en-Y gastric bypass, a small pouch that is the size of a ping-pong ball is made from the existing stomach that is connected to the esophagus and the remaining part of the stomach is disconnected. The small intestine is also connected to the pouch and the duodenum that is still attached to the disconnected portion of the stomach is rerouted and connected in the lower portion of the small intestine so that the digestive juices in the disconnected stomach can be eliminated. This is both a restrictive and malabsorptive procedure.

The vertical sleeve is less complicated. No portion of the GI tract is disconnected or rerouted. Using a special surgical tool, 80% of the stomach is removed and stapled to form a stomach that is the size of a small banana, rather than a football. It is a restrictive procedure that is non-reversible.

Approval Process
Even though there are numerous health and economic benefits to these bariatric procedures, the approval process by both the bariatric team and the third-party payers can take several months and possibly more than a year for the patient. The bariatric team, consisting of the surgeon, nurse and/or physician’s assistant, dietician, psychologist, support group, and possibly an exercise specialist, do several assessments of the patient. A thorough medical history is taken and a physical examination with blood chemistries and CBC with differential is done. A psychological evaluation is also done to determine if there are any mental or emotional issues that may interfere with the post-operative (post-op) weight loss process. A plan to cope with these stressors may be developed by the psychologist. The patient may be asked to keep a food log, start taking a multivitamin and calcium supplements, and instructed to follow a pre-surgery diet plan by the dietician. The patient along with a support person may also be required to attend a couple of educational and instructional sessions presented by members of the bariatric team about the surgical procedures and post-op instructions.

Requirements by the third-party payers can be very extensive. If the patient does not strictly follow these requirements, the third-party payers may delay the surgery or deny it completely. Some of the requirements may include:

- Extensive food logs up to 6 months
• Attendance of 3-12 bariatric support groups, live and online, for up to 6 months; must provide written proof of attendance

• History of weight loss or gain from the past 5 years provided by the patient’s primary provider

• BMI of > 40

Once all of the requirements have been met by the patient for both the bariatric team and the third-party payers and the surgery is approved, it is usually scheduled within a couple of months. The patient must, however, remain at baseline: not gain and/or lose any weight, maintain an HbA1c of 8 or below, and continue to follow the prescribed diet plans up to the day of surgery. Any change or deviation from the plan can and will result in cancellation of the surgery.

**Providing Pharmacy Services to Bariatric Patients**

Pharmacists are the most accessible health care professional to the patient and often available 24 hours per day, 7 days per week. If a pharmacy is located in an area that has one or more bariatric centers, stocking certain supplements and having the resources to compound certain medications can be a great support to these patients. The bariatric centers where the patients have their surgeries may not be close to their home and these patients often need to order their supplies online or stock up when at the bariatric centers during their appointments.

Pharmacists who work with bariatric patients must be knowledgeable about how drug absorption, as well as supplements, is affected by bariatric surgery. Some dosage forms are better for these patients and may need to be compounded to improve absorption and minimize adverse effects.

**Vitamin and Mineral Supplements**

Bariatric surgery patients are committed to a lifetime of taking vitamin and mineral supplements. They cannot ingest enough food and absorb all of the necessary nutrients to maintain good health. Good nutritional status is a marker for good health. It can have a significant effect on short- and long-term outcomes after surgery. Good nutritional status is important for wound healing, immunity, recovery time, metabolism, and helping release energy from food that is ingested. Table 2 lists the vitamins and minerals required for all types of bariatric surgery patients.

Since vitamin and mineral supplements are not regulated or standardized, choosing a good, quality supplement is a challenge. Less expensive supplements may not contain the type of vitamin or mineral form that has the best bioavailability and absorption. Since bariatric patients’ absorption is altered and not optimal, it is important to choose supplements that do contain forms that have the best absorption to maximize the nutritional value.

Complete multivitamins will contain the following: Vitamins A, C, D, E, K, B1, B2, B6, B12, niacin, folic acid, biotin, pantothetic acid, calcium, iron, iodine, magnesium, zinc, selenium, copper, manganese, chromium, molybdenum, and sodium. Some multivitamins may contain additional ingredients, such as mixed tocopherols, choline, coenzyme Q10, and boron. Find out the origin for each ingredient to maximize absorption. Some bariatric programs recommend to their patients popular children’s multivitamin; however, if the label is closely examined, the origin or salt form of each ingredient is not listed on the label and may contain salt forms that are not readily absorbed by the human body.

| **Table 2: Lifelong Supplement Therapy After Bariatric Surgery** |
|---|---|---|---|---|
| **Supplement** | **Dose** | **Dosage Form** | **Frequency** | **Comment(s)** |
| Complete Multivitamin (MVI) | 2 tabs | Chewable or non-chewable; no gummies | Daily | Do not take with calcium |
| Calcium citrate | 500 mg | Chewable or non-chewable; no gummies; soft-chews ok | 3 times daily | Do not take with MVI or iron |
| B-Complex | 1 cap | Chewable or non-chewable; no gummies | Daily for first 6 months | May be combined with MVI |
| Vitamin B-12 | 1000 mcg | Sublingual | Weekly | |
| Iron | 27-30 mg | Chewable or non-chewable | Daily if needed | Take with MVI |
Higher quality vitamins, such as those sold by vendors who cater to bariatric patients do list the origin or salt form of each ingredient. Table 3 lists the origin or salt form of each ingredient in a multivitamin that will have the best absorption.

To improve compliance, some bariatric supply vendors have multivitamins that are fortified or include the B-complex vitamins. Calcium citrate supplements also come in multiple dosage forms, such as soft chews, chewable tablets, and non-chewable tablets. They also come in a variety of different flavors. After surgery, some patients experience a change in taste and some flavors may be better tolerated by some patients than others. It really is a matter of patient preference. Pharmacies may want to provide samples so that the patients can “try it before you buy it”. Initially, patients should use the chewable dosage forms because they dissolve quickly and may be easier to tolerate. For a few months after surgery, patients are also instructed not to swallow tablets that are larger than the size of a dime and solid multivitamins and calcium supplements are large tablets.

For more information about vitamin and mineral supplements, some bariatric vendors provide health professional websites. There are also textbooks available about micronutrition for weight loss surgery patients. Pharmacists should include at

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Origin or Salt Form</th>
</tr>
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<tbody>
<tr>
<td>Vitamin A</td>
<td>75% natural carotenes and 25% palmitate</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Sodium ascorbate and ascorbic acid</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Vitamin D₃, cholecalciferol</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>d-alpha tocopherols</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Phytonadione</td>
</tr>
<tr>
<td>Vitamin B1</td>
<td>Thiamine mononitrate</td>
</tr>
<tr>
<td>Vitamin B2</td>
<td>Riboflavin</td>
</tr>
<tr>
<td>Niacin</td>
<td>Niacinamide</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>Pyridoxine hydrochloride</td>
</tr>
<tr>
<td>Folic Acid</td>
<td>Folic acid, methylfolate</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>Cyanocobalamin</td>
</tr>
<tr>
<td>Biotin</td>
<td>Biotin</td>
</tr>
<tr>
<td>Pantothenic acid</td>
<td>Calcium D-Pantothenate</td>
</tr>
<tr>
<td>Calcium</td>
<td>Calcium citrate</td>
</tr>
<tr>
<td>Iron</td>
<td>Ferrous fumarate, ferrous gluconate</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Magnesium Amino Acid Chelate; glycinate or lysinate</td>
</tr>
<tr>
<td>Zinc</td>
<td>Zinc Amino Acid Chelate</td>
</tr>
<tr>
<td>Selenium</td>
<td>Selenomethionine</td>
</tr>
<tr>
<td>Copper</td>
<td>Copper citrate</td>
</tr>
<tr>
<td>Manganese</td>
<td>Manganese Amino Acid Chelate</td>
</tr>
<tr>
<td>Chromium</td>
<td>Chromium Amino Acid Chelate</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Sodium molybdate dihydrate</td>
</tr>
</tbody>
</table>
Due to years of being overweight, some patients may experience light-headedness, sweating, diarrhea, and a rapid heart rate due to a high level of sugar or fat. Patients may experience "dumping," a syndrome commonly experienced when the patient must discontinue eating quickly and may be easier to tolerate. For a few people, it can also be used as a signal by the body to produce hormones, enzymes, and immune system antibodies to help the body function properly.

There are basically 2 types of protein source: plant-based and animal-based. Animal-based proteins, such as meat, fish, eggs, and dairy, are complete protein sources and contain all of the essential amino acids needed for the body to make new protein. Plant-based proteins, such as soy beans and peas, are incomplete protein sources because they are lacking one or more essential amino acids. Most protein supplements are whey (or dairy) based and are complete protein sources.

There are hundreds of protein supplements available in stores and online. They come in a variety of flavors and forms. Some are available as ready-to-use drinks and some are available as powders in premeasured packets or bulk containers with measuring scoops. Unflavored protein powders can be mixed with foods, such as yogurt, soup, pudding, or hot cereals to boost the protein content of food. If a patient is lactose-intolerant, and some bariatric surgery patients will develop it, recommend a soy-based or pea-based protein supplement. Patients do need to be careful about choosing a protein bar as a supplement. They may be high in calories, sugar, and have hidden carbohydrates that may stall the weight-loss process or cause "dumping" (definition on page 7).

Protein supplements are also not regulated or standardized, so again it is a "buyer beware" market. Since protein is a critical component for the health of a bariatric surgery patient, pharmacists should recommend a medical-grade protein supplement. Bariatric vendors do provide medical-grade protein supplements. Because bariatric patients vary so much in their tastes and preferences, pharmacists who provide services to these patients may occasionally have a sampling event where different recipes are prepared using various protein supplements that the pharmacy carries. Patients are then invited to sample them. These patients will appreciate this event because it will help them choose protein supplements that are tolerable for them.

**Compounded Medications**

One of the goals for most bariatric patients is to lose enough weight to resolve their comorbidities and discontinue their medications; however, initially after surgery, patients may need to take some medications short-term to treat some acute conditions and prevent complications from the surgery. Most of these patients cannot take large tablets or capsules and may require compounded oral liquid dosage forms or transdermal dosage forms.

A common problem after surgery is nausea. Although there are good commercial drugs available in oral dissolving tablet dosage forms, such as ondansetron, they may not be effective for all patients. Promethazine has been used for decades to treat nausea and vomiting, but it does produce profound drowsiness when taken systemically. Promethazine can be compounded into a pluronic-organoleptic (PLO) gel to minimize the drowsiness without compromising the antinausea effect. There are containers that provide measured doses of the gel and it is applied to the inner wrist of the patient. See formula 1.

### Formula 1

<table>
<thead>
<tr>
<th>Promethazine PLO Gel</th>
<th>2.5%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promethazine HCl powder, USP</td>
<td>2.5 g</td>
<td>5 g</td>
</tr>
<tr>
<td>PLO 20% Gel base</td>
<td>97.5 g</td>
<td>95 g</td>
</tr>
</tbody>
</table>

Mix ingredients using a high shear force. Transfer the contents to a container that provides metered dosing and prime the device for the patient. A 0.5 mL dose will deliver 12.5 mg (of 2.5%) or 25 mg (5%) promethazine. Assign a beyond-use date of 30 days at room temperature.

Rapid weight-loss can put a patient at increased risk of developing gallstones (cholelithiasis) and ultimately requiring removal of the gall bladder (cholecystectomy). Some bariatric surgeons will prescribe ursodiol for the first 6 months post-op to prevent or minimize this risk; however, the commercial ursodiol capsules are very large and may be difficult for a patient to swallow. Ursodiol can be compounded into a palatable oral suspension. See formula 2.

### Formula 2

**Ursodiol 60 mg/mL Compounded Oral Suspension SF**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ursodiol powder, USP</td>
<td>6 g</td>
</tr>
<tr>
<td>Glycerin, USP</td>
<td>To Wet</td>
</tr>
<tr>
<td>ORA-Blend® SF</td>
<td>QSAD 100 mL</td>
</tr>
</tbody>
</table>

**Preparation:** Add ursodiol powder to a mortar, add a small amount of glycerin, and mix to wet and suspend the powder. The contents of the commercial ursodiol capsules may be used instead of the API powder. Add a portion of the ORA-Blend® SF and mix until a smooth, uniform suspension is formed. Add sufficient amount ORA-Blend® SF to the desired amount and mix well. Package and label. Assign a beyond-use date of 90 days refrigerated or at room temperature.


Since the stomach has suffered significant trauma, it needs time to heal. Proton pump inhibitors (PPIs) may be prescribed initially for the first couple of months to decrease acid production in the stomach and to prevent stress ulcers caused by the stress of having surgery. Some patients are told to open the commercial capsules and pour the contents into applesauce or pureed food to take their daily dose. A simple and palatable alternative for patients is to compound the PPI into a smooth, oral suspension. Most PPIs can be compounded into an oral liquid dosage form. They are also in an alkaline-based vehicle which also helps to neutralize the stomach acid. See formula 3 and 4.

### Formula 3 and 4

#### Lansoprazole 3 mg/mL Compounded Oral Suspension

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lansoprazole 30 mg capsules</td>
<td>16 capsules</td>
</tr>
<tr>
<td>Sodium Bicarbonate powder, USP</td>
<td>4.2 g</td>
</tr>
<tr>
<td>Purified Water, USP</td>
<td>50 mL</td>
</tr>
<tr>
<td>ORA-Blend®</td>
<td>QSAD 100 mL</td>
</tr>
</tbody>
</table>

**Preparation:** Dissolve the sodium bicarbonate powder in the distilled water. Note: Sodium Bicarbonate 8.4% for Injection may be substituted for the powder and water. Add the contents of the capsules to the solution and mix until the beads are dissolved. Add sufficient amount ORA-Blend to the desired amount and mix well. Assign a beyond-use date of 90 days refrigerated. Package and label.


#### Omeprazole 2 mg/mL Compounded Oral Suspension

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omeprazole 20 mg capsules</td>
<td>10 capsules</td>
</tr>
<tr>
<td>Sodium Bicarbonate powder, USP</td>
<td>8.4 g</td>
</tr>
<tr>
<td>Stevia Powder*</td>
<td>1 g</td>
</tr>
<tr>
<td>Purified Water, USP</td>
<td>QSAD 100 mL</td>
</tr>
</tbody>
</table>

**Preparation:** Dissolve the sodium bicarbonate powder in the distilled water. Note: Sodium Bicarbonate 8.4% for Injection may be substituted for the powder and water. Add the contents of the capsules to the solution and mix until the beads are dissolved. *Note: Stevia is optional and masks the “quinine-like” bitter taste of the omeprazole. Add stevia with sodium bicarbonate to dissolve.* Add sufficient amount of purified water to the desired amount and mix well. Assign a beyond-use date of 60 days refrigerated. Package and label.

Due to years of being overweight, some patients may have developed arthritis and muscle pain, but can no longer take oral non-steroidal anti-inflammatory drugs (NSAIDs) due to the increased risk of developing ulcers. NSAIDs, such as ketoprofen, can be compounded into a PLO gel or cream and applied topically at the affected sight to reduce pain and inflammation locally. This dosage form avoids the gastrointestinal side effects of the NSAIDs. Although ketoprofen is commercially available in Europe and has been demonstrated to be effective for muscle soreness and acute soft-tissue injuries, it is not available in the United States and must be compounded. The typical compounded gel or cream is 5-10%.

When compounding an oral liquid, try to use a sugar-free vehicle, if possible, to try to avoid possible delay of weight loss and possible "dumping". Fixed-oil suspension vehicles should also be avoided, if possible, because it could be another potential cause for a bariatric patient to “dump”. Alcohol-based oral liquids, such as an elixir, may be problematic for bariatric surgery patients because the alcohol is rapidly absorbed into the bloodstream due to the physiological changes in the GI tract. A patient can become intoxicated twice as fast on half the amount of alcohol than a person with an unaltered GI tract.

Miscellaneous

There are a few additional, miscellaneous tips that may be useful for pharmacists and pharmacy staff to know when working with bariatric patients. Some bariatric patients will experience a runny nose or sneezing towards the end of a meal. It could be mistaken for an allergy, but it is not an allergy. It is a vagal nerve response to having a full stomach called gustatory rhinitis. Although it can be annoying for the patient, it can also be used as a signal by the patient to discontinue eating.

“Dumping” is a syndrome commonly experienced in gastric bypass patients, but not typically experienced by gastric sleeve or banding patients. It can occur when a patient ingests foods (or medicine) high in sugar or fat. Patients may experience light-headedness, sweating, diarrhea, and a rapid heart rate within 15 minutes after eating. A dumping episode can last a few minutes or several hours. Some patients describe it as feeling like a bad anxiety attack. There really isn’t anything that can be done to alleviate the symptoms of dumping syndrome once they begin and the patient usually has to go lay down and “ride out the storm” until the symptoms resolve. The best advice that can be offered to these patients is to avoid foods with high sugar or fat content.

A common and often chronic problem in bariatric surgery patients is constipation. This is due to the high-protein diet, calcium and/or iron supplements, dehydration, and lack of fiber in the diet. These patients have a difficult time eating enough fiber in their diet because they are told to focus and make sure that all protein is consumed first. Remind them to drink at least 48-64 fluid ounces daily, preferably water or a non-carbonated beverage. Any laxative is ok to use, but a daily fiber supplement should be recommended if the patient cannot get a sufficient amount of fiber through diet.

Because a bariatric patient’s anatomy has been altered, long-acting or sustained-release commercial products should not be used because they may not absorb properly and provide the desired therapeutic effect. Although these dosage forms are convenient, it is not an appropriate dosage form for a post-op bariatric surgery patient. Gummy dosage forms are also contraindicated in bariatric surgery patients. They do not dissolve well and can actually block the patient’s altered gastrointestinal tract, which may require medical intervention such as an endoscopy to remove it. They need to use an immediate-release product. Although there is no well-controlled randomized prospective data on drug absorption after bariatric surgery, there are case reports and in vitro evidence that drug absorption may be affected due to alterations in absorption, first-pass metabolism, volume of distribution, and half-life of drugs. An in vitro dissolution study by Searman et al showed increased dissolution of bupropion and lithium in the post-surgical model. Phenytin absorption has been demonstrated in post-surgical jejunoileal bypass patients and increased maintenance doses are required. Some antibiotics, such as erythromycin, amoxicillin, ampicillin, and macrodantin, have been reported to have reduced absorption. A patient who underwent a liver transplant after a jejunoileal bypass required twice the amount of cyclosporine to achieve therapeutic levels. Other drugs that may have decreased absorption include oral contraceptives, tamoxifen, warfarin, anti-tuberculosis medications, and thyroid hormones.
Conclusion

Post-surgical bariatric patients can be a challenge for pharmacists. They have altered anatomy that can affect absorption of nutrients and drugs. Pharmacists who provide services to these patients must be knowledgeable about the patients’ procedures and their nutritional needs and establish professional relationships with the bariatric teams in order to provide full support for this growing patient population.

References


Lap-Band® is a registered trademark of Apollo Endosurgery, Inc. ORA-Blend® is a registered trademark of Paddock Laboratories, LLC
Please circle the most appropriate answer for each of the following questions. There is only ONE correct answer per question.

1. In gastric bypass surgery, the gastrointestinal tract is altered by?
   A. Placing a band around the stomach to reduce its size to prevent the amount of food consumed.
   B. Removing 80% of the stomach to prevent the amount of food consumed.
   C. Bypassing segments of the small intestine to prevent absorption of nutrients.
   D. All of the above.

2. Which calcium supplement provides optimal bioavailability for a bariatric surgery patient?
   A. Calcium carbonate
   B. Calcium citrate
   C. Calcium gluconate
   D. Calcium chloride

3. Which dosage form is not suitable for a bariatric surgery patient to use or take?
   A. Oral liquids
   B. Sustained-release tablets or capsules
   C. Chewable tablets
   D. Sublingual tablets

4. All of the following proteins are complete protein sources except?
   A. Soy beans
   B. Fish
   C. Meat
   D. Dairy

5. If a patient is lactose-intolerant, a pharmacist may recommend a _______ protein supplement.
   A. Whey-based
   B. Pea-based
   C. Soy-based
   D. Soy- or pea-based
   E. All of the above.

6. Rapid weight-loss can put the patient at increased risk for?
   A. Cardiovascular disease
   B. Osteoarthritis
   C. Gallstones
   D. Stress ulcers

7. Dumping syndrome is caused by excessive intake of?
   A. Whey protein
   B. Sugar
   C. Alcohol
   D. All of the above

8. Compounded oral suspension of ________ can be used to prevent stress ulcers caused by the stress of having surgery?
   A. Promethazine
   B. Ursodiol
   C. Lansoprazole
   D. All of the above

9. Potential causes for constipation in a bariatric surgery patient are?
   A. Protein supplements
   B. Calcium supplement
   C. Dehydration
   D. Lack of fiber in diet
   E. All of the above
   F. A, B, and D only

10. The following drug classes may have decreased absorption in a bariatric patient except?
    A. Hormones
    B. Proton pump inhibitors
    C. Antibiotics
    D. Immunosuppressive

11. My practice setting is:
    A. Community-based
    B. Hospital-based
    C. Manage-care based
    D. Consultant and Other

12. Did this article effectively cover the topic and meet your educational needs?
    A. Yes
    B. No
    If no, please comment:

13. Do you think this article met all of the objectives stated on the first page?
    A. Yes
    B. No
    If no, please list any unmet objective(s):

14. Did you find that the learning assessment questions met your understanding of the information covered in this article?
    A. Yes
    B. No
    If no, please comment:

15. Do you think that the information provided in this article is current and potentially useful to you in your pharmacy practice?
    A. Yes
    B. No
    C. Not Applicable

16. Does the article convey perceptions of bias or commercialism?
    A. Yes
    B. No
    If yes, please comment:

17. Approximately how long did it take you to read the article AND respond to the test questions?

18. What topics would you like to see in future issues of Secundum Artem?

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<td>State</td>
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<td>License No.</td>
<td>Email Address</td>
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<td>Home Phone</td>
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</tbody>
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