

The Center for
**Liver Disease &
Transplantation**
NewYork-Presbyterian Hospital

Liver News



Jean C. Emond, MD

Our New Transplantation Initiative

The leadership of NewYork-Presbyterian Hospital/Columbia University Medical Center (NYPH/CUMC) has launched a major initiative to expand both the clinical and research aspects of transplantation.

Although the institution is already a national leader in clinical transplantation with respect to volume and patient outcomes, there remains untapped potential for improved collaboration between departments leading to further clinical innovation, and deeper understanding of the biology of transplantation.

The organizational principles of this multi-year undertaking involving heart, lung, kidney, and liver transplants are based in the care of patients with the most complex diseases. Patients with advanced organ failure require holistic, interdisciplinary care, encompassing medical and psychosocial interventions. Our plan is to extend the interdisciplinary approach built over the past 20 years and apply it across an even greater range of scientific, medical, and patient care teams.

Four departments will form the core of the Transplant Initiative: Medicine, Pathology, Pediatrics, and Surgery. An influx of recruitment resources will be devoted to increasing the contingent of transplant scientists and clinicians among these four clinical departments. Increasing the depth of our translational research in transplant-related areas will enhance collaboration with our basic science colleagues.

Formalizing the community of transplant professionals, including physicians, scientists, and advanced practice nursing professions will better position Columbia faculty to

compete for and carry out larger extramurally funded research programs both in the laboratory and in the clinical trials arena. These major grants and clinical consortia demand integration of multiple disciplines in order to address the specified research problems.

Many research agendas are already in place among our faculty, including novel approaches to the clinical management of patient candidates for transplantation, management of organ donors and preservation of organs, and clinical immunologic research. Our clinical transplant faculty already have extramural funding for the study of innovative surgical approaches such as living donor liver transplantation and mechanical support of the failing heart, as well as many aspects of recipient medical care.

Nonetheless, these programs need to be expanded and deepened to address the biology of ischemia and reperfusion, allo-immune responses to the donor organs, including T cell functions and tolerance, B cell contributions to graft injury, and novel immunotherapy and monitoring. A major area of research in which Columbia faculty have made important contributions is in approaches to increasing the pool of available organs through innovative approaches in organ selection, preservation, immune manipulations, and improved monitoring of graft rejection. In addition to clinical and scientific issues, our faculty have major interest



Jean C. Emond, MD, Thomas S. Zimmer Professor of Surgery, Vice Chair and Director of Transplantation at NewYork-Presbyterian Hospital/Columbia University Medical Center, has been a transplant surgeon at Columbia since 1997.

in the study of issues in ethics and public policy related to transplants and the study of long-term health in donors and recipients of organ transplants.

In addition to faculty recruitments and the endowment of research programs, the initiative will entail major investment at NYPH, the Morgan Stanley Children's Hospital, and the Columbia University College of Physicians and Surgeons. Renovation and expansion of existing inpatient and outpatient facilities will take place over a three-year period, starting later this year and extending to 2010. Work on the creation of a pediatric outpatient transplant center is slated to begin next winter. In 2010, the opening of a dedicated critical care unit specifically for transplant patients is planned. Overall, we expect the investment of over \$50 million in capital for programs and facilities to further the transplant mission over the next five years.

James V. Guarrera, MD

Narrowing the Gap Between Donor Scarcity and the Waiting List Brings Superior Outcomes

New York State is plagued by a long waiting list for liver transplantation and a severe shortage of transplantable donor livers. This discrepancy makes it challenging for transplant centers in New York to adequately care for patients with end-stage liver disease and hepatocellular carcinoma.

At Columbia's Center for Liver Disease and Transplantation (CLDT), surgeons, hepatologists, and nurse practitioners work diligently to assure that all patients in need have the best likelihood of getting transplanted in a timely fashion with the best possible outcomes.

Unfortunately, waiting until the patient's MELD score is high enough to receive a transplant from New York's supply of donors may lead to inferior survival and outcomes, and significant morbidity. The regional pool of livers tends to supply only the sickest patients, either those with acute liver failure or MELD scores over 25. Earlier studies from Columbia have shown that early transplantation of cirrhotic patients with complications such as refractory ascites, encephalopathy, and variceal bleeding confers a survival benefit.

As our waiting list and program have grown, we have been fortunate to receive many liver offers from other parts of the country which then may be transplanted based on priority as well as MELD score. These extended criteria organs may be from older donors, or have a small degree of fatty change. Our team uses a data-driven policy to select the best livers offered to us from other parts of the country. Many excellent quality livers from outside of

New York are imported each year. Expert evaluation by an experienced procurement team, minimization of cold ischemia time, and appropriate recipient selection yield outstanding results that are equivalent to standard organs that originate in New York. This allows patients to be transplanted earlier, when they are still robust physically and nutritionally. Columbia enjoys a one-year survival of 88% which is higher than all other New York centers by 3-11%.

Our success maximizing access to transplantation is underscored by shorter waiting times. Between 2001 and 2006, our median time to transplant was 18.9 months compared to a mean of 52.7 months at the other New York transplant centers. 65% of CLDT patients came in from home for transplant rather than being transplanted while hospitalized. This compared to only



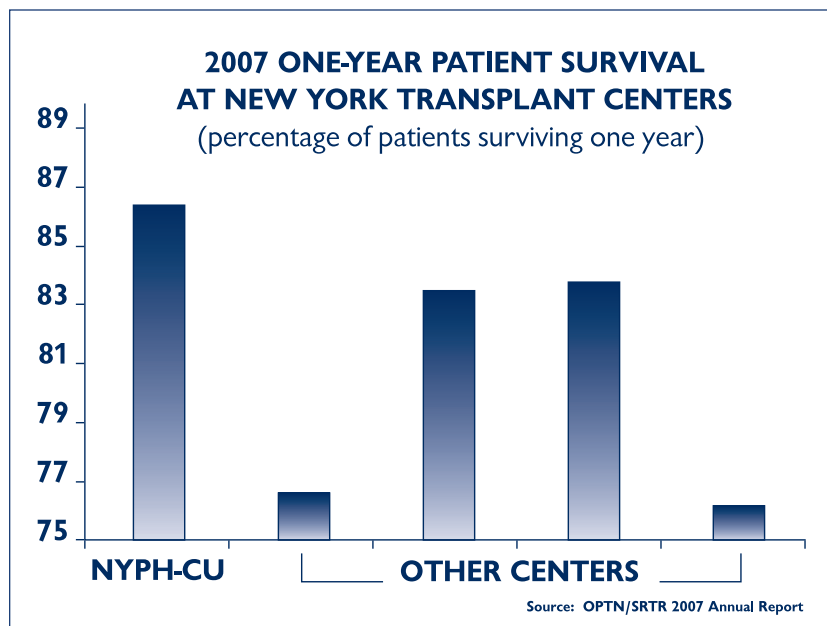
James V. Guarrera, MD, Surgical Director, Adult Liver Transplantation, performing a liver transplant

35% of patients in other New York centers who were at home when a liver became available. Wait list mortality at our center was only 7% versus 13% at the other New York transplant centers

In reviewing our data, we found that participation in the extended criteria donor (ECD) program conferred a significant benefit for patients listed for transplant in 2003-2004. Patients who signed ECD did better and were transplanted at a lower MELD score (19 vs. 30). Death on the waiting list by 2005 was only 3.5% for these patients versus 16% in those who did not participate in ECD listing ($p < 0.05$). Participation in ECD allows the CLDT staff to prioritize patients with a rising MELD score or other complications of their cirrhosis and expedite transplantation before they become extremely sick. This expedited transplantation

results in improved outcomes. The patient and graft survival of patients transplanted with an ECD liver is equal to those transplanted with a standard MELD-allocated liver.

Enabling the patient to obtain a transplant right away and avoid waiting for a donor liver; living donor transplantation (LDLT) was initially performed in 1988 in children. A living liver donor can be a family member or friend. Columbia is one of only a small percentage of programs offering the procedure.



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Robert S. Brown, Jr., MD, MPH and Abby B. Siegel, MD

The Latest Strategies in Managing Liver cancer

It has been an exciting year for liver cancer, at Columbia and worldwide. Anti-angiogenic agents have moved to the forefront of hepatocellular carcinoma (HCC) treatment, and Columbia has been on the front line of this advance.

The Center for Liver Disease and Transplantation participated in an international phase III trial of sorafenib, an oral tyrosine kinase inhibitor of VEGF and RAF kinase in liver cancer. Patients who took the drug lived 44% longer than those who received placebo. This led to the recent FDA approval of sorafenib for HCC—the first drug to be approved for this purpose in the country (Llovet et al, Proc. ASCO, 2007).

Our center also took the lead in a multicenter Phase II trial of bevacizumab in HCC, which has recently closed. Bevacizumab also is an angiogenic agent, but is a monoclonal antibody rather than a tyrosine kinase inhibitor like sorafenib. Bevacizumab looks favorable compared with sorafenib (Siegel et al,

Phase II trial evaluating the clinical and biological effects of bevacizumab in unresectable HCC).

With this encouraging data, we are now exploring these new agents in combination, and in new settings. We are planning a protocol using sorafenib after transplantation for high-risk HCC patients to try to decrease risk of recurrence. This is a paradigm-changing trial—no drug in the United States has ever been shown to prevent recurrent HCC. No drug offers potential to bring liver transplantation to a wider range of more advanced HCC patients in the future.



Robert S. Brown, Jr., MD, MPH, Chief, Division of Abdominal Organ Transplantation; Abby B. Siegel, MD, Medical Director, Hepatobiliary Oncology

We are also in the planning stages with the National Cancer Institute (NCI) as the lead site in a multicenter trial to study bevacizumab together with sorafenib in advanced HCC. We aim to develop protocols to try to "downstage"

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Narrowing the Gap...continued from page 2

CLDT surgeon Jean C. Emond, MD, was a member of the surgical team that pioneered LDLT. As of June, 2007, the CLDT has performed 154 living donor liver transplants, including 111 adult recipients and 43 children. Columbia enjoys excellent results with a one-year survival of 93%.

The major advantage of LDLT is a shorter waiting time for transplantation, which prevents the recipient from deteriorating further and reduces the risk of death on the waiting list. For patients with hepatocellular carcinoma (HCC), early LDLT decreases risk of tumor progression during the wait for a donor liver. Other advantages are that organ donor quality is well known and that preservation injury is minimal, since the organ is immediately implanted.

With living donor liver transplantation, a portion of the healthy donor's liver regenerates to full size within a few weeks of transplant. There is no long-term impairment of liver function. The transplanted liver segment also regenerates, increasing in

size to an appropriate match for the recipient

Disadvantages of LDLT include donor discomfort and small risk of complications to the healthy donor. There have been only two deaths associated with living liver donation in the United States, with an aggregate risk of mortality of less than 0.5%. Recipient biliary complications are slightly higher with LDLT, but these can usually be managed with minimally invasive techniques.

Split liver transplantation is another strategy to further expand the donor pool. In situations where there is an excellent quality donor, a child and an adult may each receive a segment of the same donor liver.

In summary, the staff of Columbia's CLDT has the knowhow, tools, capability, and track record to provide outstanding care to patients with end-stage liver disease and HCC. Improved access to transplantation with ECD and LDLT transplantation maximizes patient outcomes.

The Latest Strategies...continued from page 3

patients prior to liver transplant for HCC. With such an aggressive pre- and post-transplant therapy, we should be able in the future to offer curative therapy to a far wider group of HCC patients.

Cholangiocarcinoma has historically been a difficult cancer to treat. Building on exciting preliminary data from the Mayo Clinic, we have begun a multidisciplinary project to perform liver transplants in patients with biliary cancers following a novel combination of pre-transplant chemotherapy and radiation. The Columbia protocol is a more aggressive regimen than those studied previously and offers a chance to treat larger tumors. Our first four cases have gone well with no recurrence post-transplant and no viable tumor in the first three patients. These excellent results in patients who otherwise would have dismal survival prospects represent an important step forward which we plan to build upon in 2008.



Benjamin Samstein, MD, a CLDT surgeon, reviews a liver cancer patient's CT scan studies.

Published findings, 2007

1. Transplantation yields excellent long-term survival on a population scale, but Blacks and Hispanics are less likely to receive transplants than other racial/ethnic groups.

Siegel AB, McBride RB, El-Serag HB, Hershman DL, Brown RS Jr, Renz JF, Emond J, Neugut AI. Racial Disparities in Utilization of Liver Transplantation for Hepatocellular Carcinoma in the United States, 1998-2002. *Am J Gastroenterol*. 2008 Jan;103(1):120-7. Epub 2007 Nov 15.

2. People with head and neck cancers and HIV are more likely to develop a secondary HCC. This may have implications for shared risk factors (alcohol, viral infections), and for screening.

Siegel AB, McBride R, El-Serag H, Hershman D, Brown RS Jr, Zablotska L, Neugut AI. The Risk of Hepatocellular Carcinoma in Patients with Previous Malignancy. Accepted, *Cancer Investigation*, 2007.

3. Bevacizumab has activity in those with HCC (submitting to JCO). Response rate was 13% (compared with 2% for sorafenib), and time to progression and overall survival were similar to sorafenib.

Siegel et al. A Phase II trial evaluating the clinical and biological effects of bevacizumab in unresectable HCC (submitted).

Receipt of transplants and survival in Hispanics at Columbia (Abstract submitted, ASCO 2008).

Relationship between insurance type, ethnicity, and outcome in HCC (Abstract submitted, ASCO 2008).

Relationship between obesity and pathological aggressiveness in HCC (Abstract submitted, ASCO 2008).

What sets the CLDT apart from other hepatobiliary programs?

First, we have been at the forefront of liver trials for novel drugs with leadership on both of the most impressive biologic agents ever to come out for advanced liver cancers.

We also have a multidisciplinary team for hepatobiliary malignancies, which is very unusual. This allows patients to have seamless care through different disciplines, including hepatology, surgery, interventional radiology, and oncology. Even more important, it allows us to create new trials that combine disciplines, such as the Columbia Protocol for Transplant in

Cholangiocarcinoma described above. Most programs offer chemotherapy, surgery, interventional radiologic approaches, or transplant. Some offer two or three approaches, and almost none seamlessly integrate all four approaches with the comprehensive team approach that we use. This allows an individualized approach to each patient unbiased by the specialty of the provider who initially sees the patient (oncologist, hepatologist, or surgeon).

Read more about the CLDT multidisciplinary approach on page 6.

Lorna Dove, MD, MPH

Liver Disease and Transplantation "When is the best time to refer?"

From the following, choose the patient(s) most suitable for referral to a transplant center:

- A** a 55 y.o. man with remote history of alcohol abuse and new variceal hemorrhage requiring banding. Labs notable for bilirubin of .8, albumin of 4, INR 1.0, and normal renal function;
- B** a 55 y.o. man with HCV, biopsy reveals stage 4 fibrosis, bilirubin .8, INR 1.0, normal renal function;
- C** a 55 y.o. man with history of HCV, presents with fatigue but otherwise well, bilirubin 2.5, INR 1.8, Na 134, creatinine 1.7;
- D** a 65 y.o. man with known hemochromatosis, abdominal CT reveals new arterial enhancing mass measuring 3.2 x 3.0 cm, bilirubin 1.0, INR 1.1, creatinine 1.0, AFP 250;
- E** all of the above;
- F** none of the above.

Though similar to many of the ambiguous problems noted on the ABIM gastroenterology certification exam, these clinical scenarios are not examples of mental exercises required to pass an exam; they are the real-life dilemmas faced by gastroenterologists every day. When is the right time?

The success of liver transplantation has increased significantly over the last two decades. However, it remains a treatment of last resort, a treatment reserved for those in liver failure and more recently a treatment offered as a potential cure for cancer. Thus, each evaluation is a balance of risks and benefits. Sending a patient too late may result in a missed opportunity to live a long life. On the other hand, transplantation too early could theoretically shorten survival if the outcome is not good and the patient would have otherwise been stable. With each patient evaluation, the provider must look at the patient as an individual and ask two questions: 1) How long will you live without transplant? 2) How long could you live if you were transplanted now?

In the past we depended on rudimentary measurements as well as a fair amount of clairvoyance to answer these questions. Today we have better data to help us make these assessments. Since 2002, the liver transplant community has depended on a mathematical model to estimate short-term patient survival. The model for end-stage liver disease (MELD) was developed to estimate mortality in patients with advanced liver disease. Since its inception it has been validated in multiple populations and appears to be the

most accurate system that we have to estimate risk of death. It is the system that we use in our day to day assessment of patients and the system adopted by the United Network for Organ Sharing (UNOS) to allocate deceased donor livers. The idea is a simple one: The sickest go first. The model depends on three blood tests to calculate a score and estimate survival: $MELD = 9.57 \times \log_e(\text{creatinine}) + 3.78 \times \log_e(\text{total bilirubin}) + 11.2 \times \log_e(\text{INR}) + 6.43$. Higher scores indicate poor prognosis (see figure 1). Within a blood type, patients with higher scores should receive organ offers prior to those with lower scores.

With this system, time on the waiting list is much less important. The patient with a MELD score of 30 will be transplanted prior to the patient with a MELD score of 15 even if he has been on the list one day and the other patient for one year. Thus, for short-term survival we have a very good estimate of mortality. If a patient has a very low MELD score, short-term survival is not usually compromised unless there is a complicating issue such as cancer. For these special situations, such as concomitant hepatocellular carcinoma, exceptions to the calculated MELD score may be requested.

With a low MELD score, patients may be at no risk of imminent death, but their long-term survival is affected. Data suggest that overall survival for a well compensated cirrhotic is approximately 55% at five years and 80% at one year. For decompensated cirrhotics, one year survival is less at 65% with a five year survival



Lorna Dove, MD, MPH,
Medical Director, Adult Liver
Transplantation

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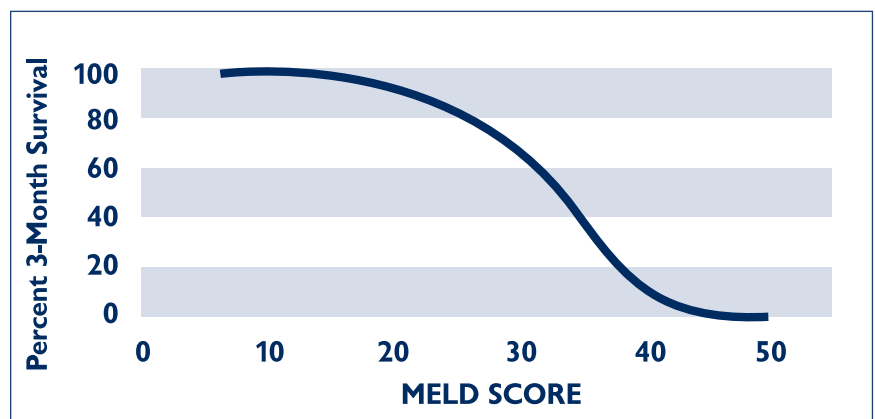


Figure 1: MELD score relationship to three-month survival

A Multidisciplinary Approach to the Liver Transplant Patient

The Center for Liver Disease and Transplantation offers a unique approach to the evaluation and management of liver disease. As patients are referred for transplant they are assigned a care team to manage them throughout the whole process.

This team includes a hepatologist, a nurse practitioner, and a social worker specialized in liver transplantation. Unlike other transplant programs that follow a “clinic model” where a patient may see many different providers over a year, our model offers a comprehensive, consistent, and individualized approach to treatment. After a patient’s transplant, the same team follows the patient for post-transplant care.

We believe the partnership between our team and the community gastroenterologist is critical to the success of the transplant. We recommend patients follow up with our program every three months while waiting for a liver transplant, and that they pursue interim follow-ups with their referring gastroenterologist. This is convenient for the patient and allows for a collaborative approach to liver disease management. Many diagnostic tests may be performed locally, with results forwarded to our office.

Post transplant, our center follows patients closely for the first year to achieve immunosuppression minimization and surveillance for complications, but after that our role is minimal, and the focus turns to health maintenance. We still see the patient and are available for consultations, but rely on the partnerships we have made with referring physicians to manage patients for their lifetime.

Additional medical services available to liver transplant patients include psychiatry, interventional radiology, oncology, research protocols, and pharmacology. Each patient will have a consultation with the transplant psychiatrist to assess for depression or other psychiatric disorders. Our transplant psychiatrist is available for additional transplant-related counseling as needed. Our



The Center for Liver Disease and Transplantation patient care team



*Dianne LaPointe Rudow, DNP,
Clinical Director and Senior
Transplantation Coordinator,
Center for Liver Disease and
Transplantation*

state-of-the-art interventional radiology department performs liver-related intervention for transplant and non-transplant patients. This includes TIPS, chemo-embolization, radiofrequency ablation, and biliary tract interventions. The radiologists work closely with the liver team for optimum results. Unique to our center, our staff hepatology oncologist is available to administer adjuvant therapy for all patients with liver cancers. Our research department has industry-sponsored, NIH, and investigator-initiated protocols for pre- and post-transplant patients to complement their standardized care plan. A PharmD is available to review patients’ pharmaceutical management and educate and counsel them when needed.

Support services offered to all patients include financial counseling, nutrition, and physical therapy. We provide weekly bilingual educational workshops (additional interpreters are available in multiple languages as needs arise) on an ongoing basis to better prepare patients for transplantation and for the demands of caring for themselves after transplantation.

Topics include:

- Pre-transplant evaluation
- Overview of liver disease and listing criteria
- Liver transplant surgery options: living donation, standard criteria donation, and expanded criteria donation
- Putting your house in order
- Immunosuppression medications and their side effects
- Tour of the operating room
- Diet and nutrition for the liver transplant patient

Our goal is to provide:

- Prompt attention to new referrals
- Expedited evaluations when necessary
- A patient friendly environment for in- and outpatient care
- Advanced care for hepatobiliary disease
- Partnership with our colleagues for optimum results

We have a team of experienced and committed professionals available 24 hours a day, seven days a week to provide quality care to patients.

Liver Disease...continued from page 5

of only 15% (2, 3, below). These are the estimates that we use as a baseline when we meet a new patient and begin to balance the risk of transplantation against the potential survival benefit of transplantation.

Though survival data vary based on diagnosis, one year survival after liver transplantation is approximately 87%, and 5 year survival is approximately 73% (4, below). Patients transplanted for cholestatic liver disease have better outcomes than those transplanted for hepatitis C. Using these data for comparison, transplantation almost always offers a potential survival benefit for the decompensated cirrhotic. Therefore referral to a transplant center is appropriate. However, if the patient has a low MELD score, as in Patient A above, he will be unlikely to be transplanted in the short term. Close follow up will be important but listing will offer little benefit. Patient C represents a patient who has no outward manifestations of decompensation but has evidence of poor

synthetic function and likely type II hepatorenal syndrome. Historical data tells us that these patients do poorly over time and with a MELD of 22, his 3 month mortality is close to 20%. Listing now is suggested and the patient would likely be transplanted within the year.

Typically, the MELD score mirrors the clinical picture, and timing of referral is straightforward. However, in some cases it is not so simple. In general, early referral is best. It gives the patient, the referring provider, and the transplant team time to develop a relationship. Therefore, any patient with signs and symptoms of decompensation should be referred. However, if the MELD score is low, listing may be deferred while the patient continues to have close follow-up by his local gastroenterologist and the transplant center. In addition, not all patients who look well are actually well, and providers should pay close attention to synthetic function and begin to use the MELD score as a tool. Though the formula is cumbersome, it is available on

the internet and through programs that can be downloaded to a personal digital assistant (PDA).

Finally, when in doubt, any provider should feel free to contact the center and discuss a potential referral with the transplant team. Our doors are always open, and our phones are always on.

- 1) Kamath PS, Kim WR; Advanced Liver Disease Study Group. The model for end-stage liver disease (MELD). *Hepatology*. 45(3):797-805, 2007 Mar.
- 2) Weissberg JL. et al. Survival in chronic hepatitis B. An analysis of 379 patients. *Annals of Internal Medicine*. 101(5):613-6, 1984 Nov.
- 3) De Jongh FE, et al. Survival and prognostic indicators in hepatitis B surface antigen-positive cirrhosis of the liver. *Gastroenterology*, 103(5):1630-5, 1992 Nov.
- 4) 2006 OPTN/SRTR Annual Report 1994-2004. HHS/HRSA/HSB/DOT; UNOS; Arbor Research Collaborative for Health.

Center for Liver Disease and Transplantation at NewYork-Presbyterian Hospital

Adult Liver Transplant Program Clinical Faculty and Staff

For referrals, please call 212.305.0914

Columbia Office:	212.305.0914	Transplantation Psychiatrist:		Physician Assistants:	
Cornell Office:	212.746.4129	Sylvia Hafliger, MD	212.342.2787	Sonia Alford, PA	pager 84042*
Surgeons:		Clinical Staff:		Lisa Lisanti, PA	pager 85458*
Jean C. Emond, MD	212.305.9691	Nurse Practitioners:	212.305.0914	Danielle Camastra, PA	pager 89651*
James V. Guarrera, MD	212.305.4199	Ed Eggleton NP		James Walsh, PA	pager 81608*
Michael J. Goldstein, MD	212.342.0896	Margie Fernandez-Sloves, DNP		Social Services:	
Benjamin Samstein, MD	212.305.4199	Dianne LaPointe Rudow, DNP		Aimee Muth, LCSW	212.305.1884
Rodrigo Sandoval, MD	212.305.0896	Lori Rosenthal, DNP		Kimberly Morse, LMSW	212.305.3081
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Robert S. Brown, Jr., MD, MPH	212.305.0662	Phyllis Tarallo, NP		Anne Lawler, LCSW	212.305.8083
Lorna M. Dove, MD, MPH	212.305.0660	James Spellman, NP	646.962.4789	Research Office:	212.305.3839
Scott A. Fink, MD, MPH	212.305.0914	Waitlist Coordinators:		Administrator:	
Samuel Sigal, MD	646.962.5372	Stella Goudie, RN	212.342.6910	Nick Ginzburg:	212.305.2178
Abby Siegel, MD	212.305.9781	Olivia Hung, RN	212.305.0420		
		Anastasia Balducci, Pharm D	212.305.3292		

* Call 212.305.5880 to enter pager number.

Announcing New CLDT Faculty

Michael J. Goldstein, MD

*Assistant Professor of Surgery
Columbia University College of Physicians and Surgeons
Weill Cornell Medical College*

*Surgical Director of Pediatric Abdominal Transplantation
Associate Director, General Surgery Residency Program
NewYork-Presbyterian Hospital/
Columbia University Medical Center*

Michael J. Goldstein, MD, who joined the Center for Liver Disease and Transplantation faculty earlier this year, will augment our growing team of physicians, bring strength to our pediatric multi-organ transplant program, and enhance our research initiatives.

Dr. Goldstein received his MD from Temple University in Philadelphia in 1997. He conducted his post-graduate training at NewYork-Presbyterian Hospital/Columbia University Medical Center, including a research fellowship completed in 2001, a general surgery residency completed in 2003 (he served as Chief Administrative Resident from 2002-2003), and a fellowship at the Center for Liver Disease and Transplantation completed in 2005. During 2005-2007, Dr. Goldstein was an Assistant Professor of Surgery at Weill Cornell Medical College and Surgical Director of the Incompatible Transplant Program in the NewYork-Presbyterian /Weill Cornell Division of Transplantation. His clinical specialties include abdominal organ transplantation, pediatric abdominal organ transplantation, incompatible transplantation, hepatobiliary surgery, and dialysis access surgery. His research interests focus on clinical outcomes, expanded criteria deceased donation utilization, ischemia/reperfusion injury and regeneration, organ preservation, and surgical education.

Dr. Goldstein has focused his interests on maximizing utilization of deceased donor organs and successful transplantation of high risk recipients. These efforts during his tenure at NewYork-

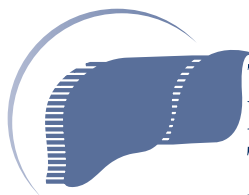
Presbyterian/Weill Cornell assisted Weill Cornell in growing deceased donor organ utilization by over 400%. He has been invited to lecture on transplant growth and aggressive clinical style at many institutions. Dr. Goldstein is an active consultant with organ procurement organizations and holds positions on the Medical Advisory Board and the Kidney-Pancreas Subcommittee at the New York Organ Donor Network. In addition to his active role as a clinician, Dr. Goldstein is a prolific author of many manuscripts and editorials focusing on clinical transplantation outcomes, organ ischemia and preservation, and the changing nature and modernization of surgical education.

Dr. Goldstein has been an active participant in the Institute for Healthcare Improvement's Organ Transplantation Breakthrough Collaborative since its inception. He has been an invited speaker for the Organ Transplant Breakthrough Collaborative on DSA challenges and successes, optimizing organ acceptance, and transplanting organs with glomerulosclerosis. Recently, he joined the collaborative faculty for the Health Resources and Services Administration (HRSA) Transplantation Growth and Management Collaborative.

Dr. Goldstein is a member of the American Society for Transplant Surgeons and a new Fellow of the American College of Surgeons. He serves as a medical advisor to the National Kidney Foundation of Greater New York, as well as numerous pharmaceutical and biotechnical companies for improving transplantation outcomes and patient care.



*Michael J. Goldstein, MD
Assistant Professor of Surgery*



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