CANNT|ACITN
Canadian Association of Nephrology Nurses and Technologists
l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie

CANNT JOURNAL
JOURNAL ACITN

Volume 31, Issue 4 October–December 2021

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CANNT | ACITN 2022

OCTOBER 27–29

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Canadian Association of Nephrology Nurses and Technologists
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OCTOBER–DECEMBER 2021 • VOLUME 31 • ISSUE 4

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JOURNAL ACITN

CONTENTS

IN EACH ISSUE:

The CANNT Journal is printed on recycled paper.

The CANNT Journal is the official publication of the Canadian Association of Nephrology Nurses and Technologists, 4 Cataraqui St., Suite 310, Kingston, ON K7K 1Z7, telephone: (613) 507-6053, fax: 1-866-303-0626, email: cannt@cannt.ca. Published quarterly, the journal is received by all members of CANNT. Subscriptions are: Canada $80.00 (plus HST), US. $90.00, Outside N. America $115.00. Back issues, when available, are $7.50 (+HST) per issue and are available from the editors. Opinions expressed by writers in the CANNT Journal are not necessarily those held by the editors or CANNT. Contrasting views by our readership and membership are welcome. All letters, comments and articles are to be sent to the CANNT office, 4 Cataraqui St., Suite 310, Kingston, ON K7K 1Z7.

1-877-720-2819
Website: www.cannt.ca

The CANNT Journal accepts articles (manuscripts) on an ongoing basis.

The CANNT Journal is indexed in the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the International Nursing Index (INI), MEDLINE, EBSCO, ProQuest and Thomson Gale.

ISSN 2291-644X (Online)
ISSN 1498-5136 (Print)

The CANNT Journal is produced by Pappin Communications,
www.pappin.com

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Letter from the Editors

Another challenging year has come and gone and, yet, COVID-19 remains an ever-present reality for all of humanity. CANNT has just delivered a successful virtual conference series for the second year in a row. Although having virtual meetings does not supplant face-to-face meetings, we have had to adapt to changing times under the spectre of the pandemic. It was no accident that the theme during the conference series that ran in October-December this year was *Resilience in a time of change*. The CANNT Board of Directors and the CANNT National Office (Events & Management Plus [EM+]) have worked very hard to provide members with quality initiatives that advance the members' collective professional practice throughout the year, and we are very proud to be part of this indefatigable team.

It takes a village to ensure the sustainability of the *CANNT Journal* and the quality work we showcase in every issue. It is our mandate to showcase excellence in nephrology nursing and technological writing. As such, we would like to thank the authors and contributors who have written and shared their unique research and practice interests in the *CANNT Journal*. Our viability as a journal also rests on the contributions of the manuscript peer reviewers, and our partnership and collaboration with Pappin Communications, EM+, and Lemieux Bédard—we thank them for their generosity of time, knowledge, and expertise. Last, we would like to acknowledge the journal readership for your interest and consumption of our quarterly offering. We encourage nephrology nurses and technologists to submit manuscripts for publication in the journal. These can be in the form of observational studies, clinical trials, case reports, literature reviews, solutions that address clinical practice issues, or quality improvement projects.

Indeed, for this issue, we look at a quality improvement initiative resulting from feedback from the dialysis nursing staff, that has important implications for patient safety. In their publication *A standardized approach for the post-operative management of hypocalcemia in dialysis patients with secondary hyperparathyroidism requiring parathyroidectomy*, Tran et al. (2021) share how such a standardized approach with an inpatient protocol has led to an improved model of kidney care in their facility. Managing hypocalcemia in such a setting can be challenging depending on the complexity of the patient presentation, but Tran et al. provide a viable mitigating strategy.

We are currently working on streamlining our manuscript submission and peer review processes—we will unveil these in early 2022. For now, on behalf of the *CANNT Journal* 'village,' we wish you and your loved ones a safe and meaningful holiday season.

Warm regards,

Jovina Bachynski, MN, RN(EC), CNeph(C), PhD(Student)

Rosa M. Marticorena, BScN, RN, CNS, CNeph(C), DClinEpi, PhD

Co-editors, *CANNT Journal*

Message des rédactrices en chef

Nous venons de passer une autre année difficile, et pourtant, la COVID-19 demeure une réalité bien concrète pour toute l'humanité. L'ACITN vient tout juste de tenir pour la deuxième année consécutive une ronde de conférences virtuelles qui a remporté un vif succès. Les événements virtuels ne remplacent évidemment pas les manifestations en personne, mais nous avons dû nous adapter aux changements imposés par la pandémie. Ce n'est d'ailleurs pas un hasard si le thème de la ronde de conférences tenue d'octobre à décembre était *Resilience in a time of change* (La résilience en période de changement). Le conseil d'administration et le bureau national de l'ACITN (Events and Management Plus, Inc. [EM+]) ont travaillé d'arrache-pied pour offrir tout au long de l'année des initiatives de qualité pour faire avancer les pratiques professionnelles collectives des membres, et nous sommes très fiers de faire partie de cette vaillante équipe.

Il faut tout un village pour assurer la pérennité de la *Revue de l'ACITN* et la qualité des travaux présentés à chaque édition. Notre mandat est d'exposer l'excellence en soins infirmiers en néphrologie et dans les écrits des technologues. Nous voulons donc remercier les auteurs et collaborateurs qui ont partagé leur expérience et leurs champs d'intérêt dans la revue. La viabilité de notre périodique repose aussi sur la contribution des pairs examinateurs des manuscrits et sur nos partenariats et notre collaboration avec Pappin Communications, EM+ et Lemieux-Bédard – nous les remercions pour le temps, les connaissances et l'expertise qu'ils nous offrent avec beaucoup de générosité. Enfin, nous tenons à remercier nos lecteurs de leur intérêt pour nos publications trimestrielles. Nous invitons les infirmières et infirmiers ainsi que les technologues en néphrologie à soumettre leurs manuscrits aux fins de publication. Il peut s'agir d'études observationnelles, d'essais cliniques, d'études de cas, de revues de la littérature, de solutions à des problèmes de pratique clinique ou de projets d'amélioration de la qualité.

Dans le présent numéro, nous nous penchons sur une initiative d'amélioration de la qualité inspirée des commentaires du personnel infirmier responsable de la dialyse qui a des répercussions importantes sur la sécurité des patients. Dans la publication *A standardized approach for the post-operative management of hypocalcemia in dialysis patients with secondary hyperparathyroidism requiring parathyroidectomy*, Tran et ses collaborateurs (2021) expliquent comment une approche normalisée appliquée à un protocole d'hospitalisation a amélioré le modèle de soins en néphrologie dans leur établissement. La prise en charge de l'hypocalcémie dans un tel contexte peut parfois être difficile selon la complexité du cas, mais Tran et ses collaborateurs suggèrent une stratégie d'atténuation viable.

Nous nous efforçons présentement d'harmoniser nos processus de soumission de manuscrit et d'examen par les pairs; nous les présenterons au début de 2022. Pour l'instant, au nom du « village » de la *Revue de l'ACITN*, nous vous souhaitons, à vous et à vos proches, un temps des Fêtes sécuritaire et mémorable.

Avec nos salutations les plus cordiales,

Jovina Bachynski
M. Sc. Inf., IP (soins aux adultes), inf. aut. (cat. sup.), CNéph(C), aspirante au doctorat

Rosa M. Marticorena
ICS, CNéph(C), D.E.S. Épidémiologie clinique, Ph. D.

Corédactrices en chef, Revue de l'ACITN

Le ***Journal ACITN*** est la publication officielle de l'Association canadienne des infirmiers/infirmières et technologues en néphrologie, a/s 4, rue Cataraqui, bureau 310, Kingston (Ontario) K7K 1Z7.

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Publié quatre fois par année, ce journal est envoyé à tous les membres de l'Association. L'abonnement annuel est: Canada, 80 $ (+TVH), E.-U., 90 $, hors du Canada et E.-U., 115 $. Les publications antérieures, lorsque disponibles, coûtent 7,50 $ (+TVH) chacune. Les opinions émises par les auteurs dans ce journal ne sont pas nécessairement partagées par l'Association ni par le corédactrices en chef. Nous invitons les lecteurs à nous faire part de leurs opinions. Toute correspondance devra être envoyée à l'ACITN, au 4, rue Cataraqui, bureau 310, Kingston (Ontario) K7K 1Z7.

1-877-720-2819
Site Web : www.cannt.ca

Le *Journal ACITN* accepte des articles (manuscrits) de façon continue.

Le *Journal ACITN* 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 2291-644X (En ligne)
ISSN 1498-5136 (Dans la presse)

Le *Journal ACITN* est préparé par Pappin Communications, www.pappin.com

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President's Report

It is with great pride that I present my inaugural message, as your new CANNT president for 2021–2023. As I write this message, we are embarking upon a new year, a time when we often look back over the past year and reflect. COVID-19 has certainly been on the forefront and will continue to be so for some time with the onset of the new COVID-19 variant Omicron. We are all becoming increasingly concerned, as Canada is on track to experience yet another resurgence. We have an important role to play to keep ourselves and our patients safe. We must continue to be diligent in our practices to protect ourselves, our families, as well as our nephrology communities. We must make every effort to ensure that we and our families are double vaccinated including boosters as they become available. We must educate our patients and their families regarding the importance of receiving the boosters, as well as vaccinating their children. With the holidays fast approaching, we must make sure that our plans are in keeping with the latest recommendations from health officials. CANNT will continue to support you by providing the latest updates on our website.

Our second annual Virtual Conference series was a resounding success with almost 200 attendees from both the professional and business worlds. We want to thank all the presenters for sharing their research and innovative practices to deliver the highest standards. We also want to thank our industry partners for their financial support, which made the conference possible. And last, but certainly not least, a big thank-you to our Events & Management Plus, Inc. team, led by Pam, Megan, Sarah, and Jennifer, who worked tirelessly behind the scenes with unparalleled attention to detail. CANNT thanks you, our readers, for your feedback, and will provide an analysis in the near future. This will help us ensure that your needs are being met and will help guide the topics for our future webinars in the new year. I also encourage you to reach out to CANNT through the office at cannt@cannt.ca or your CANNT regional representative with any topic or educational need you may have. We are happy to announce that we are planning our next conference in Hamilton for 2022, which we hope will be face-to-face. Please consider submitting an abstract about practices and research you want to share with others.

We will begin our strategic planning for the next couple of years over the next few months. We welcome our new members: Alicia Moonesar as President-Elect/Treasurer 2021-2023 and Jessica Andrews as Director of Communications 2021-2023. They both bring a wealth of knowledge and experience to keep our organization moving forward. Some initiatives we are continuing include finalizing the update to the CANNT 2015 *Nursing Recommendations for the Management of Vascular Access in Adult Hemodialysis Patients* and the publication of the first *Nephrology Nurse Practitioner Competencies*.

On behalf of the CANNT Board of Directors, we wish each and every one of you a healthy and happy new year, and we look forward to meeting you over the next year.

Cathy Cake,
CANNT President
2021–2023

Rapport de la présidente

C'est avec beaucoup de fierté que je vous écris pour la première fois à titre de nouvelle présidente de l'ACITN pour 2021-2023. L'année tirant à sa fin, nous sommes dans une période propice à la réflexion et à un retour sur les mois qui viennent de s'écouler. Dans la dernière année, la COVID-19 a certainement occupé une place centrale, et ce n'est pas terminé vu l'apparition du nouveau variant Omicron. L'inquiétude générale augmente alors que le Canada est à l'aube d'une nouvelle vague majeure de la maladie. En ce qui nous concerne, nous avons un rôle important à jouer pour nous protéger et pour protéger nos patients; il nous faut rester assidus dans nos pratiques de prévention, pour nous-mêmes, pour nos familles et pour les intervenants en néphrologie. Nous devons nous assurer du mieux que nous le pouvons que nos proches et nous-mêmes sommes adéquatement vaccinés, ce qui inclut l'administration de doses de rappels le temps venu. Nous devons sensibiliser nos patients et leurs familles à l'importance de ces doses de rappel et de la vaccination des enfants. À l'approche des Fêtes, nous devons veiller à ce que nos plans respectent les plus récentes recommandations des autorités sanitaires. L'ACITN continuera de vous soutenir en affichant les dernières nouvelles sur son site Web.

Notre deuxième ronde annuelle de conférences virtuelles a été une réussite incontestable en attirant près de 200 participants du monde professionnel et des affaires. Merci à tous les conférenciers d'avoir présenté leurs recherches et leurs pratiques novatrices qui permettent de répondre aux plus hautes normes de qualité. Merci aussi à nos partenaires de l'industrie d'avoir rendu ces événements possibles grâce à leur soutien financier. Enfin, nous ne pouvons passer sous silence le travail remarquable de notre comité organisateur, dirigé par Pam, Megan, Sarah et Jennifer, qui a démontré un souci du détail hors du commun. Pour terminer, l'ACITN tient à remercier ses fidèles lecteurs. Vos commentaires sont toujours les bienvenus et nous produirons bientôt une analyse pour mieux répondre à vos besoins et pour avoir une indication des prochains sujets de webinaires en prévision de la nouvelle année. Si vous avez des suggestions de sujet ou des besoins éducatifs particuliers, je vous invite aussi à les transmettre directement à l'ACITN, à l'adresse cannt@cannt.ca, ou à votre représentant régional. Par ailleurs, nous sommes heureux d'annoncer que nous planifions présentement notre prochain congrès, qui se déroulera à Hamilton en 2022 en espérant qu'il aura lieu en personne. Si vous souhaitez y présenter vos pratiques ou vos recherches, nous vous invitons à soumettre un résumé de vos travaux.

Dans les prochains mois, nous amorcerons notre planification stratégique pour les prochaines années. Nous souhaitons également la bienvenue à nos nouvelles membres : Alicia Moonesar à titre de présidente désignée et trésorière pour 2021-2023 et Jessica Andrews à titre de directrice des communications pour 2021-2023. Leur vaste expérience et leur savoir-faire contribueront à faire avancer l'organisation. Nous poursuivons certaines initiatives, entre autres la mise à jour des *Nursing Recommendations for the Management of Vascular Access in Adult Hemodialysis Patients*, publiées par l'ACITN en 2015, et la publication des premières *Nephrology Nurse Practitioner Competencies*.

Les membres du conseil d'administration de l'ACITN souhaitent à chacun d'entre vous une bonne et heureuse année et la santé, bien sûr! Au plaisir de vous revoir l'an prochain.

Cordialement,

Cathy Cake
Présidente de l'ACITN
2021-2023

NOTICE BOARD

	Spring 2022	Fall 2022
Initial exam or renewal by exam application window	**January 13–March 7, 2022**	**June 1–September 1, 2022**
Certification exam window	**May 1–15, 2022**	**November 1–15, 2022**
Renewal by continuous learning application window	**January 13–November 1, 2022**	

N.B. CNA will provide 20% discount for initial exam writers, renewal exam writers, and renewals by continuous learning in 2021 to active members of CANNT. Contact cannt@cannt.ca for the voucher code in 2022.

- **February 24–27, 2022**. International Society of Nephrology (Virtual/In-Person) World Congress of Nephrology 2022 (WCN'22). Kuala Lumpur Convention Center, Kuala Lumpur, Malaysia. **https://www.theisn.org/wcn/**
- **March 4–6, 2022.** Virtual Annual Dialysis Conference (ADC) 2022. **https://annualdialysisconference.org**
- **March 10, 2022**. World Kidney Day – *Bridge the Knowledge Gap to Better Kidney Care*. **https://www.worldkidneyday.org/2022-campaign/2022-wkd-theme/**
- **April 6–10, 2022**. National Kidney Foundation (NKF) Virtual Spring Clinical Meetings 2022. **https://www.kidney.org/spring-clinical**
- **May 19–22, 2022.** 59th European Renal Association (ERA) Congress | Paris & Virtual 2022. Paris Expo Porte de Versailles, Paris, France. **https://www.era-online.org/en/paris2022/**
- **May 22–25, 2022.** American Nephrology Nurses' Association (ANNA) National Symposium. Fort Worth Convention Center, Fort Worth, Texas. **https://www.annanurse.org/events/2022-national-symposium**
- **June 16–18, 2022.** Renal Society of Australasia (RSA) Annual Conference – *Reaching for the Top: Equity in Kidney Care*. Darwin Convention Centre, Darwin, Australia. **https://www.renalsociety.org/education/2022-conference/**
- **August 11–14, 2022.** International Society for Peritoneal Dialysis (ISPD) Congress Singapore 2022. Suntec Convention Centre, Singapore. **www.ISPD2022.com**
- **September 10–13, 2022.** 50th Annual European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA) International Conference: *50 Years of Commitment in Kidney Care*. De Doelen – the International Conference Centre, Rotterdam, the Netherlands. **https://www.edtnaerca.org/conferences/conferences-rotterdam-2022**
- **September 21, 2022.** Nephrology Health Care Professionals' Day (celebrated every third Wednesday of September annually)
- **October 27–29, 2022.** CANNT National Conference, Hamilton, Ontario
- **November 1–6, 2022.** American Society of Nephrology (ASN) 2022 Kidney Week. Orange County Convention Center, Orlando, Florida. **https://www.asn-online.org/education/kidneyweek/archives/future.aspx**

Nephrology Certification Registration Status Report 2021

Initial and Renewal by Exam to Renew in 2021	Renewal by Continuous Learning (CL) Hours	Total of Initials and Renewals	Due
80	52	132	186

Board in Action

The annual AGM was held virtually on November 30, 2021, and we thank you for your participation. We welcomed two new members Alicia Moonesar as President-Elect/Treasurer 2021–2023, and Jessica Andrews as Director of Communications 2021-2023. We look forward to working with them as we thank them for accepting these very rewarding positions. Our strategic plan will continue to focus on: communication, membership, education, professional practice, research, partnership, and maintaining the viability of our association.

MEMBERSHIP

Our membership has been hit hard due to the pandemic, but we are happy to report that currently we have 314 active members. This was largely due to our very successful Virtual Conference Series, which allowed research and innovative ideas to be shared and discussed among members. We thank everyone who presented and participated in this well-attended event. We will continue to offer educational and informative webinars in the new year, and welcome your input for future topic ideas. Please visit our website (**www.CANNT.ca**) to keep informed of all upcoming events and share your professional needs.

JOURNAL

Guidelines for journal article submission can be found under the *CANNT Journal* section on the CANNT website (**https://cannt-acitn.ca/cannt-journal/**). Please email your manuscripts to Rosa Marticorena or Jovina Bachynski at **CANNT.journal1@gmail.com**. The *CANNT Journal* is published four times a year in an electronic version. Scientific articles are peer reviewed, and manuscripts that present new clinical information or address clinical practice issues of special interest to nephrology nurses and technologists, are accepted. There is also the opportunity for industry partners for sponsored education and advertising.

COMMUNICATION

We continue to develop new strategies to promote engagement and communication of timely and relevant information with our members. The *CANNT Connection*, our bimonthly email, is one successful means of communication that provides strategic personalized information on a continual basis. If you have an idea, question, or an event to promote please contact Jessica Andrews, our Director of Communications.

CANNT website (**www.CANNT.ca**)
Twitter CANNT (@CANNT1)

FINANCES

We are a not-for-profit professional association with the objective of providing value to our members, which aligns with our mission and vision. We and our management team continue to explore collaborative and lucrative relationships to assist in the viability of our association.

At present, we have a healthy balanced budget with net assets totalling over $180,000. The Board will continue to watch all expenditures and endeavour to create new revenue streams.

Submitted jointly by,

Alicia Moonesar
CANNT President-Elect/Treasurer 2021–2023

and

Cathy Cake
CANNT President 2021–2023

PROFILING ...

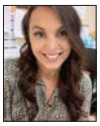
New CANNT Board Members

PRESIDENT-ELECT
ALICIA MOONESAR, MScN, NP-PHC, DNP CANDIDATE

Alicia Moonesar has held a number of leadership roles and faculty appointments at various healthcare organizations and academic institutions. Her most recent role as a nurse practitioner at Sunnybrook Health Sciences Centre and manager at Michael Garron Hospital and the University Health Network. Alicia is also pursuing a Doctor of Nursing Practice degree at Walden University.

Her distinctive passion and interests are in the areas of nursing leadership, expansion of safe practice settings, and quality of work life environments, with a distinct focus on excellence and safety in patient care. Her nursing experience includes progressive senior nursing management/leadership roles in nursing research and education within the acute, outpatient, and primary healthcare sectors. Her aspirations are to advance the nephrology practice and continue to advocate for healthy public policies on issues related to nursing and health care.

DIRECTOR OF COMMUNICATIONS
JESSICA ANDREWS, BN, RN, CNeph(C)



Jessica Andrews holds a Bachelor of Nursing degree and is currently completing a Master of Science in Nursing at Memorial University in St. John's, Newfoundland.

In her position as the new Director of Communications, Jessica plans to increase public awareness about CANNT. CANNT has so much to offer nephrology nurses all over the country, for example, educational, leadership, and conference opportunities. As such, Jessica aims to reach and recruit as many nurses as possible. As well, she loves to network and attend symposiums, and she looks at these as opportunities to collaborate with nephrology professionals all over Canada.

Votre conseil en action

L'assemblée générale annuelle s'est tenue en ligne le 30 novembre 2021 et nous tenons à vous remercier de votre participation. À cette occasion, nous avons accueilli deux nouvelles membres : Alicia Moonesar à titre de présidente désignée et trésorière pour 2021–2023 et Jessica Andrews à titre de directrice des communications pour 2021-2023. Nous avons hâte de travailler avec elles et nous les remercions d'avoir accepté ces postes très gratifiants. Notre plan stratégique continuera à privilégier la communication, les membres, la formation, la pratique professionnelle, la recherche, le partenariat et la pérennité de l'association.

MEMBRES

La pandémie a frappé nos membres de plein fouet, mais nous sommes heureux d'annoncer que l'association compte présentement 314 membres actifs. Nous sommes arrivés à ce résultat, entre autres, grâce à notre ronde de conférences virtuelles qui a connu un franc succès et qui nous a permis de faire connaître des travaux de recherche et des idées novatrices aux membres. Merci à tous ceux qui ont participé à ces événements rassembleurs et qui ont présenté leurs travaux. Nous continuerons d'offrir des webinaires éducatifs et informatifs dans la nouvelle année, et nous vous invitons à nous faire part des sujets qui pourraient vous intéresser. Rendez-vous sur notre site Web (**www.CANNT.ca**) pour connaître tous les événements à venir et nous communiquer vos besoins professionnels.

REVUE

Vous trouverez la marche à suivre pour soumettre un article à publier dans notre revue sous l'onglet « Publications », section *CANNT Journal*, du site Web de l'ACITN (**https://cannt-acitn.ca/cannt-journal/**). Veuillez faire parvenir vos articles à Rosa Marticorena ou à Jovina Bachynski à l'adresse **CANNT.journal1@gmail.com**. La Revue de l'ACITN est publiée quatre fois par année sous forme électronique. Les articles scientifiques sont examinés par des pairs, et les articles qui portent sur de nouvelles données cliniques ou qui traitent de sujets en rapport avec la pratique clinique et présentant un intérêt particulier pour les infirmières et infirmiers et les technologues en néphrologie sont acceptés. Nos partenaires de l'industrie ont également la possibilité de commanditer des activités de formation ou de la publicité.

COMMUNICATION

Nous continuons d'élaborer de nouvelles stratégies pour promouvoir l'engagement de nos membres et leur communiquer des renseignements pertinents en temps opportun. Le *CANNT Connection*, notre bulletin d'information par courriel bimensuel, est un moyen de communication efficace qui fournit des renseignements stratégiques personnalisés en continu. Si vous avez une idée, une question ou un événement à promouvoir, veuillez communiquer avec Jessica Andrews, notre directrice des communications.

Site Web de l'ACITN (**www.CANNT.ca**)
Twitter CANNT (@CANNT1)

FINANCES

Nous sommes une association professionnelle sans but lucratif et notre objectif est d'offrir à nos membres une valeur ajoutée qui concorde avec notre mission et notre vision. L'équipe de direction et l'équipe des finances continuent de travailler à la création de nouvelles relations collaboratives et lucratives afin d'assurer la viabilité de l'association.

Nous avons en ce moment un budget bien équilibré, notre actif net totalisant plus de 180 000 $. Le conseil d'administration continuera de surveiller toutes les dépenses et initiatives pour créer de nouvelles sources de revenus.

Soumis conjointement par,

Alicia Moonesar
Présidente désignée et trésorière de l'ACITN 2021–2023

et

Cathy Cake
Présidente de l'ACITN 2021–2023

A standardized approach for the post-operative management of hypocalcemia in dialysis patients with secondary hyperparathyroidism requiring parathyroidectomy

By Jaclyn Tran, Maria Harlow-Gillighan, Benjamin Taylor, Marsha Wood, Carolyn Bartol, Steven Soroka, Kenneth West, and Jo-Anne Wilson

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We received funding to hire a pharmacy student to support this project from the Bone and Mineral Disorder (BMD) quality team, Central Zone, Nova Scotia Health Renal Program. The authors would like to acknowledge Alyson Lamb, RN, MN, MHA, former Health Service Manager for Otolaryngology (inpatient and ambulatory care) at Nova Scotia Health, Halifax, Nova Scotia, for feedback and support with this project.

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ABSTRACT

Dialysis patients with severe secondary hyperparathyroidism may require surgical parathyroidectomy. Hungry bone syndrome is a serious post-operative complication characterized by profound and prolonged hypocalcemia. This article describes an evolving quality initiative undertaken to improve post-operative patient care in dialysis patients after parathyroidectomy. Nephrology and otolaryngology stakeholders reviewed the evidence in the literature and current practice in Canada. A standardized approach for the management of hypocalcemia in dialysis patients after parathyroidectomy was developed and implemented using a pre-printed order (inpatient protocol), a calcium monitoring tool, and patient education materials. An evaluation of the inpatient protocol was conducted for continuous quality improvement. Standardization of the post-operative management of hypocalcemia (inpatient protocol) led to improved patient care, which is demonstrated by a reduction in the extent of hypocalcemia, duration of hospitalization, and readmission to hospital.

Keywords: total parathyroidectomy, dialysis, chronic kidney disease, hypocalcemia, quality improvement

In patients with kidney failure requiring maintenance dialysis, secondary hyperparathyroidism (SHPT) occurs due to abnormalities in mineral and bone metabolism, including hyperphosphatemia, vitamin D insufficiency, and hypocalcemia (Kidney Disease: Improving Global Outcomes CKD-MBD Update Work Group [KDIGO], 2017). The development of SHPT is associated with a marked increase in morbidity and mortality (Block et al., 2004; Ganesh et al., 2001; KDIGO; Soohoo et al., 2017; Tentori et al., 2015). Management includes the optimization of biochemical laboratory parameters such as calcium, phosphate, and intact parathyroid hormone (iPTH). This is accomplished through diet modifications and medication adjustments, including phosphate binders, vitamin D analogues, and/or calcimimetics (Khwaja & Salam, 2021; Holden et al., 2020; KDIGO; Lau et al., 2018). In severe cases, such as those with nodular hyperplasia (Cunningham et al., 2011; Rodriguez et al., 1999), patients can experience debilitating, treatment-resistant SHPT, and may ultimately require surgical parathyroidectomy (Khwaja & Salam; Holden et al.; KDIGO; Lau et al.). Although parathyroidectomy rates have decreased since the approval of cinacalcet (a calcimimetic) in 2004, the rate remains approximately 7.5 per 1,000 patient years in the United States and Canada (Tentori et al.).

Following total parathyroidectomy, there is a rapid reduction in iPTH and a resulting shift in calcium from the serum to the bones (Jain & Reilly, 2017). Hypocalcemia can be mild in nature or can be severe and prolonged (Jain & Reilly). Specifically, hungry bone syndrome (HBS) has been described in the literature as a dramatic drop of serum calcium to less than 2.1 mmol/L and/or prolonged hypocalcemia for more than four days after parathyroidectomy (Ho et al., 2017; Jain & Reilly; Lau et al., 2018). HBS occurs in up to 88% of dialysis patients after total parathyroidectomy (Ge et al., 2019), and has been associated with increased length of hospital stay, intolerable pill burden, and fatality (Anwar et al., 2018; Ho et al.; Radu et al., 2019). There are inconsistent recommendations in the literature guiding the management of hypocalcemia, in dialysis patients (Cozzolino et al., 2004; National Kidney Foundation [NKF], 2003; Kang et al., 2015; Vallée et al., 2007; Mazzaferro et al., 2000). In general, "high doses" of calcium and vitamin D analogues post-parathyroidectomy are required (Lau et al.), but formulations, doses, and durations of therapy vary (Cozzolino et al.; NKF; Kang et al.; Vallée et al.; Mazzaferro et al.). In the advent of improving patient safety, the aim of this quality improvement project was to review the post-operative management of hypocalcemia in dialysis patients with SHPT who undergo total parathyroidectomy, at the Queen Elizabeth II (QEII) Health Sciences Centre, Halifax, Nova Scotia. The Bone and Mineral Disorder (BMD) quality team, in the Central Zone, Nova Scotia Health Renal Program, reviewed the available literature, engaged in discussions with other Canadian dialysis programs, consulted with local experts in nephrology and otolaryngology, and interviewed patients for feedback on a standardized approach to the management of hypocalcemia in maintenance dialysis patients after total parathyroidectomy. Quarterly BMD quality team meetings provided a forum for interprofessional collaboration and facilitated ongoing Plan Do See Act (PDSA) cycle reassessments for continuous quality improvement.

DESCRIPTION OF THE PRACTICE

The Nova Scotia Health (NSH), Central Zone Renal Program provides maintenance dialysis to approximately 550 patients in urban and rural in-centre dialysis units or at home (hemodialysis and peritoneal dialysis). Approximately six of these patients undergo total parathyroidectomy annually. The surgeries take place at the QEII Health Sciences Centre, which is a large tertiary care teaching hospital, affiliated with Dalhousie University, in Halifax, Nova Scotia. Patients are admitted to hospital under the direct care of an attending otolaryngology-head and neck surgeon, resident doctors, and interprofessional team. The nephrology team is consulted during the admission to coordinate dialysis and to provide support to the surgery team (i.e., laboratory monitoring and corresponding medication adjustments).

Between June and September 2016, three dialysis patients underwent total parathyroidectomy and developed profound hypocalcemia. Orders for laboratory investigations and medication prescriptions varied from one physician to another within each specialty. Post-operative dose escalations of oral calcium and vitamin D analogues resulted in significant pill burden for patients at hospital discharge. For example, one patient was finally prescribed a daily dose of thirty-two grams of oral elemental calcium daily (64 tablets, 500 mg each), which was intolerable upon discharge home. Concomitantly, this patient also received high doses of vitamin D analogue therapy (calcitriol) in hospital, with a maximum daily dose of 24 micrograms (mcg) daily. This patient required readmission to hospital for an additional two weeks for management of severe hypocalcemia. All three patients continued to experience hypocalcemia after discharge and required frequent medication adjustments in the dialysis units.

INTERVENTION

After reviewing these cases, the BMD quality team collaborated with colleagues from otolaryngology to develop a new post-operative model of care for dialysis patients undergoing surgical parathyroidectomy, which included an inpatient protocol for the management of post-operative hypocalcemia (Appendix A), a post-parathyroidectomy calcium monitoring tool for the dialysis units (Appendix B), and an updated patient pamphlet, entitled *Parathyroidectomy and Kidney Disease*, which included a medication table for patient education (Appendix C). The monitoring tool was requested by nephrology nurses. It was trialed and reviewed by stakeholders prior to submission for publication as an official NSH form. After patients are discharged from hospital post-parathyroidectomy, this tool is utilized by nurses and prescribers in the dialysis units when monitoring calcium levels and corresponding medication changes, as required over time. The patient pamphlet incorporated feedback from patients and included a customizable medication table. This table can be updated to communicate medication order changes for calcium and vitamin D analogues.

The first component of the inpatient protocol included scheduled laboratory monitoring for iPTH, ionized calcium (iCal), magnesium, phosphate, and electrolytes. Ionized calcium was identified as the preferred calcium test by stakeholders. The Canadian Society of Nephrology (CSN) suggests ordering ionized calcium when a precise measurement of calcium is required (Holden et al., 2020) and the NKF (2003) CKD-MBD guideline suggests ordering ionized calcium post parathyroidectomy for SHPT. Although HBS is often defined by hypocalcaemia parameters (Ho et al., 2017; Jain & Reilly, 2017; Lau et al., 2018), hypomagnesemia, hypophosphatemia, and hyperkalemia can also occur (Lau et al.), and require daily monitoring post-parathyroidectomy.

Post-operatively, the protocol-implemented guideline recommended doses for oral calcium (NKF, 2003) in combination with an aggressive approach to vitamin D analogue therapy. Although use of vitamin D analogues after parathyroidectomy is suggested in the literature, the optimal starting dose is not known (Viaene et al., 2008).

Post-parathyroidectomy, there are varying vitamin D analogue regimens (Cozzolino et al., 2004; Kang et al., 2015; Vallée et al., 2007; Yang et al., 2009; Tan et al., 2017; Wong et al., 2020), in doses of up to 4 mcg daily of calcitriol or alfacalcidol (Cozzolino et al.; Mazzaferro et al., 2000; Niramitmahapanya, Sunthornthepvarakul, et al., 2011; Niramitmahapanya, Sirirachta, et al., 2014). From an efficacy and safety perspective, Mazzaferro et al. suggested that in the initial post-operative period, vitamin D analogue therapy improved the luminal absorption of calcium and did not affect bone cell activity. Prior to protocol development in 2016, the three patients we reviewed were started on low doses of both oral calcium and vitamin D analogues; however, doses of both drugs escalated dramatically by the time of discharge from hospital, especially oral calcium. The goal of this aggressive approach with vitamin D analogue therapy would be to prevent this extreme oral calcium dose escalation in hospital, and ultimately, to improve patient tolerance. Lastly, the protocol promotes prompt repletion of calcium with parenteral calcium gluconate, as needed for hypocalcemia or symptoms of hypocalcemia, in addition to the oral calcium and vitamin D analogue.

The remaining components of the inpatient protocol promoted patient safety by outlining mandatory criteria for discharge (maintaining iCal above 1 mmol/L for a minimum duration without IV calcium administration); coordinating discharge planning between the otolaryngology and nephrology services; and ensuring that patients had access to oral calcium and vitamin D analogue medications (Appendix A).

This protocol was developed and trialed between October 2016 and January 2018. During this phase onwards, a renal pharmacist was consulted to see each patient with SHPT undergoing total parathyroidectomy to ensure the principles of the protocol were appropriately applied and to ascertain frequent feedback from team members and patients on essential protocol components. Suggested revisions were formally discussed with the BMD quality team at quarterly meetings. The final protocol was electronically available as a pre-printed order on January 25, 2018, at the QEII Health Sciences Centre, Halifax, Nova Scotia (Appendix A).

A timely evaluation of this inpatient protocol was planned to ensure patient safety. Based on the annual number of total parathyroidectomy surgeries in this patient population, the sample size was expected to be small. Specific outcomes included the extent of post-operative hypocalcemia (iCal), average doses of calcium and vitamin D analogues during admission and at the time of discharge, length of hospital stay, incidence of hypocalcamia after discharge (iCal below the laboratory specified normal range: 1.16–1.32 mm/L), and readmission for hypocalcemia within 30 days. Pre- and post-operative iPTH levels were collected to compare the severity of SHPT and impact of surgical parathyroidectomy. This project was deemed a quality improvement initiative and received a letter of exemption from the NSH Research Ethics Board (REB). In June 2018, a pharmacy student was hired for support with retrospective data collection and organization.

EVALUATION OF THE PRACTICE CHANGE

Twelve dialysis patients underwent total parathyroidectomy between June 2016 and July 2018, and were evaluated in three groups: three patients pre-protocol (June to September 2016, n = 3), six patients during protocol development (October 2016 to January 2018, n = 6), and three patients post-protocol (February to July 2018, n = 3). Baseline demographics are summarized in Table 1. There were equal numbers of male and female patients. Average patient age and dialysis vintage were 49.1 and 4.1 years, respectively. Pre-operatively, most patients were prescribed calcium-based phosphate binders, vitamin D analogues and cinacalcet (Table 1). The average pre-operative serum calcium was 2.4 mmol/L and iPTH 284.3 pmol/L. All parathyroidectomy surgeries revealed significant reductions in average iPTH post-operatively (Table 2).

The lowest average iCal values observed during admission and on the day of discharge were recorded pre-protocol (0.73 mmol/L and 0.99 mmol/L) and compared to protocol development (0.88 mmol/L and 1.18 mmol/L) and post-protocol (0.93 mmol/L and 1.23 mmol/L) (Table 2). Length of hospital stay was 10.3 days pre-protocol, 8.5 days during protocol development, and 6 days post-protocol. Although all patients experienced episodes of hypocalcemia after discharge, only one patient was readmitted for hypocalcemia within 30 days (pre-protocol).

Table 1

Baseline Characteristics

Characteristic	Value (*n* = 12)
Age in years, average (range)	49.1 (22–69)
Male sex, *n* (%)	6 (50.0)
Charleston Comorbidity Index, average (range)	4.3 (2–10)
Dialysis duration in years, average (range)	4.1 (2–8)
Preoperative lab data (normal range), average (range)	
Calcium (2.2–2.6 mmol/L)	2.4 (1.8–3.0)
Albumin (35–50 g/L)	34.9 (31–41)
Phosphorus (0.74–1.52 mmol/L)	1.9 (0.9–2.7)
iPTH (1.9–8.7 pmol/L)	284.3 (76.9–687)
Phosphate binders, *n* (%)	
Calcium containing	10 (83.3)
Sevelamer	6 (50.0)
Vitamin D, *n* (%)	
Alfacalcidol PO	9 (75)
Calcitriol IV	1 (8.3)
None	3 (25)
Cinacalcet, *n* (%)	8 (66.7)

CKD = chronic kidney disease; iPTH = intact parathyroid hormone; PO = oral; IV = intravenous

Table 2

Mineral and Bone Disorder Laboratory Parameters and Length of Hospital Stay

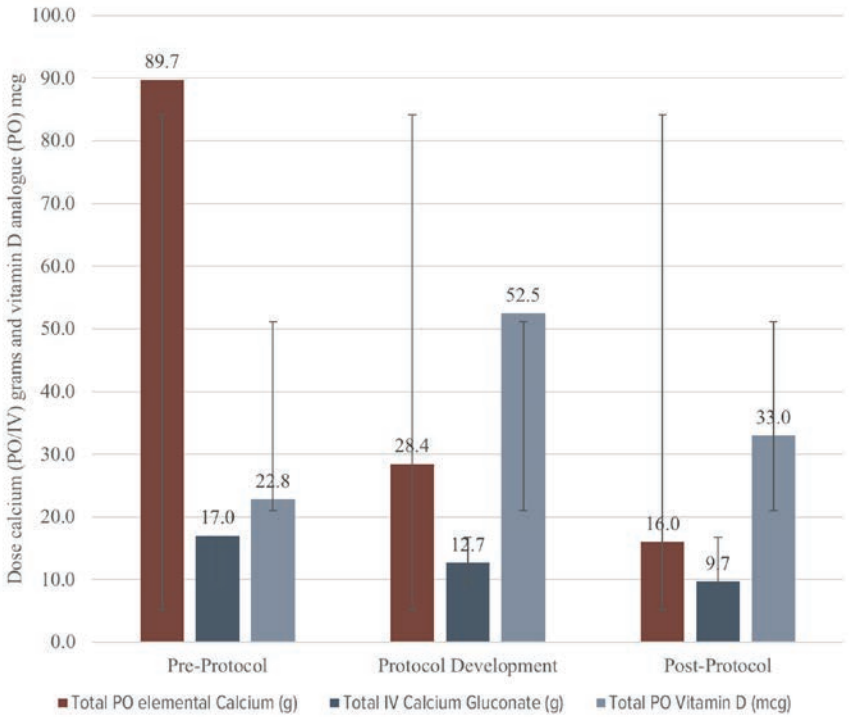
	Pre-Protocol (*n* = 3) Average ± SD (Range)	Protocol Development (*n* = 6) Average ± SD (Range)	Post-Protocol (*n* = 3) Average ± SD (Range)
Lowest iCal during admission (mmol/L)	0.73 ± 0.06 (0.67–0.79)	0.88 ± 0.19 (0.62–1.11)	0.93 ± 0.22 (0.73–1.16)
Lowest iCal on day of discharge (mmol/L)	0.99 ± 1.01 (0.92–1.12)	1.18 ± 0.16 (1.01–1.44)	1.23 ±0.04 (1.20–1.27)
Pre-operative iPTH (pmol/L)	357.83 ± 248.1 (155.7–687.0)	222.4 ± 133.3 (76.9–427.5)	334.5 ± 246.7 (143.4–612.8)
Post-operative lowest iPTH (pmol/L)	1.5 ± 1.91 (0.4–3.8)	6.33 ± 7.49 (0.4–19.3)	3.6 ± 5.5 (0.4–10.0)
Length of hospital stay (days)	10.3 ± 8.8 (7–15)	8.5 ± 3.9 (4–15)	6 ± 2 (4–8)
30-day readmission to hospital	1 patient	None	None

iCal = ionized calcium (normal range for iCal = 1.16-1.32 mmol/L); iPTH = intact parathyroid hormone (normal range for iPTH = 1.9-8.7 pmol/L); SD = standard deviation

The average total doses of oral elemental calcium, IV calcium gluconate, and oral vitamin D analogue were compared between groups (Figure 1). At the pre-protocol stage, patients received more oral and IV calcium during hospital admission based on average total doses (89.7 g oral and 17.0 g IV) compared to protocol-development (28.4 g oral and 12.7 g IV) and post-protocol (16.0 g oral and 9.7 g IV). In contrast, patients received higher average total vitamin D analogue doses during protocol development (52.5 mcg) and post-protocol (33.0 mcg) compared to pre-protocol (22.8 mcg). There was limited use of IV vitamin D analogue therapy pre-protocol or during protocol-development, and no orders for IV vitamin D analogue post-protocol. Patients were discharged on lower average daily doses of oral calcium during protocol development and post-protocol (4.6 g and 3.6 g daily) versus pre-protocol (17.3 g). There were higher average daily doses of vitamin D analogues prescribed at discharge in patients during protocol development and post-protocol (7.7 mcg and 7.3 mcg) compared to the pre-protocol (3.7 mcg).

Figure 1

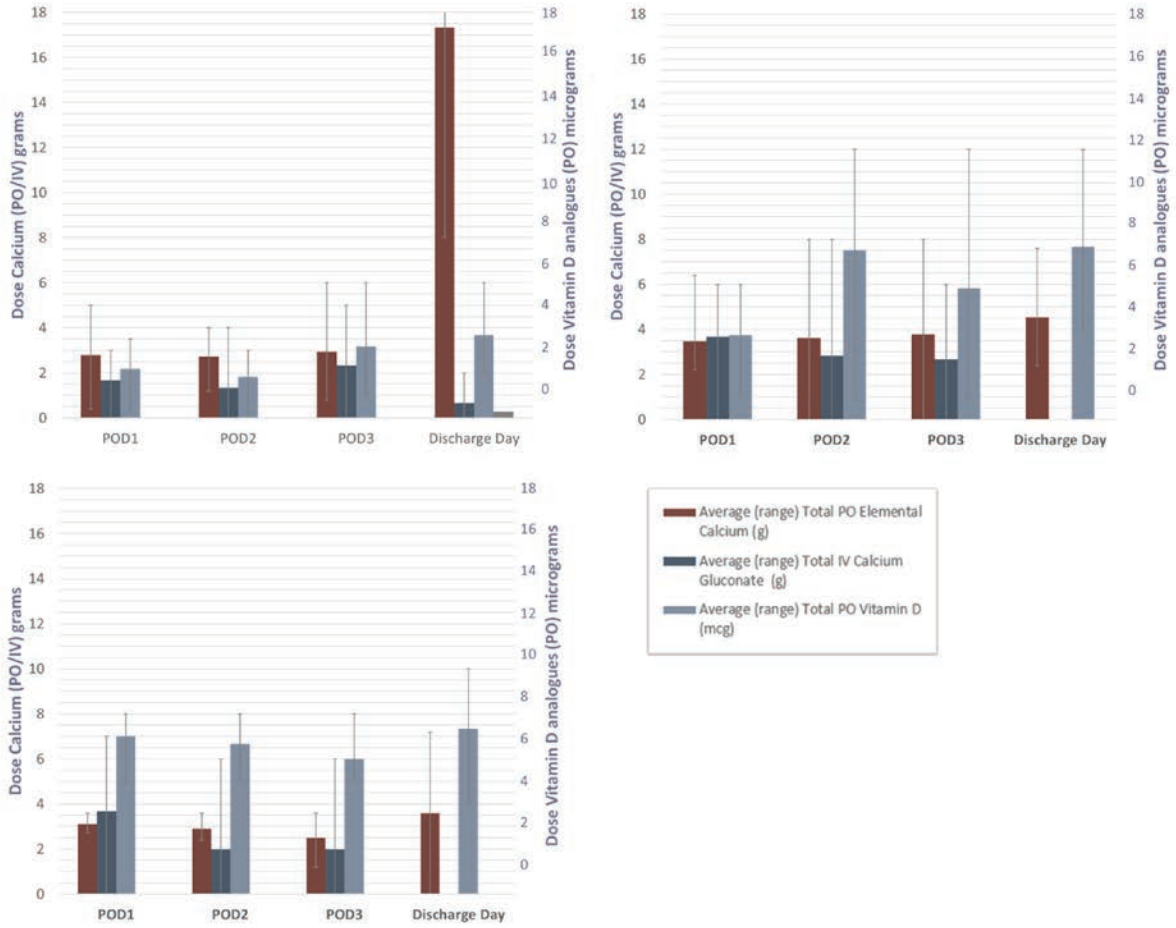
Average Total Doses of Elemental Oral Calcium, IV Calcium, and Oral Vitamin D Analogues During Hospital Admission



Note. PO = oral; IV = intravenous

Figure 2

Comparison of Average Daily Doses of Total Oral Elemental Calcium, Total IV Calcium, and Total Oral Vitamin D Analogue per Post-operative Day per Period of Protocol Implementation



Note. 1 g of IV calcium gluconate is equivalent to 0.093 g of elemental calcium
A = Pre-protocol (n = 3); B = Protocol Development (n =6); C = Post-protocol (n = 3); POD = Post-operative Day; PO = oral; IV = intravenous

IMPLICATIONS AND SIGNIFICANCE FOR PRACTICE

This interprofessional quality initiative evolved in response to significant patient safety concerns in three dialysis patients who developed hypocalcemia after total parathyroidectomy. A standardized post-operative model of care was developed and implemented, including an inpatient protocol (pre-printed order set), an outpatient monitoring form, and an updated patient pamphlet. The overall process was regularly reviewed for continuous quality improvement during quarterly BMD quality team meetings and an evaluation of the inpatient protocol was conducted in 2018. Positive safety findings in this small sample included an observed improvement in post-operative hypocalcemia (higher average iCal nadirs), a corresponding reduction in IV calcium use, a potential reduction in hospital length of stay, and an avoidance of 30-day readmission to hospital for hypocalcemia. Although this quality initiative was limited by a small sample size that rendered it inadequately powered to detect a statistical significance between groups, the overall trends suggest improvement in patient safety.

The backbone of this protocol included guideline recommended doses for oral calcium (NKF, 2003) in combination with aggressive vitamin D analogue therapy. The basis of this approach was informed by local practice, expert opinion, and available literature (Cozzolino et al., 2004; Mazzaferro et al., 2000; Niramitmahapanya, Sunthornthepvarakul, et al., 2011; Niramitmahapanya, Sirirachta, et al., 2014). Our findings align with two small studies from Thailand, which suggest that an aggressive initial approach with vitamin D analogue therapy may minimize the severity of hypocalcemia and/or potentially reduce the IV calcium requirements after parathyroidectomy (Niramitmahapanya, Sunthornthepvarakul, et al.; Niramitmahapanya, Sirirachta, et al.). Although these single-centre studies from Thailand are limited by small sample sizes, it is reassuring to see that similar approaches are

currently being explored with vitamin D analogue therapies. As expected, this protocolized approach led to higher average doses of vitamin D analogues and lower doses of oral calcium prescribed at discharge, which would allow for a marked reduction in calcium pill burden, and potentially less out-of-pocket costs for patients.

As a result of the strict discharge criteria in the protocol, calcium levels were more stable at the time of discharge post-protocol. Standardized patient education was provided with the new patient pamphlet (containing a medication chart), and a take-home supply of medications was offered to prevent delays in therapy. Collectively, these measures appear to improve patient safety, which is reflected by the higher average iCal values at discharge and from the absence of readmission to hospital for hypocalcemia after protocol implementation. Although our numbers are small and we did not perform a cost-savings analysis, avoiding hospital readmission (or reducing length of stay) could result in significant cost savings to the health care system (Canadian Institute for Health Information, 2020). The timely collection of results validated this new model of care and encouraged the early adoption of the inpatient protocol at our institution; however, it also limited the sample size. For this reason, quality assurance initiatives are underway to monitor the sustained impact of the inpatient protocol on patient care and to evaluate the significance of these initial observations. Ongoing collaboration between the nephrology and otolaryngology services continues in the care of patients with SHPT who require surgical parathyroidectomy and now extends beyond the scope of this article.

CONCLUSION

A quality improvement initiative was identified by the NSH Renal Program BMD quality team to improve the post-operative management of hypocalcemia in dialysis patients after total parathyroidectomy. Leadership from the BMD quality team fostered extensive interprofessional collaboration across the departments of medicine and surgery, with involvement from pharmacy, nursing, and medicine colleagues. This initiative, which began as a result of feedback from dialysis nurses, led to the development, implementation, and evaluation of an improved model of care. Standardizing the post-operative management of hypocalcemia with an inpatient protocol appears to improve patient safety. A larger, prospective, multi-centred study is required to evaluate the significance of these observations in clinical practice.

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Appendix A

Pre-printed Order for Post-operative Parathyroidectomy – Calcium Management in a Dialysis Patient

PRE-PRINTED ORDER

Otolaryngology, Nephrology

Post-operative Parathyroidectomy –
Calcium Management in a Dialysis Patient

Patient: _____ Allergies: _____

Items preceded by a **bullet** (•) are active orders. Items preceded by a **checkbox** (☐) are only to be carried out if checked

1. **Laboratory Investigations**
   - Post-op in Post Anesthesia Care Unit (PACU) - iPTH and ionized calcium
   - Ionized calcium q _____ h (At least twice daily: 06:00 and 14:00) To be adjusted at prescriber's discretion.
   - Daily – magnesium, phosphate, electrolytes

2. **Monitoring**
   - Routine Vitals
   - Hypocalcemia symptoms with routine vitals (e.g. tingling, muscle cramps, numbness in hands / feet or around mouth)
   - Page on-call resident if experiencing hypocalcemia symptoms or ionized calcium less than 1 mmol/L. (See reverse for IV calcium gluconate dosing; separate order required)

3. **Medications**
   - Discontinue sevelamer, lanthanum, cinacalcet and all previous calcium orders.

   Start when patient able to take oral medications

   Oral Calcium Supplement (Choose one only)

   ☐ Calcium (elemental) chewable 900 mg po tid between meals (Tums Extra Strength)

   OR

   ☐ Other _____ Reason _____

   Vitamin D Analogue

   ☐ Alfacalcidol 4 mcg po bid (Note: Requires liver activation. In liver disease, use calcitriol (see reverse).

   OR

   ☐ Other _____ Reason _____

4. **Discharge Planning**
   - Plan for discharge when ionized calcium is above 1 mmol/L **AND** IV calcium not required - **for at least 24 h**.
   - Notify Nephrology consult team prior to discharge for follow-up bloodwork and dialysis arrangements.
   - Fax completed Pass Medication Form (CD0471MR) for 3-day supply of oral calcium supplement and vitamin D analogue to pharmacy at least 24 h prior to discharge.

Prescriber's Signature _____ Date _____ Time _____

Prescriber's Name _____ Reg. No. _____
Print

PPO0605MR Apr 10 2018 Original – chart Page 1 of 1

IV Calcium Supplement for Ionized Calcium less than 1.15 mmol/L and/or Symptomatic Hypocalcemia

Ionized Calcium (mmol/L)	**Calcium Gluconate Dosing***
0.9 to 1.15	Calcium gluconate 1-2 g IV x 1 dose
Less than 0.9 **OR** **If symptomatic**	Calcium gluconate 2 g IV x 1 dose - Consider calcium gluconate maintenance infusion 1 g/h IV over 2-4 h. - Repeat ionized calcium in 2 h and reassess infusion rate.

*See NSHA IV Drug Therapy Manual for Calcium Gluconate Monograph for details.

Oral Calcium Supplements**

Product	**Elemental Calcium**
Regular Tums®	200 mg per tablet
Extra Strength Tums®	300 mg per tablet
Calcium carbonate tab	500 mg per tablet
Calcium lactogluconate liquid	500 mg per 25 mL

** Administration times depend on phosphate levels

Oral Vitamin D Analogues

Drug	**Considerations**
Alfacalcidol (One-Alpha®)	• Does **not** require kidney activation • Requires liver activation. • Supplied: 0.25 mcg or 1 mcg caps or 2 mcg/mL liquid
Calcitriol (Rocaltrol® or generic)	• Does **not** require kidney or liver activation. (Consider in liver disease.) • Supplied: 0.25 mcg or 0.5 mcg caps

Page 1 (Reverse)

Appendix B

Post-parathyroidectomy Medication Management Tool for the Hemodialysis Unit

nova scotia health authority

Renal Program - Hemodialysis Unit

Post Parathyroidectomy Medication Management

			Date (YYYY/MM/DD)		Date (YYYY/MM/DD)		Date (YYYY/MM/DD)		Date (YYYY/MM/DD)		Date (YYYY/MM/DD)		Date (YYYY/MM/DD)		Date (YYYY/MM/DD)	
			Ionized Calcium	Phos.	Ionized Calcium	Phos.	Ionized Calcium	Phos.	Ionized Calcium	Phos.	Ionized Calcium	Phos.	Ionized Calcium	Phos.	Ionized Calcium	Phos.
		Dialysate Calcium														
Activated Vitamin D	IV qHD (mcg)	**Calcijex®** *Calcitriol*														
	PO (mcg) Circle one	**One Alpha ®** alfacalcidol **OR** Rocaltrol® *Calcitriol*														
Calcium Carbonate *Taken in between meals*	**Tums ®** (Chew)	Regular (tab) 200 mg *elemental/tab*														
		Extra (tab) 300 mg *elemental/tab*														
		Ultra (tab) 400 mg *elemental/tab*														
	Calcium Tablets	_____ mg elemental/tab														
	Other *specify															
		Signature / Status														

Medication Records
CD3121MR_08_2017

Page 1 of 2

Appendix C

Calcium and Vitamin D Analogue Medication Chart

Medication Chart

Please show this chart to your community pharmacist(s) and doctor(s)

Valid as of: Date (YYYY/MM/DD) _____ Time (hh/mm) _____

Pharmacist name: _____ Doctor name: _____

Allergies: _____

Medications	Directions for use	Comments	Time							
				Bkfast		Lunch		Supper		Bed
Calcium elemental (Tums® Extra Strength)		**Calcium supplement**								
Alfacalcidol (ONE-ALPHA®) or other (specify drug):		**Activated vitamin D**								

NOTES:

- Try to take your medication(s) at the same time each day to help you remember.
- Make sure you or your community pharmacist keep this schedule up to date if your medications change.
- Avoid taking over the counter medications (e.g. cough and cold medicines) without first checking with your pharmacist or doctor.

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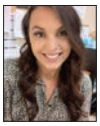

Jessica Andrews graduated from the Memorial University, Newfoundland in 2012. Her nursing career has been extensively nephrology-based, leading to her CNA certification in nephrology in 2020. Her career began in the hemodialysis units at the Health Sciences Centre in St. John's. After approximately seven years, she took on the role of home dialysis patient educator. She is responsible for educating and maintaining patients on their chosen kidney replacement therapy. As well, she is one of two transplant coordinators at Eastern Health. She is responsible for potential donor work-up and loves it!

Jessica is a mother to two young children, who keep her on her toes! They keep her active and often accompany her while walking or hiking. She is thoroughly enjoying her master's program thus far and cannot wait to apply her newly learned skills in her nephrology practice.

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Jovina Bachynski, MN-NP (Adult), CNeph(C), PhD Student - Ontario

Jovina Bachynski is a nurse practitioner in nephrology at Halton Healthcare. She received her Bachelor of Science in Nursing and Master of Nursing (Nurse Practitioner Field) from the Lawrence S. Bloomberg Faculty of Nursing at the University of Toronto. She is currently in her third year in the PhD Nursing program at Queen's University. She also holds an adjunct lecturer appointment at the Lawrence S. Bloomberg Faculty of Nursing. Jovina's research interest is in kidney supportive care in hemodialysis, particularly in the engagement of nephrology nurses with people with kidney failure in the advance care planning process. She has been involved in palliative care initiatives by the Ontario Renal Network since 2015 as a member of the ORN Priority Palliative Care Panel and the Advance Care Planning and Goals of Care Task Group. She was one of the project leads for the ORN's *Your Symptoms Matter* and *Person-Centred Decision-Making* projects. Jovina has been an active member of the Canadian Association of Nephrology Nurses and Technologists since 2000. She was part of the planning committees for the CANNT Annual Conferences in 2002 (Toronto) and 2014 (Niagara). Jovina has been the editor or co-editor of *CANNT Journal* since 2015. She is deeply committed to empowering nephrology nurses through knowledge acquisition and mobilization. Of all her accomplishments, she is most proud of her two daughters.

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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.

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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.

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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
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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/Reference List: Proper names 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.

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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.

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