

# Transplant program grows in strength

Avera Transplant Institute's 500th organ transplant is a significant milestone

BY DONNA FARRIS, AVERA MCKENNAN WRITER/EDITOR

Among innovative programs that set Avera McKennan apart are solid organ transplant and bone marrow transplant.

In South Dakota and the wider region, the Avera Transplant Institute at Avera McKennan is home to the longest-standing kidney transplant program, the only pancreas transplant program and the only bone marrow transplant program. What's more, Avera has established the state and region's only program for liver disease, and is taking steps toward liver transplant.

In the fall of 2008, Avera Transplant Institute celebrated its 500th solid organ transplant.

"This is a significant milestone, marking experience and a proven track record in organ transplant," said Beth Plahn, transplant director at the Avera Transplant Institute.

"Not a small program anymore, we're clearly in the mid-range as a transplant program," said Dr. Robert Santella, nephrologist with Avera North Central Kidney Institute.

## Important groundwork

Kidney transplant began at Avera McKennan in 1993. The groundwork was laid long before these surgeries ever took place. This included a team of nephrologists, dialysis support and diabetes support, because half of kidney failure is due to diabetes, as well as critical services such as diagnostic imaging and excellent surgical capabilities.

Kidney transplant became a goal based on need. "We had a large number of kidney failure patients who we were referring elsewhere for transplant," Dr. Santella said. "Avera McKennan started slowly, with low numbers as one would expect. The program has evolved and expanded to become what it is today."

At the time and even today, most cities of 100,000 would not have a transplant program. Yet a population area of about 750,000 in South Dakota, northwest Iowa, southwest Minnesota and northeast Nebraska could potentially benefit from the program. "In addition, Sioux Falls has very sophisticated medicine for a city of its size," Dr. Santella said.

## A standard of care

The first ever kidney transplant involving identical twins was performed in 1957 in Boston at Brigham and Women's Hospital.

"At that time, it was a major milestone and was quite controversial. Kidney transplant now has absolutely become the standard of care for those with kidney failure. It is the treatment of choice," Dr. Santella said.

Close to 400,000 Americans are currently on dialysis. While dialysis keeps people alive, the natural kidney is far superior.

Kidney transplant is only limited by the number of organs

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available. There are up to 70,000 people on waiting lists nationally for kidney transplants, but only around 18,000 transplants per year.

The need for transplant underlines the need for people to designate their wishes to become an organ donor. People who have a friend or relative willing to donate a kidney are extremely fortunate, because they spend less time on the waiting list, and often receive a healthier organ.

## Pancreas transplant added in 2003

Pancreas transplant was added at Avera McKennan in 2003, and remains the only pancreas transplant program in the state and region.

"Like adding any major medical program, you start with a need. In our kidney transplant program, we were seeing more and more diabetics who also needed pancreas transplants," Dr. Santella said.

Common candidates are people with Type 1 diabetes which is either difficult to control, or threatening organs, eyes and nerves. The operation is more extensive, and carries with it more risk than kidney transplant. Because candidates are chosen very carefully, and there are fewer pancreases available, transplant

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— BETH PLAHN, TRANSPLANT DIRECTOR AT THE AVERA TRANSPLANT INSTITUTE

centers nationally perform fewer pancreas transplants than kidney transplants.

“When it’s successful, it’s incredible,” Dr. Santella said. For those people who have lived most of their lives with diabetes, there’s nothing like a pancreas transplant, because it’s a cure to their disease. They never again must take insulin, or test their blood sugar daily.”

### **On to liver transplant**

Addressing another unmet need in the region, Avera created the Avera Center for Liver Disease in July of 2007, with the ultimate goal of building toward a liver transplant program. This practice was started by Dr. Narayanan Menon, who is currently completing a medical fellowship. Dr. Hesham Elgouhari has recently joined this practice.

Avera McKennan is the only hospital in the state with a transplant hepatologist, and the first and only practice dedicated to hepatology, the care of liver disease. Since the practice began, the Avera Center for Liver Disease has seen more than 500 patients from the region with liver disease.

The next step is transplant surgery, which Avera McKennan is progressing toward in recruiting an additional transplant surgeon. “Avera McKennan has come to a level where we are ready to do liver transplant. These will be by far the most complicated, complex group of patients we’ve seen in a transplant program,” said Dr. Tariq Khan, transplant surgeon.

### **Quality care right here at home**

In terms of outcomes, solid organ transplant patients can experience results at Avera McKennan better or equal to those

at nationally-known centers, with typically shorter wait times.

As reported by USTransplant.org, kidney transplant outcomes at Avera McKennan have always been reported as “as expected” or “better than expected” since the start of the program. Avera Transplant Institute has a significantly shorter wait time than the national average of 38 months.

“Transplantation is well policed on a national level, and we have outcomes equal to the nation and region,” Dr. Santella said. Patients can get the quality care they need near home. This is especially important for transplant patients, who need extensive follow-up care.

“While 500 transplants is just a number, it’s a nice milestone,” Dr. Santella said.

“One thousand will be nicer, and 2,000 even better. It’s all about getting people off dialysis and living healthier, longer lives.”

## **500th transplant patient has received the gift of life twice**

Ever since Ronald Rauk learned about organ donation at age 21, he’s designated his wishes to be a donor on his driver’s license. He didn’t know that his own life would be saved by organ transplantation – not once, but twice.

When Rauk received a new kidney in August of 2008, it was the 500th solid organ transplant at Avera McKennan through the Avera Transplant Institute.

Eight years earlier, Rauk began experiencing illness which was diagnosed as non-alcoholic cirrhosis of the liver. The disease may have been caused by a medication taken earlier in life. He waited eight months before receiving a transplant at Mayo Clinic – a wait time that may have been shortened by his deteriorating condition. After recovering from surgery, “it was smooth sailing,” until about four years ago, when his health again began to decline.

This time, it was kidney failure, an unfortunate side effect of anti-rejection medication. “In only about 5 percent of cases it affects the kidney,

and I was one of the ‘lucky’ ones,” Rauk said.

Rauk became a patient of nephrologist Dr. Robert Santella at the Avera North Central Kidney Institute, and learned about Avera’s transplant program. “With a program and facility like this here at Avera, there was no reason whatsoever to go elsewhere.”

Rauk had a few close calls in which the offered kidney wasn’t right for his body size or blood and/or tissue type. Then on Labor Day weekend, the call came with a kidney offer that turned out to be a suitable match. With surprisingly little pain after surgery, Rauk remembers feeling better almost immediately. “Now, I feel 100 percent better.”

He’s back to working full days at the convenience store he operates at Beaver Creek, Minn., and driving a school bus. He returns to Avera for weekly blood tests, and will take anti-rejection medications for the rest of his life.

He’s thankful for medical caregivers, and to his wife, Marlys, who served



as home caregiver after both transplants. And of course, he’s thankful that two people he never knew expressed their wishes to serve as organ donors.

One organ donor can save up to eight lives, while one tissue donor can save lives or improve the quality of life for up to 50 people.

“God has given us various parts, which can be interchangeable to help someone else,” Rauk said. “I believe that is in His plan.”

## Transplant begins with donation

Without donors – either living or deceased – transplant is not a possibility. One organ donor can save up to eight lives, while one tissue donor can save lives or improve the quality of life for up to 50 people.

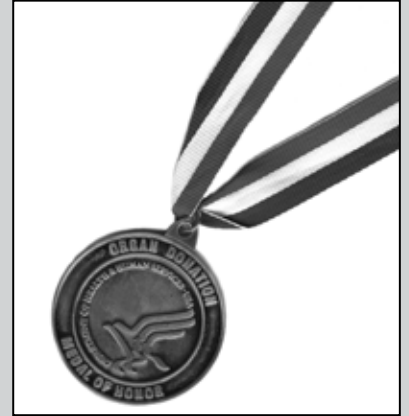
LifeSource is a non-profit organization dedicated to saving lives through organ and tissue donation in the upper Midwest. Donation costs the donor's family nothing, yet is a precious gift. Those willing to be an organ donor should make their wishes known to those closest to them, and say "yes" to organ donation on their driver's license, state identification card, will or health care directive. For more information, go to [www.organdonation.com](http://www.organdonation.com).

Since 2005, Avera McKennan has earned the U.S. Department of Health and Human Services Medal of Honor for best practices and sustaining an organ donation rate of over 75 percent in potential deceased organ donors, who when living had expressed their wishes to be an organ donor if the time came.

In addition, thousands of Americans each year are diagnosed with a life-threatening disease such as leukemia, lymphoma or multiple myeloma for which bone marrow transplant may be the best and only hope of a cure. However, only 30 percent of people will find a suitable donor within their family.

For the remaining 70 percent, an unrelated donor with a matching tissue type must be found. The National Marrow Donor Program Registry is a global registry of more than 10 million donors who stand ready to give this life-saving gift.

Even with a registry of millions, there are many patients waiting to find a match. For more information about joining the marrow donor registry go to [www.marrow.org/join](http://www.marrow.org/join).



## New liver specialty addresses unmet need

Until July 2007, the need for specialized liver disease care was unaddressed in South Dakota and the wider region.

After the Avera Center for Liver Disease opened with the state's first hepatologist, 350 new patients were seen in the first year – underlining the need for this specific medical specialty in Sioux Falls.

Liver disease can result from many things, including hepatitis B and C, alcohol abuse, or genetic conditions, said Dr. Hesham Elgouhari, hepatologist with the Avera Center for Liver Disease. A growing problem is that of non-alcoholic fatty liver disease, that affects nearly 25 percent of the U.S. population. In the majority of these patients, fat in the liver does not cause scarring or cirrhosis. But there are those with a condition called NASH, nonalcoholic steatohepatitis, which leads to cirrhosis in about 20 percent of cases.

"The liver, as the biggest organ in the body, performs about 5,000 functions every single minute," said Dr. Elgouhari. Among

these critical functions are removing waste products from the blood, handling nutrients after being absorbed by the body to be stored as energy, excreting bile which aids in digestion and food absorption, and building the body's immune system. The liver also processes medications.

"There is no way someone can live without a liver, or with a very diseased liver," Dr. Elgouhari said. "There is no replacement for the function of this organ."

While early stage liver disease is "silent," later stage disease will cause symptoms such as weakness, itchiness, jaundice and a brownish tint to the urine.

If caught early, liver disease can often be reversed with medication and lifestyle changes. Obesity, diabetes, high blood pressure and high cholesterol are risk factors in non-alcoholic fatty liver disease. People with these risk factors should ask their physician for ALT blood testing to check liver health, just as they ask for regular blood sugar or cholesterol tests, Dr. Elgouhari said.

When liver disease has caused severe scarring to the point that liver cells cannot regenerate or function properly, the only way to save that person's life is a liver transplant.

With a strong hepatology program now in place, liver transplant is the next milestone on the horizon for the Avera Transplant Institute. Avera McKennan is recruiting a third transplant surgeon before launching the program.

In the United States, 15,000 patients are currently registered on the liver transplant list, but only about 4,500 liver donations are available each year. Most liver transplants involve deceased donors, although live liver transplant is also possible due to the fact that the liver is the only organ in the body which can regenerate itself.

The first liver transplant took place in Denver, Colo., in 1963. "At one point it was a very difficult operation, however with medical advances and improvement in our technical capabilities, this surgery has been greatly transformed," said Dr. Tariq Khan, transplant surgeon with the Avera Transplant Institute. "For people who have end-stage liver disease, it's a standard of care, and we look forward to offering this care near home for the people of our region."

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## Region's only bone marrow transplant program

Avera McKennan, like other multi-faceted transplant centers, offers both solid organ transplant and bone marrow transplantation.

Whereas solid organ transplantation replaces a severely diseased kidney or pancreas with another human organ, bone marrow transplantation replaces stem cells as a treatment for many types of blood cell cancer or bone marrow failure.

Bone marrow transplantation was started at Avera in 1996, and gained new strength under the leadership of hematologist Dr. Kelly McCaul who joined Avera in 2000. The program is now three physicians strong, with Drs. McCaul, Stephen Medlin and Vinod Parameswaran with Avera Hematology and Transplant at the Avera Cancer Institute.

The program is fully accredited by FACT, the Foundation for the Accreditation of Cellular Therapy (FACT), for both autologous and allogeneic adult transplantation.

Autologous transplants involve harvesting a patient's own stem cells, delivering high doses of chemotherapy, and then giving the patient back his or her own stem cells, which will result in the normal growth of new blood cells. This mode is standard care for multiple myeloma, and is effective for certain types of lymphoma.

Allogeneic transplants are similar, but involve the transplantation of adult blood-cell forming stem cells from a close relative, or someone who is a close match. For example, people with certain types of leukemia can benefit from this treatment, because their own stem cells carry the genetic mutation that caused cancer in the first place.

Bone marrow transplant was pioneered in the early 1950s and has become the standard of care for many disorders. It is now offered at numerous centers nationwide and throughout the rest of the world.

"Here in Sioux Falls people can get the very same level of care, right next door, or at least closer to home," Dr. McCaul said.

Because hematologists trained in bone marrow transplant are rare, it's significant to have three of these specialists in Sioux Falls at the Avera Cancer Institute.

Personalized care also distinguishes Avera. For example, Dr. McCaul holds monthly "To Be Well" talks at a local coffee shop, which are well attended by current and prospective patients. "People are very well educated and come with very specific questions," Dr. McCaul said. "We offer the same technology and expertise as anywhere else, yet we provide this care closer to home with the compassionate, personalized care that characterizes Avera."



"WE OFFER THE SAME TECHNOLOGY AND EXPERTISE AS ANYWHERE ELSE, YET WE PROVIDE THIS CARE CLOSER TO HOME WITH THE COMPASSIONATE, PERSONALIZED CARE THAT CHARACTERIZES AVERA." – DR. KELLY MCCAUL, HEMATOLOGIST

# Transplant program *grows in strength*

## Transplant is the treatment of choice for kidney failure

More than 400,000 people in America must be regularly hooked up to a machine that filters toxins and waste out of their blood. While inconvenient and time-consuming, without it they would die.

The human kidneys quietly perform this job day in and day out – except when certain disease processes cause kidney failure. Half of all kidney failure is due to diabetes, which affects other major organ systems as well. High blood pressure, inherited conditions like polycystic kidney disease, cancer, inflammatory conditions or other diseases account for the other half.

While dialysis keeps patients alive, it cannot replace the efficiencies of the human kidney. “Dialysis patients die younger, and feel quite poorly with symptoms including fatigue and shortness of breath. A successful kidney transplant will double or triple the dialysis patient’s life,” said Dr. Robert Santella, nephrologist with Avera North Central Kidney Institute.

Not everyone with kidney disease will need dialysis or a kidney transplant, Dr. Santella said. Medical treatments can often slow and sometimes reverse kidney damage, so

the sooner a patient with declining kidney function sees a kidney specialist, the more opportunity to slow the damage.

“Despite that, the number of people needing a transplant is growing, with 70,000 on the national waiting list,” Dr. Santella said. Yet because organ availability is limited, only 16,000 to 18,000 kidney transplants are performed in the United States each year.

Kidney transplants are performed using organs from both living and deceased donors. The key is a compatible blood match and tissue type.

Live donation is actually preferable, because the donor kidney is in healthier condition, and there’s less waiting time involved. Because only healthy donors are considered, the surgery is low-risk to the donor.

“With two kidneys, we have more kidney function than we actually need, so healthy people can live quite well with one kidney,” Dr. Santella said. Studies have proven that donors live a normal life-span.

In the case of deceased donors, organ matches are made through UNOS, the United Network for Organ Sharing. Organs are typically shared regionally, but national sharing also takes place. While the national wait time for a kidney is a little over three years, Avera McKennan’s wait time has been significantly shorter.

Despite the typical pain of surgery, it’s not unusual for kidney recipients to say they feel better immediately. Once the transplanted kidney begins functioning, patients experience a significant improvement in quality of life.

Fortunately, in about 80 percent of cases, rejection is not a concern. “Everyone has a different degree of risk. Most rejection is treatable, and most patients don’t lose the organ due to rejection these days, but it’s still a significant risk,” Dr. Santella said.

Because anti-rejection medications weaken the immune system, physicians must strike a balance between organ rejection risk, and the risk of infection or cancer from a diminished immune system.

One-year success rates for kidney transplant are well over 90 percent, and the average kidney transplant lasts 10-12 years. Remaining on dialysis for two years or longer is actually more expensive than undergoing a kidney transplant. “And, people feel better and live longer,” Dr. Santella said. “Kidney transplant is one of few medical procedures that’s a win, all the way around.”

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– DR. ROBERT SANTELLA, NEPHROLOGIST