

# Transplant Update

A Report From Baylor Regional Transplant Institute Volume 1 • Number 2



## Indications for Liver Transplant

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## Paired Donor Kidney Transplantation

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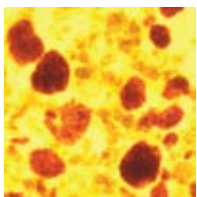
Approximately one third of all willing kidney donors have an incompatible blood type with their intended recipient (Alliance for Paired Donation). Paired donor transplantation allows incompatible living donor/recipient pairs to still donate and receive kidney transplants despite the original incompatibility.



## Pancreas Transplants Save Lives

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Baylor University Medical Center at Dallas and Baylor all Saints Medical Center at Fort Worth now offer islet cell transplants. Islet cell transplant is an experimental protocol for Type 1 (juvenile) diabetes.



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## BRTI Plans Advanced Lung Disease Program

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## Indications for Liver Transplant

In 2008, more than 17,000 patients were listed for liver transplantation, but only approximately 7,000 transplants were performed. While there is a large number of patients for whom a liver transplant is appropriate, a far smaller number will actually receive a transplant.

Indications for liver transplant include fulminant hepatic failure, a life-threatening systemic complication of liver disease or liver-based metabolic defects, cirrhosis from any cause with complications such as hepatic encephalopathy, ascites, hepatocellular carcinoma (HCC), hepatorenal syndrome or bleeding caused by portal hypertension, hepatopulmonary syndrome or portopulmonary hypertension.

Baylor employs a rigorous evaluation process that seeks to answer three basic questions. First, will a liver transplant offer the patient the best chance for long-term survival? Second, does the patient have co-morbidities or psychosocial conditions that outweigh the benefit of transplantation or would preclude successful recovery from the procedure? Finally, what is the urgency of proceeding with transplantation?

“The urgency for transplant is determined primarily by the MELD score,” said Rita Lepe, MD, transplant hepatologist on the medical staff of Baylor University Medical Center at Dallas. “MELD is the Model of End-Stage Liver Disease, which is a mathematical score determined from the patient’s lab tests that is highly predictive of short-term mortality. The MELD system is relatively free of bias and directs donor organs to those in greatest need irrespective of waiting time.”

At Baylor, all patients on the transplant list are seen routinely by a transplant hepatologist. The goals are to avoid unnecessary complications of cirrhosis and effectively manage those complications if they occur. The physician also screens for changes in a patient’s medical condition, such as worsening hepatic function or HCC.

“All of these issues can change the priority for transplantation,” Dr. Lepe said. “We want to make sure that the patient is in the best possible condition when a donor organ becomes available.”

Although there is variation among transplant centers and, over time, some contraindications to transplant are applied by all transplant centers, Dr. Lepe said. These include malignancies that have spread beyond the liver, active and uncontrolled infection outside the hepatobiliary system, active alcohol/drug use, severe cardiopulmonary disease, morbid obesity or other co-morbidities that would compromise survival during and after transplantation, absence of social support or noncompliance that would compromise recovery, and technical and/or anatomical barriers.

### Quick Facts

- Over 25 years ago, Baylor pioneered the first liver transplant program in the Southwest.
- One of three programs in the nation to perform more than 3,100 liver transplants.\*
- Baylor’s expertise in the areas of hepatitis B and C is internationally renowned.

\* Volumes based on liver transplants at Baylor University Medical Center and Baylor All Saints Medical Center.



# Liver

# Paired Donor Kidney Transplantation

Approximately one third of all willing kidney donors have an incompatible blood type with their intended recipient (Alliance for Paired Donation). Paired donor transplantation allows incompatible living donor/recipient pairs to still donate and receive kidney transplants despite the original incompatibility.

To achieve paired donor transplantation, two incompatible donor/recipient pairs (A and B) must be identified. The donor of pair “A” must be identified to be compatible with the recipient of pair “B.” Additionally, the donor of pair “B” must be identified to be compatible with the recipient of pair “A.” This allows each paired recipient to receive a kidney transplant.

“With paired donor transplantation, willing living donors still can donate their kidneys, and, as a result, their recipient can still get transplanted,” said Dr. Edmund Sanchez, a transplant surgeon on the medical staff at Baylor University Medical Center at Dallas and at Baylor All Saints Medical Center at Fort Worth. “Also living donation offers optimal results for kidney transplantation. Kidneys from living donors have a longer graft survival when compared to kidneys from deceased donors.”

Although paired donor transplantation is not new, activity has increased primarily in the last five years. Paired donor transplants are coordinated through regional and national collaborations set up through institutional agreements. Baylor Regional Transplant Institute is in the process of activating their participation in a paired donation network.

“Paired donor transplantation requires that multiple potential pairings be evaluated and tested to allow one transplant to occur,” Dr. Sanchez said.

Requirements for paired donation are identical for patients who are seeking kidney transplantation or living donation. The potential restrictions are decided upon by the institutional kidney transplant selection committee.

## Quick Facts

- With more than 2,500 kidney transplants performed, our kidney and kidney/pancreas program is one of the largest in Texas.\*
- According to the United Network for Organ Sharing (UNOS), survival rates for Baylor kidney recipients exceed the national and state averages.

\*Volumes based on kidney transplants at Baylor University Medical Center and Baylor All Saints Medical Center.



Kidney

## Pancreas Transplants Save Lives

Pancreas transplantation as a treatment for type 1 diabetes mellitus is increasing in the United States, as well as throughout the world. In the past 10 years, technical advances, as well as the effectiveness of immunosuppressive medications, have greatly improved.

Most pancreas transplants are performed in combination with a kidney transplant. The combined kidney pancreas transplant can be performed for either type I or type II diabetes. Additionally, diabetic patients who have previously undergone kidney transplantation can receive a pancreas transplant afterward. This is called pancreas-after-kidney transplantation. Finally, type I diabetics without any kidney disease may qualify for a pancreas (whole organ) transplant or islet cell transplant.

“The life-saving effect of a pancreas transplant is not as immediate as with a liver or heart transplant, but pancreas transplantation is now looked upon as a life-saving transplant,” said Dr. Edmund Sanchez, a transplant surgeon on the medical staff at Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth. “The effect is demonstrated long-term after the patient has been rendered free of diabetes for years after the transplant.”

At the time a patient is diabetes free, the effects on the kidneys, vascular disease and nerve disease have been slowed or stopped due to the functioning pancreas transplant, Dr. Sanchez said. It also has been shown that the pancreas transplant protects the kidney transplant from the effects of diabetes. Therefore, kidney transplants last longer when performed in combination with a pancreas transplant.

According to the Scientific Registry of Transplant Recipients (SRTR) database, pancreas transplants have the best results when combined with a kidney transplant. The Pancreas graft survival is 85 percent at one year, 78 percent at three years and 71 percent at five years.

Pancreas-after-kidney transplantation demonstrates a pancreas graft survival rate of 71 percent one-year, 60 percent three-year and a 50 percent at five-years. Pancreas transplant alone demonstrates a pancreas graft survival rate of 71 percent one-year, 35 percent three-year and a 32 percent at five years.

Baylor Dallas and Baylor All Saints reported a statistically higher pancreas graft one-year survival when combined with a kidney transplant.

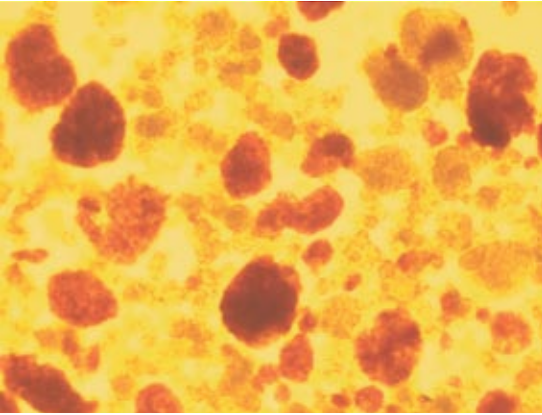
Pancreas transplants do have a higher complication rate within the first year when compared to kidney transplantation alone. However, after the first year of a successful pancreas transplant, the benefits of pancreas transplant exceed that of a kidney transplant alone.

### Quick Facts

- First facility in the Southwest to be approved by the American Society of Transplant Surgeons as a surgical training program in pancreas transplantation.
- Pancreas graft survival rates at Baylor University Medical Center and Baylor All Saints Medical Center exceeded the national average for one year and three year survival.

Pancreas

## Beta Cell Regeneration Research



Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth now offer islet cell transplants. Islet cell transplant is an experimental protocol for Type 1 (juvenile) diabetes.

One of the challenges researchers are encountering is that the islet or Beta Cells don't seem to grow and divide very much after transplant. Beta Cells constitute the predominant type of cell within the islets and are the most important cells to maintain blood glucose control.

Researchers, led by Shinichi Matsumoto, M.D., Ph.D., director of the Islet Cell Laboratory at Baylor All Saints Medical Center at Fort Worth and Hirofumi Noguchi M.D., Ph.D., an associate investigator for Baylor Institute for Immunology Research, Baylor Research Institute are looking at two potential solutions. The first is to understand the mechanism by which Beta Cells can be encouraged to grow and divide after transplant. The second is to find a source for pancreatic stem cells—precursor cells that will develop into islet cells when needed.

“Our research is focused on how to differentiate stem/progenitor cells that will become fully functional islet cells,” Dr. Matsumoto said. “We are trying to find pancreatic stem cells in a mouse model.”

Researchers theorize that the cells of the bile duct—the treelike network that drains into the intestine—may be the source for pancreatic precursor cells. Dr. Matsumoto said they also are trying

to make Beta Cells from IPS skin cells, similar to embryonic stem cells.

“The origin of the cells can be the patient's own skin, so there would be no rejection because it's an allogeneic transplant,” he said.

While Beta Cell regeneration is basic research, Dr. Matsumoto and his team hope this will lead to cell-based therapies for diabetes.

### Quick Facts

- North Texas' first islet cell transplant
- Baylor's islet cell laboratory, one of only a few in the country and the only one in the southwest, processed cells for transplantation.

# Islet

## Heart Failure Disease Management

Heart transplantation is decreasing in the United States, with only 2,800 transplants performed each year. The scarcity of donors is causing transplant centers, such as Baylor University Medical Center at Dallas, to tighten the criteria for patients referred for transplant.

Patients need to be much sicker, requiring continuous inotropes to stimulate the heart or have had repeated hospitalizations, according to Shelley Hall, MD, a cardiologist on the medical staff of Baylor Dallas and medical director of transplant cardiology. “The days of a patient having a low ejection fraction and just not feeling good are over,” she said.

“Now that heart transplant recipients frequently live more than a decade, we’re also analyzing recipients more closely. We look at co-morbidities like peripheral vascular disease, advanced emphysema,” she said.

Because heart transplants are lasting longer—the average survival is 12 years—transplant centers like Baylor Dallas are also trying to get better, longer-lasting donor hearts. Among the criteria

analyzed in a donor are age, sex, cause of death, amount of CPR, amount of IV drugs administered and social history.

The Heart Failure Disease Management Program at Baylor Dallas allows cardiologists on the medical staff to treat patients with heart failure who are deemed too healthy for a transplant.

“Sometimes, we see patients referred too early for transplant, and with aggressive medical management, they can be stabilized,” Dr. Hall said. “With beta blockers and defibrillators, the survival for functional class 3 heart patients is almost indeterminate.”

In many cases, patients with heart failure may not take their medications properly because of confusion over names, dos-

age frequency, or financial or insurance limitations, Dr. Hall said.

“They may be embarrassed to tell their doctor, so they limit the amount of medication they take or cut the pills in half. Through the heart failure disease management program, we can explore all those nuances and try to determine what works best for the individual patient.”

### Quick Facts

- The VAD program at Baylor Dallas was the nation’s first to receive the Gold Seal of Approval from the Joint Commission.
- The Baylor/UTSW heart transplant program held the highest one year patient survival statistics in the state of Texas and exceeded the national average.



# Heart

## BRTI Plans Advanced Lung Disease Program

For patients with pulmonary hypertension, there are unique therapies that require expertise in selecting the appropriate one for the individual patient. Determining the type of lung disease and the etiology, if possible, can help physicians choose from the available treatment options, as well as assist in predicting outcomes.

Baylor Regional Transplant Institute plans to establish an advanced lung disease program to bring together the expertise of numerous physicians on the medical staff of Baylor University Medical Center at Dallas to diagnose and treat patients with pulmonary hypertension, interstitial lung disease and a variety of other types of advanced lung disease.

“The literature shows that specialty clinics around the country are helpful in categorizing what type of interstitial lung disease a patient has and comparing clinical trials of patients with similar disease,” said Kenneth Ausloos, MD, medical director of lung transplantation and pulmonary hypertension program on the medical staff of Baylor Dallas. “By essentially comparing apples to apples, we can select the types of the disease that may potentially respond to certain treatments.”

Lungs can become scarred from a variety of causes, including certain occupational exposures or medications. Many rheumatological conditions, such as lupus and scleroderma, can manifest with interstitial lung disease. In addition to pulmonary specialists, the advanced lung disease program at Baylor Dallas will utilize the expertise of pathologists, radiologists and rheumatologists on the medical staff of Baylor to help character-

ize the type of interstitial lung disease a patient has.

“Some forms of interstitial lung disease don’t respond to steroids, which are frequently prescribed for this type of disorder. And since steroids have serious side effects, it doesn’t make sense to prescribe them for this type of interstitial lung disease,” said Dr. Ausloos. “Still other forms of interstitial lung disease may benefit from steroids.”

Dr. Ausloos said the ultimate goal of the Advanced Lung Disease Program is to make national multicenter clinical trials that are investigating advanced treatments available to patients.



### Quick Facts

- The Baylor Dallas lung transplant program has a one year lung graft survival and patient survival that exceeded the national average. In addition, the three year patient survival exceeded the national average.
- Dallas’ first single and double lung transplant.

# Baylor Regional Transplant Institute



The Baylor Regional Transplant Institute is the integration of transplant services at Baylor University Medical Center at Dallas and Baylor All Saints Medical Center. Together, Baylor Dallas and Baylor All Saints are one of the largest multi-specialty transplant centers in the country.

## Liver

We have performed more than 3,000 liver transplants, one of the few transplant centers to reach this milestone.

## Kidney and Pancreas

Our patient survival outcomes exceed the national average as reported by the United Network for Organ Sharing.

## Small Bowel

This rare procedure may be a treatment for intestinal failure.

## Heart and Lung

We have been providing new hope, restored health and freedom for patients with end-stage heart and lung disease.

## Islet Cell

The first center in Texas to receive FDA permission to independently process pancreatic islet cells for transplantation.

## For More Information Please Call 1-800-774-2487.

With one phone call, a physician can request additional information, an appointment for a patient, or a consult. Call 1-800-774-2487 and a Baylor Regional Transplant Institute representative will assist you.



**Baylor University Medical Center at Dallas**  
**Baylor All Saints Medical Center at Fort Worth**



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