



**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

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## Letter from the Editors

**A**s we collectively enter into what can only aptly be called the *next* normal phase in our lives, we, at CANNT and the *CANNT Journal*, are committed to upholding our tradition of providing quality educational opportunities in the midst of novel ways of delivering this information. We would normally be gearing up for our upcoming annual conference in Hamilton in October 2020, but for this once-in-a-century pandemic, the CANNT team are furiously keeping pace with every other viable professional association with respect to hosting a virtual conference series that would be just as impactful as the in-person conferences of the past. There is no denying that the experience will be different with this virtual format, but as nephrology professionals, there is no doubt that we shall adapt and prevail. A lot of work has gone in to ensure that the webinar sessions are diverse and relevant to your respective nephrology practice. The CANNT team and conference speakers are eagerly awaiting the opportunity to showcase the talent inherent in the Canadian nephrology nursing and technological community.

In this issue, we offer two very divergent articles that focus on ways to help mitigate the physical and psychosocial challenges that patients with ESKD face throughout their medical journey. In the lead article on *The effect of my Health Companion® on self-management and quality of life in persons with end-stage renal disease: A multiple case study approach*, Leming et al. ground their study on the notion that psychosocial adaptation to chronic illness is greatly implicated in the patient's self-management of their chronic illness and in improving their quality of life. To this end, the authors show that the use of a paper-based personal health record (My Health Companion®) can have a positive impact on how chronic illness such as ESKD can be integrated into daily life. In the continuing education article on *Medical use of cannabis for patients with end-stage kidney disease*, Ho and

Battistella provide insight into the use of cannabis in the management of refractory symptoms for patients undergoing dialysis and highlight the paucity of trials that investigate the efficacy and safety of cannabis in the ESKD population. Both articles highlight our eternal quest for ways to significantly reduce the burden wrought by kidney disease on our patients and their families.

We would like to hear about your experience with COVID-19 in the workplace. How has your practice changed? Are you seeing any effects by the pandemic on the mental health of your patients (and colleagues)? What has been the impact of the social determinants of health such as the location of care (rural versus urban) on patient care outcomes? These are just a few questions that we hope you would explore in observational studies, clinical trials, case reports, or quality improvement projects, and submit as manuscripts. The larger nephrology nursing and technological community need to hear what is going on, and *CANNT Journal* is the ideal place to showcase such information.

As you ponder and consider our big ask, we hope that you will partake of the virtual conference series beginning on October 20 until December 1, 2020, become engaged in the discussion, and come away refreshed with new knowledge. Until then, please stay safe.

**Sincerely,**



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



**Rosa Marticorena,**  
BScN, RN, CNeph(C),  
DCE, PhD

**Co-editors, CANNT Journal**

# Message des rédactrices en chef

**A**lors que nous entrons collectivement dans ce qu'il convient d'appeler la nouvelle normalité de nos vies, nous tous, à l'ACITN et à la Revue de l'ACITN, sommes déterminés à maintenir notre tradition et à vous offrir des occasions d'apprentissage de qualité, tout en tenant compte des nouvelles méthodes pour livrer ces informations. Normalement, nous devrions être en train de préparer notre prochaine conférence annuelle, qui devait se tenir à Hamilton en octobre 2020. Toutefois, en réponse à cette situation unique de pandémie qui ne se produit qu'une fois par siècle, l'équipe de l'ACITN a décidé d'emboîter le pas aux autres associations professionnelles compétentes et d'organiser une série de conférences virtuelles. Nous espérons que ces dernières auront autant d'impact que les conférences auxquelles nous assistions en personne par le passé. Il est indéniable que l'expérience en format virtuel sera différente, mais en tant que professionnels du domaine de la néphrologie, nous saurons sans aucun doute nous adapter et réussir. Beaucoup de travail a été accompli pour faire en sorte que les séances soient variées et adaptées à vos pratiques respectives en néphrologie. L'équipe de l'ACITN et les conférenciers attendent avec impatience l'occasion de vous démontrer tout le talent inhérent à la communauté canadienne des infirmières, infirmiers et technologues en néphrologie.

Dans ce numéro, nous vous proposons la lecture de deux articles très divergents portant sur diverses façons de limiter les défis physiques et psychologiques auxquels les patients souffrant d'insuffisance rénale au stade terminal (IRT) font face durant leur parcours médical. Dans l'article intitulé « Les effets de Health Companion® sur l'autogestion et la qualité de vie des personnes souffrant d'insuffisance rénale au stade terminal : une approche fondée sur l'étude de multiples cas » (The effect of my Health Companion® on self-management and quality of life in persons with end-stage renal disease: A multiple case study approach), Leming et ses coauteurs basent leur étude sur la notion que l'adaptation psychosociale à une maladie chronique est grandement mise en cause dans l'autogestion par le patient de sa maladie et dans l'amélioration de sa qualité de vie. Pour prouver leur point de vue, les auteurs montrent que l'utilisation d'un simple bilan de santé sur support papier (My Health Companion®) peut avoir un impact positif sur la façon dont les maladies chroniques comme l'IRT peuvent être intégrées avec plus de facilité à la

vie quotidienne. Par ailleurs, dans l'article de formation continue portant sur l'usage du cannabis pour les patients atteints d'IRT (Medical use of cannabis for patients with end-stage kidney disease), les coauteurs Ho et Battistella donnent un aperçu de l'usage du cannabis dans la gestion des symptômes réfractaires pour les patients sous dialyse. Ils y soulignent également le manque d'essais évaluant l'efficacité et la sûreté du cannabis pour les patients aux prises avec l'IRT. Ces publications mettent toutes deux en lumière notre quête perpétuelle pour trouver de nouvelles manières d'alléger le fardeau que représentent les maladies rénales, à la fois pour nos patients et pour leurs familles.

Enfin, nous aimerions aussi en savoir plus sur ce que vous avez vécu en milieu de travail depuis le début de la crise de la COVID-19. Comment l'exercice de votre profession s'est-il transformé? Avez-vous observé les effets de la pandémie sur la santé mentale de vos patients (ou de vos collègues)? Quel a été l'impact des enjeux sociaux sur la santé, comme le lieu de prestation des traitements (milieu rural par rapport au milieu urbain) sur les effets des soins donnés aux patients? Il ne s'agit là que de quelques questions que nous espérons vous voir explorer lors d'études d'observation, d'essais cliniques, de rapports de cas ou de projets d'amélioration de la qualité, et que vous nous soumettez peut-être ensuite sous forme de manuscrit. La plus grande communauté d'infirmières, infirmiers et technologues en néphrologie a besoin de savoir ce qui se passe et la Revue de l'ACITN est sans contredit l'endroit idéal où présenter ce genre d'information!

Tout en vous laissant réfléchir et vous pencher sur notre demande, nous espérons que vous prendrez part à notre série de conférences virtuelles, qui se tiendra du 20 octobre au 1 décembre 2020. Nous espérons surtout que vous participerez aux discussions et que vous en ressortirez stimulés, enrichis par de nouvelles connaissances. D'ici là, restez vigilants et en santé.

**Cordialement,**  
**Jovina Bachynski, M. Sc. inf., inf. aut. (cat. spéc.), CNéph(C), aspirante au doctorat**

**Rosa Marticorena, B. Sc. inf., inf. aut., CNéph(C), D.E.S. Épidémiologie clinique, Ph. D.**

**Corédactrices en chef, Revue de l'ACITN**

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# Message from the President

Dear CANNT Members,

I hope this message finds you all doing well and staying safe and healthy. As we promote good handwashing, wear masks, and adhere to the public safety guidelines and our institutional policies, I do hope that you are also taking time to manage your own personal mental health through various stress and anxiety management strategies. There are many proven ways to reduce stress and anxiety: getting enough sleep, balanced diet and hydration, exercise, talking about your fears with others, practising meditation, and accessing the many resources and services in your area. As we head into the sixth month of the pandemic, I often reflect on the many stories from my colleagues, and find myself constantly inspired by the resilience, commitment, and empathy that are demonstrated through these difficult times. I think of this quote when I ponder the challenges we face in our daily practice: "Sometimes we're tested not to show our weaknesses, but to discover our strengths."

CANNT has adopted a plan to present our national conference virtually to our renal professionals across the country. Welcome to CANNT 2020! The CANNT Virtual Conference Series will take place October 20 to December 1, 2020 every Tuesday and Thursday from 2:30-3:30 p.m. ET and repeated at 6:30-7:30 p.m. ET to maximize attendance opportunities. All Thursday Industry webinars are complementary to all. I hope that you have an opportunity to register and take advantage of the educational credits offered. Please visit <https://cannt-acitn.ca/virtual-conference-series/>. I would also like to encourage all members to mark their calendars and make every effort to attend our AGM. Please save the date for our CANNT 2020 AGM on Tuesday, November 24, 2020, at 2:30 p.m. ET.

The Canadian Nurses Association (CNA) certification team made the difficult decision to postpone the May 1–15, 2020, exam-writing window. This was not a decision they made lightly, but given the current global COVID-19 pandemic, they felt it was the right thing to do. Nurses who applied to write an exam in May will be able to write it during the fall window, which runs from October 15 to November 15, 2020. See more at: <https://www.cna-aiic.ca/en/certification#sthash.IQOyji6G.dpuf>. I hope that many of our nurses have applied before September 10 to take this certification exam that is a nationally recognized nursing specialty credential.

The Canadian Association of Nephrology Nurses and Technologists is a conduit that can bring us together—whether it is connecting on CANNT webinars, through social media, through our website, or our newsletter. I encourage your involvement, engagement, and participation in CANNT. Together we can strengthen our association and continue to advance our profession, advocate for the interests of our membership, and provide value to our community of renal professionals.

I look forward to seeing you all virtually during our webinar series that aims to provide you with a wealth of learning opportunities.

**With respect and wishes for a  
Happy Thanksgiving,**



**Janice MacKay  
CANNT President  
2018-2021**



# Le mot de la présidente

Chers membres de l'ACITN,

J'espère que vous êtes tous en santé et que vous vous portez bien. Alors que nous faisons la promotion du lavage des mains, du port du masque et du respect des directives de la santé publique, ainsi que de nos propres politiques en matière de sécurité, j'ose croire que vous prenez également un peu de temps pour prendre soin de vous et de votre santé mentale en ayant recours à diverses stratégies de gestion du stress et de l'anxiété. Il existe plusieurs méthodes éprouvées pour réduire ces sentiments et réactions néfastes : dormir suffisamment, avoir une diète équilibrée et bien s'hydrater, faire de l'exercice, partager nos peurs avec quelqu'un, méditer, ou simplement accéder aux ressources et services mis à votre disposition dans votre région. Comme nous entamons déjà le sixième mois de cette pandémie, je réfléchis souvent à tout ce qu'ont vécu mes collègues et je me sens réellement inspirée par la résilience, l'engagement et l'empathie qu'ils ont su démontrer durant ces moments difficiles. Lorsque je vois les défis auxquels nous faisons face dans notre pratique quotidienne, je me remémore cette citation : « Parfois nous sommes mis à l'épreuve non pas pour reconnaître nos faiblesses, mais bien pour découvrir nos forces ».

L'ACITN a adopté un plan afin de pouvoir présenter notre conférence nationale de façon virtuelle à tous les professionnels du domaine de la néphrologie de partout au pays.

Bienvenue à l'ACITN, version 2020! La série de conférences virtuelles de l'ACITN se déroulera donc du 20 octobre au 1 décembre 2020. Les rencontres se tiendront tous les mardis et jeudis, de 14 h 30 à 15 h 30 (HE), et de nouveau de 18 h 30 à 19 h 30 (HE), afin de permettre à un maximum de gens de participer.

Tous les webinaires sur l'industrie et présentés le jeudi sont ouverts à tous, et ce, gratuitement. J'espère que vous aurez l'occasion de vous y inscrire et de profiter des crédits offerts pour votre formation (rendez-vous au <https://cannt-acitn.ca/virtual-conference-series/>). Je tiens également à encourager tous les membres à consulter leur horaire et à organiser leur temps de manière à pouvoir participer à l'Assemblée générale annuelle de l'ACITN. Prenez note de la date pour cet événement, qui se tiendra le mardi 24 novembre 2020, à 14 h 30 (HE).

Plus tôt cette année, l'équipe de la certification de l'Association des infirmières et infirmiers du Canada (AIIC) a pris la décision difficile de remettre la période d'examen qui devait se tenir du 1<sup>er</sup> mai au 15 mai 2020. L'équipe n'a pas pris cette décision à la légère; compte tenu de la pandémie de la COVID-19 actuelle, elle a estimé que cela s'imposait. Les infirmières et infirmiers qui étaient inscrits aux examens de mai pourront se soumettre à l'examen cet automne, c'est-à-dire du 15 octobre au 15 novembre 2020 (apprenez-en plus au <https://www.cna-aiic.ca/fr/>

certification). J'espère que bon nombre de nos infirmières et infirmiers se seront inscrits d'ici le 10 septembre pour passer l'examen, car la certification confère une désignation dans une spécialité infirmière reconnue à l'échelle nationale.

L'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) est un support permettant de rassembler tous les membres de notre communauté, que ce soit par l'intermédiaire des webinaires, des médias sociaux, du site Web ou de notre bulletin d'information. Je vous encourage à participer de manière engagée aux activités de l'ACITN. Ensemble, nous pouvons renforcer notre association et continuer de faire évoluer notre profession, de défendre les intérêts de nos membres et d'ajouter de la valeur à notre communauté de professionnels de la santé en néphrologie.

Je me réjouis d'avance de tous vous rencontrer durant notre série de webinaires, dont le but est de vous offrir une multitude d'occasions d'apprentissage.

**Avec tout mon respect, mes meilleurs vœux à tous pour la fête de l'Action de grâce.**



**Janice MacKay**  
**Présidente de l'ACITN**  
**(2018-2021)**

# Your Board in Action

September often marks new beginnings with the start of the school year and return to regular work commitments after summer holidays, including committees and projects. As we still remain in a pandemic crisis, we all must adapt to the necessary changes in our personal, social, and professional lives, as we move forward. We must continue to be diligent in our practices and efforts, as we experience the second wave in its various stages throughout our country. CANNT remains steadfast in our support of nephrology nurses and technologists throughout this new normal. We have increased our communication methods and created new initiatives to meet the needs of our members and enhance their ability to care for nephrology patients. CANNT acknowledges your hard work to provide exemplary care and extends a heartfelt thank-you for your dedication.

The World Health Organization (WHO) has designated 2020 as the International Year of the Nurse and the Midwife in honour of the 200th anniversary of Florence Nightingale's birth. In the midst of the pandemic, it is highly appropriate to honour Florence as an early advocate for hand-washing as the best means to prevent the spread of infectious diseases. The focus of this campaign is to support nurses and midwives by celebrating their work, highlighting their challenges, and addressing their worldwide shortages. Please find out how you can become involved at <https://www.who.int/campaigns/year-of-the-nurse-and-the-midwife-2020>. The Canadian Nurses Association applauds this initiative and calls on governments to increase their investment in the nursing workforce in Canada. Please see the full report at <https://www.cna.aiic.ca/en/news-room/news-releases/2020/canada-welcomes-first-ever-state-of-the-worlds-nursing-report>

## MEMBERSHIP

We currently have a membership of 272 renal professionals as of August 2020. The Board of Directors (BOD) continually evolves to provide enduring benefits to all our members. Our "Member-Get-a-Member" campaign

continues until September 30, 2020, and we invite you to participate in this new strategy to increase membership. This innovative initiative encourages members to recruit friends and colleagues, and rewards the top recruiter with a free CANNT membership for one year.

Membership is vital to CANNT, as it is an association run by its members. There are many advantages to becoming a member of CANNT:

- Online access to the peer-reviewed quarterly *CANNT Journal* for all members
- Online access to the *Vascular Access Guidelines, Standards of Nursing Practice, and Standards of Technical Practice*
- Discount of the annual conference registration fee
- Educational opportunities at a reduced cost or free to members
- Connections to the latest information and resources related to nephrology, technology, or nursing
- Networking opportunities with colleagues practising in your nephrology specialty on a national level
- Opportunities for collaborative networking and problem solving through participation in a refined clinical practice group
- CANNT awards, bursaries, and research grants offered to individuals in recognition of their excellence in the workplace and/or to further their studies in nephrology
- CANNT represents its membership as affiliates of various organizations and acts as your link to those organizations to help keep you connected and informed.

We are seeking input from our valued membership, and I want to hear from you on ways to increase our association membership. Please share your thoughts with us by contacting your CANNT office team at: <https://cannt-acitn.ca/>

## JOURNAL

Guidelines for journal article submission can be found under the "CANNT Journal" section of the CANNT website. We prefer manuscripts that present new clinical information or address issues of special

interest to nephrology nurses and technologists. E-mail your manuscript to one of our co-editors Jovina Bachynski or Rosa Marticorena at CANNT. [journal1@gmail.com](mailto:journal1@gmail.com)

Include a cover letter with contact information for the primary author and a one-sentence biographical sketch (credentials, current job title and location) for each author. The *CANNT Journal* is published four times per year in electronic versions. The journal is a refereed publication and accepts only original, peer-reviewed articles. Advertising opportunities and corporate sponsored education opportunities are available.

## COMMUNICATIONS

CANNT has responded to the increased needs of our members during the COVID-19. We have revised our webpage to support access to timely information including the provision of updates regarding the pandemic. We acknowledge the importance of members' well-being and mental health during this time, and have added more resources to our website, as well. We have also partnered with associations, including the Canadian Society of Nephrology, to offer multiple webinars and ensure new knowledge is shared with all nephrology professionals. We will continue to support you in the future with information regarding current evidence-based practices communicated through all our social media platforms. LinkedIn has been included, as we continue to develop new strategies for engaging our members and communicating timely and relevant information to our membership. Please visit our website and stay connected through our tweeter feeds and *CANNT Connection* releases. If you have a question, idea, or event to promote, please speak to our Director of Communications, Ethan Holtzer. [https://ca.linkedin.com/company/canadian-association-of-nephrology-nurses-and-technologists?trk=public\\_profile\\_experience-item\\_result-card\\_subtitle-click](https://ca.linkedin.com/company/canadian-association-of-nephrology-nurses-and-technologists?trk=public_profile_experience-item_result-card_subtitle-click)



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LinkedIn: <https://www.linkedin.com/in/cannt-cannt-06910261/>

Twitter: [@CANNT1](https://twitter.com/CANNT)

## ANNUAL CONFERENCE

The CANNT Virtual Conference Series is now a virtual reality and will take place October 20 to December 1, 2020, every Tuesday and Thursday from 2:30-3:30 p.m. and repeated at 6:30-7:30 to maximize attendance opportunities. CANNT is excited to offer this virtual experience to all nephrology nurses and technologists, as well as other healthcare professionals and industry partners. We have achieved our goal of making this conference affordable by offering complementary registration to all members and at a very low cost to non-members. The preliminary program, as outlined on our website, highlights the varied and multiple topics that will be covered to appeal to the wide range of nephrology professionals and practice settings. Tuesday's sessions will be offered to our clinical colleagues and Thursday's sessions to our industry partners in order to provide a more robust agenda full of new practice and technological advances. At the end of each session,

attendees will be encouraged to participate and engage with each presenter via text and online during the Q & A.

## FINANCES

As a "Not for Profit" professional association, our objective is to provide value to our members that aligns with our mission and vision. In this unprecedented time, CANNT has faced great financial hardship with the cancellation of our annual conference. Our management team has worked tirelessly to develop new lucrative opportunities with our industry partners and has successfully secured funding to maintain the viability of CANNT. We thank you for your efforts and commitment to our association. Transparency improves the coherence and cohesion of our association.



**Sincerely,  
Cathy Cake  
CANNT President-Elect/  
Treasurer 2020-2021**

# NOTICE BOARD

Canadian Nurses Association (CNA) Exam Timeline.

<https://www.nurseone.ca/certification/renewing-your-certification#sthash.IDBqg5i7.dpuf>

	Spring 2020	Fall 2020
Initial exam or renewal by exam application window	Jan. 9–March 2, 2020	June 1–Sept. 10, 2020
Certification exam window	May 1–15, 2020 CANCELLED	Oct. 15–Nov. 15, 2020
Renewal by continuous learning application window	Jan. 20–Nov. 1, 2020	

*N.B. CNA will provide 20% discount for initial exam writers, renewal exam writers, and renewals by continuous learning in 2020 to active members of CANNT. Contact [cannt@cannt.ca](mailto:cannt@cannt.ca) for the voucher code in 2020.*

- **October 20-25, 2020.** The American Society of Nephrology (ASN) 2020 Kidney Week, Colorado Convention Center, Denver, CO. Link to virtual conference: <https://www.asn-online.org/education/kidneyweek/>
- **October 20-November 26, 2020.** Canadian Association Nephrology Nurses and Technologists (CANNT) Virtual Conference Series 2020. Link to virtual conference: <https://cannt-acitn.ca/virtual-conference-series/>
- **November 2020.** 55<sup>th</sup> Australian and New Zealand Society of Nephrology (ANZSN) Online Annual Scientific Meeting. Link to virtual conference: <http://www.anzsnasm.com/>



## Nephrology Certification Registration Status Report 2020

Initial and Renewal by Exam to Renew in 2020	Renewal by Continuous Learning (CL) Hours	Total of Initials and Renewals	Due
38	31	69	251

# Votre conseil en action

L'arrivée du mois de septembre est souvent marquée de nouveaux départs, avec la rentrée scolaire et le retour aux engagements professionnels habituels, comme les projets et les comités, qui suivent les vacances estivales. Comme nous vivons toujours en contexte de crise à cause de la pandémie, nous devons tous nous adapter aux changements nécessaires pour avancer, que ce soit dans notre vie personnelle, sociale ou professionnelle. Il nous incombe de faire preuve de diligence et de ne ménager aucun effort dans nos pratiques, alors que la deuxième vague se profile sous diverses formes partout au pays. L'ACITN continue d'offrir fidèlement son soutien aux infirmières, infirmiers et technologues en néphrologie malgré cette nouvelle réalité. Nous avons par ailleurs amélioré nos moyens de communication et lancé de nouvelles initiatives pour répondre aux besoins de nos membres, ainsi que pour augmenter leur capacité à prendre soin de leurs patients en néphrologie. L'ACITN reconnaît votre travail acharné pour offrir des soins exemplaires et nous vous remercions de tout cœur pour votre dévouement.

L'Organisation mondiale de la santé (OMS) a désigné l'année 2020 comme l'Année internationale des sages-femmes et du personnel infirmier, en l'honneur du 200<sup>e</sup> anniversaire de naissance de Florence Nightingale. En plein cœur de la pandémie qui nous frappe, il est assurément de mise d'honorer la mémoire de cette femme qui fut l'une des premières à prôner le lavage des mains comme un moyen efficace de prévenir la propagation des maladies infectieuses. L'objectif de cette campagne est de soutenir les sages-femmes et le personnel infirmier en reconnaissant leur contribution essentielle, en mettant en lumière les défis auxquels ils sont confrontés et en s'attaquant à leur pénurie mondiale. Apprenez-en plus sur les différentes façons de contribuer en visitant le <https://www.who.int/fr/campaigns/year-of-the-nurse-and-the-midwife-2020>.

L'Association des infirmières et infirmiers du Canada salue cette initiative et appelle les gouvernements à accroître les investissements dans la main-d'œuvre infirmière au pays. Pour lire le rapport complet, visitez le <https://www.cna.aiic.ca/en/news-room/news-releases/2020/canada-welcomes-first-ever-state-of-the-worlds-nursing-report>.

## ADHÉSION

Nous comptons actuellement 272 professionnels de la néphrologie parmi nos membres (août 2020). Le conseil d'administration évolue continuellement pour offrir des avantages durables à tous nos membres. Notre campagne « Member-Get-a-Member » se poursuit jusqu'au 30 septembre 2020 : nous vous invitons à participer à cette stratégie novatrice pour multiplier le nombre de nos membres. Cette initiative novatrice encourage les membres à recruter des amis et collègues, et récompensera le meilleur recruteur en lui offrant gratuitement son adhésion à l'ACITN pour une période d'un an.

Les membres sont la force vive de l'ACITN, puisque ce sont eux qui l'administrent. Il y a une foule d'avantages à devenir membre de l'ACITN :

- Accès en ligne pour tous les membres à la revue trimestrielle évaluée par les pairs nommée Revue de l'ACITN;
- Accès en ligne aux publications *Vascular Access Guidelines*, *Standards of Nursing Practice* et *Standards of Technical Practice*;
- Réduction des frais d'inscription au congrès annuel;
- Possibilités de formations gratuites ou à prix réduit;
- Liens vers l'information et les ressources les plus récentes en matière de néphrologie, de technologies et de soins infirmiers;
- Occasions de réseauter à l'échelle nationale avec des collègues évoluant dans votre spécialité néphrologique;
- Possibilité de collaborer et de contribuer à la résolution de problèmes

grâce à la participation à un groupe de pratique clinique attiré;

- Prix, bourses et subventions de recherche de l'ACITN attribués pour souligner l'excellence du travail de certaines personnes ou pour leur permettre de poursuivre leurs études en néphrologie;
- L'ACITN représente ses membres dans les diverses organisations auxquelles elle est affiliée et avec lesquelles elle agit comme intermédiaire pour vous tenir au courant et vous informer.

Nous sommes à l'écoute de nos membres, que nous tenons en haute estime, et nous aimerions connaître votre opinion sur la manière d'augmenter le nombre de nos adhérents. Veuillez nous faire part de vos idées en communiquant avec l'équipe administrative de l'ACITN, via le <https://cannt-acitn.ca/>.

## REVUE

Vous trouverez la marche à suivre vous permettant de soumettre un article pour publication dans notre revue sous la section réservée à la Revue de l'ACITN du site Web de l'Association. Nous privilégions les articles qui portent sur de nouvelles données cliniques ou qui traitent de sujets présentant un intérêt particulier pour les infirmières, les infirmiers et les technologues en néphrologie. Envoyez votre article par courriel à l'une des corédactrices en chef, Jovina Bachynski ou Rosa Marticorena, à l'adresse suivante : [CANNT.journal1@gmail.com](mailto:CANNT.journal1@gmail.com).

Joignez-y une lettre de présentation contenant les coordonnées de l'auteur principal et une présentation biographique d'une phrase (titres, emploi actuel et lieu de travail) pour chaque auteur. La revue est publiée quatre fois par an dans un format électronique. Elle est soumise à l'examen d'un comité de lecture et seuls les articles originaux, révisés par les pairs, sont acceptés. Des possibilités d'annonces publicitaires et de formations parrainées par des entreprises sont offertes.

## COMMUNICATIONS

L'ACITN a répondu aux besoins accrus de ses membres durant la pandémie de COVID19. Nous avons modifié notre site Web afin de permettre l'accès à des informations pertinentes et actuelles, y compris des mises à jour au sujet de la pandémie. Nous reconnaissons l'importance de favoriser le bien-être et la santé mentale de nos membres durant cette période difficile; c'est pourquoi nous avons également ajouté plus de ressources à notre site Web. De plus, nous nous sommes associés à d'autres organisations telles que la Société canadienne de néphrologie, afin de pouvoir offrir plusieurs webinaires et d'assurer la communication des nouvelles connaissances à tous les professionnels du milieu. Nous continuerons à vous soutenir à l'avenir en vous donnant de l'information au sujet des pratiques fondées sur les données probantes, qui vous sera communiquée sur toutes nos plateformes de médias sociaux. Nous avons également inclus LinkedIn à nos médias sociaux, alors que nous continuons d'élaborer de nouvelles stratégies pour mobiliser nos membres et leur transmettre des renseignements pertinents en temps opportun. Visitez notre site Web et restez informés par l'intermédiaire de nos publications sur Twitter et des bulletins CANNT Connection. Si vous avez une question, une idée ou un événement à promouvoir, écrivez à Ethan Holtzer, notre directeur des communications. [https://ca.linkedin.com/company/canadian-association-of-nephrology-nurses-and-technologists?trk=public\\_profile\\_experience-item\\_result-card\\_subtitle-click](https://ca.linkedin.com/company/canadian-association-of-nephrology-nurses-and-technologists?trk=public_profile_experience-item_result-card_subtitle-click)



Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) | LinkedIn

Informez-vous sur le monde du travail à l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN). Créez votre profil LinkedIn gratuitement dès aujourd'hui. Découvrez des gens que vous connaissez à l'ACITN, tirez parti de votre réseau professionnel et faites-vous embaucher : [ca.linkedin.com](https://ca.linkedin.com)  
Site Web de l'ACITN : [www.CANNT.ca](http://www.CANNT.ca)



Facebook: <https://www.facebook.com/Canadian-Association-of-Nephrology-Nurses-and-Technologists-160999717295820/>

LinkedIn: <https://www.linkedin.com/in/cannt-cannt-06910261/>

Twitter: [@CANNT1](https://twitter.com/CANNT)

## CONGRÈS ANNUEL

La série de conférences virtuelles de l'ACITN est maintenant une réalité et se déroulera du 20 octobre au 1 décembre 2020. Les rencontres se tiendront tous les mardis et jeudis de 14 h 30 à 15 h 30, et de nouveau entre 18 h 30 et 19 h 30, afin de permettre à un maximum de gens d'y participer. C'est avec fierté que l'ACITN offre cette expérience virtuelle aux infirmières, infirmiers et technologues en néphrologie, ainsi qu'aux autres professionnels de la santé et partenaires de l'industrie. Nous avons atteint notre objectif de rendre abordable cette série de conférences en offrant l'inscription gratuitement à tous nos membres et en exigeant des frais minimes pour les non-membres. Le programme préliminaire, tel que présenté sur notre site Web, met l'accent sur des sujets multiples et variés qui seront abordés afin de susciter l'intérêt d'un grand

nombre de professionnels du domaine de la néphrologie provenant de différents milieux. Les séances du mardi seront proposées à nos collègues cliniciens, et les séances du jeudi, à nos partenaires de l'industrie. De cette façon, nous serons en mesure d'offrir un programme plus étoffé, portant sur de nouvelles pratiques et avancées technologiques. À la fin de chaque séance, les participants seront encouragés à prendre part à un échange avec les présentateurs durant la période de questions, que ce soit par message texte ou en ligne.

## FINANCES

En tant qu'association professionnelle sans but lucratif, notre objectif est d'offrir à nos membres une valeur ajoutée en lien avec notre mission et notre vision. Durant cet épisode sans précédent de notre histoire, l'annulation de notre congrès annuel a entraîné de grands défis au point de vue financier pour l'ACITN. Les membres de notre équipe de gestion ont travaillé sans relâche pour imaginer de nouvelles activités lucratives en collaboration avec nos partenaires de l'industrie. Ils ont ainsi réussi à obtenir des fonds pour assurer la viabilité de l'ACITN. Nous les remercions pour leurs efforts et leur engagement envers l'Association. La transparence est la clé de voûte pour améliorer la cohérence et la cohésion de notre association.

**Cordialement,  
Cathy Cake**

**Présidente désignée et trésorière  
de l'ACITN 2020-2021**





# The effect of My Health Companion<sup>®</sup> on self-management and quality of life in persons with end-stage renal disease: A multiple case study approach

By Julie Leming, Barbara K. Haas, Melinda Hermanns, and Della Connor

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## ABSTRACT

*Persons with end-stage renal disease (ESRD) often experience lower quality of life (QOL) than the general population due to the complex medical regimen, and dietary and fluid restrictions necessary for survival. Appropriate self-management often improves physiological outcomes and QOL. The Women to Women Conceptual Model for Adaptation to Chronic Illness Model, which posits that psychosocial adaptation to chronic illness is crucial to self-management and improving QOL, guided this study. A multiple-case study with embedded units of analysis design was used to examine how use of My Health Companion<sup>®</sup>, a paper-based personal health record, impacts chronic illness self-management and QOL in persons with ESRD undergoing hemodialysis in a rural area in the southern United States. Pattern-matching and explanation building were used to compare study findings with theoretical propositions. My Health Companion<sup>®</sup> may be a beneficial tool in the self-management of ESRD.*

**Key words:** end-stage renal disease, hemodialysis, self-management, adaptation, quality of life

Nearly 124,114 persons faced the challenge of living with end-stage renal disease (ESRD) in the United States in 2015. Although incident rates plateaued between 2001 and 2012, an upswing in ESRD has occurred since 2013 (United States Renal Data Systems [USRDS], 2017). Renal

replacement therapy options in ESRD include hemodialysis (HD), peritoneal dialysis (PD), or renal transplant (USRDS, 2017). Conservative care, a palliative approach without dialysis, is a fourth treatment option (Alston & Burns, 2015). Despite treatment, persons with ESRD must adhere to strict dietary and fluid restrictions, and a multifaceted medical regimen, requiring stringent self-management.

Quality of life (QOL) may be diminished due to complex medical regimens, fatigue, functional impairment, and a decrease in the ability to maintain interpersonal relationships at their pre-diagnosis level. In addition to the physical and emotional toll, ESRD has a significant financial impact. Hospital admissions and readmissions represent a significant financial burden. Patients with ESRD are admitted an average of almost twice per year and 35% are re-hospitalized within 30 days (USRDS, 2017). Successful self-management may alleviate symptoms, decrease hospital admissions, and increase QOL.

The Women to Women Conceptual Model for Adaptation to Chronic Illness (ACIM) theorizes that psychosocial adaptation to chronic illness plays a vital role in illness management (Weinert et al., 2008). For persons with ESRD, adaptation to chronic illness can be especially challenging, particularly for those living in rural areas. Rural areas tend to have fewer clinics (Almachraki et al., 2016) resulting in fewer choices of dialysis sites and longer drives. Interventions are needed that increase self-management and improve QOL. My Health Companion<sup>®</sup>, a low-tech personal health record, has been shown to increase perceived self-efficacy for self-management, but has primarily been studied with women and without regard for a particular chronic illness. The purpose of this study was to determine if the use of My Health Companion<sup>®</sup> (Weinert et al., 2010) improves chronic illness self-management and QOL in persons with ESRD as predicted by the Women to Women Conceptual Model for Adaptation to Chronic Illness.

## REVIEW OF LITERATURE

### Self-Management

Self-management is defined as patient engagement in oversight of their healthcare to promote optimum health, control symptoms, make use of medical resources, and minimize imposition of the disease into their preferred way of life (Curtin & Mapes, 2001). For patients

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with ESRD, self-management includes adherence to strict dietary and fluid restrictions, complex medication regimens, and dialysis or transplantation. There has been a paradigm shift in recent years from a medical model to one that is patient-centred with a focus on self-management (Dwarswaard et al., 2016; Walker et al., 2013). Providing tools that assist in integrating the illness into daily life may improve adaptation to ESRD and dialysis (van Houtum et al., 2015), helping to balance the demands of ESRD with those of everyday life (Novak et al., 2013).

Previous studies report persons with chronic kidney disease (CKD) have suboptimal levels of self-management (Li et al., 2014; Walker et al., 2013). Knowledge (Griva et al., 2013; Li et al., 2014), self-efficacy (Bratzke et al., 2015; Li et al., 2014; Sritarapipat et al., 2012; Wells & Anderson, 2011), and social support (Griva et al., 2013; Li et al., 2014; Sritarapipat et al., 2012) have been positively correlated with self-management. Other factors associated with self-management include socioeconomic status (Schulman-Green et al., 2012), comorbidity (Bratzke et al., 2015; Schulman-Green et al., 2012), complexity of treatment regimen (Bratzke et al., 2015; McKillop & Joy, 2013), forgetfulness (Griva et al., 2013; McKillop & Joy, 2013), and communication with healthcare providers (McKillop & Joy, 2013), including dialysis staff (Griva et al., 2013).

### **Self-Efficacy**

Self-efficacy leads to better overall self-management, partnerships (Li et al., 2014; Wells & Anderson, 2011) and increased dietary adherence (Washington, 2016). Kim and colleagues (2013) reported that treatment goal self-efficacy positively correlated with both the physical component score (PCS,  $r = 0.19$ ,  $p < 0.01$ ), and mental component score ( $r = 0.16$ ,  $p < 0.01$ ) of the Kidney Disease Quality of Life Short Form 36 and treatment management self-efficacy was significantly correlated with the mental component score (MCS,  $r = 0.22$ ,  $p < 0.01$ ). Self-efficacy education should be integrated into interventions aimed at increasing self-management of ESRD (Aliasgharpour et al., 2012; Li et al., 2014; Wells & Anderson, 2011).

### **Quality of Life**

In studies comparing patients on HD and patients on PD, patients on PD reported higher QOL than patients on HD (Wakeel et al., 2012). Age, gender, dialysis duration, and type of dialysis were all independent predictors of QOL. Age and dialysis duration were negative predictors with age and type of dialysis being the strongest predictors. Patients undergoing HD had significantly lower QOL in all domains except physical functioning. Additionally, Jankowska-Polańska et al. (2016) found good financial standing ( $\beta = 0.203$ ) a QOL stimulant whereas fatigue was noted to be a de-stimulant.

### **Social Support**

Perceived informal social support, the perception that one has friends and family on which to rely for assistance, has been linked to psychosocial adaptation to ESRD, accounting for 6.8% of variance in QOL and 10.9% of depression (Chan et al., 2011). Weisbord (2016) reports

impaired social support as a factor affecting QOL in chronic dialysis patients. Perceived social support has also demonstrated a mediating effect on the relationship of depressive symptoms to QOL ( $\beta = -0.26$ ,  $R^2 \text{ change} = 0.07$ ,  $p < 0.001$ ) with perceived social support independently predicting QOL ( $\beta = 0.26$ ,  $p < 0.001$ ) (Khalil & Abed, 2014). In a mixed-methods study on social provision in older people with chronic illness, Kvaal et al. (2014) found a significant correlation between perceived social support and feeling lonely/not feeling lonely ( $\rho = -0.232$ ,  $p = 0.02$ ).

## **THEORETICAL MODEL**

The Women to Women Conceptual Model for Adaptation to Chronic Illness Model has three major constructs: (1) environmental (focal, contextual, residual) stimuli, (2) psychosocial response/adaptation, and (3) illness management. Wienert et al. (2008) propose “that the process of psychosocial adaptation to chronic illness is key to developing self-management skills and achieving acceptable QOL” (p. 366). The diagnosis of ESRD is the focal stimulus in this study; contextual stimuli include demographics. Psychosocial adaptation is represented by social support. Illness management refers to self-efficacy and self-management of ESRD, which, ultimately, impact QOL.

## **RESEARCH QUESTIONS AND PROPOSITIONAL STATEMENTS**

The study aimed to answer the following research questions:

1. How does the use of My Health Companion© improve chronic illness self-management in persons with ESRD undergoing HD?
2. How does the use of My Health Companion© improve QOL in persons with ESRD undergoing HD?
3. What are the perceptions of persons with ESRD regarding the effectiveness of My Health Companion©?

The propositional statements for the study, derived from the Women to Women Conceptual Model for Adaptation to Chronic Illness Model, were:

4. In patients living with ESRD undergoing HD, social support can impact self-management.
5. In patients living with ESRD undergoing HD, social support can impact QOL.

## **METHODS**

### **Design**

A multiple-case study with embedded units of analysis was used to determine if the Women to Women Conceptual Model for Adaptation to Chronic Illness Model and planned intervention should be considered for broader application and study in the ESRD population. This methodology is designed to analyze a small number of cases predicted to produce similar findings (Yin, 2014). This methodology is advantageous for describing “an intervention and the real-world context in which it occurred” (Yin, 2014, p. 19) and is considered more robust than single-case designs (Yin, 2014).

## Sample

Following institutional review board approval, participants were recruited using a flyer posted at local businesses, churches, and on social media. Inclusion criteria included currently undergoing hemodialysis for ESRD, able to speak, read, and write English, at least 18 years of age, and having no diagnosis of cognitive dysfunction. Word of mouth was also used to recruit through peers and colleagues, and friends and family. Each case is an individual adult with ESRD, living in Texas, and undergoing HD for renal replacement therapy at the time of the intervention.

## Instruments

Embedded units of analysis for each case included: demographic information; Personal Resources Questionnaire 2000; Self-Efficacy for Managing Chronic Disease 6-Item Scale; Functional Assessment of Chronic Illness Therapy-Fatigue; My Health Companion© notebook; and participant and caregiver interviews. Demographic information was assessed at baseline only and included age, race, gender, marital status, employment status, educational level, and length of time on dialysis.

**Social Support.** The Personal Resources Questionnaire 2000 (PRQ2000) (Weinert, 2003), a 15-item survey, was used to measure perceived level of social support. Items are rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Total score is achieved by summing all items, and scores range from 15–105 with higher scores indicating more support. Validity and reliability, ranging from 0.87–0.916, has been established in multiple studies (Weinert, 2003).

**Self-Efficacy.** The Self-Efficacy for Managing Chronic Disease 6-Item Scale (SEMCD) (Ritter & Lorig, 2014) is rated on a scale from 1 (*not at all confident*) to 10 (*totally confident*). Items are summed, and a mean is used for the total scale score: A higher number indicates greater self-efficacy. Validity and internal consistency have been demonstrated ( $\alpha = 0.88$ – $0.95$ ; Ritter & Lorig, 2014).

**Quality of Life.** Quality of life was measured by the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) Version 4 (Cella et al., 1993). Although the Kidney Disease Quality of Life (KDQOL) is often used to measure QOL in patients on hemodialysis (Hays et al., 1995; Kim et al., 2013; Korevaar et al., 2002), the FACIT-F was chosen for this study because the KDQOL is administered annually to the HD population. Utilization of a tool not routinely administered provided additional perspective on QOL in dialysis patients and minimized the testing threat. The FACIT-F consists of the FACT-General (FACT-G) plus the FACIT-Fatigue. The 40-item instrument contains five subscales: physical well-being (7 items), social/family well-being (7 items), emotional well-being (6 items), functional well-being (7 items), and additional concerns (13 items). A five-point Likert-type scale is used with items rated 0 to 4 (0 = *not at all*; 1 = *a little bit*; 2 = *somewhat*; 3 = *quite a bit*; and 4 = *very much*), based on the past seven days. Total QOL score is obtained by adding all subscale scores.

Total QOL scores range from 0–160 with higher scores indicating better QOL. Reliability and validity have been established in multiple studies (Al-Shair et al., 2012; Cella et al., 1993; Webster et al., 1999).

**Semi-Structured Interview.** Individual semi-structured interviews with the participants were conducted to further inform the experience of self-management. Interviews with primary caregivers were conducted when available. Participant 2's caregiver was the only caregiver available for interview. Per request, the interview was held jointly. Interviews were audio recorded and transcribed verbatim by the researcher.

**Intervention.** The My Health Companion© (MHC), developed for the Women to Women Project, (Weinert et al., 2010) is a paper-based personal health record that includes basic information, health history, current health information, personal support system, and insurance information. It provides a structure for tracking and maintaining updated health information, increasing health literacy and improving quality of client/provider interactions. The MHC is intended to provide a summary of the impact of chronic illness on lifestyle when a more advanced technological personal health record is unavailable, such as patients with ESRD living in rural areas. My Health Companion© may increase understanding and use of health information, and maximize communication between individuals and health-care providers.

Studies using MHC have demonstrated an increase in perceived self-efficacy in interacting with healthcare providers and helpfulness in health maintenance activities (Weinert & Cudney, 2012). The tool was developed to include psychosocial and spiritual status and resources. The American Health Information Management Association and the American Medical Informatics Association basic principles for personal health records were integrated. Content was further refined based on discussions with the Women to Women team members, and the results of piloting the tool with selected individuals (Weinert et al., 2010). Although developed for the Women to Women project, My Health Companion© was previously used in two additional studies. The Enhancing Self Care (ESC) study tested the tool in 63 women in rural Idaho, Montana, North Dakota, South Dakota, and Wyoming. The Health Enhancement for Rural Elders (HERE) study examined the use of the tool in men (19%) and women (81%) living in small rural towns in eastern Montana (Weinert & Cudney, 2012). Overall use and helpfulness ratings were mixed, and no studies were identified in which MHC was used specifically in persons with ESRD. Persons undergoing renal replacement therapy have frequent interactions with a variety of healthcare providers, take medications for ESRD and associated comorbidities, and have extensive self-management responsibilities, supporting the need for an intervention to assist them in managing complex treatment regimens.

Participants were given My Health Companion© in a folder with labeled dividers between each section. Each



section of the tool was explained to the participant, questions were answered, and assistance with set-up was provided, as needed. An additional page, not part of the original My Health Companion®, was included in the Laboratory Test Results section. This page was used for documenting pre- and post-dialysis weights. Participants were asked to use My Health Companion® for 12 weeks. Participants were provided with a phone number and email for questions regarding MHC® or the study.

### Data Collection

After informed consent was obtained, baseline measures and the demographic survey were completed. Repeat measures for the SEMCD, FACIT-F, and PRQ2000 were obtained at six and 12 weeks. At the end of the 12 weeks, semi-structured interviews were also conducted. Meetings were held at mutually agreed-upon private locations.

### Analysis

Consistent with the approach developed by Yin (2014), survey data and interviews were collected, and each data source was analyzed independently. Individual scores for self-efficacy, social support, and QOL results were entered into SPSS 24.0 and graphed to determine changes over the 12-week time frame. Following graphing of individual results, the three participants' graphs were evaluated collectively to determine whether any changes in scores demonstrated a similar pattern across participants.

Pattern matching compares patterns identified in the case study with predicted patterns made before data collection (Yin, 2014). Almutairi et al. (2014) identify three phases of pattern matching: "(i) stating the study's proposition; (ii) testing the empirically found pattern from each distinct method against the predicted one; and (iii) providing theoretical explanations and developing research outcome" (2014, p. 241). This technique was used to examine the appropriateness of the propositional statements of the study in terms of participant perception of the nonequivalent dependent variables, social support, self-management, and QOL, during the intervention.

Interview data were analyzed by inductive and deductive methods. Each method provided distinct understanding of the impact of social support on self-management and QOL. Finally, the interviews were assessed to determine the acceptability of the MHC® as a tool to assist with self-management of ESRD. Data triangulation using survey data, participant and caregiver interviews, and observation enhanced construct validity.

## FINDINGS

### Sample

Participants included one female and two males, ranging in age from 32–85 years. All were married, Caucasian, and had a high school education. Estimated monthly household income ranged from \$0–4,000. The female and one male had been on dialysis for four to five months; the second male for 54 months. All were hypertensive, and two had diabetes mellitus as co-morbidities.

## Quantitative Results

**Social Support.** Social support scores fluctuated over time (Figure 1). Participant 1, a 32-year-old female, decreased 14% from Time 1 to Time 2 and rebounded at Time 3. Social support for Participant 2, an 85-year-old male, decreased 7.6% from Time 1 to Time 2, with no further decrease at Time 3. Participant 3, a 59-year-old male, increased 3% from Time 1 to Time 2, but decreased below baseline at Time 3 for an overall decrease of 10%.

**Self-Efficacy for Self-Management.** Self-efficacy scores also showed variability among participants over time (Figure 2). Participant 1 reported an increase in self-efficacy for self-management at Time 2 and Time 3 with an overall increase of 50%. However, Participant 2 demonstrated a 14% decrease in self-efficacy. Participant 3 demonstrated no change in self-efficacy at Time 2 and a modest 11% decrease at Time 3.

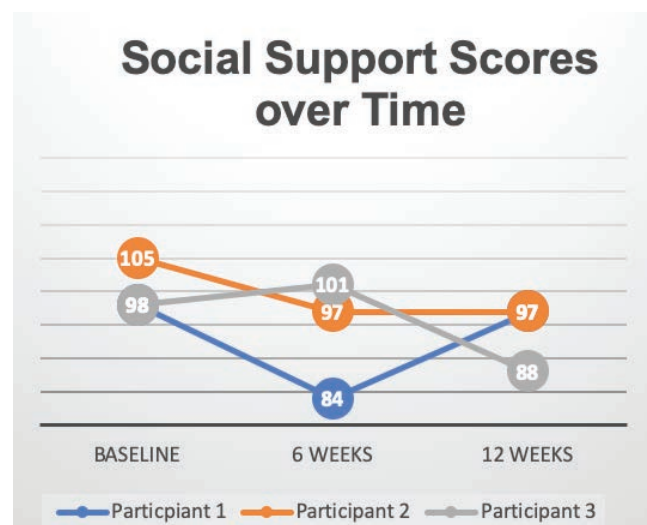


Figure 1. Social Support Scores Over Time

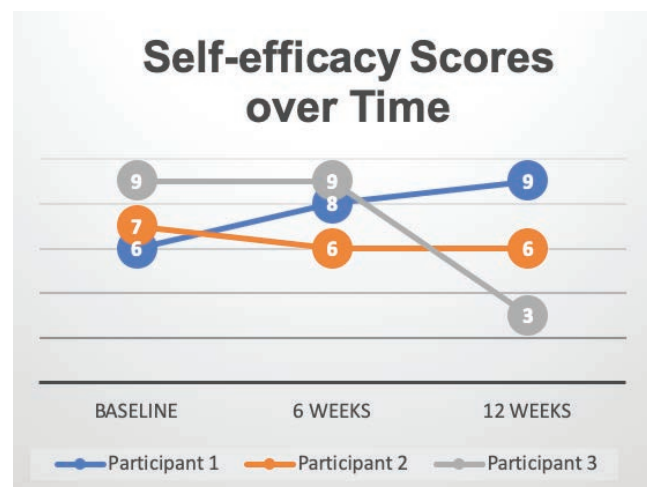


Figure 2. Self-Efficacy for Self-Management Scores Over Time

**Quality of Life.** Quality of life scores also demonstrated varying degrees of change over time (Figure 3). Participant 1 exhibited a 20% increase in quality of life at Time 2. A further increase of 28% was demonstrated between Time 2 and Time 3 for an overall increase of 54%. Participant 2 exhibited a decrease in QOL at Time 2 (3.6%) and Time 3 (17%) with an overall decrease of 20%. The physical well-being subscale remained unchanged at both Time 2 and Time 3. All other quality of life subscales decreased between Times 1 and 3. Participant 3 reported a 24% increase in QOL at Time 2, but decreased (12%) from Time 2 to Time 3, resulting in an overall increase of 9%.

**Theoretical Propositions.** Following pattern matching of quantitative data, results were compared with the theoretical propositions. Explanation building, a type of pattern matching, is used to describe causal links, which may be “difficult to measure precisely” (Yin, 2014, p. 147), such as the complex relationships between the psychosocial responses of patients undergoing HD and QOL and self-management. Explanation building was used to provide critical insight into the theoretical links between social support, self-management of ESRD, and QOL.

The following patterns were identified in the quantitative data for the participants:

1. Adequate social support positively influences self-management and QOL.
2. Living with ESRD later in life can lead to decreased QOL and suboptimal self-management despite ideal levels of social support.
3. Living with ESRD for an extended period results in fluctuating QOL as social support varies over time.

### Qualitative Findings

Interview data were initially coded and analyzed deductively according to the empirical indicators of the concepts underpinning the study: social support, self-efficacy, and QOL. Focal and contextual concepts were included in the survey data. Data that did not fit into these categories were inductively analyzed to further illuminate the perspective of living with ESRD (Almutairi et al., 2014).

### Deductive Analysis

**Social Support.** Participant 1 acknowledged the presence of a strong support system, commenting frequently on the encouragement she receives from her husband and children. And, although they do not live nearby, she has a brother and friends who are willing to be tested for transplant compatibility. Her husband has family locally who she views as supportive. She developed relationships with nurses who cared for her, trusting them to help her make important decisions about dialysis access and mode of dialysis. She also made friends at the dialysis centre and through an on-line support on Facebook. In the early weeks and months on dialysis, that was not enough to prevent her from feeling alone. She commented, “So, he’s been really supportive through it all and my family has as well, so it helps. I don’t feel as alone as I first did.” Her husband, while quick to help with housework, takes her to dialysis, and encourages her to rest,

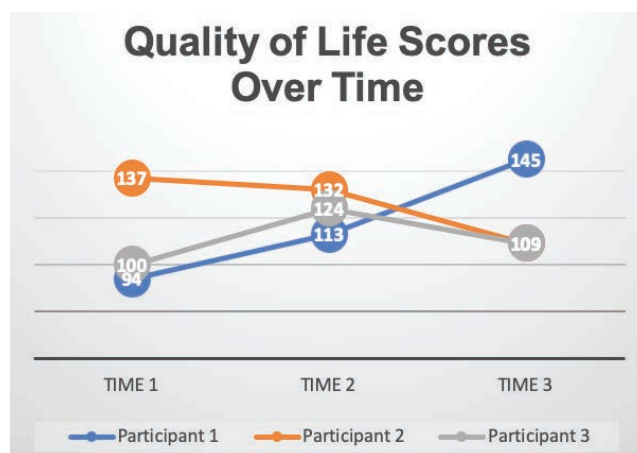


Figure 3. *Quality of Life Scores Over Time*

did not always appreciate the importance of the dietary and fluid restrictions and would say things like, “What do you mean you can’t eat this? Just here, just have some.”

Participant 2 also reported a solid support system. His wife helps with daily tasks that have become difficult. Their daughter lives on the same street and is quickly available for things the wife is unable to do (e.g., helping him up from the floor after a fall or driving them to appointments in larger cities with heavy traffic). Participant 2 is appreciative of the support his wife provides monitoring his blood pressure and weight and helping him to and from dialysis. During the intervention period, he experienced several falls and was hospitalized with pneumonia. These experiences changed the way his support system worked and, consequently, his perception of his support. He felt smothered rather than assisted. He commented of his wife helping, “I can shave, get dressed... I don’t get to do that alone as much as I once did.” Of his wife and children, he says, “Here is an adult and, all of a sudden, if they’re not careful, they become overprotective.” He goes on to say, “I’ve got a lot of instructors. And suddenly, regardless of what you say, they know better.” He acknowledged the need to “keep everybody else kind of calm and happy at the same time and that’s not always easy.”

Participant 3 recalls a specific situation in which he required assistance. He had to put a chair at each end of his yard while mowing, and notes “I’d make a pass and sit down. I’d make another pass and sit down, until that boy next door felt so sorry for me he started mowing my yard for a 12-pack of beer.” Although his wife works, they share cooking and cleaning household duties.

**Self-Efficacy.** All participants acknowledged that, early on, dialysis was overwhelming. They were unprepared for the complex medical regimens and fatigue that accompany HD. Additionally, all participants continued to struggle with low protein levels, each admitting to working on it daily and feeling as though it does not increase in relation to the effort. Participants 1 and 3 also admitted to struggles with medication adherence, particularly with phosphate binders.

Participant 1 demonstrated intentionality in overcoming “the learning curve” by taking what she learned from the dietitian and dialysis staff, and making changes in eating and drinking habits, managing medications, dealing with fatigue, and adjusting family life. Although achieving adequate protein levels is a continual struggle, she worked to develop more self-control and learned that some things must be kept out of the house. She recognized quickly that feeling sick after dialysis treatments was eased when she managed her weight gain and diet more effectively. Although there is some residual fatigue on non-dialysis days, she plans important tasks for those days when she knows she will feel better. Additional challenges in self-management came with balancing the dietary and fluid restrictions of the renal diet with those of the diabetic diet. Meetings with the dietitian both at the hospital and at the dialysis centre helped her reconcile the restrictions associated with ESRD and diabetes.

Consequences related to lack of self-management were an impetus to increased self-management. Compliance with phosphate binders was difficult when she did not understand the purpose or need to take them. After elevated phosphate levels led to physical symptoms, she began taking the binders and watching her diet more closely for phosphorus. She also experienced unexpected benefits from increased dietary compliance. She reports that eliminating foods with excess sodium has altered taste; therefore she no longer feels she is “missing out” on something. She recalls, “We went to a football game a couple of weeks ago and I had a bite of his hot dog and I was like, I can’t do it.” Replying to her husband, “I can taste all the sodium.”

Participant 2 is content to allow his wife to manage many aspects of his illness; cooking based on the renal diet, taking his blood pressure, monitoring his weights, and helping with his medications. He admits that diet is the biggest issue for him, stating “The diet is a big thing because there are certain foods that you need... things you don’t particularly care for, you may need some of those. The real problem comes with foods that you enjoy.” He, like the other participants, has difficulty reaching the protein goal and comments further, “That’s a struggle for me for some reason. I eat a lot of protein-rich foods, but I don’t seem to be able to gain much.”

Participant 3, who has been on dialysis the longest, is adherent with his medication regimen. He checks his blood sugars multiple times daily and self-administers insulin. Since starting dialysis, he has intentionally lost a significant amount of weight to improve his health status. He eventually reached a point where he was more physically active. Since resuming janitorial work with his wife, he admits eating at a local fast-food establishment, sometimes twice daily. He brags that he has lost weight while doing it and feels he craves the protein on the double-meat burger he eats. The fluid restriction is a problem for him. He estimates that he drinks one or two 24-ounce cups from the fast-food establishment each day, even though he is aware his restriction is 48 ounces per day. He feels his low hemoglobin and dry mouth from medications make it more difficult. The

weekend is an especially difficult time, with the extra day between treatments. He states, “So unfortunately, I go in on a Monday and I am taking off six liters. And then by Wednesday I am down to four. So it needs improving. I just can’t seem to stick to the restriction.”

**Quality of Life.** Each participant suggested that, in the early weeks of dialysis, they were faced with vast unexpected changes in almost every aspect of life. Participant 1 expressed that it felt “overwhelming and hectic.” This reflects the perceptions of the other participants as well.

Participant 1 voiced frustration with being unable to attend her son’s out-of-town football games and having to leave early from home games due to fatigue and inability to tolerate the heat on dialysis days. She reported there were days when she just didn’t want to go. Her husband encouraged her, reminding her that he and her boys need her. Her older son, who understands more than the younger one, tries to encourage her. She recalled him saying, “I know you don’t like to go sometimes, but I just want you to do whatever you have to because you have to be here for us.” Encouragement from family keeps her motivated.

Participant 2 experienced several significant changes over the course of the 12 weeks. A corresponding change in his countenance was observed. Although the introduction of dialysis into his life presented challenges, he was not defeated by them at the initial meeting. At the final meeting, during the interview, that was not the case. What had previously been viewed as support was then seen as overbearing. He had spent his life being in charge and was frustrated that his health issues had taken away not just physical independence, but also some of his decision-making authority. The falls and subsequent pneumonia also resulted in relinquishing his job as pastor. His wife said of the decision, “He’s pastored over 60 years and it was really the hardest thing for him to do, was to give up the pastorate. But when he decided, he said, ‘You know, I don’t feel like I’m doing the church right.’” The fatigue and lack of strength caused him to be unable to do the things he once did and enjoyed, significantly impacting his QOL. He explained, “We’re a whole person and whatever affects one area of our lives affects my life.”

Participant 3 had a period of depression when he first began dialysis. He admits, “I shut down completely. I sat there and waited to die.” He went on to say, “I knew that for sure, there was unmistakable, I was dying. Over 250 pounds. All day, every day, six different blood pressure medicines at maximum doses and I wasn’t getting it down. And I was getting these flash edemas and I knew eventually one of them was gonna get me.” After changing from peritoneal dialysis to hemodialysis and getting extra fluid off, he had a change in perspective. He goes on, “I expected to die and then here it is six years and I’m still alive. And I’ve got to see three of my grandkids get born. I got to see some of them starting school that were babies when I started. And I have been able to have a little bit of influence in their lives that I didn’t think I was going to have.”



**My Health Companion®.** My Health Companion® was used to varying degrees by the participants. When asked about the benefit of using MHC®, Participant 1 commented “This has been awesome for me” and “I’m planning on taking this tomorrow with me because it has all my doctor’s information, medications, you know, and different labs.” Participant 2 openly acknowledged that he prefers his wife keep up with information such as that kept in the MHC® book. When asked if it helped, he responded, “I probably didn’t use it as much as helpful. With being sick and all lately, it was hard to feel like doing.” Although the amount it was used is in question, he did not return the book. Participant 3 used the book and indicated it helped him improve his hemoglobin A1C and was beneficial for knowing his other lab values. Despite this, he did not feel it was something he would continue, and the book was returned.

### **Inductive Analysis**

The Women to Women Conceptual Model for Adaptation to Chronic Illness Model did not fully represent the participants’ experiences. This approach yielded important themes that more fully explained the participant’s experiences of living with end-stage renal disease with hemodialysis.

**Hope.** Hope is described as “an inner drive, a positive force” (Jonasson & Gustafsson, 2017, p. 39). Each of the participants spontaneously revealed hope, although they hoped for different things. Participant 1 exuded excitement, as she explained that getting her protein level up would allow her to switch from HD to PD and that she had an appointment for transplant evaluation the following day. Regarding the protein she said, “I’m on Liquicil and protein powder and it just keeps over-spilling and it won’t raise up and it is a disappointment, but I just keep trying.” The idea of a kidney and pancreatic transplant allows her to hope that she will not always be facing the current challenges. Participant 1 also expressed hope that teaching her husband and children about healthy eating will help prevent them from becoming diabetic or on dialysis.

Participant 2 experienced hope, yet it was different than the other participants’ hope. He recalls doctors offering other modes of dialysis and none seeming to fit with his situation. Also, when a doctor discussed transplantation with him, he recalls saying, “Do you mean at my age? I’m 85 years old.” He went on to explain, “I realized that at my age, they aren’t going to keep me together forever anyway.”

Participant 3 had previously been informed that he was not a good candidate for transplantation. During the 12-week intervention, he was told otherwise. The hope for a transplant caused him to more closely evaluate his glucose control and weight. He also had investigated average wait times for transplantation in surrounding regions so that he could be evaluated where a transplant was most likely.

**Control.** Control was a pervasive theme. Although the situation for each participant was unique, when questioned about the impact of dialysis on their lives, the responses echoed one another. Participant 1 said when she first began dialysis, there was only one open chair at the clinic and it

was at 4:45am. She further talks about adjustments to family routine, holiday celebrations, and married life. She said, “We have had to adjust things and work through stuff and he has been a great support system.” She added later, “He has been there every time I have a breakdown... he says you know, calm down, hang in there.” Participant 2 said of dialysis, “It’s like a complete change in your life because you lose control.” He delineates areas in which he has lost control; dressing and shaving alone, driving alone, and being the decision-maker. Participant 3 also commented on control. When asked how being on dialysis affected his life, he responded, “Oh, its affected it a lot, especially when I first started.” Like Participant 2, dialysis resulted in the loss of employment and role as primary provider. Although he prefers clinic dialysis to home HD, he commented, “The other issue that a lot of us have, that I don’t think the clinic really takes into consideration, we’re all anemic.” He explains how cold the clinic is kept and that patients are scheduled to come in groups larger than staff can handle at once, resulting in extended wait times.

### **DISCUSSION AND CONCLUSION**

The Women to Women Conceptual Model for Adaptation to Chronic Illness Model proposes that a person, when faced with an environmental stimulus, will exhibit a psychosocial response, which can, in turn, influence illness management. Although tested previously in unspecified chronic illness, this is the first time that this framework has been tested exclusively in the ESRD population. Although the results of this study were mixed, they support the model, suggesting that ESRD and demographic factors elicit development of social support systems that impact self-efficacy and QOL.

Study results indicated that social support impacted self-efficacy, in line with propositional statement 1. Although this was not the case for Participant 1, the use of MHC® may explain the consistent rise in self-efficacy during times of fluctuating social support. This supports the supposition that MHC® increases self-management since Participant 1 used MHC® extensively. Although scores decreased for the other participants, Participant 3 used MHC® less extensively, and Participant 2’s use is questionable. The varied use of MHC® suggests it may be more beneficial for certain sub-populations of persons undergoing HD than others.

Overall QOL scores increased in participants who used MHC®. This is consistent with prior findings suggesting that self-management programs can improve QOL for patients with CKD (Lin et al., 2017). Although QOL in Participant 1 increased considerably more than Participant 3, this may be explained by a decrease in utilization by Participant 3 by the mid-point.

Study results failed to support the theory that social support impacts QOL. Although participants demonstrated dissimilar patterns when comparing social support and QOL, the social well-being subscale of the FACIT-F decreased in all participants over time. This suggests that social support may affect some aspects of QOL and not others. A common finding among the participants was that family acceptance of the illness varies over time, affecting

both social support and social well-being. Despite declining social support, QOL increased in both participants who had hope of transplantation, and may be explained by Weisbord (2016), who found that “few interventions other than renal transplantation have been shown to meaningfully enhance QOL in this population” (p. 161).

Perceptions of the effectiveness of MHC© were significantly mixed. It was most effectively utilized by Participant 1, the only one to indicate a desire to continue after the study ended. Advantages included the low-technology aspect where the information is easily at hand, even when technology is unavailable. An unexpected finding was that MHC© was utilized most extensively by the youngest participant who lives in an urban setting and has access to high-speed internet and associated technologies.

Qualitative data did not mirror quantitative data in several aspects in this study. Although Participant 1 positively spoke about her support, the PRQ score dropped at the mid-point without explanation in the qualitative data. Although Participant 1 described her husband as “very supportive” and claims a solid support system, she reported a decrease in social support at the mid-point, which is not reflected in the qualitative data. Participant 2 exhibited dramatic decline in study outcomes, including subscales of the FACIT-F. His social support scores are misleading, matching those of Participant 1. Qualitative data from his

interview indicate this support became oppressive, and diminished his independence and self-care. This was corroborated by qualitative data from his wife. Additionally, although his QOL score at the end-point was equal to that of Participant 3, there was a noticeable difference in the countenance of the two men, indicating decline in QOL was more significant than indicated by quantitative measures. The decline in QOL may have been the result of significant health issues experienced by Participant 2. Participant 2 experienced a loss of vocational capacity (Gerogianni et al., 2016; Weisbord, 2016) and functional decline (Lee et al., 2015), which have been found to be factors affecting QOL in chronic dialysis patients.

Recommendations for further research include replication of the study with a larger sample size, including persons in urban areas, and development of a digital application that mirrors the paper tool. The distinctive needs of persons undergoing HD highlight the importance of developing individualized tools for self-management that consider factors of age, length of time on dialysis, and comorbidities. MHC© can be a viable option for those interested in self-management and may be more beneficial for certain subpopulations than others. Nurses are responsible for acting as patient advocates by collaborating with the health-care team and working to develop tailored, patient-centred interventions.

## REFERENCES

- Al-shair, K., Muellerova, H., Yorke, J., Rennard, S. I., Wouters, E. F., Hanania, N. A., Sharafkhan, A., Vestbo, J., & ECLIPSE investigators (2012). Examining fatigue in COPD: Development, validity and reliability of a modified version of FACIT-F scale. *Health and Quality of Life Outcomes*, 10, 100. <https://doi.org/10.1186/1477-7525-10-100>
- Aliasgharpour, M., Shomali, M., Moghaddam, M. Z., & Faghihzadeh, S. (2012). Effect of a self-efficacy promotion training programme on body weight changes in patients undergoing haemodialysis. *Journal of Renal Care*, 38(3), 155–161.
- Almachraki, F., Tuffi, M., Lee, P., Desmarais, M., Shih, H., Nissenson, A., & Krishnan, M. (2016). Socioeconomic status of counties where dialysis clinics are located in an important factor in comparing dialysis providers. *Population Health Management*, 19(1), 70–75. <https://doi.org/10.1089/pop.2014.0158>
- Almutairi, A., Gardner, G., & McCarthy, A. (2014). Practical guidance for the use of a pattern-matching technique in case-study research: A case presentation. *Nursing and Health Sciences*, 16, 239–244. <https://doi.org/10.1111/nhs.12096>
- Alston, H., & Burns, A. (2015). Conservative care of the patient with end-stage renal disease. *Clinical Medicine*, 15(6), 567–570. <https://doi.org/10.7861/clinmedicine.15-6-567>
- Bratzke, L., Muehrer, R., Kehl, K., Lee, K., Ward, E., & Kwekkeboom, K. (2015). Self-management priority setting and decision-making in adults with multimorbidity: A narrative review of literature. *International Journal of Nursing Studies*, 52, 744–755. <http://dx.doi.org/10.1016/j.jnurstu.2014.10.010>
- Cella, D. F., Tulskey, D. S., Gray, G., Sarafian, B., Linn, E., Bonomi, A., Silberman, M., Yellen, S. B., Winicour, P., & Brennan, J. (1993). The functional assessment of cancer therapy scale: Development and validation of the general measure. *Journal of Clinical Oncology*, 11(3), 570–579.
- Chan, R., Brooks, R., Erlich, J., Gallagher, M., Snelling, P., Chow, J., & Suranyi, M. (2011). Studying psychosocial adaptation to end-stage renal disease: The proximal-distal model of health-related outcomes as a base model. *Journal of Psychosomatic Research*, 70, 455–464. <http://dx.doi.org/10.1016/j.psychores.2010.11.005>
- Curtin, R. B., & Mapes, D. L. (2001). Health care management strategies of long-term dialysis survivors. *Nephrology Nursing Journal*, 28(4), 385–392.
- Dwarswaard, J., Bakker, E., van Staa, A., & Boeije, H. (2016). Self-management support from the perspective of patients with a chronic condition: A thematic synthesis of qualitative studies. *Health Expectations*, 19, 194–208.
- Gerogianni, S., Babatsikou, Gerogianni, G., Koutis, C., Panagiotou, M., & Psimenou, E. (2016). Social life of patients undergoing haemodialysis. *International Journal of Caring Sciences*, 9(1), 122–134.
- Griva, K., Ng, H. J., Loei, J., Mooppil, N., McBain, H., & Newman, S. P. (2013). Managing treatment for end-stage renal disease – A qualitative study exploring cultural perspectives on facilitators and barriers to treatment adherence. *Psychology & Health*, 28(1), 13–29. <http://dx.doi.org/10.1080/08870446.2012.703670>
- Hays, R. D., Kallich, J. D., Mapes, D. L., Coons, S. J., Amin, N., Carter, W. B., & Kamberg, C. (1997). *Kidney Disease Quality of Life Short Form (KDQOL-SF), Version 1.3: A Manual for Use and Scoring*. RAND Corporation. <https://www.rand.org/pubs/papers/P7994.html>
- Jankowska-Polańska, B., Uchmanowicz, I., Wysocka, A., Uchmanowicz, B., Lomper, K., & Fal, A. (2016). Factors affecting the quality of life of chronic dialysis patients. *The European Journal of Public Health*, 27(2), 262–267. <https://doi.org/10.1093/eurpub/ckw193>

- Jonasson, K., & Gustafsson, L. (2017). You live as much as you have time to: The experience of patients living with hemodialysis. *Nephrology Nursing Journal*, 44(1), 35–42.
- Khalil, A. A., & Abed, M. A. (2014). Perceived social support is a partial mediator of the relationship between depressive symptoms and quality of life in patients receiving hemodialysis. *Archives of Psychiatric Nursing*, 28, 114–118. <http://dx.doi.org/10.1016/j.apnu.2013.11.007>
- Kim, J.-Y., Kim, B., Park, K.-S., Choi, J.-Y., Seo, J.-J., Park, S.-H., Kim, C.-D., & Kim, Y. L. (2013). Health-related quality of life with KDQOL-36 and its association with self-efficacy and treatment satisfaction in Korean dialysis patients. *Quality of Life Research*, 22, 753–758. <http://dx.doi.org/10.1007/s11136-012-0203-x>
- Korevaar, J. C., Jansen, M. P., Dekker, F. W., Boeschoten, E. W., & Krediet, R. T. (2002). Validation of the KDQOL-SF: A dialysis-targeted health measure. *Quality of Life Research*, 11, 437–447.
- Kvaal, K., Halding, A., & Kvigne, K. (2014). Social provision and loneliness among older people suffering from chronic physical illness. A mixed-methods approach. *Scandinavian Journal of Caring Sciences*, 28, 104–110.
- Lee, J., Kim, K., & Kim, J. (2015). Factors influencing quality of life in adult end-stage renal disease patients undergoing hemodialysis. *The Journal of Nursing Research*, 23(3), 181–188. <http://doi.org/10.1097/jnr.0000000000000087>
- Li, H., Jiang, Y., & Lin, C. (2014). Factors associated with self-management by people undergoing hemodialysis: A descriptive study. *International Journal of Nursing Studies*, 51, 208–216. <http://dx.doi.org/10.1016/j.ijnurstu.2013.05.012>
- Lin, M., Liu, M., Hsu, L., & Tsai, P. (2017). Effects of self-management on chronic kidney disease: A meta-analysis. *International Journal of Nursing Studies*, 74, 128–137. <https://doi.org/10.1016/j.ijnurstu.2017.06.008>
- McKillop, G., & Joy, J. (2013). Patients' experience and perceptions of polypharmacy in chronic kidney disease and its impact on adherent behaviour. *Journal of Renal Care*, 39(4), 200–207.
- Novak, M., Costantini, L., Schneider, S., & Beanlands, H. (2013). Approaches to self-management in chronic illness. *Seminars in Dialysis*, 26(2), 188–194. <http://dx.doi.org/10.1111/sdi.12080>
- Ritter, P. L., & Lorig, K. (2014). The English and Spanish Self-Efficacy to Manage Chronic Disease Scale measures were validated using multiple studies. *Journal of Clinical Epidemiology*, 67(11), 1265–1273. <http://dx.doi.org/10.1016/j.jclinepi.2014.06.009>
- Schulman-Green, D., Jaser, S., Martin, F., Alonzo, A., Grey, M., McCorkle, R., Redeker, N. S., Reynolds, N., & Whittemore, R. (2012). Processes of self-management in chronic illness. *Journal of Nursing Scholarship*, 44(2), 136–144. <https://doi.org/10.1111/j.1547-5069.2012.01444.x>
- Sritarapipat, P., Pothiban, L., Panuthai, S., Lumlertgul, D., & Nanasilp, P. (2012). Causal model of elderly Thais' self-management behaviors of pre-dialysis chronic kidney disease. *Pacific Rim International Journal of Nursing Research*, 16(4), 277–293.
- United States Renal Data System. (2017). 2017 *USRDS annual data report volume 2: End-stage renal disease in the United States*. National Institutes of Diabetes, Digestive, and Kidney Disorders. [https://www.usrds.org/media/2286/2017\\_volume\\_2\\_esrd\\_in\\_the\\_us.pdf](https://www.usrds.org/media/2286/2017_volume_2_esrd_in_the_us.pdf)
- van Houtum, L., Rijken, M., & Groenewegen, P. (2015). Do everyday problems of people with chronic illness interfere with their disease management? *BioMed Central Public Health*, 15, 1–9. <http://dx.doi.org/10.1186/s12889-015-2303-3>
- Wakeel, J. A., Harbi, A. A., Bayoumi, M., Al-Suwaid, K., & Ghonaim, M. A. (2012). Quality of life in hemodialysis and peritoneal dialysis patients in Saudi Arabia. *Annals of Saudi Medicine*, 32(6), 570–574. <http://dx.doi.org/10.5144/0256-4947.2012.570>
- Walker, R., Marshall, M., & Polaschek, N. (2013). Improving self-management in chronic kidney disease: A pilot study. *Renal Society of Australasia*, 9(3), 116–125.
- Washington, T. R. (2016). *Older adult kidney disease self-management and depression, self-efficacy, illness perception, and social support* (Doctoral dissertation). ProQuest.
- Webster, K., Odom, L., Peterman, A., Lent, L., & Cella, D. (1999). The Functional Assessment of Chronic Illness Therapy (FACIT) measurement system: Validation of version 4 of the core questionnaire. *Quality of Life Research*, 8(7), 604.
- Weinert, C. (2003). Measuring social support: PRQ2000. In O. Strickland & C. DiIorio (Eds.), *Measurement of nursing outcomes: Self-care and coping* (pp. 161–172). Springer.
- Weinert, C., & Cudney, S. (2012). My Health Companion®: A low-tech personal health record can be an essential tool for maintaining health. *Online Journal of Rural Nursing and Health Care*, 12(1), 3–15.
- Weinert, C., Cudney, S., & Kinion, E. (2010). Development of My Health Companion® to enhance self-care management of chronic health conditions in rural dwellers. *Public Health Nursing*, 27(3), 263–269. <http://dx.doi.org/10.1111/j.1525-1446.2010.00852.x>
- Weinert, C., Cudney, S., & Spring, A. (2008). Evolution of a conceptual model for adaptation to chronic illness. *Journal of Nursing Scholarship*, 40(4), 364–372.
- Weisbord, S. (2016). Patient-centered dialysis care: Depression, pain, and quality of life. *Seminars in Dialysis*, 29(2), 158–164. <https://doi.org/10.1111/sdi.12464>
- Wells, J. R., & Anderson, S. T. (2011). Self-efficacy and social support in African Americans diagnosed with end stage renal disease. *The ABNF Journal*, 9–12.
- Yin, R. K. (2014). *Case study research design and methods* (5<sup>th</sup> ed.). SAGE Publications.



# Medical use of cannabis for patients with end-stage kidney disease

By Josephine Ho and Marisa Battistella

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## OBJECTIVES

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

1. Differentiate between cannabis, cannabinoids, and synthetic/non-synthetic cannabinoids.
2. Describe the different methods of obtaining cannabis products in Canada currently.
3. Outline common reasons for cannabis use among patients with end-stage kidney disease (ESKD).
4. Understand the quantity and quality of current evidence regarding cannabis use in patients with ESKD.
5. Summarize adverse effects and monitoring parameters for cannabis use among patients with ESKD.

## INTRODUCTION

In recent years, cannabis has been a topic of frequent discussion in healthcare and non-healthcare settings. This is partly driven by recent legislative changes for non-medical cannabis in Canada in 2018 (MacKay et al., 2018). In the 2019 Canadian Cannabis Survey, it was found that 14% of respondents used cannabis for medical purposes and 25% used cannabis for non-medical purposes in the preceding 12 months. Both of these values represented an increase from the 2018 survey results, from 13% and 22% respectively (Health Canada, 2019a). The purpose of this review is to

discuss the use of cannabis for medical purposes in patients with end-stage kidney disease (ESKD). A brief review of the evidence for efficacy and outline of key safety considerations will be included.

## DEFINITIONS, COMMON NAMES, AND DOSAGE FORMS

Cannabis refers to products derived from the leaves and flowers of the *Cannabis* plant. There are several different strains, with the most common species being *Cannabis sativa*, and *Cannabis indica* (Hillig & Mahlberg, 2004). Cannabinoids are chemical compounds found in these plants that can bind to cannabinoid receptors in the human body. Cannabis contains more than 100 cannabinoids (Ashton, 2001).

Two cannabinoids of interest are cannabidiol (CBD) and delta-9-tetrahydrocannabinol (THC) due to their pharmacologic properties. THC is the main psychoactive cannabinoid, with effects on emotion and cognition, causing a range of effects including euphoria, dysphoria, and hallucinations. CBD enters the central nervous system, but does not have psychoactive effects. Animal and human studies have demonstrated that CBD has analgesic, anti-inflammatory, anti-nausea, anti-emetic, anti-ischemic, and anti-epileptiform effects (Health Canada, 2018). Cannabis products can have varying ratios of different cannabinoids. Synthetic cannabinoids are manufactured artificially, whereas non-synthetic cannabinoids are naturally occurring in *Cannabis* plants. This review will focus on non-synthetic cannabinoids in ESKD.

Other common names for cannabis include marijuana, weed, pot, herb, and grass (Wright, 2017). The variety of cannabis products is vast, including dried flower for smoking, vaporizers, oils, liquid/solid concentrates, capsules, and edible products, as some examples (Health Canada, 2018).

## LEGAL STATUS IN CANADA

The Cannabis Act in 2018 replaced the former Access to Cannabis for Medical Purposes Regulations (ACMPR) as the formal regulating document for medical cannabis,

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although no changes to the regulations were made. In summary, to obtain medical cannabis, patients require authorization in the form of a signed document from a healthcare practitioner. This is similar to a prescription, detailing the amount of dried cannabis authorized per day and the duration of authorization. It does not contain other information such as the strain, percentage of specific cannabinoids such as THC or CBD, or a specific retailer. Patients can present this document to licensed sellers to purchase medical cannabis, or they can apply to Health Canada to produce their own cannabis. Limitations on the amount of dried cannabis (or equivalent) that patients are permitted to possess at a time for medical use are outlined in the Cannabis Act (MacKay et al., 2018).

The major change that the Cannabis Act brought was in regard to recreational cannabis. This act, which was passed on October 17, 2018, legalized the sale, purchase, and possession of cannabis for recreational purposes with certain limitations on the legal age, quantity, and types of products permitted. The goals of this act were to restrict access of cannabis from youth (under the age of 25), reduce illicit activities related to cannabis, reduce burden on the criminal justice system, and control the quality of cannabis (MacKay et al., 2018). An amendment to the Cannabis Act on October 17, 2019, permitted the sale of edible cannabis, cannabis extracts, and topical products that were previously not permitted (Health Canada, 2019b).

Although the regulations of medical cannabis have not changed, the legalization of recreational cannabis has increased public access to cannabis—particularly for patients interested in using it for medical purposes without medical authorization. The Canadian Cannabis Survey in 2019 found that 73% of Canadians using cannabis for medical purposes did not have medical authorization (Health Canada, 2019a). This is an important consideration for clinicians outside of medical cannabis clinics.

## **REASONS FOR CANNABIS USE IN PATIENTS WITH ESKD**

Patients with chronic kidney disease (CKD) stages 4 and above experience an average of 13 symptoms, such as pain, fatigue, nausea, and anxiety (Almutary et al., 2016). Thus, improving quality of life is a key goal of therapy. This is done through the initiation of dialysis and pharmacologic agents. However, some limitations of conventional pharmacologic agents include adverse effects, refractory symptoms, and polypharmacy. In fact, one study showed that hemodialysis patients have a mean daily pill burden of 19 for oral medications, which is among the highest for all chronic diseases (Chiu et al., 2009). There is interest in using cannabis to treat these symptoms.

In a recent review, Ho et al. (2019) reviewed the existing evidence for use of cannabis to treat symptoms of ESKD. Some highlights of the review for managing pain, nausea, vomiting, anorexia, insomnia, and uremic pruritus are presented below.

## **Pain**

There are several studies and meta-analyses showing a beneficial effect of cannabis for pain relief compared to placebo, particularly for neuropathic pain (Ho et al., 2019). In one small study, smoked cannabis showed greater analgesic effect than placebo in human immunodeficiency virus (HIV)-associated sensory neuropathy (Abrams et al., 2007). In two other larger meta-analyses, cannabis-products (including oromucosal sprays, synthetic cannabinoids, and inhaled herbal cannabis) showed greater pain relief compared to placebo for neuropathic pain of various etiologies (Andreae et al., 2015; Mücke et al., 2018). Despite this benefit, the routine use of cannabis is limited by adverse effects, variability in product, lack of evidence in renal impairment, and variability in study population. It may be an option when traditional agents are ineffective or intolerable (Ho et al., 2019).

## **Nausea and Vomiting**

Cannabinoids have shown some efficacy in treating chemotherapy-induced nausea and vomiting (CINV) (Ho et al., 2019). In a systematic review by Smith et al. (2015), more patients receiving synthetic cannabinoids had absence of CINV compared to placebo. When compared to prochlorperazine, another agent commonly used to prevent/treat CINV, more patients in the cannabinoid group withdrew due to adverse effects or a lack of efficacy. In either case, patients receiving cannabinoids reported euphoria, dysphoria, dizziness, and sedation (Smith et al., 2015). A small study in patients who experienced nausea and vomiting induced by syrup of ipecac showed that smoked cannabis was more effective than placebo in reducing nausea and vomiting. However, when compared to ondansetron, smoked cannabis was less effective (Söderpalm et al., 2001). Although cannabinoids showed some efficacy for CINV, the role in managing nausea and vomiting associated with ESKD is yet to be determined due to a lack of evidence in this population. Studies in other populations have also highlighted that central nervous system adverse effects may limit its use.

## **Anorexia and Appetite Stimulation**

Cannabinoids have been studied in patients with HIV-associated wasting syndrome and cancer-related cachexia. Two studies showed that patients who smoked cannabis at baseline, smoked cannabis and dronabinol (a synthetic cannabinoid) resulted in increased caloric intake and body weight in patients with HIV-associated wasting syndrome (Haney et al., 2005; Haney et al., 2007). One study in patients with cancer-related cachexia showed no difference in improving appetite between cannabis and placebo (Strasser et al., 2006).

There are no studies looking at patients with anorexia or cachexia associated with ESKD (Ho et al., 2019). The studies in the HIV and cancer population also did not include patients with renal impairment. Due to a lack of evidence in patients with renal impairment or ESKD, there is a limited role for cannabis.

## Insomnia

A systematic review by Whiting et al. (2015) identified some studies that did show some benefit of cannabinoids in improving sleep. Of note, most studies were in patients with chronic pain, and investigated insomnia as a secondary endpoint. When compared to placebo or amitriptyline, nabilone showed improvement in sleep apnea and insomnia. In patients with chronic pain or multiple sclerosis, various cannabinoids such as nabiximols, nabilone, dronabinol, and smoked cannabis showed improvements in sleep (Whiting et al., 2015).

There is a paucity of evidence for cannabis in treating primary insomnia or in patients with ESKD and receiving hemodialysis (Ho et al., 2019). Additionally, within the current evidence in other populations, high variability exists in the type of product used. Additional studies are needed to determine the role of cannabis in managing insomnia for patients on hemodialysis.

## Uremic Pruritus

There is one study that was done specifically in hemodialysis patients with uremic pruritus, which showed that a topical cream containing cannabinoids and a lipid mixture reduced pruritus and xerosis after three weeks of use. However, the study population was small (21 patients), and there was no control group for comparison of effect (Szepietowski et al., 2005). There is a potential role of topical cannabinoids for the treatment of uremic pruritus. Larger studies with a control group are needed to support its efficacy and safety. Commercial topical cannabinoid products are also not readily available at this time, which may limit its use.

Overall, current evidence for cannabis in managing symptoms of ESKD are mostly derived from other patient population groups. Studies focusing on patients with ESKD or receiving hemodialysis are scarce. Within the available evidence, various cannabis products were used, including synthetic and non-synthetic cannabinoids. Some benefit has been observed for the symptoms listed above with these products, but overall, studies were limited by small sample sizes, variable quality of evidence, mixed products, and a lack of inclusion of patients with renal impairment. The role of cannabis in hemodialysis patients for these symptoms is not yet determined and may be experimental or a last-line option.

## ADVERSE EFFECTS AND MONITORING

Cannabis affects multiple body systems. In the central nervous system, it can produce a range of effects, including euphoria, dysphoria, panic attacks, paranoid thoughts, and hallucinations (Ashton, 2001). These psychoactive effects appear to be more prominent with products containing a higher THC content (Health Canada, 2018). Cannabis dependence and impairment on driving ability are also concerns. A recent review found that acute cannabis intoxication was associated with an increased risk of motor vehicle accidents (Rogeberg & Elvik, 2016).

In the respiratory system, smoked cannabis is concerning, as it has components similar to tobacco smoke, such as carbon monoxide and carcinogens (benzanthracenes and benzpyrenes). Cannabis joints are also smoked differently (through deep prolonged inhalations) than tobacco, which may cause higher retention of irritants in the respiratory tract. Long-term use is associated with bronchitis and emphysema (Ashton, 2001).

In the cardiovascular system, it was found that cannabis use was associated with higher mortality after myocardial infarction, increased heart rate and blood pressure, and also cases of orthostatic hypotension and syncope have been noted (Ashton, 2001). This may be of particular concern in patients receiving hemodialysis who may experience orthostatic hypotension from fluid removal during dialysis.

Cannabis has not been shown to affect kidney function, or accumulate in renal dysfunction, as it is metabolized in the liver and cleared mostly in the feces (Ho et al., 2019). However, there are case reports of acute kidney injury resulting from smoking or vaping synthetic cannabis, possibly related to the solvent used in those products, a contaminant, or the specific cannabinoid of those products (Buser et al., 2014).

Withdrawal from cannabis occurs after abrupt discontinuation of cannabis. Symptoms include nervousness, irritability, restlessness, twitch, nausea, stomach pain, increased appetite, and muscle pain (Ashton, 2001). Despite hepatic clearance of cannabis, one case report describes a patient experiencing withdrawal symptoms from cannabis three hours after initiating hemodialysis (Laprevote et al., 2015).

Although cannabis is minimally dependent on renal clearance and has not been shown to affect renal function, case reports have shown unexpected adverse effects such as acute kidney injury and cannabis withdrawal symptoms during hemodialysis. The frequency of these effects or whether the acute kidney injury was related to a solvent or contaminant within the product as opposed to cannabis itself is unclear. Thus, in patients who use cannabis, monitoring of these effects and of the multi-organ system adverse effects should be done. Additionally, incorporating cannabis use as part of routine information gathering during patient assessments can help to identify patients who use cannabis and facilitate monitoring of adverse effects.

## CONCLUSION

Recent legislative changes in Canada have increased accessibility and interest in using cannabis to manage refractory symptoms for patients with end-stage kidney disease. This population is at higher risk of adverse effects due to multiple comorbidities and polypharmacy. Recent reviews have highlighted a paucity of evidence investigating the effects of cannabis in this population. Most of the data are extrapolated from studies of other patient populations such as oncology and HIV. Furthermore, the diversity of cannabis products, doses, concentrations of key cannabinoids, and dosage forms adds to this complexity. Future studies investigating the efficacy and safety of cannabis for symptom management in patients with ESKD and receiving hemodialysis are needed.



## REFERENCES

- Abrams, D. I., Jay, C. A., Shade, S. B., Vizoso, H., Reda, H., Press, S., Kelly, M. E., Rowbotham, M. C., & Petersen, K. L. (2007). Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial. *Neurology*, 68(7), 515–521. <https://doi.org/10.1212/01.wnl.0000253187.66183.9c>
- Almutary H., Bonner A., & Douglas, C. (2016). Which patients with chronic kidney disease have the greatest symptom burden? A comparative study of advanced CKD stage and dialysis modality. *Journal of Renal Care*, 42(2), 73–82. <https://doi.org/10.1111/jorc.12152>
- Andreae, M. H., Carter, G. M., Shaparin, N., Suslov, K., Ellis, R. J., Ware, M. A., Abrams, D. I., Prasad, H., Wilsey, B., Indyk, D., Johnson, M., & Sacks, H. S. (2015). Inhaled cannabis for chronic neuropathic pain: A meta-analysis of individual patient data. *The Journal of Pain*, 16(12), 1221–1232. <https://doi.org/10.1016/j.jpain.2015.07.009>
- Ashton, C. H. (2001). Pharmacology and effects of cannabis: A brief review. *The British Journal of Psychiatry: The Journal of Mental Science*, 178, 101–106. <https://doi.org/10.1192/bjp.178.2.101>
- Buser, G. L., Geron, R. R., Horowitz, B. Z., Vian, K. P., Troxell, M. L., Hendrickson, R. G., Houghton, D. C., Rozansky, D., Su, S. W., & Leman, R. (2014). Acute kidney injury associated with smoking synthetic cannabinoid. *Clinical Toxicology*, 52(7), 664–673. <https://doi.org/10.3109/15563650.2014.932365>
- Chiu, Y. W., Teitelbaum, I., Misra, M., de Leon, E. M., Adzize, T., & Mehrotra, R. (2009). Pill burden, adherence, hyperphosphatemia, and quality of life in maintenance dialysis patients. *Clinical Journal of the American Society of Nephrology*, 4(6), 1089–1096. <https://doi.org/10.2215/CJN.00290109>
- Haney, M., Gunderson, E. W., Rabkin, J., Hart, C. L., Vosburg, S. K., Comer, S. D., & Foltin, R. W. (2007). Dronabinol and marijuana in HIV-positive marijuana smokers. Caloric intake, mood, and sleep. *Journal of Acquired Immune Deficiency Syndromes*, 45(5), 545–554. <https://doi.org/10.1097/QAI.0b013e31811ed205>
- Haney, M., Rabkin, J., Gunderson, E., & Foltin, R. W. (2005). Dronabinol and marijuana in HIV(+) marijuana smokers: Acute effects on caloric intake and mood. *Psychopharmacology*, 181(1), 170–178. <https://doi.org/10.1007/s00213-005-2242-2>
- Health Canada. (2018). *Information for health care professionals: Canna20bis (marihuana, marijuana) and the cannabinoids*. <https://www.canada.ca/content/dam/hc-sc/documents/services/drugs-medication/cannabis/information-medical-practitioners/information-health-care-professionals-cannabis-cannabinoids-eng.pdf>
- Health Canada. (2019a). *Canadian Cannabis Survey 2019 – Summary*. <https://www.canada.ca/en/health-canada/services/publications/drugs-health-products/canadian-cannabis-survey-2019-summary.html>
- Health Canada. (2019b, June 14). *Health Canada finalizes regulations for the production and sale of edible cannabis, cannabis extracts and cannabis topicals*. <https://www.canada.ca/en/health-canada/news/2019/06/health-canada-finalizes-regulations-for-the-production-and-sale-of-edible-cannabis-cannabis-extracts-and-cannabis-topicals.html>
- Hillig, K., & Mahlberg, P. (2004). A chemotaxonomic analysis of cannabinoid variation in Cannabis (Cannabaceae). *American Journal of Botany*, 91(6), 966–975. <https://doi.org/10.3732/ajb.91.6.966>
- Ho, C., Martinussen, D., & Lo, C. (2019). A review of cannabis in chronic kidney disease symptom management. *Canadian Journal of Kidney Health and Disease*, 6, 1–14. <https://doi.org/10.1177/2054358119828391>
- Laprevote V., Gambier N., Cridlig J., Savenkoff B., Scala-Bertola J., Hingray C., Schwan R. (2015). Early withdrawal effects in a heavy cannabis smoker during hemodialysis. *Biological Psychiatry*, 77(5), e25–e26. <https://doi.org/10.1016/j.biopsych.2014.07.032>
- MacKay, R., Phillips, K., & Tiedemann, M. (2018). *An Act respecting cannabis and to amend the Controlled Drugs and Substances Act, the Criminal Code and other acts*. <https://lop.parl.ca/staticfiles/PublicWebsite/c45-e.pdf>
- Mücke, M., Phillips, T., Radbruch, L., Petzke, F., & Häuser, W. (2018). Cannabis-based medicines for chronic neuropathic pain in adults. *The Cochrane Database of Systematic Reviews*, 3(3), CD012182. <https://doi.org/10.1002/14651858.CD012182.pub2>
- Rogeberg, O., & Elvik, R. (2016). The effects of cannabis intoxication on motor vehicle collision revisited and revised. *Addiction*, 111(8), 1348–1359. <https://doi.org/10.1111/add.13347>
- Smith, L. A., Azariah, F., Lavender, V. T., Stoner, N. S., & Bettiol, S. (2015). Cannabinoids for nausea and vomiting in adults with cancer receiving chemotherapy. *The Cochrane database of systematic reviews*, 2015(11), CD009464. <https://doi.org/10.1002/14651858.CD009464.pub2>
- Söderpalm, A. H., Schuster, A., & de Wit, H. (2001). Antiemetic efficacy of smoked marijuana: subjective and behavioral effects on nausea induced by syrup of ipecac. *Pharmacology, Biochemistry, and Behavior*, 69(3–4), 343–350. [https://doi.org/10.1016/s0091-3057\(01\)00533-0](https://doi.org/10.1016/s0091-3057(01)00533-0)
- Strasser, F., Luftner, D., Possinger, K., Ernst, G., Ruhstaller, T., Meissner, W., Ko, Y. D., Schnelle, M., Reif, M., & Cerny, T. (2006). Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-In-Cachexia-Study-Group. *Journal of Clinical Oncology*, 24(21), 3394–3400. <https://doi.org/10.1200/JCO.2005.05.1847>
- Szepietowski, J. C., Szepietowski, T., & Reich, A. (2005). Efficacy and tolerance of the cream containing structured physiological lipids with endocannabinoids in the treatment of uremic pruritus: A preliminary study. *Acta Dermatovenereologica Croatica*, 13(2), 97–103.
- Whiting, P. F., Wolff, R. F., Deshpande, S., Di Nisio, M., Duffy, S., Hernandez, A. V., Keurentjes, J. C., Lang, S., Misso, K., Ryder, S., Schmidkofer, S., Westwood, M., & Kleijnen, J. (2015). Cannabinoids for medical Use: A systematic review and meta-analysis. *JAMA*, 313(24), 2456–2473. <https://doi.org/10.1001/jama.2015.6358>
- Wright J. (2017, November 17). *Weed, cannabis, pot or marijuana: What's the difference?* <https://www.cbc.ca/news/canada/new-brunswick-weed-pot-cannabis-marijuana-whats-the-difference-1.4405440>

# Medical use of cannabis for patients with end-stage kidney disease

By Josephine Ho and Marisa Battistella

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1. Which of the following is **not** one of the goals of the Cannabis Act?
  - a) Increase tax revenues from regulation of cannabis sales
  - b) Regulating the quality of cannabis products
  - c) Restricting access of cannabis from youth
  - d) Reducing illicit activities related to cannabis
2. Which of the following is a requirement on the medical authorization document for accessing medical cannabis?
  - a) Strain of cannabis product
  - b) THC and CBD ratio of the cannabis product
  - c) Amount of cannabis per day
  - d) Retailer to purchase cannabis from
3. Which of the following are dosage forms of cannabis products available?
  - a) Dried flower for smoking
  - b) Oils
  - c) Capsules
  - d) Liquid concentrate
  - e) All of the above
4. Cannabis has been studied specifically in patients with ESKD for which of the following symptoms?
  - a) Chronic pain
  - b) Nausea and vomiting
  - c) Anorexia
  - d) Insomnia
  - e) All of the above
  - f) None of the above
5. Which of the following methods of administration of cannabis are most concerning for respiratory side effects?
  - a) Smoking
  - b) Oral ingestion of capsule
  - c) Oral ingestion of oil or liquid concentrate
  - d) Topical application
6. Which of the following is **not** a key monitoring parameter for a patient receiving hemodialysis who also uses cannabis regularly?
  - a) Symptoms of withdrawal (e.g., anxiety, restlessness, irritability)
  - b) Blood pressure
  - c) Allergic skin reaction
  - d) Abnormal behavior (e.g., euphoria, dysphoria, hallucinations)
7. Approximately what proportion of Canadians use cannabis for medical purposes **without** a medical authorization document?
  - a) 10%
  - b) 30%
  - c) 50%
  - d) 70%
8. Which of the following is **not** a reason for the interest in exploring cannabis as a symptom management option for patients with ESKD?
  - a) Low cost
  - b) High pill burden (polypharmacy)
  - c) Refractory symptoms despite conventional medications
  - d) Side effects of conventional medications
9. Which of the following is **not** a symptom of cannabis withdrawal?
  - a) Nervousness
  - b) Irritability
  - c) Anxiety
  - d) Drowsiness
10. Canadians are permitted to grow cannabis for self-use for medical purposes if they provide the appropriate documentation to Health Canada.
  - a) True
  - b) False

CONTINUING EDUCATION STUDY  
ANSWER FORMCE: 2.0 HRS CONTINUING  
EDUCATION**Medical use of cannabis for patients  
with end-stage kidney disease**

Volume 30, Number 3

By Josephine Ho and Marisa Battistella

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# CANNT 2020 virtual conference abstracts

## 1. “I’M A NEPHROLOGY TECHNOLOGIST AND PATIENTS KNOW MY NAME”—THE ROLE OF A CLINICAL TECHNOLOGIST WITHIN RENAL CARE

*Richard Cowin, BSc, Senior Nephrology Technologist – St. Joseph’s Healthcare Hamilton*

*Ama Ohene-Nyako, Clinical Nephrology Technologist – St. Joseph’s Healthcare Hamilton*

Throughout the history of renal care, a lot has changed to better serve our patients. In a relatively short amount of time, medical devices have advanced, critical care practices have evolved, and at St. Joseph’s Healthcare Hamilton (SJHH), nephrology technologists have become an advanced group that combines technical and clinical expertise in order to optimize the care of our patients. SJHH has expanded the traditional biomedical role of a nephrology technologist and combined it with bedside practice. Along with the usual maintenance and repair of dialysis and water treatment equipment, nephrology technologists registered through SJHH are clinically trained and assume some of the functions traditionally carried out by nurses in the dialysis unit. This nurse-tech model of care has proven to be effective, flexible, and beneficial to both our department and organization.

In addition, a select group of clinical technologists assist in organ recovery for kidney transplants. They facilitate the packaging, storage, and shipping of kidneys for transplant, and they coordinate deceased donor transplants, allowing the transplant nurse coordinators to focus their efforts on vital workup and waitlist activities.

Through nursing and patient feedback, SJHH has carefully developed the clinical technologist role into becoming one that could benefit all renal facilities. By utilizing technologists in a clinical environment, we have assumed an active role in the renal journey of our patients, alleviated staffing pressures whilst maintaining excellent care, and are in a unique and innovative position looking toward the future.

## 2. CREATING A CODE BLUE DEBRIEF TOOL: A QUALITY IMPROVEMENT PROJECT TO SUPPORT STAFF ON THE MULTI-ORGAN TRANSPLANT UNIT

*Chantelle Nielson, MSc, RN*

*Alicia Jones, MN, RN*

**Background:** Frontline clinicians identify a code blue event as one of the most stressful situations that occur in daily practice leading to clinician burnout. Studies indicate that the use of debrief sessions, as a learning and support tool, dramatically improves team performance and positively influences patient outcomes, yet they rarely occur on inpatient units. The aim of this quality improvement project is to identify barriers to debriefing, implement a tool to facilitate debrief sessions, and support staff in leading the debrief tool.

**Methods:** A needs assessment was conducted to determine the following: staff skills for code blue resuscitation; perceptions of teamwork; confidence to facilitate debrief sessions; and perceived barriers and enablers to debriefing. A code blue debrief tool was created and implemented in the Multi-Organ Transplant Unit. Education sessions were held to educate staff on the debrief tool, document on the Resuscitation Record, and empower the facilitation of debriefs.

**Results:** After education sessions and tool implementation, 71% of staff felt comfortable to facilitate debriefs (from 32% pre-education); debriefs occurred after 66% of code blue events on the unit. Staff identified that the tool was successful to facilitate short debriefs (5-10 minutes).

**Conclusion:** One hundred percent of transplant staff want debriefs after code blue events. This presentation will describe the implementation process of a debrief tool on the unit, early successes, and lessons learned.

## 3. EXPANDING OUTPATIENT HEMODIALYSIS INTO THE CRITICAL CARE SETTING: ENACTING AN EDUCATIONAL PLAN FOR NURSES

*Jennifer Latulippe, MN, RN, CNeph(C) – Department of Nursing Education, St. Joseph’s Healthcare Hamilton, Hamilton, ON*

*Adam J Prieur, OStJ, BScN, BA, RN, CNeph(C) – Department of Nursing Education, St. Joseph’s Healthcare Hamilton, Hamilton, ON*

**Purpose:** St. Joseph’s Healthcare Hamilton (SJHH) partnered with Brantford Community Healthcare System (BCHS) to provide in-hospital nephrology services to patients in the Critical Care Unit (CCU) at Brantford General Hospital (BGH). The BGH outpatient hemodialysis (HD) unit became responsible for performing inpatient treatments, and a comprehensive education program for outpatient HD nurses was launched.

**Description:** The Brantford satellite hemodialysis nurses required education and resources in preparation for their new role. Stakeholders were consulted to determine educational needs. An educational program, targeted at BGH HD nurses, was enacted.

**Outcomes:** In-person presentations were delivered in advance of the launch of the service expansion. Anecdotally, nurses reported they were satisfied with the availability of online reference materials and quick reference guide. Some nurses had recommendations for expansion of the quick reference guide to include additional content, and these pages were added. The program launched and remedial measures were not required, which was viewed as an indicator of success.

**Implications for nephrology practice:** Possible future nursing shortages, particularly those specializing in nephrology, may require renal programs to review and adjust their current staffing and care delivery models. Staffing pressures and events such as the COVID-19 pandemic may necessitate provision of HD treatments in new settings, such as hospitals and long-term care facilities that do not have an established HD program. To provide care in changing practice settings HD nurses must be prepared and supported, both in practice and perception, and a robust educational strategy must be developed and enacted to ensure success.

#### 4. PERITONEAL DIALYSIS IN NORTHERN ONTARIO: IMPACT OF SOCIAL DETERMINANTS OF HEALTH

Jessica Carreira, MSN, BScN, CNS

**Background:** Patients on peritoneal dialysis (PD) in Northern Ontario face many challenges related to social determinants of health. Patients live in remote communities that are only accessible by plane or ice roads. Such social determinants of health that PD patients confront include safe housing, clean environment, and access to healthcare. PD training is conducted, and patients are supported to accommodate these challenges. The Thunder Bay Regional Health Science Centre (TBRHSC) PD unit does not deem any patient unsuitable for PD despite the many social challenges that patients face.

**Objective:** To identify strategies implemented by the TBRHSC renal team to assist remote communities to provide widespread access to PD. To conduct ongoing needs assessment in the communities to plan future strategies/interventions to make PD sustainable for Northern Ontario patients who elect to receive care as close to home as possible.

**Methods:** In a review of training strategies, it was determined that training strategies are evidenced-based and always adapted to meet specific patient needs. For example, when patients do not have running water at home, techniques differ to ensure good hand hygiene. When there are multiple family members living in small homes, education regarding a safe environment is extremely important.

**Results:** Currently 50% of PD patients live remotely and face multiple challenges impacting the social determinants of health. Continued communication with PD nurses, Aboriginal liaisons, relationships with the community nursing stations, and consolidated appointments allow these patients to be on PD.

**Conclusions:** The TBRHSC PD unit often support patients to go on PD when there are many barriers. By using unique strategies and adapting training methods, patients are able to start and stay on PD in their communities.

#### 5. QUALITY IMPROVEMENT THROUGH DEVELOPMENT OF STANDARDIZED ANTICOAGULATION GUIDELINES FOR HEMODIALYSIS AND PERITONEAL DIALYSIS ACCESS PROCEDURES IN INTERVENTIONAL RADIOLOGY

Patty Quinan, MN, RN, CNeph(C), Clinical Nurse Specialist – Vascular Access Coordinator, Humber River Hospital, Toronto, Ontario

Dr. Edwin Zhang, MD, FRCPC, Vascular/Interventional Radiologist, Humber River Hospital, Toronto, Ontario.

**Background/purpose of research problem:** Historically, all patients scheduled for dialysis access procedures in interventional radiology (IR) were instructed to hold all anticoagulation medications. Updated international anticoagulation guidelines for IR procedures based on risk of bleeding associated with procedure type prompted a review of current practices and protocols.

**Description:** In collaboration with IR staff, review of updated international anticoagulation guidelines, led to the development of local standardized anticoagulation guidelines based on best practices and, thus, to ultimately improve patient care outcomes. IR procedures are categorized as low-, standard-, and high-risk, and include INR and platelet target parameters for each procedure. Low-risk procedures include fistulogram and angioplasty, and central venous catheter exchanges (INR target < 3.0). Standard-risk procedures include central venous catheter insertions (INR target < 2.0) and peritoneal dialysis catheter procedures (INR < 1.7). High-risk procedures include central venous angioplasties (INR target < 1.5). Although Aspirin and Plavix are allowed for all procedures, anticoagulants need to be held for standard- and high-risk procedures.

**Outcomes:** We have developed and successfully implemented standardized protocols and written patient instructions for dialysis access procedures for nurses, nephrologists, IR staff, and patients. Based on our quality improvement, patients on warfarin are only required to hold the medication if the INR is above the target parameter for the procedure. This has resulted in: fewer patients requiring bridging with low molecular weight heparin, and repeat blood work or venipunctures; more timely procedures and utilization of designated IR spots; and less inconvenience for patients and family.

**Implications for nephrology practice and education:** Other programs that wish to examine their current practices and develop local changes and protocols for dialysis access procedures in IR, may consider our quality improvement initiative and standardized anticoagulation guidelines.

## 6. REFLECTIONS UPON INDIGENOUS METHODOLOGIES IN KIDNEY HEALTH RESEARCH

Mary Smith, PhD

**Background and purpose:** Previously as a doctoral nursing student, I conducted a research initiative in First Nation communities concerning healthcare in relation to kidney disease and organ transplantation. Having familial experiences within a First Nation community involving kidney organ donation and dialysis, the research became a heartfelt journey where the methodology and methods were inspired by the community and traditional ways. The purpose of this presentation is to share learning about Indigenous methodologies and methods that are considered integral to kidney research aimed at improving kidney health for Indigenous people.

**Methodological methods** that arise from community relational and contextual traditions and protocols are professed as ethical approaches toward meeting community expectations. Such methods include sharing circles that involve elders, and ceremonial and traditional approaches including prayers, smudging and storytelling. Sharing circles are central to ceremonies and foster relational strengths and resiliency.

**Results:** Sharing circles brought forth the underlying themes concerning the need for equitable access to dialysis and transplantation, cultural safety, relationality, and Indigenous knowledge. More learning through research involving Indigenous methodologies is needed.

**Conclusions:** Through the research, it is realized that health disparities are deeply linked with the broader underlying factors including the entrenched colonial political and social systems emanating from historical injustices. Culturally safe care and Indigenous traditional protocols are essential to kidney health. Research where methodology and methods are congruent with ways of knowing and being transpire into outcomes that benefit the community.

## 7. RETAINING A LOW PERITONITIS RATE THROUGH CONTINUOUS QUALITY IMPROVEMENT CYCLES

Vlad Padure, MScN, NP-PHC – Humber River Hospital, Toronto, Ontario

Humber River Hospital (HRH) implemented a novel peritoneal dialysis (PD) clinic bundle in 2017 when the peritonitis rate reached 0.5 cases per year. The implementation of the clinic bundle resulted in a significant reduction of peritoneal infections to 0.10 cases in 2018/19. Following this success, the team wanted to know if the improvements could be sustained over the ensuing 12 months.

The bundle included an initial home assessment for all potential PD patients and regular home visits every four months. Through these visits, the clinical team was able to

identify environmental risk factors and poor aseptic technique when patients were connecting to the cyclor or twin bag. The third strategy was to retrain patients after a peritonitis event. The PD team regularly participated in weekly patient review rounds and in a case review following each peritonitis case in order to identify the root cause and mitigating strategies.

The peritonitis rate continued to decrease over the ensuing 12 months from 0.10 cases per year at risk in Q2 18/19 to 0.08 in Q2 19/20. This proved that the continued utilization of the clinic model and a culture of continuous quality improvement initiatives not only led to sustained results, but also led to a statistically significant improvement in the peritonitis rates.

## 8. THE CLINICAL AND FINANCIAL ADVANTAGES OF PSW-ASSISTED DIALYSIS IN RETIREMENT AND LONG-TERM CARE

Marjan Kasirlou, MBA, BScN, RN – Humber River Hospital, Toronto, Ontario

Vlad Padure, MScN, NP-PHC – Humber River Hospital, Toronto, Ontario

Anjalie Shivakumar, MN, BScN, RN – Humber River Hospital, Toronto, Ontario

Approximately 18% of all chronic hemodialysis patients reside in retirement residences and long-term care (Nesrallah et al., 2018). The transportation to and from dialysis poses both psychological and physiological stressors on patients, and has a significant financial impact on the system. The risks associated with commuting include infections, musculoskeletal injuries, changes in mood, and mental status. In 2015, the estimated cost of medical transportation for dialysis patients equaled approximately 17 million dollars (TTC, 2020). Applying the model of personal support worker (PSW)-assisted home hemodialysis to nursing and long-term care homes offers a safer, cheaper, and person-centred alternative.

Humber River Hospital (HRH) was able to pilot this model with a 94-year-old patient living in a retirement home. Beyond the physical exhaustion associated with commuting to dialysis by Wheel-Trans three times per week, his main fear was leaving his wife with dementia behind at the nursing home.

Retirement and long-term care facilities forbid any type of plumbing and electrical modifications required for traditional home hemodialysis equipment. Additional reasons for excluding home dialysis from institutional care settings include staffing resources, risk of property damage, and insurance liability. The infrastructure barriers were eliminated by using the NxStage System One with Pre-Mixed Dialysate Bags. The dialysis set up, treatment, and patient monitoring is performed by a specially trained PSW. Through remote monitoring, the HRH Home Dialysis team can assess the patient's condition and treatment event.



This pilot project proved the viability of PSW-assisted dialysis in retirement and long-term care homes, and resulted in the expansion of the model on a broader scale.

## REFERENCES

- Nesrallah, G., Dixon, S. N., MacKinnon, M., Jassal, S. V., Bota, S. E., Dirk, J. S., Arthurs, E., Blake, P. G., Sood, M. M., Garg, A. X., & Davison, S. N., on behalf of the Ontario Renal Network. (2018). Home palliative service utilization and care trajectory among Ontario residents dying on chronic dialysis. *Canadian Journal of Kidney Health and Disease*, 5, 1–11. <https://doi.org/10.1177/2054358118783761>
- Toronto Transit Commission (2019). *Annual Report*. [https://www.ttc.ca/PDF/About\\_the\\_TTC/Annual\\_Reports/TTC\\_AnnualReport\\_2019\\_2020-06-23\\_w\\_pagenumbers\\_R2\\_single\\_pag.pdf](https://www.ttc.ca/PDF/About_the_TTC/Annual_Reports/TTC_AnnualReport_2019_2020-06-23_w_pagenumbers_R2_single_pag.pdf)

## 9. REDEFINING PERITONEAL DIALYSIS ADEQUACY: A SUMMARY OF THE 2020 INTERNATIONAL SOCIETY FOR PERITONEAL DIALYSIS (ISPD) PRACTICE RECOMMENDATIONS

Susan McMurray, BN, RN, CNeph(C) – Clinical Consultant – Renal, Baxter Corporation, Mississauga, Ontario

What does peritoneal dialysis (PD) adequacy mean to you? To many, it means achieving a specific clearance measurement regardless of the impact on the patient's lifestyle. The objective of this presentation is to examine current literature and the 2020 ISPD practice recommendations to promote a move from "adequate" to "goal-directed" patient care, which may include modifying PD prescriptions.

Historically, guidelines focused on clearance of toxins and used a measure of waste product removal by dialysis. There have been several studies that have had significant

impact on our perceptions of adequacy and have reshaped the definition of adequacy in PD. Brown et al. (2020) describe using shared-decision making between the medical care team and the person doing PD to achieve his/her own life goals. The PDOPPS study (Wang et al., 2020) describes how PD can be prescribed in a variety of ways to focus on patient wishes. Finally, research guides us to evaluate patient well-being in the areas of quality of life, volume status, nutritional status, anemia management, small solute removal and bone and mineral management.

Implications for nephrology care include a re-evaluation of current practice in PD to include a tailored PD prescription with a person-centred focus, which minimizes symptoms and treatment burden while ensuring high-quality care is provided (Brown et al., 2020).

## REFERENCES

- Brown, E., Blake, P. G., Boudville, N., Davies, S., de Arteaga, J., Dong, J., Finkelstein, E., Foo, M., Hurst, H., Johnson, D. W., Johnson, M., Liew, A., Moraes, T., Perl, J., Shroff, R., Teitelbaum, I., Wang, A. Y.-M., & Warady, B. (2020). International Society for Peritoneal Dialysis practice recommendations: Prescribing high-quality goal-directed peritoneal dialysis. *Peritoneal Dialysis International*, 40(3), 244–253. <https://doi.org/10.1177/0896860819895364>
- Wang, A. Y., Zhao, J., Bieber, B., Kanjanabuch, T., Wilkie, M., Marshall, M. R., Kawanishi, H., Perl, J., Davies, S., & PDOPPS Dialysis Prescription and Fluid Management Working Group (2020). International comparison of peritoneal dialysis prescriptions from the Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS). *Peritoneal Dialysis International*, 40(3), 310–319. <https://doi.org/10.1177/0896860819895356>

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☐ Registered Nurse

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☐ Technician

☐ Technologist

☐ Other (Specify) \_\_\_\_\_

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

## Area of responsibility

☐ Direct Patient Care

☐ Teaching

☐ Administration

☐ Research

☐ Technical

☐ Other (Specify) \_\_\_\_\_

## Work environment

☐ Acute Care

☐ Independent Health Care

☐ Self-Care Unit

☐ Private Sector

## Highest level of education

Nursing

Non-Nursing

☐ Diploma

☐ Diploma

☐ Baccalaureate

☐ Baccalaureate

☐ Master's

☐ Master's

☐ Doctorate

☐ Doctorate

## I am at present studying toward

Nursing

Non-Nursing

☐ Specialty Certificate

☐ Specialty Certificate

☐ Baccalaureate

☐ Baccalaureate

☐ Master's

☐ Master's

☐ Doctorate

☐ Doctorate

## Primary area of practice

Choose one

☐ Adults

☐ Pediatrics

☐ Combined Adult/Pediatrics

☐ Other

Select all that apply

☐ Full-Care Hemo

☐ Clinical Educator

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# Guidelines for Authors

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

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

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

## What types of manuscripts are suitable for publication?

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

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

## How should the manuscript be prepared?

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

**Style:** The style of the manuscript should be based on the *Publication Manual of the American Psychological Association (APA), Seventh Edition (2020)*.

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

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

**Text/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.

**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. Table/figure formatting should comply with APA style.

## How should the manuscript be submitted?

Email your manuscript to: [cannt.journal1@gmail.com](mailto:cannt.journal1@gmail.com). 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.

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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 editor reserves the right to accept or reject manuscripts. The criteria for acceptance for all articles include originality of ideas, timeliness of the topic, quality of the material, and appeal to the readership. Manuscripts that do not comply with APA formatting and style will be returned to the author(s).

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    - Place of employment
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Revised March 2018



# 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 des :

- Exposés de recherche originaux;
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- Rapports sur des approches innovatrices en matière d'amélioration de la qualité;
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- Articles en formation continue.

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**Style :** Le style du manuscrit doit être conforme au manuel de publication de l'Association américaine de psychologie (AAP), 7<sup>e</sup> édition (2020).

**Page titre :** La page titre doit inclure le titre du manuscrit ainsi que les renseignements suivants : nom de chacun des auteurs (y compris les 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 adresses courriel. L'adresse privilégiée de correspondance doit aussi être indiquée.

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1. CIHI Treatment of End-Stage Organ Failure in Canada, Canadian Organ Replacement Register, 2009 to 2018: End-Stage Kidney Disease and Kidney Transplants -- Data Tables. Ottawa, ON: CIHI; 2019. 2. Mendelssohn, et al. A prospective evaluation of renal replacement therapy modality eligibility Nephrol Dial Transplant. 2009; 24(2): 555-61. 3. Oliver, et al. Impact of contraindications, barriers to self-care and support on incident peritoneal dialysis utilization; Nephrol Dial Transplant. 2010; 25(8): 2737-2744. 4. Rubin et al. Patient ratings of dialysis care with peritoneal dialysis vs hemodialysis; JAMA. 2004; 291(6): 697-703. 5. Juergensen, et al. Hemodialysis and peritoneal dialysis: patients' assessment of their satisfaction with therapy and the impact of the therapy on their lives; Clin J Am Soc Nephrol. 2006; 1(6): 1191-1196. 6. Milan Manani S et al. Longitudinal experience with remote monitoring for automated peritoneal dialysis patients. Nephron. 2019 Jan 30;1-9. doi: 10.1159/000496182. 7. Firaneek, C., Discrepancy between prescribed and actual APD prescription delivery: Identification using cyclers remote management technology Nephrol Dial Int 2017; 32 (suppl 3): 41. 8. Rivera AS, et al. Comparison of Hospitalization Rate in Automated PD Patients with and without Remote Management Program in Colombia; Nephrol Dial Int 2018; May; suppl 1; pages i522. 9. Makhija, et al. Remote monitoring of automated peritoneal dialysis patients; assessing clinical and economic value; Telemed J E Health 2018; Apr; 24(4): 315-323.



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