

Transplant Digest

Donation After Cardiac Death (DCD), finally in Toronto

As most of you may know, the shortage of kidney donors has led to long waiting times for a kidney transplant, especially in Toronto. The only source for a viable kidney for those who are on the waiting list is from people who, unfortunately, had accidents or medical events that damaged their brains so severely that they have been declared "brain dead". However, not all those people who were declared brain dead have been considered as kidney donors. Only those who signed their donor cards, or whose family has consented to donate the organs of their loved ones to someone on the waiting list, are considered donors. Thus, donor shortages persist.

In a pioneer effort to help reduce the waiting time for our patients, Dr. Zaltzman and Dr. Andrew Baker, working with The St. Michael's Organ Donation Committee and in conjunction with Trillium Gift of Life has done tremendous work to implement DCD (Donation After Cardiac Death) donation at St. Michael's Hospital. DCD kidneys have been used in Europe and the United States. Under the leadership of Trillium Gift of Life, with policies derived at St. Michael's Hospital, Ontario became the first province in Canada to have a DCD program. On January 27, 2007, St. Michael's Hospital transplanted the first Donation after Cardiac Death donor kidney. We are the first in Toronto and ninth in Ontario to do a DCD kidney transplant.

DCD provides another possible pool of kidney donors. These kidneys are not any different from kidneys obtained from brain dead donors, and are allocated in the usual way. Hopefully, this will decrease the waiting time for kidney transplants. This is great news for patients who have been on the waiting list. This is a major milestone for the SMH Renal Transplant Program.

For more information about DCD, please see the article of Dr. Zaltzman under Transplant Initiatives.

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In this issue:

Donation After Cardiac Death (DCD), finally in Toronto

From the Editor's Desk...

Milestones
Hypertension After Kidney Transplantation

Kidney Transplant Workup

What it all Means

Transplant Trends

Latest Kidney Transplant Initiatives

Post Transplant Chat

Peer Support Program

Income Tax for Kidney Patients

Contact Information



Leading with Innovation
Serving with Compassion

ST. MICHAEL'S HOSPITAL

A teaching hospital affiliated with the University of Toronto

From the Editor's Desk...

Welcome to the second issue of our new Transplant Digest, published by the Renal Transplant Program at St. Michael's Hospital. The first issue published last winter was a huge success based on the total number of copies printed and distributed as well as by the feedback and comments received. Hopefully this publication will continue to be well-received in the years to come.

We performed a record 110 kidney transplants at St. Mike's last year. This huge number is due in large part to greater numbers of deceased donor kidneys becoming available and the continued success of our Live Donor program. Special thanks are due to our transplant surgeons for all their hard work, 24/7. Our waiting list for deceased kidneys is now actually shrinking. ***This trend is for real*** and can only be good news for anyone who is unfortunate in not having a live donor and is therefore waiting for a deceased donor kidney. Some of our new initiatives in further increasing organ supply will be discussed in this issue of Transplant Digest.

For the first time we are carrying an article written by one of our transplant recipients. Articles from recipients and donors alike are always welcome for possible inclusion in future issues. We have included articles written by staff on topics that the Transplant Program feels would be interesting to the largest number of patients. If you have suggestions for including specific topics in future issues, please contact Meriam Jayoma. In addition to providing the highest quality level of patient care, continuing education of patients is our highest priority.

Dr. Ramesh Prasad

Milestones

The Renal Transplant Program at St. Michael's Hospital has now been in existence for almost four decades. Here are some of the milestones for the program.

- 1967 *SMH Transplant Program Inaugurated*
- 1973 *Performed First Live Donor Transplant*
- Nov. 1997 *1000th Transplant performed at SMH*
- July 2000 *First Laparoscopic Surgery in Ontario (see section E for definition)*
- Dec. 2004 *1500th Transplant performed at SMH*
- Nov. 2005 *First Paired Exchange (see section A for definition) in Canadian transplant history in conjunction with Toronto General Hospital*
- Year 2005 *Fifty nine transplants from living donors performed in one year - a Canadian record*
- Mar. 2006 *Recipient of Values in Action Award for "Excellent Team"*
- May 2006 *Hosted province wide Renal Transplant Symposium Update*
- Jan. 2007 *First transplant from a Donation after Cardiac Death (DCD) Donor*
- Apr. 2007 *First Live Donor Recognition Party*

Special thanks to Dr. Phil McFarlane and Dr. Jeff Zaltzman for providing some of the information.



Hypertension after Kidney Transplantation

Dr. Ramesh Prasad

Hypertension, or high blood pressure, is a common problem in kidney transplant recipients. About 90% of our transplant patients take at least one BP lowering medication.

Transplant patients are prone to developing high BP for a number of reasons. They may have had high BP for many years before their transplant, and sometimes, the high BP itself may have been the original cause of kidney failure. In this case, replacing the kidney does not solve the original problem, namely high BP. Also, remember that with a kidney transplant effective renal function is not 100%, but in the best circumstances is only around 70% of normal. This state of “chronic kidney disease” will also perpetuate high BP. Other causes of high BP include the transplant drugs themselves, unwanted events like acute rejection, the original “native” kidneys continuing to secrete hormones that drive the BP up, and rarely, blockage of the blood supply to the transplant kidney. When this latter event occurs, the kidney transplant “thinks” that the BP is low because it is not getting enough blood supply, and then it begins to churn out hormones that drive the BP to high levels.

Why is managing high BP important?

High BP can lead to or worsen heart disease, can cause a stroke, or can cause kidney transplant damage, among other things. Several studies have shown that the higher the BP, the shorter the life of a kidney transplant. Special investigations are sometimes needed for high BP, such as a kidney ultrasound, angiogram, and blood or urine hormone levels. Sometimes, the doctor will recommend 24-hour ambulatory BP monitoring to get a better idea of the actual BP “load” to the patient. Your doctor will discuss these with you in the clinic.

Dietary modification and stress reduction may be useful to transplant patients in reducing BP just as in other patient groups. Although there are no clear guidelines, many doctors will recommend keeping the BP less than 130/80 mmHg at all times, using as many medicines as needed in order to achieve this. Home BP monitoring is encouraged. Some patients need up to 5 BP lowering drugs to reach this target! In general, all classes of BP drugs can be used in transplant patients, but close monitoring is essential. Occasionally, the doctor will recommend angioplasty or bypass surgery of the transplant kidney artery if there is blockage. Treating high BP in transplant patients can be a difficult and sometimes frustrating endeavour for patient and physician alike. Of course, taking antihypertensive medications regularly and as prescribed is critical to achieving success in preventing the long-term complications of hypertension.

The Transplant Program has been conducting research in to the cause and treatment of high BP in recipients for a number of years. We have shown that transplant recipients can demonstrate a white-coat effect in the clinic as anyone else, that the BP is generally higher in the winter than summer, that certain cholesterol-lowering drugs can actually lower BP, that some BP drugs that affect immunosuppressive drug levels can in fact be used safely, that BP-regulating genes affect kidney transplant function, and that some specific BP drugs also improve kidney function. Please contact our Research Office or view our notice board for more details.



Kidney Transplant Workup: What it all means

By Galo Meliton, RN, C. Neph (C)

In my previous article, I gave you an overview of the transplant workup process. This article will explain the required tests for the transplant workup and their relevance to your pre and post transplant care.

The purpose of the kidney transplant workup is to provide the transplant team the necessary information to assess your eligibility in terms of receiving a kidney. Only 25% of dialysis patients are eligible for kidney transplantation, and this number decreases as the recipients' age increases. The workup is also required to make sure that the transplant operation is not unduly risky to the patient, and that the transplant is likely to work sufficiently well afterwards.

The transplant workup requires coordination between you, the nurse from the centre from which you are being referred, and the transplant nurse coordinator. I cannot over emphasize the importance of your active participation and your role in your transplant workup. You will be better equipped and prepared to face life after transplant the more you know and understand what is involved in the workup process.

It is imperative that you are well informed, and that you are going into transplantation with the full understanding of its risks and benefits. In a nutshell, you should have all the necessary information to make an informed choice. It is your responsibility. ***A kidney transplant is an optional procedure.***

There are 4 major requirements that need to be fulfilled before you can have a transplant, regardless of your donor source (living or deceased donor). I will outline the necessary tests and steps involved with each requirement.

Psychosocial Assessment

First, it is important to establish that you are aware of and accept that you will have certain responsibilities during the workup, as well as after the transplant, to ensure that you do not lose your transplant kidney prematurely. These include coming to clinic and doing your bloodwork on a regular basis, as well as ensuring that you take your medications as prescribed by your transplant doctor. Working closely with the transplant team is critical to the success of your transplant.

Involved in this process is a psychosocial assessment and clearance by your Social Worker at both your referring centre and that of the transplant program.

Referral and Medical Clearance

Second, you need to be referred by your nephrologist (kidney specialist) and medically cleared by the transplant doctor and the rest of the assessment team. You will be

informed if the transplant nephrologist feels you need to be seen by another specialist before you are medically cleared for a transplant.

There are a few general issues that need to be taken into consideration prior to your being approved for a kidney transplant:

Original kidney disease - some kidney diseases may recur in the transplanted kidney. You need to be aware of this possibility, should this be true in your particular case.

General Health history - medical and surgical history is important information that will help the transplant nephrologist assess your eligibility for a kidney transplant. A panel of recent bloodwork from your referring centre is needed for this purpose. If your hemoglobin, for example, is consistently low, it would be necessary to find out the cause for this. It may also be appropriate for another specialist to see you in this regard.

ABO (Blood Group) - a hardcopy of your blood group is required. The chart below outlines blood group compatibility for those with potential living donors:

Blood Group	May Donate to	May Receive from
O	O, A, B, AB	O
A	A, AB	O, A
B	B, AB	O, B
AB	AB	O, A, B, AB

As Dr. Zaltzman discussed in this Newsletter's previous issue, the **Paired Exchange Program** is in place at St. Michael's Hospital in collaboration with the Toronto General Hospital. Please contact us at the transplant clinic should you have any questions regarding this program.

Patients on the deceased donor list are allocated kidneys from their corresponding blood group.

Oral Glucose Tolerance Test (OGTT) - this blood work is done on non-diabetics where a fasting blood sugar is taken and the patient is then given a drink high in sugar. Two hours later, another blood sugar is taken. This test tells us if you have a tendency to become diabetic. If so, we may be able to avoid giving you transplant medications that may make you more likely to become diabetic.

For those who have diabetes it is very important that it is well controlled prior to transplant.

Viral Studies - it is important to establish if you have been exposed to certain viruses to ensure that you have immunity to them, or if you are actually ill from them such as Hepatitis B and C. The anti rejection medications you will be given after the transplant may cause problems related to the viruses tested for before the transplant.

PSA (Prostate Specific Antigen) - done on some men to detect any potential problems with the prostate. An enlarged prostate, for example, may cause problems with a man's ability to pass urine once he has had a transplant. **Prostate Cancer** may suddenly grow after a kidney transplant.

Tests for your heart:

- **Electrocardiogram (ECG)** - simple tracing of your heart's electrical activity.
- **Echocardiogram** - an ultrasound of the heart, this shows the structure of the heart and how strong the heart is pumping blood to the body.
- **Stress test** - this test shows images of the heart muscle. You may be asked to walk on an exercise treadmill. If you are unable to walk on the treadmill, you may be given medicine that produces an effect similar to exercise. This test may help predict your risk of a heart attack during transplant surgery.

Tests related to your lungs:

- **Chest x-ray** - shows simple images of your heart and lungs.
- **TB skin test** - this test will show if you have been exposed to Tuberculosis (TB). You may need to go on medicine before the transplant to prevent you from being sick from TB after the transplant.

Other tests needed:

- **Abdominal ultrasound** - shows images of the major internal organs such as the liver, kidneys, spleen. It also shows the major blood vessels in your abdomen.
- **PAP smear** - done on some women, this test looks at cell samples from a woman's cervix and detects any abnormalities such as signs of cancer.
- **Mammogram** - this is an xray of the breasts done on some women to detect signs of breast cancer.

Tissue Typing and Crossmatching

Third, Tissue Typing and Crossmatching will have to be done between you and your potential donor. This will not be discussed here, however, as it was discussed at length in my previous article.

Surgical Assessment and Clearance

Lastly, and certainly not the least, surgical clearance is critical. There are some types of kidney disease that need special attention prior to moving forward with the workup. For example, if your original kidney disease is Polycystic Kidney Disease (PCKD), you most likely will need to be seen by the transplant surgeon for a surgical assessment to ensure there is room to place the transplanted kidney.

Re transplantation - if you are going for a second transplant (or third), you will also need to be seen by the transplant surgeon for surgical clearance prior to moving forward with the medical workup.

Overweight patients need to be seen by the surgeon for surgical clearance as well as there is an increased risk of infection and wound dehiscence (wound opening up) with increased weight.

The test involved here is **Iliac Dopplers**, which is an ultrasound that looks at the quality of the blood vessels (veins and arteries) that supply the legs as the new kidney is attached to these blood vessels.

Depending on your medical and surgical history, you may need other Urological related tests before you could be cleared for a transplant.

Those of you who are on the transplant list may need to redo their testing on a yearly basis if not every two years, and you may need to be reassessed by the transplant team to ensure that you are in good health to receive a kidney, should one become available for you.

If you are still not sure if transplant is for you and you need more information, feel free to contact your nurse coordinator, social worker or doctor with your questions and concerns.

You may benefit from The Peer Support Program of The Kidney Foundation of Canada, The Transplant Companions Program, as well as our information sessions at the referring centres, all offered by the St. Michael's Hospital transplant program. Watch out for future articles on these services.



Kidney Transplant Trends

By Dr. Jeff Zaltzman

In our first issue of Transplant Digest, Paired Exchange was discussed. The following are the other latest kidney transplant initiatives that are now in place.

List Exchange

Potential donor recipient pairs who are blood group incompatible have another opportunity for transplant. A potential donor who is either blood group A or B who has a blood O group recipient can donate their kidney to the deceased donor waiting list patients, blood group A or B respectively.

In exchange the original potential recipient of that donor would move to the top of the blood group O list and get a kidney faster.

Extended Criteria Donor (ECD)

Owing to a lack of donors transplant centers have had to use kidneys from less than ideal donors. It is well established that age and other factors can impact the long-term kidney transplant survival. Data has suggested that the best way to use such kidneys is in recipients who have the most to lose by waiting on the list. In general, older recipients can not afford to spend long time on the waiting list.

The use of ECD donors in such patients, who consent in advance, could allow for faster transplantation. The trade-off would be that these kidneys would not last as long. The use of ECD donors has the benefit of utilizing a scarce resource in a manner that provides the greater good to society. ECD is only offered to people who are 55 years old with diabetes or people 60 years and older without diabetes.

Donation after Cardiac Death (DCD)

This is a new innovation in Canada, but a well-established form of organ donation, which has been in practice in Japan, Europe and the USA for many years. In controlled DCD, the family of a patient with critical brain injury has made a decision to withdraw life-sustaining therapy. Organ donation is an option for these families. In DCD, the patient is withdrawn from ventilator support and ultimately dies of cardio-pulmonary arrest. After a very short period of waiting, organs and tissues can be procured. Unlike donation from donors who have had brain death, there is a longer period of low blood flow to the kidney, resulting in a higher rate of delayed kidney transplant function. Despite this, however, the outcome for recipients of DCD donors is comparable to non-DCD donor kidneys.

Post Transplant Chat - MACR Testing

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

What does MACR stand for? What does it represent?

MACR stands for “MicroAlbumin-to-Creatinine Ratio”. It is a test for very small amounts of a type of protein, called albumin, in the urine. This small amount of protein is not normally picked up by routine lab tests. Therefore, this special test is ordered.

Why do we check for urine MACR?

Detecting an abnormal protein in urine is an essential part of post transplant care.

Albumin accounts for approximately 50% of protein in the blood. The kidney works to prevent the loss of albumin through the glomerulus, or kidney filter. Although very small amounts get through, most of it is reabsorbed. If larger amounts pass through the kidney filter, then reabsorption is incomplete and albumin appears in the urine. This indicates early kidney disease, or in the case of transplants, early kidney damage. By checking MACR, we can hopefully pick up kidney damage sooner and start treatment for it.

What are normal values for MACR?

Normal values are different for men and women. For men, the normal value is less than 2.0 mg/mmol, while for women, it is less than 2.8 mg/mmol. The number is higher for women because of their smaller muscle mass and less urine creatinine in the denominator of the equation, hence the higher ratio. If the MACR is more than these numbers, the patient is said to have “microalbuminuria”.

What happens after the MACR is positive?

Sometimes the MACR decreases back in to the normal range without treatment. However, it can be persistent, and in some people it progresses so that even more protein appears in the urine and becomes “proteinuria”, at which point the kidney is permanently damaged. All labs can diagnose proteinuria, by which time the damage is largely done. However, what we are trying to do at St. Mike’s is diagnose a positive MACR in patients before this happens and hopefully prevent proteinuria.

Are there other implications to a positive MACR other than kidney damage?

Yes, in the general population, a positive MACR is associated with an increased risk of cardiac disease as well. Whether this is true for transplant recipients or not is currently unknown.

How is the procedure done? How often is it done?

5 to 10 ml of morning urine is collected with no preservative and analyzed by a radioimmunoassay method. This can be done at St. Michael’s or any outside lab. It is monitored every 3 months usually, but can be checked more or less frequently depending on an individual patient situation.

How is a positive MACR treated?

Observation alone is sometimes justified, but some commonly used blood pressure lowering drugs help to lower the MACR as well. Examples include ACE inhibitors and angiotensin II receptor blockers. You should discuss with your doctor whether these treatment options are right for you.

Peer Support Program - The Kidney Foundation of Canada

For those living with kidney disease, life has its special challenges. Peer Support Volunteers know that because they've traveled along the same road.

The diagnosis of kidney disease can be very frightening and challenging. The Kidney Foundation of Canada's Peer Support Program is a volunteer support service for renal patients and family members, designed to provide support for those living with kidney disease.

Peer Support Volunteers are themselves renal patients or family members who have adjusted to living with kidney disease, have participated in training programs, and have the desire to help others by sharing their experiences. Support from a peer may help you to better understand information about living with kidney disease, complementing the care provided by your health care team. These volunteers are all either living with the disease themselves or have been affected by it in some way. So they understand how difficult it can be and can give you the personal encouragement and support you need. Volunteers provide support mainly by telephone, and sometimes, when possible, through face-to-face contact.

The Peer Support Program is there to help anyone touched by kidney disease. For example people who have been diagnosed with kidney disease or those whose kidneys have failed, as well as their friends, families and loved ones can all use the service. It's also there for those who are considering donating one of their kidneys to someone in need. The Peer Support Program lets you speak with someone who truly understands what it's like to live with kidney disease, and is willing to share their own experience with you. They can tell you about their kidney disease and how they balance their treatment with family life, work and social activities. They are able to answer many of your questions, because they've been there too.

Depending on your needs, you may also speak with different volunteers at different times. For example, if you're considering switching treatments, you'll be matched with someone who has used the same treatment. Or if you're concerned about balancing work and treatment, you'll speak to someone who has successfully managed their disease and their career.

You and your family members can ask for Peer Support program whenever you need them and as often as you wish. Peer Support program may be helpful at various stages, for example:

- When first learning you have kidney disease
- When learning about the different types of treatments
- When considering a change in treatment
- When considering a live donor transplant; remember everyone involved – the donor, transplant recipients, family members and friends - can request Peer Support Program.
- When you just need to talk with someone who's been there, too.

Talking to other patients can be a good source of support and inspiration. To request service or to find out more about the program, you, or someone on your behalf, may call directly to **1-800-387-4474 ext. 252** to talk with the **Program Coordinator, Suela Cela**. She will speak with you and then, with your permission, will proceed to make a volunteer match for you. Your first name and contact information is shared with the volunteer and you are given the volunteer's first name and estimated time of the initial contact. This way you know who will be contacting you and when. The volunteer makes all calls; this is done so there is no cost to you.

Peer Support Volunteers assist many people each year, and those who have accessed services believe the support and encouragement they've received has been an important part of learning to live with kidney disease.

Income Tax for Kidney Patients

By Gordon Haslam

Dealing with any illness can be quite traumatic; add to that the cost of medical care, prescriptions, as well as other financial burdens associated with any chronic illness can be stressful not only to the patient, but family and friends as well. Toss in the burden of income taxes, and the resulting financial obligations can be overwhelming.

Nobody enjoys paying taxes, and paying as little as possible is everyone's goal. When you have an illness, especially one of a chronic nature, there are additional tax deductions and credits you may be entitled to. In the case of persons with Chronic Renal Failure, there are a number of immediate credits an individual taxpayer should be aware of.



Firstly, if you are a Dialysis patient, The Canada Revenue Agency (CRA) has ruled that you qualify for the “*disability tax credit*”. This entitles a taxpayer to a credit of \$1,028 (2006); this credit will be applied against taxes you owe for income you earned in the year. If you paid taxes, in excess of the amount you were required to, this credit could result in a refund. In addition to the disability credit, there are a number of other items that a Kidney patient may be entitled to claim; the most immediately visible claim is for medical expenses. Most people are well aware of the typical claims for such items as prescription medications, dental work, eyeglasses and contact lenses, but there are also quite a number of less common items that are important to consider.

A significant credit can arise from an often-overlooked medical expense: Mileage. Any individual that has to travel for medical reasons is entitled to claim mileage as a medical expense. In the Province of Ontario, in 2006, CRA has stipulated a claim amount of 48.5 cents per kilometer, provided that the travel is in excess of 41 km each way. For example, if you live in Barrie, Ontario and have to travel to St. Michael's hospital to visit the transplant clinic, you are entitled to claim about 214 km, which equates to roughly \$103. If you were to make four of these trips in a year, your claim would increase to \$412.

Other medical related expenses, often overlooked, include: deductibles, insurance premiums paid to private medical insurance plans, charges for visiting an optometrist, meals (related to the travel expenses), private home care, medical appliances such as dentures, hearing aids, and medical devices such as blood pressure monitors that your doctor prescribes.

In respect to deductibles, an important consideration is the Trillium Drug Program. If you receive Trillium benefits, as you are likely aware, there is a deductible amount geared to your level of Family Income. This deductible amount qualifies as a medical expense under CRA regulations.

Perhaps you are benefiting from Home Dialysis; in this case, there are even more often overlooked medical expenses; modifications to your home to accommodate the Dialysis Machine, electricity and water costs for operating the machine, and, travel and accommodations (over 41 km) to the facility where the training takes place.

If you are fortunate enough to receive a kidney from a living donor, there are claims available for the donors that are almost always overlooked: transportation and accommodations for the donor, and any medical costs associated with the gift they give.

A caveat to the claim for Medical Expenses, is the ‘deductible’ amount designated by CRA each year; for 2006, this amount was equal to 3% of your net income to a maximum of \$1,884. This means, that you have to have medical expenses in excess of the lesser of 3% of your net income or \$1,884 before you will be entitled to any credit. However, most individuals with renal failure see their incomes reduced because of their illness, as such, the claim for medical expenses can become quite significant. Additionally, medical expense claims can be ‘shared’ and ‘pooled’ by spouses and family members. Applying the medical expenses to the lower income spouse can result in a larger refund.

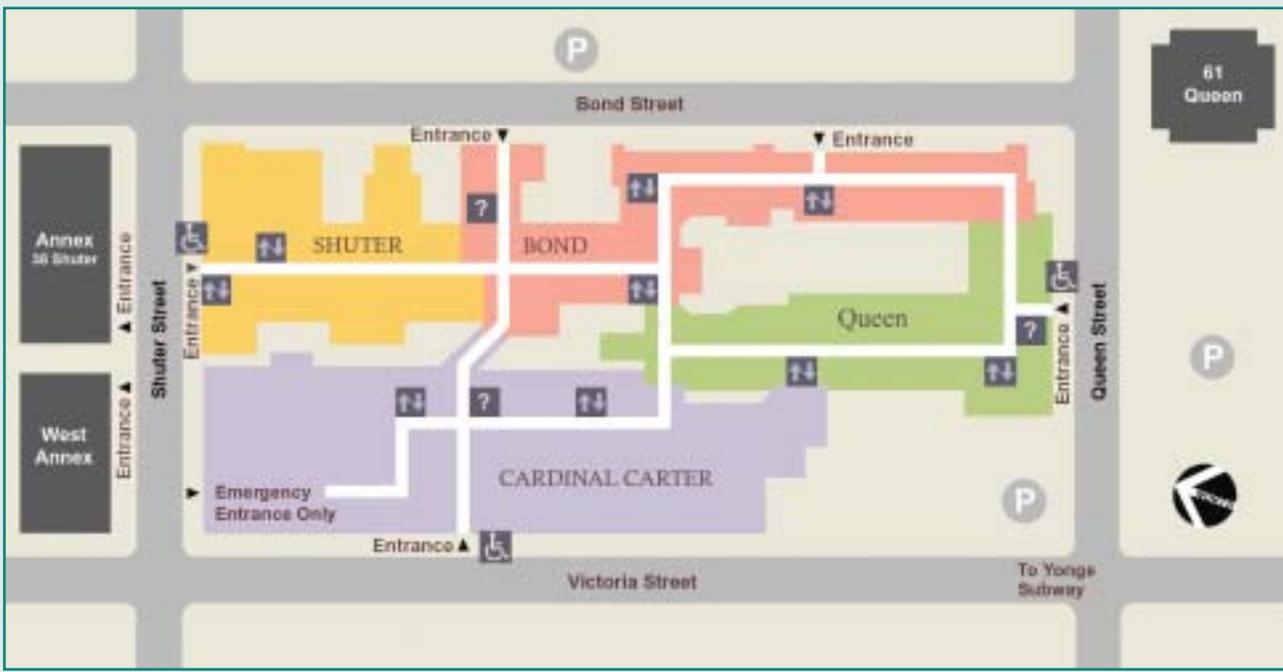
Utilizing the claims for disability and medical expenses can result in significant tax refunds, consider the following example: A married couple lives in Barrie, Ontario and travel six times per year to St. Michael's hospital for clinic visits, and one of the spouses is receiving three times weekly dialysis treatment in their local hospital. Each spouse earns \$50k per year. Between their deductibles, mileage claims, prescription medical costs etc., they expend \$2,800 per year. Their medical expense deductible would be \$1,500 (\$50k @ 3%) resulting in a claim of \$1,300 in medical expenses plus, they would be entitled to claim the disability credit. At their effective income tax rate of about 22%, their resulting tax savings could be upwards of \$1,700!

Of course, this is only an example, the variables related to the tax situation of each individual taxpayer are enormous, and the point to be made is you can save a considerable amount of income tax providing you keep track of your expenses and consult a professional for the preparation of your annual tax return.

Ledgers Canada has a complete guide available, free of charge, relating to income tax for kidney patients. Visit www.ledgers.com and select information guides.

Gordon M. Haslam is the President & CEO of Ledgers Canada and also a Kidney transplant recipient.

Contact Information



The map shows the layout of St. Michael's Hospital with several wings: SHUTER (yellow), BOND (red), Queen (green), and CARDINAL CARTER (purple). It also shows the Annex 36 Shuter, West Annex, and Emergency Entrance Only. Entrances are marked with arrows and wheelchair icons. The hospital is located between Bond Street and Victoria Street, and between Shuter Street and Queen Street. A north arrow and a 'To Yonge Subway' sign are also present.

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Disclaimer Note:

Views presented in this newsletter are those of the writers and do not necessarily reflect those of St. Michael's Hospital or the University of Toronto. Subject matter should not be construed as specific medical advice and may not be relevant to individual patient circumstances. For all questions related to your own health please contact your health care provider.



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