The Ochsner Journal 13:413–418, 2013

Liver Transplantation at the Ochsner Clinic: Quality and Outcomes Improvement

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ABSTRACT

Background: In 2005, the results published by the Scientific Registry of Transplant Recipients showed that Ochsner Clinic Foundation's patient and graft survival rates were statistically lower than expected, and the United Network for Organ Sharing Membership and Professional Standards Committee placed our center under peer review.

Methods: In response, patient outcomes prior to August 2005 were carefully reviewed in a transparent fashion and protocols were written to standardize treatments. We renewed the focus on patient-related outcomes and regulatory adherence and empowered frontline staff to express their views, allowing for real teamwork to develop. Multiple changes were implemented in the everyday running of the program. A quality assurance and performance improvement plan (QAPI) was initiated to improve outcomes.

Results: In 2012, the Ochsner liver transplant program became the largest liver transplant program in the United States by volume and in 2013 was awarded the prestigious CareChex award, acknowledging it as the number one program in terms of quality of care and outcomes for liver transplantation.

Conclusion: The methodical application of this QAPI program achieved a remarkable transformation of the Ochsner liver transplant program and exemplifies what is possible with strong teamwork from dedicated and talented staff.

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Keywords: Liver transplantation, outcome assessment, patient safety, quality assurance–health care

The authors have no financial or proprietary interest in the subject matter of this article.

INTRODUCTION

The first orthotopic liver transplant at the Ochsner Clinic was performed in 1969 by Dr William McKinnon, but the liver transplant program, which became the first one in Louisiana, did not open until 1987 under the direction of Dr Dan Hayes. The program volume remained relatively small until 1998, but tremendous changes and volume growth have occurred in the past 14 years. The volume has grown from fewer than 10 transplants per year to a total of 174 in 2012. Overall, more than 1,400 recipients have received a liver transplant at our institution.

In 2012, the Ochsner liver transplant program became the largest liver transplant program in the United States by volume and in 2013 was awarded the prestigious CareChex award, acknowledging it as the number one program in terms of quality of care and outcomes for liver transplantation.

However, this rise to the top was not a linear progression. In 2005, the results published by the Scientific Registry of Transplant Recipients (SRTR) showed that our center's patient and graft survival rates were lower than expected (Figure 1), and the United Network for Organ Sharing (UNOS) placed our center under peer review. UNOS is a private, nonprofit organization under contract to the Health Resources and Services Administration to oversee all transplant activity in the United States. UNOS, through its Membership and Professional Standards Committee (MPSC), is responsible for assuring that all transplant centers maintain compliance with established quality standards. Although UNOS/MPSC may take negative

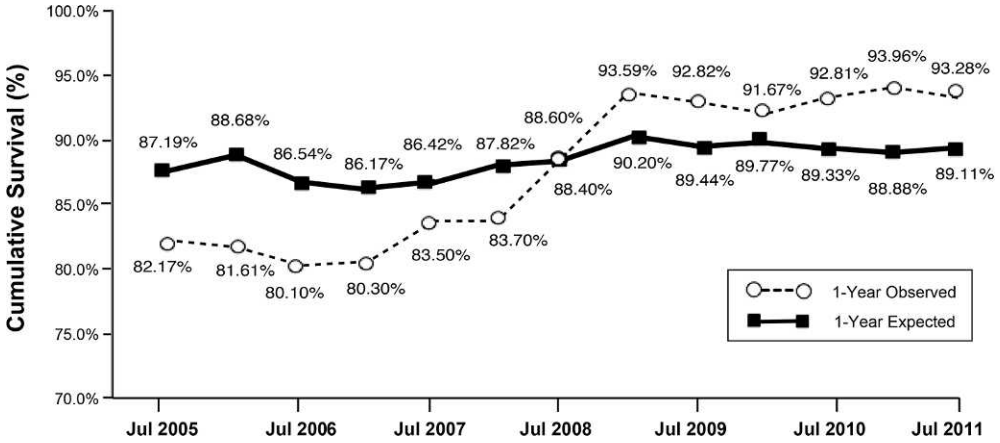

Figure 1. Adult liver transplant 1-year patient survival, observed vs expected, July 2005-July 2011.

actions against programs, their process emphasizes corrective action rather than punishment. Working with UNOS/MPSC, we achieved a remarkable transformation of our program, demonstrating what can be achieved by teamwork and attention to every detail of clinical care by a team of skilled and dedicated professionals.

QUALITY ASSURANCE AND PERFORMANCE IMPROVEMENT PROGRAM

After a period of denial, our center began to work closely with the MPSC to establish a rigorous quality assurance and performance improvement (QAPI) plan that touched every aspect of the way the program was run (Figure 2). Committees that included staff members from all clinical disciplines of the program were established to look at all aspects of clinical care: the initial referral to the outpatient clinic, the subsequent outpatient transplant evaluation, the perioperative and inpatient care, eventual discharge home, and long-term follow-up.

Prior to 2005, a general feeling of fear within the unit and a lack of transparency led to poor teamwork, and frontline members of the team felt unable to freely express their views. To address these problems, the QAPI plan involved 5 keys to success:

- Change of leadership
- Focus on metrics: detailed review and measurement of complications such as perioperative bleeding and re-operation rates
- Focus on quality outcomes
- Protocol driven: a detailed review of all patient deaths in the 2.5-year period from 2002-2005 allowed the creation of protocols for the uniform management of patients
- Decentralization: empowering the front line by making changes to everyday operations within the unit.

Daily rounds changed from standing behind the surgical leader while reviewing a transplant spreadsheet to the team sitting around a conference table and freely discussing patients. This multidisciplinary team approach allowed the fog of fear to be lifted. Although the disadvantage was the excess noise created by people's loss of inhibition, this was controlled by the judicious use of the developed written protocols.

COMPLIANCE, POLICY AND REGULATORY COMMITTEE

The Compliance, Policy and Regulatory (CPR) Committee was established after Hurricane Katrina when UNOS placed the program under review. The name was chosen to reflect the need to resuscitate our transplant program. The committee meets monthly to complete internal audits and recommend action plans to maintain adherence to regulatory requirements. In addition, committee members review all policies and protocols annually and revise them as necessary. The liver dashboard was created to enable easy presentation and assimilation of key metrics such as clinical and financial measures (Figures 3-6).

This committee was the core of Ochsner's QAPI plan. It comprised a surgeon, transplant physician, nurses, social workers, and administrators. Intentionally absent from this committee's makeup are the Transplant Institute's director and lead surgeon. This CPR Committee was empowered to devise action plans to improve processes and to alter policies to improve clinical and regulatory performance.

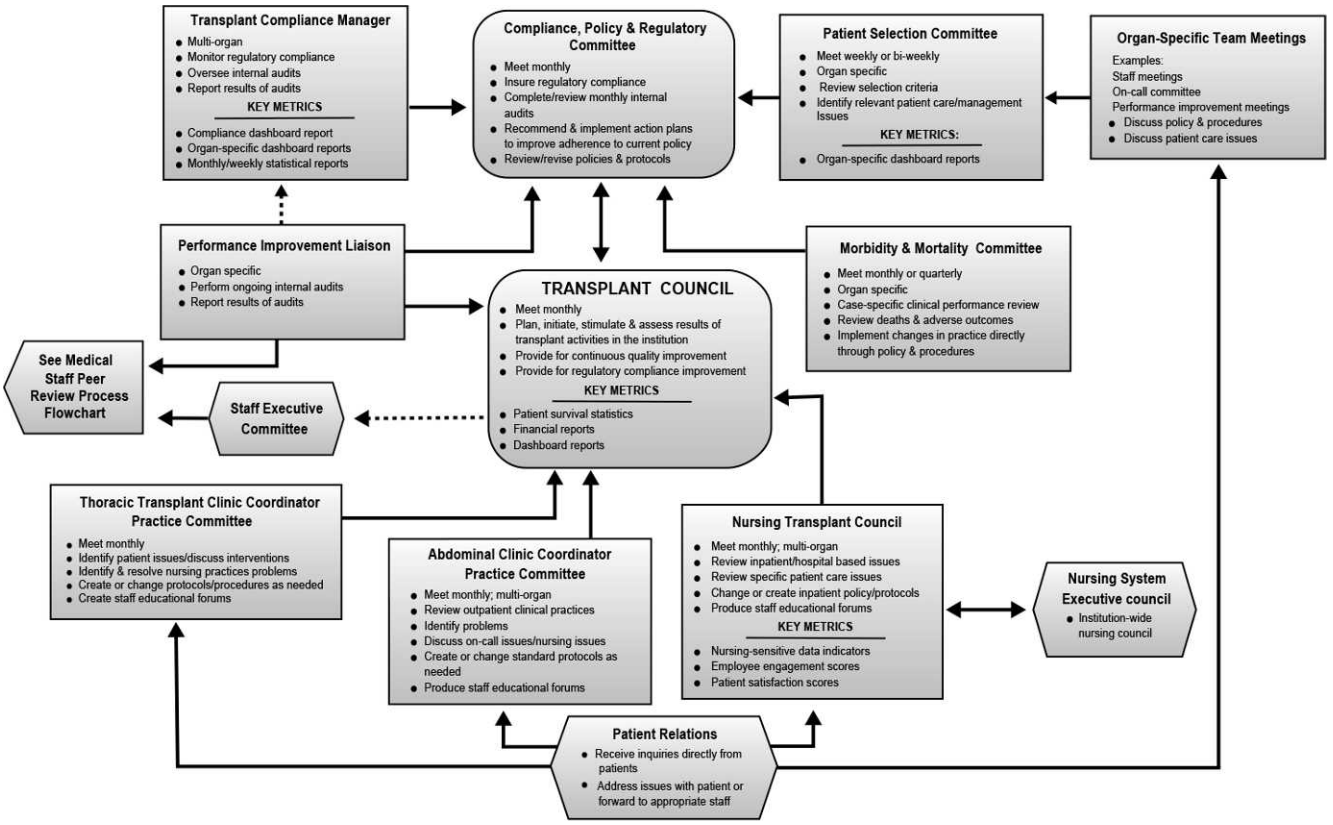

Figure 2. Quality assurance and performance improvement flowchart.

TRANSPLANT COUNCIL

Prior to August 2005, the Transplant Council (TC) served as an operational and financial body. After August 2005, membership of the TC was expanded to include all clinical and key administrative staff who met monthly. It became the venue where new measures/ideas were presented and actions initiated. Key metrics were presented to all and regulatory compliance was reviewed with less emphasis on financial performance and more attention placed on organ-specific operational and quality-focused dashboards. Regulatory dashboards, also organ-specific, were reviewed and action plans initiated. TC reports to the Hospital Performance Improvement Committee

Stage	Liver Transplant 2012 Dashboard	2012 Goal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD 2012	Actual 2011	2011 Goal
Pretransplant	Monthly Referrals Received	50	56	61	73	61	80	75	75	57	45	63	45	41	732	641	38
	Median Days from Referral to Financial Clearance (Domestic Patients Only)	1	3	5	3	3	1	3	3	1	6	1	n/a	n/a	3	1	2
	Median Days from Financial Clearance 1st Appointment (Domestic Patients Only)	14	17	23	18	14	19	19	22	37	36	n/a	n/a	n/a	20	25	13
	Median Days from Financial Clearance to Listing (Domestic Patients Only)	60	56	55	96	79	45	92	84	57	78	117	n/a	n/a	84	74	60
List	Total Patients Listed in Month	17	12	19	21	16	15	21	18	8	14	25	15	18	202	204	14
	1-Year Death Rate on Wait List (%)	15.0	16.9	17.9	18.6	16.8	16.0	17.2	19.8	18.6	18.9	16.8	15.6	16.0	16.0	16.9	15.0

Below Goal Meets Goal Above Goal n/a = not available

Figure 3. Liver dashboard showing metrics collected: referrals, transplant evaluation, and wait list parameters.

Stage	Liver Transplant 2012 Dashboard		2012 Goal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD 2012	Actual 2011	2011 Goal
Operational	Appointment No-Show Rate Liver Medicine (%)		5.0	2.8	6.1	7.1	8.4	9.6	8.4	7.6	6.5	7.0	6.9	7.1	4.4	6.9	6.3	5.0
	Appointment No-Show Rate Transplant Surgery (%)		6.5	4.2	2.5	7.7	7.9	4.7	8.4	5.0	5.8	6.6	3.5	4.8	5.6	5.6	5.8	6.5
	Press Ganey Clinic Patient Satisfaction Scores (Abdominal Clinic Only)	raw score		97.6	95.3	93.0	91.1	88.4	90.6	90.4	61.5	96.5	No Data			91.9	93.5	
		percentile rank	85	99	99	76	55	15	50	43	1	99				66	85	85
	Press Ganey Transplant Stepdown Unit Patient Satisfaction Scores	raw score		82.8	88.9	89.4	88.2	78.1	95.6	83.9	86.8	87.3	86.4	84.5	78	85.4	88.1	
		percentile rank	85	10	79	82	68	2	99	15	50	59	41	18	2	21	78	85

Below Goal Meets Goal Above Goal

Figure 4. Liver dashboard showing clinic attendance metrics and patient satisfaction scores.

as well as the Staff Executive Committee and receives input from the performance improvement liaison who assists with internal audits.

MORBIDITY AND MORTALITY COMMITTEE

Clinicians participate in this organ-specific committee that meets monthly to carry out organ-specific clinical performance reviews. Deaths and poor outcomes are discussed in detail, and changes to practice are implemented through policy and procedure protocols.

TRANSPLANT COMPLIANCE MANAGER

The appointment of a transplant program compliance manager was a key factor in the smooth functioning of the committees. The manager is responsible for regulatory compliance, oversees internal audits, and compiles reports on these audits. The manager collects and makes available the key metrics and produces organ-specific dashboard reports and other statistics on a monthly basis.

ABDOMINAL CLINIC COORDINATOR PRACTICE COMMITTEE

The Abdominal Clinic Coordinator Practice Committee meets monthly to review outpatient clinical practice, including clinic issues and on-call problems the coordinators have identified. This committee's mandate is to create or change the standard protocols used in these circumstances as well as to produce staff education forums.

NURSING TRANSPLANT COUNCIL

The multi-organ Nursing Transplant Council meets monthly to address inpatient/hospital-based problems and practices. The members of the council

Stage	Liver Transplant 2012 Dashboard	2012 Goal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD 2012	Actual 2011	2011 Goal
Transplant	Monthly Transplant Volume	11	13	13	14	21	18	17	17	10	11	9	14	17	174	131	11
	Median Time (Days) on Wait List for Previous 12 Months		35	33	37	33	37	44	43	42	43	43	46	46	46	37	
	Median Length of Stay in Days	7	8	9	8	9	12	12	8	10	7	8	7	7	8	9	7
	% Retransplanted Due to Primary Nonfunction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	% Retransplanted Due to Hepatic Artery Thrombosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Median Packed Red Blood Cells Use During Transplant (Excludes Multiple Organs & Retransplants)	3	3	5	3	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	3	3
	Median Packed Red Blood Cells Use within 72 Hours Posttransplant (Excludes Multiple Organs & Retransplants)	0	1	1	0	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	0	0
	Number of Organs Refused & Transplanted Elsewhere	0	0	0	0	0	2	2	0	1	0	1	0	0	6	0	0
	Number of Organs Refused by Local Centers & Transplanted at Ochsner Medical Center		1	1	1	2	0	0	2	2	2	2	0	6	19	15	
	Number of Organs Imported / Total Done		3 / 13	8 / 13	8 / 14	13 / 21	12 / 18	3 / 17	10 / 17	3 / 10	4 / 11	3 / 9	10 / 14	2 / 17	45.4%		

Below Goal Meets Goal Above Goal n/a = not available

Figure 5. Liver dashboard showing peritransplant and procurement metrics.

Stage	Liver Transplant 2012 Dashboard		2012 Goal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD 2012	Actual 2011	2011 Goal
Posttransplant	Patient Survival as of Report Date	# Living	98%	13	13	14	21	17	16	14	10	11	9	14	16	168	124	98%
		Transplant Vol		13	13	14	21	18	17	17	10	11	9	14	17	174	130	
		%		100	100	100	100	94	94	82	100	100	100	100	94	97	95	
	Graft Survival	%		100	100	100	100	94	94	82	100	100	100	100	94	97	95	
	Return to OR within 30 Days of Transplant	# Pts	21%	3	4	2	3	3	3	2	1	1	0	n/a	n/a	22	18	21%
		Transplant Vol		13	13	14	21	18	17	17	10	11	9	14	17	174	131	
		%		23	31	14	14	17	18	12	10	9	0			13	14	
	Hospital Readmission 0 - 2 Days Posttransplant Discharge	# Pts	National Data	1	0	0	2	0	0	0	0	0	0	n/a	n/a	3	3	National Data
		Transplant Vol		13	13	14	21	18	17	17	10	11	9	14	17	174	130	
		%	8	8	0	0	10	0	0	0	0	0	0			2	2	8
	Hospital Readmission 0 - 30 Days Posttransplant Discharge	# Pts	National Data	5	3	3	5	6	3	5	3	6	1	n/a	n/a	40	31	National Data
		Transplant Vol		13	13	14	21	18	17	17	10	11	9	14	17	174	130	
		%	32	38	23	21	24	33	18	29	30	55	11			23	24	32
	Number of Infections Presented			10	6	6	5	6	5	5	4	6	n/a	n/a	n/a	53	3	
	Number of Cytomegalovirus Infections Presented			0	0	1	0	0	0	0	0	0	n/a	n/a	n/a	1	0	
	% Non-U.S. Citizens Transplanted in Most Recent 12 Months	As of Month End	< 5	4.6	4.4	4.7	4.6	4.9	4.2	4.0	4.5	4.2	4.1	4.1	5.2	5.2	5.4	< 5

Below Goal Meets Goal Above Goal n/a = not available

Figure 6. Liver dashboard showing post–liver transplant metrics.

review the key metrics of patient satisfaction scores, employee engagement, and nursing-sensitive data indicators. They also review specific care issues and propose solutions. The council also produces staff education forums.

PATIENT SELECTION COMMITTEE

The organ-specific Patient Selection Committee meets weekly to review transplant selection criteria and patient care management issues. This committee is the only route to placement on the liver transplant wait list. Potential organ recipients are presented to the multidisciplinary committee that includes transplant surgeons, hepatologists, anesthesiologists, coordinators, nutritionists, social workers, and financial staff. This forum enables open discussion for optimal selection of appropriate candidates who will benefit the maximum amount from the gift of transplantation while at the same time affording the program the best possible outcomes. The council members make management decisions on individual cases in a collaborative manner. The management of problem-

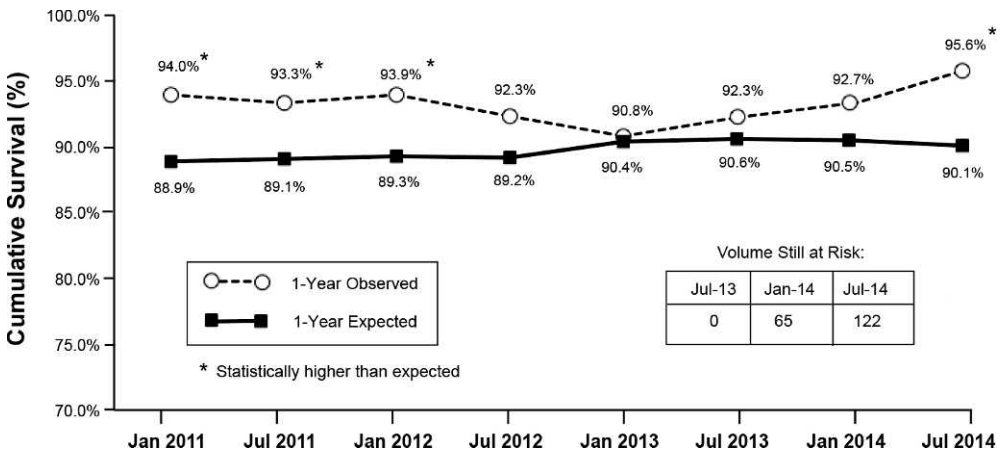

Figure 7. Adult liver transplant 1-year patient survival.

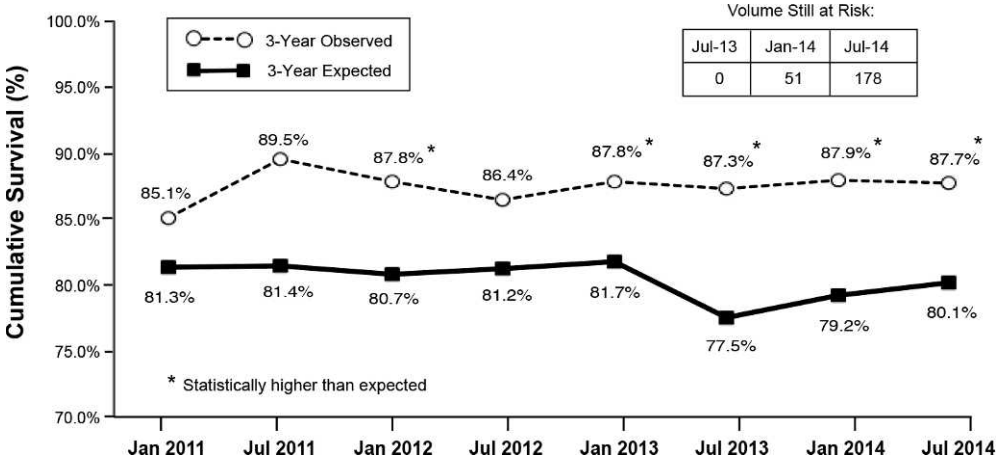

Figure 8. Adult liver transplant 3-year patient survival.

atic clinical issues in this manner enables a systematic team approach and ensures adherence to our evidence-based protocols.

CONCLUSION

We took a methodical and rigorous approach to the problems we faced in 2005. The program remained under review by the UNOS/MPSC for 18 months until our 1-year survival rates reached the expected rates. We expanded our surgical staff to a total of 6 and our hepatologists to 4 by December 2011. By July 2011, our 1- and 3-year patient and graft survival rates were significantly higher than expected (Figures 7 and 8). In 2012, we became the number one liver transplant center by volume in the United States and won a number of national accolades for our excellent quality of care.

In 2012, we carried out the first 3 adult living donor liver transplants, and we are planning for further expansion of this program in 2013. While we have demonstrated remarkable success following the application of this QAPI system to our liver program, we are aware that this is an ongoing process that has to be maintained with full engagement of all staff. We face many future challenges: local market factors, the ever-increasing regulatory healthcare requirements, and the increasing pressures on healthcare finances. We continue to maintain our strong belief that success lies in teamwork and careful attention to detail (including constant results review), producing excellent patient outcomes and significantly enhancing people's lives.

This article meets the Accreditation Council for Graduate Medical Education and the American Board of Medical Specialties Maintenance of Certification competencies for Patient Care and Systems-Based Practice.