

Transplant Digest

PROGRAM FOR REIMBURSING EXPENSES OF LIVING ORGAN DONORS LAUNCHED IN ONTARIO

Living organ donation is an act of kindness that reduces wait times for patients in need of a life-saving kidney or liver. By agreeing to become a living organ donor, potential and actual donors travel to and from a transplant hospital for a variety of tests and surgery that may result in financial loss, including income. In an effort to reduce the financial loss associated with the living donation process, the Ministry of Health and Long Term Care established the Program for Reimbursing Expenses of Living Organ Donors (PRELOD), as part of the Government of Ontario's Organ Donation Strategy. PRELOD reimburses living organ donors up to a maximum amount of \$5,500 for reasonable out-of-pocket expenses and loss of income incurred through the living organ donation process. PRELOD aims to offset financial burdens that may prevent someone from becoming a living organ donor.

Who is eligible for reimbursement?

PRELOD is available to eligible living organ donors who donate or intend to donate an organ in Ontario to an Ontario resident in need of organ transplantation. A person is eligible for PRELOD as a potential or actual living organ donor if a health history has been completed, reviewed and accepted by a Transplant Service and blood typing has indicated that the person is suitable to proceed with further clinical assessments. PRELOD is eligible to living organ donors who have travelled from outside of Ontario (Canada and International) to donate to an Ontario resident.

What expenses are covered?

Potential and actual living organ donors may apply to PRELOD to assist with out-of-pocket expenses for travel, accommodations, parking, meals, and meal allowance during assessment and immediate post-surgery period. In addition, persons who will be off work following surgery and during their recovery period may apply for a loss of income subsidy. Applicants must meet the PRELOD eligibility criteria and provide supporting documentation to receive reimbursement.

Trillium Gift of Life Network officially launched PRELOD on April 1, 2008 and is now accepting applications for reimbursement. Potential and actual living organ donors from August 3, 2007 onwards may apply to PRELOD for reimbursement of eligible expenses associated with the living donation process.

To learn more about PRELOD (including eligibility criteria) or to download an application package, visit the Trillium Gift of Life Network website at www.giftoflife.on.ca. If you have any further questions or comments, please feel free to contact PRELOD at prelod@giftoflife.on.ca, or at 1-888-9PRELOD.

Anjeet Bhogal
Policy & Living Donation Advisor
Trillium Gift of Life Network



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Leading with Innovation
Serving with Compassion

ST. MICHAEL'S HOSPITAL
A teaching hospital affiliated with the University of Toronto

From the Editor's Desk...

Visions do sometimes come true. Transplant Digest has proven to be a popular communication tool for our patients both pre- and post-transplant, donors, families, and health care providers alike. A copy in peoples' hands is a common sight in the hospital. A few copies have even made their way to other transplant programs. The abundant information contained within these issues has helped guide patient care by providing very specific and focused insights into the most common problems we face in transplantation. Patients are able to come better prepared for their visits, and supplement or reinforce whatever they have learned during the clinic visit by reading the relevant articles from past issues of Transplant Digest. I would strongly encourage every one who reads the journal with any interest to place their copy in a three-ring binder for permanent storage and ongoing reference.



In this issue, there is a detailed article from Dr. Ken Pace about laparoscopic kidney donation. Our front piece talks about an exciting new program for donors in Ontario. An article on chronic rejection from Dr. Prasad complements a previous report on acute rejection. These two articles should be read together. There is also a discussion on diabetes care. We are the only transplant program around that to our knowledge has a dedicated in-clinic diabetes nurse practitioner. Finally, some of the most frequently asked questions from patients about post-transplant care are addressed in the popular "Post-Transplant Chat".

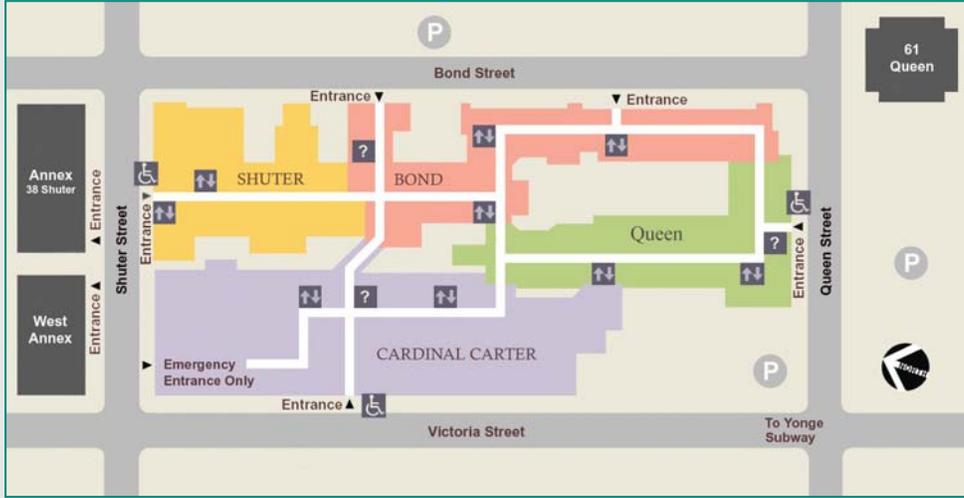
Enjoy.

**Dr. Ramesh Prasad,
Editor**

Contact Information

Dr. Ramesh Prasad – Editor

Meriam Jayoma-Austria, RN, CNeph(C) – Newsletter Coordinator



St. Michael's Hospital
Renal Transplant Program
(across the hospital)

61 Queen Street 9th Floor
Toronto, Ontario
M5C 2T2
Canada

Phone: (416) 867-3665

Please send comments or suggestions of topics for future publication to:
Meriam Jayoma-Austria - jayomam@smh.toronto.on.ca

Disclaimer Note:

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KIDNEY DONATION SURGERY: THE BENEFITS OF LAPAROSCOPIC DONOR NEPHRECTOMY

Kenneth Pace, MD, MSc, FRCSC
Assistant Professor, Division of Urology, Department of Surgery
Co-Director, Fellowship in Urologic Laparoscopy
St. Michael's Hospital, University of Toronto

More than half of all kidney transplants at St. Michael's Hospital are done using kidneys donated from loved ones or friends of the transplant recipient. In fact, St. Michael's has the largest living kidney transplant program in Canada, and the largest program where the vast majority of kidney donation surgery is performed using a minimally-invasive (also known as laparoscopic) approach. Living donation has become increasingly common because the need for kidney transplants far exceeds the supply of kidneys for those donate a kidney after death (called deceased donation), and the waiting list for kidney transplants has been increasing. In fact living donation is better than deceased donor transplantation for a number of reasons: kidney transplants from living donors are more likely to function immediately and last longer than deceased donor transplants. In addition, the surgery for living donors can be planned in advance so that for some patients with kidney failure, dialysis can be avoided completely with "pre-emptive" kidney transplantation. For all these reasons, transplant centres have placed more resources into living kidney donation programs. At St. Michael's Hospital, University of Toronto, the living donor renal transplantation program has grown dramatically over the last five years, while the number of deceased donor kidney transplants has remained stable due to a shortage of deceased donor organ donors. In 1996, 19 living donor kidney transplants were performed, while in 2005, 65 were performed – an increase of 242 percent.

Unfortunately, there are a number of barriers to living kidney donation. Most potential donors are young, healthy adults who either work or care for others. The traditional surgical approach means a flank incision (an incision in the side), which is painful, and often leaves patients off work and less able to perform routine activities of daily living (ADL's) for 4 to 12 weeks. About 10 years ago, an alternative to an open donor nephrectomy (OpenDN) was developed in Baltimore: the laparoscopic donor nephrectomy (LapDN). This approach avoids a traditional flank incision, with a number of potential advantages to donors. The procedure is carried out by inserting instruments into the abdominal cavity through three small incisions (Figure 1). The kidney is then carefully dissected. Once the kidney is free, an incision is made

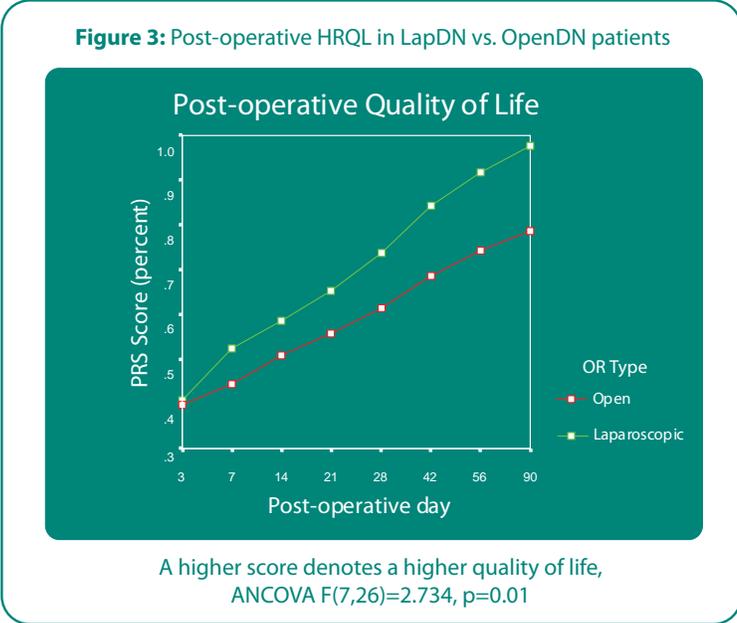
Figure 1: Trochar placement for left LapDN



Three 12 mm trochars are inserted: one below the costal margin, another in the umbilicus, and a third in the left, lower quadrant.

in the lower part of the abdomen, just large enough for the kidney to be removed through (Figure 2). The kidney is then prepared for transplantation. We began using the minimally-invasive surgical approach in 2000. Hundreds of patients have benefited from this newer operation, and we now use it for over 95% of all kidney donors.

The advantages of the laparoscopic surgery are dramatic: patients stay in hospital for only 3 to 4 days, are often pain-free following surgery within 2 to 4 weeks, and are able to return to work and full activities within 4 to 6 weeks. We have performed a number of studies on patients undergoing LapDN at SMH, and these have all shown fewer complications for donors with laparoscopic surgery, while transplant recipients have excellent transplant function both in the short-term (the first few weeks after transplantation) and in the long-term (years after transplantation). Patients who have laparoscopic surgery recover faster than those who have open surgery, with less pain and a higher quality of life (Figure 3). In a separate study, we also compared the costs of LapDN vs. OpenDN 8, and found the new technique to be cost-saving for a number of reasons. While operating times and equipment costs are higher with LapDN, these higher costs are more than saved by shorter hospital stay and more rapid return to work following surgery. Thus LapDN is better for potential kidney donors, better for the hospital, and better for the government.



In summary, LapDN offers substantial advantages over traditional open donor surgery, with shorter hospital stays, more rapid recovery following surgery, and more rapid return to work. For transplant patients, it provides a kidney that is just as good as seen with previous open surgery. At St. Michael's, we are committed to providing the best surgery possible to kidney donors in the least-invasive way possible to ensure that donor kidney surgery is safe and allows excellent kidney transplant surgery. By doing this we hope that patients generous enough to donate a kidney will benefit from less pain and suffering in the post-operative period for their sacrifice, and that the health of their loved ones with kidney failure can be improved dramatically.

NEW-ONSET DIABETES MELLITUS AFTER TRANSPLANTATION

Tess Montada-Atin RN MN CDE
Advanced Practice Nurse-Diabetes

What is New-onset Diabetes after transplant (NODAT)?

New-onset diabetes refers to diabetes that occurs after transplantation without having had it before. About 15-20% of transplant recipients are at increased risk for developing diabetes after transplant. Diabetes is a condition where the body is unable to produce enough insulin and/or the body is unable to use insulin properly. Insulin helps to regulate blood sugar. When there is not enough insulin or when insulin isn't used effectively the blood sugar rises above normal.

Who is at risk?

Anyone can get diabetes, but some people are at increased risk. Risk factors for diabetes after transplant include:

- Family history of diabetes
- African American or Hispanic decent
- Age over 40
- Abnormal blood sugar/impaired glucose tolerance
- Immunosuppressive medication
- Hepatitis C infection
- Obesity
- Deceased donor recipient
- Metabolic syndrome (increased blood pressure; increased cholesterol; abnormal blood sugar, obesity)

Can diabetes be prevented or delayed?

Lifestyle changes can help to reduce the risk of developing diabetes after transplant.

Counseling about the following may help to reduce the risk:

- Weight management or weight loss
- Exercise
- Healthy eating (controlling carbohydrate and fat intake)

Some immunosuppressive medications increase the risk of developing NODAT. These are tacrolimus, cyclosporine, prednisone and possibly sirolimus. The nephrologists taking into consideration all the risk factors to help reduce the risk of developing NODAT do careful selection, dosing and management of immunosuppressive medication.

How is NODAT diagnosed?

There are a few ways diabetes can be diagnosed. Firstly, a fasting blood sugar (nothing to eat for 8 hours the night before) of 7.0 mmol/L or greater indicates diabetes. A casual blood sugar, taken anytime regardless of when a meal was eaten, of 11.1 mmol/L or greater plus symptoms of diabetes, indicates diabetes. Lastly an oral glucose tolerance test (OGTT) may be ordered to test for diabetes. A sweetened drink is given prior to the blood test. A test result is 11.1 mmol/L or greater after having the sweet drink indicates diabetes. Any of these tests have to be repeated on another day to confirm diabetes.

What are the signs and symptoms?

- Frequent urination
- Unusual thirst

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- Blurred vision
- Weight change (loss or gain)
- Extreme tiredness or lack of energy
- Tingling or numbness in the hands or feet
- Frequent or recurring infections

It is important to screen for high blood sugar after transplant, as symptoms of diabetes may not always be present. It is recommended to test fasting blood sugar weekly for the first 4 weeks, 3 months, 6 months and then annually thereafter. Transplant recipients are at highest risk for developing NODAT within the first 6 months and can occur up to 1 year or more after transplant.

How is NODAT treated?

Learning about diabetes is the first step.

- **Immunosuppressive medication adjustment:** These medications may be adjusted or changed to help improve blood sugars.
- **Exercise:** Regular exercise helps to lower blood sugar, promotes weight loss and improves overall health including heart health. It is important to consult a physician before beginning any type of exercise program.
- **Healthy eating:** What, when and how much is eaten all play an essential role in controlling blood sugar. Referral to a dietitian is fundamental to diabetes management.
- **Medication:** Pills and/or insulin may be needed to help the body in making or using insulin more effectively.
- **Weight management:** Maintaining a healthy weight or weight loss helps reduce insulin resistance. Insulin resistance is when the body doesn't respond to and utilize insulin effectively.

- **Blood pressure:** High blood pressure can lead to eye disease, heart disease, stroke and kidney disease, so people with diabetes should try to maintain a blood pressure level at or below 130/80. To do this, you may need to change your eating and physical activity habits and/or take medication.



- **Self-blood glucose monitoring:** It is recommended to monitor blood sugars at home especially if diabetes medication is taken. A monitor can be obtained from a diabetes nurse educator or a Diabetes Education Centre. It is important to test fasting, before the meals and 2 hours after a meal.

The targets for good blood sugar are:

- Fast blood sugar and before the meal: 4-7 mmol/L
- Blood sugar 2 hours after a meal: 5-10 mmol/L

A1C test

This test should be done every three months to assess how well the blood sugars have been controlled. The A1C test reflects the average blood sugar over a three-month period. The target level for A1C for most people is < 7% (0.07).

What are the consequences of NODAT?

Transplant recipients who develop NODAT are at increased risk for the following diabetes related complications:

- Heart disease
- Kidney disease
- Eye disease
- Problems with erection (impotence)
- Nerve damage
- Problems with circulation to the feet/Foot problems

In addition, NODAT can adversely affect graft function and survival, and increase risk for infection.

Summary

Identification of risk factors and life style changes may help to minimize the risk of developing diabetes after transplant. Screening for elevated blood sugar in the first few months after transplant can facilitate early treatment, as many people do not experience signs and symptoms. NODAT can result in serious consequences. Thus, optimal blood sugar and blood pressure control is essential in delaying and preventing potential complications.



CHRONIC REJECTION

Dr. Ramesh Prasad

In a previous issue of Transplant Digest, we reviewed the key features of acute rejection, a process in which the body tries to eliminate the kidney with a forceful immune reaction. In this issue we will briefly discuss its equally evil twin: chronic rejection.

Chronic rejection is a slow, relentless process that results in progressive scarring of the tissue in the kidney transplant, leading to worsening function and eventual failure of the transplant over time. This time period can be many years, even decades. If a person lives long enough, eventually all kidney transplants will fail from chronic rejection. Although by definition chronic rejection does not occur within the first three months after transplant, by one year, virtually all kidneys will have at least some evidence for this condition. The diagnosis is typically made when a kidney biopsy is performed in the context of a slowly rising creatinine level. Features of chronic rejection include abundant scar tissue, fewer urine filters or “glomeruli”, fewer urine tubules, and narrowed blood vessels. However, because so many blood tests are performed over time, the nurses and doctors are able to identify a “trend” of slowly rising creatinine levels and

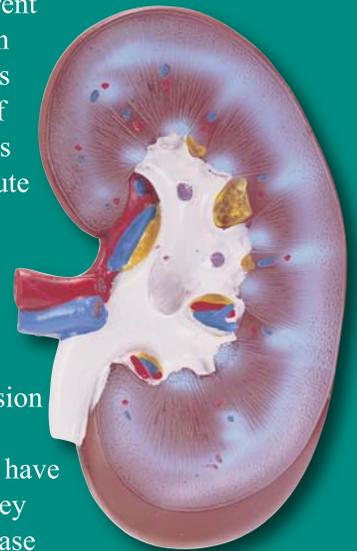


make this diagnosis often without a biopsy being needed. Also, the blood pressure may become more difficult to control or protein may appear in the urine, enabling the transplant program to make this diagnosis as well.

Chronic rejection is better described as “chronic allograft nephropathy” or CAN, to better emphasize that the process is the end result of a number of insults to the kidney, both related and unrelated to the immune system. It has been said that a kidney transplant is like a “used car” that already has a certain mileage to it, reflected in the biopsy. Risk factors for CAN include pre-transplant risks like advanced donor age, damage to the kidney during harvest or transportation, or pre-existing high blood pressure in the donor; injury at the time of transplant such as a heart attack in the recipient; and post-transplant insults such as poorly controlled blood pressure, cholesterol and diabetes, too much or too little

of anti-rejection drugs (that is why monitoring is so important), acute rejection, and infections. It is to try to slow down or prevent CAN that so much attention is given to all of these medical problems in the transplant clinic. In addition, patients with CAN may also be at a higher risk for cardiovascular disease.

CAN is not a death sentence for the kidney since all kidneys have at least some evidence of it. However, knowledge that CAN is present will allow both the transplant team and patient to better target certain aspects of their post-transplant care. For example, there are subtle differences in the kidney biopsy findings based on whether the CAN was the result of too much or too little immunosuppression. If the main problem is too much of a particular drug, the dose can be lowered, and if the problem is too little, the dose can be increased. A new anti-rejection drug can be added, or one drug can be replaced by another one of the same or a different class. Certain types of high blood pressure medications may be especially useful if you have CAN. Sometimes CAN can co-exist with acute rejection and then both conditions will need to be treated. Similarly, sometimes CAN is so advanced that the risks of enhanced immunosuppression outweigh any potential benefits. Therefore, if you have been recommended a kidney biopsy by your doctor, please consider these reasons behind wishing to do this procedure when giving your consent. If you do go on to have a kidney biopsy and/or have been told you have chronic rejection or CAN, be sure to personally discuss the results with your doctor in the transplant clinic once they are all back (this can take two to three weeks) so that a plan can be put in place to address the issue.



POST TRANSPLANT CHAT

AFTER THE TRANSPLANT

Thelma Carino, RN, Jenny Huckle, RN and Fernanda Shamy, RN

1

After receiving a transplant, when can I go back to work?

A kidney transplant recipient may be able to go back to work approximately 8-12 weeks after he/she is discharged home without any complications. Actual timing to go back to work depends to some extent on the type of work (desk job versus manual job) and complications, if any, after discharge. It is usually not possible to justify ongoing disability after a transplant because now the kidney function has been restored.



2

Can I take a shower after the kidney transplant surgery?



Yes, you can take a shower after the surgery. Please pat the incision lightly to ensure that it is dry. Avoid swimming and submerging in a bathtub until the incision is fully and completely healed.

3

Can I color my hair after I get discharged from the hospital?

Yes, you may apply color but this is stressful to the hair so we suggest you wait until three months after the transplant.



4

When and what kind of exercises I can do after my surgery?



You can start exercising as soon as you are discharged if you are feeling well. Walking on flat surfaces or using a treadmill is usually a good exercise. Avoid contact sports and lifting heavy weights until cleared to do so by the transplant team.

5

How long do I have to stay in the hospital after the kidney transplant?

Kidney transplant recipients may expect to stay in the hospital for approximately 7-10 days. However, the length of stay can vary depending on the overall medical condition of the patient.



(continued)

6

What do I need to do after I am discharged from the hospital?

Before you are discharged from the hospital you will get formal post transplant teaching. The post transplant nurse will tell you the process that we do at St. Michael's Hospital. It is very important that you do your scheduled blood work and you take your medications as instructed. Also, you must show up for your regular clinic visits, preferably early in the morning. If you are not feeling very well, you should go to the nearest emergency room since staff may not always be present in the clinic.



7

Why do I need to have all the bloodwork done at St. Michael's Hospital? Can't I do it near where I live?



This is important especially in the first month after transplant so we can access the results the same day and take early measures if needed. After the first month you can do your bloodwork at outside labs if you do not have a clinic visit scheduled for that day. Non-transplant related bloodwork (e.g. related to coumadin) should be monitored by your family doctor.

8

Can I get my medications filled in any pharmacy I like?

With very few exceptions most medicines can be filled by any pharmacy in Ontario. It may take longer to get them this way because outside pharmacies may not keep regular stocks of these drugs and will have to order them. Some transplant medications (e.g. Neoral) must be dispensed through transplant centres only. If you are prescribed any medicines by an outside doctor please let our office know so that it can be entered in your transplant file. Also please ask us if you have any doubts about the safety profile of your new medications.



9

Am I exempted from wearing a car seatbelt?



No. You must always be in compliance with the law.



ST. MICHAEL'S HOSPITAL
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