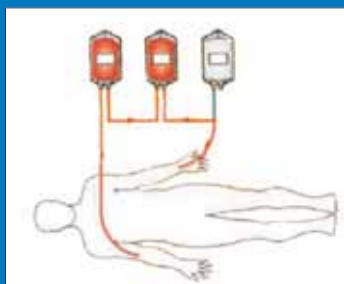


Technology Corner

Acute Normovolemic Hemodilution (ANH)



THIS BLOOD process can be performed by anesthesiologists during surgery when high volumes of blood loss are anticipated and when blood salvage (cell-saver) equipment is not available or desirable. Whole blood is removed from the patient immediately before surgery and replaced with IV fluids (volume expanders). As a result, blood lost in the surgical field is diluted, containing fewer red blood cells. At the end of the surgical procedure, the blood is returned to the patient.

Staff Changes

Stacy Welch-Uhles, RN, joined the department in the fall of 2004.



Graduating from Mercy School of Nursing in Des Moines, Iowa, and a veteran Banner Good Samaritan employee, Stacy worked in the Cardiovascular Surgical Intensive Care Unit for 14 years and in the Cardiac Cath Lab for one year. She also taught Intra-Aortic Balloon Pump classes for Datascope. Her role is to ensure adherence to blood conservation policies, educate patients regarding transfusion alternatives, and keep our nurses

informed on the advancements in blood conservation technology. With her depth of experience, Stacy is a welcome addition to our team!

Robyn McKee, RN, our former coordinator for two years, has been promoted to Nursing Management, but maintains close ties with our program.



Next Issue

- Treating Anemia in Pregnancy-Future Directions
- Blood Management in Spine Surgery: A Neurosurgeon's Perspective
- Update: Blood Substitutes

Our Mission

We exist to make a difference in people's lives through excellent patient care.

Education *continued from page 1*

informed is vital to a program's success. If you missed this seminar, mark your calendar for Saturday, March 12, 2005 (see Calendar of Events).



The last Blood Conservation seminar drew a capacity crowd to Banner Good Samaritan's new Sandstone Conference Center

BLOOD CONSERVATION MEDICINE "A Structural Solution to Blood Management"

Advisory Board	Paul Stander, MD Associate Director
Thomas Matiski, MD Medical Director	Richard Melseth Administrative Director
Frank Agnone, MD Associate Director	Stacy Welch-Uhles, RN Clinical Coordinator
Robert V. Stephens, MD Associate Director	PH (602) 239-6070 PH (877) 815-3114 FAX (602) 239-4268
Pierre Tibi, MD Associate Director	

Calendar of Events

PUBLIC FORUM - Saturday, March 12, 2005

"Blood Conservation in Patient Care-Treatment Strategies You Should Know"
Banner Good Samaritan Medical Center
Sandstone Conference Center, Main Lobby
1:30 to 3:00 p.m.



**INTERNATIONAL
MEDICAL CONFERENCE**
September 16-18, 2005
Society for the Advancement
of Blood Management
SABM Symposium 2005
Arizona Biltmore Resort &
Spa; Phoenix, Arizona

Contact Us if You Wish . . .

- **Referral** - If you are a patient seeking referral to a participating primary care physician or surgeon, please call (602) 239-6070 or toll-free 1-(877) 815-3114 outside Phoenix. E-mail: BloodConservation@BannerHealth.com
- **Office Consultation** - to better understand transfusion alternatives or receive help with preparing advance medical directives and living wills.

BLOOD CONSERVATION MEDICINE

A Community Publication • Winter 2005



**Banner Good Samaritan
Medical Center**



In This Issue:

- Update in Heart Interventions
- Herbal Remedies Affecting Bleeding
- Surgical Blood Management in Gynecology
- Preparing for Surgery: Giving Your Doctor Guidance

Leading the Education Drive

Richard Melseth, Director

INTEREST in blood management and transfusion alternatives was demonstrated when over 140 persons attended the public forum "Blood Conservation in Patient Care-Treatment Strategies You Should Know" on November 20th in the new Conference Center.

The benefits of a total planned approach to patient care that combines blood conservation strategies to improve outcomes was highlighted. Doctor Frank Agnone, special guest speaker and a medical consultant for

the Blood Conservation Medicine Program explained the internist's role in blood management. "The hallmark of our effectiveness is health care maintenance." He continued, "We can no longer only treat disease, we have to prevent it" and explained the value of screening guidelines which were shared with the audience. "Early detection and vigilance can eliminate the need for some surgeries" and subsequent blood requirements.

Bloodless and blood conservation programs continue to be patient-driven. Therefore, keeping the community

continued on page 6

Return Service Requested

**Banner Good Samaritan
Medical Center**
Blood Conservation Medicine
1111 E. McDowell Road
Phoenix, AZ 85006

Physician Focus: Giving your Doctor Guidance

Thomas J. Matiski, M.D.
Medical Director

AN ESSENTIAL aspect of successful out-



comes in patient care is effective patient-to-doctor communication. The patient electing treatment and seeking the best in

blood management strategies should consider these reminders:

1. Choose the right doctor. Not all surgeons and medical practitioners are equally skilled in bloodless management.
2. Give early attention to your red blood cell count. Do not wait for the day of surgery - take an active role early so

anemia can be corrected.

3. Seek coordinated care. Our experience convinces us that cooperation and harmony between the medical and surgical team, including anesthesiologist, gives you the best and most options.
4. Understand both the possibilities and limitations of bloodless management. Your personal choices and "conscience matter" decisions can greatly impact the treatment and surgical options available to you. Therefore, give early attention to Advance Medical Directives.
5. Give the physician(s) as much guidance as you can. Much stress and anxiety can be alleviated when questions and treatment options are thoroughly discussed. Do not be embarrassed to ask for an explanation. Your physician should be your main advocate and source of information.

Of course, in emergency situations, time restraints may limit your access to some of these options. This is when forethought and good planning are wise.

Banner Good Samaritan services offering bloodless options:

- Open-Heart surgery
- Cardiology
- Brain surgery
- Spine surgery
- Gynecology/Obstetrics
- High-Risk Obstetrics
- Orthopedic surgery
- Cancer surgery
- Vascular surgery
- General surgery
- Transplantation (Kidney/Pancreas)
- Urology
- Ear, Nose & Throat surgery
- Internal Medicine
- Family Practice

REPLY FORM

Name _____ Phone: _____

Address _____

City _____ State _____ ZIP _____

- Contact me; I wish to schedule a presentation about Blood Conservation Medicine to my organization/group
- Send me more information regarding the Banner Good Samaritan Blood Conservation Medicine program
- Send me a list of participating primary-care (Internal Medicine, Family Practice, OB/GYN) physicians
- Send me a list of specialty physicians in the field of _____
- I wish to make a donation to the Banner Health Foundation/Blood Conservation Education Fund and receive _____ (Qty: 1-4) NO BLOOD medical alert key chain(s) (below). Check is enclosed.
- Please remove my name from your mailing list



Mail to:
Banner Good Samaritan Medical Center
Blood Conservation Medicine, ANC 2
1111 E. McDowell Road
Phoenix AZ 85006

Frequently Asked Questions

Richard Melseth
Director

My doctor is recommending an angiogram. Does it matter where I have this procedure?

Yes, especially if the test shows an urgent need for open heart surgery. Studies report that blood loss from angiograms and the use of blood thinners predispose open heart patients to blood transfusion. If you wish to avoid a conflict with your choice of bloodless care or seek better management of your blood, there are clinical and emotional advantages to starting where you can finish.

My doctor says he will respect my wishes. Should I get another opinion?

Has your doctor answered your questions thoroughly? Is your

doctor experienced in blood conservation techniques? If complications arise, such as unexpected blood loss, what will the doctor do? If you are not satisfied with the answers, then yes, get another opinion. Call us.

Can organ transplants be done without blood transfusion?

Yes. Kidney and pancreas transplants are common. Some blood conservation centers specialize in liver, heart, and bone marrow transplantation without blood support-which push the limits of bloodless technology.

Do all hospitals have blood conservation programs like yours?

Over 100 hospitals in the United States report having

some form of a blood management program. Not all are the same. For some it means having blood salvage equipment; for others, a listing of participating doctors. Our program encompasses a total approach to patient care that includes:

- Established core team of physicians
- Medical staff with the longest experience in bloodless healthcare
- Hospital-wide policies governing blood conservation in patient care
- Blood conservation education programs for patients, nurses, and physicians
- Clinical consultations
- Outpatient Treatment Center to correct pre-surgical anemia
- Ongoing research and evaluation to improve patient outcomes.



Should we come to Banner Good Samaritan?

Your support keeps this program available.

How can I utilize your department's resources?

Call us at 602-239-6070 or toll-free, 1-877-815-3114 or E-mail BloodConservation@BannerHealth.com.

Medical Corner: Herbal Remedies and Bleeding

Stacy Welch-Uhles, RN
Clinical Coordinator

MEDICINE described as "natural" or



"herbal" does not mean it is harmless or completely safe. "A patient should inform their physician what herbs they are

taking prior to surgery" cautions Doctor Phillip Rubin, Internal Medicine and Infectious Disease specialist at Banner Good Samaritan Medical Center. "Certain herbs can cause bleeding."

ing, heart function, metabolism, immunity and recovery in many different ways.

A main concern for surgical patients using herbs is excessive bleeding. The risks of excessive bleeding are compounded in patients who are already taking warfarin (Coumadin), a common blood-thinner that reduces the chances of stroke in patients with atrial fibrillation and in those prone to blood clots.

Herbs that can **inhibit clotting**.*

- Garlic, Ginger, Ginseng, Dong Quai, danshen, Chamomile, Dandelion root, Horse Chestnut

Herbs that may reduce the number of platelets and thus **interfere with blood clotting***:

- Ginkgo Biloba, Bilberry, Bromelain, Don Quai, Feverfew, Fish Oil, Flax Seed Oil, Garlic, Ginger, Grape Seed Extract, St John's Wart, Devils Claw, Eleuthero, Valerian

Recommendations:

- Always tell your physician what herbs you are taking
- If you are scheduled for surgery, ask your doctor how far in advance of your procedure you need to stop taking herbs

- If you are having surgery on short notice, try to bring your herbal supplements with you to the hospital or surgical center; keep them in their original containers so the surgeon and anesthesiologist can review the dosage and strength information.

- Stop taking all herbs *two to three weeks prior to any surgery* because different herbs remain in your body for different lengths of time.

Doctors and their patients should be aware of herb-drug interactions. Informing your doctors of all herbs and medications and discontinuing them will enhance blood conservation during your surgical procedure.

**Anesthesiology Clinics of North America, March 2004; "Perioperative Anesthesia Clinical Considerations of Alternative Medicines"*

Banner Good Sam Facts

- 1800 physicians on staff
- 34,000 patients per year
- 678 licensed beds
- 16 operating rooms in Main O.R.

Clinical Focus: Update in Interventional Cardiology

Nathan Laufer, M.D., FACP, FACC, FRCPC
 Director, Interventional Cardiology Fellowship Program; Banner
 Good Samaritan Medical Center
 Medical Director, Heart and Vascular Center of Arizona

HEART SURGERY is often associated with significant blood loss.



Our total approach to cardiac care includes the commitment of cardiologists to the best treatment options for our patients while optimizing blood management. We asked Nathan Laufer, M.D., one of our leading participating cardiologists, to explain his approach and the latest technologies he offers our patients. - Richard Melseth

Coronary Artery Disease

Coronary artery disease is a slow-ly progressive disorder involving the accumulation of cholesterol plaque within the wall of the blood vessels supplying the heart muscle. If left untreated, this plaque could rupture and cause a complete occlusion of blood flow to the heart muscle, which would lead to a heart attack.

Early Coronary Treatments

The traditional approach to treating coronary artery disease has been to open up the chest and bypass the blocked blood vessels surgically. This can lead to occasional blood loss and is thus less than ideal for patients seeking bloodless care at Banner Good Samaritan.

Over the last 25 years non surgical techniques have evolved to

the point that bypass surgery can be completely eliminated in many patients. In the early years, balloon angioplasty was performed. This involved entering the artery in the groin and threading up a small balloon catheter to the coronary narrowing. The balloon would be inflated for one to two minutes, stretching the plaque. However, up to 50% of patients would need a second procedure because of re-narrowing from scar buildup.

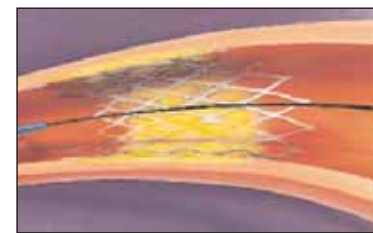
For long diffuse narrowings, a rotablator has been used. This is similar to a small drill bit that rotates at 200,000 rpm's. This made the procedure more successful in many more patients, but the re-narrowing rate by 6 months was unchanged from balloon angioplasty.



Coronary Rotablator

Coronary Stents

In 1995, coronary stents were approved by the FDA. This is a circular mesh that is crimped on a balloon. It is delivered to the plaque and expanded. The balloon is withdrawn, leaving a circular metal strut across the dilated plaque. It was thought that this stent would stop the rebound re-narrowing. However cells could continue to grow within the stent, and the re-narrowing rate, although less than with balloon angioplasty, was still 20 to 30 %.



Coronary Stent

Several techniques were used to decrease the re-growth

continued on page 4

Clinical Focus continued from page 3

within the stents. The first was radiation treatment. If stents re-narrowed, they would be stretched back open with a balloon. Then a catheter with radioactive energy would be placed within the stent for 2 to 5 minutes. With this, the re-narrowing rate fell further. However this required a second procedure to deliver the radiation to the re-narrowed arteries. Because the new re-growth within the plaque looked like a cancer under the microscope, that is, actively dividing cells, chemotherapy drugs were investigated. This led to the current drug coated stents that are coated with anticancer drugs.

The FDA approved these new stents in 2003. The re-narrowing rate with these new stents has fallen from 50% to 4%. This has allowed cardiologists to treat many more patients and replace bypass surgery permanently in many.

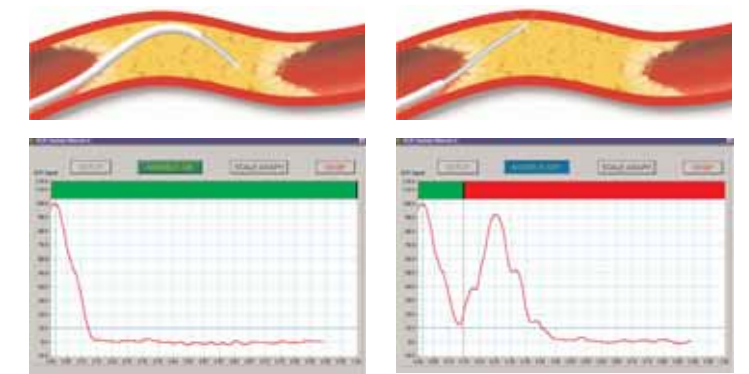
Chronic Total Occlusions

Complete occlusions of the coronary artery have been the Achilles heel of interventional cardiology. If associated with chest pain, these patients have needed bypass surgery until recently. There are two new devices that are now available to open up these chronically closed vessels. One is the Lumend Fronrunner device which works like flat scissors to stretch a new opening. The second device is the Safecross catheter. This catheter emits light that rebounds off the vessel wall. A computer then analyzed the rebounded light to determine if the catheter is against the vessel wall or angled into the occluded channel. It will allow firing of radiofrequency energy only when the catheter is away from the wall, thus minimizing the chance for creating an opening in the wrong place. Once a small opening is established, a drug coated stent can be placed to widen the



Fronrunner CTO Catheter

occluded channel. It will allow firing of radiofrequency energy only when the catheter is away from the wall, thus minimizing the chance for creating an opening in the wrong place. Once a small opening is established, a drug coated stent can be placed to widen the



Artery wall not detected

Artery wall detected

The Intraluminal Safecross® catheter for chronic totally occluded arteries can detect sensitive arterial walls, minimizing the occurrence of opening an artery.

artery and maintain permanent normal blood flow.

Summary

Interventional cardiology has undergone a tremendous evolution in the last twenty years. It is rare that coronary artery disease patients require coronary bypass surgery today. With our new techniques, the immediate success rate of opening up the artery is almost 100%, with a long term success rate of over 95% in avoiding the need for a second procedure or the more aggressive bypass surgery.

These minimally invasive techniques certainly have great appeal for patients in the Blood Conservation Medicine program at Good Samaritan. Our approach involves careful attention to all aspects of the interventional procedure. Care is taken to have an experienced operator place the catheters in the groin artery. We use the lowest possible amount of blood thinners during the procedure and none afterwards. In addition we are more likely to use a collagen plug in the groin. This minimizes the chance of any bleeding after the procedure. By using these minimally invasive techniques with the added attention to all details related to blood thinning, the risk of blood loss is decreased markedly. Patients are able to be discharged within 24 hours to resume normal activity.

Innovations and Solutions in Gynecologic Surgery

Steven G. Nelson, M.D., FACOG
 Obstetrics/Gynecology/Infertility

STATE-of-the-art instruments in the hands



of a skilled surgeon greatly limit blood loss during hysterectomy. We asked Steven G. Nelson, M.D., one of our participating gynecol-

ogists, to explain his blood management approach when treating patients. - Richard Melseth.

There have been many recent advances in the field of "minimally invasive surgery"

that contribute significantly to the bloodless objective. When surgeons began performing operations via small incisions (laparoscopy, arthroscopy, etc.), blood loss was limited by using smaller incisions, though blood loss from the actual surgery remained essentially the same. The use of new electrical and ultrasonic instruments has contributed to even lower blood loss. Some authorities also theorize that pain is reduced when these instruments are used during surgery.

Among the latest developments are "tissue sealing" devices. These instruments use a computer-controlled current flow to literally "weld" tissue and blood vessels, similar to a "seal-a-meal" using LigaSure® technology (see photos). The instruments then cut the tissue, leaving a perfectly sealed edge with minimal lateral tissue damage, which promotes rapid healing. In gynecology especially, the tissue sealing devices are proving very valuable. For both

laparoscopic and vaginal surgeries, large areas of tissue can be readily sealed with minimal blood loss.

An increasing popular surgery to treat abnormal uterine bleeding and large fibroid tumors is the "supracervical hysterectomy". In this procedure, the uterus is detached from its connections (blood vessels, ligaments, etc.), and then the uterus is disconnected from the cervix, which is left in place for the support it provides to the vagina, preserving the nerves that pass through it going to the bladder and vagina. This is believed to help preserve bladder and sexual functioning after surgery. The uterus is then removed through the belly button using special instruments. Thus, even a large uterus and fibroids can be removed via three half-inch incisions, with minimal blood loss.

For women suffering from heavy vaginal bleeding, another alternative to

continued on page 4

Innovations and Solutions continued from page 3

hysterectomy is "endometrial ablation," a procedure where a device is inserted into the uterus through the vagina and the lining of the uterus is destroyed using electricity, heat, cold, or microwave energy. Many of these patients can resolve their bleeding problems with these procedures that involve minimal discomfort and rapid recovery.

These techniques are all somewhat new, but have been proven by extensive experience. Not all gynecologists are familiar with these procedures or instruments. Consumers need to be aware of the revolution in most surgical fields,



The Ligasure "tissue sealing" system cuts (left) and seals (right) to minimize blood loss.



especially gynecology, where new approaches have brought important

advances in dealing with women's health problems.