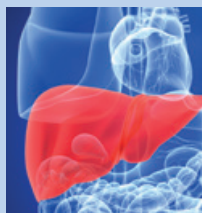


Transplant Update

A Report from Baylor Annette C. and Harold C. Simmons Transplant Institute Volume 6 • Number 3



Stagnant Supply of Donor Livers Increases Patient Mortality

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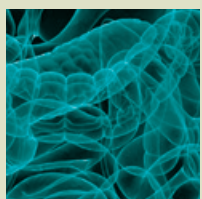
Sicker patients are being waitlisted and ultimately transplanted at higher MELD scores. The demand for donor livers has increased, while the supply has remained unchanged.



Patient Education Guide Demystifies Living Kidney Donation

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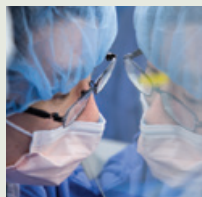
Pathway to Kidney Transplant is a patient education guide developed by the Institute to encourage early referral of patients. The guide also demystifies the transplant process for both recipients and donors and explains the benefits of the living donor kidney option.



New Pancreas Allocation System Benefits Patients Who Need SPK

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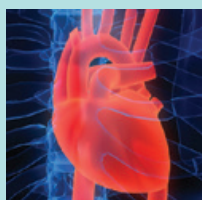
A change in the pancreas allocation system instituted last fall maximizes the use of pancreas allografts by creating a national standard for the allocation of the organs.



Novel Biomarker Identified to Track Islet Cell Damage after Transplantation

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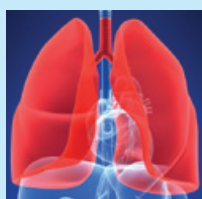
Results from a recent study by the Baylor research team showed that miRNA is present in human islets and is released when islets are damaged under in vitro conditions. The expectation is the development of effective strategies to prevent islet damage and improve transplant outcomes.



For 2nd Year in a Row: Baylor Dallas Heart Transplant Program Among Top 2 in the Nation

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Baylor Dallas' location in the center of the nation puts surgeons on the medical staff within just a few hours of donor hearts, expanding treatment options for patients nationwide.



New Lung Transplant Team Enhances Expertise and Expansion of Services

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A new team of nationally respected transplant specialists on the medical staff has enhanced the extensive experience Baylor Dallas offers and is building an extensive clinical and translational research program.

Stagnant Supply of Donor Livers Increases Patient Mortality

Over the last decade, a critical change has occurred in the field of liver transplantation. Sicker patients are being waitlisted and ultimately transplanted at higher Model for End-Stage Liver Disease (MELD) scores with more co-morbid conditions. In 2004, the mean MELD at listing was 16.4 and 28.9 at transplant. In 2013, the mean MELD jumped to 17.4 at listing and 35.3 at transplant.

“Patients today are at increased risk of death while waiting for a transplant,” said Jacqueline O’Leary, MD, MPH, medical director of hepatology research at Baylor Annette C. and Harold C. Simmons Transplant Institute at Baylor University Medical Center at Dallas. “Patients experience more complications from liver disease and require more hospitalizations prior to achieving transplant, if they are lucky enough to get there.”

In an editorial published in the March issue of *Gastroenterology*, Dr. O’Leary and her colleague, Sumeet Asrani, MD, hepatologist on the medical staff at Baylor Dallas, describe the situation as a “liver purgatory,” in which patients are trapped. The demand for donor livers has increased, while the supply has remained unchanged.

“The emotional and financial impact on patients, families and the health care system is large and increasing,” Dr. O’Leary said. “We desperately need investment in

alternative approaches, such as methods to restore marginal or fatty livers and regenerative medicine’s ability to potentially reverse cirrhosis and grow livers ex vivo, as well as earlier intervention in patients with fatty liver disease.”

Living Donor Liver Transplant

One therapeutic option currently available to patients is a living donor liver transplant. Baylor Dallas is one of only two centers in Texas offering it and one of the top 10 programs in the nation by volume.

In a living donor transplant, the entire diseased liver is removed from the recipient and replaced with half of the donor’s liver. In approximately a month, both donor and recipient livers grow to near-full volume. This option allows patients to receive a transplant earlier in the course of decompensated cirrhosis, thereby eliminating the risk of death while waiting and facilitating a more rapid return to normal life.

“This is a very technically demanding surgery, so it should be performed at a transplant center where surgeons have experience and expertise in this particular procedure,” said Giuliano Testa, MD, FACS, MBA, surgical director of living donor liver transplantation at Baylor Dallas. “We have minimized the risks to the donor through a meticulous evaluation process and a special, comprehensive protocol for the care of donors.” ■

Quick Facts

- Over 30 years ago, Baylor pioneered the first liver transplant program in the Southwest.
- One of three programs in the nation to perform over 3,900 liver transplants.*
- Baylor’s expertise in the areas of hepatitis B and C is internationally renowned.
- Baylor Dallas is one of only two centers in Texas offering living donor liver transplant and one of the top 10 programs in the nation by volume.

* Volumes are based on liver transplants at Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth.



We have minimized the risks to the donor through a meticulous evaluation process and a special, comprehensive protocol for the care of donors.

Giuliano Testa, MD, FACS, MBA



Patient Education Guide Demystifies Living Kidney Donation

In a perfect world, every patient with advanced chronic kidney disease would receive a kidney transplant before ever going on dialysis. However, many patients face long wait times on the national deceased donor waiting list. At Baylor Annette C. and Harold C. Simmons Transplant Institute, wait times for a kidney transplant are typically less than the national average.

Living kidney donation can markedly shorten the wait time from several years to months or even weeks. To encourage early referral of patients for living donor kidney transplantation, the Institute developed the *Pathway to Kidney Transplant*, a patient education guide that demystifies the transplant process for both recipients and donors and explains the benefits of the living donor kidney option. The *Pathway* provides a step-by-step graphic simplifying each phase of a patient's treatment options and drives home the point that the sooner patients receive a kidney, the better.

Patients who receive living donor kidney transplants have much better survival rates and three times the life expectancy compared to patients staying on dialysis.

"Patients on dialysis have a higher mortality because dialysis is just not as effective as a living kidney," said Bernard Fischbach, MD, medical director of renal and pancreas transplantation in the Baylor Annette C. and Harold C. Simmons Transplant Institute. "Patients receiving effective dialysis have the equivalent of a GFR of 20 to 25 milliliters per minute, while the GFR of patients who receive a working kidney can be 60 or above."

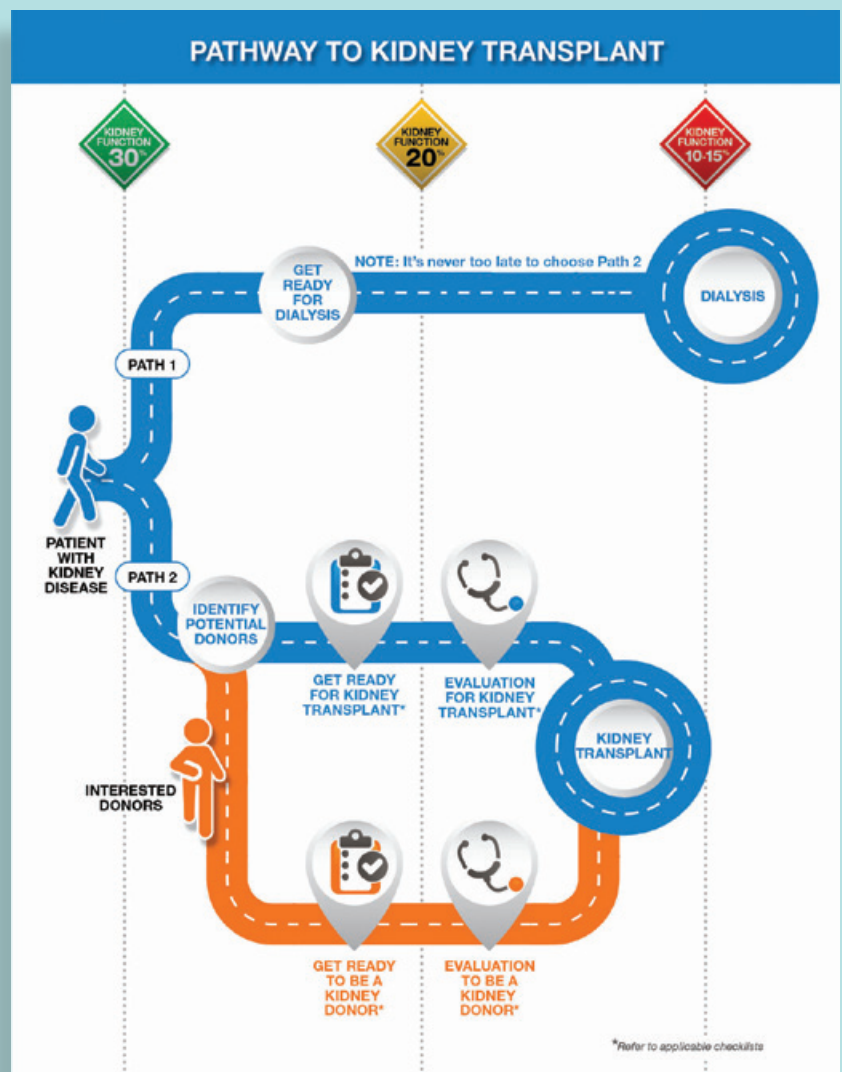
The *Pathway* includes checklists for patients with kidney disease and potential donors to help guide them through the steps to receive a kidney transplant as soon as possible. Ideally, patients can be transplanted before starting dialysis. The graph and checklist provide recommendations to patients once their kidney function deteriorates to 30 percent to begin the educational, financial, physical and potential donor candidate considerations early in order to be ready for transplant by the time their kidneys reach 20 percent of function. Potential donors can go online to complete a confidential health history questionnaire to help determine if they are a candidate. ■

“

We encourage all patients to consider living kidney donation if they can find a donor. Living donation offers patients with end-stage kidney failure a better quality of life and, potentially, a longer, healthier life.

Bernard Fischbach, MD

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New Pancreas Allocation System Benefits Patients Who Need SPK

A change in the pancreas allocation system instituted last fall by the Organ Procurement and Transplantation Network and the United Network for Organ Sharing maximizes the use of pancreas allografts by creating a national standard for the allocation of the organs.

Previously, pancreas allocation policy allowed the 58 organ procurement organizations (OPOs) in the United States to determine how to allocate pancreas grafts procured within their donor service area (DSA). As a result, wait times for simultaneous pancreas kidney (SPK) transplant varied widely across the country because of local or regional allocation decisions.

“Patients will benefit because there will now be more pancreases allocated to those candidates who require an SPK transplant,” said Richard Ruiz, MD, FACS, surgical director of pancreas transplantation, Baylor Annette C. and Harold C. Simmons Transplant Institute. “The goal of the new policy is for a pancreas to be allocated first to any local SPK or pancreas-transplant-alone candidate. If there are no candidates within the DSA or the organ is turned down, then the offer is made regionally, then nationally. In the past, some OPOs would place the pancreas only after the kidneys were allocated, thus denying a potential SPK recipient.”

Approximately 90 percent of the pancreas transplants performed at Baylor are com-

bined kidney-pancreas transplants; pancreas alone transplants are rare at only 5 to 10 percent.

At Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth, patients on the list for a simultaneous kidney/pancreas transplant wait on average no longer than three months. This data, which was analyzed over a five-year period, contrasts sharply with the wait times at other centers in Dallas/Fort Worth and Texas, which range from 7 to 62 months.

“We already have the shortest wait time in the region,” Dr. Ruiz said. “Hopefully with this new policy in place, our wait times will decrease even further.” ■



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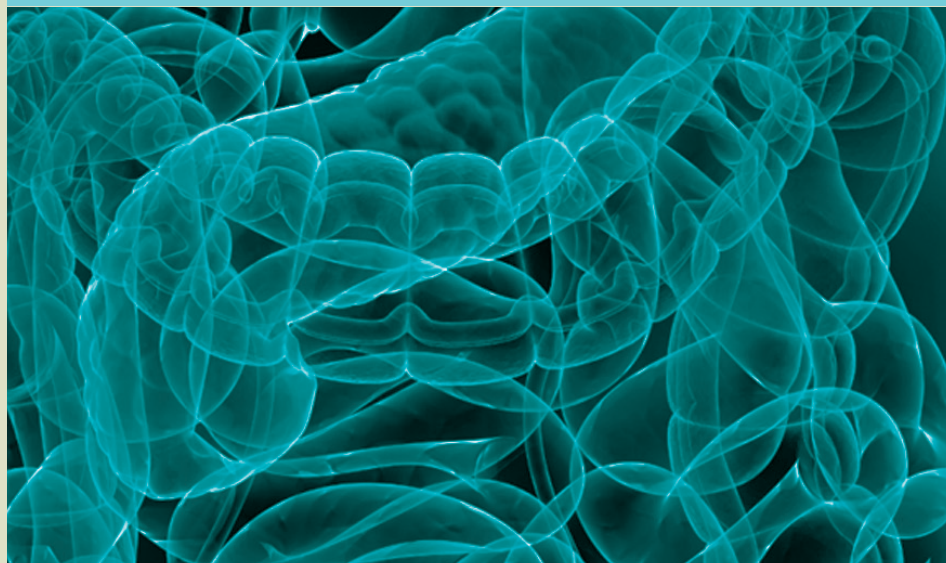
Richard Ruiz, MD

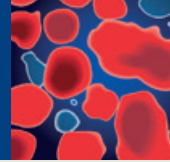


Quick Facts

- First facility in the Southwest to be approved by the American Society of Transplant Surgeons as a surgical training program in pancreas transplantation.
- Pancreas patient survival rates at Baylor University Medical Center and Baylor All Saints Medical Center exceeded the national average for one-year survival.
- The program* has performed 226 pancreas transplants.

* Volumes are based on pancreas transplants at Baylor University Medical Center and Baylor All Saints Medical Center.





Novel Biomarker Identified to Track Islet Cell Damage after Transplantation



Allogeneic islet cell transplantation continues to show promise for treating patients with type 1 diabetes. Auto islet cell transplantation has proved to be an effective treatment for patients with chronic pancreatitis. In both forms of transplantation, a significant mass of islets are lost immediately after infusion into the portal vein of the liver due to inflammation.

“After transplantation, it has been challenging to investigate islet graft survival or chronic rejection in a patient,” said Bashoo Naziruddin, PhD, director of the Islet Cell Laboratory at Baylor University Medical Center at Dallas. “In clinical practice, islet graft function has been monitored by metabolic function via blood glucose, insulin and C-peptide levels, as well as through imaging. However, these tests are influenced by physiological changes,

including islet stimulation. We determined a need to identify a biomarker that can specifically detect islet damage independent of metabolic stimuli.”

One option for a biomarker is micro RNAs (miRNAs), a class of non-coding RNAs that play key roles in the regulation of gene expression. According to the miR-Base registry, about 2,578 mature miRNA sequences have been identified in the human genome. Recently, miRNAs present in the circulation have been found to serve as biomarkers for various cancers and other diseases.

Based on previous reports on diabetic mouse models, the Baylor research team recently conducted a study to determine if miR375 could be a reliable biomarker for islet damage. Levels of miR375 were

tested in 29 patients: 15 autologous islet recipients (patients with chronic pancreatitis) eight allogeneic recipients with type 1 diabetes, and six control patients with total pancreatectomy alone.

Results showed that miRNA is present in human islets and is released when islets are damaged under in vitro conditions. The dose-dependent release of miRNA suggested specificity for islets. When patients received islets as a transplant, the blood circulation showed higher concentration of miRNA, which indicated damage to islet immediately after transplantation. Previous studies at Baylor showed that a strong inflammatory reaction takes place during the same time, leading the team to conclude that islets are damaged by an inflammatory response.

Baylor’s islet team uses two major anti-inflammatory drugs – etanercept and anakinra – to control inflammatory damage to islets. Patients who received both these drugs showed significantly lesser islet damage based on miR375 levels when compared to patients who received either one or none of these drugs.

“The results of this study revealed a novel and sensitive biomarker to track islet damage after transplantation,” Dr. Naziruddin said. “We expect this will lead to development of effective strategies to prevent islet damage and improve transplant outcomes. We plan to extend our studies to follow islet transplant patients over the long term to understand the effect of chronic rejection of islets in type 1 diabetic patients.” ■



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Bashoo Naziruddin, PhD





For 2nd Year in a Row: Baylor Dallas Heart Transplant Program Among Top 2 in the Nation

For the second year in a row, the heart transplant program at Baylor University Medical Center at Dallas has achieved the status of second largest transplant center in the United States in terms of volume. In 2014, transplant surgeons on the medical staff performed 102 heart transplants.

Since the addition of a new surgical team in 2012, the volume of transplants has tripled. And the median wait time for status 1A patients has shrunk to just seven days. Baylor Dallas' location in the center of the nation puts surgeons on the medical staff within just a few hours of donor hearts, expanding treatment options for patients nationwide.

“Our volumes are continuing to increase because we find opportunities where others do not. We are willing to travel to examine grafts that are declined by other centers,” said Gonzo Gonzalez-Stawinski, MD, chief of heart transplantation and mechanical circulatory support at Baylor Dallas. “We also accept high-risk recipients that other centers may have declined, yet are able to maintain survival rates that are comparable to the national average as a result of the surgical expertise in our program.”

A key component of the program's growth is the expansion of the outreach program for patients with end-stage heart failure. Through monthly clinics in Abilene, Amarillo, Austin, Longview, Lubbock

and Odessa, a transplant cardiologist on the medical staff evaluates patients for cardiac transplantation, left ventricular assist devices (LVADs) and chronic inotropic therapy. Patients have come from as far away as New York, New Jersey, North Carolina, Tennessee, Missouri and Michigan, as well as the neighboring states of Arkansas, Louisiana, New Mexico and Oklahoma. The clinics are an outreach service of HealthTexas Provider Network.

Baylor Dallas also has established a dual listing program – approved by the United Network of Organ Sharing – whereby patients in need of a heart transplant can be put on the wait list at Baylor Dallas in addition to the wait list at a transplant center close to home. Patients whose driving distance is more than four hours make travel arrangements with air transportation companies to facilitate transport when an organ becomes available. Alternatively, some patients choose to move to the Dallas/Fort Worth area to wait for transplant.

“As a Center for Advanced Heart Failure, we offer the full range of therapeutic options,” said Shelley A. Hall, MD, FACC, chief of transplant cardiology and mechanical circulatory support/heart failure at Baylor Dallas. “For patients who are not candidates for a heart transplant, a left ventricular device or LVAD may be an option for managing their advanced heart failure. We can help navigate the patient to the appropriate care through our center.” ■



Heart Transplant Program Highlights

- 102 heart transplants performed in 2014
- Second largest heart transplant program in the nation
- Median wait time for heart transplant for status 1A patients has shrunk to just 7 days
- Surgical expertise and medical management before and after transplant result in survival statistics that exceed the national average
- Patients are provided with transplant care throughout their lifetime
- Dual Listing Program



Our volumes are continuing to increase because we find opportunities where others do not. We are willing to travel to examine grafts that are declined by other centers. We also accept high-risk recipients that other centers may have declined.

Gonzo Gonzalez-Stawinski, MD





New Lung Transplant Team Enhances Expertise and Expansion of Services

In 2014, the lung transplant team at Baylor University Medical Center at Dallas performed a record 38 transplants, placing the program in the top 25 percent of centers nationally. As volumes have steadily increased, waitlist times have continued to decrease. One-year survival rates for patients treated at Baylor Dallas consistently meet the national average.

A new team of nationally respected transplant specialists on the medical staff has enhanced the extensive experience Baylor Dallas offers in the care of high-risk lung transplant patients.

“The lung allocation score, which allocates lungs based on disease severity and estimated survival time, has led to transplantation of older and sicker patients, many with co-morbidities, so we want to transplant them as quickly as possible,” said David P. Mason, MD, chief of thoracic surgery and lung transplantation for Baylor Scott & White Health. “We are standardizing our protocols to improve the quality of care and produce better outcomes for patients. We also are working with the ICU team to optimize post-transplant care to get patients through operations they may not have survived in the past.”

Before joining Baylor Scott & White in 2014, Dr. Mason was on the surgical staff at Johns Hopkins University and the Cleveland Clinic in Ohio. He is recognized as an international leader in the field of lung transplantation.

In addition to highly experienced lung transplant surgeons on the medical staff, the lung transplant team at Baylor Dallas includes transplant pulmonologists, coordinators, social workers, physical therapists, respiratory therapists, anesthesiologists, nutritionists and nurses. This team provides a rapid, comprehensive evaluation to determine the appropriateness and timing of transplantation. The goal is to see all patients referred for evaluation within seven days of referral.

“We want to enhance the experience for both patients and referring physicians,” Dr. Mason said. “We communicate well with referring physicians, providing them regular updates on their patients’ status and condition. We care about our patients and want to get them transplanted to a better quality of life.”

Advancing the Field of Lung Transplantation

The lung transplant team is building an extensive clinical and translational research program to improve outcomes after lung transplantation. A comprehensive clinical research database will track patient outcomes throughout the entire transplant process and beyond. A biorepository will store various tissue samples gathered through the course of patients’ treatment. Researchers hope to discover biomarkers that will allow them to develop lab tests to monitor disease progression, rejection and response to treatment.

“The volume of lung transplants is not nearly as high as abdominal organs or heart transplants, so it is very important that we capture this information,” said Howard J. Huang, MD, assistant medical director, lung transplantation and director, lung transplantation research, who joined Baylor Scott & White from Barnes Jewish Hospital in St. Louis. “Although lung transplantation has become an accepted therapy for some end-stage lung diseases, there are still many unanswered questions. Outcomes are not as good as for other organs. A key objective is to identify new treatments or new diagnostic tests to improve outcomes and extend the survival of lung allografts.”

Another key research goal is to develop the infrastructure to allow Baylor Dallas to actively participate in multicenter studies. “To move the lung transplantation field forward, we will use data from multiple centers to study a particular problem,” Dr. Huang said, “such as how do we prevent rejection, how do we tell the difference between rejection and an infection, and ways to predict based on donor constitution how a lung allograft will perform in a recipient.”

Advanced Therapies for Complex Lung Diseases

For patients who are not candidates for lung transplant, the Center for Advanced Heart and Lung Disease offers a full range of diagnostic tools and advanced therapies for patients with complex, chronic and rare lung diseases, such as cystic fibrosis and bronchiectasis, interstitial lung diseases, pulmonary hypertension, and obstructive lung diseases such as asthma, chronic bronchitis, and emphysema.

Treatment for patients with these diseases is led by Randall L. Rosenblatt, MD, MACP, FACC, chief of pulmonary services and medical director of lung transplantation at Baylor Dallas, and Kenneth Ausloos, MD, medical director of interstitial lung disease and pulmonary hypertension at Baylor Dallas.

Life-Saving Treatment through ECMO

Patients with acute cardiac or respiratory failure may be candidates for circulatory support with extracorporeal membrane oxygenation (ECMO). ECMO therapy can provide temporary support for heart or lung failure while organ recovery occurs or alternatively as a life-support bridge to heart or lung transplantation. Large catheters inserted into the blood vessels permit pumping of oxygenated blood throughout the patient to support heart and/or lung function.

Baylor Scott & White has the only emergency ECMO deployment program in North Texas. Centered at Baylor Dallas, the program is also one of the busiest adult ECMO program in the region, providing ECMO support to multiple facilities in North Texas, as well as Oklahoma, Arkansas and Louisiana.

Patient transport and on-site initiation of ECMO is provided by a rapid-response team composed of surgeons, certified perfusionists and specialty trained EMTs. Transport capabilities in close collaboration with CareFlite include ambulance, helicopter and airplane transportation. Furthermore, we excel in transport safety using advanced ECMO equipment.

Patient care is directed by an experienced surgical team comprised of cardiothoracic surgeons and surgical intensivists on the medical staff. Patient outcomes at Baylor Dallas exceed the national average for both cardiac and respiratory failure.

Comprehensive, Multispecialty Care in One Location

Baylor Dallas offers the full range of advanced diagnostic and therapeutic options for complex, chronic and rare lung diseases in one convenient location. This makes the team of experienced clinicians readily accessible and available to patients and referring physicians. Baylor Dallas also offers patients access to clinical trials to evaluate potential therapeutic agents, treatments that may not be available at other centers. ■

Transfer Information

Baylor Annette C. and Harold C. Simmons Transplant Institute is the integration of transplant services at Baylor University Medical Center at Dallas and Baylor All Saints Medical Center at Fort Worth. Together, Baylor Dallas and Baylor Fort Worth are one of the largest multispecialty transplant centers in the country.

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 Annette C. and Harold C. Simmons Transplant Institute representative will assist you.

To learn more about the transplant programs and criteria, visit BaylorHealth.edu/Transplant.

If you wish to be taken off this mailing list, please call 1.800.9BAYLOR.

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