



# CANNT JOURNAL JOURNAL ACITN

Volume 21, Issue 1

January–March 2011

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*By Heather K. Naylor, BScPharm, ACPR, and Colette B. Raymond, PharmD, MSc*



**"OUR PATIENTS' KIDNEYS  
ARE FAILING THEM.  
WE WON'T."**

— Heather Dean and Janice MacKay  
*Kidney Marchers, 2010 and 2011*

### **A BELIEF IN TRIUMPH, 100 KILOMETRES LONG**

**Kidney March Story, #483** No two ways about it: Heather Dean and Janice MacKay are renal royalty! Registered Nurses in the Southern Alberta Renal Program for years and co-chairs of the CANNT Conference, they refuse to succumb to the notion that chronic kidney disease is irreversible. In the belief that the human spirit can strengthen the life force in any patient, they work on tirelessly. And walk on tirelessly, too. This September at the breathtaking, three-day Kidney March, they will be joined by a thousand kindred spirits in what will surely be a peak experience — literally: a heroic trek right through Kananaskis Country!



## **KidneyMarch**

failure is **NOT** an option.

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### Editor-in-Chief

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### Layout and Design

Sherri Keller, Pembroke, Ontario

### Advertising Sales

Heather Coughlin,  
Pappin Communications,  
84 Isabella Street, Pembroke, ON K8A 5S5  
T: (613) 735-0952  
F: (613) 735-7983  
email: [heather@pappin.com](mailto:heather@pappin.com)  
rate card: [www.pappin.com](http://www.pappin.com)

## Letter from the Editor: Gillian Brunier

# A certain synergy



While each single issue of the *CANNT Journal* is made up of individual contributions from Canadian nephrology health care practitioners from across the country, we at the *CANNT Journal*

often feel that there is a certain synergy that makes the whole much greater than the sum of its parts. Such is the case with this issue, when we have such varied contributions extolling the best of our practices in many different ways.

Our feature article is a report of a continuous quality improvement project by Patty Quinan, Clinical Nurse Specialist from Humber River Regional Hospital, Toronto, Ontario. Patty is also our current CANNT President. Her project is entitled: "A three-step approach to conversion of prevalent catheter-dependent hemodialysis patients to arteriovenous access." Read how Patty spearheaded this project, her successes and difficulties. For this article, Patty received the CANNT 2010 Manuscript Award for the best submission of an article based on her abstract at last year's CANNT symposium in Toronto.

For our continuing education (CE) article, Heather Naylor and Colette Raymond, renal pharmacists from Winnipeg, Manitoba, have chosen an excellent topic: "Treatment of neuropathic pain in patients with chronic kidney disease." Neuropathic pain is a problem many of our dialysis patients have to struggle with, and, while there are newer medications to help, each of these medications has side effects. Update your knowledge on this complex topic by completing the quiz to this CE article.

From our journal departments we have two quite different articles. In Practice Corner, Cathryn Cortissoz, Project Manager of the Canadian Standards Association (CSA) Standards, has written

an update on the CSA's "*New standard for home dialysis*". Home dialysis (both hemo- and peritoneal dialysis) is being promoted in many dialysis units across Canada. If you work in these growing areas, take a look at the new standard being recommended here. A different slant on managing dialysis equipment is taken by Rejean Quesnelle, the CANNT VP for technologists, who has written his second column for "Ask the Green Tech." He reviews the important topic of medical devices and the movement toward making them "green electronics." Read his column to see what you can learn about green electronics for your home and for your dialysis unit.

Occasionally, we have organizations contact us at the CANNT Journal to help disseminate information that will, in turn, help our practice and, above all, our patients. This is the case with the article by The Organ Registry Team—Ottawa, Ontario, entitled "Living Donor Paired Exchange Registry helps kidney patients get the transplants they need." The information in this article plus the website, [www.organsandtissues.ca/english/ldpe](http://www.organsandtissues.ca/english/ldpe), will bring all of you up-to-date on the latest practices for patients interested in a kidney transplant.

Finally, we have two sections on our last CANNT symposium in Toronto. The first is a summary of this very successful symposium on pages 10 to 11. The second is profiles of all the award winners at this symposium. Look for yourself to see if there is someone from your unit profiled here, and then consider if this year you could try for one of these awards, bursaries or grants. Or consider putting forward a colleague's name for an award. Go to the CANNT website: [www.cannt.ca](http://www.cannt.ca) for details.

We trust you, too, will find the varied articles in this issue of the *CANNT Journal* stimulate your thinking and that the combined effort of the individual contributors has produced a really great whole.

## Une certaine synergie

Bien que chaque numéro du *Journal de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie* (ACITN) soit le fruit de contributions individuelles de la part de professionnels de la santé œuvrant en néphrologie d'un bout à l'autre du pays, nous avons l'impression, au *Journal de l'ACITN*, qu'il existe une certaine synergie qui fait en sorte que le tout soit plus grand que la somme de ses composantes. C'est précisément le cas avec ce numéro, aussi nous vous présentons un ensemble de contributions vraiment variées, faisant ressortir le meilleur de nos pratiques de maintes façons différentes.

Notre article de fond porte sur un projet d'amélioration continue de la qualité rédigé par Patty Quinan, infirmière clinicienne spécialisée (ICS), du Humber River Regional Hospital, à Toronto, en Ontario. Patty est également la présidente en exercice de l'ACITN. Son projet s'intitule : *A 3-step approach to conversion of prevalent catheter-dependent hemodialysis patients to arteriovenous access* [Une approche en trois étapes pour la conversion des patients en hémodialyse porteurs d'un cathéter central à un accès artérioveineux]. Apprenez comment Patty a été le fer de lance de ce projet, quelles ont été ses réussites et les difficultés qu'elle a dû relever. Pour cet article, Patty a reçu le Prix d'excellence de 2010 du Journal de l'ACITN pour le meilleur article soumis d'après le résumé de la communication présentée dans le cadre du Congrès de l'ACITN de l'année dernière, à Toronto.

Pour ce qui est de notre article sur la formation continue (FC), Heather Naylor et Colette Raymond, pharmaciennes en néphrologie, de Winnipeg, au Manitoba, ont choisi d'aborder un excellent sujet : *Treatment of neuropathic pain in patients with chronic kidney disease*. [Traitement de la douleur neuropathique chez les patients atteints de maladie rénale chronique]. La douleur neuropathique est une douleur que bon nombre de nos patients en dialyse éprouvent. Bien qu'il ait de nouveaux médicaments qui permettent de la soulager, chacun de ceux-ci entraîne des effets indésirables. Testez vos connaissances sur ce sujet complexe en remplissant le test éclair après la lecture de cet article de FC.

Du côté des rubriques du Journal, nous avons deux articles fort différents. Dans le Coin pratique, Cathryn Cortisoz, chef de projet de l'Association canadienne de normalisation (CSA), a rédigé une mise à jour de la nouvelle norme relative à la dialyse à domicile de la CSA. De nombreuses unités

de dialyse au Canada favorisent la dialyse à domicile (incluant à la fois l'hémodialyse et la dialyse péritonéale). Si vous travaillez dans ces secteurs en croissance, jetez un coup d'œil à la nouvelle norme qui est recommandée ici. Une différente perspective dans la gestion de l'équipement de dialyse est présentée par Réjean Quesnelle, vice-président des technologues de l'ACITN, qui a écrit un deuxième article dans la chronique « Le tech se met au vert ». Il passe en revue l'important sujet des dispositifs médicaux et la tendance pour rendre les appareils électroniques « verts ». Lisez sa chronique pour en apprendre plus sur les appareils électroniques verts spécialement conçus pour votre domicile et votre unité de dialyse.

Il arrive parfois que des organismes prennent contact avec l'équipe du *Journal de l'ACITN* pour diffuser de l'information qui, en retour, aidera notre pratique, mais par-dessus tout nos patients. C'est le cas avec l'article rédigé par l'équipe du Registre canadien des insuffisances et des transplantations d'organes (RCITO), à Ottawa, en Ontario, intitulé *Living Donor Paired Exchange Registry helps kidney patients get the transplants they need* [Le Registre de donneurs vivants jumelés par échange de bénéficiaires aide les patients atteints de maladie rénale à recevoir la greffe de rein dont ils ont besoin]. L'information contenue dans cet article ainsi que sur le site Web <http://www.organsandtissues.ca/francais/accueil.html> vous mettra au parfum en ce qui concerne les dernières pratiques relatives aux patients présentant un intérêt pour une greffe de rein.

Enfin, nous avons deux sections portant sur le dernier congrès de l'ACITN qui a eu lieu à Toronto. La première comporte un résumé de ce congrès très réussi aux pages 10 à 11. La seconde section présente le profil de chacun des récipiendaires des prix décernés lors de ce congrès. Constatez par vous-même si le profil d'un membre de votre unité est affiché ici, puis envisagez cette année de poser votre candidature à l'un des prix, à l'une des bourses ou à l'une des subventions octroyés par l'ACITN. Ou encore, songez à poser la candidature d'un ou d'une collègue à l'un de nos prix d'excellence. Pour plus de détails, consultez le site de l'ACITN : [www.cannt.ca](http://www.cannt.ca).

Nous sommes persuadées que les différents articles de ce numéro du *Journal de l'ACITN* vous donneront matière à réflexion et que l'effort combiné de chaque collaborateur a contribué à produire un tout plus grand que nature.

### Le Journal ACITN

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Site web : [www.cannt.ca](http://www.cannt.ca)

• Voici les échéanciers à rencontrer pour soumettre des articles/nouvelles au journal :  
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### Rédactrice en chef

Gillian Brunier, RN(EC), MScN, CNeph(C)  
Toronto, Ontario

### Conseil de rédaction

Lee Beliveau, RN, CNeph(C)  
Surrey, Colombie-Britannique  
Eleanor Ravenscroft, RN, PhD, CNeph(C)  
Toronto, Ontario  
Colette B. Raymond, PharmD, MSc  
Winnipeg, Manitoba  
Rosalie Starzomski, RN, PhD  
Vancouver, Colombie-Britannique  
Alison Thomas, RN(EC), MN, CNeph(C)  
Toronto, Ontario  
Colleen Wile, RN, CNeph(C)  
Halifax, Nouvelle-Écosse

### Éditeur

Bruce Pappin, Pembroke, Ontario

### Conception et design

Sherri Keller, Pembroke, Ontario

### Publicité

Heather Coughlin,  
Pappin Communications,  
84 rue Isabella, Pembroke, ON K8A 5S5  
T : (613) 735-0952, F : (613) 735-7983  
courriel : [heather@pappin.com](mailto:heather@pappin.com)  
information de publication :  
[www.pappin.com](http://www.pappin.com)

## 2010–2011 CANNT Board of Directors

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F: (905) 682-0389  
email : [laing.jocelyn@gmail.com](mailto:laing.jocelyn@gmail.com)

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T: (403) 943-9400  
F: (403) 943-9401  
email/courriel : [Heather.Dean@albertahealthservices.ca](mailto:Heather.Dean@albertahealthservices.ca)

## Message from the President



It is with great pleasure that I present my first message to you as your 2010–2011 CANNT President.

I would like to begin by thanking the 2010 conference co-chairs, Alison

Thomas and Rosa Marticorena, and the planning committee for planning and delivering a superb annual symposium in Toronto. I would also like to thank Heather Reid of Innovative Conferences and Communications and staff for their expertise and support. I was impressed by the selection and diversity of speakers and presentations, spanning from paediatrics to end of life. At my presidential address at the 2010 conference, I discussed innovative approaches to improve communication between nephrology professionals from province to province and from country to country. Innovative ways to share knowledge and link with professionals include the internet, Facebook, participating in discussion boards, and networking. The CANNT annual symposium continues to provide excellent networking opportunities for nephrology professionals and individuals involved in the care and treatment of patients with renal disease.

My nephrology career began in 1983 in the hemodialysis unit at a large downtown hospital in Toronto, Ontario. My nephrology experience also includes working as a staff nurse on the in-patient nephrology and home dialysis units caring for patients on peritoneal dialysis and hemodialysis. In 1998, after 15 years of nephrology experience, I decided to write the Canadian Nursing Association exam in nephrology. I was thrilled to find out that I passed and proud to be considered a certified nephrology nurse (CNeph(C)). This prompted me to return to university to obtain a bachelor of science in nursing in 2002, and to complete a master's in nursing in 2006 with a focus on chronic illness. Returning to university helped me to achieve both professional and personal growth. I am able to incorporate theoretical knowledge into my clinical

practice and believe that I am a better nurse and clinician, as a result. I am currently working as a clinical nurse specialist in a large nephrology program at a community-based hospital in suburban Toronto, where I provide comprehensive vascular access care in collaboration with a multidisciplinary team.

Once I achieved professional success in the clinical and academic setting, the decision to run for president-elect of CANNT and become more involved in a professional nephrology association seemed a logical step forward in my career. As I look back on the past year as president-elect of CANNT, I have had the unique opportunity to learn more about the association, and to collaborate with board members, delegates, members, and industry sponsors.

The board members of CANNT include president, president-elect, past-president, website coordinator and treasurer, vice-president of technologists, and vice-presidents of the Atlantic, Ontario, Quebec and Western regions. Other important members who attend the board meetings include the Journal Editor-in-Chief Gillian Brunier and Administrative Assistant Debbie Maure. The board members meet in the spring and the fall and communicate with each other by email throughout the year. Items discussed at the board meetings will be shared with members and delegates during the annual general meeting at the next annual symposium in Calgary, Alberta, on October 20–22, 2011.

Plans are currently underway for the 2011 conference in Calgary, Alberta. Based on the energy and enthusiasm exhibited by the conference planning co-chairs Heather Dean and Janice MacKay, it is sure to be an excellent symposium. We look forward to seeing you in Calgary.

As your new CANNT President for 2010–2011, I look forward to an exciting and rewarding year ahead, and the opportunity to have a voice for Canadian nephrology professionals.

**Patty Quinan, MN, CNS, CNeph(C)**  
**CANNT President**



C'est avec un grand plaisir que je vous livre mon premier message en tant que présidente de l'Association canadienne des infirmières et infirmiers et des technologues (ACITN) pour l'exercice de 2010–2011.

J'aimerais commencer en remerciant Alison Thomas et Rosa Marticorena, coprésidentes du congrès de 2010, ainsi que tous les membres du comité organisateur pour la planification et la présentation du superbe congrès annuel qui a eu lieu à Toronto. J'aimerais aussi remercier Heather Reid d'*Innovative Conferences and Communications* et son personnel pour leur expertise et leur soutien dans l'organisation d'un tel événement. J'ai été impressionnée par la qualité des conférencières et conférenciers et la diversité des présentations, allant des soins pédiatriques aux soins en fin de vie. Dans mon allocution au congrès de 2010, j'ai parlé d'approches innovatrices pour améliorer la communication tant sur le plan interprovincial qu'international entre les professionnels de la néphrologie. Ces moyens innovateurs de partager les connaissances et de joindre les professionnels incluent, entre autres, l'Internet, le réseau social Facebook, la participation à des forums de discussion et le réseautage. Le congrès annuel de l'ACITN continue d'offrir d'excellentes occasions de réseautage pour les professionnels et les personnes œuvrant en néphrologie qui prodiguent des soins et des traitements aux patients atteints d'une maladie rénale.

Ma carrière en néphrologie a commencé en 1983 au sein d'une unité d'hémodialyse dans un grand hôpital du centre-ville de Toronto, en Ontario. J'ai donc travaillé comme infirmière soignante aux unités de néphrologie pour les patients hospitalisés et de dialyse à domicile pour les patients traités en dialyse péritonéale ou en hémodialyse. En 1998, après 15 ans d'expérience dans ce domaine, j'ai décidé de passer l'examen d'agrément en néphrologie de l'Association des infirmières et infirmiers du Canada (AIIC). J'étais vraiment contente d'apprendre que j'avais réussi l'examen et fière d'être reçue à titre d'infirmière agréée en néphrologie, CNeph(C). Cette réussite m'a encouragée à retourner aux études pour obtenir un baccalauréat en sciences infirmières en 2002, puis à faire une maîtrise en sciences infirmières en 2006 axée sur les maladies chroniques. Ce retour aux études m'a permis de m'épanouir tant sur le plan professionnel que personnel. Je suis en mesure d'incorporer les notions théoriques à ma pratique clinique ; je crois que je suis une meilleure infirmière et clinicienne en

fin de compte. Je travaille à l'heure actuelle comme infirmière clinique spécialisée (ICS) dans un programme de néphrologie de grande envergure dans un hôpital communautaire dans la banlieue de Toronto, où je prodigue des soins complets sur les accès vasculaires en collaboration avec une équipe multidisciplinaire.

Après un succès professionnel en milieu clinique et universitaire, la décision de poser ma candidature au poste de présidente élue de l'ACITN et de m'engager plus activement dans une association professionnelle en néphrologie semblait être un pas en avant logique dans ma carrière. Un an après avoir été nommée présidente élue pour l'ACITN, je constate que j'ai eu l'occasion unique d'en apprendre plus sur l'Association et de travailler en étroite collaboration avec les différents membres du Conseil d'administration (CA), délégués, membres et commanditaires de l'industrie.

Le CA de l'ACITN comprend les postes suivants : président(e), président(e) élu(e), président(e) sortant(e), trésorier(ière)/coordonnateur(trice) du site Web, vice-président(e) des technologues et les vice-président(e)s pour les régions de l'Atlantique, de l'Ontario, du Québec et de l'Ouest. D'autres membres importants assistent aux réunions du CA, notamment Gillian Brunier, rédactrice en chef du Journal de l'ACITN, et Debbie Maure, adjointe administrative. Les membres du CA tiennent des réunions au printemps et à l'automne et communiquent entre eux par courriel tout au long de l'année. Les points discutés lors de ces réunions seront présentés aux membres et aux délégués durant l'Assemblée générale annuelle qui aura lieu dans le cadre du congrès annuel qui se tiendra à Calgary, en Alberta, du 20 au 22 octobre 2011.

Les travaux de préparation en vue de l'organisation du congrès annuel de 2011 à Calgary vont bon train. Si je me fie à l'énergie et à l'enthousiasme qu'affichent nos coprésidentes du comité organisateur, Heather Dean et Janice MacKay, ce sera à coup sûr un excellent congrès. C'est donc avec impatience que j'attends le moment de vous rencontrer à Calgary.

En tant que votre nouvelle présidente, je suis persuadée que 2010–2011 sera une année excitante et enrichissante et je saisis l'occasion de continuer à promouvoir et à développer l'ACITN comme la voix des professionnels en néphrologie au Canada.

**Patty Quinan, M.Sc.inf., ICS, CNeph(C)**  
Présidente de l'ACITN

## CANNT

### Representatives/Contacts

#### Représentants/ contacts ACITN

##### Journal Editor-in-Chief/

##### Éditrice en chef du Journal :

Gillian Brunier,

RN(EC), MScN, CNeph(C)

T: (416) 480-6100 ext. 3149

F: (416) 495-0513

email/courriel :

[gillianbrunier@sympatico.ca](mailto:gillianbrunier@sympatico.ca)

##### Allied Health Council Committee of the

Kidney Foundation of Canada (KFOC)/

##### Représentant Comité Scientifique

– Fondation du rein du Canada :

Heather Beanlands, RN, PhD

T: (416) 979-5000 ext. 7972

email/courriel : [hbeanlan@ryerson.ca](mailto:hbeanlan@ryerson.ca)

##### CNA Liaison/Liaison pour AIIC :

Rick Luscombe, RN, BN, CNeph(C)

T: (604) 682-2344 ext. 62421

F: (604) 806-8449

email/courriel :

[rluscombe@providencehealth.bc.ca](mailto:rluscombe@providencehealth.bc.ca)

##### Kidney Foundation of Canada—MAC

Representative/Fondation du rein—

Comité de médical consultatif

##### President/Président :

Patty Quinan, RN, MN, CNeph(C)

T: (416) 249 8111 ext. 4855

F: (416) 243-4421

email/courriel : [pquinan@hrrh.on.ca](mailto:pquinan@hrrh.on.ca)

##### Bursary Committee/Comité des Bourses

##### President/Président :

Patty Quinan, RN, MN, CNeph(C)

T: (416) 249 8111 ext. 4855

F: (416) 243-4421

email/courriel : [pquinan@hrrh.on.ca](mailto:pquinan@hrrh.on.ca)

##### 2011 Symposium: October 20–22, 2011,

Calgary, Alberta/Congrès 2011 : 20–22

Octobre 2011, Calgary, Alberta :

Conference Planner/Organisatrice de la

conférence : Heather Reid—Innovative

Conferences and Communications

T: (519) 652-0364

F: (519) 652-5015

email/courriel : [hreid@innovcc.ca](mailto:hreid@innovcc.ca)

##### Journal advertising contact/Personne

contact pour la publicité du Journal :

Heather Coughlin

Pappin Communications,

84 Isabella Street, Pembroke, ON K8A 5S5

T: (613) 735-0952

F: (613) 735-7983

email/courriel : [heather@pappin.com](mailto:heather@pappin.com)

rate card: [www.pappin.com](http://www.pappin.com)

##### CANNT Administration Office/

Bureau National de l'ACITN :

Administrative Assistant/

Assistante administrative

Debbie Maure

336 Yonge St., Ste. 322,

Barrie, ON L4N 4C8

T: (705) 720-2819

F: (705) 720-1451

Toll-free: 1-877-720-2819

email/courriel : [cannt@cannt.ca](mailto:cannt@cannt.ca)

Website: [www.cannt.ca](http://www.cannt.ca)

# Awards for Research, Education and Clinical Excellence



## **Deadlines:**

**May 1, 2011: Amgen  
Grants, CANNT Awards  
of Excellence,  
Bursaries & Grants**

Each year there are many opportunities for awards, bursaries and grants available to CANNT members.

Also, take the opportunity to recognize a colleague or two for their excellent and outstanding work in the field of nephrology nursing or technology. Nominate a fellow nephrology professional who makes a difference in your workplace (experienced and novice) - if selected they will receive verbal recognition at the CANNT Annual General Meeting in Calgary, Alberta, a plaque to commemorate the award, and a monetary reward.

Go to [www.cannt.ca](http://www.cannt.ca) for more detailed information about the opportunities available. You might be surprised that you are eligible to apply for funding or a bursary to assist you in furthering your studies or promote excellence in nephrology care.



# Prix d'excellence en recherche, éducation et pratique clinique



## Dates limites :

**Le 1<sup>er</sup> mai 2011 :**

**Subventions Amgen; bourses, subventions et prix d'excellence de l'ACITN**

Chaque année, de nombreux prix d'excellence et de nombreuses bourses et subventions sont offerts aux membres de l'ACITN.

Nous vous invitons également à saisir cette occasion pour reconnaître un ou deux collègues pour leur excellent travail et leur contribution exceptionnelle dans le domaine des soins infirmiers ou de la technologie en néphrologie. N'hésitez pas à soumettre la candidature de professionnels œuvrant en néphrologie qui font la différence dans votre milieu de travail — les lauréats recevront une reconnaissance verbale à l'Assemblée générale annuelle de l'ACITN, qui aura lieu à Calgary, Alberta, ainsi qu'une plaque commémorative et une récompense en argent.

Rendez-vous à [www.cannt.ca](http://www.cannt.ca) pour obtenir une information détaillée sur les occasions qui vous sont offertes — vous serez peut-être étonné(e) d'apprendre que vous êtes admissible à une subvention ou à une bourse pour vous aider dans la poursuite de vos études ou pour promouvoir l'excellence dans les soins de néphrologie.



# CANNT 2010

## Our Mosaic of Renal Care

### November 18–20, 2010, Toronto, ON

From November 18–20, 2010, the CANNT board of directors, the CANNT 2010 planning committee, and approximately 600 delegates, exhibitor representatives and faculty celebrated the mosaic of multidisciplinary care at CANNT 2010 in Toronto.

The goal of the planning committee was to build a program that reflected the multifaceted care processes involved in nephrology nursing and technology. Abstracts and keynote sessions reflected this theme, offering both evidence-based and experiential knowledge to conference attendees for both adult and paediatric settings. Five pre-conference workshops, one keynote speaker, three plenary sessions, 56 concurrent sessions, 30 poster presentations, and 27 exhibiting companies assisted us in achieving our goals.

A new symposium schedule was initiated this year in response to feedback from previous years' attendees. Pre-symposium workshops were held Thursday morning and the conference started on Thursday at noon and finished up late Saturday afternoon, allowing for three full days of conference activities including pre-symposium workshops. The evening of entertainment was relocated to Friday evening. This change freed up Sunday for travel home by attendees. Feedback to this change was positive, and this change will be carried through for this year's symposium.

Continued commitment on behalf of the corporate sponsors played a large part in the success of the symposium and we are always grateful for their generous support, as outlined below:

- Platinum (\$10,000): Amgen, Baxter, BHC Medical, Fresenius and Roche
- Gold (\$7,500–\$9,999): Gambro
- Silver (\$5,000–\$7,499): Janssen-Ortho and Genzyme
- Bronze (\$3,000–\$4,999): Leo Pharma Inc.

#### Thursday, November 18

The morning started with five pre-conference workshops. Two RN certification exam preparation sessions, one in each of the official languages, "The Basics of Peritoneal Dialysis," "Cardioprotection:

The Importance of Nocturnal Therapy, Biocompatible Solutions and Systems, and Fluid Balance," and "New CSA Standard on Home Dialysis: Impact to Canadian Dialysis Centres." Following lunch, the opening ceremonies and keynote address kicked off the conference. Michael Kerr was both motivating and entertaining, as he encouraged us to find the humour in everyday situations. Delegates then broke off into six concurrent sessions focused on renal technology, vascular access, hemodialysis, PD, transplant, and more. The final concurrent sessions of the day were case study sessions on various topics in nephrology. This new initiative received positive feedback from attendees, who enjoyed the case-based learning format.

Day one wrapped up with the opening reception in the exhibit hall. Delegates and exhibitors interacted together while enjoying food and drink and the sounds of strolling musicians.

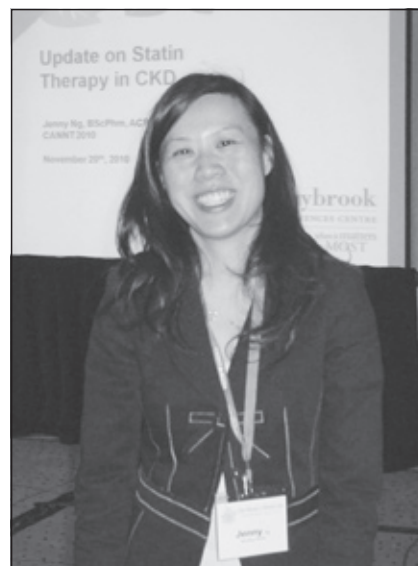


Above left, CANNT administrative assistant Debbie Maure at the CANNT conference booth. Above right, presenter Jenny Ng.

#### Friday, November 19

In celebration of the year of the Winter Olympics held in B.C., day two started out with breakfast, followed by a plenary session with Jeff Adams, a former paralympian. Jeff's presentation entitled "Incredible Moments" was an inspirational story of meeting challenges and winning gold by sticking to a plan, and maintaining a consistent message in life and work.

The plenary session was followed by the AGM complete with award presentations. Congratulations to all award recipients. The afternoon was filled with concurrent sessions. The day finished up by 3:30 to allow delegates an oppor-



Christine Chadderton, right, and her poster presentation, "Button, button, who needs a button?"



Sushila Saunders, left, presenting her poster, "Redesigning Chronic Kidney Disease Services in Northern B.C."

tunity for some down time to rest, see some sights, or do some shopping. The evening of entertainment was held at the CN Tower where attendees enjoyed the view from above the city and enjoyed drinks, dancing, and fun.

### **Saturday, November 20**

Our third and final day started with a panel presentation on social determinants of health and their impact on home dialysis successes and failures. The panel was represented by a number of home dialysis-savvy nephrology professionals and a member of the newly formed Ontario Renal Network (ORN). After the panel presentation, three groups of concurrent sessions took place covering topics such as Vitamin D, vascular access, environmental responsibility in dialysis, safety in patient

care, and self-management. Delegates reconvened in the plenary hall for the manuscript and poster awards and prize draws for exhibit hall passport and poster feedback. Congratulations to all award winners. The symposium wrapped up with a final plenary presentation entitled "Living Well on Home Hemodialysis". This speaker brought listeners to tears, as Michael McCormick described his long-term experiences with life on dialysis since the age of 17 and his journey through failed transplants and the reality of a future on hemodialysis. Michael brought home to us the importance of the impact of renal failure on the individual and the importance of the roles we, as care providers, play in the lives of our patients.

On this emotional validating note, the end of the 2010 CANNT Symposium was declared and the banner was passed to the co-chairs of the Calgary 2011 planning committee. Hope to see you there October 20–22, 2011.



Above left, CANNT 2010 co-chair Alison Thomas presents former paralympian Jeff Adams. Above right, CANNT past-president Jan Baker and CANNT President 2010 Rick Luscombe.



Above, Colleen Wile (centre), recipient of the Frances Boutilier Bursary. Below, Rejean Quesnelle (centre), winner of the Amgen Technology Grant.



## **NOTICE BOARD**

- ❖ Ottawa Supper Clubs—Contact Janet Graham, Nephrology Unit, Ottawa Hospital, [jgraham@ottawahospital.on.ca](mailto:jgraham@ottawahospital.on.ca)
- ❖ **March 27–30, 2011.** The American Nephrology Nurses Association (ANNA) 42nd National Symposium, Sheraton Boston & Hynes Convention Center, Boston, MA. Website: [www.annanurse.org](http://www.annanurse.org)
- ❖ **April 9, 2011.** Exam date for CNeph(C) certification exam. Contact Canadian Nurses Association Certification Program, email: [lvachon@cna-aiic.ca](mailto:lvachon@cna-aiic.ca). Website: [www.cna-aiic.ca](http://www.cna-aiic.ca). Toll-free phone number: 1-800-450-5206
- ❖ **May 1, 2011.** CANNT Awards, Bursaries and Grant Application Deadline. For more information, contact Debbie Maure at the CANNT National Office (705) 720-2819, toll-free 1-877-720-2819, email [cannt@cannt.ca](mailto:cannt@cannt.ca), or visit our website at [www.cannt.ca](http://www.cannt.ca)
- ❖ **June 17–18, 2011.** Fourth North American Chapter meeting of the International Society of Peritoneal Dialysis at the New Haven Omni Hotel, at Yale, New Haven, Connecticut, USA. E-mail: Please contact [deborah.dunn@yale.edu](mailto:deborah.dunn@yale.edu). Website: [www.ispd.org/NA](http://www.ispd.org/NA)
- ❖ **September 10–13, 2011.** 40th European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA) International Conference: Ljubljana, Slovenia. Website: [www.edtnaerca.org](http://www.edtnaerca.org)
- ❖ **September 21, 2011.** Nephrology Health Care Professionals Day.
- ❖ **October 20–22, 2011.** CANNT 44th National Symposium. Telus Convention Centre/Hyatt Regency, Calgary, Alberta. Conference Planner: Heather Reid: email: [hreid@innovcc.ca](mailto:hreid@innovcc.ca). Website: [www.cannt.ca](http://www.cannt.ca)



# Living Donor Paired Exchange Registry helps kidney patients get the transplants they need

Submitted by The Organ Registry Team—Ottawa, ON, The Organ and Tissue Donation and Transplantation (OTDT) Team—Ottawa, ON, and Edmonton, AB

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Canadian Blood Services  
Société canadienne du sang

Canadians are overwhelmingly supportive of the idea of organ and tissue donation and, in fact, thousands of people benefit every year from life-saving or life-improving transplants. Despite this support, Canada's donation rate compares poorly to other developed countries, and has remained relatively flat over the past decade. Last year, 249 Canadians died waiting for a transplant. As diabetes, heart and kidney disease rates continue to climb, the demand for transplant is growing, as are the transplant wait-lists.

Recognizing a need for improvement, in April 2008, the federal, provincial and territorial governments asked Canadian Blood Services to lead the design of an enhanced system to improve organ and tissue donation and transplantation (OTDT) in Canada. The organization's experience in operating a nationally-integrated delivery system, as well as the trust earned with Canadians, were prime reasons for the selection of Canadian Blood Services for this task.

As part of this mandate, Canadian Blood Services was asked to develop a registry that would help facilitate more kidney transplants. While dialysis treatments have saved countless lives worldwide, they do so at a price, both eco-

nomically and in terms of quality of life. Many patients are unable to work, and can spend upwards of 40 hours a week undergoing treatment.

In January 2009, the Living Donor Paired Exchange (LDPE) Registry was launched as a pilot project in British Columbia, Alberta and Ontario. Since then, it has expanded to include all provinces, making the LDPE the first Canada-wide organ donation registry. The LDPE Registry facilitates transplants between recipients with a willing, but incompatible living donor, and other pairs in the same situation. These "incompatible pairs" are entered into the registry and a complex computer algorithm then identifies opportunities for transplants between them.

The first surgeries took place in June 2009, and since then 185 donor-recipient pairs and 21 non-directed donors (those willing to give a kidney to anyone in need) from across the country have registered. As of December 2010, 65 transplants had taken place, removing 65 people from dialysis treatment and giving them an improved quality of life while saving millions of health care dollars, annually.

Of the 65 transplants completed to date, 13 were for highly sensitized patients. This is significant since approx-

imately 20 per cent of provincial wait-lists are comprised of highly sensitized patients, but less than five per cent are matched. A highly sensitized patient is one with a panel reactive antibody (PRA) value of 80 per cent or higher. This value represents the percentage of the general population that a potential recipient makes antibodies (is sensitized) against. Three key factors in increasing one's antibodies, and hence PRA value, are through a previous blood transfusion, pregnancy or transplant. Of the 13 highly sensitized transplants, two had a PRA value of 99 per cent, while another patient had a value of 100 per cent.

In addition to going national, the registry has celebrated some other important milestones of late, including:

- the first LDPE surgeries performed in the province of Nova Scotia
- the first patients in Saskatchewan, Nova Scotia and Newfoundland and Labrador receiving transplants
- matches and transplants for highly sensitized patients; and
- the first instance where kidneys were shipped as part of a living donor exchange from one Canadian centre to another, demonstrating that transporting the kidney, rather than the donor, is feasible in some circumstances.

To learn more about the Living Donor Paired Exchange Registry or to locate the nearest hospital that has a Living Donor Kidney Transplant Program, please visit [www.organsandtissues.ca/english/ldpe](http://www.organsandtissues.ca/english/ldpe)

Canadian Blood Services presented proposed solutions for an improved OTDT system to the Deputy Ministers of Health on December 9, 2010, which provided an opportunity for their feedback on key areas and allowed refinements to the proposals in anticipation of presenting final recommendations in the spring of 2011.

# Le Registre de donneurs vivants jumelés par échange de bénéficiaires permet de sauver des vies

Équipe chargée des registres de don d'organe à Ottawa (Ontario), Équipe chargée du don et de la greffe d'organe et de tissu à Ottawa (Ontario) et Edmonton (Alberta)

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Les Canadiens sont en très grande majorité pour le don d'organe et de tissu. En effet, chaque année, des milliers de personnes bénéficient d'une greffe d'organe qui améliore grandement leur état de santé, ou encore, leur sauve la vie. En dépit de cela, le nombre de dons est beaucoup plus bas au Canada que dans d'autres pays développés et n'a pas augmenté au cours des dix dernières années. En 2009, 249 Canadiens sur la liste d'attente pour une greffe d'organe sont décédés. Les cas de diabète et de complications rénales continuent d'augmenter, les demandes de greffe montent également en flèche tandis que les listes d'attente s'allongent.

Reconnaissant l'ampleur du problème, les gouvernements fédéral, provinciaux et territoriaux ont fait appel à la Société canadienne du sang dans le but de mettre sur pied un registre pour favoriser l'augmentation du nombre de dons et de greffes d'organes et de tissus au Canada. Le choix de la Société canadienne du sang a été déterminé, d'une part, par l'expérience de cette organisation dans la distribution de produits sanguins à l'échelle nationale et, d'autre part, par la confiance que lui accordent les Canadiens.

La Société canadienne du sang avait notamment pour mandat de mettre au point une stratégie pour faciliter les greffes de reins. La dialyse sauve d'innombrables vies dans le monde entier, mais à un certain prix, autant économiquement qu'en termes de qualité de vie. Nombre de malades ne peuvent pas détenir d'emploi car ils doivent passer jusqu'à 40 heures par semaine en traitement.

En janvier 2009, le Registre de donneurs vivants jumelés par échange de bénéficiaires (DVEB) a été lancé comme projet pilote en Colombie-Britannique, en Alberta et en Ontario. Depuis, le projet a été étendu à toutes les provinces, faisant du DVEB le premier registre de dons d'organes à l'échelle du Canada.

Le Registre DVEB permet, par le jeu d'échanges entre des couples donneur-receveur incompatibles, de réaliser des greffes qui ne pourraient autrement avoir lieu. Les couples incompatibles sont inscrits dans le registre et l'on identifie les cas compatibles entre eux à l'aide d'un algorithme informatique.

Les premières greffes ont eu lieu en juin 2009. Depuis lors, 185 couples donneur-receveur et 21 donneurs sans receveur désigné (personnes prêtes à donner un rein à quiconque dans le besoin) se sont inscrits d'un océan à l'autre. À la fin de l'année 2010, 65 greffes avaient déjà pu être réalisées, ce qui veut dire que 65 personnes ont pu s'affranchir de la dialyse et bénéficient d'une meilleure qualité de vie. Cela représente des économies annuelles qui se chiffrent en millions de dollars pour le système de santé.

Treize de ces greffes concernaient des patients hyperimmunisés. C'est un nombre élevé puisque environ 20 % des personnes sur les listes d'attente provinciales sont des patients hyperimmunisés et seulement 5 % d'entre elles trouvent un donneur compatible. Les patients hyperimmunisés ont un PRA (taux cytotoxique d'anticorps circulants) d'au moins 80 %. Cette valeur représente le pourcentage de la population auquel leurs anticorps réagiraient, entraînant ainsi un rejet du greffon. Trois facteurs clés contribuent à l'augmentation des anticorps (et par

conséquent du PRA) : une grossesse, une greffe et des transfusions de sang antérieures. Deux des treize greffés avaient un PRA de 99 % et un autre, de 100 %.

Outre son expansion nationale, le Registre DVEB a récemment franchi d'importants jalons :

- premier prélèvement d'organe et première greffe en Nouvelle-Écosse;
- premières greffes pour des patients de la Saskatchewan, de la Nouvelle-Écosse et de Terre-Neuve-et-Labrador;
- identification de donneurs compatibles et réalisation de greffes pour des patients hyperimmunisés;
- pour la première fois au Canada, des reins ont été expédiés d'un centre à un autre dans le cadre d'un échange de donneurs; on a ainsi montré qu'il était possible, dans certaines situations, de transporter le rein plutôt que le donneur.

Pour en savoir plus sur le Registre DVEB ou trouver un hôpital offrant un programme de don de rein, allez à [www.organsandtissues.ca](http://www.organsandtissues.ca).

Le 9 décembre 2010, la Société canadienne du sang a présenté ses solutions aux sous-ministres de la Santé pour mieux organiser les dons et les greffes dans ce pays. Au vu de leurs commentaires, elle raffinerait ses recommandations et soumettra sa stratégie à leur approbation au printemps 2011.



Canadian Blood Services  
Société canadienne du sang





# Blazing New Trails

October 20 - 22

Calgary Telus Convention Centre  
Hyatt Regency Calgary

CANADIAN ASSOCIATION OF  
NEPHROLOGY NURSES AND TECHNOLOGISTS  
L'ASSOCIATION CANADIENNE DES  
INFIRMIERES ET TECHNICIENS EN NEPHROLOGIE





# Restrictions of hazardous substances

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**Dear Green Tech:**

*I was out shopping for a new washer and dryer the other day. One of the key selling points for me was to ensure that they were Energy Star rated. Do you know of any other designations I should look for when purchasing electronic devices and are there any Energy Star-rated medical devices?*

*Sincerely,*

*Considerate Kilowatt from Kitchener*

**Dear Considerate,**

The dawn of technology is here to stay, and what an exciting and cool time it is. We see new technology emerging every minute, and it brings with it new advancements in medical devices. As with all new gizmos and gadgets we produce and purchase, at the same time mountains of toxic and obsolete equipment pile up every year. Environment Canada estimates that more than 140,000 tons of e-waste are sent to landfills annually.

As new technology emerges, so do new ideas. Programs such as Energy Star, Restriction of Hazardous Substances (RoHS) and the Waste Electrical and Electronic Equipment (WEEE) programs are just a few we see today. Programs that will hopefully help change the face of electronics.

First off, good on you for purchasing an Energy Star appliance, as it's not only good for the environment, it's also good for the pocket book every month. The Energy Star program began in the early 1990s by the Environmental Protection Agency of the United States, as a way of trying to improve on energy efficiency and reduce energy usage and

greenhouse gas production. The program has been adopted by numerous governments across the globe, Canada being one of them.

The program has more than 40,000 items listed; everything from appliances to lighting and even homes but, unfortunately, not medical devices—well, not yet. The need is there for all medical devices to have a rating under the program. Device manufacturers big and small need to take a new look at their equipment designs and create more efficient models, which, in turn, would provide a new and unique selling feature that some customers are sure to like. Welch Allyn is only one of 14 medical device manufacturers to become an Energy Star partner with the certification of its new Green series exam light. Without a category specific to medical devices and benchmarking values, this list may take time to grow. But in the mean time, you can push your hospital in that direction by getting it Energy Star certified.

Secondly, look and make sure that whatever electronic devices you are purchasing for either your unit or at home are RoHS compliant. The RoHS directive, which began in 2006, restricts the use of certain harmful substances in the manufacturing of electronic goods. These include the following: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE). All of these items have been linked to some adverse health effects on humans or wildlife. Lead and mercury causes neurological disorders, cadmium causes kidney failure, brominated flame retar-

dants and hexavalent chromium are known carcinogens, so more the reason not to use any of these substances in making your iPod.

The RoHS regulations apply to various product categories, such as office equipment, information technology (IT) and telecommunications equipment, household appliances, consumer equipment, electrical and electronic tools and more. The only current category exceptions within the RoHS program are medical devices and control instrumentation—the reason being that they are manufactured in small quantities, have a relatively long product life, and are often used in critical situations, e.g., saving lives. This was also done to facilitate further research and development (R&D) into new alternative and less toxic substances and overall functional testing. It is not likely that manufacturers will be adopting the RoHS rules at least until 2012 and quite possibly 2018.

Now that does not mean that you can let companies off the hook. Ask them if they are looking at RoHS compliance and when they hope to adopt the rules. We, in North America, always seem to be a bit slow to react to the elimination of toxic elements found in our everyday consumer goods. The European Union (EU) definitely seems to be leading the push on this front with their RoHS and Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH) programs. But I must say I am quite proud of some of the recent groundwork being done here in Canada with regards to BPA and phthalates (but that is for another talk).

Along with the RoHS program, the closely linked WEEE directive acts to properly and ethically dispose of waste electronics through national recycling programs. In Canada, the role of dealing with e-waste has been delegated to the province. Now not all provinces have provincially run programs, so you may need to inquire as to whether or not your province does. Currently, British Columbia, Alberta, Saskatchewan, Ontario and Nova Scotia have programs. Here in Ontario, the Ontario Electronic Stewardship (OES) program has deals with all matters relating to e-waste. They have contracted out licences to certain companies to process the e-waste and others to provide collection locations. The great thing about this program these days is that there is no cost for anyone disposing of old electronics, and that goes for hospitals. The reason is to help in end-user compliance.

The OES program will look at keeping elements out of the environment and recovering precious metals and hazardous compounds like mercury and lead. On one hand you can save money shipping off your junk for free, while on another you can recycle much of that junk—things like motors, wire, etc., and make money. Well, I will let that little carrot dangle for a little while. I can't give up all of my trade secrets all at once.

Bottom line is that we have a long way to go with medical devices and their move towards using greener electronics, as compared to that of newer consumer-based electronics. Sony Ericsson, Nokia and Phillips are just a handful of the companies now making the move towards green electronics.

To know just what electronics to buy, refer to Green Electronics ([www.greenelectronics.com](http://www.greenelectronics.com)), browse through their list of certified products so you can “buy it right the first time.”

So, just one last thing, do a little something for Earth Day this year (Friday, April 22, 2011) and bring all of your unused, unwanted and non-functioning electronics to an e-waste drop-off near you. Every little bit counts when we are greening the future for our kids.

For any and all questions, feel free to email me at [regq101@gmail.com](mailto:regq101@gmail.com)

**By Rejean Quesnelle, ASCT**  
Renal Technologist, Halton Healthcare Services, Oakville, ON



## EARTH DAY CANADA'S TOP 10 ACTIONS to Reduce your Impact on the Environment

- 1 **Smart Shopping**
  - “Buy what you need, not what you want”
  - Consider renting and borrowing things that are seldom needed
  - Buy used items from garage sales and second-hand stores
- 2 **Simple Savers**
  - Replace incandescent light bulbs with compact fluorescent bulbs
  - Use aerators on faucets and shower heads
  - Weatherstrip windows and doors
- 3 **Transportation Alternatives**
  - Walk, cycle, car pool and use public transportation
  - When driving, reduce idling and maintain correct tire pressure
  - Consider car sharing programs or renting
- 4 **Food Choices**
  - Choose local and organic foods that are in season, and support local food producers
  - Eat less meat
- 5 **Washing and Drying**
  - Wash full loads of clothes in cold water and hang to air dry
- 6 **Heating and Cooling**
  - For summer air conditioning, set your thermostat to 24°C or 25°C
  - For winter heating, set your thermostat to 19°C or 20°C
  - Install ceiling fans and programmable thermostats
- 7 **Close to Home**
  - Vacation, travel and work as close to home as possible
- 8 **Bathroom Basics**
  - Take short showers instead of baths
  - Close water taps while brushing your teeth
- 9 **Careful Cleaning**
  - Choose natural, non-toxic cleaning products
  - Make simple, natural cleaners with ingredients like vinegar, baking soda and water
- 10 **Don't Discard**
  - Donate, reuse and recycle items before throwing them into the trash
  - Harmful materials like chemicals, batteries, electronics, etc. should be taken to local hazardous waste depots or recyclers

### **Earth Day Canada**

Providing Canadians with the practical knowledge and tools they need to lessen their impact on the environment. Simple actions, big impact. [www.earthday.ca](http://www.earthday.ca)

### **EcoAction Teams**

Creating a movement in support of a healthier environment. Simple, practical tips you can do to reduce your environmental impact and save money. [www.ecoactionteams.ca](http://www.ecoactionteams.ca)



# Your board in action



The purpose of this article is to keep all members informed of the activities with which the board of directors is involved. We will update you on what's new within our organization and upcoming activities, as well as important dates to remember.

The 2010 fall CANNT board of directors' meeting was held in Toronto, prior to the annual fall symposium.

## Membership

- At present, we have approximately 488 members of CANNT. Each year it seems to be a challenge to increase our membership numbers. The board is always looking at ways to encourage long-term membership, as numbers can fluctuate greatly due to symposium locations. Without a viable membership, it becomes increasingly difficult to run the organization and provide a high-quality educational symposium each year. I challenge all existing members to recruit one additional person to join CANNT.
- We encourage everyone to use the website to sign up or renew their membership online, which provides not only a cost savings to the organization, but also saves paper.
- We would also encourage members to maintain a yearly membership versus renewing when it's conference time. This provides you with copies of the *CANNT Journal*, as well as helping to maintain professional development and the long-term viability of the organization.

## Finances

- The board of directors is continuously watching all expenditures, as well as encouraging new revenue streams. One way the board of directors has made a change this year was to hold our spring meeting via teleconference

versus a face-to-face meeting. We were able to accomplish our agenda, as well as save the costs of travel and accommodation. This spring we will continue to have the spring board meeting as a teleconference.

- At this year's fall board meeting, after much debate, the board of directors came to a very difficult decision that next year's symposium in Calgary will not be translated. This will save the membership upwards of \$14,000.
- We are forever grateful to our corporate sponsors who, as always, are to be thanked for their ongoing support of CANNT including the annual symposium and journal awards and bursaries.

## Strategic planning

- The board of directors continues to focus on our present strategic plan, which was constructed in 2007 and will guide activities until 2013. Our main goals continue to focus on the following: communication, membership, education, professional practice, research, partnerships and maintaining the viability of our association.

## Journal

- The CANNT Journal is a peer-reviewed journal that is published quarterly. It continues to be a resource for nephrology professionals and is indexed through CINAHL, MEDLINE and OVID databases.
- The board of directors discussed the possibility of having at least one edition of the CANNT Journal to be an electronic copy. Many institutions and libraries are encouraging electronic copies of journals. A task force has been established to look at different publishing companies and do a cost analysis.

- We are always looking for authors to publish articles in both French and English. For first-time authors there is information on publishing available on our website. You can also contact our Editor, Gillian Brunier, at [gillianbrunier@sympatico.ca](mailto:gillianbrunier@sympatico.ca)
- This year's winner of the CANNT Journal Award was announced at our annual conference in November 2010.

## Website

- The website continues to grow and provide increased opportunities. We held our first elections online this year, which was very successful.
- Discussion boards are being developed for Refined Clinical Practice Groups to promote information sharing.
- This year, with the help of Dr. Jordan Weinstein and Alison Thomas, we are now able to provide our membership with voiceover Amgen Modules. These modules were created to help nurses with education and Canadian Nurses Association (CNA) specialty certification.
- We would like to encourage all members to renew online. It's fast, economical, and environmentally friendly.
- Watch for posted career opportunities as well.

## Communication

- Communication continues to be a priority for the board of directors. We want the channels of communication to be open to all members, so keep using the CANNT toll-free number, as well as the CANNT website to contact us with any questions or concerns. We are very open to new ideas from our members regarding ways to improve our service, as well as ideas regarding nephrology activities.
- We have used email blasts to get information out to all members, as well



as relying on our unit liaisons and regional VPs. Regional activities are posted online, so stay tuned.

- Communication with our corporate sponsors is also a priority for the board of directors. This year we introduced a new format to evaluate how satisfied our sponsors are. The members of the board of directors circulated during the annual conference and spoke to sponsors about their conference experience.
- This year we signed a formalized agreement with the American Nephrology Nurses Association (ANNA), which was similar to the agreement we signed last year with the European Dialysis and Transplant Nurses Association.

### **CANNT office operations**

- The contract for the administrative assistant was renewed and signed with Debbie Maure.
- The board of directors will also be reviewing/revising the CANNT Bylaws in 2010. They will be reviewed and voted upon at the fall symposium.

### **Standards of practice**

- The standards for technologists have been reviewed and updated. The nursing standards of practice have been reviewed. Special thanks go out to Lori Harwood and Marsha Wood for all their suggestions.
- Vascular access guidelines are being reviewed at present by the Canadian Hemodialysis Access Coordinators.
- Standards of practice, both nursing and technological standards, continue to be available on our website.

### **Awards of excellence and bursaries**

- Information on all awards and bursaries available through CANNT are found on the website, as well as in the CANNT Journal. Please keep a close eye on the CANNT website and Journal for the deadline date in the spring.
- I would encourage all members to apply for the available awards. Some awards were not applied for in past years and it would be wonderful to hand them all out.
- This year the following individuals won awards and bursaries:
  - Colleen Wile, Halifax, NS
  - Chantal Saumure, Moncton, NB
  - Barb Wilson, London, ON
  - Marsha Wood, Halifax, NS

- Valerie Ludlow, Paradise, NL
- Angela Roymn, Kelowna, BC
- Danielle Boucher, Ste-Brigitte De Laval, QC
- Sue Saunders, Prince George, BC
- Rejean Quesnelle, Innisfil, ON

### **Nominations committee**

- In Toronto, the new incoming board of directors was announced: Marilyn Muir, President-Elect; Jocelyn Laing, VP Ontario; Heather Dean, VP Western; and Rejean Quesnelle, VP Technologists. Welcome to all.
- The next call for nominations will be in the spring. The positions for the board of directors will be president-elect, VP Quebec and Atlantic, and website/treasurer. Think about running for what can be a very rewarding experience.

### **Canadian Nurses Association (CNA)**

- The number of nurses certified in nephrology grows yearly. There are now more than 1,600 nurses in Canada who are certified, up from 963 in 2005. I think this speaks to the professionalism of all nephrology nurses. Congratulations to all of the nurses who achieved their certification this year.
- Once again we offered a pre-symposium workshop on preparing for and writing the CNA exam. The pre-symposium workshop was offered in both French and English. Both versions of the workshop can be found on the CANNT website.
- It was discussed at the board meeting to develop a similar study guide for technologist to assist them in writing their certification exam.
- As the CNA representative for CANNT, I will be joining in on all teleconferences where nursing issues across specialties within Canada are discussed. It is a fabulous forum for the sharing of information and solutions.

### **Nephrology Health Care Professionals Day: September 21, 2011**

- For the past two years, we have celebrated nephrology from a multidisciplinary perspective. We will continue to do so next year. Mark the date on your calendars.

- Last year was the first year that we celebrated in a truly multidisciplinary fashion. CANNT will continue to organize and distribute posters to help each unit celebrate this wonderful day in partnership with the Canadian Association of Nephrology Social Workers (CANSW), Canadian Association of Nephrology Dietitians (CAND), the Renal Pharmacists Network (RPN), and, this year, the Canadian Society of Nephrology (CSN).
- We will be sending out information and posters this year, as well. Think of new ways to celebrate our day and let us know at CANNT how you did this.

### **2010 Annual Symposium: November 18–20, 2010, Toronto, Ontario**

- Last year's theme was "Our Mosaic of Renal Care". A new format for our annual symposium was rolled out this year: a full day Thursday, Friday and Saturday, thus leaving Sunday for some extra sight-seeing or travelling home.
- The symposium was a huge success with wonderful keynote speakers, concurrent sessions and poster presentations.

### **2011 Annual Symposium**

- This year we turn to the west. Our symposium is going to take place in Calgary, Alberta. The theme is "Blazing New Trails". The planning committee is already busy designing what will be a great conference. The planning committee is being led by co-chairs Heather Dean and Janice Mackay. Set aside October 20–22 and we'll see you in Calgary.

It has been a very busy but productive year for CANNT and your CANNT board of directors continues to promote and develop CANNT as the voice of nephrology nursing in Canada. CANNT is your organization and I would encourage you to give us your feedback, as well as possibly becoming involved with the board of directors. Our next board of directors meeting will be held May 7, 2011.

Submitted by  
Rick Luscombe,  
CANNT Past-President



# Votre conseil d'administration en action



Le présent article consiste à informer tous les membres sur les activités de votre conseil d'administration (CA). Nous désirons vous présenter les nouvelles en bref de votre Association, les prochaines activités et les dates importantes à retenir. La réunion automnale de 2010 du CA de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) a eu lieu à Toronto, juste avant la tenue du congrès annuel.

Voici les points saillants de cette réunion :

## Adhésion

- Nous comptons actuellement 488 membres. Tous les ans, cela semble un défi d'augmenter notre effectif. Le CA est constamment à la recherche de façons nouvelles d'encourager l'adhésion des membres à long terme, étant donné que l'effectif peut fluctuer grandement d'une année à une autre, en raison de l'emplacement du congrès annuel. Sans un effectif viable, il devient de plus en plus difficile de rentabiliser l'organisation et d'offrir des congrès éducationnels de qualité supérieure, année après année. Je mets au défi chaque membre de recruter une nouvelle personne à se joindre à l'ACITN.
- Nous invitons toutes les personnes qui s'inscrivent ou tous les membres qui renouvellent leurs cotisations à le faire en ligne, ce qui est non seulement rentable pour l'Association, mais permet aussi d'épargner du papier.
- Nous aimerions aussi encourager les membres à renouveler leur adhésion annuellement au lieu de le faire au moment du congrès. En adhérant à l'ACITN, vous recevrez le Journal de l'ACITN (*CANNT Journal*) et vous aidez ainsi à maintenir le perfectionnement professionnel et la viabilité à long terme de notre organisation.

## Finances

- Le CA surveille constamment toutes les dépenses et est toujours à l'affût de nouvelles sources de revenus. Cette année, le CA a mis de l'avant une nouvelle façon de faire en tenant sa réunion printanière par conférence téléphonique au lieu d'une rencontre en personne. Nous avons pu ainsi passer en revue l'ordre du jour et économiser en coûts de transport et d'hébergement. La prochaine réunion printanière de 2011 se fera également par téléconférence.
- Lors de la réunion automnale de 2010, le CA a pris la difficile décision, après de longues discussions, de ne pas faire traduire en français le contenu du prochain congrès annuel qui aura lieu à Calgary. Cette décision permettra à l'Association d'éviter une hausse totale des frais d'adhésion de plus de 14 000 \$.
- Nous tenons à remercier très sincèrement nos sociétés commanditaires qui, comme toujours, continuent d'appuyer nos activités, incluant le congrès annuel, le journal ainsi que les différents les prix et bourses.

## Planification stratégique

- Le CA continue d'axer ses efforts sur un plan stratégique qui a été élaboré en 2007 et qui guidera nos activités jusqu'en 2013. Nos principaux objectifs portent notamment sur les secteurs suivants : communication, adhésion, éducation, pratique professionnelle, recherche, partenariat et maintien de la viabilité de notre Association.

## Journal

- Le Journal de l'ACITN (*CANNT Journal*) est une publication révisée par des pairs qui est publiée trimestriellement. Cette source d'information est prisée par les professionnels en néphrologie et est indexée dans les bases

de données suivantes : CINAHL, MEDLINE et OVID.

- Le CA a abordé la possibilité de se doter d'au moins une édition du Journal de l'ACITN sur format électronique. De nombreuses institutions et bibliothèques favorisent les journaux sous format électronique. Un groupe de travail a été formé pour évaluer les différentes maisons d'édition et effectuer une analyse de coûts.
- Nous sommes toujours à la recherche d'auteurs francophones et anglophones. Nous tenons à rappeler que les auteurs peuvent consulter l'information relative à la publication de leurs articles sur le site Web. Vous pouvez également communiquer avec la rédactrice en chef, Gillian Brunier, à [gillianbrunier@sympatico.ca](mailto:gillianbrunier@sympatico.ca).
- Cette année, le nom de la récipiendaire du Prix d'excellence de 2010 du Journal de l'ACITN a été dévoilé lors du congrès annuel en novembre 2010.

## Site Web

- Le site Web prend de l'expansion et nous permet d'explorer de nouvelles possibilités. Nous avons tenu nos premières élections en ligne cette année, et ce fut un grand succès.
- Des groupes de discussion sur l'expertise clinique en pratique infirmière, sont en développement afin de promouvoir l'usage de données probantes et en faire la dissémination.
- Cette année, avec l'aide du Dr Jordan Weinstein et d'Alison Thomas, nous sommes maintenant en mesure d'offrir à nos membres les modules d'Amgen avec voix hors champ. Ces modules ont été créés pour aider les infirmières et les infirmiers à se perfectionner et à passer l'examen d'agrément de l'Association des infirmières et infirmiers du Canada (AIIC).

- Nous invitons tous les membres à renouveler leurs cotisations en ligne, ce qui est plus rapide, plus économique et également plus écologique.
- Surveillez aussi les offres d'emploi qui sont hébergées sur le site Web.

### Communication

- La communication est toujours une priorité pour le CA. Nous désirons que les voies de communication demeurent accessibles à tous les membres. Nous vous invitons à continuer d'utiliser le numéro sans frais (1-877-720-2819) ainsi que le site Web de l'ACITN pour nous joindre afin de transmettre vos questions ou vos commentaires. Nous accordons une grande importance à vos suggestions pour améliorer notre service ainsi qu'à vos idées pour instaurer de nouvelles activités en néphrologie.
- Pour informer tous les membres, nous avons envoyé maints messages électroniques et avons compté sur le soutien des agent(e)s de liaison et des vice-président(e)s (v.-p.) régionaux(ales).
- La communication avec nos sociétés commanditaires demeure une priorité pour le CA. En 2010, nous avons présenté un nouveau format pour évaluer le niveau de satisfaction de nos commanditaires. Lors du dernier congrès annuel, les membres du CA se sont promenés et ont demandé aux commanditaires leur rétroaction à l'égard de leur expérience du congrès.
- Cette année, nous avons signé un partenariat officiel avec l'*American Nephrology Nurses Association* (ANNA). Ce partenariat est similaire à celui que nous avons conclu l'an dernier avec la *European Dialysis and Transplant Nurses Association* (EDTNA).

### Services administratifs

- Nous avons renouvelé le contrat de l'assistante administrative, Debbie Maure.
- Le CA révisera et mettra à jour ses règlements administratifs en 2011. Ces règlements seront passés en revue, puis votés au congrès annuel, à l'automne.

### Normes de la pratique

- Les normes de pratique technique ont été révisées, puis mises à jour. Quant aux normes de pratique infirmière, elles ont été révisées. Nous tenons à remercier tout spécialement Lori Harwood et Marsha Wood pour l'ensemble de leurs suggestions.

- Les lignes directrices sur l'accès vasculaire sont en cours de révision par le groupe canadien de coordonnateurs en accès vasculaires.
- Les normes de pratique infirmière et de pratique technique sont toujours accessibles en ligne sur notre site Web.

### Prix d'excellence et bourses

- Vous trouverez toute l'information nécessaire sur les prix et bourses décernés par l'ACITN sur le site Web et dans le Journal de l'ACITN. Consultez régulièrement ces deux ressources pour connaître les dates d'échéance afin de poser votre candidature au printemps.
- Je tiens ici à encourager tous les membres à poser leur candidature pour les prix offerts. Certains prix ou certaines bourses n'ont pas reçu de mises en candidature cette année et ce serait formidable de pouvoir tous les remettre.
- En 2010, des prix et bourses ont été décernés aux personnes suivantes :
  - Colleen Wile, Halifax, Nouvelle-Écosse
  - Chantal Saumure, Moncton, Nouveau-Brunswick
  - Barb Wilson, London, Ontario
  - Marsha Wood, Halifax, Nouvelle-Écosse
  - Valerie Ludlow, Paradise, Terre-Neuve-Labrador
  - Angela Roymn, Kelowna, Colombie-Britannique
  - Danielle Boucher, Sainte-Brigitte-de-Laval, Québec
  - Sue Saunders, Prince George, Colombie-Britannique
  - Réjean Quesnelle, Innisfil, Ontario

### Comité des mises en candidature

- Le nouveau CA a été annoncé à Toronto : Marilyn Muir, présidente élue; Jocelyn Laing, v.-p. pour l'Ontario ; Heather Dean, v.-p. pour l'Ouest et Réjean Quesnelle, v.-p. pour les technologues. Bienvenue à toutes et à tous !
- Le prochain appel de mises en candidature aura lieu au printemps pour pourvoir les postes suivants au sein du CA : v.-p. pour le Québec et la région de l'Atlantique et trésorier(ière)/coordonnateur(rice) du site Web. N'hésitez pas à poser votre candidature pour vivre une expérience très enrichissante.

### Agrément de l'Association des infirmières et infirmiers du Canada (AIIC)

- Le nombre d'infirmières et d'infirmiers agréés en néphrologie ne cesse d'augmenter d'une année à l'autre. Plus de 1600 infirmières et infirmiers sont maintenant agréés en soins infirmiers en néphrologie au Canada, soit une hausse marquée depuis 2005 dont le nombre d'agréments était de 963. Je crois que cela témoigne du professionnalisme des infirmières et infirmiers en néphrologie. Nous tenons à féliciter toutes les infirmières et tous les infirmiers qui ont obtenu leur agrément cette année.
- Une fois de plus, nous avons offert un atelier de préparation pour passer l'examen d'agrément CNéph(C) de l'AIIC. Cet atelier, qui s'est tenu avant le congrès annuel, était présenté à la fois en français et en anglais. Vous trouverez la présentation de cet atelier sur le site Web de l'ACITN.
- La conception d'un guide d'étude pour les technologues afin de les aider dans leur préparation à passer l'examen d'agrément est également en discussion.
- En tant que représentant de l'AIIC pour le l'ACITN, je prendrai part à toutes les conférences téléphoniques où les enjeux relatifs aux soins infirmiers dans toutes les spécialités au Canada seront abordés. Il s'agit d'un forum incroyable pour échanger de l'information et des solutions.

### Journée annuelle des professionnels de la santé en néphrologie : le 21 septembre 2011

- Depuis deux ans, nous célébrons cette journée d'une manière vraiment multidisciplinaire. Nous continuerons de préparer et de distribuer des affiches afin d'aider chaque unité de dialyse à souligner cette merveilleuse journée en partenariat avec des collègues de la *Canadian Association of Nephrology Social Workers* (CANSW), de la *Canadian Association of Nephrology Dietitians* (CAND), du *Renal Pharmacists Network* (RPN) ainsi que ceux de la Société canadienne de néphrologie (SCN).
- Nous enverrons de l'information et des affiches encore cette année. Songez à de nouvelles façons de célébrer cette journée et faites-nous part à l'ACITN de vos réalisations.



## Congrès annuel de 2010 : du 18 au 20 novembre, à Toronto, en Ontario

- Le thème retenu était : Notre mosaïque des soins rénaux (*Our mosaic of renal care*).
- Nous avons opté pour un nouveau format lors de ce congrès : des journées pleines du jeudi au samedi, laissant la journée de dimanche libre pour visiter la ville un peu ou retourner à la maison.
- Le congrès a été un immense succès avec des conférenciers, des ateliers simultanés et des présentations

d'affiches scientifiques, tout aussi formidables les uns que les autres.

## Congrès annuel de 2011

- En 2011, nous partons à la conquête de l'Ouest. Le prochain congrès aura lieu à Calgary, en Alberta. Le thème est : Explorons de nouvelles voies (*Blazing New Trails*). Le comité organisateur, qui est coprésidé par Heather Dean et Janice Mackay, est déjà à pied d'œuvre pour nous concocter un autre congrès exceptionnel. Réservez déjà les dates du 20 au 22 octobre à votre agenda pour un rendez-vous à Calgary.

Ce fut une année de grande activité, mais très productive pour l'ACITN. Votre CA continue de promouvoir et de développer l'ACITN comme la voix des soins infirmiers en néphrologie au Canada. L'ACITN est votre Association. Nous serions heureux de recevoir vos commentaires et surtout votre candidature à l'un des postes vacants au sein du CA. La prochaine réunion du CA aura lieu le 7 mai 2011.

Soumis par  
**Rick Luscombe,**  
président sortant de l'ACITN

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- regional report updates and our annual CANNT/ACITN report
- CANNT Nursing and Technical Practice Standards, revised 2008
- national nephrology certification information and exam preparation support
- regional, national and international educational events information
- National Nephrology Professionals’ Day information—discover how colleagues from across Canada celebrate the day
- CANNT National Symposium 2011, Calgary, Alberta, details and updates



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# A three-step approach to conversion of prevalent catheter-dependent hemodialysis patients to arteriovenous access

By Patty Quinan, RN, MN, CNeph(C), Aaron Beder, MD, FRCSC, Murray J. Berall, MD, FRCPC, Meaghan Cuerden, MSc, Gihad Nesrallah, MD, FRCPC, and David C. Mendelssohn, MD, FRCPC

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## Abstract

**Background and objectives:** Prevalent central venous catheter (CVC) rates among hemodialysis (HD) patients in Canada remain high. In October 2006, we implemented a three-step multidisciplinary quality improvement project in our in-centre HD unit. The primary objective was to convert 50% of suitable patients to arteriovenous fistulas (AVFs) or arteriovenous grafts (AVGs).

**Design, setting, participants, and measurement:** We undertook a case-crossover evaluation of the efficacy of a three-step conversion strategy. In step one, all medically suitable in-centre HD patients were assessed for arteriovenous (AV) access creation. In step two, patients were scheduled for preoperative vascular mapping and referred to the vascular surgeon. In step three, patients who refused conversion were asked to sign a waiver indicating that their decision to continue with a CVC was against medical advice.

**Results:** At the start of the project in October 2006, there were a total of 284 patients on HD in our in-centre unit and 108 patients

were catheter-dependent (38%). Of these, 53 patients were deemed suitable for conversion from a CVC to AVF or AVG; 26/53 (49%) patients agreed to conversion and 27/53 (51%) refused conversion. For the patients in the conversion group, 63% had been followed in chronic kidney disease (CKD) clinic and 37% initiated dialysis acutely; compared to 57% and 43% respectively in the refusal group. The difference was not statistically significant ( $p=0.62$  by Chi-square test), suggesting that there may be other factors affecting a patient's decision other than predialysis nephrology care. Of interest, 19/27 (70%) of patients who refused conversion signed the waiver and 8/27 (30%) refused to sign the waiver. None of the patients, when confronted with the waiver, agreed to conversion.

Based on analysis of the main findings from our study, patients were most concerned about insertion of needles, pain and the appearance of their AV accesses. While 22 patients have successfully converted, resulting in a conversion rate of 41.5%, the percentage of catheter-dependent patients increased from 38% to 46% during the project period. Factors that likely contribute to the increase in point-prevalence CVC rates during the project period include a high rate of patient refusal, a high rate of patients deemed to be medically unsuitable, AV access failure during the project period, and most common was a failure to create AV access among incident HD patients who were followed in our centre through the late stages of chronic kidney disease (CKD). Successful conversion was defined as removal of CVC and use of AV access for HD at the end of the study period (December, 2010).

**Conclusion:** Long-term CVC use in Canada and the unwillingness of medically suitable patients to convert to more optimal forms of vascular access are linked problems with potentially grave consequences. We need to develop a better understanding of the patients' perspective and possible psychological factors affecting patients' decisions if we are to have an impact on the high CVC use of Canadian prevalent HD patients.

**Key words:** arteriovenous fistula, central venous catheter, vascular access, hemodialysis

## Introduction

The arteriovenous fistula (AVF) is universally accepted as the optimal vascular access for chronic HD patients (Mendelssohn et al., 2006b). The second best is the arteriovenous graft (AVG), while the least desirable is the central venous catheter (CVC) (Astor et al., 2005; Hemodialysis Clinical Practice Guidelines for the Canadian Society of Nephrology, 2006; NKF-KDOQI, 2006; Polkinghorne, McDonald, Atkins, & Kerr, 2004). The AVF is associated with decreased mortality and morbidity, low complication and procedure rates, and improved long-term survival when compared to an AVG and CVC (Astor et al., 2005; Dhingra, Young, Hulbert-Shearon, Leavey, &

Patty Quinan, RN, MN, CNeph(C), Clinical Nurse Specialist—Dialysis Access, Department of Nephrology, Humber River Regional Hospital, Toronto, Ontario.

Aaron Beder, MD, FRCSC, Department of Vascular Surgery, Humber River Regional Hospital, Toronto, Ontario.

Murray J. Berall, MD, FRCPC, Department of Nephrology, Humber River Regional Hospital, Toronto, Ontario.

Meaghan Cuerden, MSc, Division of Nephrology, the University of Western Ontario, London, Ontario.

Gihad Nesrallah, MD, FRCPC, Department of Nephrology, Humber River Regional Hospital, Toronto, Ontario, Division of Nephrology, the University of Western Ontario, London, Ontario, and Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario.

David C. Mendelssohn, MD, FRCPC, Department of Nephrology, Humber River Regional Hospital, Toronto, Ontario, and Division of Nephrology, University of Toronto, Toronto, Ontario.

Address correspondence to: Patty Quinan, RN, MN, CNeph(C), Clinical Nurse Specialist—Dialysis Access, Humber River Regional Hospital, Toronto, ON. Email: [PQuinan@HRRH.ON.CA](mailto:PQuinan@HRRH.ON.CA)

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Port, 2001; Lok, 2007, NKF-KDOQI, 2006; Pastan, Soucie, & McClellan, 2002; Pisoni et al., 2002; Polkinghorne et al., 2004; Xue, Dahl, Ebben, & Collins, 2003).

Mokrzycki and Lok (2010) suggest that initiating and maintaining HD with a CVC is considered as a suboptimal start from the patient care perspective and long-term costs of CVC use.

### **The Canadian experience**

Despite their known association with numerous detrimental outcomes and similar Canadian guidelines for vascular access, Canadian chronic HD patients often rely on a CVC for vascular access (Ethier et al., 2008; Hemodialysis Clinical Practice Guidelines for the Canadian Society of Nephrology, 2006; Mendelssohn, Ethier, Arrington, Pisoni, & Port, 2006a; Mendelssohn et al., 2006b). In fact, during the Dialysis Outcomes and Practice Patterns Study (DOPPS) II (2002–2004), 33% of all prevalent patients and 70% of incident patients in Canadian centres were using a CVC for chronic HD, and only 26% initiated with a functioning AV access, despite 79% of patients reporting to having seen a nephrologist more than four months before reaching end stage renal disease (ESRD) (Mendelssohn, Ethier, Arrington, Pisoni, & Port, 2006a; Mendelssohn et al., 2006b). More recent data suggest that by 2008, this had worsened to 51% CVC (Canadian Institute of Health Information, 2008) for prevalent patients. In comparison, 48% of patients in the United States and 79% of patients in Europe who saw a nephrologist for more than 30 days used an AV access for their first HD (Pisoni et al., 2002).

Other factors that contribute to the high prevalence of CVC use in Canada in patients on HD include: resource limitations, such as fewer vascular surgeons per 100 HD patients, as compared to the United States or Europe; increased wait times for evaluation and surgery; less time devoted to vascular access per patient, and late referrals to vascular surgeons (Mendelssohn et al., 2006b). According to data from the DOPPS II study, the typical time from referral to a vascular surgeon until permanent vascular access creation is substantially longer in Canada (61.7 days), than in the United States (16 days) or in Europe (29.4 days). The investigators suggest that longer delay time to creation of AV access and higher catheter use in Canada may be a consequence of fewer vascular surgeons in Canada (2.9) compared with the United States (8.1) and Europe (4.6).

Furthermore, the number of hours per week devoted to vascular access-related surgery is substantially lower in Canada (0.027 hours), as compared with the United States (0.082 hours) and Europe (0.059 hours).

According to Lok (2007), a Canadian nephrologist, creating fistulas may not be the critical challenge, but rather achieving 65% functioning fistulas in today's dialysis patient population. Studies suggest that an estimated 55% to 60% of AVFs are underdeveloped and not usable for HD, and that maturation often takes five months or longer (Dember et al., 2008; Lok et al., 2006; Biuckians, Scott, Meier, Panneton, & Glickman, 2008; Feldman et al., 2003). An increase in primary failure rates in incident and prevalent patients may also contribute to the high use of CVC for vascular access and associated catheter-related complications (Allon & Lok, 2010; Lee, Barker, & Allon, 2005; Ravani et al., 2004).

Graham, Hiremath, Magner, Knoll, and Burns (2008) examined the prevalence of CVC use in Canadian patients and found barriers to conversion included unsuitable vessels, patient comorbidities, system/resource limitations, and patient refusal.

According to Lok (2007), the changing demographics of incident ESRD patients caused by the rising rates of diabetes, along with an increased number of patients over the age of 75, has led to a patient population with enough comorbidities to make CVC use an easier alternative for patients and HD nurses for initiation of dialysis. Furthermore, female gender, obesity, peripheral vascular disease (PVD), age older than 65 years, and preference of the staff in the dialysis unit, are all independently associated with increased use of CVC.

### **Literature review**

The National Kidney Foundation Kidney Dialysis Outcomes Quality Initiative (NKF-KDOQI) guidelines for vascular access discourages the use of CVC for chronic HD and recommends that less than 10% of chronic HD patients should be maintained on tunnelled CVC. Furthermore, the NKF-KDOQI guidelines recommend that 50% of incident patients and 40% of prevalent patients use an AVF for vascular access (NKF-KDOQI, 2006). The primary goal of the United States multi-stakeholder Fistula First Initiative was recently revised, and now recommends that 65% of appropriate patients use an AVF for vascular access (Fistula First, 2010).

Pisoni, Young, and Combe (2005) reported from DOPPS data a 16% excess risk of death for every 20% increase in catheters when compared to fistulas. Furthermore, they reported a reduction in mortality risk by decreasing catheter use to the NKF-KDOQI target in Canada and the United States, while keeping graft use constant. More recent studies also suggest that conversion from a CVC to an AV access is associated with lower mortality among incident patients (Bradbury et al., 2009), and incident and prevalent patients (Allon et al., 2006; Lacson, Wang, Lazarus, & Hakim, 2009).

Patients with a CVC have been shown to have higher rates of hospitalization, more incidence of local and systemic infections, suboptimal blood flow (resulting in reduced clearance), and poor quality of life (Allon et al., 2003; Astor et al., 2005; Churchill et al., 1992; Dhingra et al., 2001; Lopes et al., 2007; Nassar & Ayus, 2001; Pastan et al., 2002; Polkinghorne et al., 2004).

In addition, CVCs have been associated with development of central venous stenosis and thrombosis, access failure, and increased costs (MacRae, Ahmed, Johnson, Levin, & Kiaii, 2005; Manns et al., 2005; NKF-KDOQI, 2006; Yuan et al., 2007). In fact, it has been reported that 40% of patients who undergo venography have central venous stenosis, which may preclude later AVF creation or hamper maturation (MacRae et al., 2005; Yuan et al., 2007).

Furthermore, it is well documented that patients who have had a CVC placed before AVF creation have reduced fistula survival, as compared to patients who did not have a CVC (Pisoni et al., 2002; Hakim & Himmelfarb, 1998; Ravani et al., 2005). Currently, the primary failure rates for fistulas range between 20% and 70% with a one-year primary patency rate of 40% to 70% (Ackad et al., 2005; Allon, & Robbin, 2002; Dixon, Novak, & Fangman, 2002; Gibson et al., 2001). Ferring, Claridge, Smith and Wilmink (2010) report that routine preoperative ultrasound mapping improves patency and AVF outcomes. These findings support National and European guidelines for routine preoperative ultrasound mapping (NKF-KDOQI, 2006; Tordoir et al., 2007).



One possible barrier to AV access creation is the nephrologists' attitudes and perceptions about referral and patient suitability for vascular access creation based on patient characteristics (diabetes, obesity, age, and failed prior vascular access). According to the quality initiative report of 2001, failure of nephrologists to act as vascular access coordinators was found to be the topmost barrier to creation of AV fistulas (Northwest Renal Network, 2010).

Graham et al. (2008) surveyed Canadian nephrologists and found that 100% agreed that the AVF was the optimal access for HD, 100% disagreed that female sex was a contraindication for referral for AVF creation, and only 24% considered age when referring a patient for AV access. Furthermore, according to Mendelssohn et al. (2006b), 94% of nephrologists in Canada report that the preferred type of access for patients expected to initiate dialysis in two or more months was the AV fistula. This figure was higher in the United States (98%) and in Europe (99%).

Key modifiable factors that may affect patient's resistance and conversion of catheter-dependent patients to AV access creation include patient choice and ultimate refusal, patient preference, patient satisfaction, cannulation-related complications such as pain, disfigurement, bleeding, fear of needles, and surgical fatigue (Asif et al., 2005; Bay, Van Cleef, & Owens, 1998; Lee, Barker, & Allon, 2005; Lok, 2007; Quinn et al., 2008; Yuan et al., 2007).

Yuan et al. (2007) examined CVC use and compared the patient perspective with that of vascular access coordinators (VAC). They found that their perspectives differed with respect to the advantages and disadvantages of different vascular accesses, suggesting a knowledge gap between the care provider and patient. For example, 25% of patients reported that they had exhausted access sites, whereas the VAC noted this to be the case in only 5% of patients.

Conversion to more optimal forms of vascular access requires an organized approach utilizing a dedicated team including nephrologists, vascular access coordinators, HD nurses, vascular surgeons, and interventional radiologists, and requires the use of a wide range of surgical and radiological techniques and salvage procedures (Asif et al., 2005; Lok, 2007; Mendelssohn et al., 2006b).

Asif et al. (2005) examined conversion of catheter-dependent patients to vascular access and reported that the basilic vein in the upper arm was commonly patent, even in patients with multiple failed vascular accesses. The authors recommend always assessing for patency of the basilic vein prior to consigning a patient to permanent dependence on a percutaneous vascular catheter. These findings are consistent with other research, where the basilic vein was patent in more than 95% of catheter-dependent patients (Humphries, Colborn, & Wynn, 1999; Matsuura et al., 1998), and thereby should be considered as a strategy for increasing fistulas when surgical expertise is available.

## Summary

The detrimental risks to health for patients on HD using a CVC for permanent access have been well documented. However, conversion of prevalent catheter-dependent patients to more optimal forms of vascular access is challenging, but has not been so well studied.

## Methods

### Main study objectives

The primary objective of the conversion project was to achieve a 50% conversion rate of suitable patients from CVCs to AVFs or AVGs. In October 2006, we reviewed all chronic in-centre HD patients at our centre receiving dialysis with a CVC to determine suitability for AV access creation (AVF or AVG).

### Study setting, design, and population

The Humber River Regional Hospital (HRRH) department of nephrology is a community-based regional program in north-west Toronto, Ontario. The in-centre HD unit currently has 53 stations and a maximum of 318 patients. An additional 100 patients are on home-based or self-care HD. We undertook a case-crossover evaluation of the efficacy of a three-step strategy to convert prevalent in-centre HD patients with CVCs to either AVF or AVG.

### Ethics and patient consent procedures

The CVC conversion protocol was considered a continuous quality improvement project. Therefore, the project did not go through a research ethics review process and formal informed patient consent was not obtained. Furthermore, patient consent was implicit, based on patient's willingness to engage in discussion, read relevant materials, and willingness to undergo further evaluation or procedures. Written informed consent was obtained for endovascular and surgical procedures, following usual hospital procedures.

### Baseline vascular access planning and referral practice

Patients in our CKD clinic are seen by a multidisciplinary renal team consisting of primary nephrologists, pharmacists, dietitians, nurse clinicians and social workers prior to initiating dialysis. The average time from referral to the vascular surgeon to creation of AV access at our centre is seven weeks (49 days), which is shorter than the Canadian average of 61.7 days (DOPPS II). Our vascular surgeon devotes approximately six hours per week to AV access surgery, and performs an average of 10 access surgeries per month.

Yet, despite a structured team approach to patient care, many incident patients in our centre still initiate HD with a CVC. At our centre, we consider a patient to have a suboptimal start if he/she fails to initiate dialysis with the modality of choice, initiates dialysis acutely with a CVC, or fails to initiate HD with a functioning AVF or AVG.

Prior to the conversion project, the process for assessing prevalent catheter-dependent patients for AV access creation was not formalized and did not include standardized written material or discussions with patients, and patients were not routinely scheduled for preoperative vascular mapping. Generally, patients were only approached for AV access creation at initiation of HD, and patients who refused AV access or whose AV access failed were not approached again.

### Vascular access conversion protocol

In step one, all prevalent in-centre patients with a CVC were entered into the project database (n=108) (see Table 1 flow chart with project results). Patients were considered eligible if they had a CVC and been on dialysis for more than 90 days. Exclusion criteria included dementia, inability to provide informed consent (implicit or written), patients who were unable to understand written materials (translation was allowed), patients with terminal

illness or life-expectancy less than six months, and patients awaiting living-related transplant. Based on these criteria, six patients were excluded, leaving an eligible patient pool of 102 patients.

The clinical nurse specialist and nephrologists assessed patients' medical suitability for AV access creation based on past medical history and access history. Suitability was defined as patients deemed to be medically suitable for AV access creation. A checklist (Appendix B) with indications for catheter use was completed by the clinical nurse specialist for all catheter-dependent patients, and the checklist was placed in the patient's chart. The patients were also asked to complete a similar checklist (Appendix A) with their perspective of why they had a catheter, in order to determine degree of concordance with staff. Patients deemed medically unsuitable for AV access creation based on the criteria found in the checklist (Appendix B) were excluded from the conversion project. The cohort of remaining patients was considered medically suitable for conversion.

In step two, all medically suitable patients were given a patient newsletter and a one-page information sheet (Appendix C). The information sheet was intended to be similar to the popular fable by Hans Christian Andersen, "The Emperor's New Clothes" and was adapted for use for our project. The fable included a picture (reproduced with permission by Dr. Raymond Hakim) of an emperor peeking around a tree with a dual lumen catheter hanging from his chest, and detailed information about the risks of long-term catheter use.

The fable (Appendix C) was used to illustrate to patients, family members and staff that although patients may "fall in love" with their catheter, as they see that patients are attached to the

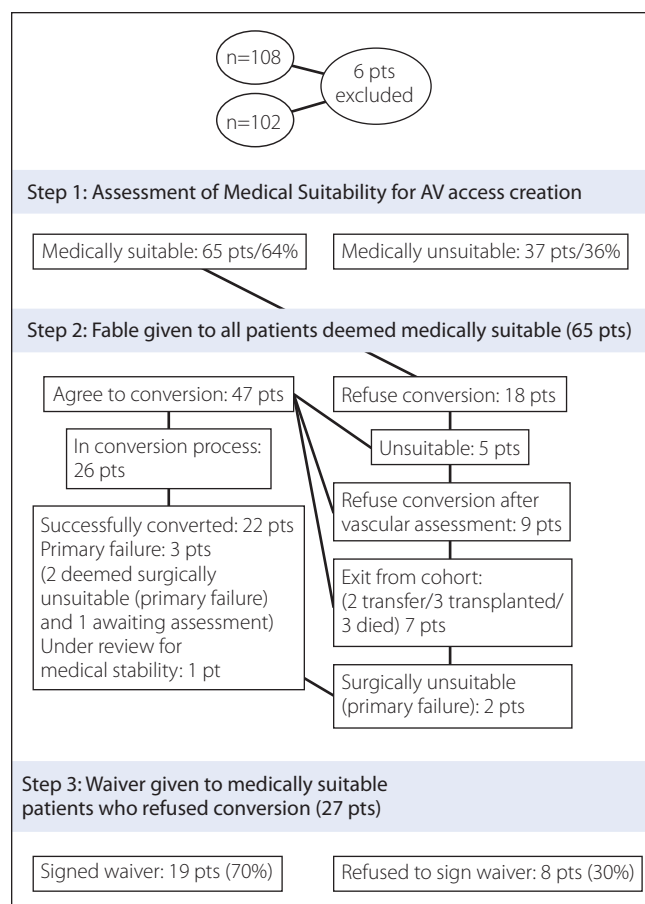
dialysis machine more quickly and painlessly and they don't have large bumps on their arms that patients with fistulas do, catheters are, in fact, associated with poorer patient outcomes, including increased morbidity, mortality, infection, hospitalization, and death. Descriptive information was gathered through discussions with patients. Information was not captured systematically and there was no direct comparison with a control group.

During the entire process, discussions about vascular access between patients, family members, and the health care team were encouraged. HD nurses were integral to the process, particularly with their ability to reinforce education and their close relationship with patients, which places them in a key position to engage patients and families in discussions about vascular access. Patients with CVCs were also encouraged to speak with patients who have fistulas and patients who have successfully converted to AV access and had their CVCs removed.

All suitable patients who agreed to conversion were scheduled for preoperative bilateral arterial and venous arm mapping and referred to see the vascular surgeon for assessment of surgical suitability for AV access creation. The vascular surgeon determined surgical suitability based on past access history, medical history, preoperative vascular arm mapping, and clinical assessment and portable ultrasound assessment of superficial veins, in collaboration with the clinical nurse specialist.

In step three, the clinical nurse specialist and nephrologists spoke with all suitable patients who refused AV access creation. Patients who refused conversion were asked to sign a waiver (Appendix D), indicating that they had chosen to continue with a CVC; with full understanding of the potential consequences, and that their decision was "against medical advice". The signed waiver was placed in the patient's chart along with the completed checklist with indications for catheter use.

**Table 1. Flowchart with project results**



## Results

At the start of the project in October 2006, 284 prevalent in-centre HD patients had the following vascular access types: 38% of patients with CVC, 4% with AVG, and 58% with AVF. Thus, 38% of patients with CVC (n=108) were deemed potentially eligible for AV access creation (AVF or AVG).

Table 2 (initial cohort column) shows the demographic data, baseline patient characteristics, and co-morbidities of catheter-dependent patients in the project. The average age was 70 years old, 53% were female, 48% had diabetes, and 24% had previously been on peritoneal dialysis. The average length of time the CVC was in place was 49 months (range 17 days to 134 months), and the average number of prior surgical vascular access creation attempts was two (range 0–9). Patients with CVCs in place for less than 90 days included patients with failed fistulas during the project period, patients who were deemed no longer suitable for peritoneal dialysis and converted to HD, and patients with functioning AV access awaiting removal of CVC.

Comorbidities include 21% of patients with cerebrovascular disease, which is defined by the World Health Organization (as cited in Truelsen, Begg, & Mathers, 2000) as documented cerebral vascular accident or transient ischemic attack; 20% with peripheral vascular disease (surgical bypass, intermittent claudication or previous gangrene); 44% with heart disease (previous myocardial infarction, cardiac surgery or angioplasty), and 93% with hypertension (pre-dialysis systolic BP of >140 mmHg, or diastolic BP > 90 mmHg).

Patient characteristics are presented by study phase in Table 2 (converted, non-converted, and unsuitable columns); suitable patients who agreed to conversion (converted), patients who refused conversion (non-converted), and patients deemed unsuitable for conversion (unsuitable). Unsuitability was further divided into medical and surgical unsuitability (Table 3). When compared to the other two groups, patients who agreed to conversion (converted) tended to be younger, had the highest rates of diabetes and hypertension, length of time catheter had been in place was shorter (mean of 30 months), and had less cerebrovascular disease and heart disease. Patients who refused conversion were less likely to have been on peritoneal dialysis, length of time catheter had been in place was longer (mean of 64 months), had fewer prior AV access attempts, and the highest rates of heart disease. Patients deemed unsuitable for AV access creation were older, more were female than male, and they had the highest rate of cerebrovascular disease and peripheral vascular disease. Similar to study by Lok (2007), we found that CVC use was highest among patients who were older, diabetic, female, and had PVD.

Of the 65 patients who were deemed medically suitable for AV access, 35 patients agreed to conversion and 30 patients refused conversion. Of the 35 patients who agreed to conversion, 22 (63%) had been followed in CKD clinic for four months or more and 13 (37%) patients initiated dialysis acutely. Of the 30 patients who refused conversion, 17 (57%) had been followed in CKD clinic for four months or more and 13 (43%) initiated dialysis acutely.

The difference between the group who agreed to conversion and the group who refused conversion was not statistically

significant ( $p=0.62$  by Chi-square test), thereby suggesting that there are factors other than attending the CKD clinic that affect a patient's decision to convert to AV access.

Information obtained from the checklist (Appendix A) on patients' perspective of why they wanted to remain with their catheter included being able to get on and off the dialysis machine more quickly, no needles or pain, no large bumps on their arms, no waiting after dialysis to hold needle sites, their lines are working fine, and the catheter is their choice.

In discussion with patients about vascular access, patients reported that patients with fistulas have large bumps on their arms, and have cannulation-related complications, such as difficulty with placement of needles, pain, bruising and swelling from the needles, and they sometimes miss their transportation due to bleeding after dialysis. Patients who converted to a fistula and had their catheter removed report that they can swim and shower freely, they no longer worry about getting an infection, and having a tube hanging from their chest reminded them that they were sick.

In step one, 65/102 patients were deemed medically suitable for AV access creation and 37/102 patients were deemed medically unsuitable. In step two, 18/65 patients initially deemed medically suitable for AV access creation refused conversion and preoperative vascular assessment, and nine patients refused conversion after preoperative vascular assessment. An additional three patients were deemed secondarily medically unsuitable because of changes in their overall medical condition, two patients were deemed surgically unsuitable after assessment, two patients were transplanted, three patients were transferred, and two patients died ( $n=26$ ).

**Table 2. Initial demographic characteristics and comorbidities**

Co-morbidities and demographics	Initial cohort n=95	Converted n=26	Non-converted n=27	Unsuitable (medical and surgical) n=42
Diabetes mellitus	48%	54%	52%	43%
Cerebrovascular disease (documented cerebral vascular accident or transient ischemic attack)	21%	4%	26%	33%
Peripheral vascular disease (surgical bypass, intermittent claudication, or previous gangrene)	20%	19%	19%	21%
Heart disease (previous myocardial infarction, cardiac surgery or angioplasty)	44%	35%	52%	45%
Hypertension (pre-dialysis systolic BP of >140 mmHg, or diastolic BP > 90 mmHg)	93%	96%	89%	93%
Previous peritoneal dialysis	24%	35%	19%	21%
Average age (years)	70	66	71	74
Gender male	47%	58%	48%	40%
Average months CVC in situ	49	29	64	54
Time catheter in situ (shortest/longest)	0.57–134 months	2–82 months	30–134 months	2–128 months
Average attempts of AV access creation (0–9)	2	2	1	2
<i>Legend: Arteriovenous (AV); Blood pressure (BP); Central venous catheter (CVC); Millimetres of mercury (mmHg)</i>				



As of December 2010, 25/26 patients have undergone surgery for AV access creation. AV access creations as a result of the conversion project includes 13 radiocephalic fistulas, eight brachiocephalic fistulas, and four transposed basilic vein fistulas (Table 4). No suitable patients received an AVG.

Of the 25 patients who have had surgery, 22 patients have successfully converted to AV access and had their CVC removed, two patients experienced primary failure and have been deemed surgically unsuitable for further AV access surgery, one patient experienced primary failure and is undergoing further assessment for AV access creation, and one patient is still in the process of being assessed for AV access (n=24). The patient who experienced primary failure is being assessed for surgical suitability for a basilic vein transposition procedure (two previous AV access failures and a history of central stenosis), and the second patient is being assessed for a transposed basilic vein fistula, pending investigation of hypercoagulability (two previous AV access failures).

In step three, of the 27 suitable patients who refused conversion, 19 (70%) signed the waiver and eight (30%) refused to sign the waiver. None of the patients agreed to conversion after being presented with the waiver. Patients who agreed to sign the waiver stated, "If I sign the paper, then I won't be asked again about getting a fistula," and "Signing the paper makes it official because the paper is put into my chart". Patients who refused to sign the waiver stated, "I don't want my signature on a piece of paper" and "I don't want to have something put into my chart" (Table 1 flow chart with project results).

Overall, 22 patients with CVCs were successfully converted to an AV access at the end of the follow-up, achieving  $p < 0.001$  by McNemar's Test, comparing the number of conversion from CVC to an AV access with the number of conversions from AV access to CVC. No patients voluntarily switched from AV access to a CVC during follow-up. If the number of AV access failures during the project period is considered (n=12), the effect of the

conversion protocol would have been attenuated, and not statistically significant. However, without the 22 converted patients, the overall number of AV accesses in our program would have declined significantly ( $p < 0.001$  by McNemar's Test).

Our three-step approach has resulted in conversion of 41.5% of prevalent catheter-dependent patients to AV access. This rate would increase to 45% if the two remaining patients in the conversion process successfully converted. Yet, despite a high conversion rate, the percentage of in-centre point-prevalent catheter-dependent patient's increased during the project period from 38% in October 2006 to 46% in December 2010. However, if the conversion project had not been implemented, our prevalent CVC rate would be 53%.

An important factor affecting the increase in percentage of point prevalence is that 70% of incident patients in our centre initiated HD with a CVC during the project period, despite a structured multidisciplinary team approach to patient care.

## Discussion

The primary objective of our project was achieved. We were successful in converting many suitable patients to an AV access with an ultimate goal of decreasing CVC rates and increasing AV access rates. Although our three-step conversion strategy was successful in converting 41.5% of suitable CVC-dependent patients to an AV access, the percentage of in-centre point-prevalent catheter-dependent patients increased during the project period from 38% in October 2006 to 46% in December 2010.

Factors that likely contributed to the increase in point-prevalence CVC rates during the project period include a high rate of patient refusal, a high rate of patients deemed to be medically unsuitable, AV access failure during the project period, failed peritoneal dialysis and conversion to HD, failed transplant, catheter-dependent patients transferring from other centres, and most common was a failure to create AV access among incident HD patients who were followed in our centre through the late stages of chronic kidney disease (CKD).

Results of our project suggest there is a critical need to identify barriers to timely vascular access creation and to develop strategies aimed at reducing catheter use that is expected to result in improvement in patient care.

## Barriers to conversion

Asif et al. (2005) reported that patients denied having received information about types of vascular access, their associated complications, and increased morbidity and mortality, and that 37% of patients refused vascular mapping or AV access creation despite being informed of the risks of remaining with a CVC. Descriptive information obtained from patients who were presented with the fable (Appendix C) included reports that they were not previously informed about the many problems associated with catheters and were not told that fistulas were better. Patients with previously failed fistulas stated that they were told they couldn't have another fistula.

### Patient refusal

Asif et al. (2005) and Lee, Barker and Allon (2005) report that the longer the catheter was in place, the less likely it was that the patient would agree to conversion. Furthermore, Asif et al. (2005) and Xi et al. (2010) report refusal rates of 37% and 77% respectively, despite aggressive educational efforts. Similarly in our study, we found that there was a high refusal rate (53%),

**Table 3. Medical and surgical unsuitability for arteriovenous access creation**

Total unsuitability	Medical unsuitability	Surgical unsuitability
Step 1	37	n/a
Step 2	3	4*
Total unsuitability n = 44*	n = 40	n = 4
* Two patients experienced primary failure and were deemed surgically unsuitable for any further AV access surgery		

**Table 4. Arteriovenous access surgeries as result of the conversion project**

AV access types	AV access creation n=25
Radiocephalic fistula	13
Brachiocephalic fistula	8
Arteriovenous graft	0
Transposed basilic vein fistula	4

and patients who refused conversion (non-converted) had their catheter in place longer (134 months), with an average time of 49 months (just more than four years).

In fact, in our study, the problem of refusal of conversion by suitable patients was as common as consent to convert. In terms of effort and resources, detailed work-up and time-consuming interactions by a clinical nurse specialist, nephrologists, HD nurses, and vascular surgeons identified 95 patients eligible for conversion, but led to refusal by 27 and surgery in only 25 patients. As a result, roughly half of all catheter-dependent patients were unsuitable for conversion, one quarter were suitable but refused to convert, and one quarter were suitable and willing.

### **Nephrologist attitude and informed refusal**

Rehman et al. (2009) suggest that if we are to reduce high catheter rates, nephrologists need to develop the conviction that CVCs are not a safe-long-term vascular access option for their patients who, indeed, may be good candidates for an AVF or AVG. The authors recommend that when catheter-dependent patients who are deemed to be suitable candidates for AV access creation continue to refuse, the nephrologist may want to require informed refusal, and give suitable patients a printed statement listing the numerous complications of CVC use, including the nephrologist's strong recommendation against long-term CVC use. They suggest that patients could be asked to read the statement, acknowledge its content, and sign at the bottom that he or she continues to choose to receive their dialysis with a catheter. Furthermore, Hakim and Himmelfarb (2009) suggest that a proactive process needs to be considered, which includes an informed non-consent for catheter-dependent patients who decline permanent AV access creation.

At our centre, we implemented a similar approach and requested that patients who refused AV access sign a waiver, although this did not prove to be effective in converting our catheter-dependent patients to better forms of vascular access. Initially, we estimated that 50% of patients who were asked to sign the waiver would have agreed to conversion, when, in fact, no patient agreed to conversion when presented the waiver.

Watson (2009) suggests that nephrology providers need to move away from the idea that CVCs are "permanent" catheters, which, in turn, makes patients more reluctant to see them as not permanent. "To patients, nurses and doctors alike, the concept of a permanent central venous catheter for HD is appealing. For patients, these catheters are virtually pain-free after the initial insertion, and for HD nurses, they are easy to use, often saving time and the inconvenience of needling" (p. 39).

Lee et al. (2005) report that "it is possible that some patients with multiple missed surgery appointments have no intention of proceeding with access surgery, but are unwilling to explicitly state their position" (p. 507). Similar to our experience, several patients agreed to venous mapping and then refused conversion, and one patient is still in the process of conversion after four years, yet has neither expressed unwillingness to convert, nor refused conversion.

### **Patient unsuitability and fistula survival**

Overall, 44/95 (46%) patients were deemed unsuitable for conversion in our study. It is possible that our criteria for determining medical suitability were too strict and that another centre could have created a larger pool of suitable patients.

Graham et al. (2008) examined the prevalence of CVC use in patients on HD at one centre in Canada and found that an even larger percentage of patients (68.9%) with catheters had vascular factors or medical contraindications that preclude AV access placement.

MacRae et al., 2005 and Yuan et al., 2007, report that 40% of patients who undergo venography have central venous stenosis from long-term catheter use, which may preclude later AVF creation or hamper maturation. Furthermore, patients who have had a CVC placed before AVF creation have reduced fistula survival, as compared to patients who did not have a CVC (Pisoni et al., 2002; Hakim & Himmelfarb, 1998; Ravani et al., 2005). Although our project did not include assessment for central venous stenosis, all three patients who experienced primary AV access failure as a result of the conversion project had a history of central venous stenosis, had long-term catheter use, and a history of previous failed fistulas.

In an effort to improve AV access survival, all patients who agreed to conversion were scheduled for preoperative bilateral arterial and venous arm mapping. A recent randomized trial by Ferring et al. (2010) found that preoperative venous mapping resulted in improved AVF outcomes and patency rates and is also recommended in both National and European guidelines (Ferring et al., 2010; NKF-KDOQI, 2006; Tordoir, et al., 2007).

### **Incident rates**

Although it is expected that patients who are followed in the CKD clinic would be more likely to convert to AV access, this was not the case at our centre. In fact, despite a structured team approach to patient care, 70% of incident patients in our centre initiated HD with a CVC during the project period, which is similar to other centres in Canada (Mendelssohn et al., 2006a).

In order to successfully reduce the use of CVCs for vascular access, we need to develop a better understanding of the patient's perspective and possible psychological factors affecting patients' decisions.

### **Patient's perspective and patient satisfaction**

Despite repeated efforts to inform patients of the numerous disadvantages of long-term catheter use and the benefits of AV accesses, patients continue to "fall in love" with their catheters and, worse, often choose to remain with a catheter even when the risks are explained to them. As health care providers, we need to explore patients' perspectives and factors that affect patient satisfaction if we are to succeed in reducing catheter rates among Canadian catheter-dependent patients. Based on the main findings in our study, patients were most concerned about insertion of needles, pain and the appearance of their AV access.

Similarly, other studies report that prevalent catheter-dependent patients are influenced by other patients' experiences with cannulation; mainly pain, difficulty placing needles, large bumps on arms, and bleeding after dialysis (Asif et al., 2005; Bay, Van Cleef, & Owens, 1998; Lee, Barker, & Allon, 2005; Quinn et al., 2008; Yuan et al., 2007).

Quinn et al. (2008) developed a vascular access questionnaire assessing patient-reported views and patient satisfaction with their vascular access in an effort to better understand patient perspectives and the challenges that health care providers face

when trying to increase fistula usage. They found that patients who had fistulas were most concerned with appearance of their vascular access and cannulation-related complications such as pain, bleeding, bruising and swelling. Interestingly, only 3% of catheter-dependent patients reported that they were concerned about infection, yet this is a major concern for physicians. The authors suggest that this may be the result of inadequate education about the risks of CVC or that patients are more concerned about issues they are bothered by frequently. Furthermore, Quinn et al. (2008) suggest that implementing strategies aimed at reducing cannulation-related complications may lead to an increase in fistula rates and improve patient satisfaction with their vascular access.

Strategies aimed at improving the likelihood of successful cannulation may include assigning nurses deemed as expert cannulators to all new and difficult vascular accesses, thereby reducing trauma caused by unsuccessful cannulations; improving nurses' cannulation skills through mentoring and coaching by utilizing the clinical renal educator or expert cannulators, matching the skill of nurses to the difficulty of the AV access; and cohorting patients based on access type and cannulation difficulty. These strategies may help to improve fistula development and maturation and, ultimately, lead to patient compliance and patient satisfaction with vascular access (Wilson, Harwood, Oudshoorn, & Thompson, 2010).

#### **Patient choice**

Yet, for many patients receiving dialysis with a CVC, the decision to undergo surgery for the creation of an AV access, which will ultimately involve placing needles into their arm every dialysis, can be a difficult one. According to Lee et al. (2005), many patients on HD who have experienced access failure in the past are reluctant to undergo further access surgery, knowing the possibility that the access may fail again.

Rehman, Schmidt and Moss (2009) suggest that patient choice may be confounded by care providers' wish to respect patient choice, and thereby failing to adequately and accurately inform patients about the risks and benefits of CVC use for vascular access. Furthermore, they suggest that nephrologists have an ethical obligation to inform patients about the risks of CVC, to promote AV fistulas as the vascular access of choice, and to present CVC only as a temporary measure, or as a last resort. Rehman et al. (2009) suggest that patients cannot make truly autonomous decisions if they are not adequately informed, and Blackhall (1987) states that autonomy does not allow patients to demand treatments where the risk outweighs the benefit.

Lok (2007) suggests that "high-risk patients who have recurrent AVF failure will ultimately succumb to surgical fatigue and refuse future efforts for a permanent AVF" (p. 1050). Asif et al. (2005) agrees that the eventual exhaustion of traditional vascular access sites in long-term HD patients who have suffered multiple failed AV accesses contributes to catheter use. Therefore, timely access to a vascular surgeon, creation of AV access among incident patients, conversion of suitable prevalent patients from CVC to AV access, and a change in catheter culture are critical to reduce long-term catheter use for HD treatment.

A strength of our study is that it is a prospective, real-life, quality improvement experience in a busy HD unit, incorporating a multifaceted, multidisciplinary approach. Our three-step

approach of assessing prevalent catheter-dependent patients for suitability has resulted in conversion of 41.5% of patients from CVC to AV access, and continues to be implemented as a strategy for assessing and converting suitable patients. A most striking finding of our study is that despite a prevalent AVF rate of 58% and AVG rate of 4% at the start of the project, using a rigorous multifaceted and multidisciplinary approach, we still found more prevalent catheter-dependent patients to convert to AV access.

A limitation of our project is that it represents the experience of a single centre quality improvement initiative and was not designed as a randomized controlled clinical trial. While the three-step process was used on all patients and all patients in our study received the same patient information sheet, it is hard to determine whether the fable alone or the overall three-step process was effective in the conversion of patients to AV access. It should be noted that our results are based on current practices, preferences, and surgical expertise of our vascular surgeon and, therefore, may not be generalizable to other HD centres.

#### **Implications for practice**

As a result of our conversion project, all patients who initiate dialysis acutely (deemed to have chronic renal failure), and who have been followed in the CKD clinic are assessed for AV access. Early discussions by the clinical nurse specialist with patients and families are now routine practice, with an emphasis that catheters are considered a temporary access for HD until AV access is established. All catheter-dependent patients are given detailed written information on the advantages of AV access and the disadvantages of CVCs, scheduled for preoperative bilateral arterial and venous arm mapping, and referred to the vascular surgeon for AV access creation. Discussions between patients who have successfully converted to an AV access and patients who have a functioning AV access are also encouraged.

Strategies aimed at improving patient, family and staff education about the risks of long-term catheter use and implementing measures to reduce cannulation-related complications may improve patients' satisfaction with their vascular access, conversion of catheter-dependent patients to AV access, increase fistula rates, help improve fistula development and maturation and, ultimately, lead to improved patient compliance and patient satisfaction.

Our three-step conversion project including fable and results is on display in the HD unit and the CKD clinic, emphasizing to patients, families and staff that CVCs are considered temporary accesses for HD, and that AV accesses are the preferred vascular access. Although we were unable to demonstrate in our study design that the fable alone was effective in converting patients to AV access, its effect on patients' decision to convert to AV access should not be dismissed.

#### **Implications for future research**

It is difficult to reconcile with the fact that 44/95 (46%) patients were deemed unsuitable for conversion in our study, when the experiences in parts of Europe and Japan suggest that AVF rates of more than 70% to 90% respectively are achievable (Hakim, & Himmelfarb, 1998; Lazarides et al., 1996). It is possible that our criteria for determining medical suitability



were too stringent, and that another centre could have created a larger pool of suitable patients. Nonetheless, based on these encouraging results, we recommend larger, better designed studies be done in the future.

Recommendations for further research into this area include examining psychological factors affecting a patient's resistance to conversion and whether nurses could play a more active role; implementing strategies aimed at reducing cannulation-related complications, changing the Canadian CVC culture to promote AV access for all suitable patients, randomized control studies to assess the effectiveness of the fable and other written materials geared to patients who start dialysis acutely and prevalent catheter-dependent patients, and examining teaching methods such as videos and support groups.

## Conclusion

Conversion of catheter-dependent patients to alternate forms of vascular access is challenging. Our three-step multidisciplinary approach proved to be a successful strategy in converting medically suitable prevalent catheter-dependent patients to an AV access. As a result of our conversion strategy, 41.5% of patients who previously relied on a CVC as a long-term vascular access have successfully converted to AV access.

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## Appendix A. (Step 1)

### Patient perspective on reason for catheter use



#### Why do you have a central venous catheter (CVC, or neck line)? Patient's version

Patient name \_\_\_\_\_

H# \_\_\_\_\_

Date catheter inserted \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Information collected by (circle):

Vascular Access Coordinator or

Other \_\_\_\_\_

- (A) \_\_\_\_ I am a new patient (< 90 days) awaiting placement of my fistula/graft.
- (B) \_\_\_\_ I am a new patient (< 90 days) awaiting maturation/healing of my fistula or graft.
- (C) \_\_\_\_ I have been on hemodialysis for > 90 days, and my fistula/graft failed, now I am waiting for a new date for surgery to create a new one.
- (D) \_\_\_\_ I have been on hemodialysis for > 90 days and my fistula/graft failed. I have had another surgery and I am waiting for it to mature.
- (E) \_\_\_\_ My heart is too weak to tolerate it.
- (F) \_\_\_\_ I have severe circulation problems which makes it impossible to create a fistula/graft.
- (G) \_\_\_\_ None of my possible graft/fistula access sites remain open.
- (H) \_\_\_\_ I am awaiting a living donor transplant.
- (I) \_\_\_\_ I am a peritoneal dialysis patient requiring only a short-term course of hemodialysis therapy.
- (J) \_\_\_\_ I had a severe steal syndrome that prevents graft/fistula placement or use.
- (K) \_\_\_\_ The CVC is my preferred choice of access.
- (L) \_\_\_\_ I am unsure what is best and am trying to decide if I should have a fistula or graft created.
- (M) \_\_\_\_ There are other reasons. Please state what the reason is:

Thank you for letting us know.

## Appendix B. (Step 1) Checklist with indications for catheter use based on medical history



#### Checklist of indications for hemodialysis catheter use

Patient name \_\_\_\_\_

Date catheter inserted \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Dates reviewed \_\_\_\_ / \_\_\_\_ / \_\_\_\_

\_\_\_\_ / \_\_\_\_ / \_\_\_\_

\_\_\_\_ / \_\_\_\_ / \_\_\_\_

Information collected by:

Vascular Access Coordinator \_\_\_\_\_

or Research Coordinator \_\_\_\_\_

Date (dd/mm/yy) \_\_\_\_ / \_\_\_\_ / \_\_\_\_

#### Please place a check mark in the appropriate boxes:

- ☐ New patient (< 90 days) awaiting placement of fistula/graft. (Scheduled date for permanent access placement: \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ New patient (< 90 days) awaiting maturation/healing of fistula/graft. (Date access placed \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Established patient (> 90 days) with failed fistula/graft. New fistula/graft planned. (Scheduled date for access placement \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Established patient (> 90 days) awaiting maturation/healing of new access. (Date access placed \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Unable to tolerate increased cardiac output induced by a fistula/graft due to cardiac condition (i.e., severe coronary artery disease) or congestive heart failure.
- ☐ Severe peripheral vascular disease precludes fistula/graft placement.
- ☐ All possible graft/fistula access sites exhausted and unable to do peritoneal dialysis.
- ☐ Awaiting a living donor transplant. (If an extended pre-transplant waiting period is anticipated (> 6 months) placement of a permanent access should be considered)
- ☐ Peritoneal dialysis patient requiring a short-term course of hemodialysis therapy. (Date of planned return to peritoneal dialysis \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Severe vasculitis precludes graft/fistula placement or use until (if) condition improves.
- ☐ Dermatologic condition involving extremities precludes graft/fistula placement or use (i.e., scleroderma, calciphylaxis, etc.)
- ☐ Severe steal syndrome precludes graft/fistula placement or use (if intervention planned, indicate date): (Date of planned intervention \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Other: (Date of planned intervention \_\_\_\_/\_\_\_\_/\_\_\_\_)
- ☐ Patient choice. State the reason:



Appendix C. Fable (Step 2) One-page information sheet listing the risks of long-term catheter use with a photo of an Emperor with central venous catheter

## The Emperor's New CVC

- Nursery rhymes are nice for young children. But, as we grow up, we know that they are just stories. One famous nursery rhyme is the *Emperor's New Clothes*. The emperor is sure that he is wearing a fashionable outfit, but the crowd can see that he is naked. The story reminds us about a modern hemodialysis fable—the fable belief that catheters are better. Your catheter is the emperor's new clothes.
- Your dialysis team understands how patients may “fall in love” with their catheters. They see that they are attached to the dialysis machine quickly and painlessly, and don't have the large bumps on their arm that patients with fistulas have.
- However, there are many disadvantages to using catheters, which makes them the worst type of long-term dialysis access. Catheters can clot or get infected, and may not deliver good enough blood flows for dialysis. Also, it is clearly shown in the research that patients who use catheters have more hospital admissions and do not live as long as patients with fistulas or grafts.
- The dialysis team is committed to meeting your needs. For all of these reasons, we are asking that you find out if you can have a fistula or graft so that your catheter can be removed as soon as possible.
- Kidney failure is a serious disease that can reduce life expectancy. Why add to your risk?



Appendix D. Waiver (Step 3) Suitable patients who refused conversion were asked to sign a waiver indicating that their decision to remain with a central venous catheter was against medical advice



Nephrology Program

### Waiver Concerning Central Venous Catheters

Date \_\_\_\_\_

I \_\_\_\_\_ am currently dialyzing through a CVC (central venous catheter, or catheter tube in my neck).  
(Name of patient)  
The dialysis team at Humber River Regional Hospital advises me that I might be a candidate for a fistula or graft. It has been explained to me that a CVC (central venous catheter) is the worst kind of vascular access for hemodialysis. Its use is associated with flow problems, clots, infection and frequent hospitalizations. The use of CVC (central venous catheter) is linked to reduced life expectancy in hemodialysis patients. The Canadian Society of Nephrology 2006 Hemodialysis Guidelines state that the fistula is the best access, and the CVC (central venous catheter) is the worst. I acknowledge that the Humber River Regional Hospital's dialysis team has advised me to have a different dialysis access and has explained to me the risk of continuing with a CVC (central venous catheter). It is my choice to continue to use my CVC (central venous catheter). I understand that this choice is against medical advice.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

# Treatment of neuropathic pain in patients with chronic kidney disease

By Heather K. Naylor, BScPharm, ACPR, and Colette B. Raymond, PharmD, MSc, ACPR

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## Objectives

After reading this article, the reader will be able to:

- Describe symptoms of neuropathic pain (NP)
- Describe common etiologies of NP in chronic kidney disease
- Understand the primary goal in treatment of NP is to make pain “bearable” or “tolerable”, rather than total elimination of pain
- Compare and contrast currently available pharmacologic agents to treat NP.

## Introduction

Neuropathic pain (NP) is a chronic pain syndrome affecting the sensory peripheral afferent or central nerve fibres, or both (Baron, Binder & Wasner, 2010; Namaka et al., 2009). NP may be caused by damage to nerve fibres from drugs, diseases or injuries (Namaka et al., 2009). For patients with chronic kidney disease (CKD), NP is the most common neurological complaint (Krishnan, Pussell & Kiernan, 2009). Left untreated, NP can cause severe pain, impair function, and decrease quality of life (Haanpää et al., 2009). The purpose of this article is to review the management of neuropathic pain with a focus on patients with CKD.

## Diagnosis

Diagnosis of NP is based primarily on patient history and physical examination. Presence of pain that is caused or initiated by a primary nerve lesion or nervous system dysfunction is essential for diagnosis of NP, according to the International Association for the Study of Pain (Moulin, et al., 2007). The signs and symptoms of NP are listed in Table 1. Simple questionnaires such as the S-LANNS (Bennett, Smith, Torrance, & Potter, 2005) and the physician administered Douleur Neuropathique 4 Questions (DN4) (see Figure 1) (Bouhassira et al., 2005)

*Heather K. Naylor, BScPharm, ACPR, Pharmacist—Manitoba Renal Program, Winnipeg Regional Health Authority, Winnipeg, MB.*

*Colette B. Raymond, PharmD, MSc, ACPR, Clinical Pharmacist—Manitoba Renal Program, Winnipeg Regional Health Authority, Winnipeg, MB.*

**Address correspondence to:** Heather Naylor, BScPharm, Department of Pharmaceutical Services, Seven Oaks General Hospital, 2300 McPhillips Street, Winnipeg, MB R2V 3M3. Email: [hnaylor@sogh.mb.ca](mailto:hnaylor@sogh.mb.ca)

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have been found to be valid and reliable for differentiating NP from other types of pain (Namaka et al., 2009). These questionnaires have been developed to classify neuropathic pain based on qualitative patient-reported pain descriptors (Baron, Binder & Wasner, 2010). However, these questionnaires have not been validated for use in the CKD and dialysis patient populations.

## Pathophysiology and associated medical conditions

Neuropathic pain is the result of a primary nerve lesion or nervous system dysfunction; many conditions can be associated with NP syndromes (Dworkin et al., 2010). Types of NP syndromes are diverse and may be divided into peripheral and central neuropathic pain syndromes based on the nerves affected (see Table 2, page 35). Common causes of NP in CKD patients are diabetic neuropathy and uremic neuropathy (Krishnan, Pussell & Kiernan, 2009). The pathophysiology of diabetic neuropathy is unclear. However, it is felt that high blood glucose levels could contribute to dysfunction in the peripheral nervous system via alteration of nerve cell metabolism (Donnan & Ledger, 2006). Uremia can contribute to dysfunction of the nervous system and subsequent NP. Peripheral neuropathy secondary to uremia typically develops only in advanced renal

**Table 1. Signs and symptoms of neuropathic pain**

### Pain descriptors

- Hot, burning, sharp, stabbing, cold, tingling, itching, numbness, “pins and needles”
- Shooting or radiating pain

### Temporal variation

- Pain often worse toward the end of the day

### Physical examination

- Motor weakness around involved nerves
- Diminished or absence of deep tendon reflexes around involved nerves
- Inability to feel temperature, pressure or pain
- Inability to control heart rate or digestion (seen in diabetic neuropathy)
- Allodynia (increased pain in response to a normally non-painful stimuli, such as clothing rubbing against the skin)
- Hyperalgesia (increased pain in response to a normally painful stimulus)

**Note:** From Baron, Binder, and Wasner, 2010; Gilron, Watson, Cahill, and Moulin, 2006; Moulin et al., 2007.

failure. It is hypothesized that high blood urea levels act as neurotoxins and cause demyelination and axonal degeneration of peripheral nerves (Palmer & Henrich, 2010). Other factors such as thiamine deficiency, hyperparathyroidism, and reduced plasma concentrations of biotin and zinc may contribute to development of uremic neuropathy (Palmer & Henrich, 2010). Peripheral neuropathy in patients with CKD can manifest as paraesthesias, weakness, muscle wasting, reduced or absent tendon reflexes or impaired sense of vibration. Neuropathy can also manifest as NP (Pop-Busui et al., 2010).

## Epidemiology

NP occurs commonly among patients with CKD and receiving dialysis. It is estimated that 70% to 100% of dialysis patients will experience neuropathic symptoms despite reaching current targets for dialysis adequacy (Krishnan, Pussell & Kiernan, 2009). The incidence of uremic neuropathy appears to be less in patients with CKD not receiving dialysis. Typically,

uremic neuropathy of clinical significance is not seen until the glomerular filtration rate drops below 12 mL/min (Krishnan, Pussell & Kiernan, 2009). Patients with CKD and diabetes are at a greater risk for developing NP. Diabetes is by far the most common causes of peripheral neuropathy. Greater than 40% of patients with diabetes will develop peripheral neuropathy within 10 years of disease onset (Donnan & Ledger, 2006).

## Treatment of NP

NP is often a chronic condition that is difficult to treat. The primary goal for most patients is to make their pain “bearable” or “tolerable”, rather than total elimination of pain. Secondary treatment goals include improving sleep, ability to function and overall quality of life (Moulin et al., 2007). Because of the chronic course of NP, it is important to recognize and treat common comorbidities such as anxiety and depression in NP patients.

Comparing different treatments for NP is difficult due to a lack of head-to-head trials. Therefore, one accepted approach is using the Number Needed to Treat (NNT) to estimate relative efficacy of individual treatments for NP. In this context, NNT is defined as the number of patients needed to receive a certain treatment in order to obtain one patient with at least 50% pain relief, based on a study or group of studies (Moulin et al., 2007). For example, if a particular medication had an NNT of three, that would mean that three patients would need to take that medication in order for one patient to have a 50% reduction in NP. Of note, most randomized controlled trials have involved patients with diabetic neuropathy or post-herpetic neuralgia. Therefore, the extent to which results may be extrapolated to other NP conditions, or to patients with CKD or receiving dialysis is limited.

## Non-pharmacologic

Evidence for non-pharmacologic treatments for NP is limited. Some reports suggest that non-pharmacological treatments such as exercise, transcutaneous nerve stimulation, and cognitive behavioural therapy may offer modest benefit in NP. However, due to a lack of randomized controlled trial evidence, these treatments are not considered first-line (Gilron, Watson, Cahill, & Moulin, 2006).

*continued on page 37...*

**Figure 1. Douleur Neuropathique 4 Questions (DN4)**

To estimate the probability of neuropathic pain, please answer yes or no for each item of the following questions:

### INTERVIEW OF THE PATIENT

**Question 1: Does the pain have one or more of the following characteristics?**

1. Burning
2. Painful cold
3. Electric shocks

**Question 2: Is the pain associated with one or more of the following symptoms in the same area?**

4. Tingling
5. Pins and needles
6. Numbness
7. Itching

### EXAMINATION OF THE PATIENT

**Question 3: Is the pain located in an area where the physical examination may reveal one or more of the following characteristics?**

8. Hypoesthesia (reduced sense) to touch
9. Hypoesthesia (reduced sense) to pinprick

**Question 4: In the painful area, can the pain be caused or increased by:**

10. Brushing

\* Each “Yes” is 1 point. Each “No” is 0 points. A total score of  $\geq 4$  is considered a positive test for neuropathic pain. The highest possible score is 10

*Note. Original source: Bouhassira, D., Attal, N., Alchaar, H., Boureau, F., et al. (2005). Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). PAIN, 114(1), 29–36 (page 36, Appendix B). This questionnaire has been reproduced with permission of the International Association for the Study of Pain® (IASP®).*

**Table 2. Neuropathic Pain Syndromes**

### Peripheral Neuropathic Pain Syndromes

- Diabetic neuropathy
- Complex regional pain syndrome
- Post-herpetic neuralgia
- Chemotherapy-induced neuropathy
- Phantom limb pain
- Trigeminal neuralgia
- Uremic neuropathy

### Central Neuropathic Pain Syndromes

- Central post-stroke pain
- Multiple sclerosis pain
- Parkinson’s disease pain
- Spinal cord injury pain

*Note. From Dworkin, A. (2002). An overview of neuropathic pain: Syndromes, symptoms, signs, and several mechanisms. The Clinical Journal of Pain, 18, 344.*



Table 3. Pharmacotherapy for neuropathic pain in chronic kidney disease			
Drug (Brand Name)	Dosage for CKD	Advantages	Disadvantages
<b>Tricyclic antidepressants</b>			
Amitriptyline ( <i>Elavil</i> ®) Nortriptyline ( <i>Pamelor</i> ®) Desipramine ( <i>Norpramin</i> ®)	10 to 150 mg daily 25 to 150 mg daily 25 to 100 mg daily	<ul style="list-style-type: none"> <li>• Improvement of depression and sleep disturbance</li> <li>• Less expensive than newer agents</li> <li>• Convenience of once daily dosing</li> <li>• Dose adjustment not required in chronic kidney disease</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: sedation, anticholinergic effects (e.g., confusion, dry mouth, urinary retention, constipation, blurred vision), weight gain, orthostatic hypotension, potential for arrhythmia</li> <li>• Contraindicated in patients with significant cardiovascular disease, glaucoma, symptomatic prostatic hypertrophy</li> <li>• Requires slow dose titration (6–8 weeks) to minimize adverse effects</li> <li>• Daytime sedation may increase fall risk for elderly</li> <li>• Risk of serotonin syndrome when taken with other antidepressants</li> </ul>
<b>Anticonvulsants</b>			
Pregabalin ( <i>Lyrica</i> ®)	25 to 75 mg daily (dosed post-dialysis)	<ul style="list-style-type: none"> <li>• Rapid dose titration schedule (3 weeks)</li> <li>• May have fewer adverse effects than gabapentin</li> <li>• No clinically significant drug interactions</li> <li>• Convenience of once-daily dosing</li> <li>• Rapid dose titration over 3 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: sedation, dizziness, peripheral edema, weight gain</li> <li>• Not an insured benefit under many drug insurance plans</li> <li>• May cause exacerbation of heart failure</li> </ul>
Gabapentin ( <i>Neurontin</i> ®)	100 to 300 mg daily (dosed post-dialysis)	<ul style="list-style-type: none"> <li>• Improvement of sleep disturbances</li> <li>• No clinically significant drug interactions</li> <li>• Less expensive than pregabalin</li> <li>• Convenience of once-daily dosing</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: sedation, dizziness, peripheral edema, weight gain, visual blurring</li> <li>• Slow titration schedule required to reach effective dose (8–12 weeks)</li> </ul>
Carbamazepine ( <i>Tegretol</i> ®)	200 to 600 mg daily in two divided doses	<ul style="list-style-type: none"> <li>• Dose adjustment not required in chronic kidney disease</li> <li>• Improvement of sleep disturbances</li> <li>• Less expensive than newer medications</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: sedation, dizziness, constipation, nausea, ataxia, blood dyscrasias, hepatotoxicity.</li> <li>• Monitoring of blood counts and liver function tests required.</li> <li>• May cause serious dermatologic reactions including Stevens-Johnson syndrome.</li> <li>• Drug interactions</li> </ul>
<b>Serotonin Norepinephrine Reuptake Inhibitors (antidepressants)</b>			
Venlafaxine ( <i>Effexor</i> ®) Duloxetine ( <i>Cymbalta</i> ®)	37.5 mg to 150 mg daily (dosed post-dialysis) Not recommended for patients on dialysis	<ul style="list-style-type: none"> <li>• Improvement of depression</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: nausea, dry mouth, elevated blood pressure (greater risk with higher doses), constipation, hyperhidrosis</li> <li>• Withdrawal syndrome with abrupt discontinuation</li> <li>• Risk of serotonin syndrome when taken with other antidepressants</li> </ul>
<b>Opioid Analgesics</b>			
Tramadol ( <i>Ultram</i> ®)	50–200 mg daily in divided doses (immediate release formulations only)	<ul style="list-style-type: none"> <li>• Rapid onset of analgesic effect</li> <li>• May have less constipation and nausea than weak opioid agonists such as codeine</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: nausea, vomiting, constipation, dizziness, sedation, may lower seizure threshold</li> <li>• Risk of serotonin syndrome when taken with antidepressants</li> <li>• More expensive than weak opioid analgesics</li> </ul>
Opioids (morphine, oxycodone, codeine, methadone, etc.)	Varies by medication. Use lower doses of oxycodone in chronic kidney disease	<ul style="list-style-type: none"> <li>• Rapid onset of analgesic effect</li> <li>• Option to convert to long-acting dosage forms from short-acting dosage forms</li> <li>• May be used in combination with first-line agents</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: nausea, vomiting, constipation, dizziness, sedation, urinary retention</li> <li>• Use with caution in patients with a history of substance abuse</li> <li>• Not an insured benefit under many drug insurance plans</li> </ul>
<b>Topical Anaesthetics</b>			
Lidocaine ( <i>Xylocaine</i> ®)	5–10% topical cream or gel up to three times per day	<ul style="list-style-type: none"> <li>• No systemic side effects</li> <li>• May be used in combination with oral agents</li> <li>• No significant drug interactions</li> </ul>	<ul style="list-style-type: none"> <li>• Adverse effects: local erythema, rash</li> </ul>
<p><b>Note:</b> From Baron, Binder and Wasner, 2010; Dworkin et al., 2010; Moulin et al., 2007; Namaka et al., 2009; Pop-Busui et al., 2010; Product monograph duloxetine; Product monograph pregabalin; Product monograph venlafaxine; Product monograph gabapentin</p>			

## Pharmacotherapy

Studies that evaluate the treatment of NP in patients with CKD and receiving dialysis are extremely limited in quantity and quality (Pop-Busui et al., 2010), so treatment recommendations for this patient population are based on extrapolation from studies that evaluate therapies to treat NP in the general population. Medications commonly used to treat NP are presented in Table 3.

### First-line treatment

First-line therapy for NP includes certain medications from two drug classes: antidepressants and anticonvulsants.

#### *Tricyclic antidepressants (TCAs)*

TCAs have the best evidence for efficacy for the treatment of NP (Moulin et al., 2007). This class of medications is thought to exhibit an analgesic effect through blockade of N-methyl-D-aspartate agonist-induced hyperalgesia. Antagonist effects on noradrenaline and serotonin reuptake and sodium channels may also play a role. The estimated NNT for TCAs from existing literature is 2.5. The NNT does not differ between TCAs with balanced reuptake inhibition of serotonin and noradrenaline (amitriptyline) and those relatively selective for noradrenaline reuptake inhibition (desipramine, nortriptyline). Efficacy is maintained across various etiologies of NP (e.g., diabetic neuropathy, herpes zoster, stroke, etc.) (Namaka et al., 2009).

Use of TCAs is limited by their anticholinergic effects, such as constipation, urinary retention, blurred vision, delirium, dry mouth and sedation. TCAs are contraindicated in patients with cardiac disease, closed-angle glaucoma, and seizure disorders due to their anticholinergic effects (Baron, Binder, & Wasner, 2010). Desipramine and nortriptyline appear to be better tolerated in the elderly due to fewer anticholinergic effects. Should a TCA be selected, it is recommended to start with a low dose and titrate slowly. Patients with CKD and receiving dialysis should be counselled about side effects of TCAs, especially dry mouth and orthostatic hypotension. Dialysis patients are fluid-restricted, and dry mouth may increase their desire to drink (Donnan & Ledger, 2006). Alternative remedies for relief of dry mouth include saline spray or sucking on hard candies or ice cubes. TCAs should be dosed at bedtime to avoid daytime drowsiness.

#### *Anticonvulsants*

Gabapentin mediates analgesic effects through blockade of voltage-dependent calcium channels in the dorsal-horn neurons (Namaka et al., 2009; Moulin et al., 2007). This blockade of voltage-dependent calcium channels down-regulates release of excitatory neurotransmitters, such as glutamate and Substance P, and therefore decreases NP symptoms. Compared to placebo, the estimated NNT for gabapentin is 4, while the NNT for pregabalin is 4.2 (Moulin et al., 2007).

Pregabalin is the only anticonvulsant that has Health Canada approval for treatment of NP (Namaka et al., 2009). Pregabalin and gabapentin exhibit similar mechanisms of action at voltage-dependent calcium channels. However, the affinity of pregabalin for voltage-dependent calcium channels is seven times that of gabapentin. This allows lower doses of pregabalin to deliver similar analgesic effects as higher doses of gabapentin (Namaka et al., 2009).

Both gabapentin and pregabalin require dose adjustment in patients with renal impairment, and slow dose titration in order to avoid adverse effects (see Table 3). For patients with CKD and receiving dialysis, these medications are removed by hemodialysis and should be given post dialysis (Product monograph, gabapentin; Product monograph, pregabalin).

Carbamazepine is the drug of choice for trigeminal neuralgia, but is not recommended as first-line management for other types of NP due to significant adverse effects such as hepatotoxicity and blood dyscrasias (Moulin et al., 2007; Gilron, Watson, Cahill, & Moulin, 2006).

### Second-line treatment

Venlafaxine is a serotonin norepinephrine reuptake inhibitor antidepressant that does not appear to be as effective as TCAs for NP. Current literature suggests that the NNT for venlafaxine when used for treatment of NP is 4.6, versus 2.5 with TCAs (Moulin et al., 2007). Venlafaxine has shown efficacy for NP at doses of 150 mg to 225 mg per day in the normal population (Moulin et al., 2007). In patients with CKD receiving hemodialysis, the dose of venlafaxine should be reduced and given post dialysis (Product Monograph: venlafaxine). Because venlafaxine has less affinity for histaminic, muscarinic, and adrenergic receptors than TCAs, patients experience fewer adverse effects with venlafaxine (Namaka et al., 2009). The favourable side effect profile of venlafaxine may warrant its use over TCAs.

Duloxetine is another serotonin norepinephrine reuptake inhibitor antidepressant, and has been approved for the treatment of NP secondary to diabetic neuropathy (Product Monograph: duloxetine). However, because duloxetine has not been studied in patients with CKD receiving hemodialysis, use in this patient population is not recommended due to lack of safety data (Product Monograph: duloxetine).

Topical lidocaine 5% gel or cream is useful alone or in combination with oral medications for localized NP. The NNT for topical lidocaine is 4 (Moulin et al., 2007). Relief of NP with topical lidocaine is attributed to blockade of neuronal sodium channels by lidocaine. Topical lidocaine is attractive because it provides relief of NP for up to eight hours and has minimal systemic side effects (Moulin et al., 2007). As lidocaine patches are not available in Canada, a topical gel or cream is used.

### Third-line treatment

Opioids may be considered for NP symptoms after other treatments have been tried. A recent systematic review found that controlled-release morphine and controlled-release oxycodone demonstrated a 20% to 30% reduction in pain intensity for NP. The NNT for morphine and oxycodone is 2.5 (Moulin et al., 2007). Opioids may be used as monotherapy or in combination with first or second-line treatments for NP. Opioids should be started at a low dose and titrated upward, as needed. Instant release formulations of opioids should be used first. When an effective dose for control of NP is reached, the patient may be switched to an equivalent dose of a continuous-release opioid formulation. The opioid analgesics morphine and oxycodone do not need to be dose adjusted in CKD patients receiving hemodialysis (Product Monograph: morphine, Product Monograph: oxycodone). Patients and health professionals should be aware of a potential for abuse and/or dependence with the use of opioids for NP.

Tramadol is a “non-opioid agonist.” In addition to its non-selective serotonin and norepinephrine reuptake inhibitor actions, tramadol acts as a weak agonist at the mu opioid receptor via an active metabolite (Donnan & Ledger, 2006; Product monograph, tramadol). In clinical trials, the NNT for tramadol is 3.8 (Moulin et al., 2007). Tramadol is available in a combination product with acetaminophen 325mg and tramadol 37.5 mg. Patients taking the combination product should be counselled on using caution when taking other products that contain acetaminophen. The maximum dose of 4 g of acetaminophen per day should not be exceeded (Donnan & Ledger, 2006). Taking tramadol with other medications that increase serotonin levels, such as antidepressants, will increase the patient’s risk of serotonin syndrome (Donnan & Ledger, 2006). Tramadol should, therefore, not be used in combination with selective serotonin reuptake inhibitors (for example, citalopram) or other antidepressants such as venlafaxine when used for the treatment of NP. Tramadol requires a dose reduction for patients with CKD or receiving dialysis (Product Monograph: tramadol).

### Implications for practice

The treatment of NP requires patience, time and patient education within a multidisciplinary team environment. For patients with CKD and receiving dialysis, the frequent con-

tact with health care professionals can provide regular opportunities to assess pain and response to therapy. In order to evaluate the efficacy of any medication for NP, health professionals can ask about pain intensity before and after the medication is started. Instruments that can be used include a visual analogue scale (where a patient marks on a 10 cm line where their pain rating is) or a numeric scale that ranges from “no pain” to “the worst possible pain” (Namaka et al., 2009, Pop-Busui et al., 2010). Assessment for efficacy should occur generally approximately every six to eight weeks (Namaka et al., 2009). It is also important to titrate many medications for NP slowly, especially in patients with CKD and receiving dialysis in order to avoid adverse effects, such as dizziness and drowsiness. Medications should be added in sequence (first-line therapies, followed by second, then third line) with adequate time for evaluation for efficacy and toxicity (Moulin et al., 2007).

Patient education is also very important to the treatment of NP. Patients need to be aware that NP is a chronic condition that is not “cured”, rather it is reduced to a more tolerable level. Often, multiple medications or combinations of medications may be tried before achieving a reduction in pain (Namaka et al., 2009). As NP is chronic, it is likely that patients will continue to take medications, even if pain is reduced to a manageable level.

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- Product Monograph: tramadol. (2010). Greenwood village CO: Thomson Reuters Healthcare Series 2.0 (Micromedex)



## Treatment of neuropathic pain in patients with chronic kidney disease

By Heather K. Naylor, BScPharm, ACPR, and Colette B. Raymond, PharmD, MSc, ACPR

### 1. Clinical manifestations of neuropathic pain include:

- (a) shooting or radiating pain, decreased response to a normally painful stimulus, inability to feel temperature or pressure
- (b) shooting or radiating pain, increased response to a normally painful stimulus, pain often worse in the morning
- (c) shooting or radiating pain, decreased response to a normally painful stimulus, urge to move the legs
- (d) shooting or radiating pain, increased response to a normally painful stimulus, motor weakness around involved nerves

### 2. Which of the following is a common etiology of neuropathic pain in patients with chronic kidney disease?

- (a) sympathetic pain
- (b) diabetic neuropathy
- (c) post-herpetic neuralgia
- (d) phantom limb pain

3. Mr. N.S., 64 years old, is on chronic hemodialysis. He has diabetes mellitus type 2 and hypertension. Mr. N.S. presents to his dialysis unit today complaining of pain he describes as burning or shock-like and radiating up his lower extremities. He reports his feet and calves also feel numb or itchy at times. On physical exam, Mr. N.S.'s pain is increased by brushing against his foot. Which of the following statements is correct?

- (a) Mr. N.S. is considered to have a positive test for neuropathic pain based on the Douleur Neuropathique 4 Questions (DN4)
- (b) Mr. N.S. is considered to have a negative test for neuropathic pain based on the Douleur Neuropathique 4 Questions (DN4)
- (c) Mr. N.S. is at an increased risk of developing neuropathy secondary to his hypertension
- (d) physical exam is not required to diagnose neuropathic pain

4. Mrs. S.P., 70 years old, is on chronic hemodialysis. She also has hyperlipidemia, coronary artery disease with three-vessel coronary artery bypass graft (CABG), and a history of chronic

depression for which she is currently taking venlafaxine XR (Effexor®) 150 mg PO daily. Mrs. S.P. was recently diagnosed with neuropathic pain. Venlafaxine alone has not been effective for reducing her pain. Which of the following is an appropriate add-on therapy for Mrs. S.P.:

- (a) gabapentin (Neurontin®), given pre-dialysis
- (b) pregabalin (Lyrica®), dose-adjusted for chronic kidney disease
- (c) amitriptyline (Elavil®), a tricyclic antidepressant
- (d) morphine controlled-release capsules (MS CONTIN®) given every six hours

### 5. The following is an advantage to using venlafaxine (Effexor®) for neuropathic pain in chronic kidney disease:

- (a) less expensive than tricyclic antidepressants
- (b) fewer adverse effects than tricyclic antidepressants due to less affinity for histaminic, muscarinic, and adrenergic receptors
- (c) convenience of twice-daily dosing
- (d) improves sleep disturbances

6. Mr. H.P., 48 years old, is on chronic hemodialysis and was recently diagnosed with neuropathic pain secondary to diabetic neuropathy. First-line medication options for Mr. H.P. include:

- (a) amitriptyline (Elavil®), gabapentin (Neurontin®), morphine
- (b) pregabalin (Lyrica®), desipramine (Norpramin®), venlafaxine (Effexor®)
- (c) amitriptyline (Elavil®), gabapentin (Neurontin®), pregabalin (Lyrica®)
- (d) tramadol (Tridural®), gabapentin (Neurontin®), carbamazepine (Tegretol®)

### 7. Amitriptyline (Elavil®) is selected for Mr. H.P. He should be aware of the following adverse effects:

- (a) anticholinergic effects (e.g., confusion, dry mouth, urinary retention, constipation, blurred vision), weight gain, orthostatic hypotension, potential for arrhythmia
- (b) sedation, dizziness, peripheral edema, weight gain, exacerbation of

heart failure

(c) sedation, dizziness, constipation, nausea, ataxia, blood dyscrasias, hepatotoxicity

(d) nausea, dry mouth, elevated blood pressure, constipation, hyperhydrosis

8. Six months later, Mr. H.P. confesses that his neuropathic pain is no longer tolerable and is interfering with his daily activities. He has been taking a therapeutic dose of amitriptyline for the past two months. Mr. H.P. is open to trying opioid analgesics in addition to the antidepressant amitriptyline. Which of the following opioid analgesics is NOT an appropriate choice for Mr. H.P.:

- (a) tramadol
- (b) morphine
- (c) oxycodone
- (d) codeine

### 9. The true statement about the epidemiology of neuropathic pain is:

- (a) greater than 50% of patients with diabetes will develop peripheral neuropathy within 10 years of disease onset
- (b) greater than 40% of patients with diabetes will develop peripheral neuropathy within eight years of disease onset
- (c) it is estimated that 70% to 100% of dialysis patients will experience neuropathic symptoms despite reaching current targets for dialysis adequacy
- (d) it is estimated that 40% to 70% of dialysis patients will experience neuropathic symptoms despite reaching current targets for dialysis adequacy

### 10. Which of the following statements about pregabalin (Lyrica®) is correct?

- (a) pregabalin does not require dosage adjustment in hemodialysis patients
- (b) the affinity of pregabalin for voltage-dependent calcium channels is eight times that of gabapentin
- (c) pregabalin blocks voltage-dependent potassium channels
- (d) pregabalin is the only anticonvulsant that has Health Canada approval for treatment of neuropathic pain

CONTINUING EDUCATION STUDY  
ANSWER FORM

CE: 2.0 hrs continuing education

# Treatment of neuropathic pain in patients with chronic kidney disease

Volume 21, Number 1

By Heather K. Naylor, BScPharm, ACPR, and Colette B. Raymond, PharmD, MSc, ACPR

**Post-test instructions:**

- Select the best answer and circle the appropriate letter on the answer grid below.
- Complete the evaluation.
- Send only this answer form (or a photocopy) to:  
CANNT National Office,  
336 Yonge St., Ste. 322,  
Barrie, ON, L4N 4C8  
or submit online to [www.cannt.ca](http://www.cannt.ca)
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- a    b    c    d

**Evaluation**

	Strongly disagree			Strongly agree		
1. The offering met the stated objectives.	1	2	3	4	5	
2. The content was related to the objectives.	1	2	3	4	5	
3. This study format was effective for the content.	1	2	3	4	5	
4. Minutes required to read and complete:	50	75	100	125	150	

Comments: \_\_\_\_\_

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# Canadian Standards Association's new standard for home dialysis introduces consistent practices

By Cathryn Cortisoz, RN, BS

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When home dialysis was introduced in Canada more than 30 years ago, it gave many patients awaiting kidney transplants a new lease on life. For the first time, it moved their life-saving hemodialysis treatments out of a clinical setting and into the comfort of their own homes. They could also now opt for a slower, more comfortable pace and intensity of hemodialysis, which prevents leg cramping and the need for dietary restrictions (The National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK]). It has even allowed some patients to return to work. While not all renal patients choose home dialysis, it has become an increasingly important—and liberating—treatment option.

Until now, a variety of practices have been used in setting up home dialysis. The Canadian Association of Nephrology Nurses and Technologists (CANNT), for one, developed a set of technologists' standards (Canadian Association of Nephrology Nurses and Technologists, 2008), and many nephrology programs in hospitals and clinics have their own particular guidelines and processes. Manufacturers of home dialysis equipment may recommend still other procedures. While the basic set-up requirements are fundamentally similar among these organizations, the methodology varies, which can lead to inconsistent outcomes.

To set up a home dialysis system, some homes require very little work, while others may need major electrical and/or plumbing modifications. Some

may never be suitable for home dialysis. In addition to structural and space requirements for equipment and supplies, there are three major aspects of the home environment that must be carefully inspected before dialysis can be set up: water supply, plumbing and electricity. Ensuring there is a reliable source of potable water is likely the most challenging aspect of a home dialysis installation. But the electrical panel must also have the capacity to add the dialysis equipment.

Certain Canadian Standards Association (CSA) standards—such as Z364.2.2-03, *Water Quality Requirements for Hemodialysis*, which states, “Feed water entering water treatment equipment shall comply with federal and provincial guidelines governing drinking water”—address aspects of dialysis, whether in a clinical or home situation.

Most of the time home dialysis takes place safely. Yet, as the number of Canadians needing renal replacement continues to grow, so, too, does front-line workers' anxiety over the inconsistent requirements and procedures in place. These workers—whether responsible for home assessments, set-up, or monitoring—flagged the need for a single standard that captures all aspects of set-up in the home environment, eliminates inconsistencies and identifies proven best practices.

In response to the concerns expressed by nephrology nurses and technologists, among others, the CSA took action nearly two years ago to fill the void with a

new and complete standard. That action has resulted in *CSA Z364.5-10, Safe Installation and Operation of Hemodialysis and Peritoneal Dialysis in a Home Setting* (Canadian Standards Association, 2010), published in November 2010. The new Canadian standard was developed using the CSA's rigorous consensus process and, as its name suggests, addresses the home environment; it does not deal with clinical practice. The standard deals with “what” should be considered in setting up a home dialysis system rather than “how” to do so, although there are informative appendices offering examples of various approaches.

The specific areas the standard covers are:

- Quality management
- Home assessment
- Physical space requirements
- Plumbing requirements
- Water requirements
- Electrical requirements
- Supply storage and waste management
- Emergency preparedness
- Client and caregiver training, and
- Documentation and records.

CSA looked to the CANNT's standards for inspiration, along with current professional practice. *CSA Z364.5* also references other standards and gleans best practices from the literature. With the CSA acting as secretariat during development, the CSA Technical Committee on Kidney Dialysis developed the technical content in consultation with stakeholders and leading-edge organizations. CSA committee members follow a long-standing process for developing standards, which guides them through the various stages of development, and helps them determine what the standard should include. The Standards Council of Canada, in turn, ensures that CSA is adhering to this process.

Department Editor: Eleanor Ravenscroft, RN, PhD, CNeph(C)

Cathryn Cortisoz, RN, BS, is Project Manager, CSA Standards, Mississauga, ON.

Address correspondence to: Cathryn Cortisoz, Project Manager, CSA Standards, 5060 Spectrum Way, Mississauga, ON L4W 5N6. Tel. 416.747.2594; Fax: 416.401.6592; Email: [cathryn.cortisoz@csa.ca](mailto:cathryn.cortisoz@csa.ca); Website: [www.csa.ca](http://www.csa.ca)



CSA also has a specific formula that prevents any one stakeholder group from dominating the committee. The five groups that made up the 26-member technical committee were industry (i.e., producers of kidney dialysis equipment); government (both federal and provincial); user management (dialysis providers, such as clinics and hospitals); user labour (nurses and technicians); and general interest (teachers, consultants, nurses, technologists, patients/consumers). Development of CSA Z364.5 was financed by the CSA's Health Care Group and industry partners. There was no influence over development of the standard.

Towards the end of the development process the draft standard was available over two months for public review by anyone who wished to comment. The CSA takes all feedback into consideration. The revised draft was then voted on by the technical committee.

As with any new standard, use of CSA Z364.5 (Canadian Standards Association, 2010) will be voluntary until it is made mandatory through an organization's policy or referenced in law. It will also be available in both English and French. Its provisions are designed to provide a comprehensive, integrated and consistent management framework to ensure that a completed home dialysis set-up and its

major systems meet the necessary technical and operation requirements.

The long-term benefits of using CSA Z364.5 (Canadian Standards Association, 2010) include:

#### **Hospital/dialysis centres:**

- Improved ability to meet established budgets
- Supports compliance with applicable standards
- More orderly transition of equipment ownership from hospital/dialysis centre to patient/client
- Higher quality of installation
- Less time required for installers to finalize a project
- Reduced or eliminated callbacks during post-installation period
- Reduced amount of field service time required

#### **Home patients or clients:**

- Facilitates a better understanding of patient's or client's needs (e.g., functional and operational)
- Comprehensive training and documentation
- Reduced risk of home dialysis failure/shutdown

#### **Manufacturers/suppliers:**

- Provides manufacturers and suppliers with guidance on requirements for home use

- Facilitates innovation
- Provides a level playing field.

In short, the benefits to home dialysis clients are many: from greater flexibility and convenience, more time with family, a greater sense of independence and control, and fewer transportation issues to fewer hospital admissions and mounting evidence of improvements in long-term clinical outcomes. And, now, those who help make home dialysis happen for these clients can rest assured that, with the new Canadian standard, they will be working in the most consistent and effective manner possible.

## **References**

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- 2) email: [cannt@cannt.ca](mailto:cannt@cannt.ca)
- 3) Fax: 705-720-1451
- 4) Mail: 336 Yonge Street, Suite 322, Barrie, ON L4N 4C8



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# CANNT Nominations

## *Call for nominations*

The nominations committee is calling for nominations for the position of:

President-Elect  
Vice-President Atlantic Region  
Vice-President Quebec Region  
Website Coordinator/Treasurer

Eligibility for office: Member in good standing.

### **General requirements:**

Each candidate must:

- ✓ Understand the responsibilities of each position.
- ✓ Must be willing to commit the required amount of time to fulfil the duties of office.
- ✓ Must be winning to work within parliamentary procedure which is used to ensure an efficient and fair voting procedure by self-governing organizations.
- ✓ Will submit a National Officer Candidate Information Form available online at [www.cannt.ca](http://www.cannt.ca) or from the National Office (see address below).

### **Position descriptions:**

1. **President-Elect:** Elected by membership for a period of one year after which he/she will become President, then Past-President. Assists the President in the overall administration of the Association while becoming familiar with the operation of CANNT in preparation to assume the presidency. The total commitment would be for a three year period.
2. **Regional Vice-President:** Elected by membership for a two-year period. Promotes and facilitates the goals and objectives of the Association throughout the region. The Vice-President represents his or her region's concerns and acts as a liaison between the Board of Directors and the membership.
3. **Website Coordinator/Treasurer:** Elected by membership for a period of two years. Monitors and controls the financial affairs of the Association. In conjunction with the President, provides financial reports to the Executive, Board Members and for the Annual General Meeting. Ensures the CANNT website is responsive to the needs of the membership.

**Deadline for nominations is May 15, 2011. Information on candidates will be available online after May 15, 2011 and voting will take place online.**

Please submit nominations to:

CANNT  
336 Yonge St., Ste 222  
Barrie, ON L4N 4C8  
Telephone: 705-720-2819  
Toll-free: 1-877-720-2819  
Fax: 705-720-1451  
Email: [cannt@cannt.ca](mailto:cannt@cannt.ca)



## **Nominating Form**

Position:

Name of Candidate:

Membership Number:

Nominated by\*:

1. Name:

2. Membership Number:

\*Nominations can only be made by current members.

I agree to let my name stand for office and if elected, I agree to serve my term of office.

Signature of candidate

Date: \_\_\_\_\_



## **Demande de mise en candidature**

Poste :

Nom du/de la candidat(e) :

Numéro de membre :

Proposé par\* :

1. Nom :

2. Numéro de membre :

\*Les mises en nomination ne peuvent être faites que par les membres en règle.

\*\*J'accepte la nomination du poste mentionné ci-haut. Si je suis élu(e), j'accepte d'assumer les responsabilités du poste dans son intégralité.

Signature du candidat  
ou de la candidate\*\*

Date : \_\_\_\_\_

# **Élection à l'ACITN**

## **Appel de mises en candidature**

Le Comité des candidatures lance un appel de mises en candidature pour les postes suivants :

Président(e) élu(e)

Vice-président(e) de l'Atlantique

Vice-président(e) du Québec

Coordonnateur(ice) du site Web/Trésorier(ière)

Critère d'admissibilité : Être membre en règle.

### **Exigences générales :**

Chaque candidat(e) doit :

- ✓ Comprendre les responsabilités associées au poste.
- ✓ S'engager à consacrer le temps nécessaire afin de s'acquitter des tâches inhérentes au poste.
- ✓ Suivre les règles et procédures parlementaires qui sont utilisées par les organismes indépendants afin d'assurer un processus de votation efficace et équitable.
- ✓ Remplir et soumettre un Formulaire de mise en candidature qui est accessible en ligne à [www.cannt.ca](http://www.cannt.ca) ou envoyer le Formulaire dûment rempli au Bureau national à l'adresse ci-dessous.

### **Descriptions des postes :**

1. **Président(e) élu(e)** : Élu(e) par les membres pour une période d'un an après quoi il/elle devient Président(e), puis Président(e) sortant(e). Aide le/la Président(e) dans l'administration générale de l'Association, tout en se familiarisant avec le déroulement des activités de l'ACITN dans le but d'assumer le rôle présidentiel.
2. **Vice-président(e) régional(e)** : Élu(e) par les membres pour une période de deux ans. Fait la promotion et facilite l'atteinte des buts et des objectifs de l'Association dans sa région respective. Représente les intérêts de la région et agit à titre de liaison entre le Conseil d'administration et les membres.
3. **Coordonnateur(ice) du site Web/Trésorier(ière)** : Élu(e) par les membres pour une période de deux ans. Accepte la responsabilité du contrôle financier de l'Association. En collaboration avec le/la Président(e), prépare et transmet les états financiers aux membres du Conseil d'administration et en fait la présentation lors de l'assemblée générale annuelle des membres. S'assure que le site Web répond aux besoins et aux attentes des membres.

**La date limite pour déposer les mises en candidature est le 15 mai 2011. Les informations concernant chaque candidat(e) seront accessibles en ligne après le 15 mai 2011 et le vote aura lieu en ligne.**

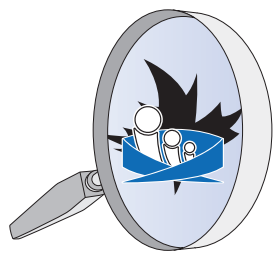
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*Profiling...*

## Meet the 2010 CANNT bursary, award and research grant winners

### Sponsored by Fresenius Medical Care

#### **Chantal Saumure, recipient of the Franca Tantalo Bursary (Graduate Level)**

*By Chantal Saumure, RN, BScN, MBA, Nurse Manager – Hemodialysis and Telenephrology Units, Nephrology Program, Dr. G.L. Dumont Regional Hospital, Moncton, New Brunswick*



First and foremost, I extend my sincere thanks to the bursary committee and to Fresenius Medical Care for their continued support of the CANNT Bursary Program.

I have the privilege to have been the Nurse Manager—Hemodialysis and Telenephrology Units in the Nephrology Program at the Dr. G.L. Dumont Regional Hospital in Moncton, New Brunswick, since 1998. My first CANNT experience happened in 1999 at the National CANNT symposium in Winnipeg, Manitoba. Rapidly and for 10 years, my involvement with CANNT

has been on many levels (the CANNT Journal, Board of Directors, Unit Liaison, Co-Chair CANNT National and Atlantic in Moncton, Program Committee in Quebec 2008). CANNT has always been a source of inspiration filled with networking opportunities on many levels.

Life, after 10 years of close relationships with CANNT, brought me back to university, as I completed a Health Administration Certificate (2009) and commenced my journey in 2008 as a surveyor for Accreditation Canada.

As health issues and health management are currently under tremendous pressure to ensure efficiency including quality compliance, with stretched resources, health managers need to be well equipped by possessing the appropriate tools and knowledge in order to continue

to strive for excellence in turbulent times. Nurses, specifically in specialty areas such as nephrology, know very well the impact of appropriate care in a timely manner by the interdisciplinary team. With this in my back pocket, I entered university for another time (as many of my friends say!) in September 2010 to complete a second Master's Degree in Health Administration (MHA). Receiving the Franca Tantalo Bursary Award is certainly an honour for my profession and my career development.

In 2011, I will be celebrating 20 years in nursing and I must say, never a dull moment! Would I do it again? Without a doubt!

Best wishes to the nephrology professionals, where every day is a challenge, but a rewarding one.

#### **Par Chantal Saumure, I.I. BSc.Inf., MBA**

Premièrement, je transmets mes plus sincères remerciements au membres du comité de sélection ainsi qu'à Fresenius Médicale Care qui continue de supporter le programme de bourse de l'ACITN.

J'ai le privilège d'être Infirmière gestionnaire à l'unité d'hémodialyse et télé néphrologie au sein du Programme de Néphrologie de l'Hôpital régionale Dr. G.L. Dumont à Moncton, NB depuis 1998. Ma première expérience auprès de l'ACITN a été en 1999 lors du symposium national à Winnipeg, Manitoba. Rapidement, et ce, pour les dix prochaines années, je me suis investit dans l'association à plusieurs niveaux (Journal, Conseil d'Administration, Liaison d'unité, co-responsable du Congrès National & Atlantique à Moncton, ainsi que comité de programmation du Congrès de Québec en 2008). L'ACITN a toujours été pour

moi une source d'inspiration jumelé à un réseautage sans pareil.

Après ces dix années de proximité avec l'association, je suis retournée sur les bancs d'école pour obtenir un Certificat en Administration de la santé (2009), en plus de joindre les rangs des visiteurs pour Agrément Canada en 2008.

Considérant, que les défis en soins de santé sont nombreux avec des ressources limitées, il donc primordial et impératif que les gestionnaires de première ligne, soient bien outillées, afin de maintenir des standards de qualité élevé dans la provision et la prestation de soins. Les infirmières particulièrement dans les spécialités, comme la néphrologie, sont aux premières loges de constater qu'une approche interdisciplinaire encadrée et soutenue donne des résultats indéniables à la clientèle, et une

récompense sans prix aux professionnels qui y contribuent régulièrement. Avec ces éléments en tête, en septembre 2010, je réintègre l'université, (encore une fois, comme dirait mes amis!) afin d'obtenir une deuxième maîtrise, cette fois en gestion des services de santé (MGSS). Être désignée récipiendaire 2010 de la Bourse Franca Tantalo est un honneur pour ma profession, mais aussi pour mon développement de carrière.

Cette année, je célèbre mon 20<sup>ième</sup> anniversaire à titre d'infirmière. Tout un cheminement, mais jamais de regrets! Est-ce que je choisirais la même chose, si c'était à refaire? Absolument!

Je transmets mes salutations à tous mes collègues en néphrologie, ou chaque jour est un défi comblé de récompenses inestimables.

## **Colleen Wile, recipient of the Frances Boutilier Bursary (Baccalaureate level)**

*By Colleen Wile, RN, CNeph(C), Clinical Nurse Educator, Community Dialysis, Halifax, Nova Scotia*



I am the Clinical Nurse Educator for the Home Dialysis and Satellite Dialysis Program at the QE II Hospital in Halifax, Nova Scotia. I have worked the last 23 years of my nursing career in nephrology in various roles within the program.

As a new RN, I began working on the in-patient nephrology floor transferring after three years to the out-patient peritoneal dialysis unit and home dialysis unit. In 1992, I transitioned to the in-centre hemodialysis unit working there for 13 years prior to moving to the pre-dialysis clinic doing nephrology research. Three years ago I became the Clinical Nurse Educator for the Home Dialysis Unit and the Satellite Hemodialysis Clinics across Nova Scotia.

Returning to school to obtain my degree was a difficult decision for me to make. Knowing that it would be a requirement to further my professional career and an important journey I would at some point need to embark on, I also had to consider my young family and the need to work full-time. As a mother of three and working full-time, returning

to school has presented many challenges over the last five years. At times, balancing family, school, work and finances has been a struggle, but with the support from CANNT and its bursary programs, the financial burden has been eased. March 2011 will see the completion of all my courses needed for graduation in May 2011.

I would like to take this opportunity to thank CANNT and its members for awarding me the Frances Boutilier Bursary. Receiving this bursary has helped alleviate some of the financial burden associated with returning to school to complete my Bachelor of Science in Nursing. It is greatly appreciated and I encourage all CANNT members who are returning to school to please consider applying for the bursaries offered through CANNT.

## **Barb Wilson and Lori Harwood, recipients of the CANNT 2010 Research Grant**

*By Barbara Wilson, RN, MScN, CNeph(C), Advanced Practice Nurse, London Health Sciences Centre, London, Ontario*



In our hemodialysis unit and across the country, there has been a noticeable increase in the use of permcats, with a corresponding decrease in the use of the arteriovenous fistula (AVF) for hemodialysis. And while cannulation of the AVF is an essential part of hemodialysis, current trends have resulted in fewer opportunities to acquire and master this skill. In a previous study that we conducted in our

unit by interviewing seasoned nurses, it was recognized that decreased opportunities to cannulate have resulted in fewer expert cannulators, as well as a wide variation in skill levels between nurses. As we strive to move forward to improve nurses' cannulation skills within our unit, we recognize that the attitudes and experiences of novice nurses with respect to cannulation are still not known.

It is an honour to receive the CANNT 2010 Research Grant for our study entitled, "Attitudes and Experiences of Novice Hemodialysis Nurses Regarding Cannulation of the Arteriovenous Fistula". The aim of this project will be to describe the experience of vascular access cannulation from the perspective of the novice hemodialysis nurse. We will be using a qualitative design with the goal to recruiting 15 dialysis nurses who currently work in our in-centre hemodialysis unit and describe themselves as novice cannulators. We hope that the results of this study will provide insight into novice nurses' experiences with cannulation and will assist us in developing strategies to improve their cannulation skills.

The award money will be primarily used to hire a research assistant to conduct the nurses' interviews and allow us to hire secretarial support to have the interviews transcribed. We would like to take this opportunity to thank CANNT for its generosity in supporting us through this award. Without support from CANNT, this study would not be possible.

## **Marsha Wood, recipient of the Excellence in Practice Award, Clinical Practice**

*By Marsha Wood, BN, RN, MN, CNeph(C), Nurse Practitioner Nephrology, Capital District Health Authority, Halifax, Nova Scotia*



It is a very humbling experience to be the recipient of the CANNT 2010 award of excellence in clinical practice. Like many nephrology nurses in Canada, I have the great fortune of a lengthy, varied, and rewarding career in nephrology nursing, which began in 1982 after graduating from Dalhousie University School of Nursing with a Baccalaureate in Nursing degree.

I began my career working in the Renal Transplant Unit at the Victoria

General Hospital in Halifax, NS. Over my career I have worked as staff nurse, unit resource nurse, acting unit manager, project coordinator for the renal transplant program, and provincial educator for the nephrology program. I received my Master's of Nursing degree with a certificate as a Specialty Nurse Practitioner in 2005, and I am currently enjoying my role as a nurse practitioner in nephrology at the Capital District Health Authority in Halifax, Nova Scotia.

Attendance at my first CANNT symposium in the 1980s was a transformational experience. It was through this symposium experience that I was able to appreciate a broader context of nephrology nursing practice and to see the potential for all nephrology nurses to advance their knowledge, improve patient care, advocate for patients and professional nursing practice, as well as our role as mentors and leaders. I have had the wonderful opportunity to be part of the CANNT board of directors as a member-at-large for trans-

plantation and as the Atlantic Region VP. I also enjoyed committee work in the early days of nephrology nursing certification exam development, as an item writer and appraiser. I continue to enjoy the many opportunities to be actively involved in CANNT, as a manuscript reviewer for the CANNT Journal and participating in organizing regional symposia. In 2008, I had the privilege to work with exceptional nephrology nurses from across the country as the project coordinator for the *CANNT Standards of Nursing and Practice Recommendations*.

I am passionate about my work with patients and families. While I have the opportunity to share my knowledge with patients and families, I also learn so much from them about the capacity, courage and strength it takes to live with chronic kidney disease. I am very proud to accept this award and would like to acknowledge all my colleagues who support our team every day to provide the best care possible to our patients and families.

## **Sponsored by CANNT**

### **Valerie Ludlow, recipient of the CANNT 2010 Journal Award**

*By Valerie Ludlow, RN, MN, CNeph(C), Research Assistant by Department of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland*



Nephrology nursing has always been the 'best job in the world'. It combines both the art and science of nursing in their highest forms. The art of nursing entails what we give as

caring human beings to those who need the healing touch—an understanding knowledge along with a gentle holding of hands and a soothing voice. The science of nursing is the ability to be technically proficient in the care that we provide to our patients. It is important to be competent at both.

For me, nephrology nursing started in hemodialysis (HD) in 1980, as a recent nursing graduate. The learning curve

was quite steep. The machinery, the disease process, and the illness level of the patients led to me asking questions about issues that HD patients experienced every day.

In 2000, I obtained my Canadian Nurses Association certification in nephrology, and then in 2005, I completed my Master's of Nursing degree through Memorial University of Newfoundland. For my practicum, I developed an orientation program for HD nurses, which is utilized in places as far-reaching as Israel and Australia.

When I returned to the clinical area after achieving my master's, I was intrigued by the ability of "buttonhole needling" to improve patient outcomes on a daily basis. This issue became the basis of the research project that was completed in several hemodialysis units in Newfoundland in the winter of 2007.

With support from patients, practitioners, and researchers, I submitted my work for publication to the CANNT Journal and was thrilled to be accepted for the Jan–Mar 2010 issue. It was a particular delight when the article was designated as the CANNT Journal Award winner for 2010. Many thanks to the committee!

In conclusion, I challenge all nephrology nurses to continue to improve the quality of life of our patients. CANNT supports such work through its bursaries, scholarships and resource people. So question, search and find answers—after all, that is what nursing is about!

**Editor's note:** Valerie published her research article "Buttonhole cannulation in hemodialysis:

*Improved outcomes and increased expense—Is it worth it?" in the January–March 2010 issue of the CANNT Journal.*



## **Patty Quinan, recipient of the CANNT Manuscript Award 2010**

*By Patty Quinan, RN, CNeph(C), Clinical Nurse Specialist-Dialysis Access, Humber River Regional Hospital, Weston, Ontario*



On behalf of my co-authors, Dr. A. Beder, Dr. M. Berall, M. Cuerden, Dr. G. Nesrallah and Dr. D. Mendelssohn, I am delighted to accept the CANNT 2010 manuscript award for quality improvement project "A three-step approach to conversion of prevalent catheter dependent patients to arteriovenous access."

I am a Clinical Nurse Specialist for dialysis access, Dr. Beder is a Vascular Surgeon, Ms. Cuerden is a biostatistician/analyst and Dr. Berall, Dr. Nesrallah and Dr. Mendelssohn are Nephrologists. We would like to thank the board of directors and the planning committee for choosing our manuscript for this prestigious award, and for recognizing our efforts in this challenging area of nephrology.

I began my career in hemodialysis in 1983 at Toronto General Hospital, now

part of the University Health Network. My nephrology experience spans over 27 years and includes working as a staff nurse in hemodialysis, home dialysis and in-patient nephrology, and my current role as Clinical Nurse Specialist for dialysis access at Humber River Regional Hospital since 2002. Over the years, I have had the pleasure of working with teams of experts who provide high-quality care and services to our nephrology patients. I am grateful to all the experts for enhancing my knowledge and providing support throughout my nephrology nursing career.

Our three-step quality improvement project to convert catheter-dependent patients to arteriovenous access was a collaborative effort by me, the hemodialysis nurses, the nephrologists, and the vascular surgeon. The primary outcome of the project was to convert suitable patients to better forms of vascular access, mainly arteriovenous fistulas or arteriovenous grafts.

Conversion of suitable catheter-dependent prevalent hemodialysis patients to better forms of vascular access is challenging. Overall, the quality improvement project resulted in conversion of 43% of suitable patients to arteriovenous accesses. In conclusion, a better understanding of the patient's perspective and those factors that affect a patient's resistance to conversion is necessary, if clinicians are to have an impact on the high catheter use of Canadian prevalent HD patients.

We would like to thank CANNT for allowing us to share our quality improvement project with the nephrology community. We are grateful that our efforts to improve patient care and patient outcomes have been recognized.

*Editor's note: You will find Patty's quality improvement article in this issue of the CANNT Journal pages 22 to 33.*

## **Lesley Cotsianis, Alison Lindsay and Joanne Plamondon, recipients of the CANNT 2010 Poster Award (1<sup>st</sup> place)**

*By Lesley Cotsianis, BMR(OT), OT Reg(Mb), Occupational Therapist, Manitoba Renal Program (Health Sciences Centre), Manitoba*



On behalf of my co-researchers Alison Lindsay and Joanne Plamondon, I would like to thank CANNT for the opportunity to present our poster, which described our study focusing on improving the delivery of Renal Health Outreach (RHO) education in Manitoba First Nation communities. This project was assisted by a CANNT research grant awarded to Joanne Plamondon in 2009. We are honoured that our poster was awarded first place, as this project represents a passion of our team, and the accomplishment of completing a multi-disciplinary study.

Lesley Cotsianis is an Occupational Therapist who works in chronic kidney disease (CKD) care, as well as hemodi-

alysis at the Winnipeg Health Sciences Centre. Working in a renal program is a unique position for an occupational therapist, but one that holds many exciting possibilities. Occupational therapy is focused on the impact of illness on daily functioning. Many of our patients face challenges in daily functioning due to their kidney disease and comorbidities, which is where my interest in health promotion was formed. This study and poster presentation is a proud accomplishment for our team, and I feel honoured to have worked with such talented nurses as Joanne and Alison.

Alison Lindsay is a Renal Health Nurse Clinician who works in CKD care at the Health Sciences Centre. She has worked in nephrology for nine years, first in the hemodialysis unit at HSC and now in the renal health clinic for nearly five years. She is very passionate about nursing in general, and nephrology nursing in particular. "It was an amazing opportunity working with such a wonderful people on this research project and I look forward to future research endeavours with our talented team," she says.

Joanne Plamondon is a Renal Health Nurse Clinician who works in CKD care at the St. Boniface Hospital in Winnipeg. Joanne has worked in various areas of nephrology nursing over 25 years and actively participates on many Manitoba Renal Program (MRP) committees and new program initiatives. The recognition of our project is rewarding, and motivates us to share our finding with the nephrology community, as well as to pursue new directions for our program.

The outcomes of this study led to the development of strategic priorities for RHO, including defining and streamlining roles among RHO team members, development of educational toolkits, marketing of RHO both within and outside of the MRP, and building capacity in communities for provision of renal education. A special thanks to Dolores Friesen (SBGH Renal Research Nurse), Dr. Paul Commend (MRP Nephrologist), Stacey Murdock (Fisher River Cree Nation Diabetes Nurse), Jan Schneider (MRP Director of Renal Health Outreach), Colette Raymond and Amy Sod (MRP Renal Pharmacists) for all your feedback and support.

**Audrey Miller and Jennifer Larson,  
recipients of the CANNT 2010 Poster Award (2<sup>nd</sup> place)**

*By Audrey Miller, RN, BSN, CNeph(C), Dialysis Access Clinician, St. Paul's Hospital, Saskatoon and  
Jennifer Larson, RN, BSN, CNeph(C), Hemodialysis Clinical Nurse Educator,  
St. Paul's Hospital, Saskatoon, Saskatchewan*



Winning second prize for our poster “Antegrade or retrograde: Which way to go?” was a wonderful surprise. Thank you CANNT for this honour, proudly shared with our colleagues in hemodi-

alysis. The experience of coming up with an idea, planning and seeking cooperation from others, and finally putting it all together is quite an evolution. The outcome is personal growth, a sharing of information, and an opportunity to encourage others.

Audrey has been a dialysis RN for 20 years, working in both peritoneal and hemodialysis roles. She is currently the Dialysis Access Clinician and looking forward to retirement in the spring of 2011.

Jennifer has been a dialysis RN since 2007, and is currently a Clinical Nurse

Educator in Hemodialysis. She was an RN on a renal medicine ward prior to moving to the hemodialysis unit. She is looking forward to many more years in nephrology nursing.

Winning the award has raised awareness about CANNT in our unit. We plan to use the prize money to help fund a “lunch and learn” for our colleagues. There are great opportunities to share our experiences with our colleagues on a national and international level and CANNT is one of those. We look forward to sharing more “prairie experiences”!

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## **Sponsored by Amgen**

**Angela Romyn, recipient of the Nephrology Research Grant, Novice 2010**

*By Angela Romyn, RN, BScN, CNeph(C), Renal Vascular Access Coordinator,  
Interior Health Authority, Kelowna, British Columbia*



My interest in nephrology was sparked in 1998 when I was in nursing school. During my preceptorship on the inpatient renal unit at Kelowna General Hospital, I was struck by the complexity of the disease and the emotional toll it took with both patients and their family members. As an individual who enjoys learning new concepts, I was intrigued by the many clinical specialty areas that were part of the renal program. I graduated in 1999 and immediately joined the renal team. My passion for helping the renal population remains strong to this day.

I have worked in a variety of capacities throughout the renal program including hemodialysis, home hemodialysis educator, patient care coordinator, and my current role of Renal Vascular Access

Coordinator. During my time in the dialysis unit, I had the privilege of working alongside an incredible nurse educator, Debbie Eggers. Debbie's dedication to vascular access care was an inspiration, as she mentored me and with her guidance I began to discover my love for this complicated aspect of renal care.

All dialysis nurses know that vascular access is the ‘Achilles Heel’ of the hemodialysis experience. The road that a patient must travel to achieve a well functioning access can be a long and bumpy one. In the Interior Health Authority, we have numerous dialysis units that are spread out over a vast geographical distance. If a patient's access is in need of surgical or diagnostic intervention, many have to travel up to seven hours by car over one or two mountain passes to get to an appropriate centre of care. Our health authority continually strives to achieve greater fistula prevalence and incidence rates in order to improve the physical well-being of our patients. However, we sometimes fail to realize the emotional and mental burden that vascular access maintenance can place on our hemodialysis patients.

In 2008, I began my Master's in Nursing through the University of British Columbia-Okanagan. From the beginning of this educational journey, I knew that I

wanted the focus of my thesis research to be at the core of renal care—the patient. I will be exploring the patient experience in relation to vascular access. Focus will be on the patients who started dialysis with a central venous catheter and then transitioned to an arterio-venous fistula over time. While we know that fistulas can provide better dialysis and are associated with a lower incidence of infection, central stenosis, and thrombosis, there is little research that has been done in regards to the patient experience with both of these access types. I am hopeful that my research will provide all members of the renal multidisciplinary team with some valuable insight as to how we can improve the efficiency and effectiveness of the vascular access care that we provide. Any research finding that can help us alleviate physical, emotional, and mental stress for our patients will be a value beyond belief.

I am honoured to have been awarded the Nephrology Novice Research Award. It will help me to fulfill my research goals and also bring me closer to achieving my ultimate goal of providing excellent vascular access care for all patients. It is extremely gratifying that vascular access research is so valued, and this acknowledgment motivates me to move forward. Thank you.

## **Danielle Boucher, recipient of the Nephrology Research Grant, Experienced 2010**

*Par Danielle Boucher, IPS, M.Sc., D.E.S.S., CNeph(C), Infirmière praticienne spécialisée en néphrologie, Secteur de l'hémodialyse, Centre hospitalier universitaire de Québec (CHUQ)*



C'est un honneur et un privilège de recevoir la bourse de recherche en néphrologie, expert. Je ne peux pas accepter une telle bourse sans faire mention de l'équipe interdisciplinaire qui travaille avec moi sur le projet de recherche. Il s'agit du : Dr Simon Desmeules, MD, FRCPC; Dr Serge Langlois, MD, FRCPC; Kateri Bourbeau, pharmacienne, M.Sc.; Rose-Anne Buteau, inf., M.Sc., PhD(c); Isabelle Carrier, inf., B.Sc.; Hélène Carrier, inf., B.Sc.; Caroline Landry, travailleur social, B.Sc.; Suzanne Grenon, nutritionniste, M.Sc. et Sylvie Morin, inf., chef de dialyse et Denyse Castonguay, inf., AIC administrative de dialyse, M.Sc.(c). Par

ailleurs, cette réalisation ne pourrait pas avoir lieu sans le dévouement et les compétences d'une équipe d'infirmières et de professionnels en dialyse or pairs. Je tiens à les remercier.

Le projet de recherche s'inscrit dans la réorganisation des soins et des services en hémodialyse au CHUQ. Le programme «Bon Départ» s'adresse aux patients qui commencent la dialyse. Une équipe interdisciplinaire se concerta afin de coordonner les soins apportés à ces patients dans les premiers mois de leur arrivée en hémodialyse. Et ce, dans le but de fournir les conditions optimales d'ajustement de ce traitement qui vient changer leur vie.

## **Sue (Sushila) Saunders, recipient of the Preceptorship/Mentorship Grant, Nursing Outreach**

*By Sue (Sushila) Saunders, RN, BSN, MScN, CNeph(C), Project Lead CKD redesign project, Northern Renal Program, University Hospital of Northern British Columbia, Prince George, British Columbia*



enced nurses about compassion, kindness, hard work and collegiality. What a great place to start!

I've moved to various cities in Canada, always anxious about finding a job, and always surprised at the need for nurses with nephrology experience. I have not been disappointed. I've worked in many areas of nephrology; community hemodialysis unit, nephrology floors, transplantation, chronic kidney disease (CKD) clinic; never a dull moment in this specialty. As most nephrology nurses would agree, there are many memorable patients who have opened their lives to us. To me, these patients have made this career both challenging and rewarding.

In 2006, I realized that something was missing from my nursing practice: a focus on research. In August 2010, I completed a Master's of Science in Nursing degree at the University of Northern British Columbia at Prince George, British Columbia. In April 2010, I also completed the CNeph(C). It was a great experience to be a part of a study group of nurses from across the country. We all had diverse knowledge to share. The group kept me focussed on studying, and the guest speakers were knowledgeable in the renal specialty. It was a positive experience and I would encourage others to use this resource, if available.

There are two reasons I am so pleased to accept this award. First, this grant rep-

resents the many nurses who have mentored me in my nephrology career. Many of them are quietly providing excellence in nephrology care without acknowledgement. This is for you. Second, this grant represents the national nephrology community. It doesn't matter where you practise in Canada, CANNT can represent you. Prince George is a long way from Toronto, but we are all working towards the same goal: to provide excellence in nephrology nursing care.

I am currently working as project lead for the Northern Renal program CKD redesign project. Improving access to care by providing CKD services closer to home is the primary objective of this project. The grant money will be allocated for mentorship training in CKD telehealth clinic development from Manon Campbell, RN, CNeph(C), of The Ottawa Hospital telenephrology program. The Northern Renal Program is planning to open a telehealth Chronic Kidney Disease clinic in Terrace, B.C., in 2011 to provide regional CKD care for patients in Northwestern B.C. Special thanks belong to Dr. Malcolm Ogborn, Medical Director and Laurie Ledger, Regional Renal Manager for their ongoing support of this project.

Thank you, Amgen and CANNT, for supporting this effort to expand CKD services to rural and remote Northern B.C.!



## Rejean Quesnelle, recipient of the Technology Practice Grant 2010

By Rejean Quesnelle, A.Sc.T., Renal Technologist, Halton Healthcare Services, Oakville, Ontario



It is an honour and pleasure to be the recipient of the Nephrology Technological Practice Grant for 2010. Having been a renal technologist for more than six years, and most recently with Halton Healthcare Services, I know

the value and benefits of bursaries and awards. Receiving funding for continuing education within health care institutions is not as easy as it once was, and is one of the areas that is being cut back.

Personally, this funding has been of tremendous benefit. With this generous funding, I have been able to further my education into sustainable health care and improving on my presentation skills. These funds will also be of value when I present in 2011 at the National Association of Nephrology Technicians/Technologists (NANT) conference in Las Vegas in March 2011, and also at the CleanMed conference in Phoenix, Arizona, in April. Without these funds from the practice grant, I would not have been in the financial position to do what I have this year and the year to come, so thank you for making this happen for me.

There may not be as many educational opportunities available for a technologist

as there may be for say a nurse, so having the funds available to be able to excel in your scope of practice is of great reward.

I would recommend applying for any and all bursaries that apply to your scope of practice. Be it for attending a conference or furthering your education, any opportunity to expand your knowledge is beneficial for any and all individuals in a professional role. Quite often some of the technical bursaries do not get applied for (as is the case this year) and it is truly unfortunate.

I would like to again sincerely thank Amgen for its generous gift. I would also like to thank CANNT for being the hub for continuing education for nephrology professionals within Canada. Providing these resources to its members is of true value for its membership.

*Editor's note: You will find Reg's column "Ask the Green Tech" on pages 15 to 16 in this issue of the CANNT Journal.*

### Fourth North American Chapter Meeting of the International Society for Peritoneal Dialysis

YaleCME  Yale  
CONTINUING MEDICAL EDUCATION

June 17-18, 2011

Meeting Organization and Accreditation

Continuing Medical Education  
Yale School of Medicine

#### Location

The New Haven Omni Hotel at Yale  
New Haven, Connecticut



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☐ I have attained CNeph(C)/cdt designation

Year of designation \_\_\_\_\_

Professional registration # \_\_\_\_\_

Date last renewed: \_\_\_\_\_

☐ I am a member of CNA

**Ontario applicants only**

Do you belong to RNAO?

☐ Yes ☐ No

**Professional Status**

☐ Registered Nurse

☐ Registered Practical Nurse/  
Registered Nursing Assistant/  
Licensed Practical Nurse

☐ Technician

☐ Technologist

☐ Other (Specify) \_\_\_\_\_

Number of years in nephrology \_\_\_\_\_

**Area of responsibility**

☐ Direct Patient Care

☐ Administration

☐ Technical

☐ Teaching

☐ Research

☐ Other (Specify) \_\_\_\_\_

**Work environment**

☐ Acute Care

☐ Self-Care Unit

☐ Independent Health Care

☐ Private Sector

**Highest level of education**

*Nursing*

☐ Diploma

☐ Baccalaureate

☐ Master's

☐ Doctorate

*Non-Nursing*

☐ Diploma

☐ Baccalaureate

☐ Master's

☐ Doctorate

**I am at present studying toward**

*Nursing*

☐ Specialty Certificate

☐ Baccalaureate

☐ Master's

☐ Doctorate

*Non-Nursing*

☐ Specialty Certificate

☐ Baccalaureate

☐ Master's

☐ Doctorate

**Primary area of practice**

☐ Progressive renal insufficiency (pre-dialysis)

☐ Transplantation

☐ Hemodialysis

☐ Peritoneal

☐ Pediatrics

☐ Other (Specify) \_\_\_\_\_

Return to CANNT

*Mailing Address:*

Debbie Maure, CANNT,

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# Demande d'adhésion



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☐ Deux ans : 130,00 \$ + TVH/TPS

☐ Tarif étudiant : 35,00 \$ + TVH/TPS\*

*\*La demande doit inclure une preuve d'inscription à plein temps*

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Date du dernier renouvellement : \_\_\_\_\_

☐ Je suis membre de l'ACI

**Demandeurs de l'Ontario seulement**

Faites vous partie de l'AOIA?

☐ Oui ☐ Non

**Statut professionnel**

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infirmière(ier) auxiliaire

☐ Technicienne /technicien

☐ Technologue

☐ Autre (spécifier) \_\_\_\_\_

Années d'expérience en néphrologie \_\_\_\_\_

**Domaine de responsabilité**

☐ Soins directs

☐ Enseignement

☐ Administration

☐ Recherche

☐ Technologie

☐ Autre (spécifier) \_\_\_\_\_

**Milieu de travail**

☐ Soins actifs

☐ Services de santé indépendants

☐ Unité d'autosoins

☐ Secteur privé

**Plus haut niveau d'instruction?**

*Infirmière(ier)*

*Autres*

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☐ Diplôme

☐ Baccalauréat

☐ Baccalauréat

☐ Maîtrise

☐ Maîtrise

☐ Doctorat

☐ Doctorat

**Je poursuis présentement des études**

*Domaine infirmière(ier)*

*Autre domaine*

☐ Certificat

☐ Certificat

☐ Baccalauréat

☐ Baccalauréat

☐ Maîtrise

☐ Maîtrise

☐ Doctorat

☐ Doctorat

**Secteur de pratique spécialisé**

☐ Insuffisance rénale progressive (pré-dialyse)

☐ Transplantation

☐ Hémodialyse

☐ Péritonéale

☐ Pédiatrie

☐ Autre (spécifier) \_\_\_\_\_

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# Guidelines for authors

The Canadian Association of Nephrology Nurses and Technologists (CANNT) Journal invites letters to the editor and original manuscripts for publication in its quarterly journal. We are pleased to accept submissions in either official language—English or French.

## Which topics are appropriate for letters to the editor?

We welcome letters to the editor concerning recently published manuscripts, association activities, or other matters you think may be of interest to the CANNT membership.

## What types of manuscripts are suitable for publication?

We prefer manuscripts that present new clinical information or address issues of special interest to nephrology nurses and technologists. In particular, we are looking for:

- Original research papers
- Relevant clinical articles
- Innovative quality improvement reports
- Narratives that describe the nursing experience
- Interdisciplinary practice questions and answers
- Reviews of current articles, books and videotapes
- Continuing education articles.

## How should the manuscript be prepared?

**Form:** The manuscript should be typed double-spaced, one-inch margins should be used throughout, and the pages should be numbered consecutively in the upper right-hand corner. More formal research or clinical articles should be between five and 15 pages. Less formal narratives, question and answer columns, or reviews should be fewer than five pages.

**Style:** The style of the manuscript should be based on the **Publication Manual of the American Psychological Association (APA)**, Sixth Edition (2009), available from most college bookstores.

**Title page:** The title page should contain the manuscript title, each author's name (including full first name), professional qualifications [e.g., RN, BScN, CNeph(C)], position, place of employment, address, telephone, fax numbers and email address. The preferred address for correspondence should be indicated.

**Abstract:** On a separate page, formal research or clinical articles should have an abstract of 100 to 150 words. The abstract should summarize the main points in the manuscript.

**Text:** Abbreviations should be spelled out the first time they are used with the abbreviation following in brackets, for example, the Canadian Association of Nephrology Nurses and Technologists (CANNT). Generic drug names should be used. Measurements are to be in Standards International (SI) units. References should be cited in the text using APA format. A reference list containing the full citation of all references used in the manuscript must follow the text.

**Tables/Figures:** Manuscripts should only include those tables or figures that serve to clarify details. Authors using previously published tables and figures must include written permission from the original publisher. Such permission must be attached to the submitted manuscript.

## How should the manuscript be submitted?

Email your manuscript to: [gillianbrunier@sympatico.ca](mailto:gillianbrunier@sympatico.ca)

Include a covering letter with contact information for the primary author and a one-sentence biographical sketch (credentials, current job title and location) for each author.

## How are manuscripts selected for the CANNT Journal?

Each manuscript will be acknowledged following receipt. Research and clinical articles are sent out to two members of the **CANNT Journal** manuscript review panel to be reviewed in a double-blind review process. All manuscripts may be returned for revision and resubmission. Those manuscripts accepted for publication are subject to copy editing; however, the author will have an opportunity to approve editorial changes to the manuscript. The criteria for acceptance for all articles include originality of ideas, timeliness of the topic, quality of the material, and appeal to the readership. Authors should note that manuscripts will be considered for publication on the condition that they are submitted solely to the **CANNT Journal**. Upon acceptance of submitted material, the author(s) transfer copyright ownership to CANNT. Material may not be reproduced without written permission of CANNT. Statements and opinions contained within the work remain the responsibility of the author(s). The editor reserves the right to accept or reject manuscripts.

## Checklist for authors

✓ Cover letter

✓ Article

- Title page to include the following:
  - title of article
  - each author's name (including full first name)
  - professional qualifications
  - position
  - place of employment
  - author to whom correspondence is to be sent, including address, phone, fax number, and email address
- Text of article, with abstract if applicable, **double-spaced, pages numbered**
- References (on a separate sheet)
- Tables (one per page)
- Illustrations (one per page)
- Letters of permission to reproduce previously published material.

# Lignes directrices à l'intention des auteurs

Le Journal de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) vous invite à faire parvenir articles, textes et manuscrits originaux pour publication dans son journal trimestriel. Nous sommes heureux d'accepter vos documents soumis dans l'une ou l'autre des langues officielles, anglais ou français.

## Quels sont les sujets d'article appropriés ?

Nous acceptons les articles portant sur des manuscrits récemment publiés, des activités de l'Association ou tout sujet d'intérêt pour les membres de l'ACITN.

## Quels types de manuscrits conviennent à la publication ?

Nous préférons des manuscrits qui présentent de nouveaux renseignements cliniques ou qui traitent des enjeux propres aux champs d'intérêt des infirmières et infirmiers et des technologues en néphrologie. Nous recherchons plus particulièrement :

- Exposés de recherche originaux
- Articles cliniques pertinents
- Rapports sur des approches innovatrices en matière d'amélioration de la qualité
- Textes narratifs relatant une expérience de pratique infirmière ou technologique
- Textes sous forme de questions et de réponses sur la pratique interdisciplinaire
- Revues d'articles courants, de livres et films
- Articles en éducation continue.

## Comment les manuscrits doivent-ils être présentés ?

**Forme :** Le manuscrit doit être présenté à double interligne avec une marge de 1 po et une numérotation consécutive des pages dans le coin supérieur droit de la page. Les articles plus formels de recherche ou d'études cliniques doivent compter de 5 à 15 pages. Les articles moins formels, tels que textes narratifs, questions-réponses ou revues, doivent compter moins de 5 pages.

**Style :** Le style du manuscrit doit être conforme au manuel de publication de l'Association américaine de psychologie (AAP), 6<sup>e</sup> édition (2009), offert dans la plupart des librairies universitaires.

**Page titre :** La page titre doit inclure le titre du manuscrit ainsi que les renseignements suivants : nom de chacun des auteurs (incluant prénoms au complet), titres professionnels (c.-à-d., inf., B.Sc.Inf., CNéph[C]), titre du poste occupé, nom de l'employeur, adresse, numéros de téléphone et de télécopieur et adresse courriel. L'adresse privilégiée de correspondance doit aussi être indiquée.

**Résumé :** Sur une page distincte, les articles formels de recherche ou d'études cliniques doivent être accompagnés d'un résumé de 100 à 150 mots, reprenant brièvement les principaux points du manuscrit.

**Texte :** Les sigles, abréviations ou acronymes doivent être écrits au long la première fois qu'ils apparaissent dans le texte, suivis de l'abréviation entre parenthèses; p. ex., Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN). Les noms génériques des médicaments doivent être employés. Les unités de mesure doivent être indiquées selon le Système international d'unités (SI). Les références doivent être citées dans le texte en utilisant le format de l'AAP. Une liste de références comprenant la bibliographie complète de toutes les références utilisées doit suivre le texte.

**Tableaux/Figures :** Les manuscrits ne doivent inclure que les tableaux et figures (incluant schémas, illustrations, croquis, etc.) visant à clarifier certains détails. Les auteurs qui utilisent des tableaux et des figures qui ont déjà fait l'objet d'une publication doivent fournir l'autorisation écrite de l'éditeur d'origine et la joindre au manuscrit soumis.

## De quelle manière doit-on soumettre les manuscrits ?

Veuillez envoyer par courriel votre manuscrit à :

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Veuillez inclure une lettre de présentation en précisant les coordonnées de l'auteur principal ainsi qu'une notice biographique d'une phrase (incluant titres de compétences, titre du poste actuel et lieu de travail) pour chaque auteur.

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