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IN THIS ISSUE:

20	Ripples in the water: A toolkit for Aboriginal people on hemodialysis By Barbara L. Paterson, RN, PhD, Lee Ann Sock, BSN, Denis LeBlanc, MSW, PhD cand., and Joan Brewer, RN, MEd
29	Buttonhole cannulation in hemodialysis: Improved outcomes and increased expense—Is it worth it? By Valerie Ludlow, RN, MN, CNeph(C)
38	Partnering with patients to improve peritonitis rates By Sharon White, RN, BScN, MBA, and Angela Vinet, RN
42	CONTINUING EDUCATION SERIES Update on the new Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)—A focus on medications By Colette B. Raymond, PharmD, MSc, Lori D. Wazny, PharmD, and Amy R. Sood, PharmD



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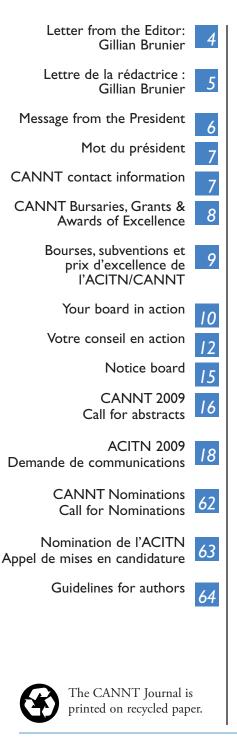
See prescribing summary on page 66

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20





CONTENTS

- Ripples in the water: A toolkit for Aboriginal people on hemodialysis By Barbara L. Paterson, RN, PhD, Lee Ann Sock, BSN, Denis LeBlanc, MSW, PhD cand., and Joan Brewer, RN, MEd
- 29 Buttonhole cannulation in hemodialysis: Improved outcomes and increased expense—Is it worth it? By Valerie Ludlow, RN, MN, CNeph(C)
- **38** Partnering with patients to improve peritonitis rates By Sharon White, RN, BScN, MBA, and Angela Vinet, RN
- 42 CONTINUING EDUCATION SERIES Update on the new Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)—A focus on medications By Colette B. Raymond, PharmD, MSc, Lori D. Wazny, PharmD, and Amy R. Sood, PharmD
- 49 RESEARCH REVIEW Estimating prognosis
- 52 BEDSIDE MATTERS Kindness in any uniform
- 53 PROFILING Meet the 2009 CANNT bursary, award and research grant winners

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Rising to the challenge!



At CANNT 2009 in Saint John, New Brunswick, we were delighted to have eight manuscripts submitted by Canadian nephrology nurses from across the country—all to be consid-

ered for the 2009 CANNT Manuscript Award. The CANNT 2009 planning committee had a most difficult job choosing the winner from amongst these eight excellent manuscripts. But they rose to the challenge!

The first article in this issue is from the winner of the 2009 CANNT Manuscript Award: Barbara Paterson and her colleagues' research, "Ripples in the water: A toolkit for Aboriginal people on hemodialysis." Barbara is a nursing professor at the University of New Brunswick at Fredericton. Her article focuses on the findings of a twoyear community-based research study to develop the prototype or model for a toolkit intended to be used by Aboriginal people to help them to understand what being on hemodialysis will mean to them in their everyday lives. Barbara presented her work at CANNT 2009.

The second article is a research study also presented at CANNT 2009. The author is Valerie Ludlow, research assistant with the Patient Research Centre at Memorial University, St. John's, Newfoundland. The title of her research study is "Buttonhole cannulation in hemodialysis: Improved outcomes and increased expense-Is it worth it?" Valerie's research focused on assessing the effects of nurses cannulating arteriovenous fistulae in patients on hemodialysis using the buttonhole technique from the perspectives of both the patients and nurses. Anyone who uses the buttonhole technique in his or her hemodialysis unit, or is considering introducing the technique, will find Valerie's research study of great interest.

While the previous study on buttonhole technique is clearly focused on improving vascular access care for patients on hemodialysis, Sharon White and Angela Vinet from the London Health Sciences Centre have focused their study on demonstrating how they tried to improve outcomes for patients on peritoneal dialysis (PD). Peritonitis is the most frequent complication for patients on PD, and in their study they discuss how they tried to improve the rates for peritonitis at their centre. Sharon and Angela also presented the findings of their study at CANNT 2009.

The new member of the CANNT Journal editorial board, pharmacist Colette Raymond, with her colleagues at the Manitoba Renal Program, have written an excellent review for Canadian nephrology nurses on the new "Kidney disease: Improving global outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)." KDIGO is a global non-profit foundation dedicated to improving the care and outcomes of kidney disease patients worldwide. KDIGO is governed by an international board representing 24 countries and five Colette's continuing continents. education article gives all of us an excellent update on medication treatment strategies for managing chronic kidney disease (CKD) patients with mineral and bone disorders.

To conclude this issue, we provide you with an overview of the bursary, award, and research grant winners from CANNT 2009. We were not only delighted with the number of manuscripts submitted at this conference, but also very excited at the number of award winners from across the country. We challenge you to take a moment out of your busy day to see if you could consider submitting an abstract for CANNT 2010, trying for one of the now many CANNT bursaries and research grants, or nominating a colleague for one of the CANNT awards.

Se montrer à la hauteur!

Lors du Congrès de l'ACITN de 2009, qui s'est déroulé à Saint John, au Nouveau-Brunswick, nous avons eu la chance de recevoir huit articles soumis par des infirmières en néphrologie provenant des quatre coins du pays—toutes en lice pour le Prix du manuscrit de l'ACITN de 2009. Les membres du Comité organisateur du Congrès de 2009 ont eu une tâche des plus difficiles pour nommer la récipiendaire du prix parmi les auteures de ces huit excellents manuscrits. Mais, ils se sont montrés à la hauteur !

Le premier article de ce numéro du Journal de l'ACITN est celui de la gagnante du Prix du manuscrit de 2009 de l'ACITN : Barbara Paterson et ses collègues pour l'article intitulé Ripples in the water: A toolkit for Aboriginal people on hemodialysis. [Répercussions en chaîne : Une trousse d'information à l'intention des Autochtones en hémodialyse]. Barbara est professeure de sciences infirmières à la University of New Brunswick, à Fredericton. Son article porte sur les conclusions d'une étude de recherche communautaire menée sur deux ans visant à concevoir un modèle ou un prototype de trousse d'information à l'intention des Autochtones pour les aider à comprendre ce que cela signifie pour eux au quotidien d'avoir des traitements d'hémodialyse. Barbara a présenté ses conclusions de recherche lors du Congrès de l'ACITN de 2009.

Le deuxième article porte sur une étude qui a aussi été présentée lors du dernier Congrès. L'auteure, Valerie Ludlow, est assistance de recherche au Patient Research Centre à l'Université Memorial de Terre-Neuve, à St. John's. Son rapport d'étude s'intitule Buttonhole cannulation in hemodialysis: Improved outcomes and increased expense-Is it worth it? [Fistules artérioveineuses par la technique du trou de bouton en hémodialyse : Résultats améliorés et dépenses accrues—Cela en vaut le coup?]. Valerie a concentré ses efforts de recherche sur l'évaluation des effets reliés à la création de fistules artérioveineuses par le personnel infirmier chez des patients en hémodialyse au moyen de la technique du trou de bouton selon le point de vue des patients et du personnel infirmier. Ceux et celles qui utilisent cette technique dans leur unité de dialyse ou qui envisagent de le faire trouveront l'article de Valerie d'un grand intérêt.

Autant que la dernière étude sur la technique trou de bouton porte sur les

soins aux accès vasculaire chez les patients hémodialysés, Sharon White et Angela Vimet du Centre de Science de la santé de London elles, ont concentrées leur recherche sur la démonstration de comment elles ont essayées d'améliorer les résultats des patients en dialyse péritonéale. Comme la péritonite est la complication majeure chez ces patients, leur étude discute de l'amélioration des taux de péritonite et de comment elles s'y ont prises dans leur centre. Sharon et Angela ont aussi présenté leurs écrits au dernier symposium de l'ACITN.

Colette Raymond, pharmacienne et nouvellement nommée au Comité de rédaction du Journal de l'ACITN, a rédigé, en collaboration avec ses collègues du Manitoba Renal Program, une excellente revue de la documentation à l'intention des infirmières et infirmiers en néphrologie au Canada intitulée : Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD) [Maladies du rein : Recommandations KDIGO de bonnes Pratiques cliniques dans les troubles minéraux et osseux (TMO)]. KDIGO est une fondation internationale à but non lucratif qui a pour mission d'améliorer les soins et les résultats pour les patients atteints de maladies rénales chroniques (MRC) à l'échelle mondiale. La fondation KDIGO est régie par un Conseil d'administration international représentant 24 pays et cinq continents. L'article de formation continue en santé de Colette nous dépeint une excellente mise à jour des stratégies de traitement médicamenteux dans la prise en charge des patients atteints de TMO-MRC.

Pour conclure ce numéro, nous vous présentons un survol de la cuvée 2009 des récipiendaires de bourses, de prix et de subventions de recherche de l'ACITN. Non seulement étions-nous enchantés par le nombre de manuscrits soumis au Congrès, mais nous étions très heureux de constater le grand nombre de gagnantes et de gagnants d'un bout à l'autre du pays. Nous vous invitons à prendre quelques minutes de votre précieux temps pour envisager la possibilité de soumettre un résumé d'article pour l'ACITN en 2010, votre candidature à l'une des nombreuses bourses ou subventions de recherche de l'ACITN ou encore la candidature d'un ou d'une collègue pour l'un des Prix de l'ACITN.

Le Journal ACITN

est la publication officielle de l'Association canadienne des infirmiers/infirmières et technologues en néphrologie, a/s 336 Yonge St., Ste. 322, Barrie, ON, L4N 4C8, téléphone : (705) 720-2819, télécopieur : (705) 720-1451, Courriel : cannt@cannt.ca. Publié quatre fois par année, ce journal est envoyé à tous les membres de l'Association. L'abonnement annuel est: Canada, 50 \$ (+TPS), E.-U., 60 \$, hors du Canada et E.-U., 85 \$. Les publications antérieures, lorsque disponsibles, coûtent 7,50 \$ (+TPS) chacune. Les opinions émises par les auteurs dans ce journal ne sont pas nécessairement partagées par l'Association ni par le rédacteur en chef. Nous invitons les lecteurs à nous faire part de leurs opinions. Toute correspondance devra être envoyée à l'ACITN, 336 Yonge St., Ste. 322, Barrie, ON L4N 4C8. Site web : www.cannt.ca

· 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 Octobre-décembre - le 15 octobre, pour publication le 15 décembre Le journal CANNT est maintenant répertorié dans le "Cumulative Index to Nursing and Allied Health Literature (CINAHL)", "International Nursing Index" (INI), "MEDLINE", "EBSCO", "ProQuest", et "Thomson Gale". ISSN 1498-5136

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"Turning the Tides for Tomorrow"



I would like to thank you, the CANNT membership, for allowing me to have this amazing opportunity to represent you, as an organization. I would also

like to thank the CANNT board members for their continued support and encouragement.

Thinking of last year's symposium theme in Saint John, NB, "Turning the Tides for Tomorrow," I started to think about where we, as nephrology nurses and technologists, have come from and where are we going, as a profession. The theme implies an active motion. Can we affect change?

I see and hear, in many instances, complacency within nephrology but, I believe, nephrology nurses and technologists have never had so many opportunities to effect change as they do today. We've come from simple cadaveric kidney transplants to multiple, simultaneous, national, live kidney donations affecting coordinating events on many levels. Kidney function clinics have now developed into combined clinics encompassing diabetes, as well as cardiology. Dialysis programs are beginning to find the value in link nurses, whose role is to orientate and educate the patient who parachutes into a program. We've gone from incentre dialysis clinics, where the patient comes to you, to transportable dialysis clinics, so we can now go to the patient.

For many years, community nurses have worked in isolation. Now Telehealth, videoconferencing, webinar sessions and the internet provide in-services, education and support to nurses, as well as patients and their families. These means of communication have also allowed the standardization of practice locally, provincially, nationally and internationally.

Peritoneal dialysis (PD) has developed into designer PD regimens, tailoring the modality of PD to the patient's needs and physiology. Technologists have gone from providing technical support to being experts in dialysis technology and water treatments. Their role has expanded into fields of plasma exchange and intraoperative dialysis. Foot and wound care subspecialties within dialysis modalities are preventing patients from losing limbs. Vascular access nurses and clinics are extending the life of a patient's access, reducing the frequency of vascular access crisis management. Standardized conventional hemodialysis has opened the door to short daily, home hemodialysis, and nocturnal dialysis both at home and within hospitals. Diploma nurses, in ever-increasing numbers, are pursuing their master's and doctorates, providing much needed research in nephrology nursing. Advanced nurse practitioners have broadened the scope of practice within nephrology nursing.

This is an exciting time to be in nephrology, as an RN, LPN, or technologist. Opportunities abound now and for the future. Can we affect change for tomorrow? I think we can, I think we have, and I know we will continue to do so.

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

« Des vagues d'innovations pour demain »

J'aimerais remercier les membres de l'Association canadienne des infirmières et infirmiers et technologues de néphrologie (ACITN) de me donner cette chance incroyable de les représenter en tant qu'organisation. J'aimerais également remercier les membres du Conseil d'administration de l'ACITN de leur soutien continu et de leurs précieux encouragements.

En repensant au thème de notre dernier congrès, qui a eu lieu à Saint John, au Nouveau-Brunswick, je me suis penché sur le chemin parcouru en tant qu'infirmières, infirmiers et technologues, et vers où nous voulons aller en tant que profession. Ce thème, « Des vagues d'innovations pour demain », faisait appel à une dynamique de mouvement. Pouvons-nous exercer une influence sur le changement ?

Dans bien des cas, je vois et j'entends une certaine prudence dans le domaine de la néphrologie, mais je crois que les infirmières, infirmiers et technologues n'ont jamais eu autant d'occasions d'influencer le changement qu'ils ne le font aujourd'hui. Nous sommes passés à de simples transplantations d'organes cadavériques à des dons d'organes multiples et simultanés provenant de donneurs vivants à l'échelle nationale, ce qui a influencé à de nombreux égards la coordination de ces événements. Les cliniques pour le maintien de la fonction rénale se sont transformées en cliniques mixtes englobant aussi l'expertise dans les domaines du diabète et de la cardiologie. Les hôpitaux commencent à reconnaître la valeur des infirmières et infirmiers de liaison, dont le rôle consiste à orienter et à éduquer le patient qui est parachuté dans un programme de dialyse. Nous sommes passés de cliniques de dialyse en milieu hospitalier, où le patient venait à nous, à des cliniques mobiles de dialyse, où nous allons maintenant vers le patient.

Depuis de nombreuses années, les infirmières et infirmiers des centres communautaires de soins ont travaillé dans l'isolement. De nos jours, Télésanté, la vidéoconférence, les séminaires en ligne et Internet fournissent des mises en service, de l'éducation et un soutien au personnel infirmier ainsi qu'aux patients et à leurs familles. Ces moyens de communication ont également permis la normalisation de la pratique à l'échelle locale, provinciale, nationale et internationale.

La dialyse péritonéale (DP) s'est développée en programmes de DP, spécialement conçus pour s'adapter au mode de DP qui correspond aux besoins et au mode de vie du patient. Les technologues sont passés du soutien technique à des experts en technologie de dialyse et en systèmes de traitement de l'eau. Leur rôle s'est accru dans les domaines de l'échange plasmatique et de la dialyse peropératoire. Des sous-spécialités axées sur les soins des pieds et des plaies dans les différents modes de dialyse préviennent des amputations. Les infirmières et infirmiers ainsi que les cliniques spécialisés en accès vasculaires prolongent la vie de l'accès du patient, en réduisant la fréquence des complications pouvant entraîner une gestion de crise. L'hémodialyse classique normalisée a ouvert la voie à l'hémodialyse quotidienne de courte durée, à l'hémodialyse à domicile et à l'hémodialyse nocturne à domicile ou en milieu hospitalier. Des infirmières et infirmiers diplômés, en nombre sans cesse croissant, poursuivent leurs études aux deuxième et troisième cycles, ce qui augmente les travaux de recherche indispensables aux soins infirmiers en néphrologie. Des infirmières praticiennes ou infirmiers praticiens de pratique avancée ont permis d'élargir la portée de la pratique au sein des soins infirmiers en néphrologie.

Il s'agit d'une époque palpitante pour œuvrer en néphrologie, que ce soit en tant qu'infirmière ou infirmier, infirmière ou infirmier auxiliaire autorisé ou technologue. Il y a, aujourd'hui et demain, abondance d'occasions. Pouvons-nous exercer une influence sur le changement de demain ? Je crois que nous le pouvons. Je crois que nous le faisons déjà. Et, je sais que nous continuerons de le faire.

Rick Luscombe, inf., B.Sc.Inf., CNéph(C) Président de l'ACITN

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Awards for Research, Education and Clinical Excellence







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 nephrolgoy 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 Toronto, Ontario, 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.

Deadlines:

May 1, 2010: Amgen Grants, CANNT Awards of Excellence, Bursaries & Grants

Prix d'excellence en recherche, éducation et pratique clinique







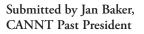
Dates limites :

Le 1^{er} mai 2010 : 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 Toronto, en Ontario, 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.





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

The 2009 fall board meeting was held October 13–15 in Saint John, New Brunswick.

Membership

- At present, we have approximately 650 members of CANNT. The board is always looking at ways to encourage long-term membership, as numbers can fluctuate greatly due to symposium locations. The membership form was revised this year.
- We encourage all memberships, new or renewal, to sign up online, which provides not only a cost savings to the organization, but also saves paper.
- We would also encourage members to maintain a yearly membership versus just renewing when it's conference time. This gives you copies of the journal, as well helping to maintain professional development and the long-term viability of the organization.

Finances

- The board of directors is continuously watching all expenditures, as well as encouraging new revenue streams. One of the ways this has been done is to use telephone conferencing for meetings rather than face to face.
- Another way that we tried to trim costs this year was to hold elections online for the first time, thereby saving time, postage and paper.

• We are forever grateful to our corporate sponsors who, as always, are to be thanked for their ongoing support of CANNT including the annual symposium, the CANNT Journal, and CANNT awards and bursaries.

Strategic planning

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

Journal

The CANNT Journal is a peerreviewed journal that is published quarterly. It continues to be a resource for nephrology professionals and is indexed through the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the International Nursing Index (INI), MEDLINE, EBSCO, ProQuest and Thomson Gale databases.

We are always looking for authors both French- and English-speaking. For first-time authors, information on publishing is available on our website. You can also contact Editor Gillian Brunier at gillianbrunier@sympatico.ca

For 2009, the CANNT Journal Award was awarded to Jane Ridley, Barbara Wilson, Lori Harwood, and Heather K. Laschinger, London, Ontario, for their research article "Work environment, health outcomes, and magnet hospital traits in the Canadian nephrology nursing scene," published in the January–March 2009 issue of the CANNT Journal.

Website

- The new website continues to grow and provide increased opportunities. We held our first elections online this year.
- We would like to encourage all members to renew online, which is fast and economical, as well as environmentally friendly.
- Watch for posted career opportunities as well.

Communication

- Communication continues to be a priority for the board of directors. We want the channels of communication to be open to all members, so keep using the toll-free phone number, as well as the CANNT website to contact us with any questions or concerns.
- We have used e-mail blasts to get information out to all members, as well as relying on our unit liaisons and regional VPs.
- Communication with our corporate sponsors is also a priority for the board of directors. This year, we introduced a new format to evaluate how happy our sponsors are. The board of directors circulated during the conference and spoke to sponsors, as well as having them fill out a revised evaluation form.
- Refined clinical practice groups are still being worked on. Stay tuned to the website for updates on what is available.
- Partnerships continue to flourish and broaden our communication pathways. One such communication took place when we signed the Declaration of Istanbul calling for an end to unethical transplant practices worldwide.



CANNT office operations

- The contract for the administrative assistant, Debbie Maure, was renewed following completion of a performance review by the board of directors in October 2009.
- The evaluation format used for our conference planner, Heather Reid, was revised and reviewed by the board of directors at this year's board meeting.
- The board of directors will also be reviewing/revising the bylaws in 2010.

Standards of practice

- The Standards Review Committee has put forth an invitation for any interested parties to take part in the review that will happen in 2010. Please consider taking part—you can notify your intent by contacting our national office via the toll-free phone number or by the CANNT website.
- Standards of Practice, both nursing and technological standards, continue to be available on our website.

Awards of excellence and bursaries

Congratulations to this year's winners:

- Franca Tantalo Bursary: Karelle Robichaud
- Frances Boutilier Bursary: Monique Moore
- Award of Excellence in Clinical Practice: Shelly Burnett
- Award of Excellence in Administration/Leadership: Carolyn Bowman
- Award of Excellence in Education: Laurie Pritchard
- Award of Excellence in Research: Rosa Marticorena
- Technical Bursary: Darrell Cuza
- Amgen International nursing conference travel grant: Judith Ferguson
- Amgen Nursing Research project grant: two Novice award winners: Manon Campbell and Diane Pouliot
- Amgen Nursing Research project grant: Experienced; Kimmy Lau
- Amgen preceptorship/mentorship grant for Vascular Access: Suzanne Seiler
- Amgen preceptorship/mentorship grant for Nurse Practitioner: Isabelle Thibeault

I would encourage all members to apply for the available awards. There were awards not applied for this year and it would be wonderful to hand them all out. The deadline for applications this year is **May 1, 2010**. Information can be found on the CANNT website, including the application forms.

CANNT Research grant

• This grant was awarded to Joanne Plamondon for her study "Perceptions of key stakeholders regarding future directions for renal health outreach."

Nominations committee

- A call for nominations was sent to the membership for the following positions: VP Eastern, President Elect, and Treasurer/Website coordinator. The new members of the CANNT 2009 board of directors include: Patty Quinan, President Elect, Cathy Erhardt, VP Eastern, and Bev Watson, Treasurer/Website coordinator. We also welcomed Amélie Dumont to the position of VP Quebec.
- Stay tuned for updates on the CANNT website regarding the Call for Nominations for the upcoming year, deadline May 15, 2010.

Canadian Nurses Association (CNA)

- Congratulations to all nephrology nurses who attained their certification this year. More than 1,000 nurses are certified at present in nephrology in Canada.
- Rick Luscombe, our president, again presented a pre-symposium workshop on preparing for and writing the CNA exam. His presentation is available to members on the CANNT website.

• CNA was again present at our symposium at their booth.

2009 symposium

• The east coast provided us with a fabulous symposium, "Turning the tides for tomorrow." I was very impressed with the quality of speakers and poster presentations.

Nephrology Health Care Professionals Day (3rd Wednesday of September yearly)

• This year was the first year that we celebrated in a truly multidisciplinary fashion. CANNT organized and distributed posters to help each unit celebrate this wonderful day and was joined by Canadian Association of Nephrology Social Workers, Canadian Association of Nephrology Dietitians, Renal Pharmacists Network and, this year, Canadian Society of Nephrology.

2010 annual symposium

 The Toronto organizing committee is hard at work planning for our arrival. The conference dates are November 18–20, so stay tuned to the website for the call for abstracts and many updates. This year's theme is "Our mosaic of renal care."

It has been a very busy, but also productive year for CANNT, and your CANNT board of directors continues to promote and develop CANNT as the voice of nephrology nursing in Canada. CANNT is your organization and I would encourage you to give us your feedback, as well as possibly becoming involved with the board of directors. Our next board of directors' meeting will be held in April 2010.

Please send all submissions, questions or comments to:

Gillian Brunier, Editor, CANNT Journal Fax: (416) 495-0513

e-mail: gillianbrunier@sympatico.ca



Votre conseil en action



première fois, ce qui nous a permis d'économiser en temps, frais postaux et papier.

• Nous tenons à remercier très sincèrement nos sociétés commanditaires qui, comme toujours, continuent d'appuyer nos activités, incluant le congrès annuel, le journal ainsi que les différents les prix et bourses.

Planification stratégique

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

Journal

Le Journal de l'ACITN (CANNT Journal) est une publication révisée par des collègues qui est publiée trimestriellement. Cette source d'information est prisée par les professionnels en néphrologie et est indexée dans les bases de données suivantes : Cumulative Index to Nursing and Allied Health Literature (CINAHL), International Nursing Index (INI), MEDLINE, EBSCO, ProQuest et Thomson Gale.

Nous sommes toujours à la recherche d'auteurs francophones et anglophones. Pour la première fois, chers auteurs, vous pouvez consulter en ligne l'information relative à la publication de vos articles. Vous pouvez également communiquer avec l'éditrice en chef, Gillian Brunier, à gillianbrunier@sympatico.ca.

Le Prix d'excellence de 2009 du Journal de l'ACITN a été remis à un collectif formé de Jane Ridley, Barbara Wilson, Lori Harwood et Heather K. Laschinger, de London, en Ontario, pour leur article intitulé « Work environment, health outcomes, and magnet hospital traits in the Canadian nephrology nursing scene », [Environnement de travail, résultats pour la santé et caractéristiques des hôpitaux-aimants sur la scène des soins infirmiers en néphrologie au Canada] publié dans l'édition de janvier-mars 2009 du Journal de l'ACITN.

Site Web

- Le nouveau site Web prend de l'expansion et nous permet d'explorer de nouvelles possibilités. Nous avons tenu nos premières élections en ligne en 2009.
- Nous invitons tous les membres à renouveler leurs cotisations en ligne, ce qui est plus rapide, plus économique et également plus écologique.
- Surveillez aussi les offres d'emploi qui sont hébergées sur le site Web.

Communication

- La communication est toujours une priorité pour le CA Nous désirons que les voies de communication demeurent accessibles à tous les membres. Nous vous invitons à continuer d'utiliser le numéro sans frais (1-877-720-2819) ainsi que le site Web de l'ACITN pour nous joindre afin de transmettre vos questions ou vos commentaires.
- Pour informer tous les membres, nous avons envoyé maints messages électroniques et avons compté sur le soutien des agents de liaison et des vice-présidents (v.-p.) régionaux.
- La communication avec nos sociétés commanditaires demeure une priorité pour le CA. Cette année, nous avons présenté un nouveau format pour évaluer le niveau de satisfaction de nos commanditaires. Durant le congrès annuel, les membres du CA se sont promenés et ont discuté avec les commanditaires et leur ont demandé de remplir le formulaire d'évaluation révisé.
- Des groupes de discussion sur la pratique clinique continuent de se réunir. Surveillez le site Web pour les mises à jour sur ce qui est accessible.
- De nouveaux partenariats continuent de se former et d'élargir nos voies de communication, une telle communication a eu lieu lorsque nous avons signé

Soumis par Jan Baker, présidente sortante de l'ACITN

Le présent article consiste à vous informer sur les activités de votre conseil d'administration (CA). Nous désirons vous présenter les nouvelles en bref de votre Association, les prochaines activités et les dates importantes. La réunion automnale de 2009 du CA de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) a eu lieu du 13 au 15 octobre à Saint John, au Nouveau-Brunswick. Voici les points saillants de cette réunion :

Adhésion

- Nous comptons actuellement 650 membres. Le CA est constamment à la recherche de façons nouvelles d'encourager l'adhésion des membres à long terme, étant donné que l'effectif peut fluctuer grandement d'une année à une autre, en raison de l'emplacement du congrès annuel. Nous avons procédé à la révision du formulaire d'adhésion cette année.
- Nous invitons toutes les personnes qui s'inscrivent ou touts les membres qui renouvellent leurs cotisations à le faire en ligne, ce qui est non seulement rentable pour l'Association, mais permet aussi d'épargner du papier.
- Nous aimerions aussi encourager les membres à renouveler leur adhésion annuellement au lieu de le faire au moment du congrès. En adhérant à l'ACITN, vous recevrez le Journal de l'ACITN (Journal CANNT) et vous aidez ainsi à maintenir le perfectionnement professionnel et la viabilité à long terme de notre organisation.

Finances

- Le CA surveille constamment toutes les dépenses et est toujours à l'affût de nouvelles sources de revenus. Nous avons favorisé les conférences téléphoniques au lieu de rencontres en personne.
- Nous avons également réduit nos dépenses d'exploitation cette année en tenant des élections en ligne pour la

la Déclaration d'Istanbul, exigeant la fin de pratiques douteuses relatives à la transplantation à l'échelle mondiale.

Services administratifs

- Nous avons renouvelé le contrat de l'assistante administrative, Debbie Maure, après l'évaluation de son rendement par le CA en octobre 2009.
- Le format d'évaluation utilisé par notre planificatrice de congrès, Heather Reid, a été revu et corrigé par le CA lors de l'assemblée de cette année.
- Le CA révisera et mettra à jour ses règlements administratifs en 2010.

Normes de la pratique

- Le Comité de révision des normes de pratique lance une invitation à toute personne désireuse de prendre part au processus de révision qui aura lieu en 2010. Envisagez-vous de collaborer à ce processus ? Dans l'affirmative, veuillez signifier votre intention en communiquant avec le bureau national par téléphone au numéro sans frais (1-877-720-2819) ou par le site Web.
- Les normes de pratique infirmière et de pratique technique sont accessibles en ligne sur notre site Web.

Prix d'excellence et bourses

Félicitations à toutes les gagnantes et à tous les gagnants :

- Bourse Franca Tantalo : Karelle Robichaud
- Bourse Frances Boutilier : Monique Moore
- Prix d'excellence en pratique clinique : Shelly Burnett
- Prix d'excellence en administration/ leadership : Carolyn Bowman
- Prix d'excellence en éducation : Laurie Pritchard
- Prix d'excellence en recherche : Rosa Marticorena
- Prix d'excellence en technologie : Darrell Cuza
- Bourse d'Amgen International pour la participation à un congrès sur les soins infirmiers : Judith Ferguson
- Bourse de recherche d'Amgen en sciences infirmières, décernée à deux infirmières débutantes en néphrologie : Manon Campbell et Diane Pouliot
- Subvention de recherche d'Amgen en sciences infirmières, décernée à une personne expérimentée : Kimmy Lau

- Bourse de préceptorat/mentorat d'Amgen sur l'accès vasculaire : Suzanne Seiler
- Bourse de préceptorat/mentorat d'Amgen pour une infirmière praticienne : Isabelle Thibeault

Je tiens ici à encourager tous les membres à poser leur candidature pour les prix offerts. Certains prix ou certaines bourses n'ont pas reçu de mises en candidature cette année et ce serait formidable de pouvoir tous les remettre. La date limite pour déposer vos candidatures est le 1^{er} mai 2010. Vous trouverez toute l'information nécessaire sur le site Web de l'ACITN, y compris les formulaires d'inscription.

Subvention de recherche

• La subvention de recherche a été accordée à Joanne Plamondon pour son étude intitulée : "Perceptions of key stakeholders regarding future directions for renal health outreach" [Perceptions des intervenants clés à l'égard des orientations futures pour le rayonnement de la santé rénale].

Comité des mises en candidature

- Un appel de mises en candidature a été envoyé à tous les membres pour l'élection des postes suivants : président(e) élu(e), v.-p. pour l'Est et trésorier(ière)/coordonnateur(rice) du site Web. Les candidates élues qui se sont jointes au CA de l'ACITN pour l'exercice de 2009 sont : Patty Quinan, présidente élue ; Cathy Erhardt, v.-p. pour l'Est et Bev Watson, trésorière/coordonnatrice du site Web. Nous accueillons également Amélie Dumont, v.-p. pour le Québec.
- Consultez les mises à jour sur le site Web de l'ACITN pour connaître les mises en candidature pour la prochaine année. La date limite pour soumettre votre candidature est le 15 mai 2010.

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

- Nous tenons à féliciter toutes les infirmières et tous les infirmiers qui ont obtenu leur agrément cette année.
- Plus de 1 000 infirmières et infirmiers ont été agréés en soins infirmiers en néphrologie au Canada.

Rick Luscombe, notre président, a une fois de plus présenté un atelier de préparation pour passer l'examen d'agrément CNépho(C) de l'AIIC en avant-première du Congrès de l'ACITN de 2009 ; les membres peuvent consulter sa présentation en ligne sur le site Web de l'Association. L'AIIC était présente à leur stand lors de la tenue de l'atelier.

Congrès de 2009

• La côte Est nous a offert un cadre fabuleux pour notre congrès « Des vagues d'innovations pour demain ». La qualité des conférenciers et des affiches scientifiques m'a agréablement impressionnée.

Journée annuelle des professionnels de la santé en néphrologie (3^e mercredi de septembre)

· Cette année, nous avons célébré cette journée d'une manière vraiment multidisciplinaire pour la première fois. L'ACITN a préparé et distribué des affiches afin d'aider chaque unité de dialyse à souligner cette merveilleuse journée. Des collègues de la Canadian Association of Nephrology Social Workers (CANSW), de la Canadian Association of Nephrology Dietitians (CAND), du Renal Pharmacists Network (RPN) et, cette année, ceux la Société canadienne de de néphrologie (SCN) se sont joints à nous dans l'organisation et la promotion de cette journée.

Congrès de 2010

• Le Congrès annuel de l'ACITN de 2010 aura lieu à Toronto, du **18 au 20 novembre**. Consultez le site Web de l'ACITN pour la demande de résumés d'articles et les nombreuses mises à jour. Le thème retenu est : « Our mosaic of renal care » (traduction libre : Notre mosaïque des soins rénaux).

Ce fut une année de grande activité, mais très productive pour l'ACITN. Votre CA continue de promouvoir et de développer l'ACITN comme la voix des soins infirmiers en néphrologie au Canada. L'ACITN est votre Association. Nous serions heureux de recevoir vos commentaires et surtout votre candidature à l'un des postes vacants au sein du CA La prochaine réunion du CA aura lieu en avril 2010.



Visit your CANNT website for:

- "What's New" at a glance
- nephrology job postings
- educational resources: awards/bursaries/grant applications
- PDF articles of previous CANNT Journal issues
- online continuing education articles that earn you CEU credits
- links to educational & professional affiliate websites
- CANNT merchandise available in our online store
- regional report updates & our annual CANNT/ACITN report

- CANNT Nursing & Technical Practice Standards, revised 2008
- national nephrology certification information and exam preparation support
- regional, national & international educational events information
- National Nephrology Professionals Day information discover how colleagues from across Canada celebrate the day
- CANNT National Symposium 2010, Toronto, Ontario, details & updates

Join or renew your CANNT membership online today at www.cannt.ca!

NOTICE BOARD

- Ottawa Supper Clubs–Contact Janet Graham, Nephrology Unit, Ottawa Hospital, jgraham@ottawahospital.on.ca
- March 15, 2010. Kidney Foundation of Canada. Deadline for Allied Health Fellowships and Scholarships. Contact: Coordinator, Research Grants and Awards, (800) 361-7494, ext. 232, e-mail: research@kidney.ca. Website: www.kidney.ca
- April 17, 2010. Exam date for CNeph(C) certification exam. Contact Canadian Nurses Association Certification Program, e-mail: certification@cna-aiic.ca.
 Website: www.cna-aiic.ca Toll-free phone number: 1-800-450-5206
- May 1, 2010. 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, e-mail cannt@cannt.ca, or visit our website at www.cannt.ca
- May 2–5, 2010. The American Nephrology Nurses Association (ANNA) 41st National Symposium, Grand Hyatt San Antonio and Henry B. Gonzalez Convention Center in San Antonio, Texas. Website: www.annanurse.org
- May 6–7, 2010. Journées Néphrologie Nouveau-Brunswick/New Brunswick Nephrology Days. Hotel Delta Beauséjour, 750 rue Main/Main Street, Moncton, NB. Contact for information: Mme Eliette Léger, tél: (506) 862-4473, fax: (506) 869-2937, courriel / e-mail : eliettel@rrsb.nb.ca
- July 23–26, 2010. 13th Congress of the International Society for Peritoneal Dialysis (ISPD), Centro Banamex, Mexico City, Mexico. Website: www.ispd2010mexico.org
- * September 15, 2010. Nephrology Health Care Professionals Day.
- September 18–21, 2010. 39th European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA) International Conference: Dublin, Ireland. Website: www.edtnaerca.org
- November 18–20, 2010. CANNT 43rd National Symposium. Metro Toronto Convention Centre, Toronto, Ontario. Conference Planner: Heather Reid: e-mail: hreid@innovcc.ca. Website: www.cannt.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

our Mosaic of Renal Care

CANNT ACITN 2010

November 18-20

Metro Toronto Convention Centre

CALL for ABSTRACTS



Abstracts are currently being accepted for ORAL and POSTER presentations for CANNT 2010, the annual national meeting of the Canadian Association of Nephrology Nurses and Technologists, to be held November 18-20, 2010 at the Metro Toronto Convention Centre, Toronto, Ontario. Topics of interest may include: clinical research, innovative projects and solutions, ethics, case presentations and clinical reviews. All abstract submissions must be evidence-based.

ABSTRACT SUBMISSION GUIDELINES

All abstracts must be submitted via e-mail to: hreid@innovcc.ca as an attachment in Word or WordPerfect. Deadline: April 1, 2010 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

ALL SUBMISSIONS MUST:

- 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

IMPORTANT NOTES:

- Only COMPLETE submissions received by Thursday, April 1, 2010 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 30, 2010.
- 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.





CONFERENCE THEME:

The theme for CANNT 2010 is "OUR MOSAIC OF RENAL CARE". 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.



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

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)



CANNT 2010 ABSTRACTS MAIL: **Innovative Conferences & Communications** P.O. Box 319, 59 Millmanor Place Delaware, Ontario, Canada NOL 1E0





Notre mosaïque de soins en néphrologie

CANNT ACITN 2010

18 au 20 novembre

Metro Toronto Convention Centre

DEMANDE de COMMUNICATIONS



Nous acceptions présentement pour des présentations ORALES et des SÉANCES D'AFFICHAGE pour CANNT/ACITN 2010, la réunion nationale annuelle de l'Association canadienne des infirmiéres/iers et technologues en néphrologie, qui se déroulera du 18 au 20 novembre 2010 au Metro Toronto Convention Centre, Toronto, Ontario. Les sujets d'intérêts peuvent comprendre: la recherche clinique, les solutions et les projets innovateurs, l'éthique, la présentation de cas et les examens cliniques. Toutes les communications présentées doivent être basées des résultats cliniques et scientifiques.

LIGNES DIRECTRICES POUR LA PRÉSENTATION DES COMMUNICATIONS Toutes les communications doivent être présentées par courriel

à l'adresse suivante: hreid@innovcc.ca avec pièce jointe en format Word^T ou WordPerfect^T.

Échéance: 1^{er}Avril 2010 Les communications doivent comprendre les éléments suivants :

doit refléter avec exactitude le contenu de la présentation;

communication Corps de la

Titre de la

communication

• texte avec un maximum de 250 mots (caractère : Times New Roman, 12 points); fournir les renseignements sur l'auteur sur une page séparée;

doit être le plus informatif possible;

SI ELLE EST AXÉE SUR LA **RECHERCHE:**

- · l'objet de l'étude;
- la méthodologie;
- les résultats;
- les conclusions:
- les implications pour les soins en néphrologie;

SI ELLE EST AXÉE SUR LA PRATIQUE/L'ÉDUCATION, ELLE DOIT COMPRENDRE:

- but du projet;
- la description;
- l'évaluation/les résultats;
- les implications pour la pratique et l'éducation en néphrologie;

TOUTES LES SOUMISSIONS DOIVENT :

- définir toutes les abréviations dans le texte:
- utiliser uniquement les noms génériques des médicaments;
- ne pas identifier de compagnie ou de produit dans le titre ou le contenu de la communication.

FAITES PARVENIR LES COMMUNICATIONS À:

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Ripples in the water: A toolkit for Aboriginal people on hemodialysis

By Barbara L. Paterson, RN, PhD, Lee Ann Sock, BSN, Denis LeBlanc, MSW, PhD cand., and Joan Brewer, RN, MEd

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Abstract

In 2004–2005, the authors were engaged in a community-based research study with people of Elsipogtog First Nation to determine the causes of and solutions to non-adherence among community members with chronic kidney disease. This study highlighted the need for a toolkit intended for Aboriginal people who are required to undergo hemodialysis at a dialysis unit in a city away from their rural community, so that they are sufficiently educated, supported and resourced to access and experience culturally relevant health care. This paper presents the findings of a two-year communitybased research study to develop the prototype or model for such a toolkit. The research involved meeting with nine community members in group meetings at least monthly over the two years to determine what such a toolkit should include and how it should best be presented. It also entailed an extensive review of relevant literature and relevant educational materials, as well as individual interviews with key stakeholders. The project resulted in a culturally relevant toolkit that can be staged according to people's readiness for the information and that fosters collaborative discussions between patients, family members and health care practitioners.

Keywords: Aboriginal, toolkit, community-based research, rural health

Chronic kidney disease is a significant concern in the consideration of Aboriginal peoples' health (Salvalaggio, Kelly, & Minore, 2003). The rates of chronic kidney disease among Aboriginal people are currently 3.2 times higher than the national average (The Kidney Foundation of Canada—Manitoba Branch, 2002; Green, 2003; Salvalaggio et al., 2003). Aboriginal people are three times more likely than non-Aboriginal Canadians to develop disease-related complications, such as renal failure (Cass, 2004). Consequently, Aboriginal people are generally well-represented in most urban dialysis units.

The geographical location of people receiving hemodialysis has been determined to be a significant determinant of their ability to attain necessary supports within their homes and within their communities (McKenna, Ryan, & McKenna, 2005; Phillips, 2009). The most pressing health-related problem for residents of rural and remote communities is lack of access to appropriate health care, particularly access to specialty care (Anderson, Yeates, Cunningham, Devitt , & Cass, 2009; Nagarajan, 2004). This problem is particularly significant for Aboriginal people who live in rural or remote areas of Canada (Anderson et al., 2009; Wardman, Clement, & Quantz, 2005).

This paper is a report of a two-year community-based research project in which two academic researchers worked with a team of nine community members from Elsipogtog First Nation in New Brunswick, Canada, to develop a toolkit for rural Aboriginal people who were beginning or expected to begin hemodialysis at an urban dialysis unit.

Background

In addition to the usual health care concerns that plague rural areas, such as the shortage of physicians and communitybased hospitals, Aboriginal people in rural areas face a number of serious social and health inequities to a degree that surpasses most other areas of Canada (Nagarajan, 2004; Shah, Gunraj, & Hux, 2003). Aboriginal people who must leave their rural community to undergo dialysis often travel several miles from their home communities to a hospital in which health care practitioners are strangers and may not speak their language or understand their traditional ways (Anderson et al., 2009; Salvalaggio et al., 2003). In addition, Aboriginal people may not be able to afford the cost of parking, accommodation for

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Submitted for publication: October 7, 2009. Accepted for publication in revised form: January 31, 2010. an overnight stay, or telephone calls to their families. Being away from home during dialysis causes many Aboriginal people to experience stress and anxiety about the welfare of their families who remain on the reserve (Anderson et al., 2009; Salvalaggio et al., 2003; Watson, Hodson, & Johnson, 2002), resulting in physical symptoms, such as loss of appetite. The prospect of leaving their communities and families to receive dialysis in an urban hospital is so daunting that some Aboriginal people choose, instead, to refuse treatment (Anderson et al., 2009; Green, 2003; Salvalaggio et al., 2003), facing increasing impairments and certain death.

Rural Aboriginal people's encounters with mainstream health care have been shown to influence their utilization of health care services, as well as their willingness to enact plans of care developed by practitioners (Anderson et al., 2009; Wilson, Krefting, Sutcliffe, & Van Bussel, 1994). Aboriginal people in Canada have a long history of social and cultural disruption, as well as the exploitation of their resources and forced economic dependence that has resulted from their marginalization from mainstream society (Paterson, Perley-Dutcher, Francis, & Bigras, 2006). Aboriginal people may be reluctant to engage health care practitioners, or to follow their advice because of the unequal power relations that they perceive exist between them (Browne & Smye, 2000; Paterson et al., 2006; Wright, 2009).

The difference between Aboriginal peoples' and mainstream health practitioners' ways and understandings of health and well-being may be another factor that influences Aboriginal people's decisions to attend dialysis or comply with the prescribed regimen. Researchers have found that the difference between Western views of disease and biomedical intervention is a significant concern and the traditional Aboriginal view of well-being and family/community as priority often produces clashes between the two groups (Anderson et al., 2009; Bartlett, 2005; Paterson et al., 2006; Thompson & Gifford, 2000; Wright, 2009). There may also be other differences that affect Aboriginal people's intention and ability to adhere to the prescribed regimen. Nephrology practitioners often teach about the post-dialysis plan of care in one-to-one or group didactic interactions, supplemented by printed materials. Many Aboriginal people tend to prefer to develop a relationship with the health care practitioner over time, to involve their family and community supports in the learning, and to engage in dialogical learning strategies (The Kidney Foundation of Canada-Manitoba Branch, 2002).

In a study of the educational needs of Aboriginal people with kidney disease (The Kidney Foundation of Canada— Manitoba Branch, 2002), researchers determined that although the educational needs for Aboriginal people undergoing dialysis were similar to non-Aboriginal people, the printed materials available were written above the reading level of 60% of Aboriginal people in Canada. They reported that both health care practitioners and Aboriginal respondents alike believed that teaching for Aboriginal people should incorporate more culturally appropriate care and teaching strategies, such as sharing circles and videos that portray Aboriginal narrators and actors. This pointed to the need for education that is culturally sensitive and relied less on the usual printed media.

In 2004–2005, the Mi'kmaq community of Elsipogtog First Nation in New Brunswick identified a need for research to investigate the causes of and solutions to the high incidence of non-adherence of community members with chronic kidney disease to their prescribed diet and medications, as well as non-attendance at scheduled dialysis in the city. The research was a yearlong community-based research study involving both academic and community members on the research team, including the authors of the current paper (Paterson, Sock, Dobbelsteyn, & LeBlanc, 2005). The research study revealed that (1) Aboriginal people who went to the city for dialysis described that experience as frightening, lonely, and unhealthy because they were away from their families and community. They believed that many urban health care practitioners are prejudiced, they perceived many of the practices of the urban dialysis unit as culturally irrelevant, they often did not understand the written information that was provided to them, and they did not know how to access the resources and supports they needed both in the city and in their community. Consequently, they often chose to be absent from dialysis, despite the significant risks to their health. These findings were similar to those of other researchers who determined that the requirement to leave a rural reserve to obtain dialysis in the city, requiring negotiation of complex systems of mainstream and community-specific care, was a disruptive and stressful experience for Aboriginal people that resulted in fragmented and culturally irrelevant plans of care (Anderson et al., 2009; Kaufert, Longclaws, Elias, McKenzie, Ross, Jeffrey, et al., 1998); (2) urban health care practitioners were often unaware of what resources/supports existed in the patient's community and, consequently, referred the patient to other urban-based agencies and failed to communicate with health care practitioners in the reserve who provided community-based support for the patient. In addition, practitioners often held stereotypes and outdated notions of what services were paid for by First Nations Inuit Health Branch and the conditions on the reserve. This resulted in their developing post-dialysis plans of care that were not feasible and frequently prohibitive for the patient; and (3) family members and other informal caregivers within the community often did not understand the patient's experience of dialysis and were often unaware of how to advocate for the patient, how to obtain necessary resources and supports for the patient, and how best to support him or her. Because of the findings of this research, the community of Elsipogtog First Nation recognized a need for a toolkit to assist community members who required dialysis to access and obtain culturally relevant health care. They recommended that the toolkit incorporate culturally relevant ways of learning and that it include supplementary tools/resources for formal (i.e., health care practitioners in the city and in the community) and informal caregivers.

Methodology

The objectives that underlay the research were to: (1) identify the content and preferred method of delivery of a toolkit that assists Aboriginal people on hemodialysis (i.e., "dialysis") to meet their need for a culturally relevant plan of care; (2) identify the content included in the toolkit that will

assist informal (i.e., family or community) caregivers to provide support and appropriate resources to the ill family member; and (3) identify the content included in the toolkit that will assist health care practitioners in urban dialysis units to provide support and appropriate resources to the population of interest to meet the need for culturally relevant care. These objectives were developed in collaboration with the director of health and wellness at Elsipogtog First Nation and her designate upon submission of the research proposal to the Kidney Foundation of Canada for funding.

This study utilized a community-based research (CBR) approach in which the academic researchers and members of the Community Advisory Committee (CAC) engaged in problem solving, planning, and evaluation in order to (1) determine what was needed in the content of a toolkit that would meet the informational needs of Aboriginal people receiving dialysis, their significant others, and health care practitioners who provided care to them; (2) identify what was the most effective and culturally relevant way to present this content; and (3) produce a prototype or a model of the toolkit. The CAC consisted of 11 female community members: two Elders; four family members of people who were on dialysis or had been on dialysis; three health care providers in the community; and two people who were currently receiving hemodialysis. They formed the CAC upon invitation of the director of health and wellness in Elsipogtog First Nation.

The CBR research method has its roots in the early movements for social justice and anti-oppression and has evolved over time, as a method for effecting social change (Edgren, Parker, Israel, Lewis, Salinas, Robins, et al., 2005; Mail, Conner, & Conner, 2006; Naylor, 2002). It can include both qualitative and quantitative research strategies, but its hallmark is that community members and academics work in partnership to arrive at a solution to a problem that has been identified by the community. We conducted the research according to the following principles of CBR: (1) recognizing community as a unit of identity; (2) building on community strengths and resources; (3) facilitating collaborative, equitable partnerships across all phases of the research; (4) promoting co-learning and capacity building; (5) integrating and achieving a balance between research and action for mutual benefit; (6) using a cyclical and iterative process for intervention development; and (7) disseminating findings and knowledge gained to all partners (Israel, Schulz, Parker, & Becker, 1998). These principles were reflected in our Memorandum of Understanding (MOU) with the community of Elsipogtog First Nation.

The CAC members decided in collaboration with the research team how often and where to meet, as well as what data they need to achieve the research goals. This research design provided a forum for CAC members to exchange ideas, knowledge, skills, and experiences that enabled the research to reflect an Aboriginal standpoint (Edgren et al., 2005). The CBR approach entailed a series of meetings (generally in-person in the reserve community, but twice, because of weather conditions, by telephone) over the two years. Each meeting after the first group discussion began by

reviewing the recorder's notes from the last group discussion; these notes identified the major points of the discussion at that meeting. The CAC participants then revised, deleted, or added to the recorder's notes. These revisions were recorded as research data. We incorporated the use of traditional ceremonies and practices, as advised by the CAC. For example, we asked an Elder to open the sessions in prayer.

Each group meeting was moderated by a member of the research team and audiotaped. The group meetings generally began with a review of the recorder's notes from the previous meeting and then the research team shared relevant literature or evidence (e.g., interview transcripts). They concluded the meetings with discussion about the major insights they had gained in the meeting and a detailed plan of what activities needed to be completed prior to the next scheduled meeting (e.g., conduct a review of web-based toolkits; interview elders in the community).

The meetings or group interviews were initially focused on the experiences of the research team members that were relevant to the research (e.g., a community member who was a family member of a patient on dialysis described her frustration in knowing how to be supportive without "taking over") and ideas of what a toolkit should include. Within three months, the discussions changed in focus to what others (i.e., those interviewed or authors of relevant literature) said was needed in a toolkit for people receiving dialysis. In latter months, the focus of the group meetings became the actual content of the toolkit and how it should be best presented.

Theoretical framework

The theoretical underpinning of this study was the Aboriginal Life Promotion Framework in Research (Bartlett, 2005). This framework was developed in response to criticism of the application of traditional research approaches to the investigation of phenomena involving Aboriginal people. It was derived from relevant literature and various medicine wheels in Aboriginal tradition, and supported by research with three Aboriginal organizations. It incorporates the Aboriginal view of health as holism and interconnectedness, and highlights the need for researchers to consider not only culture, but also political, social, and economic influences on the phenomenon under study. For example, one of the central tenets of the framework is that the issue to be studied is related not only to Aboriginal culture, but having social, economic and political roots and implications. Consequently, in both the research process and the toolkit itself, we acknowledged the marginalized status of Aboriginal people in Canadian society and their history as oppressed people. For example, in a discussion of the anger that some Aboriginal people feel when they learn they will have dialysis, the manual in the toolkit reads, "if you are a survivor of a residential school or the child or grandchild of a survivor of residential schools, you may have learned to push down your anger because of your fear about what your anger will result in." Another example is when health care practitioners are told about a woman who chooses to avoid dialysis because of her fear that the doctors will chastise her, and we discuss this, as a

common way of avoiding the oppression and marginalization that many Aboriginal people have experienced by non-Aboriginal Canadians throughout history.

The community

Community identity is a central consideration of CBR (Naylor, 2002). Communities are defined locally (e.g., by geographic locations) and/or by shared needs, experiences, social ties, and commitments to joint action. We defined community as those living in Elsipogtog First Nation who have personal or related (e.g., as an informal or formal caregiver) experience with receiving or waiting for hemodialysis in an urban dialysis unit.

Elsipogtog First Nation inhabits the Richibucto Reserve that covers 4,120 acres. It is the largest Aboriginal community in New Brunswick and the second largest in Atlantic Canada. It is a community and has a population of 3,422 people. It is 110 km from the nearest dialysis unit. However, community members may travel as much as 400 km away to attend an urban dialysis unit. There is no home dialysis or satellite dialysis unit available at this time in the proximity of the community. At the time of the research, there were 12 people in the community who were receiving hemodialysis in urban hospitals.

The community advisory committee

The CAC met regularly throughout the project (at least once a month and, at times, as much as three times a month). Individual members were consulted, as necessary, if specific issues arose that required their counsel. For example, when we needed a title for the toolkit that would be culturally relevant, the Elder on the committee assisted us to bring a group of Elders together to determine the title. The toolkit was named "Ripples in the Water" as tribute to many Aboriginal people's close relationship with nature and to signify, in the words of one Elder, "that being on dialysis is like throwing a pebble into a still pool of water. It makes ripples. It affects every part of you, your body, your spirit, your emotions, your thinking. And it affects all those around you, your family, the community, and even the doctors and nurses that work with you."

The CAC members were selected by the community's director of health and wellness on the basis of the following criteria: adult (18 years or over) who is currently living in Elsipogtog First Nation; speaks and understands English; is involved with community activities, particularly in relation to health and social care; and has demonstrated an understanding of the community and its interactions with outside agencies. Participants were asked to sign an informed consent immediately prior to the first CAC meeting. They received an honorarium of \$10 for each meeting in lieu of parking, transportation, child care and other costs.

We maintained a commitment to avoid overburdening CAC with the requirements of the research, preferring to organize data collection around their schedules and to encourage them to determine timelines. For example, the participants preferred to meet in the day, but, as one person had dialysis appointments on Monday/Wednesday/Friday and another on Tuesday/Thursday/Saturday, we alternated between the days of the week for our meetings.

The CAC members taught us about what is culturally relevant and appropriate in the design and implementation of the research. They reviewed the research plans and suggested modifications that reflected the unique culture and circumstances of the community. For example, we decided to have an "appreciation event" to profile the toolkit to the community at the end of the study. However, the CAC informed us that hand-delivered invitations would be much more effective than the posters we had planned to advertise the event. The CAC also suggested culturallyappropriate interview methods. For example, one community member on dialysis was described as "angry and distrustful" by the CAC. They advised that he be interviewed by two people he knew and trusted, both members of the CAC. On another occasion, the person interviewed was a native speaker and the CAC advised that one of the CAC members who also spoke Mi'kmaq attend the interview to help translate.

The CAC assisted us to identify and recruit a community member who was hired as a research assistant. She was effective in establishing rapport and gaining access to community members for the purpose of interviewing them. The community research assistant received training about dialysis, interviewing, research ethics and data analysis. This training was developed and implemented jointly between the research team and the CAC.

Consultants

Five specialists in Aboriginal health or dialysis agreed to participate in the research, as consultants. They were asked to provide advice/feedback, as issues and questions arose within the research, and to review the proposed toolkit content for their comments and ideas. For example, two consultants, a nephrologist and a dialysis unit educator, arranged for the researchers to attend the dialysis unit and to film a member of the CAC on her "first" dialysis appointment. They also corrected some of the wording in the toolkit that described hemodialysis to be more accurate.

Ethical considerations

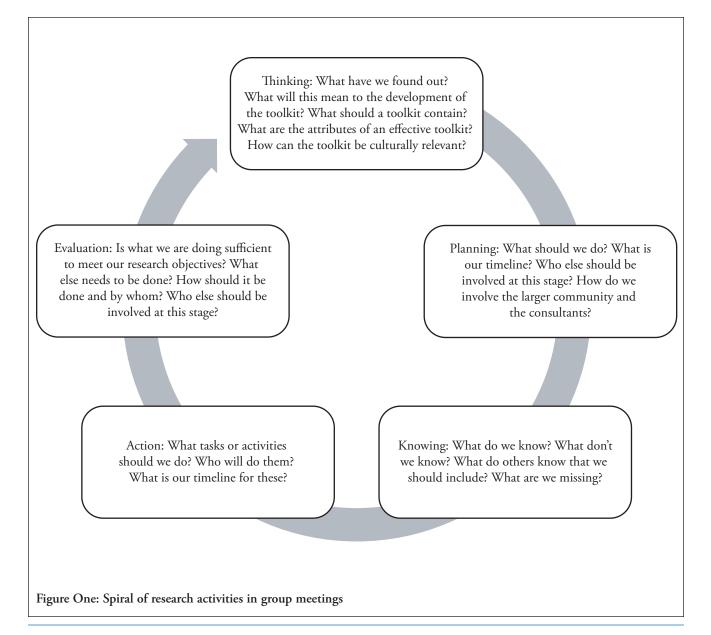
Because of the history of abuse of Aboriginal people by researchers, it is important that researchers attend to issues of ownership, communication, involvement, and benefit that are critical in establishing and sustaining collaborative partnerships with Aboriginal people. We signed a Memorandum of Understanding (MOU) with Elsipogtog First Nation that incorporated the ethical dimensions of community-based research, the OCAP agreement (Scharch, 2004) and the newly developed Canadian Institute for Health Research (CIHR) Ethical Guidelines for Research with Aboriginal People. This MOU included our acknowledgement of the importance of spiritual beliefs, the sacredness of the information we collect from and about community members and "cultural norms for respecting the sacred" (Quigley, 2006, p. 134). In addition, the research received ethical approval from the University of New Brunswick ethical review board.

Data collection

The CBR study adapted the guidelines suggested by Holter and Schwartz-Barcott (1993) to develop an intervention in a series of mutually agreed-upon steps or action cycles (see Figure One). The research involved five stages that occurred as a spiral throughout the research. For example, at each group meeting, we determined what we had discovered in our previous meeting, in the literature that was shared at the meeting, and in the individual interviews or consultations that had been held since the previous meeting. This was the Knowing phase. We also engaged in discussions about what this knowledge meant to us in terms of our research (Thinking) and planned how to integrate this knowledge or address gaps in our knowledge (Planning). Following the meeting, we collected additional data or completed tasks that were assigned to us, as individual research team members (e.g., look at toolkits available on the web). This was the Action phase. At each meeting, we assessed the comprehensiveness and cultural relevance of what we had determined was essential to the toolkit (Evaluation). These phases were rarely consecutive or linear. For example, the thinking phase often involved components of evaluation and planning often led to discussions about what we did not know about the needs of Aboriginal people or about toolkit design.

In addition to group discussions, data collection also included other qualitative research strategies, such as an extensive literature review about the educational needs of Aboriginal people receiving dialysis and cultural competence in health care. We also conducted individual interviews with people identified by the CAC as able to provide input that would be significant to the research purpose. A total of 12 people (three family members; three health care providers; four people currently on dialysis; one person who has been told that she will be receiving dialysis in the future; and an Elder) were interviewed in individual interviews; four were male and the remainder female.

The individual interviews were structured according to questions that the CAC directed us to answer. For example, in our discussion about what we could tell families about supporting the patient, we recognized that we needed data about what was effective support. To identify what was effective, we also needed to know what support was not effective. The CAC suggested that we interview people who had been successful in supporting their family members while



they were on dialysis and some who believed they had not been successful. Consequently, we identified three family members who had attempted to help their significant other. Two indicated they had found ways to offer and provide support that were successful, and one stated that her help had been rejected by the patient, or that it had caused conflict in the family. We were able to identify attributes of effective and ineffective family support from these interviews. Subsequently, in our interviews with people receiving dialysis and with our consultants, we were able to further refine this list and included this content in the manual section about offering and providing support to the patient.

We also reviewed websites, educational printed material, videos/DVDs about dialysis, as well as toolkits used to support/assist people with other diseases. We evaluated the effectiveness of the material (e.g., one video included people who spoke Cree, honouring Native languages, but without a translation, non-Cree speaking people would not understand what had been said). When required, we contacted the producers of these materials and asked questions about how they developed and used the material and what insights they might offer. For example, a practitioner who used a series of DVDs to foster group discussion among Aboriginal people indicated that the DVDs were too long (an hour each) and that an evaluation of the program showed that most attendees wanted the DVDs to be 15 to 20 minutes.

We provided regular updates about our research activities to the community throughout the project in articles in the local newsletter ("Elsipogtogeoei"). In these articles, we invited community members to provide feedback about the project or make suggestions. Contact information for the team was provided. We often included photographs of the research team at work. This proved to be an effective strategy to engage the community and to sustain the CAC members' commitment to the research.

Data analysis

Analysis of the interview data and document data occurred by content analysis according to the procedures described by Lederman (1991). Content analysis involved coding the transcript text into content categories, consisting of a word or phrase, by the process of selective reduction. These were then collapsed into overarching categories and, then, the categories were collapsed into overarching themes. For example, several interviews highlighted the benefits of sharing one's story with others who had also experienced dialysis. Although these data were initially coded as "sharing stories", "the benefit of storytelling", and "finding someone who knows", we eventually collapsed these into the category "Storytelling as a benefit." The five major themes that were identified in the research became the titles of the sections of the DVDs and manual in the toolkit. These were: "Using the Toolkit to Live Well on Hemodialysis", "About Hemodialysis", "Grieving the Losses and Embracing the Changes", "Families and Community Members Sharing the Journey", and "Getting What You Need in the Health Care System."

Analysis of the group discussions occurred in the critical reflections by the research team on the summary generated by the moderator. This occurred when members of the research team asked specific, often penetrating, questions about the summary. For example, in one group discussion, a CAC member asked, "So, if it is true that families can help in unhelpful ways, how do families and people on dialysis negotiate helping so that it truly benefits the person on dialysis?" This led to the identification of "Negotiating helpful helping" as a theme in the toolkit. We utilized the CAC to review and provide regular feedback about the way in which data were summarized and analyzed in the group discussions, an important step to ensure rigor of our analysis within the focus group (Krueger, 1994).

Rigor

We used the following strategies to ensure the validity of the data revealed in the group interviews: the use of community advisors (CAC) to review and provide regular feedback about the process of the group interviews, asking the CAC participants to verify the summaries of each group discussion, and meeting with the CAC at the conclusion of the research to identify ways in which the research process could have been improved. In addition, at various times throughout the research, we consulted with the consultants to the project to validate our interpretation of the data and/or to obtain further information. The draft toolkit was assessed by the consultants, three community members who had not been previously interviewed and were beginning dialysis in the near future, and three people receiving dialysis who had been previously interviewed in the research. Their feedback was incorporated in the final toolkit.

Results

In discussions with the CAC, and after a review of relevant literature and the interview and other data, we decided that the guiding principles of the toolkit would be:

- One Aboriginal person is not the same as the next. The toolkit should not imply that all Aboriginal people have the same ideas and ways of being. For example, in discussions with two of our consultants, we recognized that we should not use the medicine wheel picture to explain health in the toolkit, because it is not accepted as culturally relevant by all Aboriginal peoples. In the same way, we included many different traditional foods (e.g., salmon, pickled moose meat, caribou) in the discussions about diet.
- The voice and presence of Aboriginal people should be obvious in the toolkit. For example, the stories that are reflected in the toolkit should be those of Aboriginal people. The toolkit should contain photographs and pictures of Aboriginal people. We also believed that, at times, we should include the Mik'maq language (e.g., an Elder and a member of the CAC discuss in a DVD how Aboriginal people should advocate for culturally relevant care in the hospital—the Elder speaks in Mik'maq and the CAC member repeats it in English). This was deemed important, as a way of honouring the language of the community. We appreciate that just hearing their native language can make some Aboriginal people feel more comfortable.
- The content and method of presenting the toolkit should be relevant to Aboriginal people. Most toolkits about hemodialysis for non-Aboriginal people emphasize preventing infection or other complications and controlling symptoms. However, among many Aboriginal people, it is the connections between themselves, family and community, as well as living in balance that are most

important. Consequently, the focus of the toolkit should be on (1) hemodialysis as contributing to wellness that is achieved in a balance of emotions, spirit, mind, and body; and (2) the importance of connection between the person on hemodialysis and his or her family and community.

- In keeping with the oral traditions of many Aboriginal peoples, the toolkit should draw on the stories of Aboriginal people who have experienced hemodialysis or who were caregivers of people on hemodialysis. The stories in the DVDs, developed as part of this project, and the manual are powerful teaching tools. For example, in the DVD "Families and Community Members Sharing the Journey", one mother tells a story of how she was forced to be away from the community because her daughter with chronic renal disease was hospitalized for months in a distant city. She relates how she and her daughter experienced isolation, financial and psychological distress, and alterations in family roles. She also provides details of how her community and family were able to support them throughout this ordeal (e.g., buying a computer so they could "talk" by web-cam).
- The toolkit should be accessible by all Aboriginal people. Therefore, the DVDs contain content that can be watched by someone with low literacy or heard by someone with limited vision. The themes in the DVDs and the manual are similar, but the manual contains additional information that could be read to the person with low literacy or vision impairment. The toolkit should also contain language that is understandable by people not familiar with medical terms. Consequently, we reviewed the language of the toolkit with CAC members, the consultants and various community members who were asked to provide feedback about the accessibility of the language.

As the toolkit is intended for people who are beginning (within the first three months), or going to start hemodialysis, it should deal only with the "need to know" information. It should not overwhelm people and it should not be overly negative. The people we interviewed who had received dialysis stressed repeatedly that the information they had received initially was "too much", "too scary" and needed to be staged. Although most expressed appreciation for the written information they had received about dialysis (including the Kidney Foundation of Canada Manual, "Living with Kidney Disease"), they admitted they had "put it on a shelf, not looking at it for several months." Three people stated they had been asked by nurses during their initial visits to the dialysis unit if they had questions, but they had indicated that they had none. One said, "I couldn't even think of a question. I was so overwhelmed. They talk to you about everything, but all you can see is your blood going round and round and all the machines. I don't think I heard anything they said."

The final product of the research is a toolkit prototype intended to be used by Aboriginal people to help them to understand what being on hemodialysis will mean to them in their everyday lives. The toolkit is a 30 cm \times 30 cm cardboard display that contains five DVDs (in inserts in the inside cover), a manual (stitched in the centre of the kit), and a calendar diary (in a fold on the last page). The cover has the title of the toolkit (Ripples in the Water) and a photograph of a leaf dropping dew into a pond that ripples with the impact of the dew drop. The inside of the toolkit contains many photographs of members of the community who participated in the research.

The toolkit

There are three parts to this toolkit: DVDs, a manual, and a calendar diary. People who are beginning or about to receive hemodialysis start using the toolkit by listening to the first DVD "Using the Toolkit to Live Well on Hemodialysis." They can listen to it alone or with others. It was suggested that they might want to ask their family, friends or health professional caregivers to listen with them so that they will hear the same content and will be able to ask each other questions or discuss concerns related to the topic. In the first DVD, an Elder and her daughter (community members who are actors) are videotaped in a meeting with a psychologist to view the DVD and then talk about what they learned and how they want to proceed with the remainder of the toolkit.

The DVDs and the manual in the toolkit are based on the same five themes that were derived from the analysis of the research data and both focus primarily on storytelling. However, the manual contains additional information about available resources and poses questions for each reader to consider:

- "Using the Toolkit to Live Well on Hemodialysis": an introduction to the toolkit and how it can be used in a variety of ways (e.g., a health practitioner could use it to foster group discussion among people beginning dialysis; a family member might use it to discuss questions and concerns with the person on dialysis)
- "About Hemodialysis": an introduction to why kidneys fail and how hemodialysis works. The DVD includes a simulation of the first day in a dialysis unit
- "Families and Community Members Sharing the Journey": a discussion of how family and friends can best support the person on dialysis, how they might inadvertently frustrate or constrain the ill person, and practical strategies to help the family member/friend know what the ill person needs and prefers
- "Grieving the Losses & Embracing the Changes": a discussion of the various reactions to the news that one is beginning dialysis and how to recognize when these reactions indicate that there is a need for professional help
- "Getting What You Need in the Health Care System": a discussion of how to advocate for personally and culturally relevant care in a dialysis unit and upon return to the home community. This section includes teaching for health care practitioners who might not be aware of some Aboriginal peoples' ways and traditions. For example, the manual section contains a story about a nurse who inadvertently insults an Elder, causing the Elder and her family to leave the hospital. There is also an explanation of the term "Elder" and the traditional understanding of respectful behaviours toward an Elder.

Each DVD is 12 to 18 minutes long. It discusses some aspect of the experience of being an Aboriginal person on hemodialysis. For example, in the DVD "About Hemodialysis", various members of the research team tell about how the kidney works in the body the same way a filter works in a car or snowmobile. A dialysis nurse and a member of the CAC act a scenario in which the nurse teaches a new dialysis patient about the dialysis machine and how it works. In all of the DVDs, the stories and insights of Aboriginal people are featured.

The toolkit also contains a manual that is divided into sections corresponding to the DVDs. In the manual, we provide stories, as a way of sharing much of this information. These stories are composites of the stories that the Aboriginal people shared with us. Composites were necessary to protect the confidentiality of those we interviewed. The following is an example of a composite story:

Delores's oldest brother, Martin, began dialysis after a long history of kidney disease. Delores and Martin had been close when they were young, but Martin's work, as a seasonal worker, often meant that he lived away from the community where Delores and her family lived. They had drifted apart and were "almost strangers" to one another. When Martin learned he would be on dialysis, Delores talked to her husband and children and suggested that because Martin was alone, he would need their help and support. They invited Martin to live with them. Since then, Delores has learned a great deal about dialysis and the hospital. This has helped her to become good at helping Martin to voice his needs with doctors and nurses. And she feels good that she has "been there" for her brother. She says, "It has been an honour."

The manual contains some new information about the topic of each section and questions that are specifically intended for people receiving hemodialysis, family and friends, or health care practitioners. For example, a question for a health care practitioner in the manual section "Grieving the Losses and Embracing the Changes" is "How do you explore and support Aboriginal people's feelings when they learn they will/may go on hemodialysis?" There is space in the manual to write down answers to the questions. The person can share his/her responses with others. For example, family members might share the answer to the question, "What scares me about hemodialysis?" with a health care practitioner who might be able to offer some information to alleviate their fears.

Lastly, the toolkit contains a calendar diary. This is a calendar that can be used to keep track of appointments or tests. It can also be used to mark down questions or thoughts to discuss with family or a health care practitioner at a later date. The calendar/diary contains quotes from our interviews with Elders, as inspirational thoughts. For example, the quote for the month of January is, "You have to find a balance between seeing dialysis as a burden, and seeing it as an opportunity to feel stronger."

Discussion

The toolkit that was developed in this research contributes in a unique way to provide education and support of Aboriginal people receiving dialysis, as well as providing such education and support to their friends, families and health care professional caregivers. It is unique in that it has been designed primarily by Aboriginal people in consultation with experts in Aboriginal health and dialysis. We know of no other intervention that addresses the needs of Aboriginal people in such a culturally relevant and comprehensive way. However, in the future, the usability and relevance of the toolkit should be evaluated by all stakeholders, including Aboriginal people on dialysis, their friends and family, and health care practitioners. The toolkit also addresses an important issue—the need to stage information so that it is not overwhelming to the patient. As we discovered, providing all the information that someone on dialysis may need to know at the beginning of their experience may actually be overwhelming and counterproductive for some people. This, however, is not necessarily unique to Aboriginal people. There is at least anecdotal evidence that the issue is shared by non-Aboriginal people beginning dialysis. Future research should examine the differences in education and support needs, as people experience dialysis over time.

In both the first section of the manual and the first DVD of the toolkit, people with kidney disease are offered the control to determine when they are ready for the information that is available in the toolkit. For example, they may choose to wait to review the DVD on grieving the losses because they are not yet ready to acknowledge the negative aspects of the dialysis experience. The findings of this research hold several implications for dialysis practitioners, particularly in the need to assess Aboriginal patients' readiness for information and the value of involving Aboriginal people to develop strategies and approaches to improve their care. In addition, the research highlights the importance of storytelling, not assuming that all Aboriginal people hold similar views, and providing both auditory/visual and written ways of presenting health information to Aboriginal people. Perhaps most importantly, the research validates the need to involve family and friends, as well as health care practitioners, in the teaching and learning that is essential to Aboriginal people who are beginning dialysis.

At the conclusion of the research, we invited members of the community to attend an "Appreciation Event" in which we reviewed the research, displayed the toolkit, and thanked them for their participation and support. Each of the 48 attendees received a copy of the toolkit. The feedback from community members and the consultants on the project has been strongly positive. One family member told us, "I am overcome to see First Nation people showcased this way. It is the first time I have seen anything that is so meaningful to me and my family." A health care provider in the community indicated, "It (the toolkit) is spectacular. It shows how carefully you have all thought about what First Nation people need." The members of the research team acknowledged that they have developed increased awareness and insight regarding the experience of Aboriginal people who are required to leave their rural community to undergo dialysis in the city. At present, the community is investigating funding opportunities to make the toolkit available to Aboriginal people across Canada.

Conclusion

There is an identified need for more effective linkages between urban health centres and rural communities in regard to Aboriginal health. To date, such recommendations represent little more than a wish list, as there are few definitive directions for interventions to achieve such aims. It is clear, however, that interventions that are directed at the level of all stakeholders (individual, family, community, urban practitioners) are more likely to be successful at resolving rural-urban disparities than those focused at the level of the individual, or only one stakeholder. The research described above has addressed this need by developing a toolkit that is culturally relevant and promotes dialogue and understanding between rural Aboriginal people on dialysis, their significant others, and health care practitioners in urban dialysis units. As such, the toolkit represents a pioneer effort, one that will be meaningful and beneficial to many Aboriginal people receiving dialysis across Canada.

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Buttonhole cannulation in hemodialysis: Improved outcomes and increased expense—Is it worth it?

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Abstract

Background: Access to an adequate blood flow is a requirement for successful hemodialysis (HD). This often means repeated cannulation of an arteriovenous fistula (AVF), which can lead to damage that needs repair and revision. The Buttonhole (BH) method offers a successful cannulation with minimal damage.

Design: A prospective cohort research study was initiated in two HD units in St. John's, Newfoundland and Labrador, to assess the effects of cannulating AVFs using the BH technique from the patient and nurse perspective.

Methods: Twenty-five nurses and 29 patients completed questionnaires at four times throughout the three-month study period, rating their confidence levels about BH cannulation issues. Patients also provided information on the pain of the cannulation and the frequency of cannulation complications. Nurses documented data on arterial and venous pressures, and hemostasis times. Patient charts were also reviewed for complications requiring extensive interventions such as AVF repair or Central Line Catheter (CVC) placement. The cost of providing the BH cannulation was also examined.

Results: At the end of the study, it was noted that cannulation pain was statistically reduced with both the arterial (p = .002)and venous (p = .010) needles, and vessel pressures and hemostasis times were decreased slightly or stayed the same throughout the study. The frequency of access infections, however, increased, although not significantly. Using a 10-point Likert scale in which a score of ≥ 8 indicates a high level of confidence, 77.5% of nurses and 73.9% of patients reported a high level of confidence in the nurses' abilities to use the BH technique effectively. In terms of expense, no significant changes were noted in frequency of procedures required for AVF repair with the BH cannulation, although an increase of approximately \$358.80 per patient per year for BH supplies was noted.

Conclusion: BH cannulation did provide significant improvements. However, the increase in infection rate was an issue of concern. The additional cost of the BH procedure should be weighed against the positive outcomes realized.

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Introduction

An effective hemodialysis (HD) treatment is dependent upon a functioning vascular access. The preferred choice is the arteriovenous fistula (AVF) (Allon & Robbin, 2002; Bay, Van Cleef, & Owens, 1998; Van Waeleghem, Elseviers, & De Vos, 2004). The AVF is a blood vessel developed as a result of surgically connecting an artery to a vein, thereby allowing the increased blood supply and pressure of the artery to cause dilation of the vein. As the AVF develops and matures, this allows visualization and palpation of the vessel for needle placement or cannulation. Two needles are generally inserted into the AVF for HD; one needle removes the blood from the patient's body while the other needle returns the blood from the dialysis machine to the patient. Conventional HD requires three dialysis treatments a week, which amounts to approximately 312 needle insertions per year, if no complications occur.

Although the rope ladder (RL) technique (cannulating along the length of the vessel) is considered the standard method in most HD units, area cannulation is often used due to patient preference and ease of insertion by the nurse (Twardowski & Kubara, 1979; Van Waeleghem et al., 2004). Aneurysms (over-dilation of the access) often develop as a result of repeated cannulation in the same area. Conversely, stenosis in areas adjacent to the aneurysm develops causing additional problems that can lead to failure of the access (Kronung, 1984; Toma et al., 2003). Problems may develop and, if access failure occurs, this could necessitate the use of diagnostic testing, central venous catheter (CVC) placement, surgery, and/or hospitalizations (Lee, Barker, & Allon, 2006).

HD nurses play a vital role in the successful care of the AVF in HD patients. Bay et al. (1998) found that nurses ranked difficult cannulation as their main concern associated with the dialysis treatment. It takes experience and skill development for HD nurses to successfully cannulate AVFs (Robbin et al., 2002).

The study by Bay et al. (1998) also found that 39% of HD patients experienced pain during cannulation. In the same study, 23% of these participants stated that ease of cannulation was important to them. Shayamsunder, Patel, Jain, and Peterson (2005) also found that a significant percentage of patients reported pain on cannulation (78.5%). Additionally, Baldree, Murphy, and Powers (1982), and Welch and Austin (1999) ranked the pain of arterial and venous cannulation as twelveth out of 29 stressors and ninth out of 27 stressors relating to the HD treatment, respectively.

An alternative cannulation technique that is being offered to patients in some HD centres is the buttonhole (BH) or constant-site method that was initiated in 1979 by Dr. Z. Twardowski (Twardowski & Kubara, 1979). This technique requires that the same nurse use a sharp needle to puncture the AVF at the same angle in the same site until a scar track is developed (Ball, 2006). Once the BH track is formed, usually after the insertion of sharp needles for six to nine treatments, then blunt (BH) needles can be threaded into the vessel. This technique is similar to the placement of a pierced earring.

Interestingly, Marticorena et al. (2006, p. 198) found that BH cannulation required a "soft touch" to advance the blunt needle through a scar track, a different skill than the one required to be an experienced cannulator. In fact, the cannulator had to gently advance the blunt BH needle and feel it slide along the track and into the vessel rather than use a sharp needle and advance it in a particular direction, as with RL cannulation.

The BH technique has been especially helpful in home dialysis programs where self-cannulation is promoted, as well as when AVFs have limited available area to cannulate (Verhallen, Kooistra, & van Jaarsveld, 2007) or are difficult to cannulate (Ball, Treat, Riffle, Scherting, & Swift, 2007; Peterson, 2002; Van Waeleghem et al., 2004). However, one disadvantage of this method was an increased risk of infection due to inadequate area cleansing, and/or scab removal (Ball, 2006; Kronung, 1984; Marticorena et al., 2006; Twardowski & Kubara, 1979; Van Waeleghem et al.) and dubious personal hygiene of the patient.

The use of blunt BH needles has been shown to cause less damage to the AVF, reducing problems such as bleeding postneedle removal, pain with cannulation (Verhallen et al., 2007), poor arterial/venous blood flow, and the development of aneurysms (Marticorena et al., 2006). Complications such as infiltration and subsequent hematoma development, which may require re-cannulation of the site, have also been shown to be reduced (Twardowski & Kubara, 1979). In addressing cannulation issues, nephrology nurses require additional time and supplies, which place an added financial burden on the dialysis unit. As well, these complications may add to the personal cost to the patient in terms of access-related pain, which has been shown to be an indicator of health-related quality of life (HRQOL) (Davison, 2003; Skevington, 1998).

One major challenge that has been encountered in HD units trying to initiate BH cannulation is the inability to align the schedules of the nurses with those of the patients. In order for BH sites to be established, this requires that the same nurse cannulate the same patient's access repeatedly for at least six to nine times. Generally, an adjustment in either the patient's or the nurse's schedule is needed. Since patients require a set number of hours of HD treatments based upon a prescribed timetable, the changes often need to be made at the nursing level, which can be very disruptive to work and family life and may lead to dissatisfaction with the procedure (Ball, 2006; Ball et al., 2007). One HD unit (Marticorena et al., 2006) was successful at initiating the BH technique in a busy HD unit using multiple cannulators. However, this involved the designation of two nurses as "tunnel track creators (TTC)" (i.e., initial cannulators) (p. 194).

In terms of financial expense, AVFs are noted to be the most cost-effective access (Lee et al., 2002) and associated with less infection, stenosis, mordibity and mortality, when compared with central venous catheters (CVC) and synthetic grafts (National Kidney Foundation [NKF], 2000). However, the actual cost of maintaining an HD access can be expensive (Lee, Barker, & Allon, 2006). Therefore, considering that all forms of renal replacement therapy (HD, peritoneal dialysis, renal transplant) are life saving, the challenge becomes to balance the cost of providing such treatment against the benefits to the patient (less pain, less bleeding, and ease of cannulation).

Purpose

In February 2007, the Primary Investigator (PI), with support from the division manager of the HD units of Eastern Health, St. John's, NL, initiated a prospective cohort study reviewing the effects of BH cannulation for patients with AVFs over a three-month period. The complications of AVF use (pain with cannulation, prolonged hemostasis times and hematoma development) were being experienced by many of the patients, as is typical of most HD units. The concerns of nurses, especially with difficult cannulations, were also noted. The purpose of this study was to examine if BH cannulation might affect positive changes for the patients and the nurses.

In order to evaluate the impact of BH cannulation, it was decided to break the study into Phase 1 and 2. Phase 1 occurred during the three months of the study to determine whether or not BH cannulation made a difference between the start and the finish of the study. First of all, patients and nurses were requested to complete questionnaires at four times throughout the study to indicate their confidence in the nurses' abilities to provide BH cannulation care: prior to initiation (Time 1baseline), at four weeks (Time 2-once the track had been developed and after the blunt BH needle had been attempted), at eight weeks (Time 3-ideally after the blunt BH needle had been used for several weeks) and at the conclusion of the study (Time 4). Second, patients also indicated how many times specific complications (bruising, bleeding, and re-cannulations) occurred during the HD treatment. In addition to completing this questionnaire, nurses used log sheets to chart arterial/venous pressures recorded at a blood flow of 200 ml/min within the first 10 minutes of the treatment. Nurses also recorded the Patient Pain Rating (PPR) of the cannulation, as indicated by the patient. The Visual Analogue Scale (Verhallen et al., 2007) was used for this item: it is a 1 to 10 pain rating scale with 1 indicating 'no pain' and 10 indicating 'severe pain'. Patients were encouraged to rate the pain of the cannulation, not the skill of the nurse. Hemostasis times were charted in the patients' HD record for the treatment.

Phase 2 reviewed whether or not BH cannulation made a financial impact at the unit and corporate level. The actual 'monetary cost' of the procedures required for AVF damage/repair was determined to be outside the scope of this project. Therefore, the frequency of complications and procedures was tabulated for the purpose of comparison. The only actual cost that was estimated was that of the more expensive BH needles and Adson Forceps used for the BH cannulation.

Comparison was made between Group 1—patients who were using an AVF (RL cannulation) in the year prior to the initiation of the BH procedure (starting February 1, 2006) and Group 2—patients who were using BH cannulation in the year after the initiation of the study (starting February 1, 2007). This involved an extensive chart review by the PI. For the unit level expenses, the PI documented the number of specific complications that occurred during the HD treatment that required nursing intervention such as 'blood leak around a needle' or 'infiltration' of the needle. At the corporate level, the number of procedures (venogram and/or angioplasties, central venous catheter [CVC] insertions, emergency room visits, surgery, and hospitalizations) that were required by the patients to correct extensive problems (AVF damage or failure) was recorded. The cost of BH (blunt) needles and Adson Forceps was reviewed on per patient per year basis.

Ethical considerations

Approval was received from the Human Investigation Committee (HIC) of Memorial University in December 2006. The Research Proposal Approval Committee (RPAC) of Eastern Health provided permission to access the patients' medical records within their institutions.

A convenience sample was used for this study. All nurses and any patient with a functioning AVF being used for HD were provided with information on the study and given the opportunity to participate. Appropriate consent forms were signed by all volunteer participants.

Instruments

The questionnaire that nurses were asked to complete was developed by the PI based upon nursing cannulation issues, as discussed in the literature, combined with the PI's extensive HD experience. The rating system for these questions used a 1 to 10 scale recommended by Bandura (1997) and used by Boardman, Catley, Mayo and Ahluwalia (2005). In this scale, 1 indicated 'not confident at all' and 10 meant 'very confident'. Readability of the questionnaire was acceptable at 9.4 grade level using the Flesch-Kincaid Grade Level instrument, as per HIC guidelines.

The questionnaires completed by the patients were also developed by the PI. These 5-point Likert scale instruments inquired about the frequency of their experiences related to the HD procedure (Part A); Part B encouraged them to rate how confident they were that nurses in the unit could provide specific BH cannulation practices using the 1 to 10 scale, as described above. The readability of this questionnaire was determined to be acceptable for the general population (< Grade 8 using the Flesch-Kincaid Grade Level instrument).

Study participants

Staff population

Staff participants were nurses who were required to have a minimum of six months of HD cannulation experience. Two were familiar with how to cannulate using the BH technique. In total, 25 nurses from two HD units of Eastern Health participated in the study.

Patient population

Patients were required to be at least 19 years of age, English speaking, and an HD outpatient with a functioning AVF by the end of the recruitment phase, which closed on February 1, 2007. As of that date, 29 patient participants in Eastern Health began the study.

Study process

Once they agreed to participate in the study and written consents had been obtained, patients had their AVFs cannulated a minimum of six times with a sharp needle by designated initial cannulators. Once the tracks were established by these nurses, other nurses who had attended the BH in-service were able to cannulate with guidance from the initial cannulator (Ball, 2006; Marticorena et al., 2006; Twardowski & Kubara, 1979). Sharp needles were only used if the blunt needles were not successfully inserted. These were inserted by a nurse who had been an initial cannulator (Ball, 2006). Guidelines were developed and posted to assist the nurses in addressing problems that arose when the initial cannulator was not available.

Chlorohexidine swabs were used to cleanse the cannulation sites pre- and post-scab removal to maintain as aseptic a field as possible. As well, sterile forceps were used to remove the scabs from the access sites prior to insertion of the BH needle (Ball, 2006; Verhallen et al., 2007).

Data analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS, version 16.0). The demographic profiles of participants were reviewed using frequencies, means, standard deviations, and medians with 25 to 75 percentiles (interquartile ranges [IQR]) when appropriate.

In reviewing the staff and patient questionnaires, missing items were evaluated and deemed to be of a random pattern. One-way ANOVA was used to review the mean responses of all participants over the four time periods. Paired sample t-tests and Chi-square for independence were also used for analysis when the data deemed it appropriate. A p-value of < .05 was considered statistically significant.

Results

Staff participants

Demographics

In this study, 96% of the nurses who participated were female. They had a considerable amount of nursing and HD experience, with a mean of 20.6 years and 9.5 years, respectively.

Confidence levels

In reviewing the data (see Table One), confidence levels of eight or greater were noted in more than 77.5% of the nurses' responses. Throughout the course of the study, all confidence levels increased for all items, significantly so for 'place a sharp needle in a BH tract without causing pain to the patient' (p = .011).

Patient participants

Demographics

Data on patient participants were collected from the self-report information on the patient questionnaire:

- Males comprised 62.1% of the participants,
- The mean age of the current AVF was 2.7 years,
- The duration of time on HD averaged 3.2 years, and
- The most common location of an AVF was in the left arm (85.9%).

HD cannulation issues and confidence levels

Questionnaires were completed by patients at Times 1 to 4 throughout the study (see Table Two). This questionnaire consisted of two sections:

Part A asked patients to rate the frequency of specific occurrences relating to the HD treatment itself. The data indicate that, with the exception of question two, there were no significant changes in these incidences, which only occurred sometimes (3) to rarely (4). Question two (bruising during needling) was the only occurrence that indicated a significant change from 3.3 (less than sometimes) to 4.4 (rarely to never) with a p-value of .001. It is interesting to note that the most frequent complication was experienced sometimes (2.9), indicating that very few complications were being experienced by patients.

Part B reviewed the participants' confidence in the unit nurses' abilities to provide specific aspects of care again using the 1 to 10 confidence rating scale. It was noted that more than 73.9% of patient participants responded with confidence levels ≥ 8 throughout the study. Interestingly, the confidence levels dropped from initially high scores to lower levels by the end of the study, although that change was not significant.

Cannulation pain and venous/arterial pressures

Data, collected from patients at the start and at the end of the study, included the Patient Pain Rating (PPR) related to cannulation pain, and the pressure of the blood within the vessel upon cannulating the venous and arterial sites. As shown in Table Three, there was a significant decrease in the pain rating with both the venous (p = .010) and arterial (p = .002) cannulations.

It was found that there were no statistically significant decreases in venous and arterial pressures. However, pressures were noted to decrease slightly or stay the same during the study.

Table One: Staff questionnaire—Eastern Hea	lth (N = 25)				
In relation to needling of patients' fistulas, how confident are you that you can:	Time 1 (Baseline— prior to study) Mean(SD), Median	Time 2 (After 4 weeks) Mean(SD), Median	Time 3 (After 8 weeks) Mean(SD), Median	Time 4 (End of study) Mean(SD), Median	р
1. Place a sharp needle in a buttonhole tract without causing pain to the patient	6.7(2.2), 7.0	8.3(1.8), 9.0	8.7(1.5), 9.0	8.8(1.6), 9.0	.011*
2. Place a blunt needle in a buttonhole tract without causing pain to the patient	7.4(2.7), 8.0	8.7(1.1), 9.0	8.2(1.7), 8.0	8.1(2.3), 9.0	NS
3. Provide information to your patient and his/her family on:					
• the procedure of buttonhole needling	9.1(0.9), 9.0	9.5(0.7), 10.0	9.4(0.8), 10.0	9.6(0.6), 10.0	NS
• the advantages of buttonhole needling	9.4(0.7), 9.5	9.5(0.7), 10.0	9.6(0.7), 10.0	9.4(1.1), 10.0	NS
• the disadvantages of buttonhole needling	8.1(2.1), 9.0	9.2(0.8), 9.0	9.2(1.0), 9.5	9.0(1.4), 9.5	NS
4. Obtain a positive comment from your patient regarding your buttonhole needling skill	7.6(2.7), 9.0	8.6(1.3), 9.0	8.7(1.1), 9.0	8.6(2.2), 9.0	NS
5. Provide guidance to another staff member on how to place a blunt buttonhole needle appropriately	7.1(2.7), 8.0	8.4(1.3), 8.0	8.6(1.2), 9.0	8.9(1.4), 9.0	NS
6. Assess your own need for additional assistance with the buttonhole needling procedure	8.5(1.4), 9.0	9.1(1.0), 9.0	9.4(0.7), 9.5	9.4(0.8), 10.0	NS
7. Request assistance with placing a difficult buttonhole needle	8.4(2.6), 9.5	9.5(0.8), 10.0	9.6(0.6), 10.0	9.4(1.0), 10.0	NS
8. Monitor the outcome measures relating to buttonhole needling:					
• pain intensity	8.7(1.3), 9.0	9.6(0.7), 10.0	9.4(0.9), 10.0	9.4(0.9), 10.0	NS
• hemostasis time	9.1(1.0), 9.0	9.7(0.6), 10.0	9.5(0.8), 10.0	9.6(0.7), 10.0	NS
• venous pressures	9.1(1.0), 9.0	9.6(0.7), 10.0	9.6(0.7), 10.0	9.5(0.9), 10.0	NS
• arterial pressures	9.1(1.0), 9.0	9.6(0.7), 10.0	9.6(0.7), 10.0	9.6(0.7), 10.0	NS
Rating Scale: 1–Not at all confident to 10–Ve	ry confident; * p <	.05; NS –Not sig	nificant		

Part A: HD treatment complications	Health (N = 29)					
In relation to needling of your fistula, how often have you had:	Time 1 (Baseline— prior to study) Mean(SD), Median	Time 2 (After 4 weeks) Mean(SD), Median	Time 3 (After 8 weeks) Mean(SD), Median	Time 4 (End of study) Mean(SD), Median	p	
1. Pain in your fistula when the nurses needled you	3.0(1.6), 3.0	2.9(1.4), 3.0	3.6(1.3), 4.0	3.4(1.5), 3.5	NS	
2. Bruising in your fistula when the nurses needled you	3.3(1.4), 4.0	4.1(1.4), 5.0	4.7(.7), 5.0	4.4(.9), 5.0	.001**	
3. Bleeding after the needles have been removed	3.1(1.5), 3.0	3.0(1.7), 3.0	3.3(1.4), 3.0	3.3(1.6), 4.0	NS	
4. To stay longer after dialysis due to extra bleeding	3.8(1.2), 4.0	4.3(1.1), 5.0	4.2(1.2), 5.0	3.7(1.6), 4.5	NS	
5. To have more than one needle placed in each needle site	4.1(1.3), 5.0	3.8(1.5), 5.0	4.4(1.2), 5.0	3.8(1.0), 4.0	NS	
Rating Scale: 1–All the time, 2–Often, 3–So **p< .01; NS–Not significant	metimes, 4–Rarel	y, 5–Never			1	
Part B: Confidence in nurses' skills						
How confident are you that all the nurses in the dialysis unit can/will:	Time 1 (Baseline – prior to study) Mean(SD), Median	Time 2 (After 4 weeks) Mean(SD), Median	Time 3 (After 8 weeks) Mean(SD), Median	Time 4 (End of study) Mean(SD), Median	p	
1. Put a needle into your fistula with no problems	8.5(1.9), 9.0	6.6(3.4), 7.0	7.1(3.5), 9.0	7.7(2.8), 8.5	NS	
2. Use only one needle per site in your fistula	9.1(1.3), 10.0	7.9(3.2), 10.0	8.2(3.1), 10.0	8.0(2.7), 9.0	NS	
3. Know what to do if there is	9.6(0.8), 10.0	9.0(2.5), 10.0	8.5(2.6), 10.0	8.6(2.8), 10.0	NS	
trouble with a needle						

Rating Scale: 1-Not at all confident to 10-Very confident; NS-Not significant

Item	n	Start of Study		End of Study	р	
		Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	-
Patient Pain Rating (PPR)						
• Venous Needle	29	2.6 (1.4)	2.5 (1.4, 3.8)	1.9 (1.1)	1.5 (1.0, 2.7)	.010*
• Arterial Needle	29	2.3 (1.2)	2.3 (1.7, 3.1)	1.7 (0.8)	1.5 (1.0, 2.3)	.002**
Pressure Readings (mmHg)						
• Venous Pressures	29	72.1 (17.6)	70.0 (58.3, 81.8)	69.7 (15.3)	68.3 (34.2, 48.3)	NS
• Arterial Pressures	29	39.4 (14.8)	43.3 (60.0, 75.0)	39.3 (13.4)	42.0 (32.5, 46.7)	NS
Patient Pain Rating (PPR): 1 Pressure readings: Range from *p < .05; **p< .01; NS–Not	n 0 to	~150	ere Pain			

Post-HD hemostasis

There was no statistically significant decrease found in the hemostasis times (see Table Four). However, the values were noted to be the same or slightly less when comparing those from the start to the finish of the study.

Cost of AVF maintenance

Demographics

In order to evaluate whether or not the BH cannulation technique had a financial impact on providing care to the Eastern Health HD patients, a retrospective chart review was conducted on HD patients who had a functioning AVF, as of February 1, 2006 (group one), as well as on those patients who commenced BH cannulation as of February 1, 2007 (group two). Demographic information indicated that the groups were comparable:

- Group one was slightly older than group two (65.9 years versus 62.9 years),
- Males comprised the majority of both groups (57.9% and 62.1%), and
- The most common location of a participant's AVF was in his/her left arm (76.8% and 85.9%) during both time periods.

Health care procedures

Analysis of the data (see Table Five) collected on these two groups concerning health care procedures found that there were no statistically significant differences between the frequencies of these items whether they were reviewed as a group, or as individual occurrences (p = NS). It should be noted, however, that the actual frequencies of specific items indicate a decrease with group two (BH cannulation) for AVF evaluation/repair (e.g., venogram [14.7% versus 3.4%] and venogram and angioplasty [13.7% versus 3.4%]), as well as for CVC insertions as a result of AVF failure. It can also be seen from Table Five that there is a slight increase in the frequency of emergency room visits, surgery repair and hospitalizations. However, as with the previous information, the difference is not statistically significant.

HD treatment complications

In reviewing the documentation by nurses regarding HD treatment complications (see Table Six), there was a decrease in group two (BH cannulation) in the frequencies of 'blood leaking around the needle', and the presence of 'clots' in the needles. Conversely, increases were observed in frequencies of 'infiltrations' and 'poor flow/unable to advance the needle' in that group.

Infections in AVFs had a previously low rate of occurrence (2.1%) in the units studied. However, with the initiation of the BH procedure, it became an important, although not statistically significant, issue (increased to 6.9%).

Unit Supplies

A review of the supplies required to perform the BH cannulation procedure was completed. In particular, BH (blunt) needles were found to be more expensive than sharp AVF needles that were used to perform RL cannulation (\$1.32 each versus \$0.85; difference \$0.47). As well, Adson Forceps were items that were required to remove the scabs from the BH cannulation sites at a cost of \$1.36 each. Therefore, for each treatment, assuming no complications occurred, two BH needles and one Adson Forceps were required increasing the cost per HD treatment by \$2.30.

Table Four: Hemostasis times							
Item	n	Start of Study		End of Study	р		
		Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)		
Hemostasis Times (minutes)	29	14.08 (3.31)	13.33 (11.7, 15.0)	13.72 (3.99)	12.83 (10.8, 16.4)	NS	

NS-Not significant

Items	Group 1 (Year prio	(N=95) or to study)	Group 2 (Year at s	р	
	n	%	n	%	
Part A					NS
Emergency Room Visits	3	3.2	1	3.4	NS
Surgery for Repair	6	6.3	2	6.9	NS
Hospitalizations	2	2.1	1	3.4	NS
Part B					NS
Venogram	14	14.7	1	3.4	NS
Venogram and Angioplasty	13	13.7	1	3.4	NS
Central Venous Catheter (CVC) Insertions	8	8.4	2	6.9	NS

Considering that the average patient received three treatments per week, this amounts to an additional cost of \$6.90 per week. Over 52 weeks, the total estimated additional cost of using the BH procedure would be \$358.80 per patient per year.

Trampoline effect

The trampoline effect (see Table Six) was a complication that frequently occurred with patient participants (20.7% of the patients experienced at least one episode). This happens when the blunt BH needle threads successfully through the scar track, but will not enter the blood vessel: "It just bounced off it-boing, boing, boing, just like a trampoline" (Ball, 2006, p. 303). If excessive force is used to advance the blunt needle, tearing of the track can occur and patients often experience pain in this situation.

Discussion

Staff confidence levels

High levels of confidence were expressed by nurses in their ability to perform BH skills. However, in reviewing questions that involved BH knowledge, understanding of personal and other nurses' needs, and ability to monitor specific HD outcomes (questions 3, 6, 7 and 8), it was seen that all of these items had high confidence ratings from the start. Questions that rated < 8 were nursing skills that may improve with time and experience (questions 1, 2, 4 and 5).

Patient HD cannulation issues and confidence levels

The data offered in Part A of the patients' questionnaire (frequency of HD complications) might indicate that, as the nurses became more skilled at performing the BH procedure, fewer complications were experienced by the patients.

Part B suggests that patients had a high level of confidence in nurses' ability to BH cannulate and that there was no significant change throughout the study. It is interesting to note, however, that confidence levels dropped after the start of the study. This might be due to the fact that some complications were being experienced with the BH procedure even though it had been promoted as a means to decrease them. Confidence in the nurses did improve towards the end of the study, once again, possibly, due to increased nursing experience and establishment of the BH sites.

Cannulation pain and arterial/venous pressures

The significant decrease in pain, as experienced by the patients, was similar to results found in other studies (Marticorena et al., 2006; Toma et al., 2003). Pain with cannulation is noted to be an important HRQOL indicator for HD patients. Therefore, this can be considered a positive outcome for these patients.

As in Marticorena et al. (2006), there were no statistically significant changes in the arterial/venous pressures. Since, the actual readings were well within the acceptable limits of "< 150–200 mmHg, 15 gauge needles" for a blood flow of 200 ml/min (Daugirdas, Blake, & Ing, 2007, p. 115), this can be viewed as a positive outcome since the lower the pressure, the less damage caused to the access (Marticorena et al.; Daugirdas et al.).

Post-HD hemostasis

Although there have been significant improvements found in post-HD hemostasis with the use of the BH procedure (Toma et al., 2003), this was not the case in this study. Worthy of note is that at both the start and end of the study, the median times of hemostasis were lower than the means, indicating that there may have been a few patients who had extended bleeding times that increased the mean hemostasis time of the group.

Cost of AVF maintenance

There were no significant changes noted in the frequency of health care procedures and HD treatment complications between RL (group one) and BH (group two) cannulation. However, upon review of the actual frequencies, differences were noted. Emergency room visits, surgery for repair and hospitalizations all indicated a slight increase for the BH group. It should be noted that these were for long-standing aneurysmal damage and infection treatment. Conversely, venograms, venograms and subsequent angioplasties and CVC insertions realized a decrease. The increases in HD treatment items (infiltration, and poor flow/unable to advance needle) may be related to the nurses' inexperience with the new BH skill, underdevelopment of the BH sites, and the need for a soft touch, which is often required for BH cannulation. In contrast, the decreases in frequency of blood leaking around the needle and the presence of blood clots in needles could be as a result of the establishment of the BH track and/or less

Items	Group 1 (Year pric	(N=95) or to study)	Group 2 (N=29) (Year at start of study)		р
	n	%	n	%	
• Blood Leak around Needle	17	17.9	2	6.9	NS
• Clot	16	16.8	4	13.8	NS
• Infiltration	32	33.7	11	37.9	NS
• Poor Flow/Unable to Advance Needle	20	21.1	8	27.6	NS
• Infection	2	2.1	2	6.9	NS
• Trampoline Effect	-	-	6	20.7	

ants experienced

trauma to the vessels with the use of BH cannulation. With such small numbers in the BH group (29), it may be difficult to draw conclusions as to the causes of these occurrences. However, in a larger study, it would be interesting to compare these same issues for new AVFs with AVFs that already have aneurysm development.

The increase in infections from 2.1 to 6.9% is an issue of concern. In our units, BH cannulation sites are cleansed with chlorhexidine swabs, sterile forceps are used to remove scabs, and sites are then cleaned with fresh chlorhexidine swabs as supported by Ball (2006). As well, nasal swabs are also completed monthly on all BH patients; a positive culture is treated with antibacterial ointment. AVF infections, usually indicated by erythema and/or discharge, are cultured and treated with appropriate antibiotics. These protocols are constantly under review.

In terms of unit supplies, the additional cost of BH cannulation of approximately \$358.80 per patient per year above that of RL cannulation is an added expense at a time when health care resources are at a premium. Individual units need to decide if the cost of supplies outweighs beneficial outcomes experienced by the patients.

Trampoline effect

The aim of the BH procedure is, by definition, the development of a track so that a blunt needle can be threaded past the skin and pierces the blood vessel. When a blunt needle cannot puncture the vessel, the trampoline effect is experienced, and gentle manipulation may be required by the cannulator to ensure the appropriate placement of the needle. In fact, BH cannulation needs a "soft touch" (Marticorena et al., 2006, p. 198) that is not necessarily consistent with being an expert cannulator. If insertion with a blunt needle is not successful, a sharp needle can be gently threaded into the track (Ball, 2006) although this is not preferred. This may cause additional cutting of the track, leading to the development of a cone-shaped tunnel, often evidenced by leaking of blood around the needle during dialysis. Further nursing experience with this procedure and an increase in the number of times the AVF is cannulated by the initial cannulator should help decrease the frequency of this complication.

Scheduling

A major challenge that was experienced when implementing the change to the BH cannulation technique in our HD unit was the need to assign the same nurse to needle the same patient for at least six treatments in order to establish the BH track. Once the transition to blunt needles occurred, other nurses could place the BH needles with guidance from the initial cannulator. The assignment of a limited number of nurses to cannulate all of the AVFs would seem to be the ideal situation based on comments from both nurse and patient participants. The alignment of nurse and patient schedules, however, is a challenge in a busy HD unit (Marticorena et al., 2006).

Qualitative data

On both the patient and staff questionnaires, there was space provided for comments, and both groups did provide positive feedback, as well as express their concerns regarding BH cannulation. Nurses' comments ranged from very positive to having some misgivings about the procedure. Several offered suggestions on how to improve patient outcomes. Some of the comments provided were as follows:

- Interesting. Positive feedback from clients. Can see long-term benefits. The positives are obvious when viewing a fistula that has a BH!
- I have noticed that we are having some difficulty inserting blunt needles. This is happening on a few different patients. It happens even to those patients where there were very [few] problems with making a BH tract. It seems like we are going back to sharp needles a fair bit.
- I think it's important for the same person to needle at least three weeks and maybe a little longer for sharps.

Patient participants also provided a variety of comments about the whole process. Several wrote page-long letters to express their thoughts. The following are excerpts from the overall comments received.

- I think the blunt BH needles are a great thing. Excellent project.
- I inserted the blunt needle in the lower site. The upper site is more difficult. Maybe I could start a new site if things don't improve. I would like to be able to do both sites myself.
- Time to stop bleeding is getting shorter.
- I find that it (needling) is not as painful.
- As of yet, not much difference in pain level using this new method.
- I have to revert to sharps because blunt needles and the trampoline effect can be really painful.

Although there were concerns expressed by both nurse and patient participants, there were positive comments made for both the initiation of the project and the BH procedure itself. Information provided by both groups supported the recommendation of an increase in the number of treatments that the initial cannulator spends on developing the BH track.

Limitations

This study was conducted using questionnaires that were specifically created for this project. The researcher's extensive HD experience, combined with a comprehensive review of the literature, enabled the development of questions that were relevant and significant to the BH issue for both nurses and patients. A review by independent researchers would be advisable if these questionnaires were to be considered for future use.

As in all retrospective chart reviews, data collection may not be as comprehensive as hoped, regardless of the tenacity of the researcher. Prospective data collection with dedicated personnel provides more complete data collection and should be considered for similar future projects.

Since participants were recruited on a volunteer basis, the actual numbers were dependent upon nurse/patient agreement and involvement. This may have added to the high ratings by the nurses and patients, as volunteers are often motivated by and interested in the project at hand and may be biased. It has also been documented that dialysis patients like to present themselves in a "socially desirable manner" since nurses who care for them during their HD treatment have a significant impact on their well being (Yanagida & Streltzer, 1979, p. 563). Thus, their answers on psychological tests may be affected by this phenomenon leading to more positive responses.

Due to the small number of participants in this study, the results are not necessarily generalizable to other units. It is important to note, however, that the outcomes were similar to those in other studies.

Conclusion

Our study demonstrated that the use of BH technique for cannulation provided the following outcomes:

- Cannulation pain was decreased significantly
- There was slight improvement or no change in arterial/venous pressures, and hemostasis times
- Treatment complications were reduced, 'bruising' significantly
- Both nurses and patients had high confidence levels in the nurses' BH skills throughout the study
- Nurses became more confident in their own BH skills by the end of the study
- There was no significant decrease in health care or HD treatment procedures as a result of using the BH procedure
- Unit-level expenses increased due to more expensive BH needles and additional supplies (forceps)

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The increased cost of BH cannulation should be weighed against the improved outcomes for HD patients when considering this procedure. As well, in order to ensure a successful BH cannulation program, guidelines, as outlined previously, need to be implemented to address issues with the trampoline effect, nurse scheduling issues, and the increase in infections.

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Partnering with patients to improve peritonitis rates

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Abstract

The London Health Sciences Centre (LHSC) peritoneal dialysis (PD) service is an active PD unit caring for approximately 100 patients. The service strives for optimal patient outcomes and, in doing so, regularly analyzes infection rates.

In 2003, the LHSC peritonitis infection rate was one episode in 56 patient months (1:56). Peritonitis rates remained acceptable in 2004 (1:41) and 2005 (1:57). In 2006, the PD team became concerned when the peritonitis rate demonstrated a significant deterioration to 1:31, with a further decline to 1:27 in 2007. Because the latter rate is below the accepted Canadian benchmark of 1:30, the PD team needed to respond to the downward trend.

The principles of E. Wagner's chronic disease care model and P. McGowan's patient-provider partnerships theory were used to guide the development of an intervention plan. A significant improvement in the peritonitis rate was demonstrated in 2008 and acceptable rates have been maintained for 2009.

Keywords: peritonitis, chronic disease, partnerships, patient self-management

Introduction

The London Health Sciences Centre (LHSC) Regional Renal Program provides comprehensive care for patients with both progressive and end stage renal disease. It serves a large geographic region with a population catchment of approximately one million. The LHSC is academically affiliated with the University of Western Ontario, providing the clinical setting for medical, nursing, and other health care students.

Patients and methods

A common cause of PD failure is peritonitis, and these failures are no exception at LHSC. The PD team strives to meet or exceed the most commonly accepted Canadian benchmark of one peritonitis incident in 30 months on therapy (1:30) (Mujais, 2006).

The peritonitis problem

Figure One shows the annual peritonitis rates in the unit for 2001–2007. The poor rates in 2001 and 2002 were thought to be the result of a program merger of two units, each

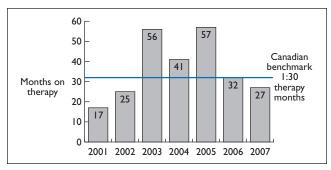


Figure One. Annual peritonitis rates at the London Health Sciences Centre

using different systems and products. Every nurse on the team was not familiar with two different vendors' systems, making standardization of care more difficult. It is believed this lack of standardization, along with many other challenges that mergers create, resulted in poor peritonitis rates at this time. Peritonitis rates improved with a targeted continuous quality improvement initiative in 2003. However, results slid in 2006 and did not meet benchmark in 2007. An action plan was required to reverse this downward trend.

Key measures for improvement

The PD team uses the Baxter Peritonitis, Organisms, Exit Sites and Tunnel Infections (POET) database to review its outcomes data to better understand the causes of PD failure rates prior to intervention on a quarterly and annual basis.

Intervention strategies process

Self-administered PD therapy is used to treat life-threatening chronic renal failure. In order to provide effective, therapeutic interventions for patients living with chronic disease, it is essential that health care providers (HCP) appreciate the significant differences between acute and chronic illnesses. Many HCPs are principally exposed to acute care and its corresponding interventions in their didactic and practical education as students. The interventions appropriate for acute care are often inappropriately applied to patients living with chronic disease. Table One demonstrates the differences between chronic and acute disease and important implications for the role of both the HCP and the patient (Lorig et al., 2004).

An effective HCP understands his or her role as teacher and partner in the care of people with chronic disease. A patient effectively coping with chronic disease is also a partner and fully engaged in daily management.

According to E. Wagner at the MacColl Institute for Healthcare Innovation, several key success factors required to achieve excellent outcomes have been identified in the chronic care model (Wagner, 1998) (see Figure Two). The LHSC

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Submitted for publication: October 7, 2009. Accepted for publication in revised form: February 12, 2010. change initiative focused on the development of an informed activated patient through enhanced partnerships with the health care team.

The differences between acute and chronic disease, as outlined by Lorig et al. (2004), have significant implications for the role of the HCP and the patient. Healthy partnerships between the HCP and the patient enable the patient to assume a more active role in his/her daily management. Wagner refers to this as an Informed Activated Patient. Positive role changes are required by both the patient and the HCP. The HCP must migrate from the traditional role of selecting and conducting therapy to that of teaching, coaching, and partnering. To become a better self-manager, the patient must migrate from following orders (adherence) to being truly responsible and accountable for daily management of his or her condition. Collaborative partnerships enable successful role changes, which, in turn, increase the likelihood of good outcomes or patient goal attainment (McGowan, 2008).

The required outcomes and successful role changes occur when team members and the patient develop collaborative partnerships. The key elements that define collaborative partnerships are: a recognition that the health care provider and the patient are both experts, provision for genuine two-way information exchange, provision for both partners to freely state preferences, and assurance that the partners can reach consensus on the treatment plan (McGowan, 2008). With these principles to work from, the team members redeveloped the peritonitis prevention teaching and maintenance program.

Intervention strategy tools

The team conducted a literature review to seek information regarding ongoing patient educational needs while on PD therapy. A general theme became apparent that with time, patient practice needs to be reassessed and refreshed to minimize risk. Age was not a risk factor and, in

	Acute Disease	te and chronic disease Chronic Disease
Beginning	Rapid	Gradual
Cause	Usually one	Many
Duration	Short	Indefinite
Diagnosis	Commonly accurate	Often uncertain, especially early
Diagnostic Tests	Often decisive	Often of limited value
Treatment	Cure common	Cure rare
Role of Professional	Select and conduct therapy	Teacher, partner
Role of Patient	Follow orders, adherence	Partner with health professionals, responsible for daily management
by K. Lorig, H. H	olman, D. Sobel, D	ith Chronic Conditions" . Laurent, V. Gonzalez, ull Publishing Company.

fact, patients less than 55 seemed to require the refresher to a greater extent than older patients (Russo et al., 2006).

Because of considerable staff turnover, the team first reviewed its own practice, standardizing all teaching materials and developing new "attention-grabbing" posters and brochures for patients.

Recognizing that the patient, as partner and provider, cannot afford knowledge gaps, the team developed a 48question survey to identify learning needs. They administered this survey when the patient completed training, at six weeks on therapy, and in the event of a peritonitis incident. The patient's specific knowledge deficits were shared with the patient and re-education was based on these targeted learning needs. This targeted educational strategy supports the principle of adult learning by teaching/reviewing only those elements that the adult learner requires. The staff members were careful to share that the survey was not to be thought of as a test, but to be used to identify the patient's individual learning needs so that targeted education could be provided. Patient participation in the survey helped to achieve this informed activated patient (Wagner, 1998). The team intends to administer the survey annually for maintenance patients.

For patients who had developed a peritonitis incident, the results of the survey were reviewed with the patient, as already discussed. The patient was then asked to review a form titled, Patient Perception of Reason for Peritonitis (see Table Two) and to provide input as to the cause of the peritonitis. Once again, this form was not intended to test or scold the patient, but to recognize the patient as a full partner in care and to emphasize that the patient's technique and opinions both matter (McGowan, 2008).

The third document developed was a Flowchart for Peritonitis (see Figure Four). When a peritonitis incident occurred, the health care provider shared this flowchart and all the ensuing steps for treatment with the patient. The patient, in partnership with the staff, monitored each step of the process and became a better-informed and more willing participant in the overall process of care.

The final change included a monthly calculation and review of the peritonitis rate. Previously, this rate had been tracked quarterly. Not only is this information shared with the members of the health care team, but also it is now posted in the clinic waiting room to enhance patient awareness.

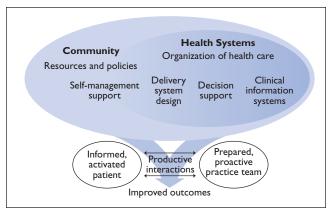


Figure Two. The Chronic Care Model

From "Chronic Disease Management: What will it take to improve care for chronic illness?" by E.H. Wagner. 1998. Effective Clinical Practice, 1(1), 2–4. Reprinted with permission.

Peritonitis results

Most of the planning for this change occurred in the spring of 2007. Plans were tweaked in the fall of 2007, and full implementation occurred in January 2008. In 2007, the monthly peritonitis rate fell below the 1:30 benchmark in eight of 12 months, with the annual rate being 1:27. After implementation of the changes described earlier, the peritonitis rate fell below benchmark in only two of 12 months in 2008, with the annual rate being 1:47. Results year-to-date 2009 have not been as promising. The year-to-date average to the end of October continues to remain above 1:30 and is currently at 1:33 months (see Figure Three). In 2008, 15 PD patients (low acuity) were successfully transplanted. While hard data are not available, the nurses have "observed" an increase in patient acuity/co-morbidities from 2008 to 2009, which they feel is contributing to the greater incidence of peritonitis.

Conclusions

Implementation of the survey, patient perceptions of the reasons for peritonitis, use of the peritonitis flow chart, and frequent feedback on peritonitis rates demonstrated practical

Table Two.



Checklist for Patient Perception of Peritonitis. Complete when treating patient with peritonitis protocol

Patient Perception of Reason for Per	itonitis		
What caused your peritonitis?			
Date:	RN:		
Answer:	Yes	No	Comments
Touch Contamination			
Mask			
Incorrect Procedure			
Adding Medications			
Opticap			
Pets			
Tubing Separation			
Unclean hands			
Drying hands with paper towel			
Pump soap			
Swimming			
Warming solution			
Other—State Patient Belief			
Don't know			
Is there a medical condition that contributed to this peritonitis?			
Nurse Assessment	i		

application of effective HCP/patient partnerships and enhanced the involvement of patients as partners in their health care. One of the PD nurses likes to say to the patients, "You're in the driver's seat; I'm here only to assist with occasional navigation." These changes resulted in significant improvements in the peritonitis rate in 2008 and an ability to achieve better than benchmark in 2009. The changes all

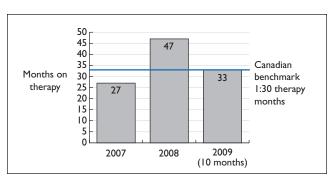


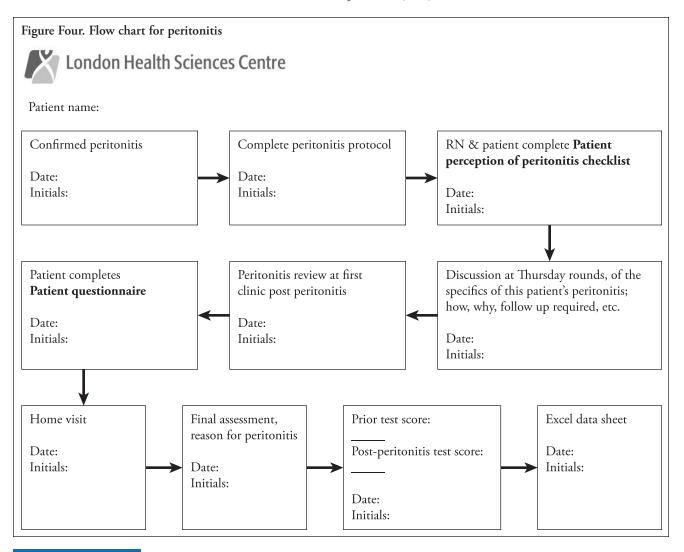
Figure Three. Updated annual peritonitis rates at the London Health Sciences Centre

occurred within a small period of time and, so, identifying any single strategy, as the most effective is difficult. Informal feedback from the health care team suggests that, if time constraints are a factor, the questionnaire may be the most effective tool because of frequency of administration and the resulting ability to customize teaching to the patients' specific learning needs.

Through many years of experience, the PD staff has learned that initial successes can slide unless vigilance is applied to constantly monitor, assess, and act, as needed. The team will continue to ground their interventions using sound principles of chronic disease management, emphasizing respectful partnerships and recognizing the key role that patients must play in maintaining their health.

Acknowledgements

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Update on the new Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)— A focus on medications

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Objectives

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

- Define the term chronic kidney disease-mineral and bone disorders (CKD-MBD), as outlined by Kidney Disease: Improving Global Outcomes (KDIGO)
- Describe how patients develop CKD-MBD, and the potential complications of untreated CKD-MBD
- Define the frequency of monitoring and recommended targets laboratory parameters associated with CKD-MBD
- Compare and contrast currently available agents to treat elevated serum phosphorus and parathyroid hormone associated with CKD-MBD.

Introduction

In 2009, Kidney Disease: Improving Global Outcomes (KDIGO) published new clinical practice guidelines for the diagnosis, evaluation, prevention and treatment of chronic kidney disease-mineral and bone disorders (CKD-MBD) (KDIGO, 2009). The purpose of this article is to review the KDIGO treatment guidelines of CKD-MBD, focusing on medications that influence bone and mineral metabolism.

What is CKD-MBD?

The term CKD-MBD is a broad definition that encompasses abnormal laboratory parameters, and disorders of bone, vessels or soft tissues caused by derangement in bone and mineral metabolism (KDIGO, 2009). The definition of CKD-MBD is presented in Table One.

The term renal osteodystrophy has been modified for the new KDIGO guidelines to only refer to those alterations in bone morphology in patients with CKD defined by a bone biopsy. It is characterized by alterations in bone turnover, mineralization and volume. Bone turnover refers to the rate of bone remodelling. This occurs through the activities of the bone cells osteoblasts (cells that form bone) and osteoclasts (cells that resorb bone). Bone mineralization describes how well bone collagen becomes calcified and is characterized as normal or abnormal. Bone volume is the amount of bone per unit volume of tissue, and is the net result of bone formation and bone resorption rates (KDIGO, 2009; Moe et al., 2006; National Kidney Foundation, 2003). Renal osteodystrophy includes the following types of bone disorders: a) osteitis fibrosis cystica: an increased number of the bone cells oseoblasts and osteoclasts with high turnover and marrow fibrosis, b) adynamic bone disease: low bone turnover with normal mineralization, c) osteomalacia: low bone turnover with abnormal mineralization, and d) mixed uremic osteodystrophy: high bone turnover with abnormal mineralization (Quinibi, 2009).

KDIGO suggests that serum parathyroid hormone (PTH) or alkaline phosphatase (ALP) be used to evaluate bone abnormalities, as bone biopsies are not routinely used (due to the invasive and painful nature of the procedure) and these laboratory values can predict alterations in bone turnover (KDIGO, 2009).

Extraosseous calcification occurs when calcium deposits outside the skeleton in blood vessels or soft tissues. These calcifications can be detected in patients through clinical presentation or diagnostic imaging procedures, for example, an abdominal radiograph (KDIGO, 2009).

How do patients develop CKD-MBD?

Complex interrelated processes in CKD result in the manifestations of CKD-MBD, and include:

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Address correspondence to: Colette Raymond, PharmD, Department of Pharmaceutical Services, Health Sciences Centre Hospital, MS189-820 Sherbrook St., Winnipeg, MB R3A 1R9. Email: craymond@exchange.hsc.mb.ca hyperphosphatemia, hyperparathyroidism, hypocalcemia, and a deficiency of vitamin D. The laboratory abnormalities associated with CKD-MBD begin in Stage 3 CKD (see Table Two) (Levin et al., 2007). As the kidney loses the ability to excrete phosphorus, patients with CKD develop hyperphosphatemia. Patients with CKD have a decreased production of active vitamin D (calcitriol). Decreased calcitriol causes reduced calcium absorption in the intestine, which leads to hypocalcemia. In response to hyperphosphatemia, low calcitriol and hypocalcemia, patients develop elevated PTH in order to promote phosphate excretion. However, individuals with CKD lose the ability to respond to the elevated PTH. In later stages of CKD, the kidney cannot maximally excrete phosphorus or resorb calcium and the PTH and phosphorus increases further and serum calcium decreases further (National Kidney Foundation, 2003). Patients with CKD also develop elevations of fibroblast growth factor-23 (produced in bone), which increases urinary phosphorus excretion, further reduces calcitriol and further increases PTH (Moe & Sprague, 2008). Sustained elevated PTH (secondary hyperparathyroidism) can lead to parathyroid gland hypertrophy and bone disease (Quinibi, 2009).

Why treat CKD-MBD?

Patients with CKD-MBD can experience physical symptoms of hyperphosphatemia, including itchy skin (pruritus), red, "bloodshot" eyes, and joint pain. Symptoms of bone abnormalities can include bone pain or fractures or complications such as deformity, disability, hospitalizations and mortality (Mittalhenkle, Gillen, & Stehman-Breen, 2004). Calcifications can manifest as pain, particularly with soft tissue calcifications. A relationship between high levels of serum phosphorus and increased risk of cardiovascular events has been observed in patients with normal renal function (Dhingra et al., 2007; Tonelli, Sacks, Pleffer, Gao, & Curhan, 2005) and patients with CKD Stages 3 to 5 (Kestenbaum et al., 2005; Ganesh et al., 2001). In patients with Stage 5 CKD,

Table One. Definition of Chronic Kidney Disease-Mineral Bone Disorder and Osteodystrophy (KDIGO, 2009)

Chronic Kidney Disease–Mineral Bone Disorder (CKD-MBD)

- A systemic disorder of mineral and bone metabolism due to CKD manifested by
- either one or a combination of the following:
- Abnormalities of calcium, phosphorus, parathyroid hormone, or vitamin D metabolism
- Abnormalities in bone turnover, mineralization, volume, linear growth, or strength
- Vascular or other soft-tissue calcification.

Renal Osteodystrophy

An alteration of bone morphology in patients with CKD. It is one measure of the skeletal component of the systemic disorder of CKD-MBD that is quantifiable by histomorphometry of bone biopsy.

Stage Description GFR (mL/min/1.73m ²)			
1	Kidney damage, with normal or increased GFR	> 90	
2	Kidney damage, with mildly decreased GFR	60–89	
3	Moderately decreased GFR	30–59	
4	Severely decreased GFR	15–29	
5	Kidney failure	< 15 (or dialysis)	

Table Three. Suggested frequencies of serum calcium, phosphorus, and PTH measurements according to CKD stage (KDIGO, 2009)

Parameter	CKD Stage 3	CKD Stage 4	CKD Stage 5 (includes dialysis)
Calcium and phosphorus	6–12 months	3–6 months	1–3 months
PTH	Based on baseline and CKD progression	6–12 months	3–6 months
ALP		Every 12 months or more frequently with elevated PTH	Every 12 months or more frequently with elevated PTH
CKD: chronic kidney dise	ase, PTH: serum intact para	thyroid hormone, ALP: serum al	kaline phosphatase

patients receiving dialysis, hyperphosphatemia has been shown to predict mortality in large epidemiological studies (Block et al., 2004; Block, Hulbert-Shearon, Levin, & Port, 1998; Rodriguez-Benot, Martin-Malo, Alvarez-Lara, Rodriguez, & Aljama, 2005). Abnormalities of bone turnover, mineralization and volume can lead to fractures. Calcification of the blood vessels is associated with increased risk of cardiovascular death (London et al., 2003).

Laboratory monitoring of CKD-MBD

Laboratory monitoring is useful to identify CKD-MBD and monitor response to treatment. The KDIGO CKD-MBD guidelines recommend monitoring serum levels of phosphorus, PTH, calcium, and alkaline phosphatase (ALP), beginning in CKD Stage 3 in adults, and continue to monitor based on stage of CKD, as well as treatment (see Table Three). More frequent laboratory monitoring may be considered for patients receiving treatment for CKD-MBD. It is also recommended that treatment decisions be based upon trends in laboratory monitoring parameters for CKD-MBD, rather than individual values (KDIGO, 2009).

Treatment of CKD-MBD

Correcting abnormalities in calcium, phosphorus, vitamin D metabolism and PTH are fundamental to the management of CKD-MBD. For patients with CKD-MBD Stages 3 to 5, KDIGO suggests maintaining serum calcium and phosphorus levels within the normal range, and that the optimal PTH value is unknown. Laboratory targets for bone and mineral metabolism for patients receiving dialysis for the 2009 KDIGO Guidelines, the 2003 National Kidney Foundation's Kidney Dialysis Outcomes Quality Initiative (K/DOQI) and the 2003 Canadian Society for Nephrology (CSN) are presented in Table Four.

a) Calcium and phosphate

Management of hyperphosphatemia consists of dietary phosphate restriction, medications and dialysis. A review of dietary phosphate is beyond the scope of this article, but of critical importance to the management of CKD-MBD. Commonly prescribed, currently available (in Canada) phosphate binders are outlined in Table Five. Phosphate binders are prescribed with food and act by binding to phosphorus in the bowel. Ideally, these medications should be

Table Four. Suggested targets for laboratory parameters for CKD-MBD for patients receiving dialysis (Jindal et al., 2006; KDIGO, 2009; National Kidney Foundation 2003)

KDIGOK/DOQICSNCalcium (mmol/L)Normal rangeNormal rangeNormal rangePhosphorus (mmol/L)Toward normal range1.13–1.78Normal range 0.8–1.78PTH (pmol/L)Optimal level unknown 2 to 9 times normal upper limit for intact PTH assay16.5–33.010.6–53.0	•			
Phosphorus (mmol/L)Toward normal range1.13–1.78Normal range 0.8–1.78PTH (pmol/L)Optimal level unknown 2 to 9 times normal16.5–33.010.6–53.0		KDIGO	K/DOQI	CSN
PTH (pmol/L)Optimal level unknown 2 to 9 times normal16.5–33.010.6–53.0	Calcium (mmol/L)	Normal range	Normal range	Normal range
	Phosphorus (mmol/L)	Toward normal range	1.13–1.78	Normal range 0.8–1.78
	PTH (pmol/L)	Optimal level unknown 2 to 9 times normal upper limit for intact PTH assay	16.5–33.0	10.6–53.0

KDIGO: Kidney Disease: Improving Global Outcomes; K/DOQI: Kidney Disease Outcomes Quality Initiative; CSN: Canadian Society of Nephrology; PTH: serum intact parathyroid hormone

Table Five. Phosphate binders (KDIGO, 2009; Navaneethan, Palmer, Craig, Elder, & Strippoli, 2009)			
Medication	Potential Advantages	Potential Disadvantages	
Calcium carbonate (40% elemental calcium)	Effective, inexpensive, readily available, may treat hypocalcemia	Potential for hypercalcemia including calcification or PTH suppression, GI side effects	
Calcium acetate (Phos-Lo®) (25% elemental calcium)	Effective, potentially more effective with less calcium absorption than calcium carbonate, may treat hypocalcemia	Potential for hypercalcemia including calcification or PTH suppression, GI side effects, more costly than calcium carbonate	
Sevelamer-HCl (Renagel®)	Effective, not absorbed, no calcium/metal, less hypercalcemia, potential for reduced vascular calcification, reduces LDL cholesterol, may be less likely to lead to adynamic bone disease than calcium	Costly, potential for decreased bicarbonate levels, may require calcium supplementation, GI side effects (possibly greater than with calcium)	
Lanthanum (Fosrenol®)	Effective, no calcium, less hypercalcemia, chewable, may be less likely to lead to adynamic bone disease than calcium	Costly, potential for accumulation of lanthanum due to GI absorption (long-term clinical consequences unknown), GI side effects	

taken right before the first bite of food. However, there is still value in taking phosphate binders up to 30 minutes after eating, if patients forget.

KDOQI recommends that calcium-based phosphate binders be used for initial phosphate binder therapy for patients with Stage 3 and 4 CKD, and as an option for individuals receiving dialysis (National Kidney Foundation, 2003). KDIGO states that for the choice of phosphate binder consider CKD stage, presence of other components of CKD-MBD, other therapies and side effect profiles, and acknowledges that there is insufficient evidence to recommend the use of a specific phosphate binder for all patient groups (KDIGO, 2009).

Studies that compare sevelamer and lanthanum with calcium-based phosphate binders demonstrate similar effectiveness at lowering serum phosphorus. However, the use of calcium has been associated with higher serum calcium and lower serum PTH than sevelamer or lanthanum (KDIGO, 2009; Navaneethan, Palmer, Craig, Elder, & Strippoli, 2009). Comparative studies have not consistently demonstrated a benefit to sevelamer to reduce coronary artery calcification or mortality (Block, Raggi, Bellasi, Kooienga, & Spiegel, 2007; Navaneethan, et al., 2009; Suki et al., 2007). Similarly, no clinical trials have demonstrated that lanthanum offers a therapeutic benefit for mortality or vascular events, as compared to alternate phosphate binders (Navaneethan, et al.). Due to this lack of proven benefit and considerable drug cost associated with non-calcium phosphate binders, most provincial formularies or renal programs reserve sevelamer for patients who develop hypercalcemia, calcifications or other complications of therapies for the management of MBD (Manns, Klarenbach, Lee, Culleton, Shrive & Tonelli, 2007) and lanthanum has very limited coverage in Canada to date (Common Drug Review, 2008).

b) PTH

The management of hyperparathyroidism consists of managing hyperphosphatemia, hypocalcemia and the use of specific PTH-lowering agents such as calcitriol, or vitamin D analogues, and cinacalcet. Commonly prescribed, currently available (in Canada) agents to treat hyperparathyroidism are outlined in Table Six. In Stages 3 to 5 CKD (not receiving dialysis), levels of calcidiol (native vitamin D) are often decreased. KDIGO suggests supplementing with ergocalciferol (vitamin D) if low. KDIGO suggests that for individuals with CKD, and progressively increasing PTH, to use calcitriol or other vitamin D analogues and, for those receiving dialysis, KDIGO suggests the addition of cinacalcet. Parathyroidectomy surgery may also be considered as an option for patients with refractory hyperparathyroidism (KDIGO, 2009).

Calcitriol or vitamin D analogues act on the parathyroid gland to directly suppress PTH secretion. These medications have the potential to raise serum calcium and phosphorus (KDIGO, 2009).

Cinacalcet is a calcimimetic drug, which lowers PTH without increasing calcium or phosphorus. Studies have demonstrated that the use of cinacalcet allows more patients to attain K/DOQI end-points related to PTH, calcium, and phosphate levels than standard agents for management of hyperparathyroidism. Cinacalcet may reduce the risk of parathyroidectomy, fracture, and cardiovascular hospitalizations. However, no studies have demonstrated that cinacalcet offers a therapeutic benefit on mortality or vascular events (KDIGO, 2009).

Calcimimetics are indicated only for patients receiving dialysis. Adverse effects include nausea, vomiting and hypocalcemia (Byrnes, 2005). Due to this lack of proven benefit and considerable drug cost associated with cinacalcet, most provincial formularies or renal programs reserve cinacalcet for patients with elevated PTH who have not responded to conventional medical therapies, or who have experienced complications of therapies to treat elevated PTH (e.g., hypercalcemia).

Regardless of the type of agent that is used to lower PTH, careful monitoring of calcium phosphorus during therapy is important. Hyperphosphatemia is a contraindication to calcitriol and vitamin D analogues. For patients receiving cinacalcet, therapy should be discontinued or the dose reduced if the calcium falls below the normal range. Therapy for hyperparathyroidism should be reduced or stopped if the intact PTH falls below two times the upper limit of normal for the assay. Calcium-based phosphate binders and/or vitamin D analogues should be limited if patients experience hypercalcemia, arterial calcification, adynamic bone disease and/or if the serum PTH levels become persistently low (KDIGO, 2009; National Kidney Foundation, 2003).

Table Six. Agents to treat hyperparathyroidism (KDIGO, 2009; Navaneethan, Palmer, Craig, Elder, & Strippoli, 2009)					
Medication	Potential Advantages	Potential Disadvantages			
Active Vitamin D Calcitriol (Rocalctrol®—oral) (Calcijex®—intravenous)	Effective. Does not require liver hydroxylation to become active.	Potential for hypercalcemia and hyperphosphatemia.			
Vitamin D analogue Alfacalcidol (One alpha®)	Effective.	Potential for hypercalcemia and hyperphosphatemia. Requires liver hydroxylation to be active.			
Cinacalcet (Sensipar®)	Effective. No hypercalcemia or hyperphosphatemia.	Costly. Potential for nausea and vomiting. Can cause hypocalcemia. For use in dialysis patients only.			

Implications for practice

Patients with CKD develop abnormalities in serum phosphorus, calcium, PTH, and vitamin D, which can result in bone changes. These laboratory and bone abnormalities can contribute to vascular calcification. These processes are all related, in the systemic disorder of CKD-MBD.

The process of treating CKD-MBD requires a multifaceted approach to treat laboratory abnormalities, bone changes and calcifications while avoiding adverse effects

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of therapy. Maintaining balance in serum calcium, phosphorus and PTH while treating CKD-MBD requires frequent monitoring, patient education and a multidisciplinary renal health team. 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 manage CKD-MBD.

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CONTINUING EDUCATION STUDY QUESTIONS

Contact hour: 2.0 hrs

Update on the new Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)—A focus on medications

By Colette B. Raymond, PharmD, MSc, Lori D. Wazny, PharmD, and Amy R. Sood, PharmD

1. The definition of chronic kidney disease-mineral bone disorder (CKD-MBD) includes all of the following EXCEPT:

(a) abnormalities of calcium, phosphorus, parathyroid hormone (PTH), or vitamin D metabolism
(b) bone mineral density 2.5 standard deviations below peak bone mass
(c) abnormalities in bone turnover,

mineralization, volume, linear growth, or strength

(d) vascular or other soft-tissue calcification

2. Mrs. D.T. is a 62-year-old female receiving hemodialysis whose blood work came back with a serum phosphorus level of 2.54 mmol/L (normal range 0.8–1.78), calcium (corrected for albumin) of 2.41 mmol/L (normal range 2.10–2.60) and a PTH level of 31.0 pmol/mL (normal range 1.0–5.3). What laboratory abnormalities of CKD-MBD is Mrs. D.T. exhibiting?

(a) hypocalcemia,

- hyperparathyroidism
- (b) hyperphosphatemia,
- hyperparathyroidism
- (c) hypercalcemia, hypoparathyroidism
- (d) hypophosphatemia,
- hypoparathyrodism

3. How did Mrs. D.T. develop these laboratory abnormalities?

(a) as the kidney loses the ability to absorb phosphorus, patients with CKD develop hypophosphatemia
(b) increased calcitriol causes reduced calcium absorption in the intestine, which leads to hypocalcemia
(c) in response to hypophosphatemia, high calcitriol and hypocalcemia, patients develop elevated parathyroid hormone

(d) as the kidney loses the ability to excrete phosphorus, patients with CKD develop hyperphosphatemia 4. When should Mrs. D.T. have her PTH checked again, according to KDIGO guidelines?

- (a) 3–6 days
- (b) 1–2 weeks
- (c) 3–6 months
- (d) 12 months

5. Complications of untreated CKD-MBD include:

- (a) nausea, depression, hypocalcemia, nightmares
 (b) pruritis, red eyes, bone pain, cardiovascular events
 (c) hypercholesterolemia, bone pain, diarrhea
 (d) hypercalcemia, metabolic
- acidosis, fractures

6. Mr. P.T. is a 75-year-old male receiving hemodialysis. His medications include: calcitriol, darbepoetin alfa, ferrous sulphate, sevelamer, nifedipine, metoprolol, calcium carbonate. The most appropriate match for medication and indication is:

- (a) hyperphosphatemia: calcium carbonate, sevelamer
- (b) hypertension: ferrous sulfate
- (c) hyperparathyroidism: calcium
- carbonate, sevelamer
- (d) hyperphosphatemia: calcitriol

7. Adverse effects that Mr. P.T. may be experiencing from his therapy to treat CKD-MBD include:

- (a) hypercalcemia from calcium carbonate and calcitriol
- (b) hypocalcemia from calcium carbonate and calcitriol
- (c) hypophosphatemia from calcium
- carbonate and calcitriol
- (d) hyperphosphatemia from calcium carbonate and calcitriol

8. The following is true about medications to manage hyperparathyroidism:

(a) cinacalcet is effective, but causes hypercalcemia and hyperphosphatemia
(b) the adverse effects of nausea and vomiting limit the use of calcitriol
(c) calcitriol is effective, but causes hypercalcemia and hyperphosphatemia
(c) alfacalcidol is effective and does not require hydroxylation in the liver to be active

9. Select the true statement about calcium carbonate and calcium acetate:

(a) only calcium carbonate can cause hypercalcemia through absorption of too much calcium

(b) calcium carbonate has the potential to cause metabolic acidosis while calcium acetate does not

(c) an important adverse effect of both calcium carbonate and calcium acetate is hyperphosphatemia

(d) calcium carbonate contains 40% elemental calcium while calcium acetate only contains 25%

10. Advantages of sevelamer compared to calcium-based phosphate binders include:

(a) reduced gastrointestinal upset, reduced hypercalcemia

(b) randomized controlled studies have demonstrated a mortality advantage

(c) potentially less adynamic bone disease, reduced hypercalcemia

(d) chewable tablets may improve patient adherence

CANADIAN ASSOCIATION OF NEPHROLOGY NURSES AND TECHNOLOGISTS JOURNAL

Continuing Education Study Answer Form

CE: 2.0 hrs continuing education

Update on the new Kidney Disease: Improving Global Outcomes (KDIGO) guidelines for mineral and bone disorders (MBD)—A focus on medications

Volume 20, Number 1

By Colette B. Raymond, PharmD, MSc, Lori D. Wazny, PharmD, and Amy R. Sood, PharmD

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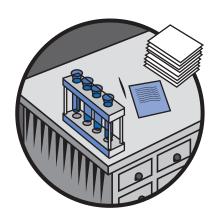
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1.	a	Ь	с	d	1. The offering met the stated objectives.	1	2	3	4	5
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2.	0	Ь	C	d	3. This study format was effective for the content.	1	2	3	4	5
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Research review

Estimating prognosis



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Wittenberg, S.M., & Cohen, L.M. (2009). Estimating prognosis in end-stage renal disease. Progress in Palliative Care, 17(4), 165–169.

Reviewed by Kalli Stilos, RN, MScN, CHPCN(C), Advanced Practice Nurse, Palliative Care Consult Team, Sunnybrook Health Science Centre, Toronto, ON

The author's purpose for this review article was to explore estimating prognosis within the context of end stage renal disease (ESRD); to present factors that prevent physicians from discussing this issue; and to review existing methods used for formulating a prognosis. The authors of the paper are Dr. Stephen M. Wittenberg from the Department of Medicine and Dr. Lewis M. Cohen from the Department of Psychiatry—both are from Baystate Medical Centre, Springfield, Massachusetts, U.S.A.

The authors draw our attention to American statistics, which indicate that 85,000 patients with end stage renal disease (ESRD) die every year, yet nephrologists commonly avoid discussions around prognosis. Research has found that dialysis patients want to know this pertinent information. In 2008, the National Kidney Foundation (Weiner, 2008) conducted an "online survey of 182 dialysis patients and found that: a) 54% of patient respondents had never talked about end-of-life care with a dialvsis team member; b) 76% wanted to have such a conversation; c) only 14% expressed discomfort at the thought of having such a conversation; and d) only 5% clearly did not want to speak about

these matters" (p. 165). In another survey undertaken by Fine, Fontaine, Kraushar, and Rich (2005) of 100 patients with chronic kidney disease, the researchers found that 97% of respondents wanted prognostic information and more than 50% of the respondents stated they needed to know their prognosis on dialysis. Large percentages wanted this information so they were "better prepared to accept what happens in the future" (p. 165) and believed that their nephrologists should volunteer that information and that they should not have to be prompted for it. Additional studies are cited to support this point.

The Renal Physicians Association and American Society of Nephrology clinical practice guidelines (2000) on initiation and withdrawal of dialysis suggest the issue of prognosis be discussed with patients, yet it is an area nephrologists fail to articulate. Reinforcing the need to have these discussions is the statistic that "one- and five-year mortality rates in ESRD are 25% and 60% respectively considerably higher than that of most cancers" (p. 168). It has been recommended that further research be performed on estimating the prognosis of renal patients.

Many factors hinder end-of-life discussions. The review article focuses on three that are largely responsible for nondisclosure: a) lack of staff education and training, b) concerns about extinguishing patient hopes, and c) clinical uncertainty about the accuracy of prognoses.

Ensuring patients have an appropriate understanding of their illness, including prognosis, will only

help patients and their families make informed decisions about their care and future goals. With the lack of training in communication in end-of-life care within the nephrology fellowship programs, it is not shocking that these discussions do not take place between physicians, patients and their families. Giving bad news to patients and their families in a patient-centred and culturally sensitive approach is not common to physicians' practice. Discussions like these need time, a quiet, private and comfortable place for the patient and their loved ones. To address this issue, the nephrology community is starting to include the topic of communication in their curriculum.

A concern for nephrologists is that by having discussions around prognosis, it may demoralize patients and their loved ones, causing them psychological distress. This review article references several studies that support open, ongoing dialogue about poor prognosis as a key factor in strengthening the patient-physician relationship and also to enhance patients' hope by shaping future decisions that are in line with their goals and values.

Another reason why nephrologists forgo discussions about prognosis is the lack of prognostic tools available that are generalizable, precise and useful. The Surprise Question (SQ) is an instrument that has been tested in the end stage renal disease (ESRD) population. This tool was used in the Moss et al. study (2008), which asked health care professionals whether they would be surprised if the patient died within one year. The findings from the study showed that "the unadjusted odds of dying within one year for the ESRD subject in the high-mortality group identified by the SQ were 3.5 times higher than for subjects in the lowmortality group" (p. 167). The authors of the study pointed out that having ESRD patients assess their own health condition might also be an independent predictor of death because these patients have insight into their quality of life, self-management behaviours and treatment compliance.

The method nephrologists use to formulate a prognosis includes: actuarial factors to estimate survival, taking into account age, albumin, activities of daily living (ADL) performance scales, hemoglobin variability, calcium, phosphorus, and parathyroid hormone (Mauri, Cleries, & Vela, 2008; Miskulin, Martin, & Brown, 2004). The modified Charlson Comorbidity Index (CCI) is a tool that predicts survival in both incident and prevalent dialysis patients-this tool factors in age and allocates a score to the various comorbid diseases (Fried, Bernardini, & Piraino, 2001; Fried, Bernardini, & Piraino, 2003). The Royal College of General Practitioners in the United Kingdom (2008) recommends both methods: the clinicians' prediction of survival, the SQ question, and actuarial estimation of survival, the CCI tool.

In addition, cardiovascular disease and, particularly, coronary artery disease (CAD) make up greater than 45% of deaths in ESRD patients (Johnston, Dargie, & Jardine, 2008). It is noted that CAD increases the odds of dying in an ESRD patient and the incidence of ESRD accelerates the onset and/or progression of CAD. It's also important to note the cardiac occurrences within the ESRD population-50% of the cardiovascular deaths in ESRD patients are usually unexpected and assumed to be due to arrhythmic events. These deaths could easily be linked to the following three conditions: hypertension with consequent left ventricular hypertrophy, coronary artery disease, and electrolyte imbalances. It is also noted that myocardial infarctions are difficult to assess in ESRD patients because of the biomarkers they use to detect this cardiac event. Values such as troponin T, troponin I and creatine kinase may be higher in the ESRD population.

Congestive heart failure (CHF) is another predictor of death in the ESRD population on dialysis. Stack and Bloembergen (2001) in their study found that 36% of ESRD patients on dialysis had CHF, and a Banerjee et al., 2007, study revealed an "8.7% mortality rate during the first hospitalization for CHF, and only 12.5% survival at five years in this population" (p. 168). Furthermore, the "biomarkers which may be predictive of cardiovascular mortality in dialysis patients have focused on the value of cardiac troponin T (cTNT) and cardiac troponin I (cTNI) (p. 168). Two studies are mentioned, Apple et al. (2002) and Khan et al. (2005), which indicate that these biomarkers are valuable, and evermore so when integrated into the clinical picture.

Open communication around among health prognosis care professionals, patients and their loved ones is vital for good palliative care and greatly influences the experience of dying. It is highlighted by the Canadian Hospice Palliative Care Association (CHPCA) (2002) that health care professionals need to work collaboratively to improve the quality of living, as well as the quality of end-of-life care for all Canadians. In addition, as part of the interprofessional team, nurses are in a position to influence physicians' communication skills and to provide support in communicating difficult issues more effectively. Adopting a team approach to communicating will not only ensure each member is supported, but also that nurses are better equipped in helping patients and their families understand, accept and adjust to the information, uncertainty and conflict that may arise when a prognosis is conveyed. Knowing what transpires during these discussions will also allow nurses to address patients' and their families' emotional reactions such as fear, anger and other ongoing concerns (CNA, 2008; Davis, Kristjanson, & Blight, 2003; McBride Robichaux & Clark, 2006).

The review article discussed prognosis, as it pertains specifically to the physician-patient relationship, excluding the nephrology nurse from this practice. Nephrologists continue to take on the primary role of communicating a prognosis to a patient and their loved ones when, in fact, nurses are capable of having such discussions. Yet, nurses do not take on that responsibility (Schulman-Green, McCorkle, Cherlin, Johnson-Hurzeler, & Bradley, 2005). The nurses' role is key to maximizing communication about prognosis so that relationships between health care providers, patients and families are strengthened. Many times after speaking with the physician, patients and their loved ones find themselves lost and unable to understand the information given to them. Nurses are in the forefront in the ongoing process that encourages patients and their families to discuss potential future treatment options, goals of care and end-of-life care, as it pertains to the patient's prognosis (CNA, 2008; McBride Robichaux & Clark, 2006).

In summary, the majority of patients and their loved ones would like to be informed of prognosis by their nephrologists. However, several barriers come into play when dealing with such difficult issues. Combining the clinician's prediction and the actuarial estimation of survival, including the cardiovascular indicators is promising for the ESRD population, so that it improves the process of decision-making and how it shapes their future.

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Bedside Matters...

Kindness in any uniform



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I'm not sure how you feel about your visits to the dentist. One of my colleagues says he falls asleep in "the chair", but my history of having no anesthetic as a child has led my memory and imagination to summon up trials that don't even exist. Each and every time I surrender to this maintenance and prevention of my teeth, I am reminded of what our hemodialysis patients may experience. And they have to go through it three times a week.

Today I went to see the hygienist. I saw a male in uniform approaching me... someone I'd never seen before, and he called my name! Where was my usual hygienist, the one who knows me and my fears?

He saw my surprise and I tried to explain that this change was difficult because I'm a "scaredy cat." John immediately seemed to understand.

As I write this I wonder... just how did he demonstrate his understanding and make me feel reassured. First of all, despite my obvious initial reluctance, he did not withdraw from me. He called me by name again and acknowledged what I said. He listened. I relaxed, took off my coat and apologized for being anxious. He looked confident and kind as he gathered up my chart. He asked how I was doing after my recent surgery. I was impressed. He had read the notes before meeting me, so he'd have a way of knowing me. As a person.

I felt well looked after, due to his several initiatives to teach me, his skill at performing the procedure and advocating for me with the dentist.

At one point he offered me a tissue and I asked, "What's this — my security blanket?" He laughed, wholeheartedly. A sense of humour, a stepping stone bonus to get us through this.

Thanks to this care, John, I am thinking of my colleagues and saying "hats off" to all of them who treat each of our patients with a welcoming, competent manner, tailored to individual experiences and personalities. They have what it takes to put a person at ease.

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 at **l2b@telus.net**

Dental Orifice

I do not give my mouth lightly It is an intimate place, of some imperfection, The opening to my physical soul, Where passions pour out And inadequacies whisper A place where thoughts and intellect Fumble their way outward Oftentimes swallowed by emotion A place where comforts of food and drink Soothe my mind.

Today they come to inspect me within this antiseptic room Pry open and peer in inspecting the pattern of my hygienic life Powering over me with electric tools professional silences and language games A diplomatic "how is your flossing" Dental lingo "right upper watch m...o" A doctor of skill enters This dentist, whose teeth I seldom see, is accustomed to patients who speak very little The hygienist, like a veteran nurse, educates, distracts, interprets performs kindly, meticulously gently Keeps me coming back.

Lee Beliveau 2007

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

Profiling...



Meet the 2009 CANNT bursary, award and research grant winners

Sponsored by Fresenius Medical Care

Monique Moore, recipient of the Frances Boutilier Bursary (Baccalaureate level)

By Monique Moore, RN, CNeph(C), staff nurse, Cornwall Dialysis Clinic, Cornwall, Ontario



In 1996, I graduated with honours, second in my class from the diploma program at the St. Lawrence College in Cornwall, Ontario. After proudly obtaining my RN licence in 1997, I entered the nursing field at a time when few jobs where available. Therefore, to make ends meet I worked three casual jobs, commuting to Ottawa to the Children's Hospital of Eastern Ontario (CHEO) pediatric surgery, Riverside Hospital surgical floor and the Victorian Order of Nurses (VON) in Casselman. I enjoyed nursing more then I had anticipated, having aha! moments almost daily. I knew I was growing as a registered nurse. I continued with night courses to obtain my degree all the while paying off my Ontario Student Assistance Program (OSAP), as my

family could not assist me. With restructuring, I went amiss at the end of the VON home care program, and the Riverside became an ambulatory urgency care centre. I then found myself at the Heart Institute step down unit and at the Canadian Blood Services (CBS). In 1998, I accepted a full-time position with CBS. There, I grew from many opportunities within the company-charge nurse on clinics, internal audit nurse, preceptor for new staff and assistant liaison nurse. But, after six years of commuting an hour drive to Ottawa from home, and now a mother to a second son, I needed to refocus my career. My "Aha!" moments faded with irregular work hours and little babes at home. I had aspirations to direct myself towards becoming an educator, but my goal to obtain my degree was again halted. This is when a dear friend, Jennifer Van deGlind, suggested trying for a position in dialysis. The dialysis door opened to me at the Ottawa Carleton Dialysis Clinic and Cornwall Dialysis clinics. I was blessed with a wonderful educator, Alice Smith, who guided me into the world of hemodialysis, with the kind and patient staff from both clinics.

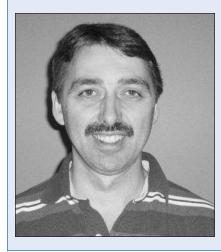
The "Aha!" moments were plentiful in dialysis, as you know. In 2006, my manager Kathaleen Bijman began challenging me. Together, we brought

forth a health and safety committee, which stemmed into a CANNT presentation regarding striving for a nofault culture affiliated with incident reporting. The conference cemented my feet in the dialysis specialty. I was in the perfect situation-doing direct patient care, teaching and growing. In 2007, I participated in a preceptor seminar, continued to participate in the CANNT dinners and achieved my certification in nephrology. After studying for my certification, I knew this was now a more opportune time to continue with my degree. Now, fourand-a-half years in dialysis, my degree nearly completed, I have increased perspectives, tools and knowledge. I had the opportunity to present again at this year's CANNT conference regarding a falls risks tool. Receiving the Frances Boutilier Bursary has assisted with the financial burden to achieve my degree, but more so it has solidified the value of ongoing learning. Continued education gives not only to you, but also to your patients and team.

As a proud CANNT member, I encourage anyone considering continuing their education to apply for the bursaries, so that with your new knowledge and "Aha!" moments you will know you have your dialysis peers supporting you along the way. Many a thank you to CANNT and its members.

Darrell Cuza, recipient of the Technical Bursary

By Darrell Cuza, Biomedical Technologist in dialysis, Eastern Health, St. John's, Newfoundland



Hi, my name is Darrell Cuza and I have been employed by Eastern Health in St. John's, Newfoundland, as a Biomedical Technologist in dialysis for the past 10 years. Over the years, I have been involved in evaluating new equipment, implementing new policies and procedures within my unit and planning for new satellite dialysis units across Newfoundland and Labrador.

I have attended several CANNT conferences, have received valuable information and have made friends across the country. In 2003, I received

my cdt certification in dialysis and I have been involved in setting the home dialysis standards. I regularly report in the CANNT Journal as a liaison.

Receiving the CANNT Technical Bursary was very gratifying. It provides some financial assistance for me, as I continue my Bachelor of Technology degree at Memorial University. More importantly, the award bestows a sense of recognition for the hard work it takes to further my education while maintaining fulltime employment.

Joanne Plamondon, recipient of the CANNT 2009 Research Grant

By Joanne Plamondon RN, CDE, CNeph(C), Renal Health Nurse Clinician, CKD Clinic, St. Boniface General Hospital, Winnipeg, Manitoba



I'm a renal health nurse clinician working in the chronic kidney disease (CKD) clinic at St. Boniface General Hospital (SBGH) in Winnipeg. I graduated from SBGH with a diploma of nursing in 1984. Within my first year of working on a medical unit, I was asked if I would be interested in taking the hemodialysis (HD) course. I thought to myself, "What's that?" I knew the basic concept of dialysis, but there wasn't a lot of information back then about dialysis, and my only experience was doing peritoneal dialysis (PD) bag exchanges for hospitalized patients. Once I completed my training, I worked full-time in our

seven-bed HD unit, which was equipped with the old Drake Willock and IPD machines! Yes, I am dating myself...

Twenty-five years later, I'm still here! I've had many wonderful opportunities to work in various areas of nephrology nursing over the years. I achieved my certifications in diabetes education (CDE) in 2001, and in nephrology (CNeph(C)) in 2002 through the Canadian Nurses' Association. These have provided me with extensive knowledge in the area of renal disease and diabetes. I have been actively involved in many committees including: Manitoba Renal Program (MRP) Renal Health Outreach alliance initiative, MRP clinical working group, home dialysis working group, transplant process improvement initiative, MRP Research Development Renal Committee, SBGH CKD clinic process improvement initiative and administrator for the National Amgen Nephrology Nursing e-journal.

In 2009, I was honoured to receive a nursing excellence award from SBGH. To be recognized by my peers and nurse manager reinforces my faith in my abilities and encourages me to continue to seek new challenges and opportunities. I'm very fortunate to be working in a dynamic and supportive environment at SBGH and within the MRP.

At present, I'm involved in a research project with a First Nation community to obtain their input into the method of delivery of renal health outreach education, the required components of this education and the cultural appropriateness of the content and delivery method. The title of the study is "Perceptions of Key Stakeholders Regarding Future Directions for Renal Health Outreach (RHO)". The recognition of this research grant also goes to my co-investigators, Lesley Cotsianis, OT, and Allison Lindsay, RN, both from the Winnipeg Health Sciences Centre. I believe that without them this project wouldn't have happened. We are extremely grateful to receive this award, which will allow us to complete our project. We look forward to sharing the outcomes of this study. I now leave you with a quote: "Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful.-Herman Cain." "Do one thing a day that scares you!"

Thank you et merci beaucoup.

Karelle Robichaud, recipient of the Franca Tantalo Bursary (Graduate Level)

By Karelle Robichaud, B.Sc.Inf., Infirmière en hémodialyse et Monitrice Clinique/Hemodialysis Nurse and Clinical Instructor, Hôpital Georges L. Dumont, Moncton, Nouveau-Brunswick



My passion for nephrology began when I was in my third year of the nursing program, and I did a training course at the nephrology unit. After that training course, I returned to the nephrology unit in order to do my preceptorship while in my fourth year of the program. I did my bachelor's degree in nursing at Université de Moncton and graduated in January 2006. When I graduated, I started to work at Georges L. Dumont hospital, in Moncton, New Brunswick.

Since then, I have been working in the nephrology unit. In September 2006, I started my nursing master's at Université de Moncton. After that, in May 2007, I received the Entry-Level Nurse Achievement Award from the Nurse Association of New Brunswick. At that time, I was also doing my hemodialysis training, where I have been working ever since. Meanwhile, I had three contracts with the Université de Moncton as a clinical instructor for student nurses studying nephrology.

I hope to earn my master's degree in the fall of 2010. When I receive my diploma, I would like to convey my knowledge and expertise in nephrology to patients living with a kidney disease and help them address the challenges that it brings. I would also like to continue working in nephrology research and help the profession develop with evidence-based data.

As I'm at the end of my master's program, it is an honour for me to receive the Franca Tantalo Bursary. This bursary will help me with my research on hemodialysis patients and it will also help me finish my thesis. Thank you very much.

Shelley Burnett, recipient of the CANNT 2009 Excellence in Practice Award, Clinical Practice

By Shelley Burnett, RN, Integrated Care Clinic, St. Paul's Hospital, Vancouver, British Columbia



I received my diploma in nursing from British Columbia Institute of Technology (BCIT) in 1978. Much of the next 15 years I spent working in intensive care in both Montreal and Vancouver. During that time, I encountered many dialysis patients in the ICU and, consequently, became interested in nephrology nursing, which led me to enrol in the BCIT Nephrology Nursing Certificate Program. During my clinical practice at BCIT, I had the good fortune of working in the CKD program at St. Paul's Hospital in Vancouver. The idea of working in a more preventive role was very appealing and left a lasting impression on me.

My first job in the renal program at St. Paul's was in hemodialysis nursing, which provided me with better insight into what life was like for a dialysis patient. This experience helped prepare me for the area that really interested me, chronic kidney disease (CKD) nursing. My opportunity to work in the Kidney Function Clinic came in 2003. During my first few years in our clinic I learned a great deal about not only renal disease, but also about chronic disease management. My current position is case manager of the St. Paul's Integrated Care Clinic. Our clinic cares for patients with chronic renal failure plus either diabetes and/or heart failure. Holistically caring for patients is the most rewarding job I can imagine.

To receive this award is such an honour—to be recognized by my peers is very gratifying. I am so fortunate to be surrounded by an incredible team of hard working professionals that exemplifies the culture of a caring attitude, and commitment to improving the lives of renal patients. The team inspires me on a daily basis.

Thank you, CANNT, for your ongoing commitment to support and enhance the knowledge of professionals who care for renal patients.

Rosa Marticorena, recipient of the Excellence in Practice Award, Research

By Rosa Marticorena, RN, Clinical Research Coordinator, Nephrology Research Office, St. Michael's Hospital, Toronto, Ontario



I completed my undergraduate education in nursing at the Sick Children's Hospital Nursing School, Federico Villarreal University in Lima, Peru, in 1982. At that time, our nursing school gave us the designation of pediatric nurses by training, and I thought that my career would develop at the Sick Children's Burn Unit, in which I had spent the last year of my training. I worked simultaneously in intensive care and it was while I was looking after a patient with acute renal disease that the opportunity for training in dialysis came my way. I was very lucky-paid training was a luxury. The first five years I spent in nephrology were in the San Borja

Clinic in Lima. This is where I learned the science behind dialysis and it was thanks to my manager, Maria Sanchez, and nurse in charge, Aurora Calderon, that I was able to learn in detail how quality nephrology nursing care had to be provided. Those were the times in which we had to declot the Scribner Shunts by ourselves and when the patient did not have an access, we had to do direct arterial puncture until a Scribner shunt or a single lumen catheter was inserted. Cannulation was an art that you were taught by the most experienced cannulators. We treated it with upmost respect. You only had one chance to cannulate. Only the most experienced nurses with proven cannulation skills would be assigned to cannulate a new fistula. I will never forget the time I was assigned to one-it made me feel that I had truly earned the status of a "hemo nurse". I believe my former experience marked my interest in access care.

I started working in hemodialysis at Toronto General Hospital and the Wellesley Hospital in 1989 and, since then, worked in several other hemodialysis units in Ontario. It was in 1998, that I had the opportunity to start my research career in nephrology. Dr. Sandra Donnelly, Principal Investigator and Medical Director of the hemodialysis unit at St. Michael's Hospital, encouraged me to pursue training in clinical epidemiology at the University of Toronto. I completed the post graduate diploma in 2004.

Since the completion of the program, and with the continuous support and guidance of Dr. Donnelly, I was able to use the research skills obtained in the diploma program and initiate projects that would focus on improvement of access care at St. Michael's Hospital, related mostly to cannulation, specifically buttonhole cannulation. Research in this area, as well as in other areas of access care is greatly needed. We, as nurses, can contribute immensely to this aspect of care of the renal patient, and I think here at St. Michael's Hospital, we will be able to help.

I would like to take the opportunity to thank the hemodialysis nurses, home hemodialysis nurses, nocturnal nurses and nurse practitioner Alison Thomas, research staff in the nephrology research office: Stella Curvelo, Niki Dacouris and Jennie Huckle, as well as all the investigators in the nephrology research office: Dr. Marc B. Goldstein, Dr. Phil A. McFarlane and Dr. Ron Wald who, together with Dr. Donnelly, have provided continuous support with these projects.

Laurie Pritchard, recipient of the CANNT 2009 Excellence in Practice Award, Education

By Laurie Pritchard, RN, BScN, CNeph(C), Care Specialist, Renal and Chronic Disease Management, Orillia Soldiers' Memorial Hospital, Orillia, Ontario



What an honour and a privilege to receive the Excellence in Education award. Thank you to my fellow peers who nominated me and the CANNT board of directors for agreeing to give me this award.

Nephrology nursing is rewarding on so many levels. We have the opportunity to work within a multidisciplinary team, we really get to know our patients, we are constantly teaching and learning from our patients, as well as each other, the concepts in nephrology are continually interesting, and there are many more reasons that make me appreciate how fortunate I am to be part of this amazing group at Soldiers' in Orillia, as well as a Canadian nephrology nurse.

The time I spent as a CANNT VP for Ontario and website coordinator reinforced the previous reasons and gave me an opportunity to get to know nephrology nurses from across the country. I can't emphasize enough the value of that time and encourage everyone to consider becoming involved in our organization.

Sponsored by CANNT

Norma Jean Martel, recipient of the Certification/Recertification Bursary

By Norma Jean Martel, RN, CNeph(C), Nephrology Leader Clinical Operations, In Centre Hemodialysis, Hemodialysis, Home Dialysis and Renal Clinic, Capital District Health Authority, Halifax, Nova Scotia



My name is Norma Jean Martel. I graduated from St. Martha's School of Nursing in 1992. I recently have completed my BScN from the University of Victoria. I began working in nephrology nursing in 1999, and continue to stay within this specialty area, as I am committed to helping those living with Chronic Kidney Disease achieve their optimal health care goals. I am currently the Nephrology Leader Clinical Operations for In Centre Hemodialysis Halifax, Dartmouth General Hemodialysis, Home Dialysis Program and Renal Clinic in Nova Scotia. In my current role, I have the opportunity to coach and mentor nephrology nurses to continue to increase their knowledge of the specialty area through certification or ongoing educational opportunities.

I am extremely honoured to have received the ISPD bursary-certification/

recertification. Completing the certification in nephrology nursing has been a huge accomplishment for me personally and professionally. Obtaining and maintaining certification is an excellent learning opportunity to remain current and up to date in nephrology nursing. I am committed to life-long learning and obtaining certification in nephrology nursing has assisted me in this journey. I would like to take this opportunity to thank CANNT for their financial support to help me achieve this goal. Receiving funding through CANNT and the ISPD bursary shows their commitment to assisting their membership with ongoing educational support.

Jane Ridley, Barbara Wilson, Lori Harwood, and Heather K. Laschinger, recipients of the CANNT 2009 Journal Award

By Jane Ridley, RN(EC), MScN, CNeph(C), Nurse Practitioner, Nephrology Program, University Campus, London Health Sciences Centre, London, Ontario



Lori Harwood, Jane Ridley and Barbara Wilson

On behalf of my co-authors, Barb Wilson, Lori Harwood, and Dr. Heather Laschinger, I am pleased to accept the CANNT Journal Award. We would like to thank CANNT, as the research that generated this article was funded by a CANNT Research Grant.

Barb, Lori, and I are advanced practice nurses/nurse practitioners in the London Health Sciences Centre Regional Renal Program. Our primary area of responsibility is hemodialysis. We are involved in a number of tasks and projects. I was fortunate enough to be involved with the development of the Registered Nurses' Association of Ontario Best Practice Guideline (RNAO BPG) for Decision Support for Adults Living with Chronic Kidney Disease (CKD). I am at present working with a multidisciplinary team developing an advance care planning program for hemodialysis patients. Lori is pursuing her PhD, with a focus on exploring the wider determinants of dialysis modality selection. Barb is involved in a number of projects and is currently leading a study exploring nurses' experiences with cannulation of arterio-venous fistulae.

We had previously been involved in implementing and studying the impact of a renal nursing professional practice model. Our observations from that study sparked our interest in work environment, health outcomes, and magnet hospital traits in Canadian nephrology nursing.

We were fortunate to work with Dr. Heather Laschinger, a renowned nurse researcher and educator from the University of Western Ontario, who is always willing to share her expertise.

We are honoured to accept this award.

Editor's note: Jane Ridley and her colleagues published their research article "Work environment, health outcomes, and magnet hospital traits in the Canadian nephrology nursing scene" in the January–March 2009 issue of the CANNT Journal.

King Tai Chan, recipient of the Certification/Recertification Bursary

By King Tai Chan, RN, CNeph(C), Staff Nurse, Hemodialysis Unit, Sunnybrook Health Sciences Centre, Toronto, Ontario



First of all, I am delighted to receive this CANNT award (Certification/ Recertification Bursary) of recertification

in nephrology nursing for the Canadian Nurses Association (CNA) CNeph(C) examination. Second, I strongly believe that, as nephrology nurses, we do need to be recognized as a specialty nurse within CNA for our profession.

It is my great pleasure to share my professional experiences with you. As a hemodialysis nurse for nine years at Sunnybrook Health Sciences Centre in Toronto, this job gives me a lot of opportunities to expose myself to different ideas on how to sustain the end stage renal disease patients' lives by providing hemodialysis care or serving as a bridge to facilitate the kidney transplantation when the opportunity presents itself.

I always strive to pursue my profession further by attending different kinds of conferences and seminars, which provide in-depth and most updated nephrology knowledge in the field. Patients will benefit, too, with nephrology nurses practising with knowledge. added Proactively participating in the patient council of our dialysis unit at Sunnybrook is another way I try to enrich my nephrology nursing experience. I have been a member of the council for several years and also a patient advocate. I believe I try to understand what is the most important in gaining the hemodialysis patient's trust and, at the same time, try to maintain harmony in the dialysis unit.

Barbara L. Paterson, recipient of the 2009 CANNT Manuscript Award

By Barbara L. Paterson, RN, PhD, Professor and Tier I Canada Research Chair in Chronic Illness, University of New Brunswick Faculty of Nursing, Fredericton, New Brunswick



I am a professor at the University of New Brunswick. I am also one of two nurses in Canada who is a Tier 1 Canada Research Chair. My area of expertise is chronic illness. The research that we presented in our manuscript in the second of two studies conducted with members of Elsipogtog First Nation in New Brunswick is about kidney disease. The first project, funded by the Atlantic Aboriginal Health Research Program, was designed to find out why so many people with chronic kidney disease in Elsipogtog First Nation were not following their plan of care, and what could be done about it. In that study, we identified a need for a toolkit that was designed to meet the needs of Aboriginal people receiving dialysis and their families. We also recognized that there was a need to teach health care practitioners who were unfamiliar with Aboriginal peoples about some of the common understandings and beliefs of many Aboriginal peoples.

The second project was funded by the Kidney Foundation of Canada. It entailed a group of community members who were people on dialysis, relatives of people on dialysis, or health care practitioners meeting with me and another academic over a two-year period to decide what to include in a toolkit for Aboriginal people on dialysis. We reviewed other materials (e.g., videos, books, pamphlets, websites) about dialysis and we looked at toolkits that had been developed for other purposes. We also conducted interviews with community members on dialysis, family members, elders, and health care practitioners to learn from them about what they viewed as essential in such a toolkit. In addition, we consulted with

experts in Aboriginal health and nephrology. Because we soon realized that we needed to narrow the limits of the toolkit to be manageable and to best meet the needs of the community, we restricted the toolkit to hemodialysis delivered in a dialysis unit and to the needs of people beginning or anticipating dialysis.

I was thrilled to learn that we were recipients of the award because it was recognition of the effort and commitment that the research team and the community of Elsipogtog First Nation have expended to make the toolkit accessible, relevant and culturally appropriate to the Aboriginal peoples of Canada. It provides us an opportunity to help health care practitioners to be aware of the toolkit, as well as the need for culturally relevant teaching materials. On behalf of our research team, I thank CANNT for the award and for the recognition of our efforts.

Editor's note: Barbara Paterson and her colleagues published their research article "Ripples in the water: A toolkit for Aboriginal people on hemodialysis" in this issue of the CANNT Journal.

Kimmy Lau, recipient of the CANNT 2009 Poster Award (1st place)

By Kimmy Lau, RN, MN, CNeph(C), Program Coordinator, York Central Hospital, York Region Chronic Kidney Disease Program, Ontario



It is a great honour for us to win first place for the CANNT 2009 Poster Award. I greatly appreciate the leadership team of the CKD program in the support of quality improvement projects and commitment of evidencebased practices. I extend my thanks to them and to our team. I started my nephrology nursing in 1989 at Toronto Western Hospital, as a staff nurse at the nephrology in-patient unit and from there I moved on to hemodialysis and home dialysis. I took up the challenge as the clinical practice leader of Vascular Access and Progressive Renal Insufficiency (PRI) Program at York Central Hospital in 2000. Recently, I assumed a new leadership role as the program coordinator for the PRI and home dialysis programs at York Central Hospital.

Our poster described the effectiveness of Hepatitis B vaccination at the Progressive Renal Insufficiency clinic. At the planning phase of the project, the interdisciplinary team was extremely worried about the availability of funding for vaccines. We explored several means of obtaining financial resources. We were so excited that the leadership team was very supportive throughout the process and was committed to providing quality care for our chronic kidney disease (CKD) patients. Despite the extra costs of the Hepatitis B vaccines for the PRI clinic, the CKD program absorbed all the expenses of the vaccines. The project was initiated in January 2007 to provide the vaccines to patients with estimated glomerular filtration rates (eGFR) less than 25 mL/min. A chart review was conducted during the same period of time in the hemodialysis unit to compare the results of patients who received the vaccination. The results are encouraging: they show that 92.8% of our PRI patients have converted after vaccination.

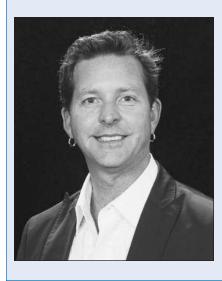
Dr. Charest's expertise and interest in the project have guided us on our path to success.

It is a great learning experience for me to lead the project. It is enlightening for our team when our passion and persistence in the pursuit of excellence in patient care have been rewarded. We are so excited to share our results with the renal community. The CANNT conference has provided the channel for us.

Editor's note: The title of her poster at CANNT 2009 was "Research dissemination to clinical practice: Hepatitis B vaccination program at the progressive renal insufficiency clinic."

Rick Luscombe, recipient of the CANNT 2009 Poster Award (2nd place)

By Rick Luscombe, RN, BSN, CNeph(C), Vascular Access, Clinical Nurse Leader, Vancouver Coastal, Providence Health Care, St. Paul's Hospital, Vancouver, British Columbia



On behalf of the in-centre hemodialysis program at St Paul's Hospital in Vancouver, British Columbia, I would like to extend our thanks and appreciation for awarding our poster, "Catheter tip design: A question of functionality" second place.

The idea for the poster came from a catheter trial. The hemodialysis program was looking to change our current catheter because our contract with the existing company was about to expire. We trialed numerous catheters from three different companies. After the trial was finished, I was curious to see if the design of the catheter,

regardless of the manufacturer, affected tissue plasminogen activator (tPA) usage. Comparing the different tip designs did show a difference in the amount of tPA used over a specific period of time.

Winning the award demonstrated to me that nursing research need not be daunting or laborious. Presenting a simple idea and reporting the results may help others wrestling with the same questions and problems.

Editor's note: The title of his poster at CANNT 2009 was "Catheter tip design: A question of functionality."

Nicole Aitken, Chris Horton, Debbie Norton, Cathy Nadiger and Elan Paluck, recipients of the CANNT 2009 Poster Award (3rd place)

By Cathy Nadiger, RN, BSN, CNeph(C), Renal Informatics Clinical Support, and Chris Horton, RN, Manager Integrated Renal Program, Regina Qu'Appelle Health Region, Regina, Saskatchewan



Debbie Norton, Nicole Aitken, Chris Horton, and Cathy Nadiger.

After establishment of our chronic kidney disease (CKD) program in 2001, a very detailed evaluation of the program

was undertaken in 2004. Patient referrals to our program had increased quickly and significantly during that time period.

Dr. Elan Paluck, a research scientist from the health region's research department, and Nicole Aitken, BA(HON), took the lead as we embarked on the project. The Saskatchewan Ministry of Health assisted us in setting our measurement criteria. All members of the interdisciplinary team were consulted throughout the entire evaluation process.

The evaluation demonstrated that we did achieve the goal of delaying the progression of renal disease in the CKD client population. We were encouraged that the results from our program reflected and supported previous research.

It is with extreme gratitude that our group accepts the Poster Award from the 2009 CANNT conference in St. Johns, New Brunswick. The recognition of our work is rewarding and motivates us to look at new opportunities to share our expertise.

Editor's note: The title of their poster at CANNT 2009 was "Delaying renal replacement therapy: Is dialysis destiny? Evidence from the Regina Qu'Appelle Health region (RQHR) chronic renal insuffiency (CRI) program population."

Sponsored by Amgen

Judith Ferguson, recipient of the International Nursing Conference Travel Grant

By Judith Ferguson, RN, CNeph(C), Staff Nurse, Peritoneal Dialysis Program, York Central Hospital, Richmond Hill, Ontario



My nursing career spans over 40 years and I've had the privilege of working with so many caring and talented professionals. I graduated from Toronto East General Hospital TEGH) School of Nursing from a three-year diploma program. Following graduation I remained for several years at TEGH working on the orthopaedic surgery floor and also taught orthopaedic nursing at Centennial College. From there I accepted a position on long-term care at York Central Hospital(YCH) and then transferred to the medicine program (oncology, neurology, and nephrology).

While working on the medical floor, I became interested in nephrology nursing and completed the nephrology courses at Humber College. For the last 10 years I've been working in the peritoneal fialysis program at YCH with a dedicated multidisciplinary team. In 2002, I wrote and passed my nephrology certification exam—CNeph(C).

In order to increase my knowledge base, I participate on committees in the dialysis program and have attended many conferences. I received the Registered Nurses Association of Ontario (RNAO) Fellowship for wound care and attended the International Wound Care Course at the University of Toronto.

I'm a member of CANNT and have assisted with two poster presentations at CANNT conferences ("Success at Home" and "Peritoneal Dialysis: Home Renovation—Our Story"). As well, I'm a member the City-Wide Peritoneal Dialysis Interest Group and participate monthly at meetings at University Health Network (UHN) working on best practice guidelines in peritoneal dialysis.

It has been my privilege to preceptor many nursing students—providing direction to, collaborating with, and sharing knowledge and expertise. In addition, I provide PD review for the nurses studying for their CNeph(C) exam. At present I'm involved with the development and implementation of peritoneal dialysis education sessions with Community Care Access Centres (CCACs) in the community.

It is a great honour to receive the Amgen Canada International Travel Grant Award. This grant will allow me to share knowledge learned to strengthen and build upon best practices within our peritoneal dialysis program and community.

Manon Campbell, recipient of the Nephrology Research Grant, Novice 2009

By Manon Campbell, RN, CNeph(C), Registered Nurse General Nephrology Clinic, Lead Nurse Telemedicine Program, Division of Nephrology at The Ottawa Hospital in Ottawa, Ontario/Infirmière autorisée en Clinique de néphrologie générale, Infirmière responsable du programme de télémédecine Division de néphrologie à l'Hôpital d'Ottawa, Ottawa, Ontario



As the recipient of the CANNT Novice Research Award, I would like to express my appreciation for a number of things. The financial component helps defray the costs associated with the study. The stamp of credibility it lends to the project is an affirmation that we are on the right track in our efforts to improve patient care. Finally, it is an encouragement for me, a regular RN, who has, up until this point, had no aspirations to pursue research.

My nursing career began in 1987 after obtaining a nursing sciences diploma in Ottawa. The neuro-surgical department of The Ottawa General Hospital was where I made my debut. A year later, the challenges in the neuro-

observation unit attracted me and I worked there until January 2000. A conversation with a former colleague from the neuro-observation unit about hemodialysis enticed me to work in that area. It was not without fear that I embraced this new challenge. The world of central lines, fistulas and grafts, air emboli dangers, exsanguinations from line disconnections and more, was daunting initially, but with support from my new colleagues, I gained the required knowledge, training and confidence. This experience was the catalyst that rekindled my enthusiasm for professional learning.

In October 2006, I obtained a position in the general nephrology clinics, which has proved to be a very rich environment for further professional development. Growth opportunities have included: acquiring the CNeph(C), attending CANNT and Telehealth conferences, becoming the lead nurse of the telemedicine program of the nephrology division, and participating in a wide variety of training sessions at The Ottawa Hospital.

The most exciting part of this learning journey has been my involvement in the telemedicine initiative. Briefly, this involves "realtime" videoconference visits between nephrologists, patients and nurses. In this model of care, patients have a strong sense that their needs have been given priority. They receive care close to home, avoiding the cost, inconvenience, and extra time spent on trips to the city. This improvement has served to strengthen the relationship of trust between patients and caregivers. It is my strong belief that once a trust relationship is established, patients are far more receptive to our teaching and far more likely to make the real lifestyle changes that will improve their health.

As I reflect on leading the telemedicine study project, it is clear that the business of pursuing models of excellent patient care is not the exclusive responsibility of the "experts". A regular, part-time nurse can learn to write a research proposal, construct a study, interview and video stakeholders, and observe positive changes in the delivery of patient care. I am truly thankful for the excellent help and support from my fellow professionals at TOH.

Obtaining the CANNT Novice Research Award is an honour that has encouraged, motivated and enabled me to transfer the insights and experiences gained within this telemedicine initiative to other programs at TOH and beyond. For all that, I am very grateful.

Kimmy Lau, recipient of the Nephrology Research Grant, Experienced

By Kimmy Lau, RN, MN, CNeph(C), Program Coordinator, York Central Hospital, York Region Chronic Kidney Disease Program, Richmond Hill, Ontario

I am honoured to be the recipient of the CANNT 2009 Amgen Nephrology Research Grant. The research study is on implementing and evaluating the effectiveness of self-management in the Progressive Renal Insufficiency (PRI) Program. It is guided by the principles of Chronic Care Model, which has been proposed by renowned practitioners and their research as a highly effective means of helping CKD patients to manage their chronic illness and a positive lifestyle.

By using the self-management theory for CKD patients, the interdisciplinary team of the progressive renal insufficiency clinic provides patient education to meet patient needs and guidance to patients in setting and achieving their self-management goals. In doing so, patients are involved in decisions in maintaining optimal health while managing their CKD. This is a paradigm shift in patient education.

Suzanne Seiler, recipient of the Preceptorship/Mentorship Grant, Vascular Access

By Suzanne Seiler, RN, Vascular Access Nurse Case Manager, Renal Program, London Health Sciences Centre, University Campus, London, Ontario



I am a registered nurse at London Health Sciences working in the hemodialysis unit in a variety of roles since 1985. For the past two years, I have held the role of vascular access nurse case manager at the University hospital site. I am also responsible for the South Street Dialysis Unit (in London, Ontario) and four satellite dialysis units. There is a full-time vascular access nurse case manager (Kari Matos) working at the Victoria Hospital site.

Kari and I co-chair the Vascular Access Interest Group. This group consists of nurses from the various London Health Sciences Centre (LHSC) dialysis units, as well as some of the satellite units. We also have nurse practitioners, educators, research and home hemodialysis nurses all being active participants of this group. This group meets regularly throughout the year to discuss a variety of access issues, which include new procedures, new products, conferences, etc. We have developed a multitude of presentations for CANNT, and various published articles. We have developed a wide range of policies for the hemodialysis units, and many pamphlets for patient use.

We are planning on using the money that was received from Amgen for funding nurses to attend a vascular conference in Toronto in the spring. We are hoping to help as many members of the Vascular Access Interest Group attend this conference as possible.

Isabelle Thibeault, recipient of the Preceptorship/Mentorship Grant, Nurse Practitioner

Par Isabelle Thibeault, IPS, MScN, infirmière praticienne spécialisée en néphrologie, unité d'hémodialyse, CSSS de Chicoutimi, Ville Saguenay, Québec



C'est en travaillant pendant près de trois ans dans un village autochtone chez les Cris de l'Est de la Baie-James (Chisasibi) que j'ai eu le goût de travailler en rôle élargi. J'exerce maintenant notre merveilleuse profession en tant qu'infirmière praticienne spécialisée (IPS) en néphrologie au Centre de Santé

et de Services Sociaux de Chicoutimi. Issue de la première cohorte d'IPS au Québec qui a été certifiée en octobre 2006, j'ai obtenu mon diplôme de Maîtrise en sciences infirmières (praticienne spécialisée en néphrologie) ainsi qu'un Diplôme d'études supérieures spécialisées en sciences infirmières (pratique spécialisée en néphrologie) à l'Université Laval. L'émergence de ce nouveau rôle de pratique infirmière avancée au Québec représente une solution novatrice pour améliorer l'accessibilité et la continuité des soins. Je participe activement au développement de la profession notamment en tant que représentante en néphrologie sur le comité exécutif de l'Association des Infirmières Praticiennes Spécialisées du Québec (AIPSQ).

L'hémodialyse est mon secteur d'activité et je suis entourée d'une équipe extraordinaire. J'assure un suivi et une présence constante sur le département pour pallier aux besoins des

patients hémodialysés et de leur famille ainsi qu'aux besoins des infirmières et autres professionnels de la santé qui nécessitent mon expertise. Un champ d'intérêt que j'ai particulièrement à cœur est l'accès vasculaire. Élément vital pour une hémodialyse de bonne qualité, l'accès vasculaire doit occuper une place ind éniable parmi les soins aux patients atteints d'insuffisance rénale terminale. Pas d'accès vasculaire efficace, pas de dialyse efficace. Ainsi, le type et la qualité de cet accès ont un impact majeur dans la thérapie de remplacement rénal pour le patient, que ce soit au niveau physique, psychologique et familial. D'importantes conséquences cliniques et socioéconomiques peuvent aussi être engendrées. Cette bourse me permettra d'assister à un congrès international sur l'accès vasculaire, contribuant ainsi à améliorer mes connaissances et mes compétences afin d'intervenir plus efficacement dans la gestion de la ligne de vie du patient hémodialysé.

CANNT Nominations

Call for nominations

The nominations committee is calling for nominations for the position of: President-Elect

> Vice-President Ontario Region Vice-President Western Region Vice-President of Technologists

Eligibility for office: Member in good standing.

General requirements:

Each candidate must:

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

Position descriptions:

- 1. **President-Elect:** Elected by membership for a period of one year after which he/she will become President, then Past-President. Assists the President in the overall administration of the Association while becoming familiar with the operation of CANNT in preparation to assume the presidency. The total commitment would be for a three-year period.
- 2. **Regional Vice-President:** Elected by membership for a two-year period. Promotes and facilitates the goals and objectives of the Association throughout the region. The Vice-President represents his or her region's concerns and acts as a liaison between the board of directors and the membership.
- 3. Vice-President of Technologists: Elected by membership for a period of two years. Promotes and facilitates the goals and objectives of the association. The Vice-President represents the concerns and addresses issues of the technologists on a local and national level to the board of directors.

Deadline for nominations is May 15, 2010. Information on candidates will be available online after May 15, 2010 and voting will take place online.

Please submit nominations to:

CANNT 336 Yonge St., Ste 222 Barrie, ON L4N 4C8 Telephone: 705-720-2819 Toll-free: 1-877-720-2819 Fax: 705-720-1451 E-mail: cannt@cannt.ca



Nominating Form

Position:

Name of Candidate:

Membership Number:

Nominated by*:

1. Name:

2. Membership Number:

*Nominations can only be made by current members.

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

Signature of candidate

Date:

Rev. 2010/01



Demande de mise en candidature

Poste :

Nom du/de la candidat(e) :

Numéro de membre :

Proposé par* :

1. Nom :

2. Numéro de membre :

*Les mises en nomination ne peuvent être faite que par les membres en règles.

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

Signature de/du la candidat(e)

Date : _

Nomination de l'ACITN

Appel de mises en candidature

Le comité de nomination lance un appel de mises en candidature pour les postes suivants: Président(e) élu(e) Vice-président(e) de l'Ontario Vice-président(e) de l'Ouest Vice-président(e) des Technologues

Critère d'éligibilité: Être membre en règle

Exigences générales :

Chaque candidat(e) doit :

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

Descriptions des postes :

- 1. **Président(e) élu(e)** : Élu(e) par les membres pour une période d'un an après quoi il/elle devient Président(e), puis Président(e) sortant(e). Aide le/la Président(e) dans l'administration générale de l'Association, tout en se familiarisant avec le déroulement des activités de l'ACITN dans le but d'assumer le rôle présidentiel.
- 2. Vice-président(e) régional(e) : Élu(e) par les membres pour une période de deux ans. Fait la promotion et facilite l'atteinte des buts et des objectifs de l'Association dans sa région respective. Représente les intérêts de la région et agit à titre de liaison entre le Conseil d'administration et les membres.
- 3. Vice-président(e) des Technologues : Élu(e) par les membres pour une période de deux ans. Fait la promotion et facilite l'atteinte des buts et des objectifs de l'Association. Représente les intérêts des technologues à l'échelle régionale et nationale au sein du Conseil d'administration.
- La date limite pour déposer les mises en candidature est le 15 mai 2010. Les informations concernant chaque candidat(e) seront accessibles en ligne après le 15 mai 2010 et le vote aura lieu en ligne.

Faites parvenir votre mise en candidature à:

ACITN 336 Yonge St. Ste 322 Barrie, ON L4N 4C8 Téléphone : 705-720-2819 Sans frais : 1-877-720-2819 Télécopieur : 705-720-1451 Courriel : cannt@cannt.ca

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, oneinch 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 e-mail 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?

E-mail 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

- $\sqrt{\text{Cover letter}}$
- √ 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 e-mail 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.

Prescribing Summary

Patient Selection Criteria

THERAPEUTIC CLASSIFICATION

Phosphate Binde 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.

뻥 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

rum 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 naused (25.3%), vomiting (24.4%), diarrhea (21.2%), headache (18.4%), dyspeptia (15.7%) and dysprea (15.7%). From this database, the most common adverse events from a single 52-week randomized clinical study of RENAGEL vs. calcium (calcium acteate 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.

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	

Renagel Tablets

Renagel® is a registered trademark of Genzyme Canada Inc. (sevelamer hydrochloride) Genzyme Canada Inc., Mississauga, ON L4W 4V9

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



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:

Sta	rting 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

Ш Study Reference

Renagel[®] product monograph, Genzyme Canada, October 2007.

ble 1: Adverse Events in Patients with End-Stage Renal Disease undergoing Hemodialysis (cont'd.)						
Skin Disorders						
Pruritus	10.4	13.1	9.9			
Respiratory, Thoracic and Mediastinal Dis	orders					
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 Administratio	n Disorders					

Dialysis Access Complication	4.3	6.1	10.9
Pyrexia	8.7	5.1	10.9
n one hundred and forty three patients with end-stage r			

revents reported at an incidence 210% 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 REMAGEL (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





TEGO[®] Connector

The Only Connector Cleared by the FDA Specifically for Hemodialysis.

Clinical findings have demonstrated the TEGO to be effective in preventing catheter related bloodstream infections (Jain, 2007) and suggest that the TEGO may be alternate choice to heparin in patients undergoing HD in an acute setting (Mehta, 2009).





Simple. Safe. Secure.



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First Name	□ I am a member of CNA			
Last Name	Ontario applicants only Do you belong to RNAO? Ves Do			
	Professional Status			
City Province Postal Code Telephone (H) () (W) () Fax () E-mail	 Professional Status Registered Nurse Registered Practical Nurse/Registered Nursing Assistant/ Licensed Practical Nurse Technician Technologist Other (Specify)			
Employer	Number of Years in Nephrolog	у		
Employer Address	Area of Responsibility Direct Patient Care Administration Technical	 Teaching Research Other (Specify) 		
Mailing Address Preferred	Work Environment Acute Care Self-Care Unit	 Independent Health Care Private Sector 		
CANNT # (if renewal)	What is Your Highest Level of			
Person who recommended joining CANNT:	<i>Nursing</i> Diploma	<i>Non-Nursing</i>		
Membership Fee (GST #100759869) Membership fee is tax deductible. One Year: \$70.00 + 3.50 GST = \$73.50	 Diploma Baccalaureate Master's Doctorate 	 Dipiona Baccalaureate Master's Doctorate 		
□ Two Years: \$130.00 + 6.50 GST = \$136.50 □ Student Rate: \$35.00 + 1.75 GST = \$36.75*	I am At Present Studying Toward:			
*Proof of full-time enrolment must accompany application. I enclose \$ made payable to Canadian Association of Nephrology Nurses and Technologists.	Nursing Specialty Certificate Baccalaureate Master's Doctorate	Non-Nursing Specialty Certificate Baccalaureate Master's Doctorate		
Method of payment:				
Cheque Money order Visa Mastercard Cardholder Name:	 Primary Area of Practice Progressive renal insufficiency (pre-dialysis) Transplantation 			
Visa Number:	 Hemodialysis Peritoneal Pediatrics 			
Expiry Date:	Greenatives			
Signature:				
□ I have attained CNeph(C)/cdt designation Year of designation	Return to CANNT Mailing Address:			
Professional registration #	Debbie Maure, CANNT,			
Date last renewed:	Suite #322, 336 Yonge St., Barrie, Ontario, L4N 4C8 Telephone (705) 720-2819 Fax (705) 720-1451			

Demande d'ad	hésion		
Prénom	Je suis membre de l'A		
Nom de famille	Demandeurs de l'Ontario seulement Faites vous partie de l'AOIA?		
Adresse à domicile			
	Oui I Non		
Ville	Statut professionnel		
Province Code postal	☐ Infirmière(ier) autorisée(sé)		
Téléphone (D) ()	□ Infirmière(ier) auxilaire		
(T) ()	autorisée(sé) / infirmière(ier) auxilaire I Technicienne / technicien		
Télécopieur ()			
-	Technologue		
Courrier électronique	Autre (spécifier)		
Employeur	Années d'éxperience en néphrologie		
Adresse de l'employeur	Domaine de responsabilité		
Ville	Soins directs	🗅 Enseignement	
Province Code postal	Administration	🖵 Recherche	
Adresse de correspondance 🖸 domicile 🖵 travail	Technologie	L Autre (spécifier)	
-	Milieu de travail		
Acceptez-vous que l'ACITN ajoute votre nom et votre adresse sur des listes d'envois qu'elle juge pertinentes et appropriées? Qui Q Non	Soins actifs	Services de santé indépendants	
□ Nouveau membre ou □ Renouvellement	Unité d'autosoins	Secteur privé	
Numéro de l'ACITN # (si renouvellement)	Plus haut niveau d'instruction?		
Nom de la personne qui vous a	Infirmière(ier)	Autres	
recommandé de joindre l'ACITN:	🖵 Diplôme	🖵 Diplôme	
Frais d'adhésion (TPS #100759869)	Baccalauréat	🖵 Baccalauréat	
Les frais d'adhesion sont deductibles d'impots.	Maîtrise	🗅 Maîtrise	
□ Un an: 70,00 \$ + 3,50 TPS = 73,50 \$	Doctorat	Doctorat	
Deux ans: $130,00 \$ + 6,50$ TPS = $136,50 \$$	Je poursuis présentement des études:		
□ Tarif étudiant: 35,00 \$ + 1,75 TPS = 36,75 \$* *La demande doit inclure une preuve d'inscription à plein temps	Domaine Infirmière(ier		
	Certificat	Certificat	
Je joins \$	Baccalauréat	Baccalauréat	
payable à l'ACITN. Mode de paiement:	□ Maîtrise	□ Maîtrise	
□ Chèque □ Mandat de poste ou chèque visé	Doctorat	Doctorat	
□ Visa □ Mastercard	Secteur de pratique spécialisé		
Nom du titulaire de la carte:	 Insuffisance rénale progressive (pré-dialyse) Transplantation 		
Numéro de la carte:	 Hémodialyse Péritonéale 		
Date d'expiration:	Pédiatrie Autre (spécifier)		
Signature:	Poster à ACITN		
□ J'ai obtenu la désignation CNeph(C)/cdt Année de désignation	Adresse postale :		
Numéro d'enregistrement professionel	Debbie Maure, ACITN, 336 Yonge St., pièce 322, Barrie (Ontario) L4N 4C8		
Date du dernier renouvellement :	Téléphone (705) 720-2819 Télécopieur (705) 720-1451		

Lignes directrices à l'intention des auteurs

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

Quels sont les sujets d'article appropriés ?

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

Quels types de manuscrits conviennent à la publication ?

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

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

Comment les manuscrits doivent-ils être présentés ?

Forme : Le manuscrit doit être présenté à double interligne avec une marge de 1 po et une numérotation consécutive des pages dans le coin supérieur droit de la page. Les articles plus formels de recherche ou d'études cliniques doivent compter de 5 à 15 pages. Les articles moins formels, tels que textes narratifs, questions-réponses ou revues, doivent compter moins de 5 pages. **Style :** Le style du manuscrit doit être conforme au **manuel de publication de l'Association américaine de psychologie** (AAP), 6^e 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.

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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.

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Aide-mémoire à l'intention des auteurs

- $\sqrt{}$ 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
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- Nom et adresse de l'employeur
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- Texte de l'article avec résumé, s'il y a lieu à double interligne et pages numérotées
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- Tableaux (un par page)
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- Lettre d'autorisation pour tout matériel ayant déjà fait l'objet d'une publication