

The Center for

BLOODLESS MEDICINE & Surgery

at Pennsylvania Hospital

YOUNG AT heart

“The comfort level we experienced with Dr. Ford and the medical and nursing staff was overwhelming.”

— JOSEPH TIMPANARO, CBMS PATIENT

Joseph Timpanaro is a husband, father, grandfather and great-grandfather. He’s an avid sports fan and, according to his wife of 32 years, a “jock” who still plays golf and basketball. The couple also enjoys traveling and dancing.

When asked about his retirement plans, this 74-year-old self-employed print salesman will tell you he has no intention of slowing down anytime soon. Thanks to quadruple bypass surgery at the Center for Bloodless Medicine & Surgery, Mr. Timpanaro is feeling positive that he won’t need to.

THE SYMPTOMS

In the fall of 2014, the Timpanaros were planning to visit friends in Florida. As they prepared for their much-anticipated vacation, Mr. Timpanaro twice experienced symptoms of concern, including feeling pressure around his heart and lungs and pain in his arm.

The symptoms reminded him of his past experiences with anxiety but Mr. Timpanaro knew this was different. With each occurrence, he went to the emergency department but tests and bloodwork indicated nothing of concern.

After their vacation, Mr. Timpanaro had another episode that landed him in the emergency department again. This time, a physician ordered a heart catheterization.

The results showed significant blockage in his arteries. He needed bypass surgery.

THE DECISION

Due to Mr. Timpanaro’s beliefs as a Jehovah’s Witness, bloodless surgery was critical to his decision. There was no question about where he would go for the surgery — The Center for Bloodless Medicine & Surgery (CBMS) at Pennsylvania Hospital, where Mrs. Timpanaro had an exceptional surgical experience seven years earlier.

“I was incredibly impressed with the care my wife received. There was no pressure around her decision to have bloodless surgery,” recalls Mr. Timpanaro. “I had a very high comfort level about my decision to go to the CBMS.”

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MEDICAL EXPLANATION

Coronary Bypass Surgery

Coronary arteries are small blood vessels that supply the heart with oxygen and other nutrients that are carried via an individual's blood. When plaque builds up in coronary arteries, blood and oxygen flow to the heart is blocked, increasing an individual's risk for heart attack and stroke. If an artery becomes partially or completely blocked, the heart does not get enough blood. This is called coronary heart disease and it affects more than 13 million Americans.

Angina, or chest pain, is a common symptom of coronary artery disease. Other symptoms could include shortness of breath, heart palpitations, weakness, dizziness, nausea and sweating. Doctors may initially treat this disease with medication, dietary changes, a cardiac rehabilitation program or angioplasty, a procedure where a small stent is inserted to help open the artery. But sometimes surgery is necessary.

Coronary bypass surgery creates a new route, called a bypass, for blood and oxygen to reach the heart. To create the bypass, the surgeon will use a vein or artery from another part of the body to make a detour (or graft) around the blocked area. The surgeon may use the saphenous vein from the leg, a blood vessel from the chest called the internal mammary artery (IMA) or the radial artery from the wrist.

Surgeons are able to use these substitute blood vessels because there are other routes for blood to flow to and from those tissues. The location of the blockage, the severity of the blockage and the size of the coronary arteries will determine which blood vessel is best to use to create the bypass. Some patients require more than one bypass to regain the healthy flow of blood and oxygen to the heart.

Most people who have coronary bypass surgery are connected to a heart-lung bypass machine, or bypass pump. This machine does the work of the heart while the heart is stopped for the surgery. The machine adds oxygen to the blood, moves blood through the body and removes carbon dioxide.

A newer type of bypass surgery does not use the heart-lung bypass machine. The procedure is done while your heart is still beating. This is called off-pump coronary artery bypass, or OPCAB. This procedure may be used if the patient has problems while on the heart-lung machine.

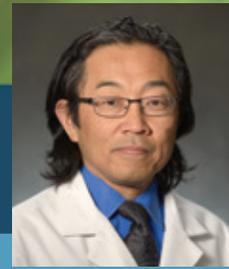
Risks for any surgery include:

- Blood clots in the legs that may travel to the lungs
- Breathing problems
- Infection, including in the lungs, urinary tract and chest
- Blood loss
- Stroke
- Brain damage

Possible risks from having coronary bypass surgery include:

- Chest wound infection, which is more likely to happen if you are obese, have diabetes or have already had this surgery
- Heart attack or stroke
- Heart rhythm problems
- Kidney or lung failure
- Low fever and chest pain, together called post-pericardiotomy syndrome, which can last up to 6 months
- Memory loss, loss of mental clarity or "fuzzy thinking"

While coronary bypass surgery is a common procedure, it is just one way to treat coronary artery disease and may not be the best choice for everyone.



Satoshi Furukawa, MD

Dr. Satoshi Furukawa performs 20 bloodless cardiac bypass surgeries each year. "I've always been a big proponent of the idea that blood loss is something we cannot tolerate," he says. "When a patient requests bloodless cardiac surgery, we map out the surgical plan and go about the business of saving lives. We never give blood to patients requesting bloodless treatment. We treat all of our patients in a manner to avoid the need for blood."

Patients undergoing bloodless surgery wear a special band to identify them. These patients also sign a form indicating that they do not want to receive blood. After surgery, blood is not drawn from these patients unless it is absolutely necessary.

"We are meticulous in controlling blood loss," said Dr. Furukawa. "We make sure incisions are dry and we clean the patient's own blood so that it can be reused."

Dr. Furukawa notes it can be beneficial for surgeons to approach all patients as bloodless, regardless of personal or religious beliefs that mandate bloodless procedures. "Blood draws after surgery can increase a patient's risk for anemia, so we work to minimize those across the board," he says.

"I respect each patient's faith and wishes, and I will do whatever I can to help them," he said.

About Dr. Furukawa

Dr. Furukawa is the chief of cardiovascular surgery at Pennsylvania Hospital and a professor of clinical surgery at Penn Medicine. After graduating from the University of Pennsylvania School of Medicine, he completed his residency at the Hospital of the University of Pennsylvania. His specialty is cardiac surgery and he received his board certification in thoracic and cardiac surgery in 1996.

REACHING A MILESTONE

Patricia Ford, MD, Completes 135th Bloodless Stem Cell Transplant

Patricia Ford, MD, founded the Center for Bloodless Medicine & Surgery (CBMS) at Pennsylvania Hospital in 1996 to treat Jehovah's Witness patients and others who do not accept blood transfusions for religious or personal reasons.



In April 2015, Dr. Ford and the program reached a milestone — the completion of 135 bloodless stem cell transplants.

Approximately 20 years ago, Dr. Ford, medical director of CBMS, performed the world's first bloodless stem cell transplant. Over the years, the program has grown significantly and is recognized as the premiere interdisciplinary and fully coordinated transfusion-free program for patients who prefer medical treatment without the use of blood product support.

About the Procedure

Autologous stem cell transplant (commonly called a bone marrow transplant) means that a patient's own stem cells are taken from their bone marrow or blood, collected and reinfused. Chemotherapy and radiation destroy the diseased cells in the bone marrow and the infused stem cells eventually produce

healthy red blood cells, white blood cells or platelets. However, high-dose chemotherapy can cause severe anemia, a condition where someone has abnormally low red blood cells or lacks hemoglobin in the blood. Chemotherapy can also cause bleeding from thrombocytopenia, or low platelet counts that prevent clotting. Blood transfusions are used in most stem cell transplants to combat these complications.

Patients may receive between 5 and 20 blood transfusions of red blood cells or platelets until the body can start producing the healthy cells on its own.

Conversely, Jehovah's Witnesses and other patients who prefer transfusion-free methods will not accept transfusions of blood or blood products, including red cells, white cells, plasma and platelets. At the Center for Bloodless Medicine & Surgery (CBMS),

bloodless stem cell transplants use different treatment approaches to avoid any use of blood or blood product support. Patients are closely monitored prior to transplant with a combination of diet management and medications to increase the levels of iron and hemoglobin in the blood. During the transplant procedure, methods designed to minimize blood loss and conserve blood levels are also used.

IN THE NEWS

In April, the *Journal of Clinical Oncology* published Dr. Patricia Ford's article: "*Autologous Stem Cell Transplantation Without Hematopoietic Support for the Treatment of Hematological Malignancies in 125 Jehovah's Witnesses.*"

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In preparation for surgery, Mr. Timpanaro worked with Patricia Ford, MD, medical director of the program, to build up his red blood cell count. With the help of a drug that promoted his body's production of red blood cells and iron supplements, his levels reached the necessary level in about three weeks.

His surgeon, Satoshi Furukawa, MD, scheduled the bypass surgery for December 1, 2014.

THE OUTCOME

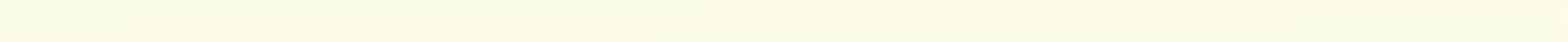
Dr. Furukawa completed the surgery in four hours with no complications. Mr. Timpanaro was walking the next day. He barely missed a day of work, managing his sales calls from his hospital room. By day four, he was discharged and on his way home.

At home, Mr. Timpanaro had home health nurses visit him for the first few weeks to monitor his progress. Mr. Timpanaro completed cardio-therapy in April and today reports feeling great.

"Everyone was surprised at how well I did with the surgery and recovery. My wife says I look better than ever!"

"It was a marvelous experience. The comfort level we experienced with Dr. Ford and the medical and nursing staff was overwhelming. For anyone who has felt pressure or was made to feel guilty because of their desire for bloodless medicine, this is invaluable," shares Mr. Timpanaro.

"I tell everyone in South Jersey, 'Pay the \$5 to cross the bridge. Go to Penn Medicine because you're going to get the best!'"



MEET THE MEMBERS

of the Center for Bloodless Medicine & Surgery Team



Amy Brazina, MBA Operations Manager | **Joined CBMS in 2012**

Amy came to CBMS from Penn Medicine’s marketing department. She has a BS from Pennsylvania State University’s College of Health and Human Development and an MBA from LaSalle University’s School of Business. Along with managing CBMS, Amy advocates for blood management to be a part of care for all patients at Pennsylvania Hospital.



Richie Hickmon Coordinator | **Joined CBMS in 2015**

Richie joins CBMS with a background in computer networking and has vast volunteer experience. He finds his work at CBMS rewarding because it involves serving a segment of society he feels isn’t fully serviced by the entire medical field. He is grateful to work in an environment where diversity is welcomed and embraced. He believes caring for and being an advocate for all people is far more than a noble idea or concept because he has witnessed it at CBMS as a living reality.



Natalie Prosser Department Secretary | **Joined CBMS in 2013**

After graduating high school, Natalie studied computer programming and Spanish. She is an avid volunteer and has taught people how to read, worked in construction to build schools, and conducted bible education classes throughout the United States, as well as Costa Rica and the Dominican Republic. Her love of people and the ability to bring comfort to them in a time of need brought her to CBMS.