

How are appointments scheduled?

MedStar Georgetown's BMSP staff will arrange all of your Infusion Clinic appointments.

Please remember:

- ESA appointment duration – approximately 45 minutes
- IV iron & ESA duration – approximately two hours

Prior to your appointment, please register by visiting the Admissions Department located on the first floor of the Main building. Also, you may call the BMSP office to have a team member meet you at one of the hospital's entrances and escort you to your appointment:

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MedStar Georgetown University Hospital Bloodless Medicine and Surgery Program

ANEMIA MANAGEMENT

Anemia management is a core principle of MedStar Georgetown's Bloodless Medicine and Surgery Program (BMSP). We hope this pamphlet will help you better understand anemia and its management.

What is anemia?

Blood has two major components. On one hand, there is plasma that is clear yellow liquid containing proteins, nutrients, hormones, electrolytes and other substances – about 55 percent of blood is plasma. On the other hand, is the cellular portion including white cells (infection fighters), platelets (blood clotting agents) and red cells (oxygen carriers). It is the red blood cells that help nourish tissue with oxygen and impact anemia.

Anemia is a condition that develops due to a lack of healthy red blood cells, which contains hemoglobin. When your hemoglobin level decreases and less oxygen is delivered to your tissue, you are diagnosed as being anemic. The "normal" hemoglobin ranges are as follows:

Men	13 g/dl – 16 g/dl
Women	12 g/dl – 15 g/dl

There are many types of anemia. The most common is iron-deficiency anemia, which occurs when your body lacks iron that helps produce hemoglobin. This lack of iron can be caused by blood loss, inadequate iron consumption or inadequate absorption of iron by your body. Also, there is anemia associated with certain cancers, auto-immune diseases, long-term infections, liver cirrhosis, heart failure or chronic kidney disease.

How does the BMSP manage anemia?

Our goal is to get your hemoglobin level to 13 g/dl. Depending on the complexity of your surgery and potential for significant blood loss, we may also focus on increasing your hemoglobin count to a level at the top of the normal range.

With protocols for patients who are having surgery within a two-week (urgent) or four-week (routine) timeframes, we start the process by drawing your blood to measure your hemoglobin and iron levels. This data will guide us in determining the type and amount of medication needed to achieve optimal levels. The two types of medications used are iron supplements and erythropoietin stimulating agents.

Iron Supplements

Iron supplementation is an important part of anemia treatment. Based on your iron levels, you may be prescribed IV iron Ferric Gluconate or iron pills.

Ferric Gluconate

If your iron level is low and you are planning to have urgent surgery, IV iron is the preferred supplement. This approach allows Ferric Gluconate to restore iron levels rapidly. During one-hour treatment sessions, you will receive 125-250 mg of this medication via an IV at MedStar Georgetown's Infusion Clinic. Many patients require three sessions prior to surgery. A nurse will monitor you throughout the entire process.

Chromagen Forte

For routine surgeries, Chromagen Forte is preferred. Chromagen Forte combines iron, vitamin C, folic acid and vitamin B12. Antacids or antibiotics should not be taken within two hours after taking this iron supplement. If you miss a dose, take it as soon as you remember; or, if it is almost time for your next dose, skip that dose and continue your normal schedule. If you experience any side effects while taking this supplement, contact the BMSP office immediately.

Over-the-counter alternatives include: Gentle Iron, Vitron C, Slow Fe, and Proferrin ES. When taking iron pills, it is important to take vitamin C which aides the absorption of iron into the body.

Iron Supplement Side Effects

Side Effects	Ferric Gluconate	Oral iron
Constipation	✓	✓
Upset stomach	✓	✓
Black/dark colored stools		✓
Temporary teeth staining		✓
Hypotension	✓	
Muscle cramps	✓	
Joint pain	✓	
Diarrhea	✓	
Swelling in the extremities	✓	
Chest pain	✓	

Erythropoietin Stimulating Agents (ESAs)

Erythropoietin is a protein that is produced by your body. Its primary function is to stimulate the production of red blood cells. The elderly as well as those with kidney failure or certain inflammatory diseases often have low levels of erythropoietin. The two types of ESAs that we use are epoetin alfa (Procrit) and darbepoetin (Aransep), which are injected at our Infusion Clinic. For routine anemia management, you will receive one dose weekly for three weeks prior to surgery. For urgent anemia management, you will receive three doses prior to surgery.

ESA Side Effects

Since ESAs can cause blood clots in surgical patients, we use post-surgical treatments to prevent clotting. Also, ESAs may cause the progression of tumors or the recurrence of certain breast, head and neck, lymphoid, cervical or lung cancers.

Other side effects include swelling, rash, fatigue, joint pain, dizziness, cough, fever, diarrhea, congestion, headache, high blood pressure, accelerated heart rate and nausea.

NUTRITION & SURGERY

Your nutritional status plays an extremely important role in your body's response to surgery as well as your recovery after surgery. Malnourishment or under-nourishment causes loss of muscle tissue, suppresses your immune system, reduces energy reserves, and places you at greater risk for surgical complications and longer recovery times. Some simple steps can be taken to help your body reduce the stress of surgery:

Eat a Balanced Diet

Start your pre-surgery preparations by making sure your diet is well-balanced, with a combination of high-quality proteins, complex carbohydrates, and unsaturated fats to ensure you are getting the proper nutrients, vitamins, and minerals to support your bodily needs. Proteins are important for maintaining lean muscle mass and promote healing. Carbohydrates and fats provide energy for all the metabolic needs of the body. Nutrition should consist of more carbohydrates (55% of caloric intake), less fat (20-25%), and the remainder, protein (10-12%). Saturated fats (e.g., fried foods, pastries, etc.) should be avoided.

Eat Energy-rich Foods

Energy-rich foods should be an integral part of your pre-surgery dietary plan. These foods help nourish your body with vital nutrients and fuel its energy needs: *whole grains, beans, legumes, lean meat, soy protein, yogurt, fruits (i.e. apples, oranges, bananas), potatoes, low-fat milk, nuts (e.g. walnuts, almonds, cashews).*

Eat Iron-rich Foods

Iron is an important nutrient to promote production of red blood cells, maintain a normal blood count, and prevent iron-deficient anemia. Some high quality iron-rich foods are: *liver, oysters, shrimp, mussels, lean cuts of meat, enriched breakfast foods, cooked beans and lentils, baked potato with skin.*

Drink Plenty of Water

Water is one of the most essential components of your diet. Your body consists mostly of water and it needs daily replenishment. You should drink a minimum of ten-to-twelve, eight ounce glasses a day.