CANNT JOURNAL
JOURNAL ACITN

CANNT ACITN
CANADIAN ASSOCIATION OF NEPHROLOGY NURSES AND TECHNOLOGISTS
L'ASSOCIATION CANADIENNE DES INFIRMIÈRES ET TECHNICIENS DE NÉPHROLOGIE

Volume 20, Issue 4 October–December 2010

IN THIS ISSUE:

Renagel®
sevelamer hydrochloride

Evidence based.
Nonabsorbed.

The evidence accumulates.

The results of Renagel® clinical trials have consistently shown the phosphate binding effect of Renagel® resulting in lowering of serum phosphorus levels.[1]

Starting Dose: In patients not using another phosphate binder, the recommended dosing is 3 Renagel tablets (2.4 grams)/day if initial serum phosphorus is >1.8 and <2.4 mmol/L and 6 Renagel tablets (4.8 grams)/day if initial serum phosphorus ≥2.4 mmol/L. Dosage adjustments, when necessary should be recommended every 1 to 3 weeks by increasing one tablet/meal (3/day) until target serum phosphorus levels are met. The total daily dose should be divided according to meal portions during the day.

Average Maintenance Dose: Dosage should be adjusted based upon the target serum phosphorus levels. The dose may be increased or decreased by one tablet per meal at two-week intervals as necessary.[1]

The average final dose in the chronic phase of a 52 week Phase 3 clinical trial designed to lower serum phosphorous to 1.6 mmol/L or less was approximately 7.1 grams, (approximately nine 800 mg tablets per day equivalent to three 800 mg tablets per meal). The maximum average daily Renagel® dose studied was 13 grams.[1]

Average Maintenance Dose[1]

Average Final Dose of Renagel® in Monotherapy
To lower serum phosphorus ≤1.6 mmol/L

Breakfast	3 Renagel® tablets (2.4 grams)
Lunch	3 Renagel® tablets (2.4 grams)
Dinner	3 Renagel® tablets (2.4 grams)

Total Daily Dose = 9 Renagel® tablets
The total daily dose should be divided according to meal portions during the day.[1]

Renagel® (sevelamer hydrochloride) is indicated for:
- the control of hyperphosphatemia in patients with end-stage renal disease (ESRD) undergoing dialysis.

Renagel® (sevelamer hydrochloride) is contraindicated in the following situations:
- patients with hypophosphatemia,
- patients with bowel obstruction,
- patients hypersensitive to sevelamer hydrochloride or one of the other ingredients in the product (colloidal silicon dioxide, stearic acid).

The most common adverse events are nausea (25.3%), vomiting (24.4%), diarrhea (21.2%), headache (18.4%), dyspepsia (15.7%) and dyspnea (15.7%).

Patients with renal insufficiency may develop hypocalcemia. As Renagel® does not contain calcium, serum calcium levels should be monitored and elemental calcium should be supplemented whenever considered necessary. In cases of hypocalcemia, patients should be given an evening calcium supplement. Approximately 1000 mg elemental calcium is recommended. Caution should be exercised to avoid hypophosphatemia, a serum phosphorus of < 0.8 mmol/L.

The safety and efficacy of Renagel® in patients with dysphagia, swallowing disorders, severe gastrointestinal (GI) motility disorders, or major GI tract surgery have not been established. Caution should be exercised when Renagel® is used in patients with these GI disorders.

1. Renagel® product monograph, Genzyme Canada, October 2007

genzyme
CANADA INC
Mississauga ON L4W 4V9

PAAB

See prescribing summary on page 36

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Letter from the Editor: Gillian Brunier
Lettre de la rédactrice en chef : Gillian Brunier

Thank you to our 2010 reviewers!
Merci à nos critiques de 2010!

There is much work that takes place behind the scenes to bring high-quality articles to publication in the **CANNT Journal**. I would like to thank the following reviewers who assisted us in manuscript review during 2010. It is these manuscript reviewers who have volunteered their time and provided such expert assistance in reviewing manuscripts over this past year. Please take a moment to acknowledge their support of the **CANNT Journal** and advancement of Canadian nephrology practice.

Une part importante du travail se fait dans l'ombre avant la parution d'articles de grande qualité dans le **Journal ACITN**. Je profite de l'occasion pour remercier les personnes suivantes qui ont participé à la révision de manuscrits en 2010. Elles ont donné gracieusement de leur temps et mis à contribution leurs connaissances spécialisées dans la révision des articles avant leur parution au cours de la dernière année. Nous prenons donc le temps ici de reconnaître leur soutien dans la publication du **Journal ACITN** et de souligner leur collaboration aux progrès de la pratique de la néphrologie au Canada.

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De plus, je désire remercier la personne suivante qui a procédé cette année à la révision méticuleuse de la traduction en français des rapports et manuscrits pour le **Journal ACITN** :

And to the reviewer this year who so carefully read the proofs of the French translation of reports and articles for the **CANNT Journal**:

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• **Voici les échéanciers à rencontrer pour soumettre des articles/nouvelles au journal :**
Janvier–mars – le 15 janvier,
pour publication le 15 mars
Avril–juin – le 15 avril,
pour publication le 15 juin
Juillet–septembre – le 15 juillet,
pour publication le 15 septembre
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Message from the President

Once again, it appears that another year has flown by. Here we are at the annual national symposium, this time in Toronto, Ontario. Toronto is where I first started my nephrology career, many years ago. I can't help but reflect back on how I started my nursing career on a nephrology medical ward and where I am now. How did I get to be president of a national association?

Many years ago, a colleague saw more in me than I saw in myself. My name was put forward to the Canadian Nurses Association (CNA) as a potential committee member on the nephrology nursing certification program. Joining this committee helped me realize that nursing was not just a job, but really was a profession. I also realized that I could make a difference by contributing my ideas. It gave me confidence to challenge some of my fears. For example, I still don't like public speaking, but it does get easier, not necessarily better.

As my term on the CNA Nephrology Certification Committee came to a close, I had the opportunity to became one of the first vascular access nurses in British Columbia. We were, and still are, a small group. Due to the size of the group, I saw the opportunity to establish a vascular access educators group. The focus of this group was to support each other, share ideas, overcome challenges and standardize care and practice within the province. We've made great strides and now have been incorporated into the provincial vascular access team.

I know it all sounds lofty and beyond most people's capabilities, but I guess I'm saying that we, technicians, practical, licensed, or registered nurses, all have the potential to contribute to our profession. You may want to start off small by joining a unit committee. Look for opportunities and don't disregard the opportunity when a colleague puts your name forward. You never know what it may lead to.

I contribute the advancement of my career to the volunteering and experience gained on professional committees. These committees demonstrated to me that many of the challenges we face occur on national and international levels. Often, we think our challenges within the units we work are unique. We come to the realization though, that we all have many of the same challenges in common, be it resources, lack of time, space, manpower or, my favourite, vascular access, to name a few. Connecting with others gives us the advantage of using what works and learning from each other's mistakes.

At this time, I would like to thank all the volunteers who help make CANNT a success. My thanks go out to the board and associate members for their dedication and commitment. To all involved in putting out the **CANNT Journal**. Thanks to the CANNT conference planning committees, past and present, for stepping up to the plate and year after year organizing some of the best conferences I've been to. I'd also like to acknowledge our corporate sponsors and thank them for their continual support. Last, I thank you, our members—without you there would be no CANNT.

I look forward to seeing you next year at the 2011 CANNT symposium in Calgary, Alberta.

Rick Luscombe,
RN, BSN, CNeph(C)
CANNT President

Mot du président

Une autre année vient de s'écouler. Nous voici déjà rendus au Congrès annuel, qui aura lieu, cette fois, à Toronto, en Ontario. Toronto, c'est là que j'ai commencé ma carrière en néphrologie, il y a bon nombre d'années. Je ne peux m'empêcher de songer à mes débuts à l'unité de soins en néphrologie et où je suis rendu aujourd'hui. Comment ai-je bien pu me retrouver à la présidence d'une association nationale?

Il y a de nombreuses années, un collègue a vu plus en moi plus que je ne voulais y croire. Il a proposé ma candidature à l'Association des infirmières et infirmiers du Canada (AIIC) à titre de membre du Comité du programme d'agrément des soins infirmiers en néphrologie. Mon adhésion à ce comité m'a aidé à réaliser que les soins infirmiers ce ne sont pas qu'un travail, mais réellement une profession. J'ai pris conscience que je pourrais faire une différence en partageant mes idées. Cela m'a donné l'assurance nécessaire pour confronter certaines de mes craintes. Par exemple, je n'aime toujours pas parler en public, mais cela devient de plus en plus facile, quoique sans pour autant être nécessairement mieux.

Étant donné que mon mandat au sein du Comité d'agrément en néphrologie de l'AIIC venait à terme, j'ai eu l'occasion de devenir l'un des premiers infirmiers à obtenir l'agrément en soins pour accès vasculaires en Colombie-Britannique. Nous étions, à cette époque et encore aujourd'hui, un petit groupe. En raison de la taille de notre groupe, j'ai saisi l'occasion d'établir un groupe d'éducateurs en soins pour accès vasculaires. L'objectif de ce groupe consistait à s'entraider les uns et les autres, à partager nos idées, à relever des défis et à normaliser les soins et la pratique à l'échelle de la province. Nous avons apporté de grands progrès à la pratique et avons été intégrés depuis à l'équipe provinciale des infirmières et infirmiers spécialisés en accès vasculaires.

Je sais que tout cela peut vous sembler un peu « gros », voire au-dessus de vos forces, mais je crois que ce que j'essaie de vous dire c'est que nous—infirmières, infirmiers et technologues—possédons tous la capacité de contribuer à notre profession. Sans doute aimeriez-vous commencer progressivement en vous joignant, par exemple, à un comité au sein de votre unité de soins. N'hésitez pas à chercher les occasions et à saisir votre chance lorsqu'un collègue propose votre candidature à un comité. Vous ne savez jamais où cela peut vous mener.

Je contribue à l'avancement de ma carrière par le bénévolat et l'expérience que j'acquiers en prenant part à des comités professionnels. Grâce à ma participation à ces comités, j'ai appris que bon nombre des défis que nous devons relever se produisent tant à l'échelle provinciale qu'à l'échelle nationale. Souvent, nous croyons que les défis auxquels nous nous heurtons au quotidien dans nos unités de soins sont uniques. Toutefois, en réalité, nous avons de nombreux défis en commun, que ce soit le manque de ressources, de temps, d'espace, de main-d'œuvre ou, mon préféré, le manque de ressources pour les accès vasculaires, pour n'en nommer que quelques-uns. Réseauter nous donne l'avantage de mettre en œuvre ce qui a déjà fait ses preuves et d'apprendre mutuellement de nos erreurs.

Par la présente, je voudrais remercier tous les bénévoles qui contribuent au succès de l'ACITN. Mes remerciements vont notamment aux membres du Conseil d'administration pour leur dévouement et leur engagement, à toutes les personnes qui collaborent de près comme de loin à la publication du **Journal ACITN**, aux membres des comités organisateurs, passés et actuel, du Congrès annuel de l'ACITN qui ont pris le relais et qui, année après année, organisent des congrès parmi les meilleurs auxquels j'ai participé. J'aimerais également remercier nos commanditaires de leur soutien inconditionnel. Enfin, j'aimerais remercier tous nos membres—sans vous il n'y aurait tout simplement pas d'ACITN.

C'est donc avec joie que j'attends le moment de vous revoir au prochain congrès de 2011 de l'ACITN qui aura lieu à Calgary, en Alberta.

Rick Luscombe,
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Président de l'ACITN

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Blazing New Trails
October 20 – 22
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CANADIAN ASSOCIATION OF
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L'ASSOCIATION CANADIENNE DES
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Call For ABSTRACTS

Abstracts are currently being accepted for ORAL and POSTER presentations for ***CANNT 2011****, the annual national meeting of the Canadian Association of Nephrology Nurses and Technologists, to be held* ***October 20 – 22, 2011*** *at the* ***Calgary Telus Convention Centre / Hyatt Regency Calgary, Alberta****. Topics of interest may include: clinical research, innovative projects and solutions, ethics, case presentations and clinical reviews. All abstract submissions must be evidence-based.*

CONFERENCE THEME:

The theme for CANNT 2011 is **"BLAZING NEW TRAILS"**. In keeping with the conference theme, abstract submissions should demonstrate leading edge nephrology topics, appropriate for the novice through to the advanced practice professional. Please consult the sidebar for possible areas of interest.

ABSTRACT SUBMISSION GUIDELINES – Deadline: March 1, 2011

All abstracts must be submitted via e-mail (hreid@innovcc.ca) as an attachment in Word or WordPerfect

Submissions must include the following:

Abstract Title
- must accurately reflect the content of the presentation

Abstract Text
- should be no longer than 250 words (font: Times New Roman 12 point)
- provide author information on a separate page
- should be as informative as possible

If **research-based**, should include:
- purpose of study
- methods
- results
- conclusions
- implications for nephrology care

If **practice/education-based**, should include:
- purpose of the project
- description
- evaluation/outcomes
- implications for nephrology practice/education

- define **all abbreviations** the first time they appear in the abstract
- use only the **generic** names of drugs
- **do not identify companies and/or products in the body or title of the abstract**

PRESENTATION INFORMATION: (provided on separate page)

- identify preferred format of presentation (ORAL or POSTER)
- full names and credentials of authors
- contact information for first author must include: full name, e-mail address, fax number, mailing address with postal code, home and work telephone numbers
- identify preferred audiovisual requirements (PC Viewer for Powerpoint or Slides)

IMPORTANT NOTES:

Only **COMPLETE** submissions received by **Tuesday, MARCH 1, 2011** will be considered.

All correspondence will be with the first author only.

Acceptance of abstract does not waive attendance fees (registration, transportation, accommodations).

Notification regarding selection decisions will be provided by Friday, April 1, 2011.

Should the abstract be selected for presentation, the author(s) authorize(s) the publication of the abstract submitted for publication in the CANNT Journal.

The presentation shall not make comparison to companies or products for any purposes of product marketing, nor will topics or materials used discredit companies or products.

The abstract should make full disclosure of corporate funding sources.

Abstracts not in the required format will be returned to the author for revision.

The language of abstract submission would be the language of presentation, if selected.

Leading Edge Topics in...

- Modes of Dialysis
- Pathophysiology
- Pediatrics
- Pharmacology
- Education
- Leadership
- Transplantation
- Technology
- Chronic kidney disease
- Psychosocial
- Advance directives
- Nutrition
- Infection control
- Vascular access
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- Ethics
- Professional practice
- Research
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- Immunology

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Nephrology certification update

By Colleen Wile, RN, CNeph(C), Clinical Educator, Community Dialysis, Halifax, NS

The Canadian Nurses Association (CNA) certification program continues to be important to nurses, the nursing profession, employers and the general public. In achieving CNA certification, nurses are committing to a national standard of professional competence that demonstrates a comprehensive understanding of their specialty and a commitment to continuing competence. Specialty certification is a voluntary process reserved for nurses who meet rigorous practice, continuous learning and testing requirements.

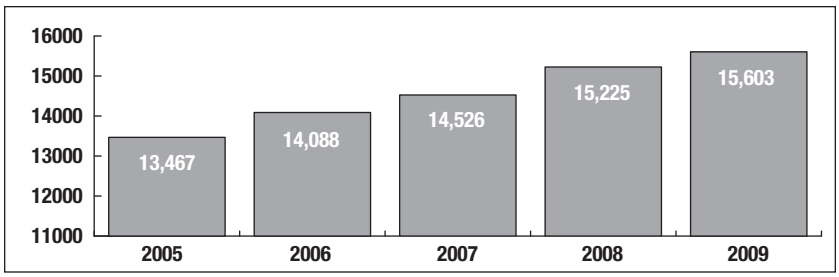
Number of RNs with valid CNA certification by year and specialty, 2005–2009

SPECIALTY AREA	2005	2006	2007	2008	2009
Cardiovascular	660	713	722	774	793
Community health	n/a	148*	216	338	460
Critical care	1,263	1,223	1,166	1,190	1,191
Critical care pediatrics	61	94	104	100	113
Emergency	1,353	1,307	1,323	1,345	1,333
Enterostomal therapy	n/a	n/a	n/a	n/a	66*
Gerontology	1,822	1,937	1,988	2,104	2,073
Hospice palliative care	756	916	1,103	1,247	1,232
Nephrology	**963**	**1,019**	**1,052**	**1,080**	**1,103**
Neuroscience	207	223	237	258	269
Occupational health	952	926	908	888	879
Oncology	1,231	1,332	1,323	1,360	1,431
Orthopaedics	n/a	73*	125	153	169
Perinatal	619	621	642	665	719
Perioperative	1,672	1,585	1,552	1,566	1,560
Psychiatric/mental health	1,761	1,729	1,734	1,750	1,765
Rehabilitation	n/a	71*	121	172	216
TOTAL	**13,467**	**14,088**	**14,526**	**15,225**	**15,603**

Source: Canadian Nurses Association, Department of Regulatory Policy

Table 1.

Number of RNs with valid CNA certification by year (all specialties), 2005–2009



Source: Canadian Nurses Association, Department of Regulatory Policy

Figure 1.

As of December 2009, 1,103 nephrology nurses held a valid CNA certification in nephrology (see Table 1). CANNT would like to congratulate the successful candidates from 2010 who will add to this total. CANNT would also like to congratulate all those nurses who chose to recertify this past year. Maintaining certification shows the commitment that nephrology nurses have to our specialty. Best of luck to those individuals who registered to write the certification exam in 2011. This also displays commitment to nephrology practice.

The Canadian Nurses Association (CNA) will be administering the 2011 CNA certification exam on April 9, 2011. The certification credential is part of a respected national certification program, which is developed by Canadian nurses for Canadian nurses (see Figure 1).

The initial CNA certification credential in nephrology is valid for a five-year term and then is renewed every five years. Certification renewal can be obtained through continuous learning (CL) activities or by writing the certification exam again. Most nurses choose to renew by CL. It is important to plan and record your CL activities from the start of the five-year term. CNA offer forms and guidelines to assist with tracking CL. These forms and guidelines can be found in the certification section of CNA's website under the **Continuous Learning Activities Guidelines and Forms section:** www.cna-aiic.ca/CNA/nursing/certification/recertify/forms/default_e.aspx

Study aids

CNA offers a document called Build on What You Know: A Study Group Manual for Nurses Preparing for CNA Certification Exams. This manual includes tips for study group facilitators and participants, suggested references and other information. The link below will take you to this document and other valuable resources to help with the preparation for the exam: www.cna-aiic.ca/CNA/nursing/certification/apply/studygroups/default_e.aspx

Many nephrology programs have set up education sessions through their programs educator to assist candidates in preparing for the exam. At the yearly national conference, CANNT also hosts a pre-conference workshop to help nurses prepare for the nephrology certification exam.

Mentors

CNA has assembled a distinguished list of certified nurses who are willing to act as mentors for those nurses who wish for support or assistance with certification exams. A list of mentors can be found below or by following the link: www.cna-aiic.ca/CNA/nursing/certification/apply/mentors/default_e.aspx

British Columbia
Richard Luscombe,
RN, CNeph(C), BSN
1606-2020 Haro St.,
Vancouver, BC V6G 1J3
Tel: (604) 682-1525
email: rluscombe@providencehealth.bc.ca

Alberta
Robert B. Huizinga,
RN, NNC, MSc(Epi), CNeph(C)
Senior Director, Clinical Affairs
Isotechnika Inc.
5120 – 75th Street
Edmonton, AB T6G 2C8
Tel: (780) 487-1600 ext 223
email:
robert.huizinga@isotechnika.com

Québec
Rachelle Brisson,
inf., CNéph(C)
(Bilingual/Bilingue)
118 du Sauvignon
Gatineau, QC J8M 2C3
Tel: (W) (819) 966-6200 ext. 5407
(H) (819) 986-9625
email: rachellebrisson@live.ca

Nancy Filteau,
RN, CNeph(C)
(Bilingual/Bilingue)
650 Laurent St, Laval, QC H7P 3R6
Tel: (W) (514) 934-1934 ext. 35098
email: nancy.filteau@muhc.mcgill.ca

New Brunswick
Valerie Price
1003 McCavour Drive
Saint John, NB E2M 4M2
Tel: (506) 648-6850
email: pricejar@nbnet.nb.ca

Financial assistance for 2011 initial and renewal candidates

Financial assistance is offered through most hospitals and/or provincial licensing bodies to help with the cost of writing the exam. The Canadian Nurses Foundation also offers financial awards to two nurses in each specialty area to cover the certification fees. In addition, CANNT also offers the ISPD bursary to assist with the cost of certification or re-certification.

Applications for the Canadian Nurses Foundation award can be found at: www.canadiannursesfoundation.com/certification.htm

Application for the CANNT ISPD bursary can be found at: www.cannt.ca

For more information on Nephrology Certification through CNA, visit their website at: www.cna-aiic.ca/CNA/nursing/certification/default_e.aspx

NOTICE BOARD

- Ottawa Supper Clubs—Contact Janet Graham, Nephrology Unit, Ottawa Hospital, jgraham@ottawahospital.on.ca
- **February 20–22, 2011**. 31st Annual Dialysis Conference. Phoenix, Arizona. Website: www.som.missouri.edu/Dialysis/
- **March 1, 2011.** CANNT 2011 Call for Abstracts deadline for submissions. Website: www.cannt.ca. See page 9 of this issue of the CANNT Journal.
- **March 10, 2011.** World Kidney Day. A joint initiative of the International Society of Nephrology and the International Federation of Kidney Foundations. Website: www.worldkidneyday.org
- **March 15, 2011.** Kidney Foundation of Canada. Deadline for Allied Health Fellowships and Scholarships. Contact: Coordinator, Research Grants and Awards, 1-800-361-7494, ext. 232, email: research@kidney.ca. Website: www.kidney.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
- **April 9, 2011.** Exam date for CNeph(C) certification exam. Contact Canadian Nurses Association Certification Program, email: lvachon@cna-aiic.ca. Website: 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, or visit our website at www.cannt.ca
- **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
- **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. Website: www.cannt.ca

Kidney Foundation of Canada Allied Health Scientific Committee

By Heather Beanlands, RN, PhD, CANNT Representative to the Allied Health Scientific Committee

Annual Report, November 10, 2010

In support of its mission to reduce the burden of kidney disease in Canada, the Kidney Foundation of Canada (KFOC) is pivotal in stimulating and supporting kidney research in Canada. The KFOC offers a number of research grants, fellowships, and scholarships to biomedical and allied health professionals, which fund research and promote the development of investigators. *Allied Health Research Grants* support research projects relevant to clinical practice in nephrology, urology or organ donation. The Foundation gives a preference to applications with principal investigators who are allied health professionals (i.e., nurse, dialysis technician, dietitian, social worker, etc.). The *Allied Health Doctoral Fellowships* assist allied health professionals in full-time academic and research preparation at the Doctoral level while *Allied Health Scholarships* assist students with a demonstrated interest in nephrology/urology or organ donation, in pursuing their education at the Master's, or Doctoral level on a full- or part-time basis. The KFOC Allied Health Scientific Committee reviews funding applications for Allied Health Research Grants, Fellowships, and Scholarships and makes funding recommendations to the KFOC Research Council.

In the 2010 funding competitions, The KFOC funded 61 awards totalling approximately $3.0 million for the granting period of July 1, 2010, to June 30, 2011 (www.kidney.ca). This includes two Allied Health Research grants, five Allied Health Doctoral Fellowships and three Allied Health Scholarships. Complete information about these projects and awards can be found in the Kidney Foundation Report "Supporting Research Excellence: Research Award Recipients July 1, 2010–June 30, 2011", available at: http://www.kidney.ca/Document.Doc?id=978

Funding opportunities are also available to allied health professionals through The Kidney Research Scientist Core Education and National Training Program (KRESCENT), a unique training program that supports kidney researchers from a variety of disciplines (www.krescent.ca). The KRESCENT program was created as a result of collaborative efforts of the KFOC, the Canadian Society of Nephrology (CSN), and the Canadian Institutes of Health Research, with support from various private sector donors and professional associations such CANNT and the Canadian Association of Nephrology Social Workers (CANSW). In addition to providing training awards, the KRESCENT program offers a unique opportunity for research trainees to participate in a multidisciplinary, national core curriculum that promotes the development of collaborative research networks and supports knowledge translation across disciplines.

Application deadlines

Applications for *Allied Health Fellowships* and *Allied Health Scholarships* are due **March 15, 2011**. *Allied Health Research Grants* applications are due by **October 15** each year.

Applications for a KRESCENT Program *Allied Health Doctoral Award* are to be submitted to The Kidney Foundation of Canada, by **March 15, 2011**. The applications will be reviewed by the KFOC Allied Health Scientific Committee. The KRESCENT Allied Health Doctoral Award will be awarded based on the recommendation of the Allied Health Scientific Committee.

Applications for a KRESCENT *Program Post Doctoral Fellowship* are due **January 15, 2011**. For more information about these funding opportunities including guidelines, application forms, and help in preparing your application please visit The Kidney Foundation of Canada website, www.kidney.ca, or contact:
National Director of Research
The Kidney Foundation of Canada
300-5165 Sherbrooke St. West
Montreal, QC H4A 1T6
Telephone: 1 (800) 361-7494, ext. 225
(514) 369-4806, ext. 225
email: research@kidney.ca

Contact information

Heather Beanlands, RN, PhD, Associate Professor, Program Director-Master of Nursing, Daphne Cockwell School of Nursing, Ryerson University,
350 Victoria St., Toronto, ON.
Email: hbeanlan@ryerson.ca

• Are you moving? Let us know. In order to ensure undelayed delivery of your CANNT Journal and other communications, please indicate corrections or a change of address as soon as possible and mail to: Debbie Maure, CANNT, Suite 322, 336 Yonge St., Barrie, Ontario, L4N 4C8.

• Déménagez-vous? Avertissez nous. Afin d'assurer la livraison ininterrompue de votre journal de l'ACITN ainsi qu'autre correspondance, veuillez indiquer toute correction ou changement d'adresse à l'association aussitôt que possible en complétant ce formulaire et le poster à: Debbie Maure, ACITN, Suite 322, 336 Yonge St., Barrie, Ontario, L4N 4C8

Name/Nom: _____ Moving Date/Date de déménagement: _____

Address/Adresse: _____
Street No./No. Street/Rue Apt./App

_____
City/Ville Province Postal Code Postal

Adherence program launched for kidney recipients and caregivers

By Daniela Pizzuto, APR, Account Manager, Energi, Montréal, Québec

A kidney transplant is a life-changing experience that allows the recipient to enjoy newfound health and a new lease on life.

Despite this, some kidney recipients find the adjustment to post-transplant life a difficult one. The adjustment requires "adherence", which means taking prescribed medications at the same time every day for life, keeping clinic appointments for regular blood work and recognizing the early signs of rejection. Incorporating adherence into one's daily routine can be challenging, but it is crucial to long-term post-transplant health.

Launched in 2009, the **Transplant Adherence Program** is a free, national and bilingual adherence program designed to help post-transplant kidney patients start off on the right foot, with tools and information to help them develop or maintain good habits when it comes to their post-transplant treatment and overall care.

This program was developed for adult kidney recipients and can be used regardless of when the transplant took place or the medication regimen. Developed in consultation with nephrologists and renal transplant recipients, the program includes newsletters, an information booklet for recipients and caregivers, self-evaluation tools, a website and reminder tools such as an alarm pill box, and a collapsible cup and pill box.

Transplant Adherence Program®

Le Programme d'adhésion en transplantation MD

Information available to program members emphasizes the importance of following medical advice, keeping clinic appointments, and using reminders to help with medication adherence.

For more information or to become a member of the Transplant Adherence Program, visit **www.transplantadherence.ca** or call 1-877-691-7455.

The Transplant Adherence Program is one of several community-based initiatives supported by grants from Astellas Pharma Canada, Inc., an industry leader in immunology.

With a focus on life *after* transplantation, this is Astellas' second program to support the Canadian transplant community. Its sister program, Transplant Companions, launched in 2002, is aimed at pre-transplant kidney patients and is based on an interactive, small-group learning model. The program is now offered at 14 Canadian transplant and care centres, seven of which have made attendance compulsory for their pre-transplant patients. For more information, visit **www.transplantcompanions.ca**.

Lancement d'un programme d'adhésion pour les receveurs de rein et les aidants

Par Daniela Pizzuto, APR, Directrice de comptes, Energi, Montréal, Québec

Une greffe de rein est une expérience décisive qui permet au receveur de recouvrer la santé et de bénéficier d'un nouveau départ dans la vie.

Malgré cela, certains receveurs d'une transplantation rénale éprouvent des difficultés à s'adapter à leur vie après la greffe. Cette adaptation se fait par l'« adhésion », qui consiste pour le receveur à prendre le traitement prescrit à la même heure chaque jour pour le reste de sa vie, à se rendre à tous ses rendez-vous médicaux afin d'y effectuer des analyses sanguines régulières et à reconnaître les premiers signes de rejet. L'intégration de ces nouvelles habitudes aux activités quotidiennes peut être difficile, mais elle est essentielle au maintien d'une bonne santé à long terme à la suite d'une greffe.

Lancé en 2009, le **Programme d'adhésion en transplantation** est un programme gratuit, national et bilingue conçu pour soutenir les patients ayant reçu une greffe de rein dans leur nouvelle vie. Il fournit des outils et des renseignements visant à les aider à prendre ou à conserver de bonnes habitudes concernant leur traitement ou leur santé en général.

Ce programme s'adresse aux adultes ayant reçu une transplantation rénale, peu importe le moment auquel elle a été effectuée ou leur traitement. Élaboré avec la collaboration de néphrologues et de receveurs de greffe, le programme comprend des bulletins, une brochure d'information destinée aux receveurs et aux aidants, des outils d'auto-évaluation, un site Web et des outils de rappel tels qu'une boîte à pilules avec alarme, et un gobelet-pilulier rétractable.

Les renseignements fournis aux membres du programme mettent l'accent sur l'importance de suivre les conseils médicaux, de se rendre aux rendez-vous médicaux et d'utiliser les outils de rappel afin de favoriser l'adhésion au traitement.

Pour obtenir de plus amples renseignements ou pour devenir membre du Programme d'adhésion en transplantation, consultez le site **www.adhesionentransplantation.ca** ou téléphonez au 1-877-691-7455.

Le Programme d'adhésion en transplantation est l'une des nombreuses initiatives communautaires bénéficiant de subventions accordées par Astellas Pharma Canada, Inc., un chef de file du secteur de l'immunologie.

Ce programme, axé sur la vie *après* une transplantation, est le deuxième programme sur la transplantation soutenu par Astellas qui supporte le milieu canadien de la transplantation d'organes. Son programme jumeau, les Compagnons de la transplantation, lancé en 2002, s'adresse aux patients ayant une transplantation rénale et repose sur des ateliers d'apprentissage en petits groupes. Il est désormais offert dans 14 centres de transplantation et de soins au Canada, dont sept ont rendu la participation obligatoire pour leurs patients en attente d'une transplantation. Pour obtenir de plus amples renseignements, consultez le site **www.compagnonsdelatransplantation.ca**.

Nephrology Health Care Professionals Day!

La Journée des professionels de la santé en Néphrologie

September 15, 2010 / Le 15 septembre 2010

Nova Scotia

Celebrations at the Capital Health Renal Program, Halifax, NS. Colleen Wile (left) receiving the Nephrology Healthcare Professional Bursary from Susan MacNeil, Manager, NS Renal Program.

On September 15, 2010, the Capital Health Renal Program (CDHA) and its team members joined together to celebrate Nephrology Healthcare Professionals Day. Coffee and cake were served as team members joined together to celebrate and take pride in the contributions that they make every day in providing quality renal patient care. Cynthia Stockman, Health Services Manager Outpatient Nephrology, thanked all staff in attendance for their ongoing commitment and dedication to quality patient care for all renal patients at CDHA. Susan MacNeil, manager of the Nova Scotia Renal Program, was also on hand to present the second annual Nephrology Healthcare Professional Bursary. This year's bursary was presented to Colleen Wile, Clinical Nurse Educator, Capital Health.

Submitted by
Colleen Wile, RN, CNeph(C)
Clinical Nurse Educator,
Community Dialysis,
Halifax, NS

Québec

Celebrations at the Montreal General Hospital, Montreal, Québec / Célébrations à l'Hôpital général de Montréal. Front row / Rangée à l'avant : Mary Wooley, Francine Malenfant, Cathy Chan, Julia Csender. Back row / Rangée derrière: Diana Sacasti, Iryna Mytrofanova, Amelia Rocamora, Marie LeCavalier, Amélie Dumont, Stéphanie Parent.

It was very nice to celebrate our nephrology team! We shared a cake at our break and it was a good opportunity to show our appreciation to our colleagues for their good work.

Submitted by
Amélie Dumont, Clinician Nurse,
BSc, RN, CNeph(C)
Vice-President of Quebec/CANNT
Montreal General Hospital (MUHC)

Ce fût très agréable de célébrer notre équipe en Néphrologie. Nous avons partagé un gâteau lors de notre pause-café, et ca été une belle opportunité de témoigner notre appréciation à nos collègues pour leur bon travail!

Soumis par
Amélie Dumont, Inf. Clinicienne,
B.Sc.Inf., CNeph(C)
Vice-Présidente du Québec/ACITN
Hôpital Général de Montréal (CUSM)

Ontario

Special treats by social worker Corine MacNab for everyone at the Regional Kidney Care Program Simcoe/Muskoka.

Afternoon tea to celebrate the day—Regional Kidney Care Program Simcoe/Muskoka.

The Regional Kidney Care Program Simcoe/Muskoka celebrated Nephrology Healthcare Professionals Day with special 'treats' for everyone. Social Worker Corine MacNab lovingly made more than 100 cookies and personalized each one with the name of a renal team member. In keeping with the spirit of the day, it was a thoughtful and fitting gesture that recognized and thanked each individual's contribution to our collective renal team spirit and efforts. We also enjoyed a delicious choice of cakes at an afternoon 'drop-in' party to celebrate the day. It was nice to take a few minutes out of our busy day to thank each other for the important job we all do!

Submitted by
Beverly Watson, RN(EC), MN/ACNP, CNeph(C),
Nurse Practitioner,
Regional Kidney Care Program,
Simcoe/Muskoka, ON

Enjoying a hot breakfast at Sunnybrook Health Sciences Centre: Front left, Myoung-Hee (Amy) Kim, home dialysis nurse, Barb Wang, in-centre hemodialysis nurse. Back left: Janette Sviridov, home dialysis nurse and Amy Canter, nephrology social worker.

On September 15, 2010, the Division of Nephrology at Sunnybrook Health Sciences Centre celebrated Nephrology Healthcare Professionals Day. This day provided a wonderful opportunity to recognize and celebrate the unique contributions and expertise of the staff working within the division. All staff from hemodialysis, home dialysis and the in-centre nephrology acute care unit got together and enjoyed a hot breakfast hosted by the leadership team of the division. This enabled the leadership team to thank the staff for their collaboration, dedication, support and commitment to excellence in the care of people living with kidney disease. In the afternoon, we celebrated by having members of the leadership team deliver cake and coffee to all of the staff from hemodialysis, home dialysis and the in-centre nephrology acute care unit. We look forward to celebrating Nephrology Healthcare Professionals Day next year.

Submitted by
Nicole Di Paolo, RN, BScN, CNeph(C)
Patient Care Manager, Hemodialysis,
Division of Nephrology, Sunnybrook Health Sciences Centre,
Toronto, ON

Manitoba

Celebrations at the Manitoba Renal Program. Left to right: Lidia Worden (renal social work), Candace Spewak (renal pharmacist), Lorne Ceilen (renal health clinic nurse), Jing Zuo (renal dietitian), Elizabeth Chagas (renal dietitian), Marilyn Muir (community dialysis nurse).

The Manitoba Renal Program provided cookies for all of the members of the renal health care team. This included the renal health clinic, both dialysis units, home hemodialysis unit and community dialysis program.

Our renal program is very lucky to have dedicated social workers, dietitians, nurses, health care aids, unit clerks, and dialysis care technicians.

It's been great to work as a team and be able to celebrate as a team (plus, the cookies were great!)

Submitted by
Marilyn Muir RN, CNeph(C)
Clinical Resource Nurse
Health Sciences Centre Renal Program
Community Dialysis, Winnipeg, MB

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** 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 1er 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** 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.

Occupational burnout, retention and health outcomes in nephrology nurses

By Lori Harwood, RN(EC), MSc, CNeph(C), Jane Ridley, RN(EC), MScN, CNeph(C), Barbara Wilson, RN, MScN, CNeph(C), and Heather K. Laschinger, PhD, RN, FCAHS, FAAN

Abstract

Occupational burnout can have serious implications on productivity, nurses' health, service usage, and health care costs. This study examined the effect of burnout on nurses' mental and physical health outcomes and job retention. Randomly selected Canadian nephrology nurses completed surveys consisting of the Maslach Burnout Inventory and the Pressure Management Indicator. The nurses also completed questions related to job retention. After controlling for age and years of nephrology nursing experience, the multivariate results demonstrated that almost 40% of mental health symptoms experienced by nephrology nurses could be explained by burnout and 27.5% of physical symptoms could be explained by burnout. Twenty-three per cent of the sample had plans to leave their current position and retention was significantly associated with burnout, mental, and physical symptoms. Organizational strategies aimed at reducing perceptions of burnout are important, as a means to keep nurses healthy and working to their fullest potential.

Key words: nurse health outcomes, burnout, work environments, job retention, nephrology nursing

Introduction

Recent studies report that burnout is a significant issue for both American and Canadian nephrology nurses (Flynn, Thomas-Hawkins, & Clarke, 2009; Ridley, Wilson, Harwood, & Laschinger, 2009). Burnout among nephrology nurses has been reported to be as high as 41% (Ridley et al., 2009) and, as the global burden of kidney disease increases (Just et al., 2008), so too are demands being placed on the individuals who provide care to this patient population. The consequences of occupational burnout can be costly, affecting patient care and nurses' health, as well as costs to the health care system.

Burnout is a syndrome composed of three key features: emotional exhaustion, cynicism and reduced professional efficacy (Maslach, Jackson, & Leiter, 1997). It is representative of problems within the workplace, not the individual. Emotional exhaustion is considered the core measurement of burnout (Maslach, 2003), whereby the individual experiences overwhelming work stress, which ultimately erodes emotional and physical resources (Maslach, 2003). Numerous factors can contribute to burnout. Regardless of the source, consequences of burnout can be serious including decreased quality of patient care provided, poor morale, increased job turnover and absenteeism, as well as self-reported indices of physical exhaustion, insomnia, marital and family problems and alcohol and drug use (Maslach et al., 1997). Given these reported high burnout rates, further examination of the effects of burnout on nephrology nurses' physical and mental health outcomes is important.

Literature review

Factors associated with burnout

Many factors are documented in the literature as having a negative impact on burnout. Incongruent work status (Burke, 2004), younger age (Ilhan, Durukan, Tanner, Maral, & Bumin, 2008), new graduates (Cho, Laschinger & Wong, 2006; Ilhan et al., 2008), greater than 40 hours worked per week (Ilhan et al., 2008; Kanai-Pak, Aiken, Sloane, & Poghosyan, 2008), nurse staffing, and resource adequacy are significant predictors of burnout (Poghosyan, 2008). Workplace issues such as not working the night shift, fewer workplace changes and increased voluntary choice of workplace may decrease burnout (Arikan, Koksal, & Gokce, 2007).

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Jane Ridley, RN(EC), MScN, CNeph(C), Nurse Practitioner/Advanced Practice Nurse, London Health Sciences Centre, University Hospital, London, ON.

Barbara Wilson, RN, MScN, CNeph(C), Advanced Practice Nurse, London Health Sciences Centre, Victoria Hospital, London, ON.

Heather K. Laschinger, PhD, RN, FCAHS, FAAN, Distinguished University Professor, Associate Director of Nursing Research, Arthur Labatt Family School of Nursing, University of Western Ontario, London, ON.

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Numerous studies have examined job satisfaction and work environments and their effect on contribution to burnout. Sadovich (2005) identified inverse correlations between work excitement and emotional exhaustion and work excitement and depersonalization. Several researchers have noted that job satisfaction and work environments have a direct negative effect on burnout (Kalliath & Morris, 2002; Shamian, Kerr, Laschinger, & Thomson, 2002). A common concern among nurses is requiring more time and/or resources to accomplish their work (Kanai-Pak et al., 2008). Hemodialysis nurses in a U.S. sample who reported higher workloads were five times more likely to experience burnout. Furthermore, respondents who reported leaving three or more necessary patient care activities undone during their shift were more than twice as likely to report burnout. For those nurses who reported burnout, they were three times more likely to leave their current position (Flynn et al., 2009).

Research has demonstrated that empowering work environments can have an effect on nurse burnout. Workload, community, control, rewards, fairness, and values can promote either burnout or engagement in staff (Laschinger & Finegan, 2005). New graduates who perceived their work environment to be inclusive of structural empowerment were noted to experience less burnout, specifically emotional exhaustion (Cho et al., 2006). This phenomenon is not restricted to novice nurses. Researchers have found that the degree of staff nurses' empowerment corresponded to the amount of job strain (Laschinger, Finegan, Shamian, & Wilk, 2001). Also important are empowering behaviours by leaders. Supervisor incivility and cynicism can have a negative effect on nurses' job satisfaction (Greco, Laschinger, & Wong, 2006; Laschinger, Leiter, Day, & Gillin, 2009), while a lack of workplace empowerment, emotional intelligence, organizational commitment (Young-Ritchie, Laschinger, & Wong, 2009) and organizational support have also been shown to affect nurse dissatisfaction and burnout (Aiken, Clarke, & Sloane, 2002).

Consequences of burnout

Nurse retention. Many studies have shown an association between burnout and intention to leave the job. Nurses who experience burnout are less committed to their organization (Cho et al., 2006; Laschinger, Leiter, Day, & Gilin, 2009) and are more likely to leave their position (Leiter, Harvie, & Frizzell, 1998). In Laschinger et al.'s (2009) study, emotional exhaustion, cynicism, and supervisor incivility most predicted staff turnover intentions. Congruent work status (e.g., part-time or full-time employment status per nurses' preferences) increased job retention and satisfaction and decreased absenteeism (Burke, 2004).

Nurse health outcomes. Occupational climate refers to employees' perceptions of organizational features such as how decisions are made in the workplace and frequency of injury. Occupational climate is independently associated with nurse injuries and measures of burnout (Stone, Du, & Gershon, 2007). A systematic review on the effect of occupational climate on nurse health outcomes provided support for an association between occupational climate and nurse health. However, data was limited, relationships were weak, and additional studies are required (Gershon et al., 2007). Other factors impacting nurses' health have also been studied. Congruent work status contributes to fewer psychosomatic symptoms and fewer physical health problems for nurses (Burke, 2004). Nurses who rated their workplace(s) positively using the Nursing Work Index-Revised reported better health status, as measured by the SF-36 (Budge, Carryer, & Woods, 2003). Supervisory support has also been studied. Nurses who consider their supervisor(s) to be supportive also perceive less occupational stress and report improved health outcomes such as fewer somatic complaints, headaches, fatigue, and backaches (Hall, 2007). A relationship between access to empowerment structures and occupational mental health has been identified. Perceived access was strongly associated with positive occupational mental health (Laschinger & Havens, 1997), whereas lack of access resulted in job stress and its associated sequelae, including absenteeism and a negative impact on mental health (Laschinger, Wong, McMahon, & Kaufmann, 1999).

Patient care. Patients' perceptions of quality of care are heavily influenced by the care they receive by nurses (Carey & Siebert, 1993). When registered nurses identified their work as satisfying and meaningful, patients reported being satisfied with the care they received (Leiter, Harvie, & Frizzell, 1998; Vahey, Aiken, Sloane, Clark, & Vargas, 2004). Research has supported the hypothesis that the relationship between workplace factors and adverse events is impacted by burnout (Laschinger & Leiter, 2006). Burnout has been documented to be associated with nurses' perceptions of lower patient safety (Halbesleben, Wakefield, Wakefield, & Cooper, 2008) and decreased quality of care (Kanai-Pak, Aiken, Sloane, & Poghosyan, 2008). A high level of burnout in nephrology nurses and physicians was also reported to be associated with poor patient and client satisfaction (Argentero, Dell'Olivo, & Ferretti, 2008).

Burnout and nephrology nurses. Like nurses in different areas of practice, nephrology nurses who perceive their work environment as negative were more likely to leave their job(s) (Gardner, Fogg, Thomas-Hawkins, & Latham, 2007). Workload, nurse-patient ratios (Flynn et al., 2009; Lewis, Bonner, Campbell, Cooper, & Willard, 1994) and hours worked (Klersy et al., 2007) were associated with burnout, as were personal aspects such as a low sense of team coherence, lack of support, and increased personal stress (Lewis et al., 1994). Older hemodialysis staff and more experienced staff in London, U.K., had higher levels of burnout, psychological distress, and job dissatisfaction (Ross, Jones, Callagnah, Eales, & Ashman, 2009). Forty-two per cent of the hemodialysis staff in this sample were non-nurses. In a Turkish sample, hemodialysis nurses reported higher emotional exhaustion scores for nurses who considered leaving the profession, did not find the profession suitable, and who worked in units where there were no precautions against infectious diseases (Kapucu, Akkus, Akdemir, & Karacan, 2009). Like other areas of practice, burnout also appears to have a negative effect on nephrology patients' perceptions of their care (Argentero et al., 2008).

In a descriptive study, Ridley et al. (2009) explored conditions of work effectiveness, magnet hospital traits, burnout, and physical and mental reaction to stress and empowerment. The results highlighted some concerns and areas of occupa-

tional stress for Canadian nephrology nurses. In a secondary data analysis of this sample (Harwood, Ridley, Wilson, & Laschinger, 2010) empowerment, specifically access to resources, was a predictor of burnout for nephrology nurses. Overall, the working environment was favourable with high standards of care and good relationships with peers. However, Ridley et al. (2009) concluded that some nurses appeared to be struggling with burnout, and mental and physical health symptoms and further examination was warranted.

Summary

Common contributors to burnout are job dissatisfaction, work environments that are not empowering and have inadequate supervisory support, difficult working conditions, nurse experience, workload, intrapersonal stress and lack of coping, and high nurse-patient ratios. The literature on nephrology nurses and burnout is growing, but remains limited. However, it would appear that contributing factors to burnout, such as work environment characteristics and workload, are similar to other practice areas. Nephrology nurses, like other nurses who experience burnout are more likely to leave their jobs. Nephrology patients are also impacted by nurse burnout with reported associations between burnout and the negative effect on patients' satisfaction with care. In summary, burnout appears to be a problem for nephrology nurses and from one descriptive study (Ridley et al., 2009), there is some rationale to hypothesize that burnout is contributing to mental and physical health symptoms for this group of nurses. However, further research is needed in this area.

Purpose

This study was a secondary data analysis of data derived from Ridley et al.'s (2009) study investigating nephrology nursing work environments in Canada. Specifically, the purpose of this secondary data analysis was to examine the influence of burnout among Canadian nephrology nurses on mental and physical health, as well as job retention. We hypothesized that burnout for nephrology nurses is similar to burnout experienced by nurses working in other practice areas and, as such, will have a negative impact on nurses' mental and physical health outcomes.

Research questions

The research questions that guided this analysis were as follows:

1. What is the relationship between nephrology nurses' perceptions of occupational burnout and their intention to leave their jobs?
2. What components of burnout are predictors of mental health symptoms in nephrology nurses?
3. What components of burnout are predictors of physical health symptoms in nephrology nurses?

Methodology

Sample

The sample consisted of randomly selected nurses from the Canadian Association of Nephrology Nurses and Technologists (CANNT) who consented to be on a mailing list for research information previously reported by Ridley et al. (2009). After ethical approval was obtained, surveys were mailed to 300 nurses. The surveys were distributed by mail with a second survey three months after the initial mail-out.

Instrumentation

The Maslach Burnout Inventory General Survey (MBI) was used in this study. The MBI is a self-administered survey that was developed to measure burnout in occupations providing human services. This is a 16-item, seven-point Likert scale (0 to 6) instrument with three subscales; emotional exhaustion, cynicism, and professional efficacy. Burnout is demonstrated with high levels of emotional exhaustion and cynicism and low levels of professional efficacy. It is the most widely used instrument to measure burnout (Maslach et al., 1997). An average rating on the zero to six frequency rating for each question in the subscale is calculated. Reliability for the MBI is well established with Cronbach alpha scores ranging from .71 to .91 (Maslach et al., 1997).

The Pressure Management Index (PMI) is a two-part questionnaire designed to assess health outcomes and burnout (Williams & Cooper, 1998). Two subscales of the PMI were used for this study. The frequencies of physical symptoms were measured in part one on a Likert scale ranging from one to six with high scores indicating greater frequency of symptom experience. Part two was a mini-mental health assessment asking questions regarding feeling nervous or down in the dumps, happy, downhearted, and blue. These items were rated on a Likert scale with scores ranging from zero to six. Questions related to feeling calm and happy were reverse-coded whereby a low score indicated the nurse experienced the symptom all of the time and a high score indicated none of the time. The internal consistency scores are reported at .82 to .85 across diverse populations. Predictive validity has been established with other mental health measures (Williams & Cooper, 1998).

Data analysis

SPSS was used for the statistical analysis and the significance level was set at 0.05. Hierarchical multiple linear regression was used to examine the predictors of burnout on mental and physical health symptoms. Bivariate analysis of retention and burnout was conducted using Pearson's correlation.

Results

The original response rate was 48% for return of the surveys (Ridley et al., 2009). The sample size for this study was 121, which is adequate for multiple regression (Tabachnick & Fidell, 2007). The demographic results of the sample are summarized in Table 1.

Burnout and retention

Nearly 42% of the sample reported experiencing severe emotional exhaustion while 23% reported severe cynicism (see Table 2). Combined, this suggests high levels of burnout among the respondents. Two of the three burnout subscales, emotional exhaustion and cynicism, were significantly associated with the nurses' intention to leave their jobs, as well as mental and physical health symptoms (see Table 3). Professional efficacy was not significantly associated with an intention to leave their job.

Mental health symptoms

Almost 40% (R^2 .394, $p<.0001$) of mental health symptoms experienced by nephrology nurses could be explained by burnout, specifically emotional exhaustion and cynicism, when controlling for age and years of nephrology nursing (see

Table 4). For every standardized unit increase in emotional exhaustion and cynicism, mental health symptom scores decreased (worsened) by (-.353) and (-.333) respectively. Of the two measures of burnout examined, it was emotional exhaustion that had the greater impact on mental health symptoms. As the nurses experienced mental health symptoms such as feeling nervous, down in the dumps, not calm, down-hearted and blue, and not happy, scores decreased. Age and years of nephrology experience had an effect on mental health symptoms such that, as age and nephrology experience increased, mental health symptoms increased. However, this result was not significant.

Physical health symptoms

Almost 28% (R^2 .275, p<.001) of the physical symptoms that the nephrology nurses experienced could be explained by burnout, specifically emotional exhaustion and cynicism when controlling for age and years of nephrology nursing experience (see Table 5). However, for physical health symptoms (feeling tired or exhausted, short of breath, muscles trembling, pickling sensation), only emotional exhaustion had a significant impact. For every increase in emotional exhaustion unit scores, physical symptoms increased by .410. Cynicism also had a direct influence on physical health, but this was not significant.

Discussion

This cross-sectional study examined the variance of physical and mental health symptoms explained by burnout among nephrology nurses across Canada. Emotional exhaustion and cynicism increased mental health symptoms while only emotional exhaustion had an effect on physical health symptoms. Job retention was negatively associated with burnout.

It was previously reported that nephrology nurses who experience burnout were three times more likely to leave their jobs (Flynn et al., 2009). Our study provides additional evidence that burnout significantly contributes to nephrology nurses' intention to leave their jobs. Nephrology nurses are a highly skilled group of individuals requiring lengthy orientation programs to learn the technical aspects of the role, medication regimens, and dialysis access management, as well as the holistic impact of renal failure on individual patients and their families. Given the costs involved in orientation programs and the shortage of registered nurses available who may choose to work in the area, our research supports that retention should be a focus for nephrology leadership.

Mental and physical symptoms due to occupational burnout are very concerning. To our knowledge this is the first study to examine the effects of burnout on health outcomes for nephrology nurses. Although this study cannot conclude a causal relationship between burnout and mental and physical health, the results do suggest that a portion of the mental and physical health ailments nurses are experiencing may be associated with occupational burnout, particularly mental health and emotional exhaustion. Our results are consistent with pre-

Table 1. Demographic characteristics

Characteristics	Mean (SD)
Years of Age (mean)	46.2 (7.87)
Years in Nursing (mean)	23.2 (8.9)
Years in Nephrology Nursing (mean)	12.6 (8.12)
Gender	**Percent**
Male	3
Female	97
n=121	

Table 2. Burnout severity scores on Maslach Burnout Inventory

Severity	Cynicism	Emotional Exhaustion
Low (score <3)	76.6%	58.1%
High (score >3)	23.4%	41.9%

Table 3. Correlation between nurse retention and burnout and nurses' health outcomes

Variable	Cynicism	Emotional Exhaustion	Professional Efficacy	Mental Health Symptoms	Physical Health Symptoms
Intention to leave job	.488*	.461*	-.304	-.373^	.485*
*p<0.0001, ^p<.001					

Table 4. Hierarchical multiple regression of predictor values explaining mental health symptoms

Variable	B	Standardized Beta	β
Age	-.002	-.017	-.216
Years in Nephrology	-.007	-.071	-.882
Emotional Exhaustion	-.195	-.353*	-3.57
Cynicism	-.179	-.333*	-3.38
R^2 = .394, adjusted R^2 = .373, df = 116, p <.0001, *p<.001			

Table 5. Hierarchal multiple regression of predictor values explaining physical health symptoms

Variable	B	Standardized Beta	β
Age	-.017	-.135	-1.52
Years in Nephrology	.002	.019	.211
Emotional Exhaustion	.279	.410*	3.79
Cynicism	.077	.117	1.08
R^2 = .275, adjusted R^2 = .250, df = 116, p<.0001, *p<.0001			

vious studies, which have demonstrated associations between the work environment, burnout, and nurses' health (Bourbonnais, Comeau, Vezina, & Dion, 1998; Budge et al., 2003; Burke, 2004; Woodward et al., 1999) in non-nephrology settings. Application of the results of this study through the promotion of positive, empowering work environments may decrease burnout and, ultimately, improve retention and health outcomes. To do this, Kanter (1977) maintains that work environments that provide access to support, information, resources, and opportunities within the job are needed and will lead to empowered, active, and productive employees. Access to resources has been shown to be an important contributor to burnout for nephrology nurses (Harwood et al., 2010).

While difficult to consider in our economic climate, there are opportunities for nursing leaders to improve nurses' work environments through opportunities for shared decision-making (e.g., through unit level task teams), formal recognition of work well done, providing information to staff in a timely manner, and supporting the project work of employees on hospital-wide committees. Additionally, there are opportunities for nursing leadership to further their own knowledge through published literature on work environment characteristics that promote positive working conditions for their staff (e.g., magnet hospital traits). The key for nursing leaders is to be creative and involve their staff, both individually and collectively, in developing strategies to enhance nurses' learning and work-related goals.

Nursing leadership must also consider that increased absenteeism/sick days amongst their staff may be a sign of burnout. Nursing leaders have opportunities to identify resources within their organizations (e.g., employee assistance programs), and utilize them, as needed, to assist employees with managing their physical and mental health ailments. Once again, organizational strategies aimed at reducing perceptions of burnout would be an important consideration, as a means to keeping nurses healthy and working to their fullest potential.

It is also important for those in nephrology nursing to consider the impact of burnout on our patients. The nature of chronic renal failure dictates that nephrology nurses have long-term relationships with patients such that patients become familiar with their nurses and may become aware of subtle changes in nurses' behaviour and demeanour that may be associated with burnout. Patients who perceive their nurse to be 'burned out' may perceive less quality in the care they receive. For units that monitor patient satisfaction as a quality indicator, decreased patient satisfaction may be an indication of burnout among the staff.

Limitations

As previously stated (Harwood et al., 2010) the sample from this study was obtained from a volunteer professional association with the mandate for professional development and the influence of this on the results is unknown.

Conclusion

In summary, burnout is an important area of study, as its ramifications are far-reaching: decreased retention further worsening the nursing shortage, a reduction in the quality and quantity of service delivery, and increased costs associated with retraining. The results of this study demonstrate that occupational burnout for nephrology nurses extends beyond nurses' work life and impacts on their physical and mental health.

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Contact hour: 2.0 hrs

Smoking cessation in patients with chronic kidney disease

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

Objectives

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

- Describe benefits of smoking cessation for patients with chronic kidney disease
- Describe common symptoms of nicotine withdrawal
- Describe non-pharmacologic measures that patients and health professionals can employ to encourage smoking cessation
- Compare and contrast currently available pharmacologic agents for smoking cessation.

Introduction

The purpose of this article is to review strategies for smoking cessation, with a particular focus on patients with chronic kidney disease (CKD).

Epidemiology and health consequences of smoking

Smoking is the largest preventable cause of death, responsible for approximately 45,000 Canadian deaths annually (Regier, Jensen, & Chan, 2010; Rennard, Rigotti, & Daughton, 2010). Nearly 50% of long-term smokers die prematurely from smoking-related consequences (10–17 years younger than non-smokers), yet approximately 18% of Canadians smoke (Regier et al., 2010). Smoking is associated with multiple health problems including: cardiovascular disease, lung cancer, chronic obstructive lung disease, other cancers, peripheral vascular disease, hypertension, stroke, infectious diseases, peptic ulcer disease, tooth decay and gum disease, osteoporosis, and cataracts (Smiley, 2010). Not only do cigarettes contain more than 4,000 chemicals, but the annual cost for one package of cigarettes daily is approximately $3,600 (Regier et al., 2010)! After quitting, smokers feel the health benefits of their decision to quit smoking almost immediately (see Table 1).

Studies have estimated that between 15% to 17% of individuals with CKD who initiate dialysis report current tobacco use, and between 24% to 46% report previous tobacco use (Longenecker et al., 2002; Stack & Bloembergen, 2001). Individuals with CKD already have rates of cardiovascular mortality 20 to 40 times greater than the general population (Culleton et al., 1999; Foley, Parfrey, & Sarnak, 1998). Smoking adds to this cardiac risk, as it has been found to be an independent risk factor for cardiovascular morbidity and mortality, and overall mortality among individuals with CKD and those receiving dialysis (Braatvedt, Rosie, Bagg, & Collins, 2006; Foley, Herzog, & Collins, 2003; Kestenbaum et al., 2002; Stack & Murthy, 2010). Among dialysis patients, those who continue to smoke are 43% more likely to die than lifetime non-smokers (Stack & Murthy, 2010). Smoking cessation is, therefore, a very important goal for any patient with CKD who smokes. Few data describe a reduction in morbidi-

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Table 1. Health benefits of smoking cessation relative to quit time

Time	Health Benefit
8 hours	Blood oxygen increases to normal
48 hours	Risk of heart attack begins to decrease
2–12 weeks	Lung function improves by 30%
1 year	Risk of heart attack reduced by 50%
10 years	Lung cancer mortality decreased by 50%
15 years	Risk of heart disease similar to non-smoker

(Adapted from: On the road to quitting, 2009)

ty and mortality for patients with CKD when they quit smoking. However, it is assumed that the benefits to smoking cessation among the general population may be extrapolated to CKD patients (Stack & Murthy, 2010). The benefits of smoking cessation can also include preservation of renal function in individuals with CKD, but not receiving dialysis (Chuahirun et al., 2004; Halimi et al., 2000; Schiffl, Lang, & Fischer, 2002).

Barriers to quitting

The addictive power of nicotine is the most challenging barrier to overcome for smokers wanting to quit. Without nicotine, a smoker can develop numerous unpleasant withdrawal symptoms (see Table 2). The pleasurable effects of tobacco that may be associated with certain behaviours or people (for example, meals, beverages, events or time) are also important considerations when contemplating quitting smoking. Additionally, low mood and depression are adverse effects associated with smoking cessation that may be barriers to smoking cessation for some (Rennard et al., 2010). Fear of weight gain is also a potential barrier to quitting smoking. However, the average weight gain is less than 5 kg in the first year (Regier et al., 2010). Low calorie diets and cognitive behavioural therapy may be effective to mitigate weight gain from smoking cessation, and exercise may confer a long-term benefit for preventing weight gain (Parsons, Shraim, Inglis, Aveyard, & Hajek, 2009).

Interventions for smoking cessation

Both non-pharmacologic and pharmacologic interventions are important for successful smoking cessation. Recent reviews of the available evidence suggest that psychosocial counselling and pharmacotherapy (particularly with first-line therapies bupropion [Zyban®], varenicline [Champix®] and nicotine replacement) can increase an individual's chance of abstinence. A combination of counselling and pharmacotherapy may achieve the highest abstinence rates (Fiore et al., 2008; Rennard et al., 2010).

Table 2. Nicotine withdrawal symptoms and tips for relief

Symptom	Tips For Relief
Restless, irritable	Walk, hot bath, relaxation exercises
Tired	Take naps, walk, get fresh air
Trouble sleeping	Avoid caffeine in the evening, relax before bedtime
Coughing	Drink fluid (keeping within daily limit), lozenges
Hungry	Eat crunchy and chewy (but low calorie) snacks
Concentration	Avoid extra stress, reduce workload if possible
Depressed/angry	Talk to others, tell yourself these feelings will pass
Constipation	Renal diet limits high-fibre foods; try medications such as docusate or sennosides
Dizziness	Change positions more slowly

(Adapted from: Hughes, 2007; Withdrawal symptoms and how to cope, 2009)

Non-pharmacologic

Various types of non-pharmacologic therapy have demonstrated efficacy for smoking cessation, including counselling (Fiore et al., 2008; Rennard et al., 2010). Several counselling methods, including counselling by health professionals, telephone quit lines, individual counselling, group counselling, and computer program or internet counselling have demonstrated efficacy (Fiore et al., 2008; Rennard et al., 2010). Although longer duration of counselling is associated with greater benefit, it has been demonstrated that even interventions as short as three minutes can increase smoking abstinence rates by up to 30% (Regier et al., 2010). It is recommended that advice to quit and brief counselling be performed by a health professional at any and all contact with a smoker (Fiore et al., 2008). Intensive interventions, with person-to-person communication for four or more sessions may be more effective to achieve smoking abstinence than other non-pharmacologic methods (Fiore et al., 2008). The personal contact dialysis health care professionals have with hemodialysis patients makes the dialysis unit an ideal setting for smoking cessation interventions. Important elements of an individual counselling session are described in Table 3. Other non-pharmacologic therapies include acupuncture and hypnotherapy. However, studies have not described a benefit for these techniques in achieving successful abstinence (Rennard et al., 2010).

Pharmacotherapy

Pharmacotherapy for smoking cessation includes two categories: over the counter (OTC) and prescription pharmacotherapy. Clinical practice guidelines do not recommend one therapy over another, but emphasize that patient preference, previous experience and adverse effects, as well as other medical conditions guide decision-making between the first-

Table 3. The "Five A's" strategies to help patients willing to quit

Ask	Identify and document tobacco use habits
Advise	Use a clear, strong and personalized approach to advise every tobacco user to quit
Assess	Determine the willingness to quit at this time
Assist	Offer medication, provide counselling or refer to counselling where possible. For patients unwilling to quit, provide interventions to encourage quitting at a future date
Arrange	Determine a follow-up date with the patient to review the plan or another attempt to encourage smoking cessation

(Adapted from Fiore et al., 2008)

line therapies bupropion (Zyban®), varenicline (Champix®) and nicotine replacement. Each of the first-line therapies can increase the odds of a smoker quitting two to three times more than with placebo, with six-month abstinence rates of 19% to 29% (Fiore et al., 2008; Rennard et al., 2010). A recent Canadian review of clinical and cost effectiveness of pharmacotherapy for smoking cessation found that nicotine replacement therapy (NRT), bupropion and varenicline were all effective agents for smoking cessation when compared with placebo and that varenicline is superior to the nicotine patch (used after quit date) and bupropion. This review found that bupropion and varenicline were more cost effective than NRT, and that varenicline is the most cost-effective agent (Canadian Agency for Drugs and Technologies in Health, 2010). The relative efficacy of various pharmacologic therapies for smoking cessation at six months is described in Table 4.

Over the counter pharmacotherapy is composed of nicotine replacement therapy (NRT) in various formulations (Table 5). NRT aids with physiologic nicotine withdrawal by simulating nicotine levels inhaled from smoking (Smiley, 2010). NRT is available in a variety of products, including gum, lozenges, patches, and inhalers that patients can self-select at pharmacies in Canada. Dosing of NRT is based on the average number of cigarettes smoked per day. Dosing parameters differ for each NRT product. Smokers with CKD may use the usual doses of NRT, and experience similar adverse effects to nicotine as individuals with normal renal function (Manley & Stack, 2008).

First-line prescription pharmacotherapy for smoking cessation includes bupropion (Zyban®) and varenicline (Champix®) (Table 5). Bupropion is a dopamine and norepinephrine reuptake inhibitor that targets addictive centres in the brain by increasing dopamine activity (enhances reward pathways). Patients starting bupropion are encouraged to choose a smoking quit date on day seven to 14 of therapy. Patients who have not quit after seven weeks of bupropion therapy are generally considered non-responsive to bupropion (Fiore et al., 2008). Contraindications include alcohol abuse, previous seizures, eating disorders, and history of head trauma, stroke, or brain injury because of bupropion's ability to decrease the seizure threshold (Product Information: Zyban®, bupropion, 2008). Varenicline is a partial agonist/antagonist at the alpha-4 beta-2 nicotine receptor (the receptor that mediates nicotine dependence). Agonist activity decreases nicotine cravings and physiologic withdrawal, while antagonist activity decreases pleasure associated with smoking (nicotine is unable to bind to the receptor) (Product Information: Chantix®, varenicline, 2010). Patients starting varenicline should choose a quit date one week after starting therapy (Regier et al., 2010). Safety in patients with serious psychiatric illness such as schizophrenia, bipolar, and major depression has not been established, and cases of serious adverse reactions such as depressed mood, agitation, suicidal thoughts, and suicide have been reported. Some studies have demonstrated that varenicline is more effective than nicotine replacement. Individuals taking varenicline are 1.7 times more likely to quit than those taking nicotine replacement therapy (Aubin et al., 2008; Stapleton et al., 2008). It is recommended that health care professionals follow up with smokers initiating therapy with bupropion or varenicline after one to two weeks in order to determine if patients are experiencing any mood changes. Patients should be instructed to stop the medication should such changes occur (Rennard et al., 2010). The doses of both varenicline and bupropion must be reduced as kidney function decreases (Manley & Stack, 2008; Product Information: Zyban®, bupropion, 2008; Product Information: Chantix®, varenicline, 2010; Product Monograph: Champix®, Chantix®, varenicline, 2010; Worrall, Almond, & Dhillon, 2004). Bupropion, nicotine and likely varenicline reduce weight gain while being used for smoking cessation, but existing data cannot confirm a long-tern effect (Parsons, Shraim, Inglis, Aveyard, & Hajek, 2009).

Implementing a quit plan with a patient

Important factors for smokers to successfully achieve abstinence include a desire to quit, but also the skills, knowledge and support that are required to quit (Rennard et al., 2010). Health professionals can facilitate a desire to quit by engaging with smokers about quitting on a regular basis in a friendly, non-judgemental manner. They can also encourage

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Table 4. Efficacy of pharmacologic therapy for smoking cessation at 6 months

Intervention	Efficacy odds ratio (95% confidence interval)	Estimated Abstinence rate % (95% confidence interval)
Placebo	1.0	13.8
Long-term nicotine gum (> 14 weeks)*	2.2 (1.5–3.2)	26.1 (19.7–33.6)
Varenicline (1 mg daily)	2.1 (1.5–3.0)	25.4 (19.6–32.2)
Bupriopion SR	2.0 (1.8–2.2)	24.2 (22.2–26.4)
Nicotine patch (6–14 weeks)	1.9 (1.7–2.2)	23.4 (21.3–25.8)
Nicotine gum (6–14 weeks)	1.5 (1.2–1.7)	19.0 (16.5–21.9)
Patch (long term, > 14 weeks) + as needed nicotine	3.6 (2.5–5.2)	36.5 (28.6–45.3)
Patch + Bupropion SR	2.5 (1.9–3.4)	28.9 (23.5–35.1)
Patch + inhaler	2.2 (1.3–3.6)	25.8 (17.4–36.5)

(Adapted from: Fiore et al., 2008)
**How to read this table: Individuals who receive therapy with long-term nicotine gum are 2.2 times more likely to quit smoking at six months than those who receive a placebo. Note—this is not an exhaustive list of therapies with evidence for efficacy for smoking cessation.*

Table 5. Pharmacotherapy for smoking cessation in chronic kidney disease

Drug Class (dose)	Advantages	Disadvantages
Nicotine gum (e.g., Nicorette®) (2–4 mg/dose; Use 1 piece per hour as needed/Use 4 mg dose if > 15–25 cigarettes per day) Maximum daily dose = 20 mg) **Nicotine lozenge (e.g., Thrive®)** (1–4 mg/dose; 1 lozenge every 1–2 hours × 6 wks then q 2–4 hours × 3 weeks, then q 4–8 hour × 3 weeks (start with lower dose if time for first craving upon waking is < 30 minutes). Maximum daily dose = 25 mg)	• Quick absorption and onset of nicotine • Patient-controlled delivery of nicotine • Easy dose titration • May be used in combination with nicotine patch or bupropion (to control craving and withdrawal) • Available without prescription	• Short duration of action (30 minutes per piece) • Reduced absorption with acidic beverages (e.g., coffee, tea, soft drinks, alcohol)—space by 15 minutes • Appropriate technique required (for gum—'bite, bite, park' for 30 minutes only, for lozenge—dissolve over 30 minutes) • Not recommended with recent or unstable cardiovascular disease • Adverse effects: headache, insomnia, nausea, light-headedness, irritability, hiccups, sore jaw, mouth ulcers, heartburn • Some complain of unpleasant taste • Contraindicated in individuals with dental problems or temporomandibular joint syndrome
Nicotine patch (e.g., NicoDerm®) (Three-step system: 21 mg/d [*Step 1 × 6 weeks*], 14 mg/d [*Step 2 × 2 weeks*], and 7 mg/d [*Step 3 × 2 weeks*] patches) Lower dose (start at Step 2) if < half pack daily Apply to clean, dry, non-hairy area daily.	• Continuous delivery of nicotine leads to fewer adverse effects • Potential reduction of morning cravings due to overnight delivery of nicotine • Well-tolerated • Once-daily application • May be used in combination with nicotine gum or lozenges • Generally recommended as the favoured nicotine replacement product • Available without prescription	• Little flexibility to deal with cravings and withdrawal symptoms • Adverse effects: headache (20%), skin irritation (32%) (rotate sites), vivid dreams, insomnia, light-headedness, irritability • Caution with recent or unstable cardiovascular disease (but not contraindicated)
Nicotine inhaler (e.g., Nicorette®) (6–16 cartridges per day × 12 weeks, then taper over 6–12 weeks) 1 cartridge = 4 mg nicotine Note: 10 puffs = 1 puff from cigarette	• Mimics hand-to-mouth motion of smoking cigarettes • Quick absorption and onset of nicotine • Patient-controlled delivery of nicotine • Easy dose titration • Available without prescription	• More expensive than other nicotine replacement therapies • Inhaler does not work at temperatures <5°C • Not recommended with recent or unstable cardiovascular disease • May not be suitable for individuals with asthma due to potential for bronchospasm • Adverse effects: throat irritation (66%), cough (32%), rhinitis (23%), dyspepsia (18%), nausea, light-headedness, headache, irritability
Bupropion (Zyban®) 150 mg once daily for reduced renal function (monographs do not state a specific CrCl) 150 mg once every 3 days for dialysis Usual duration 7–12 weeks	• Reduces psychological cravings/habit in addition to physiologic withdrawal symptoms • May be used in combination with nicotine gum or lozenges • Reduce or delay weight gain • Can be used safely in cardiovascular disease	• Seizure risk (contraindicated if patient at increased risk for seizures) • Possible association with suicidal events • Adverse effects: headache, insomnia, agitation, light-headedness, irritability, shakiness, vivid dreams, dry skin and mouth, upset stomach • Requires prescription
Varenicline (Champix®) 0.5 mg once daily × 3 days then increased to 0.5 mg bid CrCl < 30 mL/min 0.5 mg once daily for hemodialysis Use for 12 weeks, then repeat 12 weeks if unsuccessful	• Antagonist action at nicotine receptors decreases pleasure associated with smoking • Not contraindicated with cardiovascular disease • High efficacy rate versus placebo, may be more effective than nicotine replacement	• Neuropsychiatric events (depression, suicidal thoughts, suicide) have been reported with use in some patients • High incidence of nausea • More expensive than other smoking cessation medications • Adverse effects: headache, insomnia, nausea (30%), light-headedness, irritability, strange dreams (18%), mood changes • Not recommended in combination with other therapies • Caution if history of psychiatric illness • Requires prescription

(Adapted from: Fiore et al., 2008; Product Information: Zyban®, bupropion, 2008; Product Information: Chantix®, varenicline, 2010; Product Monograph: Champix®, Chantix®, varenicline, 2010; Regier et al., 2010; Smiley, 2010; The Pharmacist's Letter, 2008; Worrall et al., 2004); CKD = chronic kidney disease, CrCl =creatinine clearance

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access to numerous available resources within their institution, health region, province or country (see Table 6). It is important to note that most smokers require multiple attempts to quit before achieving long-term success. It may be helpful for health professionals to consider smoking to be similar to other chronic conditions. This can help reinforce the importance of follow-up with smokers about smoking cessation (Fiore et al., 2008; Regier et al., 2010; Rennard et al., 2010).

When discussing smoking cessation with a patient, it is important to ask about willingness to quit, quantity of tobacco use, and history of previous attempts to quit. Health professionals should deliver a consistent message to smokers that effective treatment for quitting is available. Health professionals can gently revisit the issue with smokers unwilling or unable to attempt a quit date. Messages concerning smoking-related health concerns (such as cardiovascular or lung disease) may be a source of motivation to quit for some smokers (Fiore et al., 2008; Rennard et al., 2010).

Once a smoker agrees to an attempt at smoking cessation, it is important to work towards a quit date that the patient initiates. When compared to those who taper smoking before the quit date, those who do not have similar quit rates (Rennard et al., 2010). Smokers should also understand that medications and counselling do not eliminate all signs and symptoms of nicotine withdrawal, and that alternate strategies can be employed to manage these symptoms (Table 2). At follow-up, health professionals should ask about and address adverse effects of medications for smoking cessation (e.g., mood changes with bupropion or varenicline or throat irritation from nicotine lozenges). Alternative doses or therapies can be offered if patients are experiencing adverse effects. At follow-up, health care professionals should also ask about and address adverse effects associated with smoking cessation, such as weight gain and depression. Encouraging low calorie diets, exercise programs or referrals to other services or professionals could all be considered if individuals experience adverse effects related to smoking cessation. Continued encouragement is very important, as relapse is common; up to 35% to 40% of smokers who achieve abstinence may relapse after one to five years (Rennard et al., 2010).

Table 6. Canadian resources for smoking cessation

Resource	Website
Health Canada	www.quit4life.com
Canadian Cancer Society	www.cancer.ca
Canadian Lung Association	www.lung.ca
Heart and Stroke	www.heartandstroke.ca
Smokers' helpline (Canada-wide)	www.smokershelpline.ca

Implications for practice

Many patients with CKD are smokers, which increases their risk of morbidity and mortality. It is reasonable to conclude that the benefits to smoking cessation among the general population may be extrapolated to CKD patients (Stack & Murthy, 2010).

The process of managing smoking cessation among patients with CKD and receiving dialysis requires a multifaceted approach to assess, encourage and support outpatients through this chronic process. Patients attempting to quit require frequent monitoring for adverse effects of smoking cessation, medication and for relapse. Multiple quit attempts are likely required and all members of the renal health team should be encouraged to pursue smoking cessation opportunities with all patients who smoke. Members of the renal health team, including nephrologists, nurses, dietitians, pharmacists, social workers, occupational therapists and physiotherapists can work together in order to provide patients with the education and comprehensive team-based care required to achieve successful abstinence from smoking.

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CONTINUING EDUCATION STUDY QUESTIONS **Contact hour: 2.0 hrs**

Smoking cessation in patients with chronic kidney disease

By Colette B. Raymond, PharmD, MSc, ACPR, and Heather Naylor, BSc Pharm, ACPR

1. The true statement below about the epidemiology of dialysis patients and smoking is:

(a) dialysis patients who continue to smoke are 43% more likely to die than lifetime non-smokers
(b) between 24% and 46% of individuals with chronic kidney disease (CKD) who initiate dialysis report current tobacco use
(c) between 15% and 17% of individuals with CKD who initiate dialysis report tobacco use in the past
(d) individuals with CKD have rates of cardiovascular mortality 10 times greater than the general population

2. Health benefits of smoking cessation include all of the following *except*:

(a) risk of heart attack reduced by 50% after one year
(b) risk of heart attack begins to decrease after 24 hours
(c) risk of heart disease similar to non-smoker after 10 years
(d) blood pressure and heart rate return to normal after 20 minutes

Case One

Mr. X.L., 62 years old, has CKD stage 5 and is on chronic hemodialysis. He also has anemia, type 2 diabetes, diabetic neuropathy, hyperphosphatemia, hyperparathyroidism, and gout. Mr. X.L. is a 25 pack-year smoker.

Questions 3 to 4 refer to this case

3. Today in the dialysis unit, Mr. X.L. tells you he is ready to quit smoking. What would be the most cost-effective smoking cessation therapy for him?

(a) nicotine replacement therapy
(b) bupropion
(c) varenicline
(d) cognitive behaviour therapy

4. The following statement about varenicline is true:

(a) individuals taking varenicline are more likely to quit smoking than those taking nicotine replacement therapy
(b) varenicline is a partial agonist/antagonist at dopamine receptors
(c) patients on varenicline should choose a quit date three days after starting therapy
(d) adverse effects of varenicline include constipation, tinnitus, and hypersalivation

Case Two

Ms. C.D., 50 years old, has CKD stage 5 and is on chronic hemodialysis. She also has anemia and a 10-year history of alcohol abuse. Ms. CD states that she drinks five to six glasses of wine per day. She is also a 15 pack-year smoker. Ms. CD has been unsuccessful with nicotine patches for smoking cessation in the past.

Questions 5 to 8 refer to this case.

5. Which of the following would be the most appropriate smoking-cessation therapy for Ms. C.D.?

(a) varenicline
(b) bupropion
(c) nicotine gum
(d) amitriptyline

6. The following would be appropriate combination therapy with varenicline

(a) varenicline and nicotine gum
(b) varenicline and bupropion
(c) varenicline and nicotine inhaler
(d) verenicline and counselling

7. Which of the following statements about non-pharmacologic alternatives for Ms. C.D. is *false*?

(a) take naps, walks, and get fresh air to combat fatigue
(b) include low-fibre foods in the patient's diet to limit constipation
(c) relieve restlessness and irritability with baths, walks and relaxation exercises
(d) eat crunchy and chewy (but low-calorie) snacks to combat hunger

8. Which of the following is one of the "Five A's" strategies to help Ms. C.D. quit smoking?

(a) address
(b) attend
(c) aid
(c) ask

Case Three

Ms. J.K., 63 years old, has CKD stage 5 and is on chronic hemodialysis. She also has hyperphosphatemia, hyperparathyroidism, coronary artery disease, schizophrenia, major depression and asthma. Ms J.K., a 30-pack-year smoker, and has refused smoking cessation interventions in the past, stating that she is not ready to quit. However, today in clinic, Ms. J.K. tells you she has changed her mind and would like to try quitting with the help of smoking cessation pharmacotherapy.

Question 9 refers to this case.

9. What is the best choice for smoking cessation pharmacotherapy in Ms. J.K.'s case?

(a) varenicline
(b) bupropion
(c) amitriptyline
(d) nicotine inhaler

10. The *correct* pairing of medication and adverse effects is:

(a) bupropion: skin irritation, vivid dreams, insomnia, light-headedness, irritability
(b) varenicline: nausea, light-headedness, irritability, strange dreams, mood changes, depression, suicidal thoughts, suicide
(c) nicotine replacement patch: insomnia, light-headedness, irritability, hiccups, sore jaw, mouth ulcers, heartburn
(d) nicotine inhaler: nausea, light-headedness, irritability, strange dreams, mood changes, depression, suicidal thoughts, suicide

Continuing Education Study Answer Form

CE: 2.0 hrs continuing education

Smoking cessation in patients with chronic kidney disease

Volume 20, Number 4

By Colette B. Raymond, PharmD, MSc, ACPR, and Heather Naylor, BSc Pharm, 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
- Enclose a cheque or money order payable to CANNT.
- Post-tests must be postmarked by December 30, 2012.
- If you receive a passing score of 80% or better, a certificate for 2.0 contact hours will be awarded by CANNT.
- Please allow six to eight weeks for processing. You may submit multiple answer forms in one mailing, however, you may not receive all certificates at one time.

CANNT member – $12 +HST ($13.56); Non-member – $15 + HST ($16.95)

Post-test answer grid

Please circle your answer choice:

1.	a	b	c	d
2.	a	b	c	d
3.	a	b	c	d
4.	a	b	c	d
5.	a	b	c	d
6.	a	b	c	d
7.	a	b	c	d
8.	a	b	c	d
9.	a	b	c	d
10.	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: _____

_____

_____

_____

_____

Complete the following:

Name: _____

Address: _____

_____

CANNT member ❑ Yes ❑ No Expiration date of card _____

Ask the Green Tech

Detoxifying a tech room

Dear Green Tech:

I was wondering if you have any ideas that I could use to detoxify my tech room? I have noticed that many products we have here in our shop may contain hazardous chemicals and have some health concerns as a result. Thanks for any advice you can offer.

From Toxic in Toronto

Dear Toxic:

This reminds me of that scene from *The Wizard of Oz,* adhesives and solvents and lubes, oh my. As technologists, we spend most of our time fixing a problem inside the tech room. You may not realize that those pumps, sprays, and aerosol cans stored inside your storage cabinet may be highly toxic to everyone working in that space. It's those WD-40s, the Jig-A-Loos and the other petroleum-based products we have become so accustomed to using that really concern me, as a tech. No matter what the sale price is at Canadian Tire, they aren't worth it.

Chemicals such as petroleum distillates (also known as hydrocarbon solvents), organochlorides and volatile organic carbons (VOCs) are just a few of the common building blocks in solvents, paints and oils. Things like formaldehyde, naphtha, methylene chloride, and perchloroethylene are highly toxic to humans, including carcinogenicity, reproductive and developmental toxicity, neurotoxicity, respiratory irritation and acute toxicity. These chemicals can also be very flammable.

The best way to address the problem is to take a current inventory of all of your chemicals. Once you know what items are used most frequently, look for suitable alternatives and eliminate the suspected culprits from the shop, focusing on those with greatest health toxicity.

Luckily, today we have numerous environmental options that can easily take the place of those standard commercial brands.

A great line of natural lubricants are from Lloyds Laboratories, made right around the corner in Peterborough, Ontario. Their product line offers everything from corrosion inhibitors and lubricants to air dusters and graffiti removal. The other great thing about these products is that they are readily available at Princess Auto stores—the more reason for me to visit my favourite place.

Another Made-in-Canada solution is the Quatro Corporation, located in the heart of Toronto. They also have an entire catalogue of environmentally responsible products ranging from lubricants to parts degreasers and drain cleaners.

Keep in mind that whatever product you look at purchasing should be rated as incidental food contact (food grade/USDA H1). An even better option is to source products with third party certification, like EcoLogo, to ensure that it truly is as it claims to be—naturally safe.

And after all the hard work is done and it's clean up time, there's nothing better than Worx all-natural hand cleaner.

The hardest product to phase out will be paints. There are a number of options for interior paints for walls and furniture. Unfortunately, those options are not readily available in a VOCs-free format for those projects involving plastics and metals. The only recommendation I can make is to work in a well-ventilated area and wear an N95 respirator to reduce exposure. Allow the paint to dry and off-gas as much as possible before using the painted item in a well populated area.

Once you have purged all the old products from the tech room that you can, update your Workplace Hazardous Materials Information System (WHMIS) binder and remove those Material Safety Data Sheets (MSDS) no longer in use.

Now that you have a fully stocked storage cabinet of eco-based chemicals, what do you do with the old unwanted toxic stuff? Well, here in Ontario we have the Orange Drop program through Sustainable Ontario. To find a drop-off location, go to **http://www.makethedrop.ca/** and search for a location nearest the hospital. Other provinces have similar programs in place. Do what you can and minimize your environmental impact.

You will be surprised at how easy it is to find healthier and more cost-effective alternatives. These changes will have a direct improvement in air quality for your workspace but, more importantly, an improvement in the health of your co-workers.

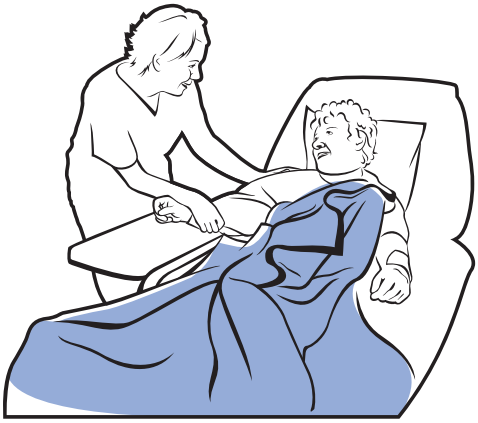
So the next time you are doing a PM on a machine, hopefully it will be a little less toxic.

For inquiries regarding The Green Tech, please contact Rejean Quesnelle: ***regq101@gmail.com***

By Rejean Quesnelle, AscT, Renal Technologist, Halton Healthcare Services, Oakville, ON

Bedside Matters…

Witness



It is my day to do an "off ward", so I prepare supplies to perform dialysis in the cardiac unit. I go with an open mind. My patient, Verna, suffered a massive heart attack two days ago and her prognosis is not an optimistic one. I should be ready for any and all complications. Her blood pressure is apparently 90/60. During yesterday's run, she was mumbling and asking childlike questions.

When I arrive I see immediately that she shows signs of improvement. She is alert and chatting. She introduces me to her friend Edie. "We've been through thick and thin for 48 years," Verna declares proudly.

With this one-to-one nursing experience, I have the time to observe. I sit in reverence of the special relationship I am witnessing. These women know each other deeply. Every gesture of Edie's is soothing to Verna's body and mind.

Edie does her part to minimize the hospital environment and continues their banter as she casually encourages her friend to eat. "Here's some applesauce… Motts applesauce… remember Motts in Penticton?"

Verna adds, "I sure do… when we were in high school we both competed to become 'Miss Mott, queen of the parade.'"

"Ahh, but neither of us won. It was the mayor's daughter, Barbara, who got to be queen."

They giggle.

"Sure glad one of us didn't win over the other."

My patient's BP came up to 100/60, thanks to 'Edie' therapy.

"What street is that down there?" Edie asks as she looks out the window. "Isn't it Old Yale? The one we used to walk to school on?"

The two friends talk off and on about childhood days.

As the first hour of dialysis continues, Verna remains stable. No arrhythmias. Her breathing is a little easier.

Edie talks on, as if she is visiting her friend in her own home for tea.

She reads a Christmas letter that Verna hasn't had strength enough to open.

"Dear Nana, I want you to know I made your recipe for Christmas cake, which looks good, but I must confess I don't cook like you do. I burned the pancakes this morning.

"There is a crow on the lawn… I always think of you when he comes by looking for food… ha, ha… hope your appetite is as good as ever!"

Verna tells Edie, "I taught her how to make pies too."

With that, Edie scrapes egg mixture from the lunch sandwich to make it easier to feed Verna. She puts an ice cube in the cup of tea to cool it down.

She finishes off with pudding… "This will soothe your sore mouth."

The young respiratory tech, Dan, comes by, adjusts the oxygen and adds humidity.

"You're a breathsaver." Verna beams a smile for Dan.

"Anything to please the lady." Dan says with a wink.

Within a half hour, the dialysis is over. Vital signs stable. Two litres off. Verna looks a lot better. It took a medical team and technology, as well as the support from someone who cares about her to make it happen.

Please share a meaningful moment of learning from your professional life. Send me your idea and I'll help you publish it. Send to Lee Beliveau by email: l2b@telus.net

By Lee Beliveau, RN, CNeph(C), staff nurse, hemodialysis unit, at Surrey Hospital, Surrey, British Columbia

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**
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), 6e 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 :
gillianbrunier@sympatico.ca

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.

Quel est le processus de sélection des manuscrits pour publication dans le Journal de l'ACITN ?

À la réception de chaque manuscrit, un accusé de réception est envoyé. Les articles de recherche et d'études cliniques sont envoyés à deux membres du comité de révision du **Journal de l'ACITN** afin d'être révisés suivant un processus à double insu. Tous les articles peuvent être retournés aux auteurs pour révision et nouvelle soumission par la suite. Les manuscrits acceptés pour publication peuvent subir des changements éditoriaux ; toutefois, les auteurs pourront approuver ces changements. Les critères d'acceptation pour tous les manuscrits comprennent l'originalité des idées, l'actualité du sujet, la qualité du matériel et l'attrait des lecteurs.

Les auteurs doivent prendre note que les manuscrits seront considérés pour publication à la condition qu'ils ne soient soumis qu'au **Journal de l'ACITN.** Sur acceptation du matériel soumis, les auteurs transfèrent leur droit d'auteur à l'ACITN. Aucune reproduction n'est permise sans l'autorisation écrite du Journal de l'ACITN. Les déclarations et opinions émises par les auteurs dans leurs articles, textes ou manuscrits demeurent leur responsabilité. La rédactrice en chef se réserve le droit d'accepter ou de refuser tout manuscrit.

Aide-mémoire à l'intention des auteurs
√ Lettre de présentation
√ Article

- Page titre incluant les renseignements suivants :
  - Titre de l'article
  - Nom de chaque auteur (incluant prénoms au complet)
  - Titres de compétences
  - Titre du poste actuel
  - Nom et adresse de l'employeur
  - Nom de l'auteur à qui la correspondance doit être envoyée (incluant adresse, numéros de téléphone et de télécopieur et adresse courriel)
- Texte de l'article avec résumé, s'il y a lieu à **double interligne et pages numérotées**
- Références (sur une feuille distincte)
- Tableaux (un par page)
- Figures (une par page)
- Lettre d'autorisation pour tout matériel ayant déjà fait l'objet d'une publication

Prescribing Summary

Patient Selection Criteria

THERAPEUTIC CLASSIFICATION
Phosphate Binder

INDICATIONS AND CLINICAL USE
RENAGEL (sevelamer hydrochloride) is indicated for:
- the control of hyperphosphatemia in patients with end-stage renal disease (ESRD) undergoing dialysis.

CONTRAINDICATIONS
RENAGEL (sevelamer hydrochloride) is contraindicated in the following situations:
- patients with hypophosphatemia
- patients with bowel obstruction
- patients hypersensitive to sevelamer hydrochloride or one of the other ingredients in the product (colloidal silicon dioxide, stearic acid).

SPECIAL POPULATIONS
For use in special populations, see WARNINGS AND PRECAUTIONS, Special Populations.

Safety Information

WARNINGS AND PRECAUTIONS

General
RENAGEL (sevelamer hydrochloride) tablets should be swallowed intact and should not be crushed, chewed, or broken into pieces.

Patients with renal insufficiency may develop hypocalcemia. As RENAGEL does not contain calcium, serum calcium levels should be monitored and elemental calcium should be supplemented whenever considered necessary. In cases of hypocalcemia, patients should be given an evening calcium supplement. Approximately 1000 mg elemental calcium is recommended.

Caution should be exercised to avoid hypophosphatemia, a serum phosphorus of < 0.8 mmol/L (see DOSAGE AND ADMINISTRATION).

The safety and efficacy of RENAGEL in patients with renal disease who are not undergoing dialysis has not been studied.

Gastrointestinal
The safety and efficacy of RENAGEL in patients with dysphagia, swallowing disorders, severe gastrointestinal (GI) motility disorders, or major GI tract surgery have not been established. Caution should be exercised when RENAGEL is used in patients with these GI disorders.

Special Populations
Pregnant Women: The safety of RENAGEL has not been established in pregnant women. In preclinical studies, there was no evidence that RENAGEL induced embryolethality, fetotoxicity or teratogenicity at the doses tested (up to 1 g/kg/day in rabbits; up to 4.5 g/kg/day in rats). RENAGEL should only be given to pregnant women if the benefits outweigh the risks.

Nursing Women: There have been no adequate, well-controlled studies in lactating, or nursing women.

Pediatrics: The safety and efficacy of RENAGEL has not been established in pediatric patients. The minimum age of patients treated with RENAGEL in clinical trials was 18 years old.

Geriatrics: No special considerations are needed for elderly patients.

Monitoring and Laboratory Tests
Serum phosphorus and serum calcium should be monitored every 1 to 3 weeks until the target phosphorus level is reached. The dose of RENAGEL should be adjusted based on serum phosphorus concentration and titrated to a target serum phosphorus of ≤ 1.8 mmol/L.

RENAGEL does not contain calcium or alkali supplementation; serum calcium, bicarbonate, and chloride levels should be monitored.

ADVERSE REACTIONS
(See Supplemental Product Information for full listing)
Clinical Trial Adverse Drug Reactions
In a combined safety database comprised of 483 patients with end-stage renal disease undergoing hemodialysis, the most common adverse events were nausea (25.3%), vomiting (24.4%), diarrhea (21.2%), headache (18.4%), dyspepsia (15.7%) and dyspnea (15.7%). From this database, the most common adverse events from a single 52-week randomized clinical study of RENAGEL vs. calcium (calcium acetate and calcium carbonate) were vomiting (22.2% vs. 21.8%), nausea (20.2% vs. 19.8%), diarrhea (19.2% vs. 22.8%), dyspepsia (16.2% vs. 6.9%) and nasopharyngitis (14.1% vs. 7.95). The adverse events are not necessarily attributed to RENAGEL treatment. The incidence of these events was not dose related.

In one hundred and forty three patients with end-stage renal disease undergoing peritoneal dialysis with treatment duration of 12 weeks, adverse events reported at an incidence ≥10% were dyspepsia (17.5%), vomiting (11.3%) and peritonitis (11.3%). These adverse events are not necessarily attributed to RENAGEL treatment. The incidence of these events was not dose related.

The most frequently occurring serious adverse event with RENAGEL use was peritonitis at 8.2%, compared to 4.3% with calcium. Patients receiving dialysis are subject to certain risks for infection specific to the dialysis modality. Peritonitis is a known complication in patients receiving peritoneal dialysis (PD). Therefore, patients on PD should be closely monitored to ensure the reliable use of appropriate aseptic technique with the prompt recognition and management of any signs and symptoms associated with peritonitis.

Less common clinical trial adverse events
The following adverse events have been observed with RENAGEL use with an incidence of <10%, but greater than calcium and without attribution to causality, including: abdominal distension, constipation, diarrhea, nausea, chest pain, fatigue, pyrexia, catheter site infection, anorexia, headache, cough and pruritis.

Some patients experienced adverse events related to hypercalcemia in the calcium group but not in the RENAGEL group.

Post-Market Adverse Drug Reactions
During post-marketing experience with RENAGEL, the following have been reported without attribution to causality: pruritis, rash, and abdominal pain.

DRUG INTERACTIONS

Drug-Drug Interactions
RENAGEL (sevelamer hydrochloride) was studied in human drug-drug interaction studies with digoxin, warfarin, enalapril, metoprolol and iron. RENAGEL had no effect on the bioavailability of these medications. However, in a study of 15 healthy subjects, a co-administered single dose of 7 RENAGEL Capsules (approximately 2.8g) decreased the bioavailability of ciprofloxacin by approximately 50%. Consequently, RENAGEL should not be taken simultaneously with ciprofloxacin.

When administering any other medication where a reduction in the bioavailability of that medication would have a clinically significant effect on safety or efficacy, the physician should consider monitoring blood levels or dosing that medicine apart from RENAGEL (at least one hour before or three hours after RENAGEL). Patients taking anti-arrhythmic and anti-seizure medications were excluded from the clinical trials. Special precautions should be taken when prescribing RENAGEL to patients also taking these medications.

Drug-Food Interactions
There have been no adequate, well-controlled studies regarding the effect of a variety of foods on the intestinal phosphorus binding of RENAGEL.

Drug-Herb Interactions
There have been no adequate, well-controlled studies regarding drug-herb interactions.

Drug-Laboratory Interactions
There have been no adequate, well-controlled studies regarding drug-laboratory interactions.

Drug-Lifestyle Interactions
There have been no adequate, well-controlled studies regarding drug-lifestyle interactions.

For more details on adverse events reported during clinical trials, see ADVERSE REACTIONS in the Supplemental Product Information.

To report a suspected adverse reaction, please contact Genzyme Canada by:
Toll-free telephone: 1-877-220-8918
Fax: 905-625-7811
Or by regular mail: Genzyme Canada Ltd., 2700 Matheson Blvd. East,
West Tower, Suite 800, Mississauga, Ontario L4W 4V9

Administration

DOSAGE AND ADMINISTRATION

Dosing Considerations
- The tablets should not be bitten, chewed or broken apart prior to dosing.
- RENAGEL (sevelamer hydrochloride) should be taken immediately prior to or with meals, since its action is to bind ingested phosphate (see ACTION AND CLINICAL PHARMACOLOGY, Mechanism of Action in the product monograph)
- When administering any other medication where a reduction in the bioavailability of that medication would have a clinically significant effect on safety or efficacy, the physician should consider monitoring blood levels or dosing that medicine apart from RENAGEL to prevent GI binding (at least one hour before or three hours after RENAGEL).

Recommended Dose and Dosage Adjustment
The recommended dosing to be used when initiating RENAGEL in patients not using another phosphate binder are outlined below:

Starting Dose	
Initial Serum Phosphorus	**RENAGEL Tablets 800 mg**
> 1.8 and < 2.4 mmol/L	3 tablets per day (2.4 grams)
≥ 2.4 mmol/L	6 tablets per day (4.8 grams)

When switching from calcium-based phosphate binders to RENAGEL, an equivalent starting dose on a mg/weight basis of RENAGEL should be prescribed.

Dosage adjustments, when necessary should be recommended every 1 to 3 weeks by increasing one tablet per meal (3 per day) until the target serum phosphorus levels are met.

The total daily dose should be divided according to meal portions during the day.

Average Maintenance Dose: Dosage should be adjusted based upon the target serum phosphorus levels. The dose may be increased or decreased by one tablet per meal at two week intervals as necessary. The average final dose in the chronic phase of a 52 week Phase 3 clinical trial designed to lower serum phosphorous to 1.6 mmol/L or less was approximately 7.1 grams, (approximately nine 800 mg tablets per day equivalent to three 800 mg tablets per meal). The maximum average daily RENAGEL dose studied was 13 grams.

Missed Dose
- If a dose is forgotten, it should be skipped. Double dosing is not advisable.

STORAGE AND STABILITY
Store at controlled room temperature 15°C to 30°C. Protect from moisture.

Study Reference

1. Renagel® product monograph, Genzyme Canada, October 2007.

Supplemental Product Information

ADVERSE REACTIONS

Clinical Trial Adverse Drug Reactions
Because clinical trials are conducted under very specific conditions the adverse reaction rates observed in the clinical trials may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse drug reaction information from clinical trials is useful for identifying drug-related adverse events and for approximating rates.

In a combined safety database comprised of 483 patients with end-stage renal disease undergoing hemodialysis, adverse events reported at an incidence ≥ 10% are provided in Table 1 below. From this database, adverse events are also presented separately from a single long-term randomized clinical study for RENAGEL and calcium. The adverse events presented in the table below are not necessarily attributed to RENAGEL treatment. The incidence of these events was not dose related.

Table 1: Adverse Events in Patients with End-Stage Renal Disease undergoing Hemodialysis

	Total AEs reported	52 weeks Study of RENAGEL vs. calcium (calcium acetate and calcium carbonate)	
System Organ Class Event	**RENAGEL** N = 483 %	**RENAGEL** N = 99 %	**calcium** N = 101 %
Gastrointestinal Disorders			
Vomiting	24.4	22.2	21.8
Nausea	25.3	20.2	19.8
Diarrhea	21.1	19.2	22.8
Dyspepsia	15.7	16.2	6.9
Constipation	13.3	8.1	11.9
Infections and Infestations			
Nasopharyngitis	13.9	14.1	7.9
Bronchitis	5.4	11.1	12.9
Upper Respiratory Tract Infection	7.0	5.1	10.9
Musculoskeletal, Connective Tissue and Bone Disorders			
Pain in Limb	13.7	13.1	14.9
Arthralgia	11.4	12.1	17.8
Back Pain	6.0	4.0	17.8
Skin Disorders			
Pruritus	10.4	13.1	9.9
Respiratory, Thoracic and Mediastinal Disorders			
Dyspnea	15.7	10.1	16.8
Cough	11.6	7.1	12.9
Vascular Disorders			
Hypertension	9.3	10.1	5.9
Nervous System Disorders			
Headache	18.4	9.1	15.8
General Disorders and Site Administration Disorders			
Dialysis Access Complication	4.3	6.1	10.9
Pyrexia	8.7	5.1	10.9

In one hundred and forty three patients with end-stage renal disease undergoing peritoneal dialysis with treatment duration of 12 weeks, adverse events reported at an incidence ≥10% are provided in Table 2 below. The adverse events presented in the table below are not necessarily attributed to RENAGEL treatment. The incidence of these events was not dose related.

Table 2: Adverse Events in Patients with End-Stage Renal Disease Undergoing Peritoneal Dialysis

System Organ Class Event	**RENAGEL** (N=97) %	**calcium** (N=46) %
Gastrointestinal disorders		
Dyspepsia	17.5	8.7
Vomiting	11.3	4.3
Peritonitis	11.3	4.3

OVERDOSAGE
Since RENAGEL (sevelamer hydrochloride) is not absorbed, the risk of systemic toxicity is minimal. RENAGEL has been given to healthy volunteers at doses up to 14 grams per day for 8 days with no adverse effects. The maximum average daily dose of RENAGEL that has been given to hemodialysis patients is 13 grams.

Full product monograph is available from :
Genzyme Canada Ltd., 2700 Matheson Blvd. East, West Tower, Suite 800, Mississauga, Ontario L4W 4V9

Renagel® Tablets
(sevelamer hydrochloride)

Profiling...

New CANNT board members 2010–2011

Marilyn Muir
President-Elect

I am very excited and thankful to continue on the CANNT board of directors as president-elect. I graduated from the Health Sciences Centre School of Nursing in Winnipeg, Manitoba, in 1991, and I have been a nephrology nurse for 15 years. In that time, I have held many different positions: bedside nurse, clinical resource nurse in the hemodialysis units, and acting manager of patient care. I am currently a clinical resource nurse (CRN) to the community dialysis program and I do home-hemodialysis relief. CANNT is a great organization, and being a part of the board of directors has been a unique and very rewarding experience.

I was the co-chair for CANNT 2007 in Winnipeg, and I am currently the western vice-president (VP) for CANNT. My time as western VP has been wonderful, and I have had the opportunity to meet some fantastic people. I support professional development, and I believe that everyone can benefit from the educational and financial opportunities provided by CANNT. Volunteering for the CANNT board has been an invaluable experience, and I have had the opportunity to network with colleagues from all across Canada.

I look forward to the challenge and the added responsibility of president-elect. Volunteering for a position like this is a huge undertaking, but I believe the relationships, both personal and professional, that I have built will help me succeed in this endeavour. I am enthusiastic about CANNT and nursing in general, and I want to bring that enthusiasm to our members. I look forward to networking with not only CANNT members across Canada, but also members of affiliate organizations like the Canadian Nurses Association (CNA), the American Nephrology Nurses Association (ANNA) and the European Dialysis and Transplant Nurses Association (EDTNA). Through partnerships like these, CANNT has become a successful partner, and one of which I am proud to be a part.

I am incredibly lucky to be married to a very supportive man, and I am so blessed that he not only supports my enthusiasm for CANNT, he encourages it. We share our life with two crazy cats that keep us laughing, and we surround ourselves with family and friends. I am a 27-year cancer survivor, and I believe this has prepared me for any challenge I may face in life.

I believe that no challenge is too big, I believe in the CANNT organization and I believe this is a great opportunity for me to be a part of a team committed to promoting knowledge and expertise in the field of nephrology nursing. I look forward to representing you for the next three years.

Heather Dean
Western Region Vice-President

I am very honoured to be a board member of CANNT in the position of vice-president western region. I graduated in 1984 from the Misericordia Hospital School of Nursing in Edmonton, Alberta. During the first 10 years of my career, I worked as a medical-surgical nurse. I started my nephrology career after moving to Calgary. I have worked as an inpatient staff nurse, in the peritoneal dialysis clinic, and in a community hemodialysis unit. My present position is nurse clinician at the South Calgary Dialysis Centre. I have been a member of CANNT for many years and find attending the annual conferences and reading CANNT Journal articles has benefited my career. I encourage my coworkers to do the same. I love my profession and take every opportunity to promote it. I am hoping during my term to see an increase in the number of young members becoming involved. I consider myself a life-long learner and enjoy new challenges.

I am the proud mother of four adult children, three daughters and a son. I enjoy the outdoors, travelling and participating in physical activity. I recently completed a 100 km walk (Kidney March) raising awareness and money for people living with Kidney Disease. The event to date has raised more than $900,00.00. I believe each of us can make a difference.

I look forward to hearing your comments and suggestions on how I might serve your interests on the CANNT board.

Jocelyn Laing
Ontario Vice-President

It is with great pleasure that I accepted the position of regional vice-president for Ontario.

I graduated from the Grace General Hospital in St. John's, Newfoundland, in 1972. I began my career in Newfoundland working in obstetrics, moving to Ottawa to work in open-heart surgery, back to Newfoundland to work in the ICU/CCU. My husband and I moved to St. Catharine's, Ontario, in 1983, where I worked in the ICU/CCU at the Hotel Dieu.

I have been part of the nephrology community since 1985, when I started as a staff nurse in the hemodialysis unit. I obtained my CNeph(C) in 1997, going on to complete my BScN through distance education with Laurentian University in Sudbury in 2002.

In 1997, I moved to the charge nurse position in the hemodialysis unit at the Niagara Health System, St. Catharine's, the position I hold today. I filled in as interim clinical manager for the Chronic Kidney Disease program from May 2008 to December 2009. I have been an active volunteer with the Kidney Foundation of Canada for approximately 20 years.

Also, I have been married for 37 years. We have two grown boys, one of whom is serving at present in Afghanistan with the Canadian Armed Forces, while the oldest works with a gas company in northern B.C.

Attending several yearly CANNT symposia, I have never failed to be impressed with the accomplishment of the presenters who are also part of our community. The complexity of the dialysis patient presents challenges that can be shared and discussed nationally. To me, the networking at the annual conference is as valuable as the presentations. I feel it is important to gather and share information and will make this a priority. I hope to increase awareness and encourage participation in the renal network within my catchment area.

See you at our booth in November!

Rejean Quesnelle
Vice-President of Technologists

I am very honoured to have been chosen to be the voice of the dialysis technical community for Canada.

I was born in the small Central Ontario community of Penetanguishene. I grew up in a French-Canadian home and was the eldest of three children. It was here that I got my taste for health care. Both my parents were nurses: my mom was an RPN at the Penetanguishene General Hospital and my father an RN at the Mental Health Centre's geriatric unit. So have it be known that a job in health care lay somewhere in my future.

In 2003, I was a graduate of the Electrical Engineering Technology—Automated Systems program at Georgian College, Ontario. It was from this point that I had found my way into health care. The following year I graduated from the Dialysis Technology Program at Georgian College.

Upon graduation, I worked as a field service representative with Fresenius Medical Care Canada (FMCC). In my technical role, I was involved in many aspects of customer service. One day I could be dealing with a home dialysis patient repair call, and new equipment installation the next. It was a great learning experience being able to wear both those hats. I had the opportunity to network with numerous techs throughout my time with FMCC and to travel to locations spanning from Calgary, Alberta, to Montreal, Quebec, and other far and out places in between.

Since May of 2008, I have been employed as a renal technologist with Halton Healthcare Services (HHS) in Oakville, Ontario. In addition to my duties, I am very active within the hospital and sit on numerous committees such as the Renal Council, Safety Champions, the Joint Occupational Health and Safety Committee (JOHSC), Kailo, and the Green Team.

After speaking with CANNT Past-President Jan Baker, she convinced me to run for the upcoming CANNT elections, and, well, I guess the rest is history. I hope to bring about a positive impact to not only my peers, but also for the entire renal dialysis team. I am very excited for a new technical symposium I am launching in Spring 2011, which focuses on techs and the environment.

I have been a member of both CANNT and the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) since 2004.

I am a loving father of two beautiful girls ages two and four, an aspiring rock star, and an environmentalist. When I am not drumming with a hometown rock band, I enjoy watching movies, cooking, spending time outdoors, public speaking, volunteering, and living life to the fullest with friends and family.

I would like to sincerely thank all of you who supported my nomination and look forward to my term as VP.

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Home Address _____

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Fax (_____) _____ - _____

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City _____

Province _____ Postal Code _____

Mailing Address Preferred ❑ Home ❑ Work

Do you consent to the use of your name and address on mailing lists that CANNT has considered pertinent and appropriate? ❑ Yes ❑ No

❑ New Member or ❑ Renewal

CANNT # (if renewal): _____

Person who recommended joining CANNT: _____

Membership Fee (GST #100759869)
Membership fee is tax deductible.
❑ One Year: $70.00 + HST/GST
❑ Two Years: $130.00 + HST/GST
❑ Student Rate: $35.00 + HST/GST*
**Proof of full-time enrolment must accompany application.*
BC: 12% HST; AB/SK/MB/PE/NT/NU/QC/YT: 5% GST;
ON/NL: 13% HST; NS: 15% HST

I enclose $ _____
made payable to Canadian Association of Nephrology Nurses and Technologists.

Method of payment:
❑ Cheque ❑ Money order ❑ Visa ❑ Mastercard

Cardholder Name: _____

Visa Number: _____

Expiry Date: _____

Signature: _____

❑ 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 ❑ Teaching
❑ Administration ❑ Research
❑ Technical ❑ Other (Specify)

Work environment
❑ Acute Care ❑ Independent Health Care
❑ Self-Care Unit ❑ Private Sector

Highest level of education

Nursing	*Non-Nursing*
❑ Diploma	❑ Diploma
❑ Baccalaureate	❑ Baccalaureate
❑ Master's	❑ Master's
❑ Doctorate	❑ Doctorate

I am at present studying toward:

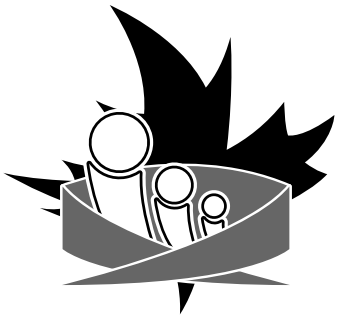
Nursing	*Non-Nursing*
❑ Specialty Certificate	❑ Specialty Certificate
❑ Baccalaureate	❑ Baccalaureate
❑ Master's	❑ Master's
❑ Doctorate	❑ Doctorate

Primary area of practice
❑ Progressive renal insufficiency (pre-dialysis)
❑ Transplantation
❑ Hemodialysis
❑ Peritoneal
❑ Pediatrics
❑ Other (Specify) _____

Return to **CANNT**
Mailing Address:

Debbie Maure, CANNT,
Suite #322, 336 Yonge St., Barrie, Ontario, L4N 4C8
Telephone (705) 720-2819 Fax (705) 720-1451

Demande d'adhésion



Prénom _____

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Ville _____

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(T) (_____) _____ - _____

Télécopieur (_____) _____ - _____

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Numéro de la carte: _____

Date d'expiration: _____

Signature: _____

❑ J'ai obtenu la désignation CNeph(C)/cdt
Année de désignation _____

Numéro d'enregistrement professionel _____

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

❑ Infirmière(ier) autorisée(sé)
❑ Infirmière(ier) auxiliare autorisée(sé) / infirmière(ier) auxiliare
❑ Technicienne / technicien
❑ Technologue
❑ Autre (spécifier) _____

Années d'éxperience 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*
❑ Diplôme	❑ 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) _____

Poster à **ACITN**
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