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Canadian Council of Cardiovascular Nurses

Conseil canadien des infirmières et infirmiers en soins cardiovasculaires

CCCN Spring Nursing Conference

May 25, 2012, Regina, Saskatchewan

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COLUMNS

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Clinical Improvement Grant Program

The purpose of this grant is to provide CCCN members with financial support for knowledge dissemination and knowledge utilization projects pertaining to cardiovascular or cerebrovascular nursing in Canada.

This grant is directed to both nurses in clinical settings who use results from research to improve their practice, and to research nurses wishing to establish linkages with clinical nurses to facilitate the uptake of research evidence and advance clinical practice.

Types of clinical projects to be funded

1. Knowledge Dissemination Project
2. Knowledge Utilization Project

Range of funding

1. $1,000 to a maximum of $5,000
2. A candidate may only receive one CCCN clinical grant for the same project.

Eligibility

1. Canadian citizens or permanent residents
2. Current members of the CCCN
3. Currently licensed as a nurse in a provincial/territorial professional association
4. The project must include both clinical and research nurses

Selection criteria

The CCCN National Research Committee reviews grant applications with attention to the relevance of the project. In the event that projects receive equal rating, then preference will be given to the applicant who 1) has not received funding from CCCN in the past five years, or 2) has contributed the most to CCCN endeavours.

Closing date for applications

- August 31, 2012
- Please visit our website at **www.cccn.ca** for complete details and to apply. ♥

Research Grant Program

The purpose of this grant is to provide funds to CCCN members for research pertaining to cardiovascular or cerebrovascular nursing in Canada. A maximum of $5,000 is available for this competition.

Types of research to be funded

1. Development of a research proposal that will lead to funding from another granting agency
2. Pilot study, a small project, or instrument development and testing
3. Evaluation of a nursing intervention.

Range of funding

1. $1,000 to a maximum of $5,000
2. A candidate may only receive one CCCN research grant for the same project.

Eligibility

1. Canadian citizens or permanent residents
2. Current members of the CCCN
3. Currently licensed as a nurse in a provincial/territorial professional association.

Selection criteria

The CCCN National Research Committee reviews grant applications with attention to both relevance and scientific merit. In the event that projects receive equal scientific rating, preference will be given to the applicant who 1) has not received funding from CCCN in the past five years, or 2) has contributed the most to CCCN endeavours.

Closing date for applications

- August 31, 2012
- Please visit our website at **www.cccn.ca** for complete details and to apply. ♥

Canadian Council of Cardiovascular Nurses Launches New Website: www.cccn.ca

In our ongoing effort to improve members' services and benefits, we have redesigned the CCCN website to provide better and easier access to information. This includes a Communities of Practice (CoP) area available to members only.

We invite you to visit the website today: **www.cccn.ca**

CCCN Dates to Remember

- National Learning Sessions Webinar: Fourth Thursday of every month
- Recognition Awards application deadline: August 31, 2012
- Clinical Improvement & Research Grants application deadline: August 31, 2012
- Canadian Cardiovascular Congress & CCCN Annual General Meeting and Scientific Sessions, Toronto, ON: October 27–31, 2012

CCCN volunteer opportunities

Secretary-Treasurer

The Canadian Council of Cardiovascular Nurses (CCCN) is seeking an individual interested in fulfilling the role of secretary-treasurer on its board of directors. The individual must be a member in good standing, have knowledge and experience in budget preparation and management. Experience as chair of a committee would also be an asset. Visit **www.cccn.ca** for more details on the role of the secretary-treasurer.

Join a committee

Do you want to get more involved with CCCN and participate in its governance? Why not join a local or national committee? This is a great way to learn about the council and a great stepping stone for serving on the board of directors.

The benefits also include hours toward your certification and continuing competency. These activities and positions held can also be included on your CV. For more information and to join a committee please contact Jackie Murray, Membership Director, at **jackie.murray@fraserhealth.ca**, or your provincial director.

Standards review

We are looking for volunteers to work on revising the CCCN Standards. If you are interested, please contact Rody Pike at **Rodolfo.Pike@easternhealth.ca**.

Writers needed

Have you thought about publishing something during your career? Why not try by starting small in a non-threatening way. We need cardiovascular nurses to write the "Did You Know....?" column in each issue of the CJCN. This column is intended to be a brief snapshot of new research findings and how they may relate to clinical practice. The length can be just a paragraph. This is not a peer-reviewed column. If you are interested, please contact Paula Price at **pprice@mtroyal.ca**.

CCCN Membership Year Reminder

Please note your CCCN 2012 membership runs from January–December 2012. Watch our e-news, journal and website for membership renewal reminders later this fall.

Thanks to our translators for this issue

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Université du Québec à Trois-Rivières
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Québec City, Québec

Thank you to:

Janine Doucet, BSN, MN
Administrative Director, NB Heart Centre
Horizon Health Network
for reviewing the clinical column.

Notice: CCCN Annual General Meeting

Date: Sunday October 28, 2012
Time: 16:30–18:30
Location: Metro Toronto Convention Centre,
Toronto, ON

Avis : Assemblée généralle annuelle du CCIISC

Date : Le dimanche 28 octobre 2012
Heure : 16h30–18h30
Lieu : Metro Toronto Convention Centre, Toronto, ON

Recognition Awards

Do you know a nurse who deserves recognition for her/his accomplishments in and contribution to the field of cardiovascular nursing? A nurse who demonstrates excellence in her/his practice?

CCCN is inviting applications for the CCCN Recognition Awards. Awards will be presented at the CCCN Annual General Meeting & Scientific Sessions, October 27–31, 2012, Toronto, ON. Deadline for application is August 31, 2012. For nomination guidelines and additional information visit our website at **www.cccn.ca**

Please consider nominating a nurse you feel exemplifies the best in cardiovascular nursing.

CCCN Spring Nursing Conference

May 25, 2012, Regina, Saskatchewan

The 2012 Spring CCCN conference "Update Your Cardiovascular Nursing Toolkit" was held on May 25, 2012, at the Ramada Hotel and Conference Centre in Regina. The conference brought together 115 nurses, CCCN national board members and sponsoring partners from across Canada who practise in acute care, community, or public health in urban, rural and remote settings.

Sessions included cardiovascular nursing experts speaking on an array of clinically focused and practically based topics. Participants left better equipped to address the needs of cardiovascular patients and their families. Presenter notes and session take-aways will be posted to our website **www.cccn.ca** shortly.

Thank you and congratulations to the regional organizing committee for hosting a very successful conference and for doubling the division membership. Welcome to all our new members.

Provincial Director: Sandy Shantz
Education: Teresa Vall
Secretary: Shelley Gerbrandt
Treasurer: Wendy Kinney
Research: Kelly Johnson
Health Promotion: Karen Parker

We would like to extend a big thank you to all of our presenters for leading these valuable sessions and discussions:

Jocelyn Reimer-Kent
Sandy Shantz
Rody Pike
Dorothy Morris
Teresa Vall
Lucia Parson
Sandra Lauck
Dr. O. Sultan
Sandi Summach
Sue Morris
Dr. Beth Abramson
Jamie Appel
Taryn Blyth

Call for Resolutions for the 2012 CCCN Annual General Meeting

Resolutions are invited for discussion at the 2012 annual general meeting of CCCN. Members wishing to propose a resolution must have it typed and signed by at least two other members. If the president and the secretary agree that the resolution is appropriate, it shall be included with the names of the mover and seconders in the agenda for the meeting. At the annual meeting, a member proposing a resolution or the proposer's appointed representative will be asked to clarify the background to the resolution, if necessary, and to formally move acceptance of the same.

Please submit resolutions to **info@cccn.ca** by **September 28, 2012.**

Format for submitting resolutions

The resolution has two parts; first the "preamble" and then the "resolved". Please provide the name and address of each of the individuals participating in the submission of the resolution. The following example is provided for your guidance

Preamble— "WHEREAS" *smoking is a known risk factor related to the development and progression of cardiovascular disease;*

BE IT RESOLVED—*that no smoking be permitted in any business meeting or scientific symposia hosted by the Council.*

Submitted by:

Mover: Name:_____ Address: _____

Seconder:_____ Seconder: _____

Address:_____ Address: _____

Date: September 28, 2012

Appel de résolutions pour l'assemblée générale annuelle du CCIISC de 2012

Nous vous invitons à nous faire parvenir vos résolution pour qu'elles puissent être discutées à l'occasion de l'assemblée générale annuelle du CCIIS de 2012. Les membres qui veulent présenter une résolution doivent la faire signer par au moins deux personnes. À l'assemblée générale annuelle, les membres proposant une résolution ou leur représentant(e) seront priés de donner le contexte de la résolution et, au besoin, de présenter une motion en à bonne et due forme pour son acceptation. La présidente et la secrétaire se réservent le droit de décider du bien-fondé des résolutions proposées, compte tenu des statuts du Conseil et de tout autre élément qui risque de compromettre la validité de la résolution.

Veuillez soumettre vos résolutions au **info@cccn.ca** avant le **28 septembre 2012.**

Format de présentation des resolutions

La résolution comporte deux parties, d'abord le "Préambule", puis la partie qui commence par "Il est résolu que". Veuillez fournir le nom et l'adresse de chaque personne participant à la soumission de la résolution. Voici un exemple dont vous pourrez vous inspirer :

Préambule—*Attendu que l'on sait que l'usage de la cigarette est un facteur de risque lié à l'apparition et à la progression des maladies cardio-vasculaires,*

IL EST RÉSOLU QUE—*L'usage de la cigarette sera interdit à l'occasion des réunions d'affaires et des colloques scientifiques du Conseil.*

Soumis par :

Motionnaire : Nom : _____ Adresse : _____

Co-motionnaire : _____ Co-motionnaire : _____

Adresse : _____ Adresse : _____

Date : le 28 septembre, 2012

Améliorer la santé cardiovasculaire par l'activité physique : Prendre la bonne mesure

Julie Houle, inf., Ph.D., Professeure, Département des sciences infirmières Université du Québec à Trois-Rivières, et François Trudeau, Ph.D., Professeur, Département des sciences de l'activité physique, Université du Québec à Trois-Rivières

Résumé

Les taux d'observance envers l'activité physique sont faibles chez les personnes atteintes d'une maladie cardiaque. Afin d'influencer positivement ce comportement, il est suggéré d'adapter les recommandations à chaque patient. Pour se faire, en plus d'évaluer les besoins, les valeurs et les préférences de la personne, les professionnels doivent mesurer l'activité physique. Cette mesure permet également de suivre l'évolution du comportement suite aux interventions. Des méthodes dites subjectives (questionnaires, journal de bord) et objectives (podomètre, accéléromètre, moniteur de fréquence cardiaque) peuvent être utilisées. Il existe des avantages et des inconvénients à chacune de ces méthodes. Cette rubrique clinique permet de faire le point sur ces différentes méthodes afin de choisir celle qui est la plus appropriée au contexte clinique.

Auteur de correspondance : *Julie Houle, inf., Ph.D., Département des sciences infirmières, Pavillon de la santé, local 4802, Université du Québec à Trois-Rivières, 3351 boulevard des Forges; CP 500, Trois-Rivières, QC G9A 5H7. 819-376-5011 poste 3474; 819-376-5048;* ***julie.houle@uqtr.ca***

Houle, J., & Trudeau, F. (2012). Améliorer la santé cardiovasculaire par l'activité physique : Prendre la bonne mesure. *Canadian Journal of Cardiovascular Nursing*, *22*(2), 7–11.

Improve cardiovascular health by physical activity: Take the good measure

Adherence to physical activity is low among persons with cardiac disease. To influence this behaviour positively, it is suggested clinicians adapt the recommendations to each patient. Besides estimating needs and the values and the preferences of the person, professionals need to measure the physical activity. This measure also allows clinicians to follow the evolution of the behaviour further to the interventions. Subjective methods (questionnaire, logbook) and objective methods (pedometer, accelerometer, and heart rate monitor) can be used. There are advantages and inconveniences to each of these methods. This clinical column provides a review of these various methods to choose the one that is the most suited to the clinical context.

Il est bien établi que la sédentarité est un facteur de risque indépendant des cardiopathies ischémiques (Warburton, Nicol, & Bredin, 2006; Yusuf et al., 2004). À l'inverse, la pratique régulière de l'activité physique (AP) améliore le profil de risque et a un impact positif sur la santé cardiovasculaire (Thompson et al., 2003). En effet, ce comportement permet d'améliorer le bilan lipidique, particulièrement en ce qui a trait aux lipoprotéines de haute densité (HDL-C) et aux triglycérides (TG) (Halbert, Silagy, Finucane, Withers, & Hamdorf, 1999; Thompson et al., 2003), réduit la pression artérielle systolique et diastolique (Hackam et al., 2010; Whelton, Chin, Xin, & He, 2002) et contribue à diminuer le tour de taille (Ross & Despres, 2009). De plus, la littérature démontre une amélioration du contrôle glycémique chez les sujets diabétiques de type 2 pratiquant régulièrement des exercices de type aérobie ou de résistance (Snowling & Hopkins, 2006). Enfin, il existe plusieurs évidences que la pratique de l'AP réduit de façon significative le taux de mortalité après un infarctus aigu du myocarde (Thompson et al., 2003).

Pourtant, les expériences cliniques et la littérature font état de faibles taux d'observance envers la pratique régulière de l'activité physique suite à un événement cardiaque et ce, malgré les avantages démontrés. Afin de favoriser un comportement plus actif, il est suggéré d'adapter les recommandations aux besoins, aux valeurs et aux préférences de chaque personne. Une étude récente suggère qu'une intervention personnalisée en réadaptation cardiaque par une infirmière clinicienne spécialisée améliore l'observance à l'activité physique et contribue à réduire le tour de taille durant la première année après un syndrome coronarien aigu (Houle et al., 2011). Cette intervention personnalisée passe, entre autres, par une bonne évaluation des habitudes d'activité physique. Il devient impératif que l'infirmière œuvrant en cardiologie se familiarise avec les différentes façons de bien mesurer l'AP. Cette mesure peut être faite par l'infirmière elle-même ou par un autre membre de l'équipe de soins tel qu'un spécialiste de l'exercice ou un kinésiologue selon le degré de complexité de la mesure requise. L'objectif visé par cette rubrique clinique est de faire le point sur les diverses méthodes reconnues afin de mesurer ce comportement. L'infirmière en soins cardiovasculaires aura ensuite à faire le choix de la méthode la plus appropriée en regard du contexte clinique. Elle pourra aussi choisir de faire appel à un spécialiste de l'exercice si l'évaluation requise demande une expertise particulière.

Définitions

La mesure de l'AP est essentielle pour l'évaluation et le suivi de la condition de santé d'une personne et pour mesurer l'efficacité de programmes d'intervention visant à améliorer ce comportement (Warren et al., 2010). Avant d'aborder les méthodes d'évaluation de l'AP, il est nécessaire de bien saisir la définition de ce terme. En effet, il faut différencier l'AP, de l'exercice et de l'entraînement puisqu'il s'agit de termes ayant certaines distinctions (Caspersen, Powell, & Christenson, 1985) et l'instrument de mesure choisi doit être compatible avec le terme utilisé. L'AP est définie comme étant tout mouvement corporel produit par la contraction des muscles squelettiques et résultant en une dépense énergétique. Ce comportement inclut les activités de la vie quotidienne et domestique ainsi que les activités de loisir. L'exercice est une sous-catégorie de l'AP et se rapporte à un comportement qui est planifié, structuré et répétitif. Enfin, l'entraînement fait référence à l'acquisition de certaines performances ou habiletés (Caspersen et al., 1985).

Méthodes de mesure de l'activité physique

Les méthodes sont répartie en deux grandes catégories soit les méthodes subjectives et les méthodes objectives. Les méthodes *subjectives* pour mesurer l'AP et l'exercice comprennent l'utilisation d'un questionnaire validé ou d'un journal de bord; tandis que les méthodes *objectives* comprennent les moniteurs d'activité (podomètre et accéléromètre) ainsi que les moniteurs de fréquence cardiaque. Il existe également d'autres méthodes plus fiables pour mesurer la dépense énergétique telles que l'observation directe et la calorimétrie indirecte, à titre d'exemples. Cependant, ces méthodes sont peu utilisées puisqu'elles possèdent plusieurs inconvénients (exemples: le coût élevé, la nécessité d'avoir accès à un laboratoire et du personnel spécialisé, le niveau de difficulté pour les patients, le temps requis, etc.). Ces inconvénients limitent l'utilisation de ces méthodes à un petit groupe d'individus. Elles sont utiles toutefois pour la recherche (Vanhees et al., 2005).

Questionnaires d'activité physique et journal de bord

La méthode la plus répandue pour mesurer l'AP est l'utilisation d'un questionnaire ou d'un journal de bord. L'instrument peut être rempli par le répondant lui-même (questionnaire auto-administré) ou par un professionnel lors d'une rencontre ou d'une conversation téléphonique (Warren et al., 2010). Il peut également être administré sous forme électronique, ce qui peut faciliter l'analyse d'un grand nombre de données recueillies pour des fins de recherche ou pour les intervenants en santé publique (Reiser & Schlenk, 2009; Warren et al., 2010). De plus, ces outils peuvent être utilisés afin de favoriser l'échange d'informations entre le clinicien et la personne pour élaborer un plan d'action thérapeutique (Reiser & Schlenk, 2009).

Les questionnaires sont particulièrement pertinents dans un contexte épidémiologique (Pols, Peeters, Kemper, & Grobbee, 1998). En effet, il s'agit d'une méthode facile à administrer et peu coûteuse (Pols et al., 1998; Warren et al., 2010). Par contre, les questionnaires possèdent certaines limites liées notamment à leur caractère subjectif. En effet, il est difficile de mesurer avec précision la fréquence, la durée et l'intensité de l'AP rapportée. De plus, il y a le biais de désirabilité sociale qu'il faut considérer, particulièrement si le questionnaire est rempli en collaboration avec un professionnel via des rencontres ou appels téléphoniques. Enfin, cette méthode demande d'avoir recours à des capacités cognitives (mémoire), qui parfois peuvent être altérées et peuvent influencer le résultat (Sallis & Saelens, 2000). En dépit d'une utilisation exhaustive depuis plus de 40 ans, les questionnaires d'AP démontrent toujours des limites en terme de fiabilité et de validité (Shephard, 2003), particulièrement pour l'évaluation d'une intensité moyenne d'AP. Cependant, plusieurs efforts sont mis de l'avant afin de développer des questionnaires ayant de bonnes qualités psychométriques et permettant une surveillance à grande échelle de l'AP dans une population donnée. C'est le cas notamment des questionnaires intitulés *International Physical Activity Questionnaire* (IPAQ) (Craig et al., 2003) et le *Global Physical Activity Questionnaire* (GPAQ) (Bull, Maslin, & Armstrong, 2009; Trinh, Nguyen, van der Ploeg, Dibley, & Bauman, 2009), ce dernier ayant été développé en partenariat avec l'Organisation mondiale de la Santé. D'autres questionnaires simples et rapides à utiliser sont également reconnus et utilisés auprès de populations ainées ou atteintes d'une maladie chronique (Gionet & Godin, 1989; Godin, Jobin, & Bouillon, 1986; Mayer, Steinman, Williams, Topolski, & LoGerfo, 2008; Topolski et al., 2006). Le Tableau 1 suggère différents questionnaires validés

Tableau 1 : Questionnaires d'activité physique

Nom	Validation : références	Questionnaires : liens web
International Physical Activity Questionnaire (IPAQ)	Craig, C.L. et al. (2003)	https://sites.google.com/site/theipaq/questionnaires
Global Physical Activity Questionnaire (GPAQ)	Bull, F.C. et al. (2009) Trinh, O.T. et al. (2009)	http://www.sdprc.net/lhn-tools/gpaq-english.pdf http://www.who.int/chp/steps/GPAQ_Analysis_Guide_FR.pdf
Rapid Assessment of Physical Activity (RAPA)	Mayer, C. et al. (2008) Topolski, T.D. et al. (2006)	http://depts.washington.edu/hprc/rapa
Godin Leisure-Time Exercise Questionnaire	Godin, G. et al. (1986) Gionet, N.J. et al. (1989)	http://www.godin.fsi.ulaval.ca/Fichiers/Quest/Godin_Leisure_fr.pdf

et présente les références expliquant leur validation. La majorité des questionnaires sont disponibles sur le web pour en faciliter l'accessibilité.

Le choix du questionnaire doit tenir compte de plusieurs facteurs (Pols et al., 1998). Premièrement, il doit tenir compte du résultat escompté par l'étude ou le programme évalué. Par exemple, si l'étude ou le programme vise l'amélioration de la capacité fonctionnelle, le questionnaire doit inclure des données en lien avec l'intensité et le type d'AP pratiquée. D'un autre côté, si le programme vise la réduction de l'ostéoporose, le questionnaire doit tenir compte de certains types d'AP qui ont démontré un effet bénéfique sur cette maladie (Pols et al., 1998). Deuxièmement, le choix du questionnaire doit considérer la population étudiée puisque certaines caractéristiques sociodémographiques peuvent influencer les réponses ou la capacité des personnes à répondre aux questions. Parmi les caractéristiques qu'il faut considérer il y a l'âge, le genre, le niveau d'éducation ainsi que la culture et la langue de la population ciblée (Pols et al., 1998; Sallis & Saelens, 2000). Enfin, le questionnaire doit être compatible avec la définition de la variable étudiée ou observée (Pols et al., 1998).

Le journal de bord, quant à lui, permet de colliger sur une base quotidienne des informations relatives à différents aspects du comportement (exemples: type d'activité, durée, intensité, fréquence, moment, etc.). Cette méthode permet donc de décrire le profil comportemental lié à l'AP à un moment précis. Il a été démontré que le journal de bord constitue une méthode fiable pour recueillir des données relatives à l'AP s'il est rempli par le participant durant 3 jours (incluant une journée de fin de semaine) (Bouchard et al., 1983). Cependant, cette méthode requiert un investissement considérable de temps pour l'analyse des données, ce qui en fait une méthode peu pratique s'il s'adresse à une grande population.

Podomètres

Parmi les méthodes *objectives* pour mesurer l'AP, le podomètre est un instrument qui est de plus en plus populaire (Bravata et al., 2007). Il s'agit d'un dispositif porté à la taille qui détecte les mouvements d'accélérations verticales du corps. Pour chaque accélération verticale qui atteint un certain seuil, le podomètre enregistre un pas. Il permet donc de quantifier le nombre de pas que la personne fait lorsqu'elle le porte (Welk et al., 2000). Les études ont démontré la validité de cet instrument en regard de la mesure du nombre de pas quotidiens (Tudor-Locke, Williams, Reis, & Pluto, 2002, 2004). Toutefois, il faut considérer que la validité de l'instrument peut varier selon le modèle de podomètre utilisé et selon certaines caractéristiques relatives aux personnes qui le portent (Bassett et al., 1996; Crouter, Schneider, Karabulut, & Bassett, 2003; Schneider, Crouter, & Bassett, 2004; Schneider, Crouter, Lukajic, & Bassett, 2003). Les modèles de podomètre ayant démontré les meilleurs résultats en termes de validité sont présentés au Tableau 2.

Tableau 2 : Modèles de podomètre ayant démontré les meilleurs résultats en terme de validité

Modèles	Sites web
Kenz Lifecorder	http://suzuken-kenz.com/products_activitymonitors.php
New Lifestyles NL-2000	http://www.new-lifestyles.com/
Yamax Digi-Walker SW-701	
Yamax DigiWalker SW-200	
(d'après Bassett, Jr. et al., 1996; Crouter& al., 2003; Schneider., et al., 2003; Schneider et al., 2004)	

Les caractéristiques relatives aux personnes qui peuvent affecter la validité sont notamment la démarche et la présence d'obésité. En effet, des pas lents et peu vigoureux peuvent ne pas être bien détectés par le podomètre et ainsi engendrer une sous-estimation de l'AP. De plus, chez les personnes obèses, le podomètre peut être moins sensible s'il y a inclinaison de la ceinture sur laquelle il est positionné. Pour pallier à ce problème, il faut privilégier les modèles ayant un mécanisme piézo-électrique (exemple : modèle New Lifestyles NL-2000) plutôt que ceux ayant un mécanisme à ressort (Crouter, Schneider, & Bassett, 2005). Bien que certains auteurs aient suggéré une relation entre le nombre de pas quotidiens et les kilocalories dépensées (Ayabe et al., 2008), l'utilisation du podomètre ne constitue pas une méthode exacte pour estimer la dépense énergétique (Welk et al., 2000). À cet effet, Welk et collaborateurs ont démontré une corrélation moyenne entre le nombre de pas quotidiens et l'estimation de la dépense énergétique obtenue à l'aide d'un journal d'AP remplis durant 7 jours par les participants. Cette recherche suggère également que la relation entre le nombre de pas et la dépense énergétique lors d'activités d'intensité moyenne est plus importante que la relation entre le nombre de pas et la dépense énergétique obtenue lors d'activités à intensité élevée (Welk et al., 2000). Bref, le podomètre est particulièrement intéressant pour mesurer l'AP globale puisqu'il est facile d'utilisation et il est peu coûteux. Il faut retenir que sa validité a été démontrée quant à la mesure du nombre de pas quotidiens (Tudor-Locke et al., 2002, 2004). L'utilisation du podomètre est pertinente pour observer l'évolution du comportement, particulièrement chez les personnes pratiquant des activités à faible ou moyenne intensité. Cet instrument est efficace non seulement en terme d'évaluation de l'AP, mais également en terme d'intervention pour rehausser le niveau d'AP après un événement cardiaque (Houle et al., 2011, 2012). Par contre, il ne constitue pas un instrument de choix pour quantifier de façon précise la dépense énergétique d'un individu. De plus, il a ses limites pour mesurer l'exercice puisqu'il ne permet pas d'obtenir des informations détaillées sur l'intensité, la durée et la fréquence des séances d'exercices à l'instar des accéléromètres ou des moniteurs de fréquence cardiaque. Enfin, il s'avère inefficace pour mesurer les périodes d'activités physiques avec peu d'impacts

verticaux (natation, ski de fond ou vélo), ce qui peut nécessiter l'utilisation d'un questionnaire ou d'un journal de bord en complémentarité avec le podomètre.

Accéléromètres

Les accéléromètres sont des dispositifs similaires aux podomètres pouvant être portés à la taille ou sur un membre. Ils sont conçus pour détecter les mouvements d'accélération et de décélération du corps. Les résultats sont exprimés en unités de mouvements par unité de temps (exemple : coups/minutes). L'accéléromètre permet d'obtenir des données en regard du temps, de la fréquence et de la durée des activités pratiquées à différentes intensités. Il s'agit d'un instrument valide pour évaluer le profil d'AP ou d'exercice. Cependant, tout comme les podomètres, ils ne permettent pas d'estimer de façon précise la dépense énergétique quotidienne (Plasqui & Westerterp, 2007). De plus, ils ne considèrent pas les activités sans accélération (exemple : port de charge, vélo, rame, etc.) car l'énergie dépensée par ces types d'activités n'est pas reflétée par l'accélération et la décélération de la masse corporelle (Oppert, 2006). L'utilisation des accéléromètres pour évaluer l'AP est plus limitée que l'utilisation des podomètres puisqu'ils sont généralement plus coûteux et l'interprétation des données requiert plus de temps et une plus grande expertise (Oppert, 2006). Par contre, ces dispositifs procurent des informations plus détaillées quant aux différents aspects d'un programme d'exercice (durée, fréquence, intensité).

Moniteurs de fréquence cardiaque

L'utilisation des moniteurs de fréquence cardiaque (FC) constitue une méthode *objective* permettant d'évaluer l'AP, l'exercice et l'entraînement. À un certain seuil d'activité, la FC est corrélée avec la consommation d'oxygène (VO_2) et la dépense énergétique (Freedson & Miller, 2000). Ces moniteurs permettent de déterminer un profil d'activité puisqu'ils enregistrent la FC moyenne, le pourcentage du temps passé au-dessus de la FC de repos ou d'un autre seuil de FC donné. À l'instar des accéléromètres, les moniteurs de FC rendent disponibles des données en lien avec la fréquence, l'intensité et la durée de l'AP quotidienne ou hebdomadaire (Bassett et al., 1996; Strath et al., 2000). De plus, ils permettent d'estimer la dépense énergétique puisqu'il existe une bonne relation entre cette dernière variable et l'estimation de la FC (Strath et al., 2000). Cette méthode nécessite au préalable d'avoir établi en laboratoire, avec un test progressif et des mesures directes de consommation d'oxygène, une droite de régression VO_2-FC pour pouvoir interpoler par la suite les valeurs de FC mesurées chez le patient. Les moniteurs de FC possèdent des limites pour évaluer la quantité d'AP pratiquée à faible intensité. En effet, la FC peut être modulé non seulement par l'AP mais également par certaines réactions émotives (stress). Les émotions constituent donc un facteur confondant, particulièrement lors d'activités physiques de faible intensité. De plus, la FC est un paramètre qui peut être influencé par certains médicaments qui sont prescrits pour les personnes souffrant d'hypertension artérielle ou de maladie coronarienne tels que les β-bloqueurs ou les bloqueurs des canaux calciques. Enfin, cette méthode n'est pas recommandée pour mesurer l'AP chez les personnes sédentaires ou obèses (Oppert, 2006).

Conclusion

L'activité physique fait partie d'un régime de vie sain pour une meilleure santé cardiovasculaire. Une mesure appropriée de l'activité physique fait partie d'une évaluation globale afin d'estimer le risque cardiovasculaire. De plus, cette mesure est utile pour planifier des interventions appropriées dans le but de rehausser l'observance envers ce comportement. Il s'agit d'une pierre angulaire pour une meilleure prise en charge des facteurs de risque de la maladie cardiovasculaire. En effet, la sédentarité est reconnue comme étant un des déterminants de la dyslipidémie, de l'hypertension artérielle, du diabète de type 2 et de l'obésité. De plus, après un événement cardiaque, la participation active à un programme de réadaptation cardiaque permet de diminuer la morbidité et la mortalité. Or, afin de planifier le programme en considérant les besoins, les valeurs et les préférences des individus, il est primordial de faire une évaluation complète incluant les habitudes d'activité physique. Cette évaluation peut être faite en partenariat avec d'autres professionnels de la santé tels que des spécialistes de l'exercice ou kinésiologues, particulièrement si les besoins du patient en matière d'AP sont plus complexes. Il y a différentes façons de mesurer l'activité physique. Il est important de choisir la stratégie qui convient le mieux à la personne et au contexte clinique afin de favoriser la meilleure observance possible en regard de ce comportement. En rehaussant ses connaissances en matière de mesure de l'activité physique, l'infirmière peut collaborer plus facilement avec d'autres professionnels et promouvoir une meilleure santé cardiovasculaire. ♥

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Developing Nursing Expertise in Caring for Older Advanced Stage Heart Failure Patients and their Families—Palliative and End-of-Life Care

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Abstract

Patients living with chronic heart failure (CHF) often have poor quality of life and similar symptoms as patients with cancer. Despite this, these patients receive less specialist palliative care. Some of the major barriers in providing high-quality care for end stage CHF patients are the conflicting conceptualization of palliative care among health care professionals as a system of care delivery at the terminal phase of the illness versus philosophy of care introduced early in conjunction with life-prolonging treatments, the unpredictable nature of the illness trajectory, lack of knowledge among acute care nurses about palliative care and lack of communication with patients and their families. The aim of this article is to identify evidence-based strategies and frameworks that would aid nurses and other health care professionals in the integration of palliative care into the care path of CHF patients.

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Développer l'expertise de l'infirmière prodiguant des soins aux personnes atteintes d'insuffisance cardiaque en phase terminale—Soins palliatifs et de fin de vie

Les personnes atteintes d'insuffisance cardiaque (IC) chronique ont des conditions de vie difficiles comportant des symptômes similaires à ceux des patients atteints de cancer. Malgré cette situation, les patients insuffisants cardiaques reçoivent peu de soins palliatifs spécifiques à leurs conditions lorsqu'ils sont en phase terminale. Quelques barrières limitant leur accès à des soins palliatifs de qualité ont été identifiées: une conceptualisation paradoxale des soins palliatifs par les professionnels de la santé percevant les soins palliatifs comme étant des soins spécifiques à la phase terminale de la maladie versus leur association aux soins pouvant prolonger la vie initiés dès l'annonce du diagnostic, la nature imprévisible de la trajectoire qu'empruntera la maladie, un manque de connaissance en soins palliatifs de la part des infirmières habituées de donner des soins en phase aiguë et un manque de communication avec les patients et leurs familles. L'objectif de cet article est d'identifier des stratégies basées sur des résultats probants ainsi que des cadres de référence qui faciliteront l'intégration des soins palliatifs par les infirmières et autres professionnels de la santé dans le continuum des soins offerts aux patients atteints d'IC en phase terminale.

Chronic illnesses are the modern epidemic and major cause of disability and death. In Canada, there are more than 400,000 people living with chronic heart failure (CHF), and each year 50,000 new cases are diagnosed. The rate of mortality varies between 5% and 50% annually, and 40% to 50% of patients die within five years after their initial diagnosis (Heart and Stroke Foundation of Ontario, 2010). Heart failure (HF) is more prevalent in the geriatric population, affecting 10% of the elderly (McMurray & Pfeffer, 2005). Although the trajectory of HF is progressively declining with the development of new technologies such as the implantable cardioverter defibrillator (ICD), left ventricular assist device (LVAD), cardiac resynchronization therapy (CRT) devices and with the improvement of medical therapies, patients suffering from heart failure live longer (Stuart, 2007).

Similarly to cancer, chronic diseases progress into a terminal stage. Therefore, introduction of palliative care for patients with chronic, non-malignant illnesses is as crucial as it is for cancer patients. In fact, patients with chronic illnesses have a more prolonged illness trajectory that often lasts for decades, during which they slowly lose their functional abilities and are left without physical and psychosocial support when dying (Fitzsimons et al., 2007). Patients living with CHF often have poor quality of life and similar symptoms as patients with cancer (O'Leary, Murphy, & O'Loughlin, 2009). Despite this, these patients receive less specialist palliative care (Jaarsma et al., 2009). The goal of this article is to enhance nursing knowledge regarding the specific issues and needs that surround palliative care in CHF, and to identify evidence-based tools, strategies and clinical frameworks that would aid nurses and other health care professionals in the integration of palliative care into the disease management path of CHF patients.

Palliative care plays a significant role in improvement of symptoms, patient function, and quality of life. However, it is often associated with dying and withdrawal of care. The World

Health Organization (WHO) (2002) defines palliative care as an array of interventions that aim to preserve or improve life quality of patients and families who face life-threatening illnesses at physiological, psychosocial and spiritual levels from the diagnosis to the end of life and bereavement. Besides the well-known aspect of symptom and pain management, palliative care regards dying as a natural process, provides support for patients to live as actively as possible, offers family support with coping, enhances quality of life and may even positively influence the course of illness. The WHO (2002) urges health professionals to introduce palliative care early in conjunction with other life-prolonging treatments and interventions.

Integrating palliative care services into disease management of older heart failure patients enhances evaluation and treatment on physical, psychosocial and spiritual levels. It has been demonstrated that palliative care enhances patient care, increases patient satisfaction, facilitates understanding of the diagnosis and prognosis, improves symptom control and decreases health care costs (Rodriguez, Barnato & Arnold, 2007). Hospital-based palliative care teams are shown to improve quality of life and symptoms of heart failure patients, and are associated with decreased length of hospital stay (Bekelman, Hutt, Masoudi, Kutner, & Rumsfeld, 2008). Those patients who had discussions about end of life during their hospital stay had fewer invasive procedures and reported higher quality of life in the last week of their life (Widera & Pantilat, 2009).

The need to integrate palliative care into the management of CHF patients has been recognized in the past. However, there is only limited research available. In Canada in 2010, the Heart and Stroke Foundation of Ontario (HSFO) suggested a systematic approach to long-term planning for heart failure patients. There are seven major recommendations of the HSFO's task group—two of these recommendations are relevant to nursing practice. The task group recommends education and activation of care providers to address end-of-life planning and care issues with their CHF patients at appropriate points in their care process. This includes provision of educational opportunities and resources such as care paths, prognostication and symptom management tools that will aid health professionals managing and supporting their patients with CHF. In addition, the task group recommends patient and family education about the specific issues that they need to consider, as their illness progresses. Health professionals need to educate patients and families including planning to live with CHF, the stages and processes of the disease, and end-of-life care.

Needs and Experiences of HF Patients Facing End of Life

Top priority needs at end of life from the perspectives of patients, bereaved family members and health care providers are linked to (1) symptom control and personal needs such as being kept clean and having physical touch; (2) preparation for the end of life such as having financial affairs in order, being prepared to die, knowing what to expect; (3) the sense of completion, being able to say good-bye; (4) decision making regarding treatment preferences; (5) being treated in a holistic fashion by preserving dignity, listening, maintaining sense of humour, having family around; and (6) relationship with care providers—having a trusting, caring, comfortable relationship with physicians and nurses (Steinhausser et al., 2000). The lived experiences of heart failure patients facing end-of-life issues are related to the challenges of the illness on their everyday lives and to the process of coping with these challenges. CHF is highly disruptive to patients' lives. They describe CHF as limiting them in participating in family life and activities, and in engaging in traditional roles such as caretaker of other family members or being a grandparent. Symptoms of CHF such as shortness of breath, fatigue, loss of strength, issues with balance and weight control, depression and anxiety challenge CHF patients in dealing with everyday life. They feel uncertain and describe their symptoms as fluctuating, making it impossible for them to plan (Hopp, Thornton, & Martin, 2010).

Issues/Barriers

There are four main issues that seem to impede provision of high-quality care for older, advanced stage CHF patients, as they transition to palliative care. First, there is a conflicting conceptualization of palliative care within the health care field as a system of care delivery by specialists at the terminal phase of the disease versus philosophy of care, introduced at an early stage of a life-limiting disease. Researchers suggest that health care providers perceive palliative care as an intervention needed at the terminal phase of CHF and associate it with terminal diagnosis. As a result, there is reluctance in an early introduction or discussion of palliative care with this patient population (Hupcey, Penrod, & Fogg, 2009). Health care professionals associate palliative care with "type of care that focuses on terminal pain … on facilitating decisions to stop life-sustaining treatments. … reserved for patients with terminal cancer … care for actively dying" (Rodriguez et al., 2007, p. 103). Traditional medical models view active treatment and comfort measures as mutually exclusive rather than integrative, as the illness progresses (Adler, Goldfinger, Kalman, Park, & Meier, 2009). However, as the WHO (2002) proposes, instead of care for the dying, palliative care needs to be perceived holistically and target life quality of patients and families suffering from progressive, life-limiting illnesses.

Another significant issue is the unpredictable nature of the illness trajectory of CHF. Heart failure is characterized by recurrent acute exacerbations and has a complicated illness trajectory. Patients often experience dramatic recoveries due to the availability of modern therapies that quickly improve highly visible and distressing symptoms like shortness of breath. Sudden death has a high prevalence in this patient population making it very difficult to anticipate the

terminal phase of the illness. In the elderly, multiple comorbidities further complicate prognostication (Jaarsma et al., 2009). However, in the era of ICDs, the incidence of sudden death declines among heart failure patients (Stuart, 2007). This raises another significant topic for palliative care—the issue of ICD deactivation. In a retrospective study, Goldstein, Lampert, Bradley, Lynn and Krumholz (2004) investigated the management of ICDs in end-of-life care and found that only in 27% of patients with an ICD at the terminal stage of HF clinicians did carry out discussions about the deactivation of the device. Eight per cent of the studied cohort had shock delivered from their ICD in their last minute of life. Early discussions need to take place with patients in order to avoid the unnecessary pain that ICDs cause with multiple shocks in a dying patient.

The third issue is the lack of knowledge among nurses working in acute care settings regarding assessment, intervention and documentation of palliative care. Although nurses have a strong desire to provide quality care for their terminally ill patients, research indicates there is lack of documentation of appropriate assessment, particularly for patients with non-malignant end-stage diseases. Retrospective chart analysis in a teaching hospital from South Australia (Parish et al., 2006) revealed there was minimal recognition of the psychosocial and spiritual needs of the patient and family, and communication between caregivers and family was lacking. Fear, anger and distress were scarcely documented, and these concerns were not systematically addressed. In most cases, the signs and symptoms of the terminal stage were not documented, there was lack of communication, and family members missed the opportunity to be with their dying loved ones. Nurses described palliative care decision-making as difficult and identified the need for further training regarding symptom control and other end-of-life care issues. They felt discomfort and unprepared (Low, Pattenden, Candy, Beatti, & Jones, 2011).

Lack of communication was described as a significant barrier in provision of palliative care. The WHO (2002) recognizes shared decision-making regarding the establishment of care goals as central to palliative care philosophy. National and international professional organizations such as the Canadian Cardiovascular Society (CCS) (Arnold et al., 2006), Heart Failure Society of America (HFSA) (2010) and the European Society of Cardiology (ESC) (2008) advocate for early introduction of discussions related to end-of-life care, patient and family preferences, advanced directives, life-sustaining therapies, quality of life and implanted device management. In order to promote life quality of CHF patients until the last minute of their life, health care providers must explore patient and family preferences. Researchers indicate that a high percentage of CHF patients prefer to have the last moments of their life within the known, comfortable environment of their home. In the study conducted by O'Leary and colleagues (2009), 60% of CHF patients preferred to be cared for at home if their condition deteriorated and 48% wished to die at home. Need for discussion about the dying process including advanced directives, "do-not-resuscitate" and life-support was described. Patients emphasized the difficulties in communicating with health care providers, they felt that they spent only very limited time with them, and there was lack of care and support post discharge from hospital. In addition, Low and colleagues' (2011) systematic review looking at the patients' experiences with care provision and at the understanding of care providers, described patients' needs for support in coping with HF by being treated with respect and having their questions answered with comprehensive information. Patients felt that there was no adequate information provided about patients' actions in case of a medical emergency. Lack of knowledge about the illness was common among patients, many of them associating their symptoms of CHF with aging. Patients also described lack of privacy and dignity, lack of discussions about palliative care and felt more emphasis on life-prolonging treatments. This study further indicated that many patients were open to discuss death, and having the proper information would have declined invasive procedures.

The concept of transition to palliative care requires clear understanding among health care providers. During the transition, the focus of the treatment on stabilization or remission slowly shifts towards palliation. This may involve referrals to palliative teams and transfer of medical and personal information. From the patient's perspective, this requires renegotiation of care goals and re-evaluation of roles and meanings of life and death. New, redefined relationships with the health care team need to emerge with open, trusted communication (O'Leary et al., 2009).

Strategies and Frameworks for the Integration of Palliative Care into the Care Path of CHF Patients

Figure 1 depicts the different strategies and frameworks that may aid health care professionals in the integration of palliative care into the disease management path of patients suffering from CHF.

Evidence-based practice guidelines. There are evidence-based guidelines available from nursing and medical professional organizations that may support health care professionals in the integration of palliative care into the management of CHF patients. The Registered Nurses' Association of Ontario's (RNAO) (2002) best practice guideline "supporting and strengthening families through expected and unexpected life events" provides guidance for nurses to support patients and families through critical life events. This guideline emphasizes the need to develop partnerships with the family by showing respect and building trust, and by establishing open communication with mutual information sharing. The core concept of the guideline is family-centred care that prompts nurses to assess their patients in the context of the family structure, strength, support and environment.

In accordance with the WHO's (2002) palliative care definition and strategy, major medical guidelines from professional organizations like CCS, HFSA and the ESC, urge the early introduction of palliative care in conjunction with active, life-prolonging interventions. Aspects of palliative care that need to be considered earlier in disease management are patient and family education about the disease process, treatment options, self-management, prognosis, possible outcomes and advanced care planning. These guidelines provide a structured approach to assessment and management of patients with advanced disease by clearly describing the goals and steps in providing palliative and end-of-life care for this patient population.

Models. Integration of palliative care into the existing care plan of CHF patients creates a more comprehensive support system by providing expertise in symptom recognition and management, and psychosocial and spiritual issues. There are several models described in the literature that depict the relationship between life-prolonging active treatment and palliative care. These models were designed based on the predictable trajectory of malignant diseases. Hupcey and Penrod (2007) proposed a model that considers the unpredictable nature of CHF by balancing active treatment with palliative care throughout the illness trajectory. They proposed the introduction of palliative care at early stages as a philosophy of care rather than a system of care delivery. At this point, the patient is only minimally supported with palliative care measures that slowly take over as the disease progresses. This model recognizes the role of active medical treatment in palliative care and emphasizes the symptom-relieving effects of diuretics, inotropes or CRT devices. Discontinuation of these therapies would increase distress, pain and suffering. A great advantage of this model is that it diminishes the importance of prognostication by overlapping life-prolonging therapies with palliative interventions. According to this model, both patients with a long course of illness and those who die suddenly would benefit from different aspects of palliative care (Hupcey, Penrod, & Fenstermacher, 2009). This framework enhances understanding regarding the illness trajectory of CHF and aids health professionals in determining the appropriateness of education about palliative and end-of-life care. Patients and families need to understand the unpredictable nature of CHF and be prepared for the unexpected. However, for those who would like to receive a specific estimate for life expectancy, validated prognostication tools exist such as the Seattle Heart Failure Score that provides prognostic data for one and five years, and the Acute Decompensate Heart Failure National Registry database scoring system (Adler et al., 2009).

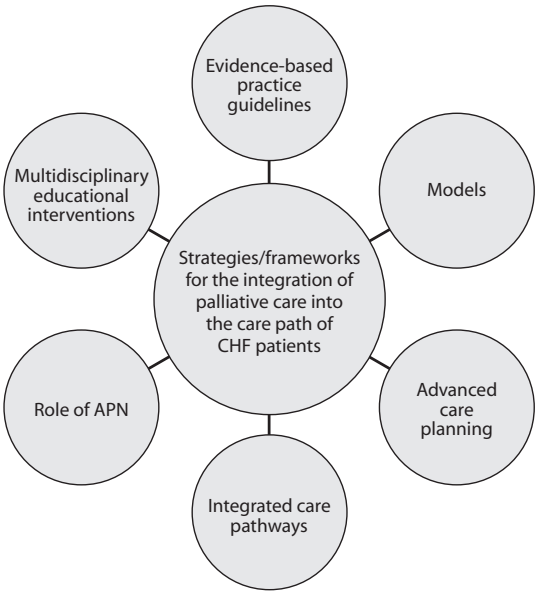

Figure 1. Strategies and frameworks for the integration of palliative care into the care path of CHF patients

Advance care planning. There are resources available from professional and governmental organizations that can introduce the sensitive topic of end-of-life care in the early phase of the illness to health care professionals. The HFSA (2005) has a customized advance care planning (ACP) document targeting the CHF population. In Ontario (Canada), the document *A Guide to Advance Care Planning* is available from the Ontario Seniors' Secretariat (2002, March). ACP is a planning tool that enhances communication around end of life by prompting patients and families to think proactively and make choices regarding their care. ACP empowers patients, increases their sense of control and ensures customized care based on personal preferences and health needs. It helps patients to understand their illness and the available treatment options, and clarifies their values and goals of care. ACP seems to be an effective tool in clinicians' hands. A prospective, randomized, controlled, single-centre trial (Detering, Hancock, Reade, & Silvester, 2010) showed that in the intervention group with facilitated ACP, the family members of patients who died had significantly less stress ($p < 0.001$) and depression ($p = 0.002$); patients and family members of the intervention group were significantly more satisfied ($p < 0.001$) compared to the control group; and family members of deceased patients in the intervention group were more satisfied with the quality of death perceived from the patients' perspectives ($p < 0.001$).

Integrated care pathways. Integrated care pathways (ICP) provide a standardized approach to end-of-life care in different care settings; they increase knowledge, provide guidance, and improve communication and documentation (Patterson, Duncan, & Conway, 2009). Additionally, ICPs decrease variance in service provision, increase predictability, reduce costs, increase patients' access to available services, improve communication, and induce change on an organizational level (Bookbinder et al., 2005). The Liverpool Care Pathway (LCP) generic version 12 (The Marie Currie Palliative Care Institute) (2009, December) is an ICP designed to meet the palliative

care needs of patients in intensive care unit (ICU) settings. Earlier versions of the LCP applied in different settings show positive effects on patient and system outcomes. A pre- and post-interventional, comparative, multicentre study (Veerbeek et al., 2008) found that the LCP significantly improved documentation ($p < 0.001$) and lowered the total symptom burden ($p < 0.008$). After the introduction of LCP to an emergency department, nurses felt that the care path improved continuity/consistency of care, provided good structure to the care processes, and improved documentation, communication and confidence (Patterson et al., 2009).

The Palliative Care for Advanced Diseases (PCAD) is another example of an ICP and is designed for dying patients for use in acute care hospitals. Researchers (Bookbinder et al., 2005) indicate that the use of the PCAD increased symptom assessment ($p < 0.001$), decreased the number of interventions employed ($p < 0.021$) and significantly improved nurses' knowledge ($p < 0.003$). In addition, PCAD increased documentation on care goals and plans for comfort care ($p < 0.0001$), and improved symptoms management ($p < 0.02$) (Luhrs et al., 2005). A similar care pathway was created by Cancer Care Ontario (2009). The *Collaborative Care Plan (CCP)* is designed for palliative cancer patients, but could be used as a framework in caring for non-malignant, end-stage CHF patients.

Role of advance practice nurses. There is growing evidence that advance practice nurses (APN) enhance care for older CHF patients by facilitating communication, care goal setting, patient understanding of the illness, self-care, disease management and interprofessional collaboration. A randomized, controlled study (Naylor et al., 2004) looking at three-month APN-directed discharge planning and home follow-up protocol found that time to first re-admission was longer in the intervention group [Cox Regression Incident Density Ratio (IDR) = 1.65;95%, confidence interval (CI) = 1.13–2.40] and, at 52 weeks, the intervention group had lower mean total costs ($p < 0.002$). In addition, on short-term, there was an improvement in patients' life quality ($p < 0.01$) and patient satisfaction ($p < 0.001$). A randomized, controlled study (Koelling, Johnson, Cody, & Aaronson, 2005) of 223 systolic heart failure patients that evaluated the effects of a one-on-one, one-hour teaching session with a nurse educator found that this intervention decreased the number of hospital days and death ($p < 0.009$), and the group receiving the intervention had a lower risk for rehospitalization or death [Relative Risk (RR), 0,65; 95% CI, 0.45–0.93; $p = 0.018$]. Cost of care was lower in the intervention group by $2,823 per patient ($p = 0.035$).

Multidisciplinary educational interventions. Another strategy to improve palliative care for the CHF population is to provide educational opportunities for health providers that will aid them in dealing with the complexities of palliative and end-of-life care provision. A pretest, delayed posttest, evaluative study (Zapka et al., 2006) focusing on the effects of an interdisciplinary workshop to improve palliative care for heart failure patients found that there was significant improvement in skills to discuss end-of-life decisions with families and patients ($p < 0.05$), discuss psychosocial needs and concerns ($p < 0.01$), address cultural and racial differences ($p < 0.03$), and documentation ($p < 0.001$). The intervention was a four-hour workshop designed by a group comprising medicine, nursing, social work, chaplaincy and public health with a primary goal of improving care through effectively communicating prognosis and facilitating advance care planning.

Conclusion and Recommendations

Palliative care in the heart failure population is a relatively new concept and is under-researched. In Canada, the need for improvement in care delivery for heart failure patients approaching end of life has been recognized by the Heart and Stroke Foundation. However, projects and research are lacking. There are several barriers such as the misconceptualization of palliative care among health care providers and lack of standardized communication and teamwork processes, which may impede quality care provision for older advanced stage heart failure patients and their families. Nurses indicate they feel uncomfortable and unprepared, and they lack guidance in initiating end-of-life care conversations with CHF patients. Patients and families would prefer to receive more support and information in deciding about palliative and end-of-life care.

Based on the issues and needs regarding palliative care for CHF patients, the author strived to identify evidence-based tools, strategies and frameworks that may facilitate the integration of palliative care into the disease management of CHF patients. Nurses are accountable for providing high-quality care for their patients; therefore, it is their responsibility to ensure that effective frameworks and tools are selected and implemented in their clinical practice. Therefore, it is recommended (1) medical and nursing best practice guidelines pertaining to this patient population are integrated into clinical practice, (2) an integrated care pathway that will support nursing and other health professionals in decision-making, recognition of needs and necessary steps in caring for CHF patients nearing end of life are developed and adapted, (3) heart failure patients are educated about advance care planning during their hospital stay and discharge, and (4) interprofessional initiatives for staff education be promoted to enhance care quality, staff and patient satisfaction and to positively influence patient and system outcomes. In addition, research needs to be done to evaluate the effectiveness of these interventions. ♥

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The Development and Evaluation of a Competency-Based Program for Patients with a Ventricular Assist Device

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Abstract

The ventricular assist device (VAD) is a mechanical device that is used to provide long term support either as a bridge or as an alternative to transplantation for patients suffering from end stage heart failure. While in hospital, patients with a VAD have traditionally been taught by an educator nurse with VAD expertise in preparation for discharge.

In 2004, our centre implemented a successful competency-based patient education program in post-heart transplant patients and thought that a similar program may provide increased confidence for bedside nurses to actively participate in VAD patient education prior to discharge.

The purpose of this quality improvement project was to create a competency-based education program that would provide consistency in patient teaching. A questionnaire was developed and completed by 13 bedside nurses. This pre-test questionnaire indicated the need for a systematic and organized approach to VAD patient teaching. Furthermore, adequate resources, consistency in teaching methods, and feedback were seen to be essential. A pilot competency-based program was designed to lead bedside nurses and patients through a series of learning phases and has successfully been implemented. Since its implementation, the questionnaire has been repeated with results reflecting satisfaction with the revised competency-based program. Our findings and evaluation of the program through pre- and post-testing reflect an increase in organization in our teaching methods and has led to improved confidence and satisfaction for bedside nurses using this program.

By redeveloping the current method of VAD education, our goal has been to improve the ways in which we deliver teaching to our patients. It is thought that, as with our experience in the post-heart transplant population, bedside nurses and team members will feel more empowered to provide teaching to patients with a VAD.

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Développement et évaluation d'un programme basé sur les compétences destiné aux patients porteurs d'un dispositif d'assistance ventriculaire

Le dispositif d'assistance ventriculaire (DAV) est un support mécanique à long terme destiné aux patients atteints d'insuffisance cardiaque sévère afin de faciliter la transition vers la transplantation cardiaque ou encore, en tant qu'alternative à celle-ci. Habituellement, c'est durant l'hospitalisation que les patients porteurs de DAV reçoivent l'enseignement préparatoire à leur retour à domicile, lequel est prodigué par une infirmière détenant une expertise avec ce type de dispositif.

En 2004, notre centre a implanté un programme éducatif efficace basé sur les compétences des patients greffés cardiaques. Nous avons pensé qu'un programme d'enseignement similaire permettrait d'augmenter la confiance des infirmières de chevet qui participent activement à l'éducation des patients porteurs d'un DAV en vue de leur retour à domicile.

L'objectif de ce projet d'amélioration de la qualité de l'enseignement a été de créer un programme éducatif permettant de rehausser le sentiment de compétence des patients porteurs de DAV. Un questionnaire a été développé et complété par 13 infirmières. Ce questionnaire pré-test a permis d'identifier les besoins perçus afin d'améliorer l'approche éducative des patients porteurs de DAV. Voici les aspects essentiels qui ont été mis en lumière : la nécessité de disposer de ressources et d'approches éducatives pertinentes et d'être en mesure de donner du feedback. Conséquemment, un projet-pilote destiné à expérimenter un programme d'enseignement basé sur les compétences conçu pour guider les infirmières et les patients à travers une série de phases d'apprentissage a été expérimenté avec succès. Suivant son expérimentation, le questionnaire a été redistribué et les résultats ont reflétés la satisfaction des infirmières à l'égard de la révision du programme d'enseignement, devenu désormais une approche par compétences. Notre évaluation du programme grâce à un questionnaire pré- et post-test reflètent le rehaussement organisationnel de nos méthodes d'enseignement. À la lumière de nos découvertes, nous pensons que ce programme contribuera à optimiser la confiance et la satisfaction des infirmières qui l'adopteront.

En reconsidérant l'éducation habituelle concernant le DAV, notre objectif a été d'améliorer la façon d'effectuer l'enseignement aux patients. Considérant notre expérience auprès de la population greffée cardiaque, ce programme basé sur les compétences permettra aux infirmières et à l'équipe de soins de se sentir mieux outillés lorsqu'ils prépareront les patients porteurs d'un DAV en vue de leur retour à domicile.

Ventricular assist devices (VADs) are mechanical devices that are surgically implanted and provide circulatory support in carefully selected patients with advanced heart failure (Miller et al., 2007). VADs are designed to provide long-term support either as a bridge to heart transplantation or as an alternative to transplantation ("destination therapy"). These devices have become an established therapy for end stage heart failure. Within the last 10 years, the devices have evolved from pulsatile to continuous flow (McKelvie et al., 2011). Pulsatile flow devices required a larger driver, had more moving parts and were more difficult to implant. Continuous flow VADs are smaller with fewer moving parts resulting in fewer complications such as stroke, infection and pump failure (Miller et al., 2007). These technological advances have reduced the risk to patients living at home due to the lower complication profile. Figure 1 shows a diagram of the HeartWare Ventricular Assist Device currently used in our program.

Meticulous discharge preparation is crucial to ensure that patients with VADs and their caregivers manage the device safely and understand the steps to take should malfunction occur outside of the hospital environment. In our program, discharge education has been provided by a specialist VAD nurse-coordinator. This method provided consistent information and reliable evaluation of patient and family understanding by one person. In the absence of the VAD nurse-coordinator, there was no reliable system in place to educate patients to the same level of competence. This had the potential to impact length of hospital stay in order to safely complete the education required.

Following program evaluation of the competency-based tool, the team agreed to implement a structured, competency-based patient education program with support for bedside nurses actively involved in patient discharge preparation. In this article, we will outline the development of a competency-based patient teaching tool designed for staff nurses to prepare patients with a VAD for discharge. We will report on the results of an initial evaluation that assesses staff nurses' experience and overall satisfaction with the education program.

Review of the Literature

An examination of the literature supports the importance of appropriate patient education before discharge and the value of a standard tool to complete that education. Drawing from the findings of Anderson, Deepak, Amoateng-Adjepong and Zarich (2005), Paul (2008) purports, in her discussion of discharge preparation in patients with heart failure, that nurses are vital to the success of education. Paul also states that successful education of patients at discharge can help to "promote self-care, reduce re-admissions and help patients identify problems early" (p. 67). She explains that if patients feel involved and their learning needs are addressed, they are more likely to accept the information as reflective of their goals for effective recovery. Another important note from Paul is that nurses should receive training to ensure the education they are giving to patients is consistent from nurse to nurse.

Fredericks, Guruge, Sidani and Wan (2010) performed a systematic review of general post-operative patient teaching in a variety of settings and found that individualized content given on a one-to-one basis, rather than a standard teaching session provided to a group, resulted in an increase in knowledge and performance of self-care behaviour. Based on their findings, the authors recommend that educational content should be reflective of the individual's particular needs based on their learning requirements at a particular time.

In discussion of their experiences with successful discharge of patients with VADs, McCafferty, Sorbellini and Cianci (2002) concluded that teaching methods using a variety of delivery modalities were most effective. These modalities comprised one-on-one instruction, printed materials and videos. The patients demonstrated techniques to the nurses to ensure competency. As well, they describe focusing educational efforts according to each patient's knowledge gaps.

Russell and Freiburghaus (2003) guide us in documentation strategies during patient teaching for heart transplant patients by concluding that use of a standard teaching record by the care team can increase efficiency and accuracy of documentation. As well, the record can reduce redundancy of teaching and enhance communication about what has been previously taught.

Andrus et al. (2003) describe the documentation tool they developed to guide and monitor the teaching of patients with ventricular assist devices before hospital discharge. Their teaching documentation tool enabled them to: 1) effectively assess the understanding of patients and their families, 2) organize the instruction and skills to be taught based on

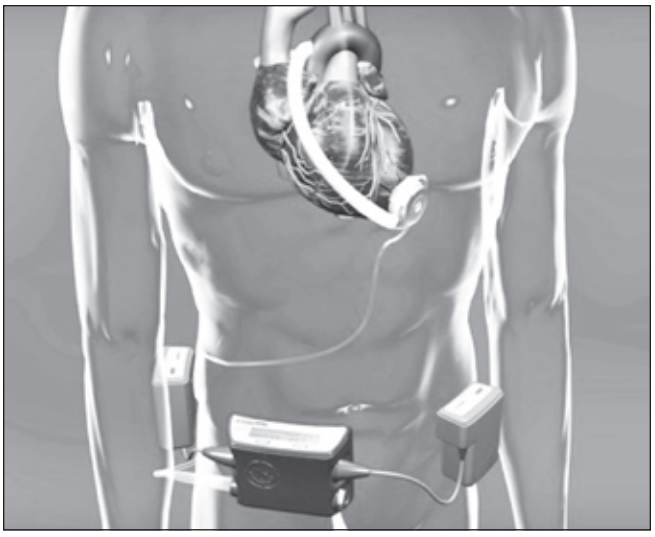

Figure 1: HeartWare Ventricular Assist Device
Image used with permission of Heartware, Inc.
Caution: Investigational device. Limited by Federal Law to investigational use in the U.S.

these factors, 3) reinforce the information to be taught by nurses, and 4) enhance communication between care providers regarding where the patient was in the learning process.

In summary, a successful patient education program for VAD patients should include varied methods and techniques delivered to patients using an individualized approach. As well, the education should be clearly documented on a teaching record to effectively communicate between care providers what areas have already been taught and allow revisitation of difficult concepts if required.

Development

In the development of a teaching tool, we drew on the conclusions of Voorhees (2001) regarding the advantages of competency-based learning. A competency is defined as "a combination of skills, abilities and knowledge needed to perform a specific task" (p. 8). Voorhees states that competencies permit the learner to return to particular material that has not been understood rather than repeating the entire section.

Prior to the development of this competency-based learning tool, no formal educational program existed for bedside nurses that documented patient progress and knowledge required prior to discharge home with a VAD. This afforded a number of challenges including lack of structure, organization and incomplete documentation. Our goal was to provide nurses with a teaching tool that allowed for consistency in teaching methods and the ability to continually assess and evaluate progress.

Implementation

Development of the tool was based on the success with the post-heart transplant education program using the concepts of competency-based learning. The VAD program spreads the education process out over the expected course of the hospital stay with short sessions during a teachable moment (based on the patient's readiness for learning) using a predefined script for nurses and allied health professionals. A summary checklist was created to facilitate a clear understanding of what topics have been covered and whether the patient had attained competency based on listed parameters (Figure 2).

The VAD education program allows for an organized approach to inpatient education and recognizes differences in learning styles and abilities involving multiple levels of assessment. Bedside nurses have expressed a high level of satisfaction with the heart transplant education program, which indicated that a similar program might be successful for preparing our patients with VADs for hospital discharge.

Whereas the heart transplant recipients typically have a consistent hospital length of stay and trajectory allowing the education program to follow certain sessions on certain post-operative days, the VAD patient's hospital stay has significant variations due to the complexity of the surgery and the degree of pre-operative morbidity. Therefore, instead of basing the program on post-operative days, we chose stages of recovery and learning. Stages of learning separate the competencies into easily attainable steps enabling the nurse, patient and caregiver to concentrate on one task at a time and adjust the learning schedule to the level of recovery.

Stages have been organized into various competencies, each relating to a particular learning objective. Six stages were defined by our team with input from bedside nurses regarding valuable teaching topics, progressing from basic VAD skills to advanced emergency management skills. Each stage builds on the learning from the previous stages.

The six stages are: 1) introduction to the VAD, 2) VAD system components, 3) dressing change and showering, 4) VAD vital signs, alarms and emergency procedures, 5) becoming independent, and 6) discharge home. Within each stage is a list of patient specific competencies and corresponding nurse responsibilities. The bedside nurse is provided with a list of tools and techniques to use to facilitate patients meeting each competency. Nurses are prompted to give patients reading assignments from the VAD Patient Manual according to the topic or competency the patient is learning. To ensure consistency among all bedside nurses, there are eight "Nursing Cheat Sheets", each on a specific VAD topic, which provide the nurses with scripts to follow when teaching patients. Once the patient achieves the competency, the nurse signs off, indicating the patient is ready to progress to the next competency.

Organizing the tool in this manner has enabled a clear understanding of patient progress, as well as ease of use for bedside nurses. Each stage can be reviewed in the patient handbook provided by the manufacturer, allowing for reference to the concept taught that day. Documentation of learning progress is another important feature that allows for structure, flow and consistency. Charting that the patient has attained the required level of competence at each stage of learning enables nurses to provide verification of understanding and progress to the next stage. Charting progress and patient goals offer a clear understanding of patient readiness for discharge. Setting goals and indicating competence that has been achieved help patients and family members remain motivated and encouraged throughout the recovery process. In addition to the above, multiple materials in the form of nursing instructions, handouts, patient manuals and checklists allow for additional support for nurses who may be uncertain of the salient points and demonstrations required. Providing these materials enables nurses to feel confident in their teaching and offers additional resources when needed.

Evaluation

A pre- and post-implementation survey was developed in order to measure nurses' opinions with regard to teaching. The survey consisted of six questions and information was gathered using a five-point Likert-type scale, with "1" indicating strongly disagreed and "5" indicating strongly agreed. Pre-implementation surveys were administered to 13 bedside

continued on page 22…

Providence HEALTH CARE

HEARTWARE LVAD
PATIENT COMPETENCIES RECORD

STAGE 1: Introduction to 5A and the VAD		
Nursing Responsibility	**Patient Competency**	**Competency Achieved** (date & initial)
Use the laminated copy of the **Expected Pathway ("VAD Average Recovery on 5A")** in the Competency Cart to review this with the patient.	Patient understands the **Expected Pathway**.	
Show the patient their individualized **VAD Binder** and encourage him/her to read it. 	Patient has an individualized **VAD Binder**.	
Ensure the patient has a copy of the **HeartWare Patient Manual**. 	Patient has a **HeartWare Patient Manual**.	
Use the patient's **VAD Binder** and refer to the **"Suggestions for Equipment"** page under the **"Info"** section and encourage the patient and/or caregiver to obtain this equipment prior to discharge.	Patient and/or caregiver understand they need to obtain the following: ▪ Thermometer ▪ Weigh scale ▪ Surge protector ▪ Backpack	
Use the laminated copy of a **sample whiteboard** found in the Competency Cart, as a template for writing on the patient's whiteboard.	Patient understands the use of the whiteboard for listing goals, schedule, etc.	
Write **"Introduction to 5A and the VAD"** in the Education section of the whiteboard. Ask the patient to **read pages 7 to 8** in the **HeartWare Patient Manual** (write this on the whiteboard). After the patient has completed the reading assignment, **refer to page 8** in the **HeartWare Patient Manual** and introduce each of the VAD components to the patient.	Patient identifies each of the components of the HeartWare LVAD.	

Figure 2: Patient competencies record

nurses on a cardiac medical ward at a tertiary care hospital. Four nurses had worked with VAD patients for more than eight years and the remainder of the respondents were novice nurses caring for patients with a VAD. In July 2011, the post-implementation survey was administered to 12 bedside nurses on the same nursing unit.

There were eight VAD implants in 2009. Following the completion of our tool in 2010, the use of the competencies on the ward increased. In this year, eight patients had VADs implanted and the tool was used with two patients. Factors such as delayed neurological recovery were among reasons in which the tool was not used with some patients. During this time, increased awareness and education with regard to tool use was provided. Teaching sessions took place to ensure staff members were informed about tool use and the competency stages. In 2011, eight implants took place and the teaching tool was successfully used on each of these patients.

Our findings (Figures 3–8) suggest there was considerable improvement in the nurses' perceived ability to perform VAD teaching for patients and families. Bedside nurses indicated that they felt self-assured when preparing patients for discharge and appreciated having the ability to track changes in patient progress, as well as document competency completion. Nurses expressed satisfaction when considering this new tool for teaching as it allowed them to feel supported and resourceful when providing education. In addition to having a structured program that is used by all staff members, we believe that the results of the questionnaire show that this tool has increased the sense of confidence that bedside nurses feel and it is now an important part of the discharge process for our VAD patients.

Discussion

Prior to the development of the tool, the questionnaire shows that nurses felt there was a lack of consistency in the ways we prepared patients with a VAD for discharge home. It was difficult to measure completion and competency of knowledge, as we did not document what was taught each

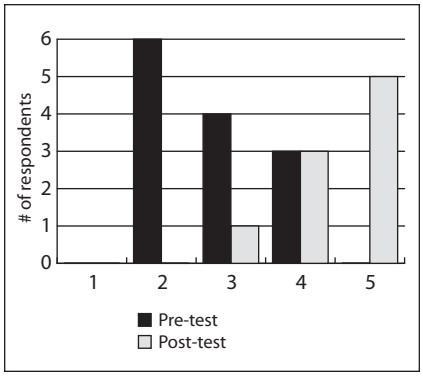

Figure 3: Response to question #1: "The ways I provide teaching are systematic, efficient, and well-organized."
Likert Scale 1 = Strongly Disagree, 5 = Strongly Agree

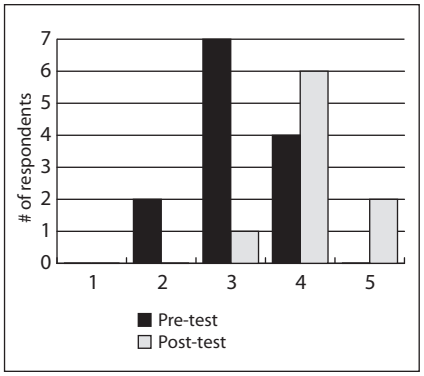

Figure 4: Response to question #2: "I have adequate time and resources to locate the information I need about the VAD system and operation."

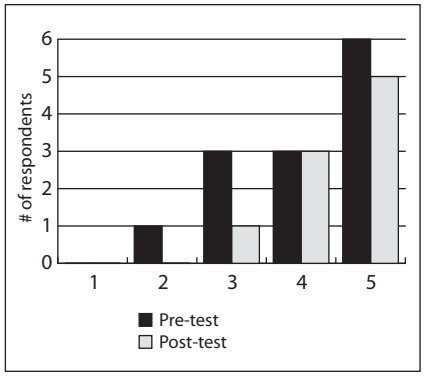

Figure 5: Response to question #3: "I feel confident and supported by staff when preparing patients for discharge and know who to call for additional support."

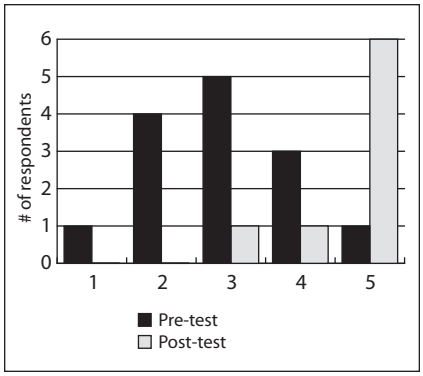

Figure 6: Response to question #4: "I am able to see where we are up to in terms of patient teaching about the VAD."

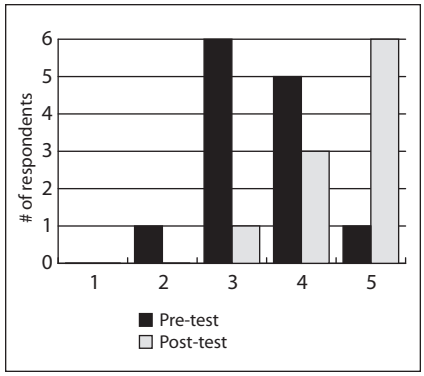

Figure 7: Response to question #5: "I have confidence that the teaching I provide is effective for patients."

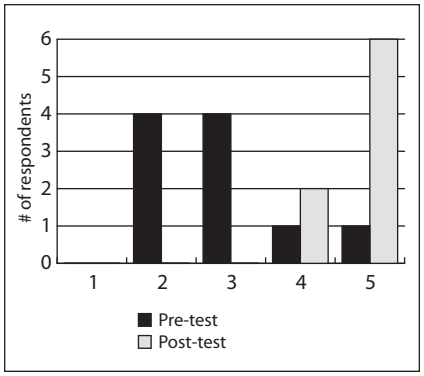

Figure 8: Response to question #6: "There is consistency in teaching methods amongst nurses on the ward."

shift. It was clear that a formal program was required to meet the criteria for reliability in our teaching and consistency in care. Although a formal program can offer many advantages to daily practice, it is often met with challenges as it creates additional learning and training on the part of bedside nurses. However, having previous knowledge of the transplant tool allowed for an easy transition and has encouraged nurses to use a similar format in documentation. By drawing on our previous success, creating and implementing a program specific to VAD patient education has enabled us to offer a systematic approach to inpatient education. A formal educational program allows us to meet our needs for organization and documentation of our teaching and, ultimately, improve how we prepare our VAD patients for discharge home.

Summary and Implications

In this article, we have introduced the development of a competency-based patient teaching tool designed to provide discharge education for patients living with a VAD. A literature review revealed evidence to support that appropriate patient education prior to discharge is valued and nurses remain an integral part of educating our patients. In addition, individualized teaching in various settings has revealed improvements in patient competence, as well as nursing knowledge and increased empowerment. Previous use of documentation tools has shown that using a teaching tool increases feelings of organization and reinforces communication among nurses during this process (Andrus et al., 2003).

When developing and implementing our tool, we drew upon the success of the previous transplant program. This allowed for direction with regard to format and documentation of the new tool. Furthermore, it reflected the effectiveness of using a trajectory of recovery and emphasized the variation in learning styles and understanding among the population. Organizing the tool based on stages has allowed for consistency in teaching methods among nurses, as well as accurate documentation of patient progress and readiness for discharge. Furthermore, it documents ongoing assessment of patient understanding and the ability to demonstrate knowledge of the VAD components.

Evaluation of our tool was based on a survey format allowing for testing pre and post implementation with a group of nurses whose experience working with VAD patients ranged from one to greater than eight years. Our findings suggest that there were significant improvements in the ways we deliver education to this patient population. Nurse competence, confidence and satisfaction were reflected in survey results following implementation of the tool.

For future practice and implementation, testing in multiple centres would allow our team to measure the effectiveness of competency-based teaching in this population across the country. It would also give us the opportunity to compare teaching methods and documentation across centres. Furthermore, additional testing with a larger number of nurses on our unit who have had experience with the tool since its conception would be effective. In conclusion, organizing a teaching tool that allows for documentation and progression of learning within this population has allowed for consistency and clarity when preparing patients with VADs for discharge home and has brought improvements in satisfaction and increased competency with this teaching method among our nurses. ♥

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