

CANNT JOURNAL JOURNAL ACITN

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- 32 CONTINUING EDUCATION SERIES Over-the-counter drugs to avoid in older adults with kidney impairment By Chelsey Hess, PharmD, Sunny A. Linnebur, PharmD, BCPS, CGP, FCCP, FASCP, Danielle N. Rhyne, PharmD, BCPS, and Connie A. Valdez, PharmD, MSEd, BCPS



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 - de leur vision pour le futur Des sessions et ateliers qui nous
- apporteront de nouvelles connaissances et de nouveaux défis professionnels
- Des exposants nous présenteront leurs produits et nouveautés
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- lamifiez pour vous joindre à nous pou ACITN 2018 et célébrer son 50ième anniversaire !

du 25 au 27 octobre 2018 dans la beile Ville de Québec

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ISSUE FOUR

CANNT JOURNAL JOURNAL ACITN

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Letter from the Editor

We are all fresh from attending a fantastic CANNT conference in Halifax (Charting Our Course – Setting Sail for the Future) on October 19–21, 2017. Congratulations to the CANNT 2017 planning committee for delivering a very concise and well-informed conference. It is a testament to the calibre of any conference when an attendee can claim that they have learned something new. Halifax delivered educational sessions that were diverse and relevant to our respective practices. In addition to Halifax, I was also privileged to have attended the European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA) conference on September 9–12, 2017, at the ICE Kraków Congress Centre in Kraków, Poland, in Heather Dean's stead. Our esteemed president and president-elect, Heather Dean and Janice MacKay, both participated in the Kidney March 2017 100-kilometre walk in Calgary on September 8–10, 2017—this annual tradition for them is testament to their dedication and commitment to supporting those living with kidney disease. I was very cognizant of this as I attended the conference in Kraków as an invited volunteer. In my zeal for representing the CANNT organization at the conference, I took my volunteer duties almost literally, showing up in meetings that I probably should not have attended-this surely must have perplexed my gracious European hosts. The result of my intrepid adventure



Jovina flanked by Edita Noruisiene (Lithuania), EDTNA/ ERCA President 2017–2018 (*left*), and Marianna Eleftheroudi (Greece), EDTNA/ERCA Past President (*right*).

is that I became privileged to learn firsthand some of the issues related to nephrology nursing practice that our European counterparts are facing such as the nurse-patient ratio in the hemodialysis setting. I came to truly appreciate the global nature of the patient care issues in nephrology facing our European cousins, as evidenced by the topics presented in Kraków: quality of life, interdialytic weight management, patient education and motivation in mineral bone disorder, palliative care, advance care planning, and the psychosocial impact of kidney disease. These issues truly embody the theme of the conference: *True partnership and* global approach in management of renal care. Much like the CANNT Board of Directors and the CANNT 2017 Conference Planning Committee, the EDTNA/ERCA Executive Committee, conference scientific program committee, local organizing committee, and brand ambassadors (spanning Europe to Australia and the Middle East) were impressive in their successful quest to deliver a high-quality conference that appealed to different practice interests. I am very grateful to the EDTNA/ ERCA Executive Committee for unreservedly granting me access behind



Jovina with Nicola Thomas, editor of Journal of Renal Care.

the scenes, and for allowing me to momentarily share in their conference experience and stand in solidarity with them in advancing excellence in nephrology practice.

Our lead article by Doré, Duffett-Leger, McKenna, and Breau on burnout is a fresh reminder that one should never take the invigorating conference experience that Halifax delivered for granted. Burnout has previously been featured in CANNT Journal (Ridley, Wilson, Harwood, & Laschinger, 2009; Harwood, Ridley, Wilson, & Laschinger 2010a/2010b); thus, featuring it again as a leadoff review article is testament to its importance in nephrology practice today. Doré et al. review the current state of the literature on burnout and, out of this, aim to provide recommendations to mitigate the phenomenon. In our continuing education series, Hess, Linnebur, Rhyne, and Valdez discuss the challenges of balancing the benefits and adverse effects of over-the-counter (OTC) drugs, particularly in the older adult population with renal impairment.

Finally, CANNT Journal is pleased to showcase and celebrate the 2017 award recipients representing the diverse talents working amongst us. It is reassuring to know that nephrology practice in 2017 has a deep well of innovators and trailblazers who continue to carry on the legacy of those who have come before us. In this issue, we pay our respect to one such trailblazer, Phyllis Malek, CANNT Past President 1988, who passed away on September 17, 2017. We look forward to CANNT 2018 in Quebec City for the 50th anniversary celebration, so aptly themed "Our past will guide our future".

As we close out 2017, I would like to thank the amazing and indefatigable CANNT Board of Directors, the dedicated teams at Pappin

Communications (publisher) and at Lemieux Bédard (translator), our incomparable team of peer reviewers, and last, but not least, the readers of this journal for partaking of our quarterly offerings. I would also like to acknowledge the contributions of Heather Reid, Sharon Lapointe, and Susan Mason at Innovative Conferences & Communications (INNOVCC) to the CANNT organization, particularly to CANNT Journal, over the last 16 years. The team at CANNT Journal looks forward to collaborating with Events & Management Plus Inc., which has replaced INNOVCC as the CANNT National Office administrators.

On behalf of the team at *CANNT Journal*, I wish you a happy and peaceful holiday season. See you in 2018!



Jovina Bachynski Editor, CANNT Journal

REFERENCES

- Harwood, H., Ridley, J., Wilson, B., & Laschinger, H.K. (2010a). Workplace empowerment and burnout in Canadian nephrology nurses. Canadian Association of Nephrology Nurses and Technologists Journal, 20(2), 12–17.
- Harwood, H., Ridley, J., Wilson, B., & Laschinger, H.K. (2010b). Occupational burnout, retention and health outcomes in nephrology nurses. *Canadian Association of Nephrology Nurses and Technologists Journal*, 20(4), 18–23.
- Ridley, J., Wilson, B., Harwood, L., & Laschinger, H.K. (2009). Work environment, health outcomes and magnet hospital traits in the Canadian nephrology nursing scene. *Canadian Association of Nephrology Nurses and Technologists Journal*, 19(1), 28–35.

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Mot de la rédactrice en chef

per au formidable Congrès annuel de l'ACITN ayant pour thème « Charting our course. Setting sail for the future [Tracer notre voie : mettre le cap sur l'avenir] », qui s'est tenu à Halifax du 19 au 21 octobre 2017. Félicitations au comité de planification du Congrès annuel 2017 de l'ACITN, qui a su organiser un congrès très concis et pertinent. Lorsque les participants peuvent dire qu'ils ont appris quelque chose de nouveau, c'est un très bon indice de la qualité de tout congrès. Le congrès d'Halifax comportait des séances éducatives diversifiées et pertinentes pour nos domaines de pratique respectifs.

En plus du congrès d'Halifax, j'ai eu le privilège d'assister, en lieu et place d'Heather Dean, à la conférence annuelle de l'Association européenne d'infirmières et infirmiers de dialyse et de transplantation/Association européenne pour les soins des reins (EDTNA/ERCA), qui s'est tenue du 9 au 12 septembre 2017 au centre des congrès ICE Kraków, à Cracovie, en Pologne. Notre présidente et notre présidente désignée, les estimées Heather Dean et Janice Mackay, ont toutes deux participé quant à elles à la Marche du rein 2017, une marche de 100 kilomètres qui s'est tenue du 8 au 10 septembre 2017 à Calgary. Cette tradition annuelle témoigne de leur dévouement et de leur engagement dans le soutien aux personnes atteintes d'une maladie rénale, ce dont j'étais très consciente lorsque j'ai assisté à la conférence à Cracovie à titre de bénévole invitée. Dans mon souci de bien représenter l'ACITN à la conférence,



Jovina en compagnie d'Edita Noruisiene (Lituanie), présidente, EDTNA/ERCA pour 2017-2018 (à gauche) et de Marianna Eleftheroudi (Grèce), présidente sortante, EDTNA/ERCA (à droite).

Nous venons tout juste de partici- j'ai pris mon travail de bénévole très au sérieux, me présentant à des réunions auxquelles je n'aurais probablement pas dû assister, ce qui a certainement surpris mes bienveillants hôtes européens. En conséquence de mon audace, j'ai eu le privilège de constater de visu certains des enjeux liés à la pratique des soins infirmiers en néphrologie auxquels sont confrontés nos homologues européens, par exemple le ratio infirmier/patients en hémodialyse. J'en suis venue à comprendre réellement le caractère mondial des enjeux liés aux soins aux patients en néphrologie auxquels sont confrontés nos confrères européens, comme le prouvent les sujets présentés à Cracovie : qualité de vie, gestion du poids durant la période interdialytique, éducation et motivation des patients atteints de maladie minérale osseuse, soins palliatifs, planification préalable de soins et répercussions psychologiques de la maladie rénale. Ces enjeux incarnent véritablement le thème de la conférence : Partenariats réels et approche globale dans la gestion des soins rénaux (« True partnership and global approach in management of renal care »). Tout comme le conseil d'administration de l'ACITN et le comité de planification du Congrès annuel 2017 de l'ACITN, le comité exécutif, le comité du programme scientifique de la conférence, le comité organisateur local et les ambassadeurs de la marque de l'EDTNA/ERCA (qui couvrent l'Europe, l'Australie et le Moyen-Orient) sont parvenus à organiser une conférence de grande qualité



Jovina en compagnie du Nicola Thomas, rédacteur du Journal of Renal Care.

qui a su plaire à tous les représentants des différents domaines de pratique. Je suis très reconnaissante envers les membres du comité exécutif de l'EDTNA/ ERCA, qui m'ont fourni un accès illimité aux coulisses de la conférence et m'ont permis de profiter momentanément de leur expérience acquise lors de la conférence et de participer à leurs efforts pour faire progresser l'excellence de la pratique en néphrologie.

Notre article de fond par Doré, Duffett-Leger, McKenna et Breau sur l'épuisement professionnel nous rappelle que nous ne devons jamais tenir pour acquise l'expérience vivifiante que nous avons vécue à la conférence d'Halifax. L'épuisement professionnel avait déjà fait l'objet d'articles dans le Journal de l'ACITN (Ridley, Wilson, Harwood et Laschinger en 2009 et Harwood, Ridley, Wilson et Laschinger en 2010a/2010b); ainsi, le fait de présenter à nouveau le sujet dans un article d'ouverture témoigne de son importance dans la pratique en néphrologie à l'heure actuelle. Doré et ses collaborateurs examinent l'état actuel de la documentation sur l'épuisement professionnel et souhaitent formuler, à partir de cet examen, des recommandations pour atténuer le phénomène. Dans le cadre de notre série d'articles sur la formation continue, Hess, Linnebur, Rhyne, et Valdez discutent des difficultés associées à l'équilibre entre les bienfaits et les effets néfastes des médicaments en vente libre chez les personnes âgées souffrant d'insuffisance rénale.

Enfin, le Journal de l'ACITN est heureux de présenter et de féliciter les lauréats des prix de 2017, qui représentent les talents diversifiés des gens qui travaillent parmi nous. Il est rassurant de savoir qu'en 2017, la pratique en néphrologie peut compter sur un grand nombre d'innovateurs et de pionniers qui perpétuent l'héritage de ceux et celles qui nous ont précédés. Dans ce numéro, nous rendons hommage à l'une de ces pionnières, Phyllis Malek, présidente de l'ACITN en 1988, qui est décédée le 17 septembre 2017. Nous sommes impatients de célébrer notre 50e anniversaire à l'occasion du Congrès annuel 2018 de l'ACITN, judicieusement nommé « Le passé est garant de l'avenir », qui aura lieu à Québec.

En cette fin d'année 2017, j'aimerais remercier l'incroyable et infatigable conseil d'administration de l'ACITN, les équipes dévouées de Pappin Communications (éditeur) et de Lemieux Bédard (services de traduction), notre incomparable équipe d'évaluateurs pairs et, dernier élément mais non le moindre, les lecteurs de cette revue qui prennent part à notre offre trimestrielle. J'aimerais aussi souligner les contributions d'Heather Reid, de Sharon Lapointe et de Susan Mason, de l'agence Innovative Conferences and Communications (INNOVCC), au profit de l'ACITN et, plus particulièrement, au Journal de l'AC-ITN au cours des 16 dernières années. L'équipe du Journal de l'ACITN est impatiente de collaborer avec la société Events & Management Plus Inc., qui a remplacé INNOVCC à titre d'administrateurs du bureau national de l'ACITN.

Au nom de toute l'équipe du Journal de l'ACITN, je vous souhaite une heureuse et paisible période des Fêtes. Au plaisir de vous retrouver en 2018!



Jovina Bachynski Rédactrice en chef, Journal de l'ACITN

RÉFÉRENCES

- Harwood, H., Ridley, J., Wilson, B. et Laschinger, H.K. (2010a). Workplace empowerment and burnout in Canadian nephrology nurses. Journal de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie, 20(2), 12–17.
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- Ridley, J., Wilson, B., Harwood, L. et Laschinger, H. K. (2009). Work environment, health outcomes and magnet hospital traits in the Canadian nephrology nursing scene. Journal de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie, 19(1), 28–35.

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CANNT 2017, Halifax, Nova Scotia

CHARTING OUR COURSE. SETTING SAIL FOR THE FUTURE.

Four hundred plus nephrology healthcare professionals gathered together for three days to share our passion, commitment, and dedication to continue to improve the lives of our patients and families living with kidney disease.

Conferences provide an opportunity for rejuvenation and renewal. Rejuvenation makes someone (or something) look or feel younger, fresher, or livelier. Renewal is the replacing or repairing of something that is worn-out, run down, or broken.

Rejuvenation and renewal by definition sound like a prescription for burnout. Let's face it, we, as healthcare professionals, give of ourselves each and every day. To step away for three days and look at things through a different lens gives us an opportunity to reset. Communities such as CANNT were created to provide a diversity of opinion, knowledge, and ideas, showcasing peers who share a similar understanding, who are travelling, or have travelled on a similar journey. It is because of this similar journey that the CANNT community allows us to connect and learn from our fellow members. Through networking you will find people with expertise and skill in areas you lack, and peers who are willing to share these skills, and help to mentor personal growth.

"Connection gives purpose and meaning to our lives." – Brene Brown

I had the privilege of moderating several concurrent sessions over the course of the three days. I observed firsthand the wealth of expertise among the delegates. The best part for me was observing post session, the time when members took the time to seek out the presenter, ask questions, obtain contact information for follow-up, ask about next steps and, most importantly, congratulate them on a job well done. This is community in action. This is CANNT in action.

On behalf of the CANNT Board of Directors and the CANNT 2017 Planning Committee, I sincerely hope each and every one of you left the conference with a sense of pride in how far we have come, a sense of excitement as to where we go from here and, most importantly, a few new friendships within your CANNT community. I encourage you to keep the conversations going. Become a CANNT member.

"The future of every community lies in capturing the passion, the imagination, and resources of its people." – Ernesto Sirolli

Yours in nursing, Heather Dean, RN, CNeph(C) CANNT President (2016-2018)

Canadian Nurses Association (CNA) Update

- Save the Date! The 2018 CNA Biennial Convention will take place in Ottawa at the Shaw Centre, June 18–20, with the theme "From insights to impact, it starts with nursing"
- Michael Villeneuve assumed the CEO position in June. Michael's three main program priorities for CNA include: professional practice, leadership, and public policy and advocacy.
- Michael stated that he would like to speak with each of the network member presidents to discuss what their priorities and expectations of CNA are, and how CNA can be of support and value to the network members.
- Visit **www.cna-aiic.ca** for the new certification poster and brochure. This is an excellent resource to promote and inform about certification.
- CNA sponsored its first Certification Discovery Week. Fifty-seven nurses promoted certification in their workplace. Feedback received was positive. Plans are underway to improve the event for 2018. Care to be the best!

World Kidney Day 2018



Congrès annuel 2017 de l'ACITN, Halifax, N.-É.

TRACER NOTRE VOIE : METTRE LE CAP SUR L'AVENIR

Plus de 400 professionnels des soins de santé en néphrologie se sont rassemblés pendant trois jours pour partager leur passion, leur engagement et leur détermination en vue de continuer d'améliorer la qualité de vie des patients atteints d'une maladie rénale et de leurs familles.

Les congrès nous donnent la possibilité de rajeunir et de nous renouveler. Le rajeunissement fait paraître une personne ou une chose plus jeune, plus fraîche ou plus vivante. Le renouvellement est le remplacement ou la réparation de quelque chose qui est usé, fatigué ou brisé.

Par définition, le rajeunissement et le renouvellement semblent être une prescription contre l'épuisement professionnel. Disons-le franchement : en tant que professionnels de la santé, nous donnons chaque jour un peu de nous-mêmes. Le fait de prendre du recul pendant trois jours et de voir les choses sous un nouvel angle nous donne la possibilité de faire le point.

Les communautés comme l'ACITN ont été créées pour offrir une diversité d'opinions, de connaissances et d'idées, présentant des pairs qui partagent une compréhension similaire et qui parcourent ou ont parcouru le même chemin. C'est en raison de ce parcours similaire que la communauté de l'ACITN nous permet de tisser des liens avec nos collègues membres et d'apprendre d'eux. Par le réseautage, vous trouverez des gens ayant une expertise et des compétences que vous n'avez pas dans certains domaines, et d'autres qui sont prêts à partager ces compétences et à encadrer la croissance personnelle de leurs pairs.

« Les relations donnent un but et un sens à nos vies. » – Brene Brown

J'ai eu le privilège d'animer plusieurs séances simultanées au cours de ces trois journées. J'ai pu observer directement la richesse du savoirfaire parmi les délégués. Ce que j'ai préféré, c'est d'observer les participants après la séance, alors qu'ils prenaient le temps de poser des questions aux présentateurs, d'échanger des coordonnées pour garder contact, de s'enquérir des étapes suivantes et, surtout, de féliciter les présentateurs pour la qualité de leur travail. C'est ce qu'on appelle une communauté en action. C'est l'ACITN en action.

Au nom du conseil d'administration de l'ACITN et du comité de planification du Congrès annuel 2017 de l'AC-ITN, j'espère sincèrement que chacun et chacune d'entre vous sont repartis du congrès avec un sentiment de fierté vis-à-vis des progrès que nous avons accomplis, que vous êtes fébriles à l'idée de ce qui nous attend et, surtout, que vous avez tissé de nouveaux liens au sein de votre communauté de l'AC-ITN. Je vous encourage à poursuivre les discussions et à adhérer à l'ACITN.

« L'avenir de chaque communauté repose sur sa capacité à saisir la passion, l'imagination et les ressources des gens qui la composent. » – Ernesto Sirolli

Bien à vous, Heather Dean, inf., CNéph(C) Présidente de l'ACITN (2016-2018)

Association des infirmière et infirmiers du Canada rapport

- Mise à jour de l'Association des infirmières et infirmiers du Canada (AIIC) : Dates à retenir! Congrès biennal 2018 de l'AIIC au Centre Shaw (Ottawa), du 18 au 20 juin 2018 : « Des idées aux solutions : tout prend forme avec les soins infirmiers »
- Michael Villeneuve a intégré le poste de directeur général en juin dernier. Les trois principales priorités de Michael relativement à l'AIIC sont les suivantes : pratique professionnelle, leadership, et représentation et politiques publiques.
- Michael a indiqué qu'il aimerait parler aux présidentes et présidents des réseaux de membres pour discuter de leurs priorités et de leurs attentes vis-àvis de l'AIIC, ainsi que de la façon dont l'AIIC peut offrir un soutien et une valeur ajoutée aux membres du réseau.
- Visitez le www.cna-aiic.ca/certification pour voir la nouvelle affiche et la nouvelle brochure sur la certification. Il s'agit d'une excellente ressource pour promouvoir la certification et fournir des renseignements à ce sujet.
- L'AIIC a commandité sa première semaine de découverte de la certification. Cinquante-sept infirmières et infirmiers ont fait la promotion de la certification dans leur milieu de travail. Cette activité a suscité des commentaires positifs. Des plans sont en cours d'élaboration pour améliorer l'activité en 2018. Ayez l'excellence à cœur!

Your Board in Action

Halifax welcomed **CANNT 2017 "Charting our Course, and Setting Sail for the Future"** with bright skies and open arms. CANNT 2017 had 310 attendees with 83 industry partners.

As I run down the highlights of the fabulous conference, I am afraid that I will have missed so many. Please share your CANNT 2017 highlights at: https://www.facebook.com/Canadian-Associationof-Nephrology-Nurses-and-Technologists-160999717295820/

CANNT's first president, Frances Boutilier, attended day one of CANNT 2017. It was a warm reminder that CANNT's roots are in Halifax. On the eve of our 50th anniversary (2018), it was very exciting to be welcoming Frances with one hand and welcoming a first-time CANNT attendee with the other. CANNT 2017 had 123 first-time attendees!

DAY ONE: THURSDAY, OCTOBER 19, 2017

Bill Carr, a well-known Atlantic Canadian comedic speaker, opened our conference with an exceptional keynote address on *"Work inspired"*. He talked from an insightful perspective of the work environment in healthcare and inspiring stories that came straight from his community volunteer work for the IWK Health Centre in Halifax. Bill was known to many at the conference as a return speaker. When CANNT was in Halifax in 2005, Bill very kindly filled in on short notice for a speaker, so it felt more like a reunion. Bill wove a thread of warm Eastern hospitality and on point insights of the current state of healthcare as he emceed the remainder of the conference.

Attendees had a choice of four workshops to attend in the morning. The CANNT Annual General Meeting (AGM) opened the afternoon. (The AGM minutes will be available under "Resources" in the CANNT website.) CANNT award winners were announced and celebrated.

At the AGM, members of the CANNT community had an opportunity to say goodbye and thank you to the team from Innovative Conferences and Communications. After 16 years of service, Heather Reid, Susan Mason, and Sharon Lapointe have hosted their last conference with CANNT.

Concurrent sessions followed the AGM for the remainder of the afternoon, right into the start of the CANNT 2017 opening reception. The opening reception was an opportunity to reconnect with our colleagues from across Canada, and explore what is new in industry to improve the outcomes and experiences of the people we serve. The exhibit hall was set up over the ice rink of the Halifax Scotia Centre, home of the *Halifax Mooseheads* hockey team.

DAY TWO: FRIDAY, OCTOBER 20, 2017

Friday started early for many with a brisk walk with Bill. For the rest of us, the day started with an exceptional panel discussion on "The future of living organ donation: Embracing the role of social media to find a donor". During this session, there was lively sharing and exchange. For many of us, this may have been the first time we have considered living donor transplants, let alone considered the impact of organ requests shared through Facebook with professionally created video appeals. A strong theme of equity emerged with very powerful discussion—a great topic to take back to our own programs to initiate lively lunch discussion.

Concurrent sessions filled the remainder of Friday morning. During lunch, there was opportunity to engage with others in your renal sub-specialties. CANNT's Board of Directors is committed to re-establishing the various refined practice groups—stay tuned.

Learning labs with the exhibitors started the afternoon with hands-on opportunities to engage with new



Frances Boutilier, President Canadian Society of Perfusionists 1976–1981 (left); Heather Dean, CANNT President 2016–2018 (centre); Colleen Wile, CANNT Past President 2012-2013 (right).



Linda Ball, ANNA President-Elect, with Heather Dean, CANNT President.

technology and explore new treatment strategies. A plenary session on "Behavior change management in chronic disease", and concurrent sessions filled out the afternoon.

Pre-registered delegates and guests met at Murphy's the Cable Wharf for a traditional lobster dinner and an evening of dancing and camaraderie.

FINAL DAY: SATURDAY, OCTOBER 21, 2017

Saturday morning started with a very interesting plenary session with Halifax nephrologist Dr. Michael West. Dr. West spent an hour detailing Fabry disease, an inherited disorder, which can reduce the risk of progression to ESRD if treated early. What was particularly interesting was that although this is a rare disease (about 470 Canadians affected), the majority of Canadians affected by Fabry disease are found in Nova Scotia. Concurrent sessions filled in the remainder of the morning. We were treated at Saturday's lunch to a Highland dance performance by lovely young women from the Worthen School of Dance that they had practised for their upcoming fall competitions.

Saturday afternoon was filled with a poster Q and A session. Twenty-three authors presented their posters, and delegates had one last opportunity to ask questions and exchange ideas and contact information. Our last concurrent session was held before the delegates met together to finish off the conference with the traditional passing of the banner to Nancy Filteau and Roch Beauchemin, co-chairs for CANNT's 50th Anniversary meeting in beautiful Quebec City on October 25–27, 2018.

Mark Black presented the closing keynote on "The Resilience Roadmap", a message for living a full and meaningful life. He encouraged focusing on the positive, using the experience of hardships in your life to propel yourself, and focusing on steps instead of obstacles when setting a goal.

As we say goodbye to Halifax, we leave with new and renewed friendships, and lots of ideas for improving patient care in our own areas. It was so impressive to see and hear about what is happening in renal care across Canada, but also to have a peek at some of the great programs and healthcare initiatives happening right here in Nova Scotia.

The success of CANNT only happens with the contributions of so many. This year we had more than 50 concurrent sessions to offer, and 23 poster presentations. Thank you all for sharing!

Start to plan your poster and sessions to share for next year. See you in Quebec!

Carolyn Ingram Ontario Region Vice-President

THANK YOU TO OUR SPONSORS

Our industry partners are vital for a successful conference. On behalf of the CANNT organization, I would like to acknowledge the following sponsors: Platinum—AMGEN, Baxter, Fresenius Medical Care, Otsuka, Pfizer; Silver—Medtronic; and Bronze—BD. Thank you so very much for your continued support!

PLATINUM





Votre conseil d'administration en action

Le **Congrès annuel 2017 de l'AC-ITN,** qui avait pour thème « Charting our course. Setting sail for the future [Tracer notre voie : mettre le cap sur l'avenir] » s'est déroulé sous un ciel radieux à Halifax, où nous avons été accueillis à bras ouverts. Trois cent dix membres y ont participé, de même que 83 partenaires de l'industrie.

Je fais ici la liste des moments marquants de ce formidable événement, mais je crains d'en oublier plusieurs. Je vous invite donc à partager vos moments marquants du Congrès annuel 2017 de l'AC-ITN ici : https://www.facebook. com/Canadian-Associationof-Nephrology-Nurses-and-Technologists-160999717295820/.

La première présidente de l'histoire de l'ACITN, Frances Boutilier, était présente le premier jour du congrès, chaleureux rappel des origines de l'ACITN, dont les racines se trouvent à Halifax. En cette veille de notre 50e anniversaire, qui aura lieu en 2018, ce fut une joie d'accueillir Frances d'un côté et un nouveau participant au Congrès annuel de l'ACITN de l'autre. En fait, 123 personnes participaient à l'événement pour la première fois!

JOUR 1 : JEUDI 19 OCTOBRE 2017

Bill Carr, conférencier humoriste renommé du Canada atlantique, a ouvert le congrès avec une allocution

de bienvenue exceptionnelle sur l'inspiration par le travail. Il a parlé avec beaucoup d'intelligence du milieu de travail en santé et a raconté des anecdotes inspirantes tirées de sa propre expérience de travail communautaire en tant que bénévole pour le Centre de soins de santé IWK à Halifax. Bill était déjà connu de nombreux participants puisqu'il avait déjà très gentiment accepté à court préavis d'animer le congrès de l'ACITN/CANNT tenu à Halifax en 2005, ce qui a donc donné l'impression de retrouvailles. Avec toute l'hospitalité chaleureuse des provinces de l'Atlantique, Bill a donné un aperçu de l'état actuel des soins de santé alors qu'il animait le reste du congrès.

Les participants avaient le choix entre quatre ateliers durant la matinée. L'après-midi s'est ouvert sur l'Assemblée générale annuelle (AGA) de l'ACITN, dont le procès-verbal sera disponible sous l'onglet « Resources » du site Web de l'ACITN. Les lauréats des prix de l'ACITN ont été annoncés et félicités.

À l'occasion de l'AGA, les membres de la communauté de l'ACITN ont eu l'occasion de dire au revoir et merci à l'équipe de l'agence Innovative Conferences and Communications. Après 16 années de services, Heather Reid, Susan Mason et Sharon Lapointe organisaient cette année leur dernier congrès avec l'ACITN.

Après l'AGA ont eu lieu des séances simultanées tout le reste de l'après-midi,

jusqu'au début de la réception d'ouverture du Congrès annuel 2017 de l'AC-ITN. Ce fut l'occasion de renouer avec des collègues de partout au Canada et de discuter des nouveautés de l'industrie visant à améliorer les résultats et l'expérience des gens que nous servons. La salle d'exposition était située au-dessus de la patinoire du Halifax Scotia Centre, domicile des Mooseheads de Halifax, l'équipe de hockey de la Nouvelle-Écosse.

JOUR 2 : VENDREDI 20 OCTOBRE 2017

La journée du vendredi a commencé tôt pour les nombreuses personnes qui s'étaient inscrites à la marche rapide en compagnie de Bill. Pour les autres, la journée a commencé par une table ronde des plus intéressantes portant sur l'avenir du don d'organes provenant de donneurs vivants et sur le rôle des médias sociaux dans la recherche d'un donneur. Cette séance a donné lieu à des échanges animés. Nous étions probablement nombreux à ne nous être jamais penchés sur la question des greffes d'organes provenant de donneurs vivants, et encore moins sur l'incidence des demandes d'organes partagées sur Facebook au moyen de messages vidéo créés de façon professionnelle. Un fort sentiment d'équité s'est fait sentir et une discussion passionnante s'en est suivie, ce qui en fait un excellent sujet à ajouter à nos propres programmes afin



À gauche : Frances Boutilier, présidente de la Société canadienne des perfusionnistes en dialyse (maintenant l'ACITN) de 1976 à 1981; au centre : Heather Dean, présidente de l'ACITN (2016 à 2018); à droite : Colleen Wile, ex-présidente, ACITN (2012-2013)



Linda Ball, présidente désignée, American Nephrology Nurses Association, et Heather Dean, présidente de l'ACITN

de susciter des discussions animées sur l'heure du dîner.

Les séances simultanées ont occupé le reste de la matinée du vendredi. Pendant le dîner, les participants ont eu l'occasion d'échanger avec leurs collègues travaillant dans des sous-spécialités du domaine de la néphrologie. Le conseil d'administration de l'ACITN est d'ailleurs déterminé à rétablir les divers groupes de pratique selon les spécialités – restez à l'affût pour en savoir plus.

L'après-midi s'est ouvert sur les laboratoires d'apprentissage en compagnie des exposants, qui offraient aux participants la possibilité de découvrir de nouvelles technologies et d'explorer de nouvelles stratégies de traitement dans le cadre d'ateliers pratiques. Une séance plénière sur la gestion du changement des comportements dans le domaine des maladies chroniques ainsi que d'autres séances simultanées ont occupé le reste de l'après-midi.

Les délégués et invités préalablement inscrits se sont ensuite réunis au Murphy's The Cable Wharf, où ils ont pu profiter d'un souper traditionnel de homard et d'une soirée de danse et de camaraderie.

JOUR 3 (DERNIER JOUR) : SAMEDI 21 OCTOBRE 2017

Le samedi matin s'est ouvert sur une très intéressante séance plénière en compagnie du Dr Michael West, qui exerce la néphrologie à Halifax. Pendant une heure, le Dr West nous a entretenus de la maladie de Fabry, une maladie héréditaire dont on peut réduire le risque de progression vers l'IRSU si elle est traitée assez tôt. Fait particulièrement intéressant, même s'il s'agit d'une maladie rare, la majorité des quelque 470 Canadiens atteints par la maladie de Fabry se trouvent en Nouvelle-Écosse.

Des séances simultanées ont occupé le reste de la matinée. Pendant le dîner, nous avons eu droit à un spectacle de danse écossaise des Highlands mettant en vedette de charmantes jeunes femmes de la Worthen School of Dance, spectacle qu'elles avaient répété en prévision de leurs compétitions d'automne imminentes.

Le samedi après-midi, une présentation d'affiches et une séance de questions et réponses étaient à l'horaire. Vingt-trois auteurs ont présenté leurs affiches et les délégués ont eu une dernière chance de poser des questions et d'échanger des idées et des coordonnées. Une dernière séance simultanée a eu lieu avant que les délégués se rassemblent pour clôturer le congrès avec le traditionnel relais de l'étendard à Nancy Filteau et Roch Beauchemin, coprésidents pour la réunion du 50^e anniversaire de l'ACITN, qui aura lieu dans la magnifique ville de Québec du 25 au 27 octobre 2018.

Mark Black a présenté un discours de clôture sur la voie de la résilience, un message sur l'importance de vivre une vie remplie et pleine de sens. Il a encouragé les participants à se concentrer sur les aspects positifs de leur vie, à s'appuyer sur leurs expériences éprouvantes pour aller plus loin et à focaliser sur les étapes à franchir plutôt que sur les obstacles au moment d'établir un objectif. En quittant Halifax, nous avions créé de nouvelles amitiés et en avions renouvelé d'autres, et nous avions la tête pleine d'idées pour améliorer les soins prodigués aux patients dans nos secteurs respectifs. Ce fut très instructif d'entendre parler de ce qui se passe dans les soins rénaux partout au Canada, mais aussi de jeter un coup d'œil à certains des excellents programmes et initiatives en santé qui sont en place en Nouvelle-Écosse.

Le succès de l'ACITN dépend entièrement de la contribution de nos nombreux membres. Cette année, nous avons offert plus de 50 séances simultanées et 23 présentations d'affiches. Merci à toutes et à tous d'avoir partagé vos idées!

Nous vous invitons à commencer à préparer vos affiches et vos séances pour l'année prochaine. Rendez-vous à Québec!

Carolyn Ingram Vice-présidente pour la région de l'Ontario

La participation de nos partenaires de l'industrie est essentielle à la réussite du congrès. Au nom de l'ACITN, j'aimerais souligner la contribution des commanditaires suivants : platine (AMGEN, Baxter, Fresenius Medical Care, Otsuka, Pfizer); argent (Medtronic); et bronze (BD). Merci infiniment de votre soutien continu!

PLATINE





CALL FOR ABSTRACTS

CANNT-ACITN invites you to join us in Quebec City in 2018!

Abstracts are currently being accepted for ORAL and POSTER presentations for CANNT-ACITN 2018 - "Our Past Will Guide Our Future". This annual national meeting of the Canadian Association of Nephrology Nurses and Technologists will be held October 25–27, 2018 in Quebec City. Abstract submissions should demonstrate the themeletting our past knowledge and experience guide us to new and innovative ways of providing care to patients and families—appropriate for the novice through to the advanced practice professional. Topics of interest may include: clinical research, innovative projects and solutions, ethics, case presentations and clinical reviews. All abstract submissions must be evidence-based. Please consult the list of leading-edge topics for possible areas of interest.

ABSTRACT SUBMISSION GUIDELINES:

Deadline: February 1, 2018

All abstracts must be submitted online (www.cannt.ca) as an uploaded attachment in Word.

Submissions must include the following:

Abstract Title

must accurately reflect the content of the presentation

Abstract Text

- should be no longer than 250 words (font: Times New Roman 12 point)
- provide author information on a separate page (see below)
- should be as informative as possible
- define all abbreviations the first time they appear in the abstract
- use only the generic names of drugs
- do not identify companies and/or products in the body or title of the abstract

If research-based, must include:

- purpose of study
- methods
- results
- conclusions
- implications for nephrology care

If practice/education-based, must include:

- purpose of the project
- description
- evaluation/outcomes
- implications for nephrology practice/education

PRESENTATION INFORMATION: (provided on separate page)

- identify preferred format of presentation (ORAL or POSTER)
- full names and credentials of authors
- biography (250 words max.) and headshot of first author
- contact information for first author must include: full name, e-mail address, fax number, mailing address with postal code, home and work telephone numbers
- identify preferred audiovisual requirements (PC Viewer for PowerPoint or Slides)

LEADING EDGE TOPICS IN:

| Transplant | Transitioning from |
|---|-------------------------------|
| Mental Health and CKD | Pediatrics to Adult Care |
| Cardiovascular Disease and CKD | Ethics and Elderly Care |
| History and Future Directions of CKD | Assisted Dying/End of Life |
| and Treatment | Home Therapies |
| | |

IMPORTANT NOTES:

Only **COMPLETE** submissions received by FEBRUARY 1, 2018 will be considered.

- All correspondence will be with the first author only.
- Acceptance of abstract does not waive attendance fees (registration, transportation, accommodations).
- Notification regarding selection decisions will be provided by April 1, 2018.
- Should the abstract be selected for presentation, the author(s) authorize(s) the publication of the abstract submitted for publication in the CANNT-ACITN Journal.
- The presentation shall not make comparison to companies or products for any purposes of product marketing, nor will topics or materials used discredit companies or products.
- The abstract, and associated authors, should make full disclosure of corporate employment and/or funding sources.
- Abstracts not in the required format will be returned to the author for revision.
- The language of abstract submission will be the language of presentation, if selected.

SUBMIT ABSTRACTS TO:

ONLINE: www.cannt.ca

OUESTIONS:

EMAIL: cannt@cannt.ca



Soumission pour présentation ACITN-CANNT vous invite à vous joindre à nous à Québec en 2018!

Il est temps de soumettre les abrégés pour présentation orale ou poster, pour ACITN-CANNT 2018 : *Le passé est garant de l'avenir*. Le congrès annuel de ACITN-CANNT se tiendra dans la ville de Québec du 25-27 octobre 2018. Les présentations devront suivre le thème du congrès—que les connaissances et l'expérience du passé nous guideront vers de nouvelles approches innovatrices afin de donner les meilleurs soins pour nos patients et leur familles—elles pourraient rejoindre autant pour les novices et pour les professionnels plus expérimentés. Les sujets peuvent être variés : recherche clinique, des projets innovateurs, des solutions à des situations complexes, l'éthique, présentation d'histoire de cas et situations cliniques. Toutes présentations doivent être appuyées de données probantes. Consultez la liste ci-dessous pour des sujets qui pourraient vous intéresser.

Lignes directrices pour les présentations :

Date limite : le 1^{er} février 2018

Les abrégés doivent être soumis en ligne (<u>www.cannt.ca</u>) attachement en format Word.

Les soumissions doivent inclure :

Le titre

il doit refléter le contenu de la présentation

Le texte de l'abrégé doit :

- 250 mots maximum (Time New Roman 12 points)
- l'information de l'auteur : sur une page différente
- l'information la plus complète possible
- bien expliquer les abréviations lorsqu'elles apparaissent dans le texte
- utiliser les noms génériques des médicaments
- ne pas donner de nom de compagnie ou produits commerciaux dans le titre ou dans le texte

Les projets de recherche doivent inclure :

- l'objectif de la recherche
- la méthode
- les résultats
- les conclusions
- les implications dans les soins en néphrologie

Pour techniques ou projets d'éducation : doivent inclurent :

- l'objectif du projet
- description
- évaluations/résultats
- implications dans les soins et l'éducation en néphrologie

Information sur la présentation : (sur une autre page)

- identifié le type de présentation : ORALE ou POSTER
- nom complet des auteurs et leurs qualifications
- biographie (250 mots max.) et photographie passeport de l'auteur principal
- l'information pour rejoindre l'auteur principal : nom complet, adresse email, numéro de fax, adresse avec code postal, numéros de téléphone personnel et au travail
- identifier le matériel requis pour la présentation : PC pour Power Point ou projecteur pour diapositives

Sujets suggérés :

Greffe rénale

Santé mentale et insuffisance rénale chronique

Maladie cardiovasculaire et insuffisance rénale chronique Histoire et vision futur de dans la maladie rénale et ses traitements

La transition de la pédiatrie aux soins pour adultes

Fin de vie/mort assistée Traitements à domicile

l'Éthique et le vieillissement

N.B.

Seul les soumissions **reçues pour le 1^{er} février 2018** seront considérées.

- Toutes communications seront avec le premier auteur seulement.
- Les frais reliés à la conférence (inscription, déplacement et accommodation) ne sont pas couverts si la présentation est acceptée.
- Les avis de sélection seront émis le 1^{er} avril 2018.
- Advenant l'acceptation de l'abrégé, le ou les auteurs autorisent sa publication dans le Journal ACITN/CANNT.
- La présentation ne fera pas de comparaisons entre compagnies ou faire la promotion de certains produits ou que le sujet et matériel utilisé discrédite une compagnie ou un produit.
- Le ou les auteurs devront mentionner tout emploi pour une compagnie ou soutien financier d'une compagnie.
- Tout abrégé qui n'est pas complété selon le format requis sera retourné à l'auteur pour révision.
- La langue dans laquelle l'abrégé est soumis, sera la langue de présentation, si accepté.

Soumettre l'abrégé à :

En ligne : <u>www.cannt.ca</u>

Question : Courriel : <u>cannt@cannt.ca</u>

Perspectives on burnout and empowerment among hemodialysis nurses and the current burnout intervention trends: A literature review

By Christina Doré, MScN, RN, PhD(c), Linda Duffett-Leger, PhD, RN, Mary McKenna, PhD, and Myriam Breau, MScN, RN, PhD (student)

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ABSTRACT

Burnout is emerging among North American hemodialysis (HD) nurses (RNs), and can have detrimental effects on the RNs' health and well-being, and jeopardize the quality of care and patient safety. It is, therefore, essential to better understand and address this issue. Empowerment is at present recognized in some nursing specialties as a useful strategy for reducing the risk of burnout. This review includes 35 relevant articles and is meant to provide an understanding of HD RNs' burnout, their perceptions of empowerment, and the interventions that are effective in reducing the occurrence of burnout. Internationally, a majority of HD RNs manifested a moderate risk of burnout, whereas 33%-41% of North American HD RNs reported a higher burnout risk (Flynn, Thomas-Hawkins, & Clarke, 2009; Harwood, Ridley, Wilson, & Laschinger, 2010a; O'Brien, 2011). Findings revealed that burnout reduction strategies combining individual and organizational approaches had potentially longer lasting positive effects (Awa, Plaumann, & Walter, 2010). Promoting empowerment strategies for HD RNs appears promising in addressing the challenges RNs encounter in their practice and reducing burnout.

Key words: burnout, burnout interventions, empowerment, nurses, hemodialysis

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Hemodialysis (HD) is considered a complex and technology-dependent nursing specialty combining aspects of critical and chronic care for patients who require longterm renal replacement therapy (ACITN, 2008; OIIQ-ANQ, 2003). HD units are well-known for their heavy workload and high dependency care (Thomas-Hawkins, Flynn, & Clarke, 2008). Registered nurses (RNs) caring for HD patients are exposed to high levels of stress daily (Dermody & Bennett, 2008). Literature has shown that RNs practising in specialized contexts such as HD are faced with many challenges to maintain high quality of care and ensure patient safety (Poghosyan, Clarke, Finlayson, & Aiken, 2010; Wilkins & Shields, 2008). Demanding workplaces can cause burnout among RNs. As such, burnout is widespread in the nursing profession (McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011).

Burnout is a psychological syndrome that results from the accumulation of intense job stress caused by a heavy workload and too many work demands (Maslach, 2003). Although 36% of Canadian RNs suffer from burnout (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002), the phenomenon reaches up to 41% among HD RNs, and is related to the constant influx of new HD patients and the increasingly complex nature of HD care (Harwood, Ridley, Wilson, & Laschinger, 2010b). Burnout can have enormous negative impact at the personal, social, and organizational levels (Maslach, 2003). Currently, there is limited evidence about nursing burnout in HD. Consequently, it is crucial to better understand the problem and identify effective interventions to address the issue. Furthermore, evidence suggests that promoting workplace empowerment may lower the risk of burnout among RNs (Laschinger, Finegan, & Shamian, 2001; Laschinger, Finegan, Shamian & Wilk, 2001). This literature review aims to: (a) Examine what is currently known about burnout among HD RNs, burnout interventions and empowerment of RNs; (b) identify any gaps in the literature; and (c) recommend future studies to address nursing burnout in HD clinical settings.

BACKGROUND

Burnout

Maslach and Jackson (1986) defined burnout as a three-dimensional syndrome consisting of emotional exhaustion (EE), depersonalization (DP) and reduced personal accomplishment (PA). Emotional exhaustion (EE) is the main dimension of the syndrome and is characterized by extreme fatigue, the collapse of emotional resources, and demotivation. Depersonalization (DP) is defined as detachment from others, loss of empathy, or negative attitudes and feelings towards patients or work. Reduced personal accomplishment (PA) implies a negative self-evaluation of one's work (feeling incompetent or useless) or the inability to achieve concrete results at work. This conceptualization of burnout has led to the development of the Maslach Burnout Inventory (MBI), a self-administered questionnaire to measure the occurrence of burnout. A high mean score on emotional exhaustion (EE) and depersonalization (DP), and low mean score on personal accomplishment (PA) are suggestive of high risk of burnout. The MBI can be used to assess burnout of RNs (Poghosyan, Aiken, & Sloane, 2009). According to Canada's General Social Survey conducted in 2010, 40% of burnout cases are related to individual factors and 60% to organizational (workplace) factors (as cited in Optima Santé, 2013). The main individual factors contributing to burnout among RNs are socio-demographic variables such as age, gender, ethnicity, education, marital, and family status (Maslach, 2003), work experience (Vargas, Cañadas, Aguayo, Fernández, & de la Fuente, 2014), and education/ continuing education (Maslach, Schaufeli, & Leiter, 2001; Crotty, 1987). Key organizational factors contributing to burnout are work overload, lack of control, reward (recognition and opportunities), fairness, and community, as well as conflicts of values (Leiter & Maslach, 1999). Since each nursing specialty varies greatly according to patient acuity, expertise, and workload, a majority of studies reported inconsistent results for the factors leading to nursing burnout suggesting that each specialty should be examined separately (Cañadas-De la Fuente et al., 2015).

When looking at the HD RNs' situation, it should be noted that since the first long-term HD treatment in 1960 (Blagg, 1999), the provision of services has kept evolving due to advances in knowledge, pharmacology, and technology. There has been a steady increase in patient acuity requiring more complex care (OIIQ-ANQ, 2003). HD RNs provide care to patients undergoing HD treatment three times a week. As such, they are responsible for the ongoing assessment, health promotion, disease prevention, rehabilitation, and management of the patients' acute, chronic, and end-of-life planning and care (ACITN, 2008). The therapeutic nurse-patient relationship is unique in HD, and can be intense and challenging (Bennett, 2011) because of the progression of the disease, repeated setbacks with HD patients' health, frequent near-death situations (Ashker, Penprase, & Salman, 2012) and ethical issues (e.g., non-compliance, discontinuation of HD) (Ashker et al., 2012; Rabetoy & Bair, 2007). Heavy workload and intense stress over an extended period may lead to burnout among RNs, causing serious repercussions on their health and well-being (Maslach, 2003) and potentially affecting the quality of patient care and safety (Poghosyan et al., 2010; Wilkins & Shields, 2008).

Burnout Interventions

Burnout interventions are approaches or strategies taken to prevent or treat burnout. To date, most interventions have been directed toward the individual (e.g., relaxation techniques, meditation, massage, music therapy, and cognitive behavioral training) to help RNs better cope with stress and promote personal well-being, whereas fewer interventions have been directed toward the organization (e.g., modification of workplace, social support, education) to improve the work environment (Leiter & Maslach, 2000; Maslach et al., 2001). Research has not focused on the development of interventions to prevent or treat burnout among RNs; rather, most research has focused on enhancing awareness about the complexities of burnout and its consequences on individuals and organizations (Saint-Arnaud, Gignac, Gourdeau, Pelletier, & Vézina, 2010).

Empowerment

Empowerment is the process of enabling or authorizing an individual to think, behave, take action and control the work environment and decision-making in autonomous ways (Wallerstein, 1992). Two perspectives pertaining to organizational empowerment are discussed in the literature. The first perspective, structural empowerment (SE), focuses on changes in the work environment (work conditions, practices, policies, and processes) that promote the delegation of managerial power to RNs, thereby increasing RNs' control over their practice. The second perspective, psychological empowerment (PE), refers to the individual's characteristics of empowerment producing a cognitive state of feeling empowered (Seibert, Silver, & Randolph, 2004). Promoting structural empowerment (SE) requires that the various tools to empower RNs are accessible in their workplace. Kanter (1977, 1993), and Laschinger, Finegan, Shamian, and Wilk (2001) refer to these tools as structures. There are six organizational structures: (a) information (values, goals, and policies pertaining to the organization); (b) opportunity (to learn and grow); (c) support (guidance and feedback from peers and managers); (d) resources (e.g., time and material to perform work); (e) formal power (i.e., a job that offers flexibility, visibility, and creativity); and (f) informal power (i.e., relationships and networks with peers and managers). Psychological empowerment (PE) consists of four motivational cognitions or perceptions of employees that are shaped by their work environment, thus reflecting on their work role, and include: (a) meaning (value given to the job according to one's beliefs, values, and behaviours, and work expectations); (b) competence (belief in personal ability to perform work activities); (c) self-determination (sense of choice in the performance of work); and (d) impact (belief that one's own actions influence strategies and outcomes of work) (Spreitzer, 1995). Despite these conceptual differences, structural empowerment (SE) and psychological empowerment (PE) are complementary, and should be analyzed together to obtain a global perspective of empowerment (Spreitzer, 2008). Laschinger, Finegan, Shamian, and Wilk (2001) actualized Kanter's theory of structural empowerment (SE) and integrated Spreitzer's theory of psychological empowerment (PE), developing a framework that provides a global perspective of RNs' empowerment and facilitates the creation of interventions to promote empowerment that will enhance RNs' well-being and health, and reduce burnout. Organizations that provide the six empowerment structures in the workplace allow the development of the four dimensions of psychological empowerment (PE) within individuals. Once the individuals acquire the psychological empowerment (PE) dimensions, their attitudes, behaviours, and work are positively influenced, resulting in a greater control over situations, work productivity, trust and engagement toward the organization, job satisfaction, and reduced risk of burnout (Laschinger, Finegan, Shamian, & Wilk, 2001, 2003). Laschinger, Finegan, Shamian, and Wilk (2001) developed the Conditions for Work Effectiveness (CWEQ-II) questionnaire to assess structural empowerment (SE); this global score represents the perception of RNs about the presence of empowering structures within the workplace. Spreitzer (1995) developed the Psychological Empowerment Scale (PES) questionnaire to assess psychological empowerment (PE); this global score represents the perception of RNs on being empowered at work. The structural empowerment (SE) and psychological empowerment (PE) global scores vary from low, moderate to high levels. Thus, promoting empowerment strategies in HD may successfully reduce nursing burnout because it can positively support the HD RNs in their clinical practice settings.

Table 1: Documentary Search Strategies

Inclusion Criteria (Studies)

- Published in the last 15 years
- Language: English or French

Burnout

- · Dealing with burnout (risk factors or determinants)
- · Conducted with nurses working in HD

Burnout interventions

- Dealing with burnout interventions
- · Conducted with nurses or healthcare professionals

Empowerment

- Dealing with empowerment and burnout
- Conducted with HD nurses or nurses in general

LITERATURE SEARCH STRATEGY

Various search strategies were used to identify relevant literature on burnout, burnout interventions, and empowerment for HD RNs and other other healthcare professionals. The authors first searched the following electronic databases (EBSCO, PsycINFO, OVID MEDLINE, Cochrane Library, PubMed, Web of Science, EMBASE). The references of the selected articles were then retrieved and consulted. Finally, the grey literature was consulted (i.e., government and professional websites). The search period covered 2000 to 2015 with periodical search updates. The inclusion criteria for the search are outlined in Table 1, and the descriptor terms used for the search are presented in Table 2.

LITERATURE SEARCH RESULTS

The initial search produced 1,460 articles that were potentially of interest. This number was decreased to 55 articles after reading the titles and abstracts, and was further reduced to 29 after removing duplicates and reading the articles. An additional six articles were obtained from the original articles' references. In total, 35 articles met the inclusion criteria, and are presented according to the main topic: burnout, burnout interventions, and empowerment. Studies have shown that the professional context of RNs varies between countries in terms of job roles, professional activities, and education (Bohmert, Kuhnert, & Nienhaus, 2011).

Characteristics of Selected Studies on Burnout Among HD RNs

Our review of the literature demonstrates that burnout among HD RNs is not well understood. A total of 11 papers were retained, including nine studies and two systematic reviews (Table 3). Eight studies examined the prevalence and determinants of burnout in HD RNs, of which seven explored the impact of burnout on RNs and organization-related outcomes. The two systematic reviews and one study explored the sources of stress among RNs working in HD. Study population samples varied between 10 to 682, and were composed mainly of HD RNs with some RNs working in other fields, nephrologists, other professionals, as well as clinical and non-clinical staff from North America (Canada and U.S.), the United Kingdom, Australia, Greece, Italy, Turkey and Japan. The Maslach Burnout Inventory (MBI) was the favoured tool to assess RNs' burnout in HD.

Table 2: Descriptor Terms Used for the Search

MeSH terms / CINAHL Headings / Keywords

Burnout

- Burnout/burnout professional
- Risk factors/prevalence
- Determinants
- Nurse/nurs*
- Hemodialysis
- Nephrology nursing
- Nephrology

Burnout interventions

- Burnout/burnout professional
- Stress occupational
- Nurse/nurs*
- Healthcare professionals
- Intervention

Empowerment

- Empowerment
- Burnout/burnout professional
- Stress occupational
- Nurse/nurs*

Table 3: Summary of Studies on Burnout of Nurses in Hemodialysis

| Author (s) | Type of Study/Goal(s) | Sample / Measurement Tool Used for Burnout | Authors' Findings (Synopsis) |
|--|---|---|--|
| Arikan, Koksal, & Gokce (2007) Turkey | Study: comparative cross-sectional design Goal: Compare levels of work-related stress, burnout, and job satisfaction of RNs working in HD, intensive care units (ICU) and nursing units. | 31 HD RNs 100 ICU RNs 49 RNs working in units Tool: MBI | HD RNs reported low EE and DP, high PA. Determinants of job stress, burnout and satisfaction: age, work experience, work mobility within the last five years, hours worked per week and pattern (number of night shifts), nurse-patient ratio. Conclusion: HD RNs had lower stress and burnout levels, higher job satisfaction and decreased intention to leave job. |
| Hayes, Douglas, & Bonner (2015) Australia | Study: descriptive, cross-sectional online survey design Goal: Examine the relationships between work characteristics, job satisfaction, stress, burnout and the work environment of HD RNs. | 406 RNs; 11 LPNs (396 from Australia and 21 from New Zealand) Tool: MBI | 53–60% reported high levels of EE and DP, and 58% reported low levels of PA. Presence of significant correlations between EE and workload, lack of support, conflicts with physician (conflicts with RNs and values; moderate). Determinants: age and work experience in HD: lower job satisfaction/ high burnout with younger RNs (less than 30 years old) and those working in HD (three–five years). Higher job satisfaction/low burnout among experienced RNs (50 years and older) and those working in HD (16-20 years and more); RNs over 60 years old had the best scores. Conclusion: These HD RNs reported being satisfied with their work and workplace but had high levels of burnout. |
| Dermody & Bennett (2008) Australia | Study: mixed method design focus group/ questionnaire Goal: Explore RNs stressors in both in-centre hospital HD and satellite HD unit (identify specific sources of stress in both areas and frequency of occurrence). | 11 HD RNs from hospital and one LPN 7 HD RNs from satellite unit Tool: Questionnaire developed based on focus group | In-centre HD RNs identified 20 sources of stress (i.e., reported daily); workload, shift work pattern, insufficient staff, lack of time for patient education or maintain/update skills and knowledge, noncompliant patients. HD RNs from the satellite unit identified 10 sources of stress (i.e., reported daily): complexity of patients' problems and comorbidities, patients' behaviour (e.g., aggressive or impatient), unrealistic patients' expectations. Majority of these RNs were able to identify a resource person, able to discuss challenges and stressors with colleagues, but had the tendency to bottle up issues. Conclusion: Managers/clinicians/educators need to understand HD stressors and improve workplace. |
| Kapucu, Akkus, Akdemir, & Karacan (2009) Turkey | Study: descriptive cross-sectional design Goal: Explore exhaustion and burnout of HD RNs. | 32 HD RNs 59 high school degree RNs 4 RNs with a certificate Tool: MBI | HD RNs reported low EE and DP, high PA 62% had high school degree, 34% college diploma prepared; 54% had inter-professional issues with colleagues (communication problems); 48% found that providing care for HD patients was psychologically demanding. Demographic and work characteristics data (no statistical difference): age, education, marital status, seniority, years in HD unit, shift work pattern, dialysis training specialty and employment status. Conclusion: EE was higher among RNs who did not find themselves fit for the job and those who intended to leave the profession. |
| Kavurmaci, Cantekin, & Tan (2014) Turkey | Study: descriptive cross-sectional design Goal: Explore burnout of HD RNs. | 28 HD RNs (12 college degree, 11 university degree, 5 high school degree RNs) Tool: MBI | HD RNs had moderate levels of EE and DP and a high level of PA. Determinants to burnout identified: gender, marital status, having children, education status, type of institution. Conclusion: Organizations should plan strategies to reduce burnout occurrence. |
| Klersy et al. (2007) Italy | Study: observational multicentre cross- sectional design Goal: Compare burnout of HD RNs and nephrologists and assess relationship with quality of life. | 260 HD RNs 10 Peritoneal dialysis RNs 61 nephrologists Tool: MBI | Lower levels of burnout (compared to normative sample): low EE and DP, moderate PA. 50% reported low EE and 50% moderate to high; 30% of RNs reported a high level of EE compared to 18% for nephrologists. No correlation between burnout and quality of life. Conclusion: HD RNs have more EE because of prolonged contact with patients, and therefore have a greater emotional charge than nephrologists (punctuated contact). Table continued on page 20 |

| Author (s) | Type of Study/Goal(s) | Sample / Measurement Tool Used for Burnout | Authors' Findings (Synopsis) |
|--|---|--|--|
| Ross, Jones, Callaghan, Eales, & Ashman (2009) UK | Study: survey design Goal: Investigate burnout, psychological distress and job satisfaction of HD employees. | 50 HD staff (29 RNs, 5 healthcare assistants, 7 non- clinical professionals, 9 support/transport staff) Tool: MBI | Staff reported moderate levels of EE, DP, PA and being satisfied with work. 30% being under constant strain 20% limiting their daily activities. Conclusion: Older RNs and staff with seniority in HD were more prone to burnout, low PA, psychological distress, dissatisfaction. |
| Flynn, Thomas- Hawkins, & Clarke (2009) USA | Study: cross-sectional, correlational design Goal: Identify the determinants of burnout among RNs working in HD and explore their associations with the intention to leave the practice. | 422 HD RNs Tool: MBI only EE subscale | 31% had a high level of EE. Determinants to nursing burnout in HD: (a) excessive workload; (b) unsupportive work environment; (c) impaired care process (due to lack of time). 23% of the RNs considered leaving their jobs in the next 12 months (i.e., for another sector of care or a position in another institution) due to work overload. Conclusion: This study demonstrates that work environment must be modified to reduce occurrence of burnout for HD RNs and their intention to leave the job, and ensure quality of care and patient safety |
| Harwood, Ridley, Wilson & Laschinger (2010a) Canada | Study: secondary analysis cross- sectional survey design; primary study (descriptive) (Ridley, Wilson, Harwood, & Laschinger, 2009) Goal: Examine the influence of burnout on mental and physical health, as well as job retention of nephrology RNs. | 121 nephrology RNs (72 college degree, 49 university degree) 68% HD RNs Tool: MBI (shorter version 16 items) | 41% had high levels of EE and 33% had high levels of DP. 40% of psychological symptoms are explained by burnout: EE has more influence than DP. 28% of physical symptoms are explained by burnout: Only EE has an influence. Intention to leave is linked with DP, EE, physical and psychological symptoms. Conclusion: This study showed the importance to support HD RNs and to examine their work environment in order to keep them in the practice (highly specialized RNs). |
| Hayes & Bonner (2010) Global perspective (Australia/ Europe/ USA) | Study: systematic review (2000–2009) Goal: Increase knowledge of the factors contributing to job stress, burnout and satisfaction of HD RNs. | 9 studies From databases: CINAHL, Medline, Pubmed Population samples varied: 10 - 682 Tool: 3 studies measured burnout and all used MBI | Five main categories of sources of stress contributing to burnout: (a) Interpersonal relationships (physicians, colleagues): increased when RNs are left out of decisional-making, decreased with support from peers, but nurses bottle up work issues; (b) facet of care for HD patients: risk related to provision of care (exposure to blood contamination), patient health condition (deterioration, death), intensity of therapeutic relationship; (c) patient abuse and violence against RNs due to renal disease (adjustment disorders, electrolytes disturbance), the frustration related to the care and loss of control over life; (d) organizational factors: workload, high level of stress care with incapacity to replenish (missed meals-breaks); and (e) lack of continuing education opportunities and support. Conclusion: Job stress/burnout is an important problem for HD RNs and organizations. Evidence that there is a need to find stratgies/solutions to reduce job stress. In addition, there is a lack of knowledge and access to continuing education that needs to be addressed. Studies were conducted in workplace contexts that were very different, therefore, some studies may not be generalizable. |
| Bohmert, Kuhnert, & Nienhaus (2011) Global perspective (Australia/ Canada/ Japan/ Europe/ USA) | Study: systematic review (1990-2010) Goal: Have a comprehensive overview on stress and strain in HD employees. | 20 studies 19 primary studies 1 systematic review From databases; Pubmed, Medpilot, EMBASE, PsycINFO, PSYNDEX Population samples varied: 10 – 682 Tool: 8 studies measured burnout and all used MBI | Majority of studies found moderate levels of EE, DP and variable levels of PA. Inconsistency on the contribution of socio-demographic variables (age, number of children, education and work experience) to burnout. Age and work experience (seem to be more predictive). Four main categories of sources of stress were identified: (a) patient-based (risk of contamination, patient behaviour, death of patients); (b) work role (great responsibility, low professional status); (c) working conditions (nursing shortage, workload, nursing shift work pattern, lack of work experience, limited equipment); and (d) inter-professional collaboration (poor communication with colleagues and managers). Conclusion: Caution with interpretation and generalization of results (studies conducted in countries where RNs' status differs; education and work role). Empowerment may help nephrology RNs cope with work demands. |

DP: depersonalization; EE: emotional exhaustion; HD: hemodialysis; LPN: licensed practical nurse; MBI: Maslach Burnout Inventory subscales; PA: personal accomplishment; RN: registered nurse

However, not all researchers used the three-dimensional approach (emotional exhaustion, depersonalization, and personal accomplishment) to assess burnout among RNs. Therefore, the authors compared the results of the studies on the basis of emotional exhaustion (EE). The results are presented on the basis of burnout levels, burnout determinants and contributing sources of stress, and the impact of nursing burnout in HD.

Burnout Levels of RNs Working in HD

In general, studies showed that HD RNs experienced varying levels of burnout. Studies reported low (Arikan, Koksal, & Gokce, 2007; Kapucu, Akkus, Akdemir, & Karacan, 2009; Klersy et al., 2007), moderate (Kavurmaci, Cantekin, & Tan, 2014; Ross, Jones, Callaghan, Eales, & Ashman, 2009) or high (Flynn, Thomas-Hawkins, & Clarke, 2009; Harwood, Ridley, Wilson, & Laschinger, 2010a; Hayes, Douglas, & Bonner, 2015; O'Brien, 2011) levels of emotional exhaustion (EE). Of note, one of the studies that found low levels of burnout among HD RNs used a small sample, which may have led to sample bias distorting the results (Arikan et al., 2007). In contrast, Australian researchers demonstrated that 53% of HD RNs had high levels of emotional exhaustion (EE) (Hayes et al., 2015), whereas three studies conducted in North America showed severe levels of emotional exhaustion (EE) among 30-41% of HD RNs (Flynn & al., 2009; Harwood et al., 2010a; O'Brien, 2011).

Determinants to Nursing Burnout in HD and Contributing Sources of Stress

Various studies attempted to clarify how socio-demographic variables such as age, number of children, education, and work experience influenced burnout among HD RNs, with contradictory findings (Bohmert et al., 2011). One study reported that the prevalence of burnout was higher among older RNs with more seniority in HD (Ross et al., 2009), whereas other studies found higher rates of burnout among younger HD RNs (less than 30 years old) with less seniority (Arikan et al., 2007; Hayes et al., 2015). Thus, it is not clear how age and seniority may have contributed to burnout among HD RNs. It should be noted that education was also identified as a contributing factor: Kapucu et al. (2009) revealed that less educated RNs (i.e., high school-prepared) were less prone to burnout, whereas Harwood et al. (2010b) found that HD RNs with a university degree experienced greater burnout. Flynn et al. (2009) identified the main organizational burnout determinants in HD as excessive workload, unsupportive work environment, and impaired care process (due to lack of time).

Two literature reviews have helped to demystify the specific sources of stress related to burnout among HD RNs. The main categories are: (a) patient-based; b) work role; (c) working conditions; (d) interprofessional collaboration (Bohmert et al., 2011; Hayes & Bonner, 2010); (e) patient abuse and violence against RNs (Hayes & Bonner, 2010); and (f) lack of access to continuing education opportunities and support (Hayes & Bonner, 2010). One study recommended that nursing leaders should be aware of the stressors in HD and committed to improving workplaces because work-related stress affects patient care (Dermody & Bennett, 2008).

Impact of Nursing Burnout in HD

The literature suggests that burnout impacts the RNs' health and work life. One study highlighted that 30% of HD RNs were under constant strain affecting their daily activities (Ross et al., 2009). In a Canadian study of nephrology RNs, emotional exhaustion (EE) was found to be responsible for 28% of physical symptoms, whereas emotional exhaustion (EE) combined with depersonalization (DP) were responsible for 40% of psychological symptoms (Harwood et al., 2010a). Two North American studies acknowledged that RNs considered leaving their jobs due to work overload, emotional exhaustion (Flynn et al., 2009; Harwood et al., 2010a) and physical and psychological symptoms related to burnout (Harwood et al., 2010a). Two studies established an interrelationship between burnout and job dissatisfaction (Arikan et al., 2007; Ross et al., 2009), whereas one study reported that HD RNs who experienced severe burnout remained satisfied with their work (Hayes et al., 2015). Thus, the reviewed studies suggest that nursing burnout is becoming more prevalent in HD settings, largely attributable to their distinctive stressors.

Characteristics of Selected Studies on Burnout Interventions for RNs

Our review of the nursing literature found no intervention to reduce burnout among RNs working in HD or nephrology. We retained four systematic reviews that focused on the effect of interventions to reduce job stress and burnout of RNs (Mimura & Griffiths, 2003) and health professionals (Awa, Plaumann, & Walter, 2010; Ruotsalainen, Verbeek, Marine, & Serra, 2015; van Wyk & Pillay-van Wyk, 2010), as well as a meta-analysis (Halbesleben, 2006), and two studies (Bourbonnais, Brisson, Vinet, Vézina, Abdous, & Gaudet, 2006; Bourbonnais, Brisson, & Vézina, 2011; van Straten, Cuijpers, & Smits, 2008) assessing the emerging approaches to prevent and reduce burnout (Table 4). The results are presented on the basis of individual-directed and organization-directed burnout interventions, and emerging approaches to burnout management.

Individual- and Organization-Directed Burnout Interventions

Some of the earlier studies targeted individual-directed interventions to manage burnout. These demonstrated limited benefits; therefore, organizational and combined approaches were integrated. One systematic review focused on evaluating interventions to address RNs' job stress (Mimura & Griffiths, 2003). The results are presented in descending order according to effectiveness: cognitive behavioural techniques (CBT) (effective but evidence was weak); exercise, music, relaxation training (potentially effective); social support education (questioned but potentially effective); and environmental change (possibly

| Author(s) | Type of Study/Goal(s) | Sample/Measurement Tool Used for Burnout | Authors' Findings (Synopsis) |
|---|---|--|--|
| Ruotsalainen, Verbeek, Marine, & Serra (2015) In health care | Study: systematic review (up to 2013) Goal: Evaluate the effectiveness of organization- and individual- directed interventions, compared to no intervention or alternative interventions to reduce stress at work of healthcare workers. | 58 studies randomized control trials Follow-up period: 1 month to 1 year From databases: Cochrane, Medline, EMBASE, PsycINFO, CINAHL, NIOSHTIC-2, Web of Science. Population: all together 7,188 Tool: MBI | Individual-directed intervention: more effective than no intervention. Organization-directed intervention: not more effective than no intervention or alternative intervention. Conclusion: Organization-directed interventions should be better focus on specific stressors. Need for more studies and appraisal of interventions (larger sample size and control group to be considered). Quality of studies was weak. |
| van Wyk & Pillay-Van Wyk (2010) In health care | Study: systematic review (up to 2008) Goal: Evaluate the effectiveness of preventive staff-support intervention to healthcare workers. | 10 studies randomized control trials From databases; Cochrane, Biblioweb, CINAHL, MEDLINE, EMBASE, PsycINFO, Ovid, Sociological Abstracts, CBA. Population altogether: 718 Tool: MBI | Stress management training interventions: sustained benefits over a medium-term for stress (one study) and reduced burnout (one study). Organization-directed interventions increased only job satisfaction. Conclusion: Need for more studies; explore long-term effects of stress management training and organization-directed interventions and determine if refresher sessions sustain positive effect. Quality of studies was weak. |
| Awa, Plaumann, & Walter (2010) Mostly in health care | Study: systematic review (1995 to 2007) Goal: Evaluate the effectiveness of workplace intervention or elsewhere to prevent burnout. | 25 studies (17 studies individual-directed, 2 studies organization- directed, 6 studies combined) From databases: Medline, PsycINFO, PSYNDEX Population samples varied: 25-248 Tool: MBI | Individual-directed interventions effective for six months or less. Organization-directed or combined approaches effective over 12 months. Refresher courses (e.g., stress management course) effective over two years but need to determine when appropriate. Conclusion: A combined approach is promising but need further investigation. Organizations should be sensitized to the benefits of interventions and implement. Quality of studies not evaluated. |
| Mimura & Griffiths (2003) In health care In nursing | Study: systematic review (1990 and up) Goal: Evaluate the effectiveness of interventions to manage RNs' work stress. | 10 studies (7 randomized control trials, 3 prospective cohort studies) Follow-up period: 6 months to 1 year From databases: Cochrane, CINAHL, British Index Population samples varied: 31-161 Tool: MBI | CBT (effective; weak evidence); exercise, music and relaxation training (potentially effective); social support education (questioned but potentially effective); environmental change (possibly effective). Conclusion: Individual support approach seems to be more favourable than an environmental management approach but impossible to recommend any particular approach (small number of studies and low quality evidence). A combined approach should be considered for RNs because of multidimensional nature of stress. Quality of studies weak. |

| Table 4: Summar | v of Studies on Burnout Interventions for Nurses |
|-----------------|--|
| | |

Table continued on page 23...

| Author(s) | Type of Study/Goal(s) | Sample/Measurement Tool Used for Burnout | Authors' Findings (Synopsis) |
|---|--|--|---|
| van Straten, Cuijpers, & Smits (2008) | Study: randomized control trial Goal: Examine whether a web-based CBT self-help intervention is effective in reducing burnout, depression and anxiety. | 213 participants intervention group (n=107), control group (n=106) Tool: MB | Intervention was web-based over the course of four weeks. For burnout, results were improved from pre to post intervention between intervention group and control group (not statistical significant) and participants in the intervention group were four times more likely to recover from their burnout than the participants in the control group. Conclusion: Results seem to be promising for the burnout management with online CBT (five weeks post intervention), but long-term effects are unknown (authors proposed longitudinal studies). |
| Halbesleben (2006) | Study: meta-analysis Goal: Confirm that social support acts as a moderator on burnout. | 114 articles / eight reports from databases: PsycInfo, Business Source Elite, JStor, and MEDLINE Tools: MBI/Oldenburg Burnout Inventory | Work-related support was more strongly related to EE than DP and PA and non-worker resources (spouse, family members, friends) was more strongly related to DP and PA. Conclusion: Work-related source of social support more predictive of reducing burnout when compared to non-worker resources because of its more direct relationship to work demands and that it may offer different types of support (emotional, instrumental and informational). This study confirms the importance of social support to reduce burnout. |
| Bourbonnais, Comeau, & Vézina (1999) (Quebec, Canada) | Study: longitudinal study (cross sectional) - 1 year Goal: Evaluate the effect of social support on job strain and burnout of RNs. | 1,741 RNs (T1) - first measure 1,378 RNs (T2) - second measure Tool: MBI | 32% reported having psychological distress (lower among RNs with a Bachelor's degree). High job demands and low decision latitude at work result in psychological distress and burnout. Social support had a direct effect on burnout and psychological distress, but not on the job strain. Conclusion: This study provides information for supporting the RNs working in Quebec to reduce burnout. |
| Bourbonnais, Brisson, Vinet, Vézina, Abdous, & Gaudet (2006); Bourbonnais, Brisson & Vézina (2011) (Quebec, Canada) | Study: quasi-experiment pre/ post measure (one year / 3 years) Goal: Test the effect of an intervention using a participatory approach (organizational-directed) to reduce burnout and psychological distress targeting psychosocial of RNs, clinicians and managers, and LPNs. | Experimental group (n=674) 505 RNs, 39 RN managers, 18 LPNs 112 orderlies Control group (n=894) 665 RNs, 6 RN managers, 78 LPNs, 145 orderlies Tool: Copenhagen Burnout Inventory | Intervention was to identify and address the organizational burnout determinants: 56 solutions were proposed that sought to develop teamwork, offer training, provide social support and improve communication and dissemination of information (similar to structural empowerment dimensions). Results one-year post intervention showed an improvement in burnout in the experimental group and deterioration in the control group. Results three-year post intervention showed long-term effectiveness of the intervention. Conclusion: Using a PAR approach to address the burnout problem of RNs by developing empowerment strategies at work is effective. |

CBT: cognitive-behavioural techniques; *DP:* depersonalization; *EE:* emotional exhaustion; *HD:* hemodialysis; *LPN:* licensed practical nurse; *MBI:* Maslach Burnout Inventory subscales; *PA:* personal accomplishment; *PAR:* participatory action research; *RN:* registered nurse

effective). Even though the results favour individual-directed interventions, the authors suggest using a combined approach (individual and organizational interventions) to respond to the many complex stressors experienced by RNs.

Three systematic reviews (Awa et al., 2010; Ruotsaleinen et al., 2015; van Wyk & Pillay-Van Wyk, 2010) analyzed the effect of interventions to reduce job stress and prevent burnout of healthcare professionals, and each concluded that interventions aimed at reducing burnout are beneficial. Interventions directed toward the individual can be beneficial (Ruotsalainen et al., 2015). However, organization-directed interventions or combined approaches have a greater potential for long-term reduction of burnout (Awa et al., 2010). Thus, it is imperative that organizations plan and implement preventive burnout interventions (Awa et al., 2010) that address specific stressors (Ruotsalainen et al., 2015). A refresher session may help sustain the positive effects of stress management interventions (Awa et al., 2010; van Wyk & Pillay-Van Wyk, 2010).

Emerging Approaches for Managing Burnout

In terms of new directions, evidence suggests that webbased cognitive behavioural technique (CBT) interventions may be used to change behaviours such as coping with stress and burnout. Techniques vary from self-help material, psycho-education and treatment (exercises), relaxation techniques and social skills training (Cuijpers, van Straten, & Andersson, 2008). One randomized control trial study of a web-based cognitive behavioural technique (CBT) selfhelp intervention to address burnout showed promising results; however, long-term effects were not assessed (van Straten et al., 2008). In addition, online social support network (e.g., blog, chat room, and bulletin board) may be advantageous to address job stress and wellness issues (Dietrich, 2000). One longitudinal study conducted with Quebec RNs found that social support reduced psychological distress and burnout (Bourbonnais, Comeau, & Vézina, 1999). A meta-analysis by Halbesleben (2006) confirmed the relationship between social support and burnout. Furthermore, social support appears to be more effective when provided by colleagues and managers who understand work situations and are able to adapt social support (emotional, instrumental, and informational) to adequately meet specific needs of employees (Halbesleben, 2006). Moreover, organizational interventions developed collaboratively by employees and employers using a participatory action research (PAR) approach have shown favourable outcomes in preventing and reducing burnout (Higginbottom & Liamputtong, 2015). In a study to reduce burnout among Quebec RNs using a participatory action research (PAR) approach, results showed long-term efficacy of the intervention up to three years post intervention (Bourbonnais, Brisson, & Vézina, 2011). Empowerment has become an important strategy to reduce burnout and enhance well-being of RNs (Laschinger, Finegan, Shamian, & Wilk, 2001, 2003). Since burnout is a psychological response of an individual to excessive and persistent job demands in combination with low control in the workplace, empowerment strategies offer promise by fostering the RNs' sense of power and control over their practice. Although limited, research suggests that a combined approach using empowering strategies may be effective in combatting burnout among HD RNs.

Characteristics of Selected Studies on Empowerment and Burnout of RNs

Our review of the literature identified few studies that focused on the empowerment and burnout of HD RNs, therefore, we expanded the search to include RNs in general practice settings. Twelve studies and two systematic reviews were retained (Table 5). Nine studies examined empowerment among the general nursing community and its relationship to burnout, and three studies specifically targeted HD RNs. The two systematic reviews established the relevance of empowerment in the workplace of RNs for both RNs and healthcare organizations. Canadian researcher, Dr. Laschinger, was well-known for her contributions to empowerment research in nursing. Seven studies and one review published by Laschinger and collaborators are contained in this review. Study population samples varied between 20 to 838, and included HD RNs, but mainly RNs working in other fields, RN leaders, licensed practical nurses (LPNs), other professionals, and clinical and non-clinical staff from North America (Canada and U.S.), Australia, Sweden, Turkey, and China. The majority of studies assessed the RNs' structural empowerment (SE) with the Conditions for Work Effectiveness (CWEQ-II) questionnaire (Laschinger, Finegan, Shamian, & Wilk, 2001) and the psychological empowerment (PE) with the Psychological Empowerment Scale (PES) (Spreitzer, 1995). The results are presented on the basis of empowerment in the general nursing community, and empowerment specific to HD RNs and RNs' perceptions on workplace empowerment.

RNs in General and Empowerment

Laschinger's early research demonstrated that Kanter's theory on empowerment in organizations was key to enhancing the RNs' practice and well-being in their work environments (Laschinger, 1996; Hatcher & Laschinger, 1996). Laschinger, Finegan, Shamian, and Wilk (2001) adapted Kanter's theory to explain empowerment in nursing, establishing that structural empowerment (SE) leads to the development of psychological empowerment (PE) resulting in positive outcomes for RNs such as job satisfaction and engagement, as well as the reduction of burnout. Researchers later confirmed the culminating longterm benefits of empowerment on RNs (Laschinger et al., 2003). Laschinger and Finegan (2005) found that structural empowerment (SE) influences burnout through its effect on the RN person-fit (compatibility between RN's expectations and organization's conditions). Greco, Laschinger and Wong (2006) revealed that managerial strategies to implement structural empowerment (SE) in the workplace increased RNs' person-job fit and engagement in their work, therefore reducing their risk of burnout. A systematic review confirmed the link between structural empowerment (SE) and psychological empowerment (PE), and highlighted

Table 5: Summary of Studies on Empowerment and Burnout of Nurses

| Author (s) | Type of Study/Goal (s) | Sample/ Measurement tool(s) Used for Empowerment/ Burnout | Authors' Findings (Synopsis) |
|---|---|---|--|
| Laschinger (1996) Global perspective (Canada, U.S.) | Study: systematic review (up to 1994) Goal: Examine the empowerment in nursing populations from Kanter's conceptualization. | 13 studies Population samples varied: 20–246 Tool: CWEQ | Empowerment in the workplace significantly influences employees' behaviours. Organizations providing access to empowering structures would increase the RNs' participation and satisfaction. Conclusion: SE is crucial to respond to current challenges of the healthcare and Kanter's theory in nursing is a good fit. |
| Hatcher & Laschinger (1996) (Canada) | Study: descriptive, correlational design Goal: Explore Kanter's position that access to SE (power and opportunity) relates to reduced burnout levels. | 87 RNs Tools : Burnout: MBI SE: CWEQ | RNs reported moderate global SE, moderate EE, low DP, high PA (lower than previous studies). Presence of significant correlations between: Empowerment and EE (negative), DP (negative) and PA (positive) and between a supportive environment and burnout (negative). Conclusion: A supportive workplace with access to SE is predictive of lower burnout in all three burnout dimensions. |
| Laschinger, Finegan, Shamian & Wilk (2001) (Canada) | Study: predictive, non- experimental design Goal: Test an expansion of Kanter's work empowerment theory (1977, 1993) including Spreitzer 's psychological empowerment theory. | 404 RNs Tools: Job strain: Karasek SE: CWEQ-II PE: PES | Results support that SE has an impact on job strain. Strong relationships between SE and PE, job strain (through PE), job satisfaction, and between PE and job strain (PE outcome of SE). Conclusion: Results provide support for the use of the expanded model of Kanter's theory to reduce job strain, improve job satisfaction, and performance in healthcare settings. |
| Laschinger, Finegan, Shamian & Wilk (2003) (Canada) | Study: longitudinal design Goal: Test an expansion of Kanter's work empowerment theory (1977, 1993) including Spreitzer's psychological empowerment theory. | 192 RNs (match for the two time points measure) Tools: Burnout: MBI (only EE) SE: CWEQ-II PE: PES | Time 1 (first measure): SE direct effect on PE and indirect effect on burnout (through PE). Time 2 (second measure): PE influence burnout (three years later). Access to empowerment structures in the workplace (information, support, resources and opportunities to learn and grow) increases feelings of psychological empowerment and reduces burnout over time. Conclusion: Evidence - SE is an antecedent of PE and reduces burnout of RNs over time. Importance of considering SE and PE in the reduction of burnout. |
| Laschinger & Finegan (2005) (Canada) | Study: descriptive correlational survey Goal: Test relationships between SE and six domains of work life that promote staff engagement and well- being (RNs' physical and mental health). | 285 RNs Tools: Burnout: MBI AWS (Areas Worklife Scale) SE: CWEQ-II | On average, RNs reported moderate burnout, however, 47% had high levels. Workplace was reported somewhat empowering. Significant relationships between: SE and domains of work life, domains of work life and EE, EE and physical and mental symptoms (positive) and SE and engagement. Conclusion: SE has direct effects on domains of work life, influencing person-job fit (compatibility between RN's expectations and organization's conditions), and an indirect effect on engagement and burnout, influencing their mental and physical health. |
| Greco, Laschinger, & Wong (2006) (Canada) | Study: cross-sectional survey design Goal: Test a model examining relationship between RNs leaders' empowerment behaviours, perception of staff empowerment, fit in work life areas, and work engagement/burnout using Kanter's theory. | 322 RNs Tools: Burnout: MBI AWS (Areas Worklife Scale) SE: CWEQ-II | 53% had high levels of burnout and global SE was rated moderate. RNs perceived their managers' behaviours to be more or less empowering (express confidence in employees, allowing autonomy, but the participation in decision-making was lowest). Managers' behaviours had indirect effect on EE through SE and overall six domains of work life. Conclusion: Managers who provide SE in the workplace would enhance RNs' person-job fit, engagement and prevent burnout. |

Table continued on page 26...

| Author (s) | Type of Study/Goal (s) | Sample/ Measurement tool(s) Used for Empowerment/ Burnout | Authors' Findings (Synopsis) |
|---|--|---|---|
| Wang, Kunaviktikul, & Wichaikhum (2013) (China) | Study: correlational cross- sectional design Goal: Describe the relationship between work empowerment and burnout of RNs. | 385 RNs Tools: Burnout: MBI SE: CWEQ-II | Chinese RNs reported moderate global SE. Presence of significant correlations between: SE and EE (negative), SE and PA (positive). Access to support more predictive. Conclusion: Evidence of relationship between access to SE and RN burnout. |
| Hochwalder (2007) (Sweden) | Study: correlational cross- sectional design Goal: Examine the main effect of PE on burnout, PE as a mediator between work environment and burnout and PE as a moderator of the association between the work environment and burnout. | 838 RNs 518 licensed practical nurses (LPNs) recruited in three hospitals and primary healthcare centres Tools: Burnout: MBI SE: Karasek and Theorell's Scale Similar to CWEQ-II (demand, control and social support) PE: PES | PE has main negative effect on burnout and mediating effect between SE and the three burnout dimensions and moderating effect (weak) on the association between SE and burnout. Conclusion: Results support the protective role of PE against burnout, which can be enhanced by improving aspects of workplaces (RN's autonomy and social support). |
| Boudrias, Morin, & Brodeur (2012) (Quebec, Canada) | Study: a cross-sectional, correlational design Goal: Investigate the protective role of PE against burnout among healthcare workers exposed to stressors in their workplace. | 401 health professionals 266 from long- term care facility (beneficiary attendants, RNs, LPNs) 135 from rehabilitation centre (in direct and indirect care, patients' services, management) Tools: Burnout: MBI (short version 16 items) PE: PES | Individuals with high levels of four cognitions of empowerment (meaning, competence, self-determination, impact) are less prone to EE when organizational changes occur. Only meaning has a constant effect on the three dimensions of burnout. Competence and meaning combined have a buffering effect on stressors and reduce the occurrence of burnout. Conclusion: PE has a main and moderating effects on burnout and is desirable to reduce burnout. |
| Çavuş & Demir (2010) (Turkey) | Study: cross-sectional, correlational design Goal: Examine the relationship between SE, PE and burnout among RNs. | 194 RNs Tools: Burnout: MBI SE: CWEQ-II PE: PES | RNs reported low levels of SE, high levels of PE and low levels of burnout. High levels of SE and PE correlations: EE (negative), PA (positive) and reduce burnout. Participatory workplace most significant to reducing EE. Opportunities and support significantly influence PA. Conclusion: RNs with high perceptions of SE and PE are less prone to burnout. Participation enhances individual perception of importance in the organization and may reduce burnout. Promoting support and opportunities to learn and grow would increase self-efficacy, which increases PE and reduces burnout. |
| Wagner et al. (2010) Global perspective (Canada & Netherlands) | Study: systematic review (up to 2009) Goal: Examine the relationship between SE and the PE of RNs. | 6 studies From databases; ABI Inform, Eric, AMED, PsycINFO, MEDLINE in process, Scopus, EMBASE, CINAHL and Proquest Tools: SE: CWEQ-II PE: PES | Studies reported a significant and positive relationship between SE and PE. SE increase PE (with time) and PE has a mediating role between SE and the productivity behaviours (work satisfaction and reduce burnout). Conclusion: Studies demonstrate the benefits of a workplace that provides access to the SE. Increasing SE and PE (promotes innovation, job satisfaction and reduces burnout). |

| Author (s) | Type of Study/Goal (s) | Sample/ Measurement tool(s) Used for Empowerment/ Burnout | Authors' Findings (Synopsis) |
|--|--|---|---|
| Hayes, Douglas, & Bonner (2014) (Australia) | Study: correlative, cross- sectional online survey design Goal: Test relationships between work environment of HD RNs, job satisfaction, stress, burnout based on Kanter's theory. | 406 RNs, 11 LPNs (396 from Australia and 21 from New Zealand) Tools: Burnout: MBI only EE subscale SE and PE: B-PEM (26 items) | High levels of EE were found. Presence of significant correlations between: perception of work environment and job satisfaction (positive), job satisfaction and stress (negative) and indirectly EE, all stress factors (death and dying; conflict with physicians; inadequate preparation; lack of staff support; conflict with other RNs; workload; and uncertainty concerning treatment) and EE. Higher job stress equated with higher EE. Conclusion: Empowering workplace is crucial to job satisfaction, reducing occupational stress and EE for RNs working in HD. |
| Harwood, Ridley, Wilson & Laschinger (2010b) (Canada) | Study: secondary analysis cross-sectional survey design Primary study (descriptive) (Ridley, Wilson, Harwood, & Laschinger, 2009) Goal: Examine the influence of empowerment on burnout of nephrology RNs. | 121 nephrology RNs (72 college degrees, 49 university degrees) Tools: Burnout: MBI (shorter version 16 items) SE: CWEQ-II | 41% had a high level of EE and reported moderate empowerment. Presence of significant correlations between SE and EE (negative). Education and resources more predictive of burnout: RNs with a university degree had significantly higher EE than those with a nursing diploma. RNs who reported their workplace lacking of resources were also more prone to burnout. Conclusion: HD RNs who perceive their workplace being empowering experience less burnout. Organization should plan strategies to improve empowerment. Education link was unclear, small sample not representative of provinces (study needs to be repeated with a larger sample). |
| O'Brien (2011) (U.S.) | Study: descriptive, correlational survey design Goal: Investigate the relationships between the SE and PE with the burnout of RNs working in outpatient HD centres. | 233 HD RNs Tools: Burnout: MBI (only EE subscale) SE : CWEQ-II PE : PES | 33% had high levels EE and 28% of RNs also reported moderate levels of EE. RNs also reported moderate levels of PE and SE. Presence of significant correlations between: SE and burnout (negative), PE and burnout (negative) and SE and PE (positive). PE is not an independent predictor of burnout and has no mediating role between SE and burnout (contrary to studies found in the literature). Only SE predicts burnout. All SE dimensions were related to burnout; resources and formal power were significantly predictive of burnout. Conclusion: Managers should provide empowerment structures in the workplace of HD RNs for quality of work life and health of RNs and the quality of care and safety of patients. Possible sampling bias; author suggests to repeat study. |

B-PEM: Brisbane Practice Environment Measure; CWEQ-II: Conditions for Work Effectiveness; DP: depersonalization; EE: emotional exhaustion; LPN: licensed practical nurse; MBI: Maslach Burnout Inventory subscales; PA: personal accomplishment; PE: psychological empowerment (RNs' perceptions of being empowered at work); PES: Psychological Empowerment Scale; RN: registered nurse; SE: structural empowerment (RNs' perceptions about workplace being empowering)

the positive outcomes of empowerment on RNs including: increased organizational engagement and satisfaction, increased innovation and reduced burnout, increased sense of respect for both nursing managers and RNs, reduced effort-reward imbalance for RNs, and improved patient care outcomes (Wagner et al, 2010). Researchers who focused solely on psychological empowerment (PE) revealed that RNs who had high perceptions of PE when facing excessive demands at work tended to experience less burnout (Boudrias, Morin, & Brodeur, 2012; Hochwalder, 2007).

Empowerment Specific to HD RNs

Only three studies examined empowerment and burnout of HD RNs, and reported on the benefits of providing empowerment structures in the workplace for RNs to reduce burnout (Harwood et al., 2010b; Hayes, Douglas, & Bonner, 2014; O'Brien, 2011) and improve work satisfaction (Hayes et al., 2014). A Canadian study suggested promoting empowerment strategies within the nephrology sector to respond to the burnout problem among RNs (Harwood et al., 2010b). An American researcher found that only structural empowerment (SE) was predictive of burnout (O'Brien, 2011). However, results may not be reflective of the HD community since the sample was recruited through a specialty association where the RNs are usually proactive in developing their practice and may already have a higher sense of empowerment.

RNs' Perceptions of Structural and Psychological Empowerment in the Workplace

In terms of structural empowerment (SE), the selected studies indicated that, in general, RNs working in different nursing specialties have rated their workplaces to be moderately empowering (Greco et al., 2006; Hatcher & Laschinger, 1996; Laschinger & Finegan, 2005; Wang, Kunaviktikul, & Wichaikhum, 2013), and similar findings were found among nephrology RNs (Harwood et al., 2010b) and in HD (O'Brien 2011). In only one study, RNs reported low levels of empowerment in their workplace (Çavus & Demir, 2010). With regard to psychological empowerment (PE), RNs, in general, felt highly empowered at work (Çavus & Demir, 2010) and moderately empowered in HD (O'Brien 2011). These findings suggest that managers in HD still have opportunities to intervene. Overall, the studies reviewed demonstrated that structural empowerment (SE) and psychological empowerment (PE) are essential to promote well-being and reduce risk of burnout among RNs, thus highlighting the need for more research in HD.

DISCUSSION AND RECOMMENDATIONS TO ADDRESS BURNOUT IN HD CLINICAL SETTINGS

Based on the studies in this review, burnout among HD RNs appears to be on the rise, particularly in North America. The literature demonstrated that North American RNs experienced higher levels of burnout (Poghosyan, Aiken, & Sloane, 2009). Age and work experience were identified as the most significant socio-demographic determinants of burnout among HD RNs. However, the results were contradictory. Higher levels of burnout were found among younger HD RNs with less experience (Hayes et al., 2015) and older HD RNs with seniority (Ross et al., 2009). These results are consistent with other studies conducted with RNs in the general practice settings, which indicated that burnout was highly prevalent among novice RNs (Cho, Laschinger, & Wong, 2006) because their stress management strategies are not developed (Bilge, 2006), and older RNs who were unable to keep up with the fast pace of work imposed (Priest, 2006). Education was also found to be related to burnout among HD RNs. Less educated (i.e., high school-prepared) HD RNs were found to be less susceptible to burnout (Kapucu et al., 2009) compared to those who were more highly educated (i.e., university degree) (Harwood et al., 2010b). Existing literature suggests that less educated employees were less prone to burnout because they faced fewer work expectations and challenges. In contrast, highly educated employees experienced higher levels of burnout as they were often subjected to greater responsibilities and performance pressures (Maslach et al., 2001). It is important to note that continuing education is known to increase the RNs' sense of self-efficacy and enhance their practice (Crotty, 1987), which plays a central role in burnout. It is important that HD RNs update their skills and knowledge regularly to ensure efficient management of complex health problems, helping them to better educate and support patients and their families (ACITN, 2008; MSSS, 2008). Thus, managers and clinical educators must ensure suitable preceptorship and mentorship programs are available to HD RNs, and include staff in the development of institutional policies and procedures to support their practice.

The studies included in this review highlighted some specific sources of stress perceived by RNs working in HD that may contribute to burnout. Findings suggest that the HD sector should develop quality improvement committees focused on improving working conditions by providing a safe work culture, enhancing inter-professional collaboration, ensuring staff are well adapted in their work roles, and providing resources for continuing education. In addition, since social support provided by colleagues and managers was found to be effective, workplaces should consider forming informal discussion groups for HD staff to share experiences, feelings, opinions, and information.

Research is lacking at present in terms of burnout interventions for RNs in HD. When addressing burnout, a combined approach (individual- and organization-directed) seems to have the potential for longer-lasting positive effect (Awa et al, 2010), but needs to address specific organizational stressors (Ruotsalainen et al., 2015). This outcome may be best achieved with the participation of RNs to identify the problem and find solutions.

Burnout is said to be the result of chronic stress produced by a mismatch between individuals and their work. Empowerment is proposed as an encouraging strategy to address the burnout of RNs because it can target both the individuals and the organization. Research provided evidence supporting the relationships between structural empowerment (SE), psychological empowerment (PE), and burnout, as well as job satisfaction and engagement (Wagner & al., 2010) that are representative of psychological well-being at work and positive antipodes (opposite) to burnout (Maslach & Leiter, 1997; Trépanier, Fernet, Austin & Ménard, 2015; Wright & Cropanzano, 2000). Overall, the studies from our literature review illustrated the need for managers to assess and implement structural empowerment (SE) and psychological empowerment (PE) strategies in the HD workplace to increase health and wellness among RNs, thereby, enhancing quality of care and patient safety. Several authors criticized the bulk of studies that recognized the importance of empowerment, yet failed to provide practical advice or methods to enhance empowerment (Dooher & Byrt, 2005), validating Laschinger, Finegan, Shamian, and Wilk's (2001) framework as a helpful tool for developing concrete strategies to address the burnout issue among RNs.

Innovative Strategies

Mounting evidence suggests that information communication and technologies (ICT) may be beneficial in responding to patients' health and education needs. Emerging research has focused on the role and impact of ICT in the work life of RNs, suggesting that ICT has the potential to positively influence the health of RNs, support their professional practice, and reduce burnout. The authors believe that a web-based intervention for HD RNs may offer promise in reducing burnout by offering tools for empowerment. At the organizational level, it could support the RNs' professional practice (i.e., offering continuing education, professional guidelines) and, at the individual level, it could address their individual needs (i.e., providing social support, health promotion information, assessment tools, and exercises) (Jackson, Fraser, & Ash, 2014).

RESEARCH LIMITATIONS

It is apparent from this review that there is a limited number of studies on the subject of burnout and

empowerment concerning HD RNs. Some studies had a small sample size, making it difficult to ensure accurate representation of the HD nursing population. Most studies used self-administered questionnaires with Likert scales, which may have led to social desirability bias (i.e., more positive, socially accepted response), acquiescence (i.e., automatically agree with all the questions) or extreme responding (i.e., automatically answer questions with the most extreme response available such as "strongly agree" or "strongly disagree") (Loiselle, Polit & Beck, 2007; Polit & Beck, 2006). For the burnout measurement, there is no consensus regarding the use of the Maslach Burnout Inventory (MBI) tool. Some researchers only assessed the emotional exhaustion (EE) or two of the three burnout dimensions, complicating the comparison between studies. In addition, some studies were conducted in varying professional contexts, making it difficult to generalize results. All burnout and empowerment studies included in this review were quantitative with the exception of one study that used a mixed-method design. As a result, there is a lack of in-depth description of the HD RNs' burnout experiences and their empowerment perceptions. Currently, interventions aimed at reducing burnout among RNs and healthcare professionals lack rigor or fail to assess the long-term effects of the interventions.

CONCLUSION AND FURTHER RESEARCH

The present review of literature suggests that burnout continues to be a significant issue for RNs, and empowerment is found to be an important strategy to address RNs' burnout and promote their health and well-being in some

REFERENCES

- Aiken, L.H., Clarke, S.P., Sloane, D.M., Sochalski, J., & Silber, J.H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of the American Medical Association*, 288(16), 1987–1993.
- Arikan, F., Koksal, C.D., & Gokce, C. (2007). Work-related stress, burnout, and job satisfaction of dialysis nurses in association with perceived relations with professional contacts. *Dialysis* & *Transplantation*, 36(4), 182–191.
- Ashker, V.E., Penprase, B., & Salman, A. (2012). Work-related emotional stressors and coping strategies that affect the well-being of nurses working in hemodialysis units. *Nephrology Nursing Journal*, 39(3), 231–236.
- Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN). (2008). Normes de pratique infirmière en néphrologie et recommandations sur la pratique infirmière en néphrologie. Retrieved from http://www.cannt. ca/files/Normes_pratique_infirmiere_ACITN_2008.pdf
- Awa, W.L., Plaumann, M., & Walter, U. (2010). Burnout prevention: a review of intervention programs. *Patient Education and Counseling*, 78(2), 184–190. doi:10.1016/j.pec.2009.04.008
- Bennett, P.N. (2011). Technological intimacy in haemodialysis nursing. Nursing Inquiry, 18(3), 247–252. doi:10.1111/j.1440-1800.2011.00537.x
- Bilge, F. (2006). Examining the burnout of academics in relation to job satisfaction and other factors. *Social Behavior and Personality*, 34(9), 1151–1160. doi:10.2224/ sbp.2006.34.9.1151

nursing specialties. However, there is an obvious lack of knowledge with respect to burnout and empowerment among HD RNs. Thus, more research is needed with HD RNs working in countries with different healthcare systems and settings (university hospitals, affiliated hospitals, and satellite HD facilities) to better prevent the occurrence of burnout and promote the well-being of these RNs. Studies should include large samples, and the selection of participants should be done through a licensing organization, as opposed to specialty associations to reduce selection bias. Moreover, future studies should consider using standardized burnout measurement approaches to improve comprehension and generalization of results. Qualitative study designs should be considered to obtain a more in-depth understanding of the HD RNs' work life situation. Lately, some authors have emphasized the link between burnout of HD RNs and the quality of care and patient safety, an issue that needs further examination.

Lastly, there is a need to address burnout of HD RNs. Systematic reviews focusing on the effect of burnout interventions targeting RNs and healthcare professionals reported the inability to identify the most effective approach due to insufficient evidence and low-quality studies. Nonetheless, a combined approach (individual-organizational) appears favourable for long-term positive effects on burnout. More studies with rigorous appraisal of interventions are needed (e.g., large sample size and control group). The use of information and communication technologies (ICT) should be considered and further explored, as a potential strategy to address burnout through strengthening empowerment.

- Blagg, C.R. (1999). The early years of chronic dialysis: The Seattle contribution. *American Journal of Nephrology*, 19(2), 350–354. doi:10.1159/000013475
- Bohmert, M., Kuhnert, S., & Nienhaus, A. (2011). Psychological stress and strain in dialysis staff: A systematic review. *Journal of Renal Care*, 37(4), 178–189. doi 10.1111/j.1755-6686.2011.00236.x
- Boudrias, J.S., Morin, A.J., & Brodeur, M.M. (2012). Role of psychological empowerment in the reduction of burnout in Canadian healthcare workers. *Nursing and Health Sciences*, 14(1), 8–17. doi 10.1111/j.1442-2018.2011.00650.x
- Bourbonnais, R., Brisson, C., & Vézina, M. (2011). Long-term effects of an intervention on psychosocial work factors among healthcare professionals in a hospital setting. Occupational and Environmental Medicine, 68(7), 479-486. doi:10.1136/oem.2010.055202
- Bourbonnais, R., Brisson, C., Vinet, A., Vézina, M., Abdous, B., & Gaudet, M. (2006). Effectiveness of a participative intervention on psychosocial work factors to prevent mental health problems in a hospital setting. *Occupational and Environmental Medicine*, 63(5), 335–342. doi:10.1136/ oem.2004.018077
- Bourbonnais, R., Comeau, M., & Vézina, M. (1999). Job strain and evolution of mental health among nurses. *Journal of Occupational Health Psychology*, 4(2), 95–107.
- Cañadas-De la Fuente, G. A., Vargas, C., San Luis, C., Garcia, I., Cañadas, G.R., & De la Fuente, E.I. (2015). Risk factors and

prevalence of burnout syndrome in the nursing profession. *International Journal of Nursing Studies*, 52(1), 240–249. doi:10.1016/j.ijnurstu.2014.07.001

- Çavuş, M.F., & Demir, Y. (2010). The impacts of structural and psychological empowerment on burnout: A research on staff nurses in Turkish state hospitals. *Canadian Social Science*, 6(4), 63.
- Cho, J., Laschinger, H.K., & Wong, C. (2006). Workplace empowerment, work engagement and organizational commitment of new graduate nurses. *Nursing Leadership*, *19*(3), 43–60.
- Crotty, M. (1987). 'Burnout' and its implications for the continuing education of nurses. *Nurse Education Today*, 7(6), 278–284.
- Cuijpers, P., van Straten, A., & Andersson, G. (2008). Internetadministered cognitive behavior therapy for health problems: A systematic review. *Journal of Behavioral Medicine*, *31*(2), 169– 177. doi:10.1007/s10865-007-9144-1
- Dermody, K., & Bennett, P.N. (2008). Nurse stress in hospital and satellite haemodialysis units. *Journal of Renal Care*, 34(1), 28–32. doi: 10.1111/j.1755-686.2008.00007.x
- Dietrich, C. (2000). Online social support: An effective means of mediating stress. *Student Pulse*, 2(02). Retrieved from http://www.studentpulse.com/a?id=173
- Dooher, J., & Byrt, R. (2005). A critical examination of the concept of empowerment. In J.R. Cutcliffe & H.P. McKenna (Eds.), *The essential concepts of nursing: Building blocks for practice* (pp. 109– 124). Edinburgh: Elsevier.
- Flynn, L., Thomas-Hawkins, C., & Clarke, S.P. (2009). Organizational traits, care processes, and burnout among chronic hemodialysis nurses. *Western Journal of Nursing Research*, *31*(5), 569–582. doi:10.1177/0193945909331430
- Greco, P., Laschinger, H.K., & Wong, C. (2006). Leader empowering behaviours, staff nurse empowerment and work engagement/ burnout. *Nursing Leadership*, 19(4), 41–56.
- Halbesleben, J.R. (2006). Sources of social support and burnout: a meta-analytic test of the conservation of resources model. *Journal of Applied Psychology*, *91*(5), 1134–1145. doi:10.1037/0021-9010.91.5.1134
- Harwood, L., Ridley, J., Wilson, B., & Laschinger, H.K. (2010a). Occupational burnout, retention and health outcomes in nephrology nurses. *Canadian Association of Nephrology Nurses* and Technologists Journal, 20(4),18–23.
- Harwood, L., Ridley, J., Wilson, B., & Laschinger, H.K. (2010b). Workplace empowerment and burnout in Canadian nephrology nurses. *Canadian Association of Nephrology Nurses and Technologists Journal*, 20(2), 2–17.
- Hatcher, S., & Laschinger, H.K. (1996). Staff nurses' perceptions of job empowerment and level of burnout: A test of Kanter's theory of structural power in organizations. *Canadian Journal of Nursing Administration*, 9(2), 74–94.
- Hayes, B., & Bonner, A. (2010). Job satisfaction, stress and burnout associated with haemodialysis nursing: A review of literature. *Journal of Renal Care*, 36(4), 174–179. doi:10.1111/j.1755-6686.2010.00194.x
- Hayes, B., Douglas, C., & Bonner, A. (2014). Predicting emotional exhaustion among haemodialysis nurses: A structural equation model using Kanter's structural empowerment theory. *Journal of Advanced Nursing*, 70(12), 2897–2909. doi:10.1111/ jan.12452
- Hayes, B., Douglas, C., & Bonner, A. (2015). Work environment, job satisfaction, stress and burnout among haemodialysis nurses. *Journal of Nursing Management*, 23(5), 588–598. doi 10.1111/ jonm.12184
- Higginbottom, G., & Liamputtong, P. (2015). *Participatory qualitative research methodologies in health*. Los Angeles: Sage.

- Hochwalder, J. (2007). The psychosocial work environment and burnout among Swedish registered and assistant nurses: The main, mediating, and moderating role of empowerment. *Nursing and Health Sciences*, 9(3), 205–211. doi:10.1111/j.1442-2018.2007.00323.x
- Jackson, J., Fraser, R., & Ash, P. (2014). Social media and nurses: Insights for promoting health for individual and professional Use. *Online Journal of Issues in Nursing*, 19(3), 2.
- Kanter, R.M. (1977). *Men and women of the corporation*. New York, NY: Basic Books.
- Kanter, R.M. (1993). *Men and women of the corporation* (2nd ed.). New York, NY: Basic Books.
- Kapucu, S.S., Akkus, Y., Akdemir, N., & Karacan, Y. (2009). The burnout and exhaustion levels of nurses working in haemodialysis units. *Journal of Renal Care*, 35(3), 134–140. doi:10.1111/j.1755-6686.2009.00108.x
- Kavurmaci, M., Cantekin, I., & Tan, M. (2014). Burnout levels of hemodialysis nurses. *Renal Failure*, *36*(7), 1038–1042. doi:1 0.3109/0886022x.2014.917559
- Klersy, C., Callegari, A., Martinelli, V., Vizzardi, V., Navino, C., Malberti, F., ... Dell'Olivo, B. (2007). Burnout in health care providers of dialysis service in Northern Italy—A multicentre study. *Nephrology Dialysis Transplantation*, 22(8), 2283–2290. doi:10.1093/ndt/gfm111
- Laschinger, H.K. (1996). A theoretical approach to studying work empowerment in nursing: A review of studies testing Kanter's theory of structural power in organizations. *Nursing Administration Quarterly*, 20(2), 25–41.
- Laschinger, H.K., & Finegan, J. (2005). Empowering nurses for work engagement and health in hospital settings. *The Journal of Nursing Administration*, 35(10), 439–449.
- Laschinger, H., Finegan, J., & Shamian, J. (2001). Promoting nurses' health: Effect of empowerment on job strain and work satisfaction. *Nursing Economics*, 19(2), 42–52.
- Laschinger, H.K., Finegan, J., Shamian, J., & Wilk, P. (2001). Impact of structural and psychological empowerment on job strain in nursing work settings: Expanding Kanter's model. *The Journal of Nursing Administration*, 31(5), 260–272.
- Laschinger, H.K., Finegan, J., Shamian, J., & Wilk, P. (2003). Workplace empowerment as a predictor of nurse burnout in restructured healthcare settings. *Healthcare Quarterly*, 6(4), 2–11.
- Leiter, M.P., & Maslach, C. (1999). Six areas of worklife: A model of the organizational context of burnout. *Journal of Health and Human Services Administration*, 21(4), 472–489.
- Leiter M.P., & Maslach, C. (2000). Preventing burnout and building engagement: A complete program for organizational renewal. San Francisco, CA: Jossey-Bass.
- Loiselle, C.G., Polit, D.F., & Beck, C.T. (2007). Méthodes de recherche en sciences infirmières : approches quantitatives et qualitatives. Saint-Laurent, Québec: Éditions du Renouveau pédagogique.
- Maslach, C. (2003). *Burnout: The cost of caring*. Cambridge, MA: Malor Books.
- Maslach, C. & Jackson, S.E. (1986). Maslach Burnout Inventory Manual (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Leiter, M.P. (1997). *The Truth About Burnout*. San Francisco, CA: Jossey-Bass.
- Maslach, C., Schaufeli, W.B., & Leiter, M.P. (2001). Job burnout. Annual Review of Psychology, 52, 397–422. doi:10.1146/ annurev.psych.52.1.397

- McHugh, M.D., Kutney-Lee, A., Cimiotti, J.P., Sloane, D.M., & Aiken, L.H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs (Project Hope)*, 30(2), 202–210. doi:10.1377/hlthaff.2010.0100
- Mimura, C., & Griffiths, P. (2003). The effectiveness of current approaches to workplace stress management in the nursing profession: An evidence based literature review. *Occupational and Environmental Medicine*, 60(1), 10–15.
- Ministère de la santé et des services sociaux (MSSS) (2008). Accès aux services pour les personnes atteintes de maladies chroniques : l'organisation des services de néphrologie et de suppléance rénale par des traitements de dialyse : synthèse du document d'orientation. Retrieved from http://publications.msss.gouv.qc.ca/ msss/fichiers/2015/15-928-01.pdf
- O'Brien, J.L. (2011). Relationships among structural empowerment, psychological empowerment, and burnout in registered staff nurses working in outpatient dialysis centers. *Nephrology Nursing Journal*, 38(6), 475–481.
- Optima Santé globale. (2013). Document de référence : l'épuisement professionnel. Retrieved from https://ssq.ca/documents/10658/136694/%C3%89puisement+professionnel/7 bffe140-e0b7-496a-a33e-ef11998a5c42
- Ordre des infirmières et infirmiers du Québec & Association des néphrologues du Québec (OIIQ-ANQ). (2003). Avis concernant la position des directrices et directeurs de soins infirmiers et de l'Association des néphrologues du Québec en regard de l'organisation des soins infirmiers en néphrologie (dialyse). Retrieved from https://www.oiiq.org/uploads/publications/avis/avis_ positions/Avis_positions.pdf.
- Polit, D.E., & Beck, C.T. (2006). *Essentials of nursing research (6th ed.*). Philadelphia, PA: Lippincott Williams & Wilkins.
- Poghosyan, L., Aiken, L.H., & Sloane, D.M. (2009). Factor structure of the Maslach Burnout Inventory: An analysis of data from large scale cross-sectional surveys of nurses from eight countries. *International Journal of Nursing Studies*, 46(7), 894– 902. doi:10.1016/j.ijnurstu.2009.03.004
- Poghosyan, L., Clarke, S.P., Finlayson, M., & Aiken, L.H. (2010). Nurse burnout and quality of care: cross-national investigation in six countries. *Research in Nursing and Health*, 33(4), 288–298. doi:10.1002/nur.20383
- Priest, A. (2006). Les maux qui affligent nos infirmières: Examen des principaux facteurs qui portent une incidence sur les ressources humaines infirmières au Canada. Ottawa: Fondation canadienne de la recherche sur les services de santé. Retrieved from http://catalogue.iugm.qc.ca/GEIDEFile/22196. PDF?Archive=101798092997&File=22196_PDF
- Rabetoy, C.P., & Bair, B.C. (2007). Nephrology nurses' perspectives on difficult ethical issues and practice guideline for shared decision making. *Nephrology Nursing Journal*, 34(6), 599–606, 629.
- Ridley, J., Wilson, B., Harwood, L., & Laschinger, H.K. (2009). Work environment, health outcomes and magnet hospital traits in the Canadian nephrology nursing scene. *Canadian* Association of Nephrology Nurses and Technologists Journal, 19(1), 28–35.
- Ross, J., Jones, J., Callaghan, P., Eales, S., & Ashman, N. (2009). A survey of stress, job satisfaction and burnout among haemodialysis staff. *Journal of Renal Care*, *35*(3), 127–133. doi:10.1111/j.1755-6686.2009.00102.x

- Ruotsalainen, J.H., Verbeek, J.H., Marine, A., & Serra, C. (2015). Preventing occupational stress in healthcare workers. *The Cochrane Database of Systematic Reviews*, 4, Cd002892. doi: 10.1002/14651858.CD002892.pub5
- Saint-Arnaud, J., Gignac, S., Gourdeau, P., Pelletier, M., & Vézina, M. (2010). Démarche d'intervention sur l'organisation du travail afin d'agir sur les problèmes de santé mentale au travail. *Perspectives interdisciplinaires sur le travail et la santé, 12*(3). doi:10.4000/pistes.2639
- Seibert, S., Silver, Sr., & Randolph, W. (2004). Taking empowerment to the next level: A multiple-level model of empowerment, performance, and satisfaction. *Academy of Management Journal*, 47(3), 332–349.
- Spreitzer, G.M. (1995). An empirical test of a comprehensive model of intrapersonal empowerment in the workplace. *American Journal of Community Psychology*, 23(5), 601–629.
- Spreitzer, G. (2008). Taking stock: A review of more than twenty years of research on empowerment at work. In J. Barling & C.L. Cooper (Eds.), *The SAGE handbook of organizational behavior* (pp. 54–72). London: SAGE Publications Ltd.
- Thomas-Hawkins, C., Flynn, L., & Clarke, S.P. (2008). Relationships between registered nurse staffing, processes of nursing care, and nurse-reported patient outcomes in chronic hemodialysis units. *Nephrology Nursing Journal*, 35(2), 123– 130, 145
- Trépanier, S.-G., Fernet, C., Austin, S., & Ménard, J. (2015). Revisiting the interplay between burnout and work engagement: An Exploratory Structural Equation Modeling (ESEM) approach. *Burnout Research*, 2(2), 51–59.
- van Straten, A., Cuijpers, P., & Smits, N. (2008). Effectiveness of a web-based self-help intervention for symptoms of depression, anxiety, and stress: Randomized controlled trial. *Journal* of *Medical Internet Research*, 10(1), e7. doi:10.2196/jmir.954
- van Wyk, B.E., & Pillay-Van Wyk, V. (2010). Preventive staff-support interventions for health workers. *The Cochrane Database of Systematic Reviews, 3*, Cd003541. doi:10.1002/14651858. CD003541.pub2
- Vargas, C., Cañadas, G.A., Aguayo, R., Fernández, R., & de la Fuente, E.I. (2014). Which occupational risk factors are associated with burnout in nursing? A meta-analytic study. *International Journal of Clinical and Health Psychology*, 14(1), 28–38. doi:http://dx.doi.org/10.1016/ S1697-2600(14)70034-1
- Wagner, J.I., Cummings, G., Smith, D.L., Olson, J., Anderson, L., & Warren, S. (2010). The relationship between structural empowerment and psychological empowerment for nurses: A systematic review. *Journal of Nursing Management*, 18(4), 448–462. doi:10.1111/j.1365-2834.2010.01088.x
- Wallerstein, N. (1992). Powerlessness, empowerment, and health: Implications for health promotion programs. American Journal of Health Promotion, 6(3), 197–205.
- Wang, X., Kunaviktikul, W., & Wichaikhum, O.A. (2013). Work empowerment and burnout among registered nurses in two tertiary general hospitals. *Journal of Clinical Nursing*, 22(19– 20), 2896–2903. doi:10.1111/jocn.12083
- Wilkins, K., & Shields, M. (2008). Correlates of medication error in hospitals. *Health Reports*, 19(2), 7–18. Retrieved from http://www.statcan.gc.ca/pub/82-003-x/2008002/article/10565-eng.pdf
- Wright, T.A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal* of Occupational Health Psychology, 5(1), 84–94.

Over-the-counter drugs to avoid in older adults with kidney impairment

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ABSTRACT

Older adults (age 65 years or older) are at especially high risk of having adverse events from over-the-counter (OTC) drugs, and older adults who have kidney disease are at an even higher risk. These older adults with kidney impairment may need to completely avoid, or at the least reduce, their exposure to certain OTC products, such as nonsteroidal anti-inflammatory drugs, acetaminophen, sodium phosphate, and proton-pump inhibitors. When older adults with kidney impairment are counselled about the safety of OTC drugs, they need to be made aware that some drugs may also require dose adjustments. Several categories of drugs that commonly require dosage changes include antihistamines, histamine-2 receptor antagonists, oral decongestants, codeine, and a few gastrointestinal drugs. Another concern is for the possibility of there being a drug-drug interaction between an OTC medication and a prescription drug. Careful consideration needs to be paid to the choice of drugs given to older adults. Patient education is essential to reduce the occurrence of adverse events.

Key words: chronic renal insufficiency, chronic kidney failure, renal insufficiency, nonprescription drugs, aged, self-medication, geriatric, older adult

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LEARNING OUTCOME

After completing this learning activity, the learner will be able to educate nurses and older adults about over-thecounter (OTC) products that may need to be avoided or dose-reduced in patients at risk for, or who already have impaired kidney function.

CASE PRESENTATION

An 82-year-old woman presents to the emergency department with symptoms of nausea, fatigue, lack of appetite, and dizziness. She is thin, frail, and weighs approximately 48 kg. She has a past medical history significant for chronic stable angina, hypertension, dyslipidemia, osteoarthritis, and anxiety. Her current medications include aspirin 81 mg once daily, metoprolol 25 mg twice daily, lisinopril/hydrochlorothiazide 10/12.5 mg once daily, sublingual nitroglycerin 0.4 mg as needed, atorvastatin 40 mg once daily, and sertraline 50 mg once daily. Upon questioning, the patient reported that she began taking over-the-counter (OTC) ibuprofen several days ago to treat the pain in her knees that she believes is associated with osteoarthritis. Labs were drawn, and the patient was found to have elevated serum creatinine and blood urea nitrogen (BUN) levels. Could this be related to the ibuprofen, and if so, why would this drug cause kidney dysfunction?

INTRODUCTION

In 2015, consumers in the United States (U.S.) spent \$32.1 billion in retail sales for OTC drugs (Consumer Healthcare Products Association, 2016). While older adults (65 years and older) comprise 13% of the U.S. population, they account for much of the prescription and OTC drug use in the U.S.; 87.7% of older adults take at least one prescription drug, 35.8% take five or more prescription drugs, 37.9% take OTC drugs, and 63.7% take dietary supplements (Qato, Wilder, Schumm, Gillet, & Alexander, 2016). For most consumers, the use of OTC drugs to treat minor illness is safe, economical, and effective (Chui, Stone, Martin, Croes, & Thorpe, 2013). There are patient populations, however, in which the use of certain OTC drugs can be dangerous. The Drug Facts Label on all OTC products provides safety information with warnings for patient populations who should avoid that particular drug. Some OTC drugs can be nephrotoxic, and some should be avoided or dose-adjusted in patients with impaired kidney function.

Kidney function declines with age. Nephrosclerosis, or the hardening of the kidney, consists of glomerulosclerosis, arteriosclerosis, tubular atrophy, and interstitial fibrosis, all of which occur with aging (Glassock & Rule, 2012). A decline in cardiac output is another contributor to the reduction in kidney function associated with increasing age. This decrease in blood flow to the kidneys leads to an increased dependence on endogenous prostaglandins for kidney perfusion (Bednar, 2009; Roumie & Griffin, 2004; Weir, 2002). Kidney function can be further reduced when certain OTC and prescription drugs are combined. This has a tendency to be problematic in older adults because of their likelihood to take both. Recent national data suggest that four out of 10 older adults take prescription and OTC drugs concurrently (Qato et al., 2016).

Polypharmacy and OTC drug use may vary by a person's geographic location. In a study of an Ohio program for seniors that assessed polypharmacy (defined as taking five or more OTC or prescription drugs), 40% of patients used multiple pharmacies, and more than 35% suffered from polypharmacy (Golchin, Frank, Vince, Isham, & Meropol, 2015). Linnebur and colleagues (2014) found a high prevalence of polypharmacy for older adults living in Colorado and California who also had depression. This study found that 70% of those surveyed from Colorado and 66% from California took six or more prescription drugs, along with an average of 2.4 and 0.6 OTC drugs, respectively (Linnebur et al., 2014). As more drugs and supplements become available over the counter, the number of OTC drugs that older adults take each day could easily increase.

In the past 10 years, 20 drugs that previously required a prescription were made available as OTC medications (U.S. Food and Drug Administration [FDA], 2015b). Currently, there are more than 300,000 OTC products available in the U.S. Because of this, the FDA only reviews the labelling and active ingredients of more than 80 therapeutic drug classes, rather than individual OTC drug products (FDA, 2015a). In addition, there is no consistent oversight for the manufacturing of OTC supplements, allowing alteration of products to often go undetected.

Consumer education about OTC drugs is especially important for older adults. Nurses and pharmacists are ranked as the first and second most honest and ethical professionals, respectively (Gallup, 2015). This aligns the two well-suited professions to provide the much-needed patient education, including the safe use of OTC drug therapy. This article provides pharmacists' perspectives on the importance of educating older adults about risks associated with OTC products and highlights occasions when certain OTC products need to be avoided or dose-reduced in patients at risk for, or who already have kidney dysfunction.

OTC DRUGS TO AVOID OR USE CAUTIOUSLY IN OLDER ADULTS DUE TO RISK OF KIDNEY IMPAIRMENT

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Nonsteroidal anti-inflammatory drugs (NSAIDs), one of the 80 OTC classes reviewed by the FDA, are marketed as analgesic, antipyretic, and anti-inflammatory agents (Cashmah, 1996; Moore, Pollack, & Butkerait, 2015). NSAIDs exert their effects through the central and peripheral inhibition of the cyclooxygenase isoenzymes (COX-1 and COX-2), reducing the conversion of arachidonic acid to prostaglandins (Bednar, 2009; Cashmah, 1996). The effect of NSAIDs on homeostatic prostaglandins in the kidney, such as prostaglandin I₂ (PGI₂), otherwise known as prostacyclin and prostaglandin E₂ (PGE₂) is what is thought to lead to the deleterious alterations in kidney function (Moore et al., 2015; Schlondorff, 1993; Whelton, 1999). These prostaglandins have been known to help maintain renal blood flow by causing vasodilatation. This impact on renal blood flow is negligible in the euvolemic state (Schlondorff, 1993). However, in patients of advanced age or with clinically relevant vasoconstriction (e.g., those with heart failure, cirrhosis, nephrotic syndrome, renal insufficiency, hypertension, sepsis, anesthesia, diabetes, diuretic use, or volume depletion), renal prostaglandins are important to maintaining kidney function, and inhibition of the renal prostaglandins can contribute to a decline in renal function (Schlondorff, 1993). Prostaglandins produced in the kidneys also promote the secretion of renin, enhance sodium and potassium excretion, and reduce water reabsorption, such that inhibition of these effects by NSAIDs can cause further complications (Schlondorff, 1993).

In patients with impaired kidney function, such as an older adult with decreased cardiac output, the kidney depends on vasodilating prostaglandins to maintain renal perfusion (Bednar, 2009; Roumie & Griffin, 2004; Weir, 2002). Inhibition of these prostaglandins can result in acute kidney injury (AKI), hyperkalemia, peripheral edema, increased blood pressure, weight gain, and although less common, exacerbations of heart failure symptoms (Moore et al., 2015; Weir, 2002; Whelton, 1999). Although all NSAIDs can affect kidney function, NSAIDs with a quick onset and short half-life, such as ibuprofen, can exhibit nephrotoxic effects in a matter of days compared to NSAIDs with a longer half-life, like piroxicam and sulindac (Whelton, 1999).

NSAIDs are listed on the American Geriatrics Society (AGS) 2015 *Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults* (AGS, 2015). This list provides evidence-based recommendations for clinicians treating older adults. Guidance is provided by categories, such as medications to avoid in all adults who are older, medications to avoid in those with certain conditions, and medications to use with caution. The AGS Beers Criteria recommend that NSAIDs be avoided in older adults who have:

- Chronic kidney disease (CKD) Stage 4 or worse (creatinine clearance [CrCl] less than 30 mL/minute) due to the risk of AKI and further decline of kidney function.
- Heart failure due to the risks of fluid retention and potential for exacerbation of heart failure symptoms.
- Patients with a history of gastric or duodenal ulcers due to the risk of exacerbating ulcers or causing new ulcers (AGS, 2015).

The Beers Criteria also recommend that all older adults avoid the chronic use of NSAIDs in order to reduce the risk of gastrointestinal bleeding or development of peptic ulcer disease. Finally, the Beers Criteria recommend that clinicians use caution in recommending low-dose aspirin to adults 80 years of age or older for the primary prevention of cardiovascular events due to unknown balance of benefit versus risks (e.g., gastrointestinal bleeding, kidney damage, peripheral edema) (AGS, 2015).

In addition to their effects on the kidneys, NSAIDs reduce the production of protective prostaglandins in the stomach via inhibition of cyclooxygenase isoenzyme, COX-1. COX-1 is constitutively expressed in the endothelium and involved in protecting the gastric mucosa from sustaining injury (Rao & Knaus, 2008). Endogenous prostaglandins regulate the mucous and bicarbonate protective layer, inhibit gastric acid secretion, maintain mucosal blood flow, and are important in allowing epithelial cells to migrate to damaged areas (Matsui et al., 2011). Breakdown of this prostaglandin derived protective process can lead to gastrointestinal ulcers, perforations, strictures, and bleeding (Matsui et al., 2011). In addition, prostaglandin-independent stomach injury can occur due to NSAID-mediated local cellular injury and death (Matsui et al., 2011).

Several studies have assessed the risk of peptic ulcer and upper gastrointestinal bleeding (UGIB) with use of non-aspirin NSAIDs and have found an increased risk of UGIB, particularly with long-term use (longer than three months). Agents with a shorter half-life, such as ibuprofen and diclofenac, had lower odds of causing UGIB than agents such as naproxen, indomethacin, and piroxicam (Langman et al., 1994; Pilotto et al., 2003). It is recommended that NSAIDs only be taken by older adults who are not candidates for other analgesics, and be used for the shortest duration possible and at the lowest possible doses (AGS, 2015; Langman et al., 1994). The risk of UGIB can be reduced, but not eliminated in patients who must use NSAIDs chronically by co-prescribing a gastric mucosal protective agent such as a proton pump inhibitor (PPI) or misoprostol (AGS, 2015; Medlock et al., 2013; Pilotto et al., 2003).

Older adults with a diagnosis of chronic heart failure (HF) should use extreme caution when taking NSAIDs, especially if they are also taking a diuretic. Risks of the combination of NSAIDs and diuretics include sodium and water retention, as well as a blunted response to diuretics. Both of these can lead to worsening of existing HF, especially in older adults who often have comorbid cardiovascular disease and renal impairment (Heerdink et al., 1998). As described previously, NSAIDs inhibit prostaglandin synthesis (e.g., PGI, and PGE,) in the kidneys. Prostaglandin E₂ inhibits sodium resorption in the ascending loop of Henle causing vasodilation. It also antagonizes the antidiuretic effects of vasopressin in the collecting tubule. These combined effects of prostaglandin inhibition ultimately result in sodium and water retention, thus exacerbating HF (Heerdink et al., 1998; Schlondorff, 1993). Heerdink and colleagues (1998) evaluated the risk of HF associated with the use of diuretics and NSAIDs in more than 10,000 patients over the age of 55 years. After adjustment for age, sex, history of hospitalization, and drug use, they found a two-fold increased risk of hospitalization for HF with the concomitant use of diuretics and NSAIDs (relative risk, 1.8; 95% CI 1.4 to 2.4), especially in patients with pre-existing HF.

Consistent use of non-aspirin NSAIDs also poses other risks, such as an increased risk for heart attack and stroke. On July 9, 2015, the FDA published a safety announcement highlighting the increased risk of heart attack and stroke with the use of non-aspirin NSAIDs (FDA, 2015c). A mandate was given to update the drug facts labels of prescription and OTC NSAIDs to reflect these increased risks. Specifically, the labelling should reflect that the increased risks of heart attack and stroke can occur as early as the first week of use, and the risk is greater with increasing dose. These risks are prevalent in all patients, with or without heart disease, though the risk is further elevated in those with heart disease (FDA, 2015c). This safety announcement and the label change mandate were prompted by an FDA review of a meta-analysis of randomized controlled trials of the cardiovascular and upper gastrointestinal effects of NSAIDs conducted by the Coxib and Traditional NSAID Trialists' (CNT) Collaboration of the Clinical Trial Service and Epidemiological Studies Units at Oxford University (CNT Collaboration et al., 2013). The FDA also considered data from observational studies and other scientific publications. Findings were discussed at a joint meeting of the Arthritis Advisory Committee and Drug Safety and Risk Management Advisory Committee in February 2014. The CNT analysis evaluated 280 clinical trials involving NSAIDs compared to placebo and 474 head-to-head NSAID clinical trials that examined the incidence of major vascular events (non-fatal myocardial infarction, non-fatal stroke, or vascular death), major coronary events, stroke, mortality, heart failure, and upper gastrointestinal complications. The analysis found that 99% of primary outcomes occurred in trials involving a coxib or high-dose NSAID, defined as diclofenac doses of 150 mg/day, ibuprofen 2,400 mg/day, or naproxen doses of 1,000 mg/day. Final analysis showed that the vascular risks of high-dose diclofenac and possibly ibuprofen are similar to those of coxibs, but that high-dose naproxen is associated with less vascular risk than other NSAIDs (CNT Collaboration et al., 2013).

Many studies supported the association of NSAIDs and an increased risk of cardiovascular thrombotic events, ranging from a 10% to 50% increased risk depending on drug and dose. Though some studies suggested naproxen carried a lower risk of cardiovascular thrombotic events compared to other NSAIDs, it is important to note that none of the studies were designed to show superiority of one NSAID over another (FDA, 2015c). Regardless of NSAID choice, caution should be advised when recommending any NSAID to older adults, especially those with baseline cardiovascular risks. There is an ongoing randomized safety trial, the Prospective Randomized Evaluation of Celecoxib Integrated Safety versus Ibuprofen or Naproxen (PRECISION) trial, which is expected to provide additional safety information for these drugs (FDA, 2015c).

Acetaminophen (Paracetamol)

Acetaminophen inhibits prostaglandins centrally, but not peripherally; thus, the ability to cause kidney damage or kidney failure is lower than with NSAIDs (Cook, 2008; Whelton, 1999). As such, acetaminophen is a reasonable alternative to NSAIDs for older adults with pain. However, in patients with underlying liver dysfunction, acetaminophen-induced analgesic-associated nephropathy (AAN) can occur in as many as 30% of patients and at doses of 2.5 to 10 gm/day chronically or after acute overdose. The pathophysiologic mechanism for AAN is thought to result from the accumulation of the toxic metabolite of acetaminophen, N-acetyl-para-benzoquinoneimine (NAPQI). The build-up of NAPQI occurs due to oxidation of acetaminophen via cytochrome P450 isoenzymes in the liver, and to a lesser extent, the kidney. Accumulation of NAPQI can cause this toxic metabolite to bind to tissues, leading to cell necrosis (Cook, 2008).

Acetaminophen-induced AAN is thought to be dose-dependent. A study by Perneger, Whelton, and Klag (1994) evaluating patients with end stage renal disease (ESRD) found that patients who took 366 or more pills/year of acetaminophen had twice the risk of developing ESRD compared to patients who took 0 to 104 pills/year (OR 2.1, 95% CI: 1.1 to 3.7), after adjustment for race, sex, age, and use of other analgesic drugs. The study also found that medium-to-high cumulative intake of acetaminophen (more than 1,000 pills in a lifetime) also increased the risk for ESRD (OR 2.0, 95% CI 1.3 to 3.2 for 1,000 to 4,999 pills and OR 2.4, 95% CI 1.2 to 4.8 for more than 5,000 pills) (Perneger et al., 1994). Caution must be exercised in patients with liver dysfunction who choose to take acetaminophen chronically.

Sodium Phosphate

In December 2008, the FDA released a safety alert regarding oral sodium phosphate (OSP) products, recommending that manufacturers of these products develop a risk evaluation and mitigation strategy (REMS) and issue drug guides to alert patients of the risk of AKI with the use of these products (FDA, 2008). In January 2014, the FDA released another safety announcement warning that the use of more than one dose of OTC sodium phosphate drugs in 24 hours could result in serious harm to the kidneys and heart, including death (FDA, 2014). Both the oral solution of OTC sodium phosphate and the enema preparation have been implicated in the warning. This safety alert comes from case reports identified through the review of the FDA Adverse Event Reporting System (FAERS) database, as well as medical literature in which patients experienced adverse events from the use of OTC oral sodium phosphate (OSP). All reports were characterized by dehydration and/or electrolyte disturbances, mainly consisting of hyperphosphatemia, hypocalcemia, and hypernatremia. Most cases occurred with the use of a single dose of sodium phosphate that was greater than recommended or more frequent than one dose in 24 hours. Patients at greatest risk were young children and adults 55 years of age or older. Other risk factors include dehydration, presence of kidney disease, obstruction or inflammation of the bowel, and concomitant use of drugs that can affect kidney function. Some drugs that were especially noted to be associated included diuretics, angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), and NSAIDs (FDA, 2014). There are currently no brand name OTC OSP products available in the U.S. All branded OTC OSP products were voluntarily discontinued in late 2008, including Fleet® Phospho-Soda and GNP saline oral laxative (GNP is generic for Fleet[®] oral laxative). Major pharmaceuticals also discontinued their oral saline laxative in April 2013 due to supplier issues (American Society of Health-System Pharmacists, 2013). One brand-name product is still available through Salix Pharmaceuticals (OsmoPrep), but it is obtained by prescription only.

In contrast, sodium phosphate enemas are still available for purchase OTC in both branded and generic formulations. The Drug Facts Label includes warnings about the need to use with caution in patients with impaired kidney function, to not use more than one enema in 24 hours, and to avoid use when experiencing signs/symptoms of dehydration. It is extremely important for providers, nurses, and pharmacists to educate older adults about the risks associated with sodium phosphate enemas in older adults who have kidney dysfunction. If older adults choose to use sodium phosphate enemas, they should be well educated about the need to maintain hydration both before and after using the enema. Some patients may require monitoring of electrolytes and kidney function. The FDA (2014) has advised that consumers and clinicians not consider the rectal formulations safer than the oral formulations.

Proton Pump Inhibitors

Proton pump inhibitors (PPIs) are widely purchased OTC, with three PPIs (omeprazole, lansoprazole, and esomeprazole) available both OTC and via prescription. None of the Drug Facts Labels for the OTC PPIs provide specified dosing for older adults or those with kidney dysfunction, nor is pre-existing kidney disease listed as a warning. However, recent evidence suggests that the chronic use of PPIs may increase the risk of acute interstitial nephritis and the development of CKD, especially in older adults. Antoniou and colleagues (2015) found in their population-based study of almost 600,000 patients that the rates of AKI (HR 2.52, 95% CI 2.27 to 2.79) and acute interstitial nephritis (HR 3.00, 95% CI 1.47 to 6.14) were higher among older PPI users (66 years and older) compared to controls. Results were consistent amongst PPIs studied: lansoprazole, omeprazole, pantoprazole, and rabeprazole. Classic systemic features of drug-induced acute interstitial nephritis are often absent in PPI-associated cases, making it more challenging for providers to recognize PPIs as the cause (Antoniou et al., 2015). Lazarus and colleagues (2016) investigated the effects of chronic PPI use in approximately 10,000 patients in the Atherosclerosis Risk in Communities (ARIC) study and in almost 250,000 patients in an administrative cohort—all patients with an estimated glomerular filtration rate of at least 60 mL/min/1.73m² at baseline (Lazarus et al., 2016). In the ARIC study, PPI use was associated with new onset CKD (adjusted HR 1.50, 95% CI 1.14 to 1.96). In the administrative replication cohort, PPI use was associated with CKD in all analyses (adjusted HR 1.24, 95% CI 1.20 to 1.28). Lazarus et al. (2016) found that the CKD risk may be dose dependent because twice daily PPI use was associated with a higher risk than once daily use.

The AGS 2015 Beers Criteria had already recognized the risk of PPIs well before this study. They recommended that older adults avoid chronic PPI use (longer than eight weeks) due to the risks of *Clostridium difficile* infection, bone loss, and fractures (AGS, 2015). Some high-risk patients or those with refractory gastrointestinal symptoms may require chronic use of PPIs, but in many cases, these medications are likely continued without much thought given to potential risks. Now that the relationship between PPIs and possible kidney injury is clearly established, nurses, pharmacists, and all healthcare providers need to become more vigilant in providing education to their patients about their risks.

OTC DRUGS REQUIRING DOSE ADJUSTMENT IN OLDER ADULTS WITH KIDNEY IMPAIRMENT Antihistamines

Certain OTC drugs can present a substantial risk for adults with kidney dysfunction. Histamine antagonists are readily available OTC, including both H₁ and H₂ antagonist preparations. Patients with kidney dysfunction and their providers need to be aware of the dosage adjustment requirements for most categories of H_1 and H_2 antihistamines that are available OTC. First generation H₁ antihistamines (e.g., diphenhydramine, chlorpheniramine, brompheniramine) are usually poorly tolerated by older adults because they are highly anticholinergic. Concerning adverse effects include constipation, dry mouth, urinary retention, confusion, cognitive impairment, sedation, vision changes, dizziness, and falls (AGS, 2015). This drug class is also included on the AGS 2015 Updated Beers Criteria (AGS, 2015). Due to the potential for serious anticholinergic adverse effects and reduced clearance in older adults, criteria recommend avoiding first generation antihistamines in all older adults, and especially in those suffering from delirium, dementia, or cognitive impairment. Alternative choices for older adults with allergic rhinitis include OTC second-generation antihistamines (e.g., cetirizine, fexofenadine, or loratadine), OTC intranasal normal

saline, or OTC intranasal corticosteroids (e.g., beclomethasone, fluticasone) (Hanlon, Semla, & Schmader, 2015; Paton & Webster, 1985).

If it is necessary to utilize diphenhydramine in older adults (e.g., acute treatment for an allergic reaction or prevention of adverse effects associated with a parenteral treatment), dose adjustments may be necessary. Although the OTC Drug Facts Label does not describe dosing interval adjustments for kidney dysfunction, Micromedex[®] drug information resources for diphenhydramine recommends that the dosing interval be every six hours for patients with a CrCl greater than 50 mL/minute, six to 12 hours for patients with a CrCl of 10 to 50 mL/minute, and 12 to 18 hours for patients with a CrCl less than 10 mL/minute (Micromedex Solutions, 2016c). For older adults in general, the dose of diphenhydramine should be the lowest dose possible.

As stated above, recommending a second generation antihistamine for older adults is typically safer than utilizing a first generation antihistamine for the treatment of allergic rhinitis. However, second generation antihistamines also come with recommendations for reduced doses in older adults and those with kidney impairment to prevent drug accumulation and adverse effects, such as mild drowsiness and dry mouth. The OTC Drug Facts Label for cetirizine states that patients who are older adults or have kidney disease should "ask a doctor" about dosing; however, the product labelling for prescription Zyrtec^{*} mentions dose adjustment. The recommended dose of cetirizine is 5 mg/ day for adults and children age 12 years or older with moderate to severe kidney dysfunction (CrCl 11 to 31 mL/minute), or on dialysis (Pfizer, Inc., 2002). Lower dosing is recommended in those with moderate kidney impairment or on dialysis because the half-life can increase three-fold, and the drug clearance can decrease by 70%, with less than 10% of the drug removed with a single dialysis session (Pfizer, Inc., 2002). For older adults, the product labelling for prescription Zyrtec recommends careful dose selection and consideration that older adult patients have a 50% increase in the elimination half-life and a 40% decrease in clearance, possibly due to kidney impairment (Pfizer, Inc., 2002). Thus, a 5 mg daily dose of cetirizine may be appropriate for older adults. The OTC Drug Facts Label for fexofenadine is similar to cetirizine and states to "ask a doctor" for older adults and patients with kidney disease. Drug information resources state that dosing does not need to be adjusted in older adults, but doses should be adjusted in patients with kidney dysfunction (Aventis Pharmaceuticals, Inc., 2003). For adults with decreased renal function, the recommended dose of fexofenadine is 60 mg once daily. Peak plasma concentrations of fexofenadine are 87% and 111% greater, respectively, and the mean elimination half-lives are 59% and 72% longer for patients with mild to moderate (CrCl of 41 to 80 mL/minute) and severe (CrCl of 11 to 40 mL/ minute) renal impairment (Aventis Pharmaceuticals, Inc., 2003). In patients with ESRD who are on hemodialysis, fexofenadine is not effectively removed by hemodialysis, and the recommended dose is 60 mg once daily (Aventis Pharmaceuticals, Inc., 2003).

The OTC Drug Facts Label for loratadine indicates that older adults can take standard doses, but the label states to "ask a doctor" for patients with kidney disease. Drug information sources indicate that in patients with a CrCL less than 30 mL/minute, lower initial doses, such as 10 mg every other day, should be utilized (Micromedex Solutions, 2016d). This is due to an increase in peak plasma concentrations of loratadine and its active metabolite in this patient group.

Histamine-2 Receptor Antagonists (H2RAs)

Histamine-2 receptor antagonists (H2RAs), such as famotidine, ranitidine, nizatidine, and cimetidine, also require dose adjustments in anyone with kidney dysfunction because these drugs are all substantially excreted by the kidneys. Central nervous system (CNS) adverse effects have been reported in patients with kidney dysfunction, likely due to drug accumulation (FDA, 2001). Tawadrous and colleagues (2014) assessed the rate of altered mental status in older adults taking famotidine or ranitidine at standard doses (300 mg/day of ranitidine or 40 mg/day of famotidine) and at low doses (one-half the standard dose). They found that standard doses of ranitidine and famotidine in older adults are associated with a small increased risk of altered mental status, even in the absence of CKD (absolute risk difference 0.24%, 95% CI 0.11 to 0.36) (Tawadrous et al., 2014). Patients with delirium, dementia, or cognitive impairment are considered to be at even higher risk when exposed to H2RAs. The 2015 AGS Beers Criteria include H2RAs as a drug category to avoid in this special population due to the potential for H2RAs to induce or worsen the CNS conditions (AGS, 2015).

If H2RAs are indicated and appropriate for older adults, the dose must be evaluated and reduced if the patient has kidney dysfunction. In March 2001, the FDA released a summary of the labelling changes for prescription strength famotidine. The new labelling included the need for a dose adjustment in patients with a CrCl less than 50 mL/minute, whereas the previous labelling only required a dose adjustment for patients with a CrCl less than 10 mL/minute (FDA, 2001). Based upon the updated labelling, adults with a CrCl less than 50 mL/minute, the oral dose of famotidine is recommended to be reduced by 50% or the dosing interval increased to 36 to 48 hours (FDA, 2001). Product labelling for OTC famotidine recommends patients take one 10 mg tablet no more than twice in a 24-hour period and for no more than 14 days without consulting a doctor (National Institutes of Health [NIH], 2015a). The OTC Drug Facts Label does not include specific warnings for older adults or patients with kidney dysfunction (NIH, 2015a). This is most likely because the labelled dose is already one-half the maximum prescription dose. Despite the lack of recommendations for dose adjustment of OTC famotidine in older adults and those with kidney dysfunction, these patients can be educated to reduce their dose or increase the dosing interval to help avoid drug accumulation and potential adverse central nervous system (CNS) effects, such as confusion and dizziness.

As with famotidine, the Drug Facts Label for OTC ranitidine, cimetidine, and nizatidine do not contain recommendations for dose reductions based upon age or kidney dysfunction. Again, this is likely because OTC label doses are lower than prescription doses. The OTC label dose for ranitidine is one 75 mg tablet no more than twice in 24 hours (NIH, 2009c). FDA-approved labelling for prescription rantidine recommends a dose of 150 mg ranitidine orally every 24 hours for patients with a CrCl less than 50 mL/minute, which coincides with the OTC labelled dose (GlaxoSmithKline, 2009). The prescription labelling also recommends that doses for older adults should be selected carefully because these patients may suffer from kidney impairment (GlaxoSmithKline, 2009).

The OTC Drug Facts Label for cimetidine recommends a dose of one 300 mg tablet no more than twice in 24 hours, and drug information resources recommend a similar dose for patients with kidney dysfunction (Micromedex Solutions, 2016a; NIH, 2013). If a patient is undergoing hemodialysis, cimetidine should be taken at the end of dialysis to prevent a reduction in the amount of circulating drug. Drug information sources also suggest a reduced dose of 200 mg four times daily or 300 mg twice daily in patients older than 65 years due to the potential for decreased renal and hepatic function in this patient population (Micromedex Solutions, 2016a).

More than 90% of an oral nizatidine dose is excreted in the urine within 12 hours, so reduced kidney function can significantly impact drug concentrations and risk of toxic reactions (Reliant Pharmaceuticals, Inc., 2005). The OTC Drug Facts Label recommends a dose of one 75 mg tablet of nizatidine no more than twice in 24 hours, with no mention of concerns with kidney disease (NIH, 2009a). In contrast, prescription drug labelling recommends reducing doses of prescription nizatidine in proportion with the level of kidney dysfunction. They suggest that when treating an active duodenal ulcer, gastroesophageal reflux disease, and benign gastric ulcer, the dose for a patient with a CrCl 20 to 50 mL/minute should not exceed 150 mg in 24 hours, and for a patient with a CrCl of less than 20 mL/ minute, the dose needs to be reduced to 150 mg every other day (Reliant Pharmaceuticals, Inc., 2005). Product labelling also includes recommendations for maintenance dosing: 150 mg every other day for anyone with a CrCl 20 to 50 mL/minute and 150 mg every three days for CrCl less than 20 mL/minute (Reliant Pharmaceuticals, Inc., 2005). For older patients, it is suggested to reduce the dose when CrCl is less than 50 mL/minute. Other than age-related renal function reduction, there have not been any other clinically significant pharmacokinetic changes observed in older patients who take nizatidine (Reliant Pharmaceuticals, Inc., 2005). Thus, for older patients with kidney dysfunction, it may be safer for the patient to utilize the prescription-recommended, renally adjusted doses of nizatidine rather than the dose from the OTC Drug Facts Label.

Oral Decongestants

The oral decongestants pseudoephedrine and phenylephrine, and their metabolites, are highly dependent upon renal excretion, eliminated as unchanged drug (70% to 90% for pseudoephedrine, and 86% for phenylephrine) (Micromedex Solutions, 2016e, f). Neither the pseudoephedrine nor phenylephrine OTC Drug Facts Label provides specified dosing for older adults or those with kidney dysfunction. Drug information resources state that for patients with ESRD, doses of phenylephrine should be initiated at the low end of the usual dose range (Micromedex Solutions, 2016e). Because pseudoephedrine is absorbed systemically to a greater extent than phenylephrine, pseudoephedrine carries a higher risk for adverse effects. Systemic adverse effects include CNS stimulation (e.g., anxiety, confusion, dizziness, nervousness, insomnia), cardiovascular stimulation and vasoconstriction (tachycardia and hypertension), and genitourinary complications, such as urinary retention. These can be especially problematic in older adults with significant comorbidities. If a decongestant is warranted for an older adult or a patient with kidney dysfunction, the short-term use of an OTC nasal/topical decongestant (e.g., nasal oxymetazoline) may be more appropriate due to a lack of systemic absorption.

Codeine

Cough syrup, including codeine 10 mg/5mL, is a schedule V product available without a prescription in 30 states (Tietze et al., 2015). Approximately 90% of codeine undergoes renal excretion, with approximately 10% of that as unchanged drug (Micromedex Solutions, 2016b). The Drug Facts Label for OTC codeine does not mention dosing differences or warnings for older adults or those with kidney dysfunction. However, drug information resources highlight the potential for increased sensitivity and enhanced effects in patients with ESRD (Micromedex Solutions, 2016b). Reduced doses of codeine may be indicated for patients with ESRD. A dose reduction to 75% of the usual dose for patients with a CrCl of 10 to 50 mL/minute and reduced by 50% of the usual dose for a CrCl less than 10 mL/minute (Aronoff, Bennett, & Berns, 2007). Common side effects of codeine include nausea, rash, sedation, and dizziness. Additive CNS effects are possible when codeine is used with other CNS depressants, such as alcohol or sedatives (Tietze et al., 2015). It is advisable to use codeine with caution in older adults because their risk for side effects could be increased due to CNS effects.

Other Gastrointestinal Drugs

Certain gastrointestinal drugs that contain electrolytes can also be problematic in older adults, especially those with underlying kidney dysfunction. Sodium bicarbonate, commonly found in Alka Seltzer^{*}, is used for the relief of indigestion and heartburn, and is eliminated by the kidneys. Because the kidney regulates plasma concentrations of bicarbonate, a healthy kidney can reabsorb enough bicarbonate so that less than 1% is excreted in the kidney; the excess is excreted in the urine along with sodium ions (Micromedex Solutions, 2016g). Patients with reduced kidney function, such as older adults, may not be able to effectively process high doses of sodium bicarbonate, increasing the risk for hypernatremia, hyperosmolality, and metabolic alkalosis. Drug information resources recommend initiating sodium bicarbonate at the lowest possible dose in older adult patients (Micromedex Solutions, 2016g). Moreover, it is important for older adults to note that Alka Seltzer also contains aspirin 325 mg, in case they are trying to avoid that product due to risks of bleeding.

Products containing magnesium or aluminum should also be used with caution in patients with kidney dysfunction due to the risk for electrolyte accumulation. OTC magnesium products (e.g., magnesium citrate, magnesium oxide, and magnesium hydroxide (Milk of Magnesia^{*}) are often used to treat constipation and supplement magnesium. Drug Facts Labels for magnesium citrate, magnesium oxide, and magnesium hydroxide provide a consumer warning. Prior to taking these magnesium preparations, individuals who have known kidney disease are instructed to consult with their healthcare provider (NIH, 2009b, 2012a, 2015b). When older adults or those with kidney dysfunction take OTC products containing magnesium, monitoring for magnesium toxicity may be warranted. Serum concentrations can be measured if there is a concern for toxicity.

Aluminum hydroxide, either alone or in combination with magnesium carbonate, is available OTC as an antacid. Although high doses of aluminum hydroxide could potentially increase the risk of aluminum toxicity in a patient with kidney dysfunction, dosage adjustments are not included on the OTC Drug Facts Label. However, there is a warning for patients taking both aluminum hydroxide and magnesium carbonate (NIH, 2012b).

DRUG-DRUG INTERACTIONS WITH OTC MEDICATIONS

In patients taking multiple drugs, drug-drug interactions with OTC agents are more likely to occur. In a study by Golchin et al. (2015), more than 50% of older adults were found to be taking drug combinations that were contraindicated. Eightythree percent of patients were using OTC medications, and almost one-half of those had duplicate use of OTC medications for the same indication (Golchin et al., 2015).

OTC drugs can interact with both prescription and other OTC drugs. For example, at low doses, aspirin inhibits the COX-1 enzyme and acts as an antiplatelet agent by blocking the synthesis of thromboxane A₂ in the platelets, thus permanently inhibiting platelet aggregation (Strepensky & Rimon, 2015). Ibuprofen reversibly inhibits platelet aggregation via cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) inhibition, with a higher affinity for COX-1 than COX-2 (Bednar, 2009; Cashmah, 1996; Strepensky & Rimon, 2015). When taken together, ibuprofen and aspirin compete for binding to and inhibition of the COX-1 enzyme. This can lessen the antiplatelet benefits of aspirin, which could possibly lead to increased risk of cardiovascular events if the aspirin was being taken to prevent cardiovascular thrombotic events. The effects of the drug-drug interaction between aspirin and NSAIDs can be minimized by separating administration of the two drugs (FDA, 2006; Strepensky & Rimon, 2015). It is recommended that patients take aspirin at least 30 minutes before or eight hours after ibuprofen (FDA, 2006).

In older adults, and particularly those with impaired kidney function, regular use of NSAIDs can reduce the effectiveness of antihypertensive drugs. The effectiveness of an ACE inhibitors, angiotensin II receptor blockers (ARBs), a loop, or a thiazide diuretic might be reduced when combined with an NSAID. These drugs impart their antihypertensive effects though the kidney (Bednar, 2009; Moore et al., 2015; Weir, 2002). The mechanism of this interaction is thought to be due to the NSAID-induced inhibition of renal prostaglandins leading to increased fluid retention contributing to an increase in blood volume and total peripheral vascular resistance (Moore et al., 2015; Whelton, 1999). Response to these antihypertensive agents is thus lessened. There is also a concern for the development of AKI when there is concurrent use of NSAIDs and diuretics. This risk is even higher when individuals take what has been termed triple therapy (NSAID, diuretic, and either ACE inhibitors or ARBs). Each drug class alters kidney function, though they work through different mechanisms (Moore et al., 2015). Patients with kidney dysfunction who also take NSAIDs, diuretics, and/or ACE inhibitors/ARBs should be monitored for a lack of blood pressure response and further kidney impairment due to the combination.

Methotrexate is FDA-indicated as antineoplastic chemotherapy (high doses) and psoriasis chemotherapy, and as a treatment for rheumatoid arthritis (low doses) (Hospira, Inc., 2011; Moore et al., 2015). Lithium is FDA-indicated for mood stabilization and bipolar disorder (Moore et al., 2015). When taken with NSAIDs, both methotrexate and lithium can accumulate, as a result of diminished kidney function, leading to very serious adverse effects. Patients should be educated to avoid taking OTC NSAIDs when they are also taking either methotrexate or lithium.

CONCLUSION

Balancing the benefits of drug therapies with potential adverse effects in older adults is challenging and necessitates a team-based approach. Nurses and pharmacists are in ideal positions to positively impact the care of older adults through patient education. When interviewing patients about their medications, it is important to include questions assessing both their prescription and OTC drugs, making sure to ask about frequency of use and dosage. Nurses and pharmacists caring for older adults at risk for kidney dysfunction should inform patients about the risk of OTC drugs and the need to avoid certain categories of medications (e.g., NSAIDs, sodium phosphate, and PPIs) and OTC drugs that may require dose adjustment based upon their kidney function (e.g. antihistamines, H₂RAs, oral decongestants, codeine). Utilizing the AGS 2015 Beers Criteria as a resource can help simplify the medication review. In addition, free patient-oriented handouts about drugs to avoid in older adults are available at GeriatricCareOnline.org

Nurses can also encourage older adults to utilize the same pharmacy for all their prescriptions in order to provide the community pharmacist with a complete drug list. This will help the pharmacist review the patient's profile for potential drug-drug interactions between OTC and prescription drugs.

The patient in the introductory scenario had several risks that led to her development of AKI. She is a thin, frail woman of advanced age with naturally declining kidney function. She was also taking an ACE inhibitor (lisinopril), a diuretic (hydrochlorothiazide), and low dose aspirin, and then began taking high doses of an NSAID (ibuprofen) to treat pain from her osteoarthritis. Although ibuprofen may have improved her pain control, it compromised her kidney function and could have also reduced her blood pressure control. With proper education, her emergency room visit might have been avoided.

REFERENCES

- American Geriatrics Society 2015 Beers Criteria Update Expert Panel. (2015). American Geriatrics Society 2015 updated Beers criteria for potentially inappropriate drug use in older adults. *Journal of the American Geriatrics Society*, 63, 2227– 2246. doi:10.1111/jgs.13702
- American Society of Health-System Pharmacists. (2013). Oral sodium phosphate (over-the-counter) solution. Retrieved from http://www.ashp.org/menu/DrugShortages/ DrugsNoLongerAvailable/Bulletin.aspx?id=549
- Antoniou, T., Macdonald, E.M., Hollands, S., Gomes, T., Mamdani, M.M., Garg, A.X., & Juurlink, D.N. (2015). Proton pump inhibitors and the risk of acute kidney injury in older patients: A population-based cohort study. *Canadian Medical Association Journal Open*, 3(2), E166–E171. doi:10.9778/ cmajo.20140074
- Aronoff G.R., Bennett W.M., & Berns J.S. (2007). Drug prescribing in renal failure: Dosing guidelines for adults and children (5th ed.). Philadelphia, PA: American College of Physicians.
- Aventis Pharmaceuticals, Inc. (2003). Allegra' (fexofenadine hydrochloride) capsules and tablets [package insert]. Kansas City, MO: Author.

- Bednar, B. (2009). OTC drug-induced nephrotoxicity in the elderly and CKD patient. *Nephrology News & Issues*, 23(8), 36–44.
- Cashmah, J.N. (1996). The mechanisms of action of NSAIDs in analgesia. *Drugs*, *5*(Suppl. 5), 13–23.
- Chui, M.A., Stone, J.A., Martin, B.A., Croes, K.D., & Thorpe, J.M. (2013). Safeguarding older adults from inappropriate overthe-counter drugs: The role of community pharmacists. *The Gerontologist*, 54(6), 989–1000. doi:10.1093/geront/gent130
- Consumer Healthcare Products Association. (2016). OTC retail sales 1964-2015. Retrieved from http://www.chpa.org/ OTCRetailSales.aspx
- Cook, W.B. (2008). Common adverse events and interactions with OTC pain drugs. U.S. Pharmacist, 33(5), 44–56.
- Coxib and Traditional NSAID Trialists' (CNT) Collaboration, Bhala, N., Emberson, J., Merhi, A., Abramson, S., Arber, N., Baron, J.A., ... Baigent, C. (2013). Vascular and upper gastrointestinal effects of non-steroidal anti-inflammatory drugs: Meta-analyses of individual participant data from randomised trials. *Lancet*, 382(9894), 769–779. doi:10.1016/ S0140-6736(13)60900

- Gallup, Inc. (2015). Honesty/ethics in professions. Retrieved from http://www.gallup.com/poll/1654/Honesty-Ethics-Professions.aspx
- Glassock, R.J., & Rule, A.D. (2012). The implications of anatomical and functional changes of the aging kidney: With an emphasis on the glomeruli. *Kidney International*, 82(3), 270–277. doi:10.1038/ki.2012.65
- GlaxoSmithKline. (2009). Zantac^{*} (rantidine hydrochloride) [package insert]. Research Triangle Park, NC: Author.
- Golchin, N., Frank, S.H., Vince, A., Isham, L., & Meropol, S.B. (2015). Polypharmacy in the elderly. *Journal* of Research in Pharmacy Practice, 4(2), 85–88. doi:10.4103/2279-042X.155755
- Hanlon J.T., Semla T.P., & Schmader K.E. (2015). Alternative medications for medications in the use of high-risk medications in the elderly and potentially harmful drug-disease interactions in the elderly quality measures. *Journal of the American Geriatrics Society*, 63(12), e8–e18. doi:10.1111/jgs.13807
- Heerdink, E.R., Leufkens, H.G., Herings, R.M., Ottervanger, J.P., Stricker, B.H., & Bakker, A. (1998). NSAIDs associated with increased risk of congestive heart failure in elderly patients taking diuretics. *Archives of Internal Medicine*, 158(10), 1108–1112.
- Hospira, Inc. (2011). *Methotrexate* [package insert]. Lake Forest, IL: Author.
- Langman, M.J., Weil, J., Wainwright, P., Lawson, D.H., Rawlins, M.D., Logan, R.F., & Colin-Jones, D.G. (1994). Risks of bleeding peptic ulcer associated with individual non-steroidal anti-inflammatory drugs. *Lancet*, 343(8905), 1075–1078.
- Lazarus, B., Chen, Y., Wilson, F.P., Sang, Y., Chang, A.R., Coresh, J., & Grams, M.E. (2016). Proton pump inhibitor use and the risk of chronic kidney disease. JAMA Internal Medicine, 176(2), 238–246. doi:10.1001/jamainternmed.2015.7193
- Linnebur, S.A., Vande Griend, J.P., Metz, K.R., Hosokawa, P.W., Hirsch, J.D., & Libby, A.M. (2014). Patient-level drug regimen complexity in older adults with depression. *Clinical Therapeutics*, 36(11), 1538-1546. doi:10.1016/j. clinthera.2014.10.004
- Matsui, H., Shimokawa, O., Kaneko, T., Nagano, Y., Rai, K., & Hyodo, I. (2011). The pathophysiology of non-steroidal anti-inflammatory drug (NSAID)-induced mucosal injuries in stomach and small intestine. *Journal of Clinical Biochemistry and Nutrition*, 48(2), 107–111. doi:10.3164/jcbn.10-79
- Medlock, S., Eslami, S., Askari, M., Taherzadeh, Z., Opondo, D., de Rooij, S.E., & Abu-Hanna, A. (2013). Co-protection of gastroprotective agents and their efficacy in elderly patients taking nonsteroidal anti-inflammatory drugs: A systematic review of observational studies. *Clinical Gastroenterology & Hepatology*, 11(10), 1259–1269. doi:10.1016/j.cgh.2013.05.034
- Micromedex Solutions. (2016a). *Cimetidine*. In: Drugdex^{*} System. Greenwood Village, CO: Truven Health Analytics.
- Micromedex Solutions. (2016b). *Codeine sulfate*. In: Drugdex^{*} System (electronic version). Greenwood Village, CO: Truven Health Analytics.
- Micromedex Solutions. (2016c). *Diphenhydramine hydrochloride*. In: Drugdex* System (electronic version). Greenwood Village, CO: Truven Health Analytics.
- Micromedex Solutions. (2016d). *Loratadine*. In: Drugdex^{*} System (electronic version). Greenwood Village, CO: Truven Health Analytics.
- Micromedex Solutions. (2016e). *Phenylephrine hydrochloride*. In: Drugdex[®] System (electronic version). Greenwood Village, CO: Truven Health Analytics.
- Micromedex Solutions. (2016f). *Pseudoephedrine hydrochloride*. In: Drugdex^{*} System (electronic version). Greenwood Village, CO: Truven Health Analytics.

- Micromedex Solutions. (2016g). *Sodium bicarbonate*. In: Drugdex^{*} System (electronic version). Greenwood Village, CO: Truven Health Analytics.
- Moore, N., Pollack, C., & Butkerait, P. (2015). Adverse drug reactions and drug-drug interactions with over-the-counter NSAIDs. *Therapeutics and Clinical Risk Management*, 15(11), 1061–1075. doi:10.2147/TCRM.S79135
- National Institutes of Health (NIH). (2009a). DailyMed: Axid AR drug label information. Retrieved from http://dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=5c371d53-b93d-565e-bae6-1354c99d9035
- National Institutes of Health (NIH). (2009b). DailyMed: Magnesium citrate liquid. Retrieved from http:// dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=34819642-df65-40dd-a8a3-bb6c3f2f5e3c
- National Institutes of Health (NIH). (2009c). *DailyMed: Acid reducer – Ranitidine hydrochloride tablet*. Retrieved from http://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=fa488c44-7e42-42d9-b457-d4a9b944f955&audience=consumer
- National Institutes of Health (NIH). (2012a). DailyMed: Magnesium oxide tablet. Retrieved from http:// dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=640680ef-b856-467f-bbaf-1144b290d75d
- National Institutes of Health (NIH). (2012b). DailyMed: Aluminum hydroxide and magnesium carbonate tablet. Retrieved from http://dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=e799a555-bfd0-4298-a5dc-aeb671815d40
- National Institutes of Health (NIH). (2013). DailyMed: Cimetidine acid reducer drug label information. Retrieved from http://dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=7087f4bb-992b-4680-a9a7-452ce74eed2d
- National Institutes of Health (NIH). (2015a). *DailyMed: Pepcid AC original strength drug label information*. Retrieved from http:// dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=54f408 6f-e443-4e7e-8c7e-94e152e1c256&audience=consumer
- National Institutes of Health (NIH). (2015b). DailyMed: Magnesium hydroxide suspension. Retrieved from http://dailymed.nlm.nih.gov/dailymed/drugInfo. cfm?setid=d4c839ac-7606-4729-b22d-79d18b440324
- Paton, D.M., & Webster D.R. (1985). Clinical pharmacokinetics of H_1 -receptor antagonists (the antihistamines). *Clinical Pharmacokinetics*, 10(6), 477–497.
- Perneger, T.V., Whelton, P.K., & Klag, M.J. (1994). Risk of kidney failure associated with the use of acetaminophen, aspirin, and nonsteroidal anti-inflammatory drugs. *New England Journal of Medicine*, 331(25), 1675–1679.
- Pfizer Inc. (2002). *Zyrtec** (*cetirizine hydrochloride*) *tablets and syrup* [package insert]. New York, NY: Author.
- Pilotto, A., Franceschi, M., Leandro, G., Paris, F., Niro, V., Longo, M.G., & Di Mario, F. (2003). The risk of upper gastrointestinal bleeding in elderly users of aspirin and other non-steroidal anti-inflammatory drugs: The role of gastroprotective drugs. *Aging Clinical & Experimental Research*, 15(6), 494–499.
- Qato, D.M., Wilder, J., Schumm, P., Gillet, V., & Alexander, G.C. (2016). Changes in prescription and over the counter medication and dietary supplement use among older adults in the United States, 2005 vs 2011. JAMA Internal Medicine, 176(4), 473–482. doi:10.1001/jamainternmed.2015.8581
- Rao, P.N., & Knaus, E.E. (2008). Evolution of nonsteroidal anti-inflammatory drugs (NSAIDs): Cyclooxygenase (COX) inhibition and beyond. *Journal of Pharmacy & Pharmaceutical Sciences*, 11(2), 81s-110s.
- Reliant Pharmaceuticals, Inc. (2005). *Axid^{*} (nizatidine) capsules* [package insert]. Liberty Corner, NJ: Reliant Pharmaceuticals, Inc.

- Roumie, C.L., & Griffin, M.R. (2004). Over-the-counter analgesics in older adults a call for improved labeling and consumer education. *Drugs & Aging*, 21(8), 485–498. doi:10.2165/00002512-200421080-00001
- Schlondorff, D. (1993). Renal complications of nonsteroidal anti-inflammatory drugs. *Kidney International*, 44, 643–653.
- Strepensky, D., & Rimon, G. (2015). Competition between lowdose aspirin and other NSAIDs for COX-1 binding and its clinical consequences for the drugs' antiplatelet effects. *Expert Opinion. Drug Metabolism. Toxicology*, 11(1), 41–52. doi:10.1517/17425255.204.971010
- Tawadrous, D., Dixon, S., Shariff, S.Z., Fleet, J., Gandhi, S., Jain, A.K., & Garg, A.X. (2014). Altered mental status in older adults with histamine 2-receptor antagonists: a population-based study. *European Journal of Internal Medicine*, 25(8), 701–709. doi:10.1016/j.ejim.2014.06.021
- Tietze, K.J. (2015). Cough (chapter 12). In D.L. Krinsky, S.P. Ferreri, B. Hemstreet, A.L. Hume, G.D. Newton, & K.J. Tietze (Eds.), *Handbook of nonprescription drugs* (18th ed.) [e-book]. Washington, DC: American Pharmacists Association.
- U.S. Food and Drug Administration (FDA). (2001). *Safety: Pepcid* (*famotidine*) *labeling changes summary*. Retrieved from http:// www.fda.gov/safety/medwatch/safetyinformation/safetyalertsforhumanmedicalproducts/ucm173879.htm
- U.S. Food and Drug Administration (FDA). (2006). Drugs: Information for healthcare professionals: concomitant use of ibuprofen and aspirin. Retrieved from http://www.fda.gov/DrugS/DrugSafety/ PostmarketDrugSafetyInformationforPatientsandProviders/ ucm125222.htm

- U.S. Food and Drug Administration (FDA). (2008). FDA requires new safety measures for oral sodium phosphate products to reduce risk of acute kidney injury: risk associated with both prescription and over-the-counter (OTC) products. Retrieved from http://www.fda.gov/NewsEvents/Newsroom/ PressAnnouncements/2008/ucm116988.htm
- U.S. Food and Drug Administration (FDA). (2014). FDA warns of possible harm from exceeding recommended dose of overthe-counter sodium phosphate products to treat constipation. Retrieved from http://www.fda.gov/downloads/drugs/drugsafety/ucm381084.pdf
- U.S. Food and Drug Administration (FDA). (2015a). Drug applications for over-the-counter (OTC) drugs. Retrieved from http://www.fda.gov/Drugs/DevelopmentApprovalProcess/ HowDrugsareDevelopedandApproved/ApprovalApplications/ Over-the-CounterDrugs/default.htm
- U.S. Food and Drug Administration (FDA). (2015b). Prescription to over-the-counter (OTC) switch list. Retrieved from http://www.fda.gov/AboutFDA/CentersOffices/ OfficeofMedicalProductsandTobacco/CDER/ucm106378.htm (FDA). (2015c). FDA Drug Safety Communication: FDA strengthens warning that non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs) can cause heart attacks or strokes. Retrieved from http://www.fda.gov/Drugs/DrugSafety/ ucm451800.htm
- Weir, M.R. (2002). Renal effects of nonselective NSAIDs and coxibs. *Cleveland Clinic Journal of Medicine*, 69(Suppl. I), 53–58.
- Whelton, A. (1999). Nephrotoxicity of nonsteroidal anti-inflammatory drugs: Physiologic foundations and clinical implications. American Journal of Medicine, 106(5B), 13S–24S.

CONTINUING EDUCATION STUDY QUESTIONS

CONTACT HOUR: 2.0 HRS

Over-the-counter drugs to avoid in older adults with kidney impairment

By Chelsey Hess, PharmD, Sunny A. Linnebur, PharmD, BCPS, CGP, FCCP, FASCP, Danielle N. Rhyne, PharmD, BCPS, and Connie A. Valdez, PharmD, MSEd, BCPS

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- Kidney function declines with age due to which of the following:
 - a) Nephrosclerosisb) Elevated levels of PGE2
 - c) Increased cardiac output
 - d) All of the above
- Nephrotoxic effects are more likely to occur with nonsteroidal anti-inflammatory drugs that have the following characteristics:
 a) Short half-life
 - b) Slow onset of action
 - c) Minimal first pass through the liver
 - d) All of the above
- Nonsteroidal anti-inflammatory drugs should be avoided in older adults who have:
 - a) Heart failure requiring treatment with a diuretic
 - b) Patients with a history of gastric or duodenal ulcers
 - c) CKD (CrCl less than 30 mL/ minute)
 - d) All of the above
- 4. Due to the unknown balance of benefit versus risk, use of lowdose aspirin for the primary prevention of cardiovascular events should be used cautiously in patients who are:
 - a) 60 years of age and older
 - b) 70 years of age and older
 - c) 80 years of age and older
 - d) All of the above

- The risk of upper gastrointestinal bleeding can be reduced in patients who must use nonsteroidal anti-inflammatory drugs chronically by co-prescribing:
 - a) Ranitidine
 - b) Omeprazole
 - c) Magnesium/aluminum
 - d) None of the above
- Nonsteroidal anti-inflammatory drug use can increase the risk of heart attack and stroke within week(s) of use.
 - a) 1
 - b) 4
 - c) 8
 - d) 12
- 7. Which of the following is correct regarding acetaminophen-induced analgesic-associated nephropathy (AAN)?
 - a) AAN is not dose dependent
 - b) AAN can occur with doses of 1,000 mg/day
 - c) AAN is caused by accumulation of a toxic metabolite, NAPQI
 - d) All of the above
- 8. Which of the following over-thecounter products has a risk evaluation and mitigation strategy (REMS) based upon serious risk to consumers?
 - a) Ibuprofen
 - b) Ranitidine
 - c) Diphenhydramine
 - d) Sodium phosphate

- The FDA recommended maximum dose for oral sodium phosphate is ______ dose(s) per 24 hours.
 - a) One
 - b) Two
 - c) Three
 - d) Four
- 10. Rectal formulations of sodium phosphate are considered safer than oral formulation.a) True
 - b) False
- 11. Which of the following statements is true regarding kidney effects of proton-pump inhibitors?
 - a) The effects on the kidney are not dose-dependent
 - b) Proton-pump inhibitor effects on the kidney are typically irreversible
 - c) Classic systemic features of acute interstitial nephritis are often absent
 - d) All of the above
- 12. Additional non-kidney related adverse effects of chronic proton-pump inhibitor use in older adults include:
 - a) Muscle wasting
 - b) Urinary retention
 - c) *C. difficile* infection
 - d) Cognitive impairment
- 13. Which of the following is/are non-kidney related adverse effects of oral over-the-counter antihistamines?
 - a) Constipation
 - b) Urinary retention
 - c) Cognitive impairment
 - d) All of the above

- 14. Which of the following products are included on the American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Drug use in Older Adults?
 - a) Famotidine
 - b) Acetaminophen
 - c) Diphenhydramine
 - d) A and C
- 15. Famotidine and ranitidine doses require adjustment in patients who are/have:
 - a) Age greater than 60 years
 - b) CrCl less than 30 mL/minute
 - c) CrCl less than 50 mL/minute
 - d) Moderate hepatic impairment
- 16. Which over-the-counter products could cause cognitive impairment if used in older adults with kidney impairment?
 - a) Antihistamines
 - b) Histamine-2 receptor blockers
 - c) Sodium phosphate
 - d) A and B
 - e) All of the above
- 17. Which of the following oral decongestants is/are absorbed systemically to a greater extent, placing older adults at higher risk for adverse effects?
 - a) Phenylephrine
 - b) Oxymetazoline
 - c) Pseudoephedrine
 - d) All of the above

- 18. In a patient who has a CrCl of 10 to 50 mL/minute, the dose of codeine should be reduced by: a) 25%
 - b) 50%
 - c) 75%
 - d) 90%
- 19. Older adults with reduced kidney function, taking high doses of sodium bicarbonate, are at increased risk for:
 - a) Hyponatremia
 - b) Hyperosmolality
 - c) Metabolic acidosis
 - d) All of the above
- 20. Which of the following antacid ingredients should be discouraged for regular use in older adults and those with kidney impairment?
 - a) Sodium
 - b) Calcium
 - c) Aluminum
 - d) Magnesium
- 21. When patients take multiple drugs, drug-drug interactions with over-the-counter agents are more likely to occur. Based on the study by Golchin et al. (2015), more than % of the older adults were found to have contraindicated drug combinations. a) 25%

 - b) 32%
 - c) 50% d) 68%

- 22. Based on the study by Golchin et al. (2015), 83% of the patients were using over-the-counter medications, and almost _____ of the patients had duplicate use of over-the-counter medications for the same indication.
 - a) One-quarter
 - b) One-third
 - c) One-half
 - d) Three-quarters
- 23. The drug-drug interaction between aspirin and nonsteroidal anti-inflammatory drugs can be minimized by:
 - a) Taking aspirin at least 30 minutes before or 8 hours after ibuprofen
 - b) Taking ibuprofen at least 30 minutes before or 8 hours after aspirin
 - c) Taking aspirin at least 60 minutes before or 2 hours after ibuprofen
 - d) Taking ibuprofen at least 60 minutes before or 2 hours after aspirin
- 24. Which of the following is a risk of taking over-the-counter nonsteroidal anti-inflammatory drugs concomitantly with methotrexate or lithium?
 - a) Increased risk for nephrosclerosis
 - b) Methotrexate and lithium accumulation
 - c) Reduced clearance of nonsteroidal antiinflammatory drugs
 - d) All of the above

CONTINUING EDUCATION STUDY ANSWER FORM

Over-the-counter drugs to avoid in older adults with kidney impairment

By Chelsey Hess, PharmD, Sunny A. Linnebur, PharmD, BCPS, CGP, FCCP, FASCP, Danielle N. Rhyne, PharmD, BCPS, and Connie A. Valdez, PharmD, MSEd, BCPS

Post-test instructions:

- Select the best answer and circle the appropriate letter on the answer grid below.
- Complete the evaluation.
- Send only this answer form (or a photocopy) to: CANNT National Office, 4 Cataraqui Street, Suite 310, Kingston, ON K7K 1Z7 or submit online to www.cannt.ca
- Enclose a cheque or money order payable to CANNT.
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POST-TEST ANSWER GRID

| <i>Please circle your answer choice:</i> | | | | |
|--|---|---|---|-----|
| 1. | а | b | с | d |
| 2. | а | b | с | d |
| 3. | а | b | с | d |
| 4. | а | b | с | d |
| 5. | а | b | с | d |
| 6. | а | b | с | d |
| 7. | а | b | с | d |
| 8. | а | b | С | d |
| 9. | а | b | с | d |
| 10. | а | b | | |
| 11. | а | b | с | d |
| 12. | а | b | с | d |
| 13. | а | b | С | d |
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| 23. | а | b | с | d |
| 24. | а | b | С | d |

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| 1. The offering met the stated objectives. | 1 | 2 | 3 | 4 | 5 |
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EDUCATION

Volume 27, Number 4

CE: 2.0 HRS CONTINUING

Meet the 2017 CANNT Bursary, Award, and Research Grant Winners

SPONSORED BY FRESENIUS MEDICAL CARE

Frances Boutilier Bursary Award (Baccalaureate Level) Recipient: Wendy Esson, BScN, BSW, BA, CDE, CNeph(C)



I would like to express my appreciation to the CANNT Board of Directors for awarding me the Frances Boutilier Bursary.

I began nursing in a small northern community hospital that created a wonderful base for my nursing career. I started as a registered practical nurse and fell in love with everything that the nursing profession had to offer. I was very fortunate to be part of a nursing team that mentored and supported my practice, which motivated me to learn more. I then went on to complete a Bachelor of Nursing degree (2003) from the University of Saskatchewan while still working part-time. After nursing in various areas including medicine, gynecology, and hemodialysis, I started to think about furthering my education. Here I am now in the final stages of completing a Master of Nursing! During this 20-year journey, I developed a keen interest in learning more about diabetes (Certified Diabetes Educator 2012–2017), and the complications that arise for the individuals with this disease, which led my career to dialysis. After completing 10 years of clinical nephrology nursing from three different hemodialysis units, I became a Certified Nephology Nurse in 2014. I also became familiar with the mission of CANNT and became a member in 2015. As a new member, I submitted a poster, and was chosen to present at the CANNT National Conference in 2015. My poster presentation was entitled "Transitions", and looked at ways to encourage/support our patients in considering the benefits of home hemodialysis. Attending CANNT conference gave me a wonderful experience.

Last year, I was very fortunate to be a part of the planning committee for CANNT 2016, which was held in London, ON. Being part of this process not only provided me with the professional insight into the entire process of developing a national conference, but also provided me with a wonderful teamwork experience, as well as the opportunity to form new friendships.

During these past three years, I have also been pursuing a Master of Nursing degree, with specialization in clinical education through Charles Sturt University (CSU). CSU is a leading provider of distance education in Australia attracting international students. For my Health Masters Project, I proposed a research study to explore the perception of nephrology nurses towards barriers in providing basic foot care assessments in a hemodialysis unit. The results can potentially assist in developing a plan of care for intervention in early prevention of foot ulcers and other foot-related issues in a high-risk hemodialysis population. With successful completion of this course, my Master in Nursing will be completed in 2017.

While not nursing or studying, I enjoy fitting in a game of golf during the summers and weekly curling in the winters.

Franca Tantalo Bursary Award (Graduate Level) Recipient: Stan Marchuk, MN, NP(F), CNeph(C)



Stan is a family nurse practitioner whose work involves the complex care and management of patients and their families with end-stage renal dis-

ease in the area of hemodialysis. Stan obtained a diploma in nursing from Okanagan College in 1994, a bachelor's degree from the University of Victoria in 1997, and a master's degree with family nurse practitioner specialization from the University of Victoria in 2009. Stan has worked in leadership and management roles where he has been responsible for system utilization

and management, and strategic information development. He is adjunct faculty with the University of Victoria School of Nursing. Most recently, Stan has embarked on pursuing a clinical doctorate in nursing at Oregon's Health and Sciences University where he will become a clinical improvement scientist. His interests are in health promotion and informatics, and political action, especially as it relates to the role of nurse practitioners in the Canadian healthcare system. Stan has also served as president of the British Columbia Nurse Practitioners Association where he was instrumental in advocating for improved personal liability protection for nurse practitioners. He has also served as a member of the College of Registered Nurses of British Columbia Nurse Practitioner Standards Committee. Lastly, Stan was involved in co-chairing the CANNT conference held in Vancouver in 2015.

CANNT CERTIFICATION/ RECERTIFICATION IN NEPHROLOGY AWARD RECIPIENTS

(Canadian Nurses Association or cdt from the Ontario Association of Certified Technicians and Technologists):

CANNT Recertification Bursary (Ontario Region): Melanie Wiggins, RN, CNeph(C)



Melanie graduated from nursing school in 1989 and began her career in nephrology in 2002 in hemodialysis. She has been a member

of CANNT since 2005, and obtained her CNA certification in nephrology in 2006. Melanie was most recently a member of the CANNT Board of Directors as the Website Coordinator/ Treasurer from 2013–2016. She is currently working in the home dialysis program in peritoneal dialysis.

CANNT Recertification Bursary (Western Region): Marilyn Muir, BN, RN, CNeph(C)



I graduated from the Health Sciences Centre School of Nursing in Winnipeg, Manitoba in 1991 and completed

the post RN Baccalaureate program from Athabasca University in 2014. I have been a hemodialysis nurse for 22 years, and have worked with the Manitoba Local Renal Health Centre Program for the past eight years. This program manages the 16 satellite units across Manitoba and enables patients to return to their home communities for their dialysis treatments.

I have been a CANNT member for more than 16 years, and have had the pleasure of serving on the CANNT Board of Directors as the Western Vice-President from 2008-2010, CANNT President from 2010–2013, and CANNT liaison from 2005-2014. I wrote my initial CNA certification in 2001, and have recertified three times since. I am very proud of my CNA certification, and I have encouraged many colleagues to write the exam as well. I am an active member of the CNA exam committee, and I truly believe that being a certified nephrology nurse not only shows my commitment to lifelong learning, but has also made me a better nurse.

I would like to express my sincere gratitude to the CANNT Board of Directors for awarding me the CANNT Recertification Bursary for the Western region.

CANNT Research Grant Recipient: Segun Famure, MPH, MEd, CHE



Segun Famure is the manager for new knowledge and innovation in the kidney transplant program, University Health Network,

Toronto, Ontario. He is also the co-director of the Multi-Organ Transplant Student Research Training Program (MOTSRTP) at the same institution. In addition to the advanced degrees he has obtained in both fields of public health and education, he holds a Certified Health Executive (CHE) designation from the Canadian College of Health Services Executives. He is also a past recipient of the Health Services and Policy Research Training Award from the Ontario Training Centre. His research interests lie in areas of health curriculum development, chronic care delivery modelling, health program evaluations, and quality-of-life assessments.

CANNT Excellence in Practice Award (Clinical Practice) Recipient: Paula Mossop, RN, CNeph(C)



Paula is a vascular access nurse with the Nova Scotia Health Authority. She was an integral part of the development and shaping

of the vascular access nurse role since its inception in 2005—a role that has become a critical part of the renal team.

Paula is a coach and mentor to the inter-professional renal team, and she supports patients in self-care management of vascular access. She integrates teaching into her everyday practice and leads by example in the work place. Her expertise in the area of vascular access is enhanced by the comprehensive, patient-first care. She is instrumental in bridging the communication between the patient and the healthcare teams, which provides direction and implements collaborative and time-sensitive clinical decisions related to vascular access.

Paula is actively involved in both quality improvement and interdisciplinary research teams, many of which have been published in peer-reviewed national and international journals. Paula is a recipient of the 2017 Excellence in Nursing Clinical Practice Award from the Nova Scotia College of Registered Nurses.

Outside of the hospital, Paula enjoys staying active and spending time with her friends and family.

CANNT Excellence in Practice Award (Administration/ Leadership) Recipient: Lori Harwood, PhD, RN(EC), CNeph(C)

I feel very honoured to receive the CANNT 2017 Excellence in Practice Award for Administration/ Leadership at the conference in Halifax. It is a very special award knowing that you are nominated by your peers. I am grateful to work at London Health Sciences Centre in a program that values nursing professional practice. London Health Sciences Centre is one of very few nephrology programs to have a professional practice model that explicates our philosophy of patient care and the scope of the various nursing roles (NP, RN & RPN). The support in our program by Janice McCallum (Program Director) and the nephrologists provides an environment to function as leaders to the full scope as a nurse practitioner, emphasizing individual interests and strengths.

CANNT has been a very important part of my career and professional development. I have been fortunate to serve on the Board of Directors as Ontario Vice President, President, and Past President. This was an amazing experience to meet nephrology nurses from across Canada and have a national perspective on nephrology nursing practice. I have also had the opportunity to contribute to the CNeph(C) exam by being an item writer and serving on the exam committee.

I have worked in nephrology my entire career in various settings such as pediatrics, complex chronic care, and acute care as a nurse, clinical nurse specialist and nurse practitioner. I received a PhD in nursing from the University of Alberta in 2015, which enables me to do a small amount of research in my role and translate research into practice.

CANNT Journal Award: "The psychiatry-integrated nurse practitioner role in hemodialysis: An opportunity to provide nurse practitioner care between the interface of psychiatry and hemodialysis" by Brock Cooper, Kien Dang, Ann Jones, and Alison Thomas

Brock Cooper, MN, NP-Adult, GNC(C), CPMHN(C)



Brock Cooper has a broad nursing background across a diversity of healthcare settings and domains of care, with

demonstrated leadership as a preceptor, clinical instructor, and as a nurse practitioner (NP) since 2010. He has presented at the annual CANNT conference in the past and has lectured in academic settings, with a focus on mental health and addictions. His expertise and contributions as the NP on the Medical Psychiatry Consultation Liaison Service at St. Michael's Hospital consistently promoted better outcomes for patients and their loved ones, healthcare teams, and also led to the advancement of program and quality initiatives for the hospital. He was also instrumental in developing mental health content for the NP programs at the Lawrence S. Bloomberg Faculty of Nursing, University of Toronto. He is honoured to receive the 2017 CANNT Journal of the Year Award for his first primary author publication.

Kien Dang, MD, FRCPC

Dr. Dang is an assistant professor in the Department of Psychiatry of the Faculty of Medicine at the University of Toronto, and is on staff in the medical psychiatry services at St. Michael's Hospital in Toronto. (*Photo unavailable*)

Ann Jones, MN, NP-Adult, CNeph(C)



Ann Jones has been a nurse practitioner (NP) in a dynamic hemodialysis program at St. Michael's Hospital for the past 10

years. For more than 25 years, she has worked in nephrology where she transitioned from roles as registered nurse (RN) in peritoneal dialysis and hemodialysis to Home Dialysis Liaison Nurse and clinical nurse specialist. Ann completed her Post Master's NP Diploma Program at the University of Toronto where she holds an Adjunct Lecturer Clinical Appointment in the Lawrence S. Bloomberg Faculty of Nursing.

Ann has co-mentored NP students and NPs with an interest in hemodialysis and facilitated nephrology review sessions in collaboration with the inter-professional team to support RNs interested in writing the Canadian Nurses Association certification exam in nephrology. In 2016, Ann and co-investigators were the recipients of CANNT Research Grant to investigate "Perception of the nurse practitioner role by healthcare professionals in hemodialysis," which was presented at CANNT 2017 in Halifax. Ann is the new co-lead of the Ontario Renal Network Primary Care Engagement Initiative to identify and institute mechanisms for access to outpatient consultation with nephrology.

Alison Thomas, MN, NP-Adult, CNeph(C)



Alison Thomas is a nurse practitioner (NP) in outpatient hemodialysis at St. Michael's Hospital. A nephrology nurse for more than 30

years, Alison has an interest in hemodialysis-related quality initiatives. Alison has served on the Canadian Association of Nephrology Nurses and Technologists (CANNT) Board of Directors, and was formerly co-editor of the *CANNT Journal*. Her research initiatives include the impact of decision support tools in hemodialysis vascular access, the use of checklists in hemodialysis as a vehicle to improve quality and patient safety, and the utility of routine lab work in hemodialysis settings.

SPONSORED BY AMGEN CANADA

Nursing Research Project Grant (Novice Researcher) Recipient: Xiaojin (April) Huang, BScN, RN



I am currently working as a registered nurse at Toronto General Hospital in the inpatient Multi-Organ Transplant unit. I became involved with kidney

transplant research soon after joining the MOT unit, and have enjoyed learning about conducting clinical research. I am also heading into my last year of the Health Systems Leadership and Administration Masters of Nursing program at the University of Toronto. In pursuing a master's degree and continuing with research, I hope to bridge the gap between research-based knowledge and clinical practice.

Allied Health Professionals Grant Recipient: Nicholas Phan, MSc



Nicholas Phan is a recent graduate of the Master of Science in Healthcare Quality program through Queen's University. He has been

working with the Kidney Transplant Program at Toronto General Hospital for the past five years. He hopes to continue conducting research to help improve the quality of care for patients looking for a kidney transplant.

CANNT POSTER AWARDS

First Place: What is Successful Cannulation of the Arteriovenous Fistula? – Reaching Consensus with Patient and Healthcare Provider Perspectives (Barbara Wilson, MScN, RN(EC), CNeph(C) and Lori Harwood PhD, RN(EC), CNeph(C) – London, ON)

Second Place: Using Prospective Risk Assessment to Identify Opportunities for Improvement Within an Electronic Documentation System for Dialysis Patients (Elaina Orlando, MPH, Nicole MacNeil, RN, CNeph(C), Cynthia Bryson, RN, CNeph(C), Martin Ruaux, MHM, RN, and Lezlie Lambert-Burd, BAd Ed, BScN, RN, CNeph(C) – St. Catharines, ON)

Third Place: Dalteparin Replacement Of Unfractionated Heparin (UFH) for Extracorporeal Circuit (ECC) Anticoagulation in an Outpatient Hemodialysis Unit (Lesley Campbell, RN, CNeph(C) – Lindsay, ON)

Phyllis Malek, BHScN, RN, CNeph(C), London, Ontario

On September 17, 2017, we lost a dear colleague, mentor, and friend with the passing of Phyllis Malek. Phyllis was a nephrology nurse for most of her nursing career. She learned hemodialysis in those early years of dialysis in the late 1960s. She shared those early experiences and memories with us in an article in the CANNT Journal to help celebrate CANNT's 40th anniversary: A brief history of dialysis in the Victoria Hospital (Malek, 2008). Phyllis demonstrated her expertise and knowledge in nephrology, and helped to start the first hemodialysis unit at the University Hospital in London, Ontario, in the early 1970s. After working at the bedside in hemodialysis, Phyllis began her career as a nursing education instructor at the London Health Sciences Centre for more than a decade from 1986-1999. In the later years of her career, Phyllis expanded her scope to include pediatric hemodialysis and continued to work in hemodialysis on a casual basis for several years after her retirement.

Phyllis was a volunteer for many organizations, and CANNT was one of her passions. Phyllis was very active in CANNT in her career and served as president in 1988 and past president in 1989. She was an active member, and co-chaired three CANNT National Conferences in London in 1982, 1987, and 1998. Phyllis also shared her nephrology nursing knowledge, and was an Item Writer for the CNeph(*C*) examination in 2001. In her years of nursing education, Phyllis taught many nurses how to care for the complex needs of nephrology patients. She was a role model in nephrology nursing.

As described by her nursing colleagues: "I started in hemodialysis in 1988, and my educator was Phyllis Malek. Her dedication, knowledge, and skill base were exceptional. She always demonstrated a kind, supportive, and patient attitude toward the new nurses. Although new to the renal program, Phyllis approached me to be her secretary for the CANNT conference. With limited knowledge and understanding of the job description, she took me under her wing. 'Don't worry, I will teach and show you the way', Phyllis responded. It was an incredible experience, a wonderful memory, and one that I will cherish forever."

Another colleague recounted: "When I was learning hemodialysis, I kept flooding the room every time! Phyllis responded by wearing rubber boots while teaching me."



"My first experience in dialysis with Phyllis always makes me chuckle. I knew her as the local Ontario Nursing Association president and knew she was a force to be reckoned with... we bonded instantly. She taught me the basics of dialysis and how to decide what was best for the patient. She was an excellent source of knowledge and support. We became very close friends. I truly miss her every day."

"You are not forgotten, loved one Nor will you ever be, As long as life and memory last We will remember thee." (Author unknown)

Lori Harwood Carolyn Ingram Joanne Lawniczak Joan Johnson Barbara Wilson

Malek, P. (2008). A brief history of dialysis in the Victoria Hospital. Canadian Association of Nephrology Nurses and Technologists Journal, 18(3), 12.

NOTICE BOARD

Canadian Nurses Association (CNA) Exam Timeline. https://www.nurseone.ca/certification/renewing-your-certification#sthash.IDBqg5i7.dpuf

SPRING 2018

- January 10-March 1, 2018: Initial exam or renewal by exam application window
- May 1-15, 2018: Exam period

FALL 2018

- June 1-September 10, 2018: Initial exam or renewal by exam application window
- November 1–15, 2018: Exam period
- January 10-November 1, 2018: Application window to renew by continuous learning
- March 3–6, 2018. Annual Dialysis Conference (ADC), World Center Marriott, Orlando, FL. www.annualdialysisconference.org
- March 8, 2018. World Kidney Day—Kidneys & Women's Health: Include, Value, and Empower
- April 15–18, 2018. American Nephrology Nurses' Association (ANNA) National Symposium, Westgate Las Vegas Resort & Casino, Las Vegas, NV. www. annanurse.org

- May 5-8, 2018. 17th Congress of the International Society for Peritoneal Dialysis (ISPD), Vancouver Convention Centre, Vancouver, BC. www.ispdvancouver2018.org
- **May 24–27, 2018.** 55th European Renal Association— European Dialysis and Transplant Associatin (ERA-EDTA) Congress, Bella Center, Copenhagen, Denmark. www.era-edta.org
- **September 15–18, 2018.** 47th Annual European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA) International Conference: Global approach to renal care innovation—Balancing compassion and health technologies, Genova, Italy. www.edtna-erca.com
- **September 19, 2018.** Nephrology Health Care Professionals' Day (celebrated every third Wednesday of September annually)
- October 25–27, 2018. Canadian Association Nephrology Nurses and Technologists (CANNT) 50th National Symposium 2018: Our past will guide our future/Le passé est garant de l'avenir, Ville de Quebec City, QC. www.cannt.ca
- October 23–28, 2018. The American Society of Nephrology (ASN) 2018 Kidney Week, San Diego Convention Center, San Diego, CA. www.asn-online. org



Guidelines for authors

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

Which topics are appropriate for letters to the editor?

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

What types of manuscripts are suitable for publication?

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

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

How should the manuscript be prepared?

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

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

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

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

Text: 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.

How should the manuscript be submitted?

Email your manuscript to: 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.

How are manuscripts selected for the CANNT Journal?

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

Checklist for authors

✓ Cover letter

✓ Article

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

Lignes directrices à l'intention des auteurs

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

Quels sont les sujets d'article appropriés?

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

Quels types de manuscrits conviennent à la publication?

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

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

Comment les manuscrits doivent-ils être présentés?

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

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

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

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

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

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

De quelle manière doit-on soumettre les manuscrits?

Veuillez envoyer par courriel votre manuscrit à :

cannt.journal1@gmail.com

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

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

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

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

Aide-mémoire à l'intention des auteurs

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



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