

Milestones

The 500th Heart Transplant

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In 1970, Ochsner Clinic set a landmark with the performance of the region's first heart transplant just 3 years on the heels of the world's first. Now, 30 years later, it is with great pride that I announce the completion of our 500th heart transplant. This is shared by only five other centers in the United States and is a testament to Ochsner's elite status and ongoing commitment to the field of organ transplantation.

When the region's first heart transplant was performed by Dr. John Ochsner, this procedure was largely considered experimental. No effective anti-rejection treatments were available and long-term survival was doubtful. Today, heart transplantation is an established therapeutic modality and routinely offered to patients with refractory heart failure and no alternative options. The development of effective immunosuppressive therapy and modalities to detect allograft rejection have led to expected 1-year survivals exceeding 80%, yet the procedure continues to be plagued by an excessive late death rate with a 50% 10-year survival.

The reasons underlying the late losses after heart transplantation stem largely from the development of an unusually aggressive and relentless form of coronary artery disease in the transplanted heart termed "cardiac allograft vasculopathy" for its non-specific and ubiquitous involvement of the transplanted organ's entire vascular bed including the venous structures. This bane of cardiac transplantation has been the primary focus of our research at the Ochsner Cardiomyopathy and Heart Transplantation Center. We were one of the first to characterize the "angiographically silent" nature of this disease by using advanced techniques of intravascular ultrasonography and intracoronary angiography. Further research focused on determining the risk factors

associated with this disease, identification of therapeutic targets, development of algorithms for cost effective risk stratification, and exploration of the role of pharmacological, interventional, and surgical modalities for the treatment of cardiac allograft vasculopathy.

The future of heart transplantation continues to be threatened by the lack of suitable donor organs, evidenced by a growing disparity between the annually increasing number of

candidates listed for transplantation but a steady plateau in the number of heart transplants performed. This disturbing trend is accompanied by a 20-30% death rate while waiting on the transplant list. Despite community efforts at increasing organ donation awareness, the trend of insufficient organ availability continues. This shortcoming has spurred renewed interest in searching for clinical alternatives to transplantation ranging from the creation of comprehensive strategies for effective patient education and compliance to advanced surgical interventions such as high risk coronary bypass, valvular surgery, surgical remodeling, and placement of left ventricular assist devices. Reduced organ availability has also led to our changing emphasis from a single-minded approach towards heart transplantation to a

comprehensive programmatic approach incorporating the best of all available medical and surgical treatment options, a need that we recognized several years ago.

In fulfilling our role as a national leader in the area of heart failure and transplantation, the Ochsner Cardiomyopathy and Heart Transplantation Center pledges to provide the most experienced, the latest, and the best treatment options emerging in this area. We shall continue to strive for excellence in teaching, education, and research.



Dr. Clifford Van Meter, Jr. (performed the 500th transplant), Dr. John Ochsner (performed the first transplant), and Dr. Mandeep Mehra (Chief, Heart Failure and Cardiac Transplantation Program)

Comments from John L. Ochsner, MD
Chairman Emeritus, Cardiothoracic Surgery

Ochsner, a pediatric cardiothoracic surgeon, performed the first Louisiana heart transplant.

From my perspective the most exciting and interesting thing about cardiac transplantation is that in the early days we had no conception of what we were really doing in controlling rejection or diagnosing rejection. The two monumental developments that have changed transplantation from a very hazardous procedure to one of very low risk are the development of cyclosporine and the biopsy forcep.

Cyclosporine allowed us to treat people for rejection on a long-term basis without too much risk to the rest of their body functions. The development of the biopsy forcep is equally important. Before the biopsy forcep we never knew when someone was truly rejecting; hence we constantly over-treated with drugs, destroying their immune system.

In contrast to Sunday’s milestone, we now have hundreds of people involved in a transplant operation; in the early days we only had three or four people on the entire team. It has gone from a very scary and unpredictable procedure, because of a lack of knowledge and equipment, to a procedure that is very safe and effective.

Most surgeons have seen hundreds of heart transplants before ever performing one on their own. When I took out the first one (heart) I can remember looking at that empty space. I’d never seen an empty space in a body before. It was a scary feeling.”

US Heart Transplant Statistics	
<i>1968:</i>	First successful heart transplant Dr. Norman Shumway, Stanford University Hospital, Stanford, California
<i>1970:</i>	First successful heart transplant in Louisiana Dr. John Ochsner, Ochsner Foundation Hospital, New Orleans, Louisiana
<i>1985:</i>	First successful modern era heart transplant of the Ochsner Heart Transplant Program Dr. John Ochsner, Ochsner Foundation Hospital, New Orleans, Louisiana

United Network for Organ Sharing (UNOS) Statistics (Clinical Transplants 1997, Paul I. Terasaki, Ph.D.; J.M. Cecka, Ph.D.; UCLA Tissue Typing Laboratory.)

- As of December 25, 1999, 4,135 patients in the US were awaiting a heart transplant.
- From 1988 to June 30, 1999, 10,864 heart transplants took place in the US.
- The longest living heart transplant recipient has survived 22 years, 8 months following transplant (Stanford University Hospital, 1975).
- The youngest surviving heart transplant recipient was 3 hours old at time of transplant and has survived 10 years, 2 months (Loma Linda University Hospital, 1987).

US Facilities to Reach 500 Heart Transplants: There are 282 transplant centers in the United States (153 have heart programs)

1. Ochsner Clinic and Hospital
2. The Cleveland Clinic Foundation
3. The University of California – Los Angeles
4. Presbyterian Hospital in New York
5. Temple University Hospital in Philadelphia
6. St. Luke’s Episcopal Hospital in Houston (Texas Heart Institute)

Suggested Reading

1. Mehra MR, Ventura HO, Chambers RB, et al. Predictive model to assess risk for cardiac allograft vasculopathy: An intravascular ultrasound study. *J Am Coll Card* 1995; 26:1537-1544.
2. Mehra MR, Ventura HO, Smart FW, et al. The prognostic significance of intimal proliferation in cardiac allograft vasculopathy: A paradigm shift. *J Heart Lung Transplant* 1995; 14:S207-S211.
3. Mehra MR, Ventura HO, Chambers RB, et al. The prognostic impact of immunosuppression and cellular rejection on cardiac allograft vasculopathy. *J Heart Lung Transplant* 1997; 16:743-751.
4. Mehra MR, Ventura HO, Karsan AK, et al. Allograft aortopathy—an in vivo study of donor aorta involvement in cardiac allograft vasculopathy. *Am JHeart J* 1997; 133:698-702.
5. Mehra MR, Ventura HO, Jain SP, et al. Heterogeneity of cardiac allograft vasculopathy: Clinical insights from coronary angiography. *J Am Coll Cardiol* 1997; 29:1339-1344.
6. Mehra MR, Ventura HO, Smart FW, et al. Impact of converting enzyme inhibitors and calcium entry blockers on cardiac allograft vasculopathy: From bench to bedside. *J Heart Lung Transplant* 1995; 14:S246-S249.