

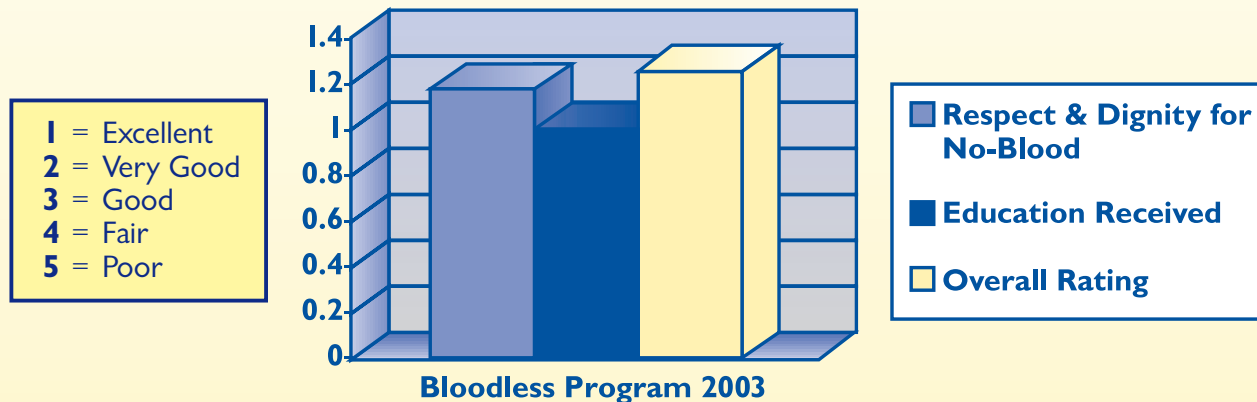
Glancing Back & Looking Forward

The Bloodless Medicine & Surgery program is in its eighth year of service. When some of the programs were started, they were viewed as a “passing fancy”. Now, we are seeing large reputable centers in other cities starting programs.

Not only does the Bloodless Program benefit patients, but also it has proven its value in driving Blood Conservation technology. A bulletin board last month at Kadlec Medical Center featured many Performance Improvement Success Stories. One story was how Cardiovascular Surgery is being performed with a reduction in blood products for all patients undergoing Open Heart Surgery.

Kadlec Medical Center & Tri-City Regional Surgery Center recognize that patients deserve care, treatment, and services that safeguard their personal dignity and respect their cultural, psychosocial, and spiritual values. Since these values often influence a patients’ perception and needs, we want to understand and respect your values.

If you have been a patient here or are considering our centers for future healthcare, you may wonder how we are doing in this regard. According to the evaluation forms we have received back from patients, the following chart shows how we rated.



Rate the Overall Quality of Care of the Bloodless Medicine and Surgery Program

Excellent Very Good Good Fair Poor

Rate the staffs’ respect and dignity for your wishes for non-blood care.

Excellent Very Good Good Fair Poor

Rate the education and information you received regarding the Bloodless Medicine and Surgery Program.

Excellent Very Good Good Fair Poor

1 2 3 4 5



Amazing Red Cells



All blood cells are produced in the **bone marrow**. Bone marrow that produces red cells is called red marrow. Bone marrow that no longer produces blood cells is called yellow marrow. The process by which the body produces blood is called **hematopoiesis**. All blood cells come from the same type of cell, called the pluripotential **hematopoietic stem cell**.

This group of cells has the potential to form any of the different types of blood cell and to reproduce. This cell then forms committed stem cells that will form specific types of cells.

The Red Cell eventually loses its nucleus and leaves the bone marrow as a **reticulocyte**. Red blood cells last an average of 120 days in the bloodstream. When red blood cells age, they are removed by the liver and spleen.

A hormone called erythropoietin and low oxygen levels regulate the production of red blood cells. Erythropoietin stimulates production of red blood cells by stimulating the stem cells to become red cells. Ninety percent of erythropoietin is made in the kidneys. Persons with kidney failure become anemic (lack of red cells) due to lack of erythropoietin.

Did you know that there are several types of red cells and each person has red cells of just one type? The type of red cells you have determine your Blood Type!

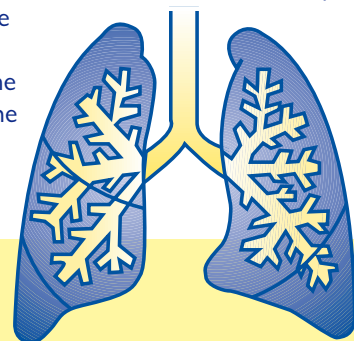


Normally, a little less than 1% of the body's total red blood cells are produced each day and these replace an equivalent number that have reached the end of their life span. However, that still represents a huge 200,000,000,000 cells. Since red cells are the most numerous of all blood cells in the blood, they are produced at a rate of 4-5 billion every hour in an adult human.



Red cells contain hemoglobin, a protein that carries oxygen. Every time you breathe in, the red cells absorb oxygen through the little alveoli in your lungs and deliver it to all the muscles, tissues and organs in your body. To do this, they have to travel through large arteries and tiny capillaries. Sometimes the capillaries are so small, the red cells have to squeeze and bend themselves in half to get through and release their load of oxygen. The red cell is very flexible, like a soap bubble, and can bend in many directions without breaking. This enables them to bend and twist to maneuver single file, if necessary.

But that is only half the trip. Once they deliver the oxygen, they pick up a waste product called carbon dioxide. The return trip back to the lungs is through the veins. The carbon dioxide is released every time you breathe out. Then the red cells start the trip all over again. The round trip is usually accomplished in an amazing 30-45 seconds!



Bloodless Medicine (It's not just about Bloodless Surgery)

To ensure that our blood can conduct its many important functions, we need to provide the body with enough essential nutritional building blocks to produce healthy blood cells.

We also need to protect ourselves against harmful substances that can damage blood cells or the organs that make them.

Three nutrients-iron, vitamin B12 and folic acid are required by the bone marrow to produce healthy blood cells. Vitamin B12 and folic acid are necessary for the division of cells. Without sufficient iron, the body cannot produce enough hemoglobin to deliver the oxygen needed to keep cells nourished. The lack of sufficient red blood cells and hemoglobin results in anemia.

You can protect yourself against anemia caused by a vitamin or mineral deficiency by eating a balanced diet.

Many people's protein status tends to decline with age. They may not all be members of the frail tea-and-toast crowd. You may feel pretty good and not be excessively thin and still have low albumin concentrations. Albumin is a protein in the blood that serves as a marker not only for protein status, but also for nutrition status generally. If your albumin level is low, your chances for postoperative complications such as infections or pneumonia rise from 10 to 65 percent. Your risk of dying jumps from less than 1 percent to 29 percent.

Low albumin levels are not rare in people in their sixties and older. In the original finding, known as the national Veterans Affairs Surgical Risk Study (1999) almost one in four participants had low albumin.

Harmful Substances

There are several substances that could damage either blood cells or the organs that make them. These might include drugs you may be taking to treat other conditions and chemicals that you may come into contact with in your job or at home. Drugs used to treat rheumatoid arthritis, such as gold compounds can be dangerous to the developing blood cells of those who are sensitive to them. Certain antibiotics can cause severe damage to the bone marrow (where blood cells are made). Even common over-the-counter drugs, such as aspirin and nonsteroidal anti-inflammatory drugs (such as ibuprofen) may play a role in blood disorders.

They can cause irritation of the stomach lining and gastrointestinal bleeding.

To lessen irritation, these drugs should be taken with food and should not be taken in combination.

If you are taking a medication and suffer any adverse reaction such as fever, rash, unusual bleeding, you should stop taking the drug immediately and seek medical attention.

"Normally, there would be pain with internal bleeding, but the combination of ibuprofen and prescription anti-arthritis drugs is so potent that a patient may not feel a thing until he 's severely anemic and has a big hole in his belly."

*James W. Cooper,
Professor of pharmacy at
University of Georgia*

Cancer can also pose a risk to blood cells, either by involving blood-forming organs or by effects of the treatment for cancer. The treatment for cancer often includes radiation and chemotherapy, both of which kill blood cells as well as other cells. Exposure to radiation damages blood cells and cell production. That is why people who work around radiation equipment wear badges to record the amount of exposure. Chemotherapeutic drugs used to treat cancer and related disorders affect bone marrow, and dosages must be carefully adjusted to avoid severe damage.

Toxic chemicals such as benzene and related compounds (solvents, rubber cement, and some insecticides) can destroy very young blood cells. Immature cells that would normally develop into mature blood cells can be killed in the bone marrow of people exposed to these harmful chemicals.

Many blood disorders do not cause symptoms until they are very far advanced. Because many of these disorders are more easily and successfully treated early, periodic checkups that include a complete blood count, urinalysis, and certain blood tests may be recommended. Blood chemistry tests can sometimes provide information about less common blood disorders.

Some blood disorders are inherited. If there is a history of a blood disorder in your family, you should be aware of the risk of having the same disorder. Women who have blood disorders in their families may consider preconceptional testing if they are thinking about having a baby.

If your doctor thinks you have a blood disorder, you may be referred to a hematologist, a physician who specializes in diseases of the blood. Some hematologists also specialize in oncology; in addition to treating blood disorders, they treat cancer.



Bloodless Information

Medicine & Surgery



Advance Directive Workshop

When: Saturday, January 17, 2004
Where: **Kadlec Medical Center**
888 Swift Blvd. • Richland
Cascade I & II Rooms, North Wing
2nd Floor
Time: **6:00 - 8:00 p.m.**
Call: **800-780-6067, ext. 2817
or 942-2817**

Reservations required -
Class size limited to
30 people
Refreshments provided



Valuable is the work you do.
Outstanding is how you always come through.
Loyal, sincere and full of good cheer,
Untiring in your efforts throughout the year.
Notable are the contributions you make.
Trustworthy in every project you take.
Eager to reach your every goal.
Effective in the way you fulfill your role.
Ready with a smile like a shining star,
Special and wonderful—that's what you are.

—unknown

Thank you, Eve Hughes, for dedicating your Fridays to our Bloodless Program this past year!



Kadlec Medical Center
Tri-City Regional Surgery Center

Bloodless Medicine &
Surgery Program
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Richland, WA 99352

Phone: 509-942-2817
Johnean Hansen, Coordinator

www.kadlecmed.org

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ADDRESS SERVICE REQUESTED

New Bloodless Program Participating Physicians:

- Eltigani Abdelhai** - (Hospitalist)
- Brooks Watson** - (Hospitalist)
- Sun Park** - (Hospitalist)
- Jameel Durrani** - (Internal Medicine - Pulmonary)
- Eduardo Gembs** - (Family Practice)
- Lionel Zolessi** - (OB/GYN)
- Gene Daffern** - (Anesthesia)

NEED A PHYSICIAN?

If you need a physician referral, please call the program coordinator, Johnean Hansen at (509) 942-2817 or 1-800-780-6067 ext. 2817.

If you are looking for the Bloodless Medicine program office, it is located at the Kadlec Medical Center campus, second floor of the new North Addition in Quality Care Management.

**Next
Issue:
AMAZING
PLASMA!**