“Virtually every single person in this country knows someone who has end-stage organ disease and who could benefit from transplantation,” said Nancy Ascher, MD, PhD, chair of the department of surgery. “UCSF has premier programs in transplantation of virtually all the solid organs. Our expert teams of specialists provide outstanding patient care. They offer even the most seriously ill patients the best chance of successful outcomes and ensure patients’ lives after transplant are as normal as possible.”
The field of transplantation has evolved with astonishing speed: the first successful transplant (kidney) in the world was performed in 1954, and as recently as the early 1980s, the one-year survival rate for liver transplant recipients was only 20 percent. Today, that survival rate has risen to 90 percent. UCSF’s transplant survival rates are comparable or superior to the average in every area, even though UCSF treats some of the most seriously ill patients. Some of UCSF’s transplant innovations include:

- Living donor program, in which healthy donors can donate one kidney or part of their liver to a transplant patient.
- Paired donor exchange, in which UCSF matches a donor and recipient pair with incompatible blood types with another donor-recipient pair, enabling two recipients to receive organs with perfectly matched blood types.
- HIV and transplantation: UCSF has pioneered the successful kidney, liver, pancreas and islet transplantation of HIV+ patients.
- Islet transplantation, in which patients receive the insulin-producing cells from a donor’s pancreas, virtually curing them of diabetes.

With advances in surgical technique and improved drugs to prevent infection and rejection, organ transplantation is now recognized as the most effective treatment for many diseases. UCSF is a leader in both adult and pediatric transplants for liver, kidney, pancreas and small bowel, attracting patients nationally and internationally. Children, who previously had little hope of survival in the event of organ failure, now thrive as healthy adults with transplanted organs.
At UCSF, each transplant candidate is carefully evaluated by a multidisciplinary team that includes transplant surgeons, gastroenterologists, nephrologists, hepatologists, anesthesiologists, infectious disease specialists, social workers and other health professionals. Patients receive state-of-the-art care for this highly complex procedure and have intensive long-term follow-up.

The Division of Transplant Surgery has a thriving research program and offers a broad portfolio of clinical trials led by Principal Investigators and is supported by a dedicated staff of trial coordinators and clinical research nurses. The Abdominal Transplant Fellowship program offers a rich educational experience for the aspiring transplant surgeon; some of its graduates have chosen to continue their careers at UCSF and have become leaders in the field.

Conditions & Treatments

Kidney Transplant

The Division of Transplant Surgery at UCSF has performed more kidney transplants than any other institution in the United States — more than 8,000 since 1964 — and is the fifth largest center for living donor kidney transplants in the country. Each year, the transplant team evaluates about 1,200 patients and
performs more than 350 kidney transplants. Its one-year success rate is one of the highest in Northern California, and its pediatric kidney transplant program is one of the largest of its kind in the United States.

In the western United States, UCSF is a major kidney transplant referral center, known for treating complex cases, including patients with diabetes and those referred from other centers after post-transplant complications. Our many contributions to the field include:

- Evaluation of new immunosuppressive drugs that offer the promise of safer and more successful transplants.
- Advanced surgical techniques such as laparoscopic donor kidney removal or nephrectomy, using tiny incisions, and managing vascular and urological complications after transplant.

**Liver Transplant**

The Liver Transplant Program at UCSF Medical Center has performed more than 2,300 liver transplants for adults and children since it began in 1988.

The program, designated as a "Center of Excellence" by the U.S. Department of Health and Human Services, does more liver transplants than any other hospital in Northern California and is recognized as one of the nation’s leading centers for pediatric and adult liver transplants.

Adults who receive transplanted livers from cadavers have a one-year survival rate of 92 percent at UCSF, compared to an 88 percent average nationwide, according to data compiled by the Scientific Registry of Transplant Recipients.

An innovative procedure, called living donor liver transplant, allows a living person to donate a segment of their liver, which grows or regenerates to full size in the recipient. The procedure was initially performed in children because it is particularly difficult to find small donor organs. Today, the procedure helps save the lives of adults as well. Our liver transplant surgeons are among the most experienced in the nation in performing living donor transplants for adults and children. Unlike patients with kidney failure who can be supported by dialysis, there is no dialysis-type treatment for chronic liver disease.

**Pancreas Transplant**

Pancreas transplantation can help manage complications in the kidney that may result from insulin-dependent diabetes. It can eliminate the need for insulin injections, reduce or eliminate dietary and activity restrictions due to diabetes, and decrease or eliminate the risk of severe low blood sugar reactions.
The Transplant Program’s internationally recognized team of surgeons, and liver and kidney specialists, is supported by specialists in anesthesiology, infectious diseases, kidney disease, heart disease and pharmacology, as well as by nurse coordinators, social workers, mental health professionals, a nutritionist and financial counselors.
UCSF Medical Center is a leader in pancreas and pancreas-kidney transplants for patients with diabetes mellitus. We offer three kinds of pancreas transplants:

- A combined pancreas and kidney transplant for diabetics suffering from end-stage kidney disease (ESRD).
- A solitary pancreas transplant to prevent the onset of diabetic complications in the kidney, including a previously transplanted kidney.
- An islet transplant — a relatively minor surgical procedure, although it carries the same rejection risks as other transplants.

In the past two years, we have performed more than 45 pancreas transplants. Although these operations are more complex than solitary kidney transplants and require close post-operative follow-up, our patients have done extremely well and enjoy a life free of dialysis and insulin therapy.

Since 1989, we have performed combined pancreas-kidney transplants in more than 200 type 1 diabetic patients. Our one-year success rates are 100 percent for kidney and 88.72 percent for pancreases, and our one year patient survival is 100 percent. The five-year patient survival rate is 86 percent.

**Small Bowel Transplant**

An intestinal transplant is a last-resort treatment option for patients with intestinal failure who develop life-threatening complications from total parenteral nutrition (TPN). In intestinal failure, the intestines cannot digest food or absorb the fluids, electrolytes and nutrients essential for life. Patients must receive TPN, which provides liquid nutrition through a catheter or needle inserted into a vein in the arm, groin, neck or chest. Long-term TPN can result in complications including bone disorders, catheter-related infections and liver failure. Over time, TPN also can damage veins used to administer nutrition via the catheter.

**Pediatric Kidney Transplant**

When the kidneys stop working, toxic waste products build up in the body, eventually resulting in end-stage kidney disease. A child who reaches end-stage kidney disease will need either dialysis — a mechanical process for filtering waste products out of blood — or a transplant. Neither of these options cures kidney failure. However, a successful transplant offers the closest thing to a normal state.

UCSF’s Organ Transplant Program is a leader in performing kidney and liver transplants in children, attracting patients from throughout the West Coast.

**Pediatric Liver Transplant**

Liver transplantation, first performed in 1963, provides an opportunity for a longer, more active life for people in the final stages of liver disease. Advances in surgical techniques and new medications that prevent the body from rejecting the transplanted organ have greatly improved success rates.
As the largest organ in the body, the liver performs many complicated functions, including processing proteins, fats and carbohydrates. In addition, the liver makes the chemical components that help blood to clot. If the liver fails, the body loses the ability to clot blood, as well as to process nutrients needed for life.

The liver also excretes a yellow digestive juice called bile, which may accumulate if the liver is not working properly. The eyes may become "jaundiced" or yellow, or the skin may itch from the accumulated bile. Some medications help treat the symptoms of liver failure, but there are no drugs that cure liver failure.

**Pediatric Small Bowel Transplant**

An intestinal transplant may be a life-saving treatment for children with intestinal failure who develop serious complications from total parenteral nutrition (TPN). Similar to adults, long-term TPN can result in complications such as bone disorders, central venous catheter infections and liver failure. After receiving an intestinal transplant, patients can be transitioned from TPN to an oral diet, thus improving their health and quality of life.

**Research Overview**

**Basic Science**

An essential function of the immune system is the regulation of its own activities to refrain from attacking healthy tissues and to contract after successful elimination of pathogens. Research in the past decade has shown that much of the self-control of the immune system can be attributed to a small population of white blood cells called regulatory T cells (Tregs). One of our current studies is investigating how Tregs prevent autoimmune diabetes and transplant rejection in mouse model systems. In addition, we are exploring the therapeutic use of Tregs in human patients to halt progression of autoimmune diabetes and to induce immune tolerance to transplanted organs.

To discover other immune mechanisms that are important to transplantation tolerance, we are studying immune responses to liver transplantation in mouse models and in human patients. Among the various transplanted organs, the liver has the strongest propensity to induce immunological tolerance. Approximately 20 percent of patients and 100 percent of mice receiving liver transplants accept the organs as their own. Therefore, all immunosuppressive drugs can be stopped. Eliminating or minimizing immune suppression has a significant impact on the overall health of patients by reducing the chances of infection and cancer outgrowth, and avoiding drug toxicity. We are studying liver tolerance mechanisms for the benefit of future organ transplant recipients.
Clinical Research

Principal Investigators in the Transplantation Research Lab are also currently conducting several human research studies to evaluate the efficacy and safety of newly developed immunosuppressive agents.

Another goal of current clinical studies is to analyze the effects of withdrawal from immunosuppressive drugs. The clinical and mechanistic outcomes of attempting withdrawal are compared to those in groups whose standard treatments are maintained, the objective being to establish how best to manage immunosuppression in various types of patients.

UCSF’s world-renowned physicians engage in novel research that not only helps transplant patients, but also improves health outcomes for all patients. These discoveries have helped reduce the number of transplants that become necessary, and also have shed new light on the biology of diseases such as liver cancer, hepatitis B and hepatitis C.
Surgery Faculty

John P. Roberts, MD
Professor and Chief, Division of Transplant Surgery
Chief of the UCSF Medical Center Transplant Service

Nancy L. Ascher, MD, PhD
Professor and Chair, Department of Surgery
Isis Distinguished Professor of Transplantation

Sandy Feng, MD, PhD
Associate Professor of Surgery
Director, Expanded Criteria Donor Kidney Transplant Program
Director, Abdominal Transplant Fellowship Program at UCSF

Chris E. Freise, MD
Professor of Surgery

Ryutaro Hirose, MD
Associate Professor of Surgery
Co-Director, Ischemic Organ Injury Laboratory

Sang-Mo Kang, MD
Associate Professor of Surgery
Surgical Director, Intestinal Rehabilitation and Transplantation
Andrew M. Posselt, MD, PhD
Associate Professor of Surgery

Peter G. Stock, MD, PhD
Professor of Surgery
Surgical Director, Pediatric Renal Transplantation Program
Surgical Director, Pancreas Transplant Program

Research

Holger F. Willenbring, MD
Assistant Professor, Developmental and Stem Cell Biology Program and Department of Surgery

Qizhi Tang, PhD
Assistant Professor of Surgery
Director, Transplantation Research Laboratory

Immunogenetics

Lee Ann Baxter-Lowe, PhD, dipABHI
Professor of Surgery
Director, UCSF Immunogenetics and Transplantation Laboratory
Anesthesia & Perioperative Care Faculty

John Feiner, MD
Professor of Clinical Anesthesia
Director, Liver Transplant Anesthesia

Helge Eilers, MD
Associate Professor of Clinical Anesthesia

Linda Liu, MD
Professor of Clinical Anesthesia and Critical Care Medicine
Fellowship Director for Critical Care Medicine

Claus Niemann, MD
Associate Professor of Anesthesia and Surgery
Director, Fellowship Liver Transplant Anesthesia
Co-Director, Ischemic Organ Injury Laboratory

Manuel Pardo, MD
Professor of Clinical Anesthesia and Critical Care Medicine
Sol Shnider Endowed Chair for Anesthesia Education
Vice Chair for Education
Residency Program Director

John Taylor, MD
Assistant Clinical Professor of Anesthesia and Critical Care Medicine
Medical Director, Moffitt-Long Post Anesthesia Care Unit
Medical Director, Moffitt-Long Anesthesia Workroom

C. Spencer Yost, MD
Professor of Anesthesia and Critical Care Medicine
Medical Director, UCSF-Mt. Zion Intensive Care Unit
Hepatology Faculty

**Francis Yao, MD**  
Professor of Medicine  
Medical Director, Liver Transplantation Program

**Nathan Bass, MD, PhD**  
Professor of Medicine  
Associate Medical Director, Liver Transplant Service  
Director, Transplant Hepatology Training Program

**D. Montgomery Bissell, MD**  
Professor of Medicine

**Oren Fix, MD, MSc**  
Assistant Professor of Medicine

**Marion Peters, MD**  
Professor of Medicine

**Norah Terrault, MD, MPH**  
Associate Professor of Medicine and Surgery  
Director, Viral Hepatitis Center
Nephrology Faculty

Stephen J. Tomlanovich, MD
Professor of Medicine and Surgery
Department of Medicine, Division of Nephrology
Department of Surgery, Division of Transplant Surgery
Medical Director, Kidney Transplant Service

Brian Lee, MD
Assistant Professor, Division of Nephrology

Flavio Vincenti, MD
Professor of Clinical Medicine and Surgery
Department of Medicine, Division of Nephrology
Department of Surgery, Division of Transplant Surgery
Deborah Faiman Endowed Chair in Kidney Transplantation

Allison Webber, MD
Assistant Professor, Division of Nephrology

David Wojciechowski, DO
Assistant Professor, Division of Nephrology

Pediatric Nephrology Faculty

Anthony A. Portale, MD
Professor of Medicine
Director, Pediatric Dialysis Program
Paul Brakeman, MD
Assistant Adjunct Professor of Medicine

Marsha Lee, MD
Assistant Professor of Medicine

Farzana Perwad, MD
Assistant Adjunct Professor of Medicine

Pediatric Transplant Faculty

Melvin B. Heyman, MD, MPH
Anita Ow Wing Endowed Chair
Professor of Pediatrics
Chief of Division
Director of Training Program
Director, Pediatric Inflammatory Bowel Disease Program

Sue J. Rhee, MD
Assistant Professor
Medical Director, Pediatric Intestinal Rehabilitation and Transplant Program

Philip Rosenthal, MD
Professor of Pediatrics and Surgery
Medical Director, Pediatric Liver Transplant Program
Director, Pediatric Hepatology
Who Will Benefit

The Transplant Service at UCSF embodies UCSF’s three-fold mission of patient care, research and teaching.

The Transplant Service at UCSF is recognized throughout the world as a leader in the field, known for the delivery of both compassionate and innovative care to patients. With the resources of an academic medical center, UCSF provides special services that often are not available elsewhere in the community. Our physicians not only have access to the latest technologies, but they are oftentimes the ones who develop them.

If you are interested in participating or learning more about any of our research studies, please do not hesitate to contact any of the physicians in the Transplant Service.

If you would like to support the Transplant Service at UCSF, please contact Regan Botsford, Director of Development, at (415) 502-1573 or rbotsford@support.ucsf.edu.

Please visit us online:
http://transplant.surgery.ucsf.edu/