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202 – 300 March Road,
Ottawa, Ontario K2K 2E2
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2010 BLS and ACLS Guideline Changes: Post-Cardiac Arrest Syndrome and Therapeutic Hypothermia

Susan Morris, RN, BN, MEd, CNCC(C), CCN(C)

The International Liaison Committee on Resuscitation (ILCOR), along with the American Heart Association and the Heart & Stroke Foundation of Canada, released the 2010 resuscitation guidelines in October 2010. The guidelines are divided into basic life support (BLS) and advanced cardiac life support (ACLS). The significant changes for BLS are (1) ABC (airway, breathing, circulation) has been replaced by CAB (compression first, airway, breathing) to bring the importance of compressions to the forefront, and (2) lay persons are encouraged to provide continuous compressions only, omitting the need for mouth-to-mouth contact. The focus of this clinical column is on post-cardiac arrest syndrome and therapeutic hypothermia.

Post-Cardiac Arrest Syndrome

The addition of a new link in the chain of survival has brought post resuscitation care to the forefront of advanced life support. Post-cardiac arrest syndrome (formally known as post-resuscitation disease) is a unique and complex combination of processes, which include (1) post-cardiac arrest brain injury, (2) post-cardiac arrest myocardial dysfunction, and (3) systemic ischemia. This state is often complicated by a fourth component: the unresolved pathological process that caused the cardiac arrest (Neumar et al., 2008). The 2010 guidelines suggest that the individual components of post-cardiac arrest syndrome are potentially treatable. Treatment must focus on reversing the manifestations of the post-cardiac arrest syndrome through prioritization and timely execution from a multi-disciplinary team.

Past practice and treatment protocols must be revisited and goal-directed therapy made a priority when treating post-cardiac arrest syndrome. Clinicians are asked to focus on achieving early hemodynamic stability through invasive monitoring and timely optimization of preload, arterial oxygen content, afterload, and contractility. The recommended treatments include intravenous fluids, inotropic support, vasopressors, and blood transfusions where indicated. The simultaneous need to perfuse the post-ischemic brain adequately without putting unnecessary strain on the post-ischemic heart is unique to post-cardiac arrest syndrome (Neumar et al., 2008).

There are currently no recommendations for maintenance of mean arterial pressure (MAP) in post-cardiac arrest syndrome. However, the increase in intracranial pressure associated with the syndrome suggests that MAP plays a heightened role in maintaining adequate cerebral blood flow. Consensus suggests a MAP of 65 mm Hg to 100 mm Hg will offer adequate cerebral perfusion pressures.

The optimal central venous pressure (CVP) for post-cardiac arrest patients has not been defined by prospective clinical trials, but a range of 8 mm Hg to 12 mm Hg has been used in most published studies (Neumar et al., 2008). Post-cardiac arrest syndrome causes intravascular volume depletion soon after return of spontaneous circulation (ROSC) and volume expansion is usually required. The historical debate over choice of fluid remains a clinician preference. In the process of preload optimization and elevating the CVP, the clinician must be aware that signs and symptoms of cardiac tamponade and right ventricular infarction may be masked.

Although treatment practices can be facility specific, it is important to understand that research suggests ventilation with 100% oxygen for the first hour after ROSC resulted in worse neurological outcomes than immediate adjustment of the FiO_2 to produce an arterial oxygen saturation of 94% to 96% (Peberdy et al., 2010). Evidence indicates that hyperventilation should be avoided in the post-cardiac arrest patient. Ventilation should be adjusted to achieve normocarbia and should be monitored by regular measurement of arterial blood gas values. The 2010 guidelines suggest

that waveform capnography to measure end-tidal CO_2 should be employed as soon as possible after endotracheal intubation and is a significant tool to guide the effectiveness of chest compressions and circulation following ROSC (Peberdy et al., 2010).

Based on the evidence available, clinicians treating post-cardiac arrest syndrome should aim for a MAP of 65 mm Hg to 100 mm Hg, CVP of 8 mm Hg to 12 mm Hg, $ScvO_2$ >70% (if available), and urine output of 1 ml/kg/hr (Neumar et al., 2008; Peberdy et al., 2010).

Therapeutic Hypothermia

In 2005, ILCOR suggested that therapeutic hypothermia (TH) should be part of a standardized treatment strategy for comatose survivors of cardiac arrest. In 2010, ILCOR incorporated TH into the chain of survival under post-cardiac arrest care. Two randomized clinical trials and a meta-analysis (Bernard et al., 2002; Holzer, Bernard, & Hachimi-Idrissi, 2005; Hypothermia after Cardiac Arrest Study Group [HACA], 2002) identified improved outcomes in adults who remained comatose after initial resuscitation from out-of-hospital ventricular fibrillation (VF) cardiac arrest. These patients were cooled to 33 degrees Celsius (range 32 to 34 degrees) within minutes to hours after ROSC for a period of 12 to 24 hours (Neumar et al., 2008; Peberdy et al., 2010).

Although the evidence base is small, the HACA (2002) and Bernard (2005) trials suggest that TH is the only therapy shown to improve neurological outcome post-cardiac arrest. Evidence suggests that the number needed to treat to improve neurological outcome with the use of TH post arrest is between six and seven (HACA, 2002). Researchers have identified two distinct windows of opportunity for clinical use of hypothermia. In the early intra-ischemia period, hypothermia changes abnormal cellular free radical production, poor calcium management, and poor pH management. In the later post-reperfusion period, hypothermia changes the necrotic, apoptotic, and inflammatory processes that cause delayed cell death (Neumar et al., 2008). These changes translate into improved neurological outcomes. However, improved cooling and monitoring technologies are required to realize the full potential of this therapy.

The practical approach to therapeutic hypothermia can be divided into three phases: induction, maintenance, and rewarming. Induction can be initiated with 4-degree intravenous saline or simply external cooling with the application of ice packs to the head, axilla, and groin areas. Neuromuscular blockade is indicated to prevent shivering that leads to rewarming and an increase in PCO_2 (Neumar et al., 2008; Peberdy et al., 2010).

Maintenance can be achieved with the application of cooling blankets, vests, and helmets. Intravascular cooling catheters are internal cooling devices that are usually inserted into a femoral or subclavian vein. However, unfamiliarity and the invasive nature of the devices limit their use. Clinicians need to be aware that iced saline alone cannot maintain the cooled state (Neumar et al., 2008).

The rewarming phase can be regulated with the devices used for cooling or by other heating systems, but passive rewarming is recommended in order to prevent rebound hyperthermia. The optimal rate of rewarming is not known, but current consensus is to rewarm at approximately 0.25°C to 0.5°C per hour (Peberdy et al., 2010). Particular care should be taken during the cooling and rewarming phases because metabolic rate, electrolyte concentrations, and hemodynamic conditions can change rapidly.

Therapeutic hypothermia is associated with several complications. Shivering is common, particularly during the induction phase. Mild hypothermia increases systemic vascular resistance, which reduces cardiac output. Dysrhythmias may be induced by hypothermia with bradycardia being the most common. Hypothermia induces a diuresis and could lead to electrolyte imbalances. Hypothermia decreases insulin sensitivity and insulin secretion, which results in hyperglycemia. Alterations in platelet and clotting function can lead to impaired coagulation and increased bleeding. Hypothermia can impair the immune system and increase infection rates (Neumar et al., 2008). In the HACA (2002) study, pneumonia was more common in the cooled group, but this difference did not reach statistical significance. Of particular note, the clearance of sedative drugs and neuromuscular blockers is reduced by up to 30% at a temperature of 34°C (Neumar et al., 2008).

Magnesium sulfate reduces shivering thresholds and can be given to reduce shivering during cooling. Magnesium is also a vasodilator and, therefore, increases cooling rates. Magnesium sulfate (5 g) can be infused over five hours, which covers the period of hypothermia induction (Neumar et al., 2008). A review of seven provincial protocols within Canada did not reveal magnesium as a standard order.

In summary, evidence supports mild therapeutic hypothermia as an effective therapy for the post-cardiac arrest syndrome. Unconscious adult patients with ROSC after out-of-hospital VF cardiac arrest should be cooled to 32°C to 34°C for at least 12 to 24 hours. Most experts currently recommend cooling for at least 24 hours. Trials have used 32°C to 34°C; however, the optimal temperature has not been determined. In addition, therapeutic hypothermia might also benefit unconscious adult patients with spontaneous circulation after out-of-hospital cardiac arrest from a non-shockable rhythm

or in-hospital cardiac arrest (Peberdy et al., 2010). Prognostication has also been identified in the 2010 guidelines as an issue for clinicians to reconsider; more than the traditional 72 hours may be required if TH has been used. If TH is contraindicated then avoidance of elevated body temperatures should be employed, as there is a direct correlation between pyrexia and poor neurological outcomes in post-cardiac arrest patients (Neumar et al., 2008).

Conclusion

Much anecdotal evidence exists in support of this treatment modality. However, it is scientific evidence that drives practice. Nursing is in a pivitol role to embrace this treatment and develop scientific evidence surrounding the impact on quality of life post therapy. I challenge every nurse in Canada with a passion for improving the quality of life for sudden cardiac death patients to ask: "Is this patient a candidate for induced / therapeutic hypothermia?" ♥

About the author

Susan Morris, RN, BN, MEd, CNCC(C), CCN(C), Clinical Nurse Educator, New Brunswick Heart Centre. Email: ***Susan.Morris@HorizonNB.ca***

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Rubrique clinique

Les changements dans les lignes directrices de BLS et ACLS 2010 : Syndrome post-arrêt cardiaque et hypothermie thérapeutique

Susan Morris, inf., B.Sc. M.Ed., CNCC(C), CCN(C)

L'International Liaison Committee on Resuscitation (ILCOR), en association avec l'American Heart Association et la Heart & Stroke Foundation of Canada, ont publié, en octobre 2010, les lignes directrices 2010 sur la réanimation cardiovasculaire. Les lignes directrices sont divisées en deux volets, les soins immédiats en réanimation (SIR) et les soins avancés en réanimation cardiovasculaire (SARC). Les changements importants pour le SIR sont : (1) ABC (Voies Aériennes, Respiration (Breathing) et la Circulation) a été remplacé par CAB (Compression thoracique en priorité, voie Aérienne et respiration (Breathing)) ce qui place les compressions thoraciques en priorité et (2) les secouristes non qualifiés sont encouragés à prodiguer seulement des compressions thoraciques en continu, en omettant le bouche-à-bouche. Le principal sujet de cette rubrique clinique est le syndrome post-arrêt cardiaque et l'hypothermie thérapeutique.

Syndrome Post-Arrêt Cardiaque

L'ajout d'un nouveau maillon dans la chaîne de survie a amené les soins post-réanimation au premier plan dans les soins avancés en réanimation. Le syndrome post-arrêt cardiaque (officiellement connu sous le nom de maladie post-réanimation) est une combinaison de processus uniques et complexes, incluant (1) un dommage cérébral post-arrêt cardiaque, (2) une dysfonction myocardique post-arrêt cardiaque, et (3) une ischémie systémique. Cet état est souvent aggravé par un quatrième élément: un processus pathologique non résolu occasionnant l'arrêt cardiaque (Neumar et al., 2008). Les lignes directrices 2010 suggèrent que les composantes individuelles d'un syndrome post arrêt cardiaque sont potentiellement traitables. Le traitement requis du syndrome post-arrêt cardiaque doit miser sur la réversibilité des manifestations cliniques grâce à la priorisation et à la réalisation des soins à un temps précis par une équipe multidisciplinaire.

La pratique et les protocoles de traitements existants doivent être révisés et la thérapie ciblée doit être une priorité dans le traitement du syndrome post-arrêt cardiaque. Les cliniciens ont l'obligation d'atteindre une stabilité hémodynamique rapidement via un monitoring invasif et par la suite, lorsque nécessaire, stabiliser la pré-charge, l'oxygénation artérielle, la post-charge et la contractilité. Les traitements recommandés, lorsqu'indiqués, comprennent les solutions par voie intraveineuse, les supports inotropiques, les vasopresseurs et les transfusions sanguines. La nécessité de perfuser simultanément le cerveau post-ischémique de façon adéquate, sans occasionner de contraintes inutiles au cœur post-ischémique, représente une particularité du syndrome post-arrêt cardiaque (Neumar et al., 2008).

À ce jour, il n'existe aucune recommandation à l'effet de maintenir la pression artérielle moyenne (PAM) lors du syndrome post-arrêt cardiaque; cependant, l'augmentation de la pression intracrânienne associée au syndrome suggère que la PAM joue un rôle important dans le maintien d'une perfusion cérébrale adéquate. Un consensus d'experts suggère qu'une PAM de 65 à 100 mm Hg pourrait engendrer des pressions de perfusion cérébrale adéquates.

La pression veineuse centrale (PVC) optimale pour les patients post-arrêt cardiaque n'a pas été définie dans les études cliniques prospectives, mais une valeur comprise entre 8 à 12 mm Hg a été utilisée dans plusieurs études publiées (Neumar et al., 2008). Le syndrome post-arrêt cardiaque cause une déplétion du volume intravasculaire rapidement après le retour spontanée de la circulation (RSC) et l'administration de volume est habituellement requise. Le meilleur choix de volume intravasculaire, qui a fait l'objet d'un débat historique, demeurera à la discrétion du clinicien. Dans le processus d'optimisation de la pré-charge et de

l'augmentation de la PVC, le clinicien doit être vigilent à l'effet que les signes et symptômes de la tamponnade, de même que ceux de l'infarctus du cœur droit, peuvent être masqués.

Bien que les pratiques de traitement peuvent varier d'une institution à l'autre, il est important de comprendre la recommandation de la recherche à l'effet qu'une ventilation avec de l'oxygène à 100% pour la première heure après le RSC a occasionné des dommages neurologiques plus importants qu'un ajustement immédiat de la FiO2, afin d'atteindre une saturation artérielle en oxygène de 94% à 96% (Peberdy et al., 2010). Les évidences scientifiques indiquent que l'hyperventilation doit être évitée chez les patients post-arrêt cardiaque. La ventilation doit être ajusté afin d'atteindre une normocarbie et elle doit faire l'objet d'un monitorage à l'aide de prélèvements de gaz artériel à intervalles réguliers. Les lignes directrices 2010 suggèrent que la courbe de capnographie, pour mesurer le CO_2 expiré, doit être utilisée le plus tôt possible après l'intubation endotrachéale et représente un outil déterminant pour évaluer l'efficacité des compressions thoraciques et la circulation après le RSC. (Peberdy et al., 2010).

En s'appuyant sur les évidences scientifiques, les cliniciens devraient cibler une PAM de 65 à 100 mm Hg, une PVC de 8 à 12 mm Hg, une SvO_2 >70% (si disponible) et une diurèse de 1 ml/kg/hr dans le traitement du syndrome post arrêt cardiaque (Neumar et al., 2008; Peberdy et al., 2010).

Hypothermie thérapeutique

En 2005, ILCOR a recommandé que l'hypothermie thérapeutique (HT) fasse partie intégrante du traitement standard pour les personnes comateuses qui survivent à un arrêt cardiaque. En 2010 ILCOR a incorporé l'HT dans la chaîne de survie dans les soins post-arrêt cardiaque. Deux études cliniques randomisées et une méta-analyse (Bernard et al., 2002; Holzer, Bernard, & Hachimi-Idrissi, 2005; Hypothermia after Cardiac Arrest Study Group [HACA], 2002) ont démontré une amélioration clinique chez les adultes comateux après une réanimation suite à une fibrillation ventriculaire (FV) à l'extérieur de l'hôpital. Ces patients étaient refroidis à 33 degrés Celsius (entre 32 et 34 degrés) dans les minutes et les heures qui ont suivi le RCS pour une période de 12 à 24 heures (Neumar et al., 2008; Peberdy et al., 2010).

Bien que les évidences scientifiques soient faibles, les études cliniques HACA (2002) et Bernard (2005) suggèrent que l'HT est le seul traitement qui a démontré une amélioration des fonctions neurologiques post-arrêt cardiaque. Les évidences scientifiques suggèrent que le nombre théorique de patients qui devraient être traités afin d'améliorer les conséquences neurologiques avec l'utilisation de l'HT post-arrêt cardiaque se situe entre 6 et 7 (HACA, 2002). Les chercheurs ont identifié deux situations cliniques distinctes qui seraient propices à l'utilisation clinique de l'hypothermie. Au début de la période intra-ischémique, l'hypothermie altère la production anormale de radicaux libres et provoque une mauvaise gestion du calcium et du pH. En fin de période de post-reperfusion, l'hypothermie modifie le phénomène de nécrose, d'apoptose, ainsi que le processus inflammatoire qui amène un délai dans la mort cellulaire (Neumar et al., 2008). Ces changements se traduisent en une amélioration de la condition neurologique; cependant, l'amélioration dans la procédure de refroidissement et dans la technologie du monitoring sont requis afin d'utiliser le plein potentiel de la thérapie.

L'approche clinique de l'HT peut être divisé en 3 phases: l'induction, le maintien et le réchauffement. L'induction peut être initiée avec une solution intraveineuse saline à 4 degrés ou simplement par l'application de glace au niveau de la tête, des aisselles et des aines. Les bloqueurs neuromusculaire sont indiqués afin de prévenir les frissons, qui ont pour conséquences d'augmenter la température et l'augmentation de la PCO_2 (Neumar et al., 2008; Peberdy et al., 2010).

La phase de maintien peut être réalisée par l'application d'une couverture, d'une veste ou d'un casque refroidissant. Les cathéters de refroidissement intravasculaire sont des dispositifs internes refroidissants qui sont introduits habituellement via la veine fémorale ou sous-clavière. La non familiarité avec ces dispositifs et leur nature invasive limite cependant leur utilisation. Les cliniciens doivent être vigilants à l'effet que l'utilisation seule d'une solution saline froide ne peut maintenir l'état de refroidissement (Neumar et al., 2008).

La phase de réchauffement peut être amorcée avec les dispositifs utilisés pour le refroidissement ou par d'autres systèmes de réchauffement, mais le réchauffement passif est recommandé afin de prévenir l'hyperthermie récursive. La progression optimale du réchauffement est inconnue, mais le consensus actuel suggère de réchauffer approximativement 0.25 à 0.5°C par heure (Peberdy et al., 2010). Des soins particuliers doivent être prodigués durant les phases de refroidissement et de réchauffement car la vitesse du métabolisme, la concentration électrolytique, et les données hémodynamiques peuvent changer rapidement.

L'HT engendre de multiples complications. Le frisson est fréquent, particulièrement durant la phase d'induction. L'hypothermie légère augmente les résistances vasculaires systémiques, qui elles réduisent le débit cardiaque. Les dysrythmies peuvent être induites par

l'hypothermie, la bradycardie étant la plus fréquente. L'hypothermie induit une diurèse et ce qui peut provoquer un désordre électrolytique. L'hypothermie diminue la sensibilité à l'insuline et la sécrétion de l'insuline ce qui produit une hyperglycémie. L'altération des fonctions des plaquettes et de la coagulation peut amener à des troubles de coagulation et ainsi augmenter les saignements. L'hypothermie peut affaiblir le système immunitaire et par le fait même augmenter le risque d'infection (Neumar et al., 2008). Selon l'étude HACA (2002), la pneumonie était plus fréquente dans le groupe de refroidissement, mais la différence observée n'a pas un atteint un seuil statistiquement significatif. Un fait intéressant est la diminution de 30% de la clairance des médicaments sédatifs et des bloqueurs neuromusculaires à une température de 34°C (Neumar et al., 2008).

Le sulfate de magnésium réduit les seuils de frissonnement et peut être donné au cours du refroidissement. Le magnésium est aussi un vasodilatateur et par conséquent, augmente la vitesse de refroidissement. Le sulfate de magnésium (5 g) peut être administré pendant plus de 5 heures, ce qui couvre la période d'induction de l'hypothermie (Neumar et al., 2008). Une révision de sept protocoles provinciaux dans le Canada n'a pas identifié le magnésium à titre de traitement standard.

En résumé, les évidences scientifiques recommandent l'utilisation de l'HT légère à titre de traitement efficace pour le syndrome post-arrêt cardiaque. Les patients adultes inconscients avec un RCS après un arrêt cardiaque sur une FV à l'extérieur de l'hôpital devraient être refroidis de 32°C à 34°C pour une durée minimale de 12 à 24 heures. Actuellement, la plupart des experts recommandent un refroidissement d'au moins 24 heures. Bien que les essais cliniques aient utilisés 32°C à 34°C, la température optimale n'a pas été déterminée. En outre, l'HT pourrait également être bénéfique chez les patients adultes inconscients qui ont une circulation spontanée après un arrêt cardiaque à l'extérieur de l'hôpital sans défibrillation ou après un arrêt cardiaque à l'intérieur d'un hôpital (Peberdy et al., 2010). La prognostication a également été identifié dans les lignes directrices 2010 comme un problème que les cliniciens devront résoudre; si l'HT a été utilisé, il peut être requis de prolonger au-delà des 72 heures habituelles. Si l'HT est contre-indiquée, il est alors requis de limiter toute augmentation de la température corporelle puisqu'il y existe une corrélation directe entre la pyrexie et les dommages neurologiques chez les patients post-arrêt cardiaque (Neumar et al., 2008).

Conclusion

Plusieurs preuves de type anecdote sont à l'appui de cette modalité de traitement; cependant, c'est l'évidence scientifique qui dicte la pratique. Les infirmières exercent un rôle déterminant dans l'adoption de ce traitement et dans le développement de l'évidence scientifique qui permettra de décrire les retombées au niveau de la qualité de vie des patients post-traitement. J'encourage toutes les infirmières au Canada qui ont à cœur l'amélioration de la qualité de vie des patients ayant eu un arrêt cardiaque, à se demander: "Ce patient est-il un candidat pour l'induction/l'hypothermie thérapeutique?" ♥

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Clinical Improvement Grant Program

This **Clinical Improvement Grant Program** offers CCCN members financial support for knowledge dissemination and knowledge utilization projects pertaining to cardiovascular or cerebrovascular nursing in Canada. The goal is to increase the use of evidence-based research in clinical practice and, thereby, improve the quality of nursing care to patients. A maximum amount of $5,000 is available for this competition. Financial support may vary from $500 to $5,000 according to the type, relevance and number of projects funded.

This grant is directed to:

1. Nurses in clinical settings who use results from research to improve their practice (knowledge dissemination and uptake);
2. Research nurses wishing to establish linkages with clinical nurses to facilitate the uptake of research evidence and advance clinical practice.

Eligibility criteria:

1. Applicants must be Canadian citizens or permanent residents, current members of CCCN, and currently licensed as a nurse in a provincial/territorial professional association.
2. Projects must include both clinical and research nurses.

1. Knowledge dissemination projects

To increase the dissemination of knowledge derived from research in collaboration with nurses working in clinical settings, funds may be used to:

1.1 support nurses to publish (e.g., to access professional consultation services), to prepare oral or poster presentations for the CCCN national conference, or to defray part of the costs associated with travelling to present at another conference

1.2 support discussion activities, journal clubs or an invitation to an external speaker

1.3 conduct a critical analysis of the scientific literature for specific clinical issues.

2. Knowledge utilization projects

To increase knowledge uptake from research evidence in order to either improve clinical practice or to develop innovation projects.

2.1 Clinical Improvement Projects. Funds may be used to update or refine policies or nursing programs for patients, care maps, and educational programs or materials for nurses or patients.

2.2 Clinical Innovation Projects. Funds may be used to develop new nursing programs for patients, to develop innovative educational materials to enhance patient and family learning or new clinical tools (e.g., care maps, documentation tools and assessment tools or innovative approaches to discharge planning).

Deadline: October 15, 2011

Programme de bourse pour l'avancement de la pratique clinique

Ce Programme de bourse pour l'avancement de la pratique clinique vise à offrir aux membres du CCIISC un soutien financier pour la réalisation de projets de diffusion et d'utilisation des connaissances issues de la recherche en soins cardiovasculaires ou cérébrovasculaires au Canada. Cette bourse vise à favoriser le transfert des données probantes dans la pratique clinique, en vue d'améliorer la qualité des soins aux patients. Un montant maximum de 5 000 $ est disponible pour ce concours. Le soutien octroyé peut varier de 500 $ à 5 000 $ selon la nature, la pertinence et le nombre de projets acceptés.

Cette bourse est destinée aux :

1. Infirmières* œuvrant en milieux cliniques désirant s'impliquer en recherche (diffusion et utilisation des connaissances)
2. Infirmières responsables de projets de recherche désirant renforcer un partenariat avec des infirmières œuvrant en milieux cliniques, en vue d'améliorer la qualité des soins aux patients.

Critères d'éligibilité :

1. Citoyenneté canadienne ou statut de résident permanent du Canada, membre actif du CCIISC et membre d'une association provinciale ou territoriale en soins infirmiers
2. Il est requis que l'équipe qui soumet une demande inclue des infirmières œuvrant en recherche et d'autres directement en pratique clinique.

1. Projet de diffusion des connaissances

Dans le but de favoriser la diffusion des connaissances issues de la recherche, en collaboration avec des infirmières qui exercent directement en pratique clinique, la bourse peut être utilisée pour :

1.1 Financer des activités telles que la rédaction d'articles (accès à un service de consultation professionnelle), la préparation d'une présentation orale ou par affiche pour la conférence scientifique du CCIISC, ou pour couvrir certains frais associés à un déplacement pour présenter à une autre conférence scientifique

1.2 Financer des activités de discussion, des clubs de lecture ou la présence d'un conférencier externe

1.3 Réaliser une revue critique de la littérature scientifique visant à résoudre des problèmes cliniques spécifiques.

2. Projet d'utilisation des connaissances

Dans le but de favoriser l'application des connaissances issues de la recherche par le biais de projets d'amélioration de la pratique clinique ou de projets cliniques innovateurs, la bourse peut être utilisée pour :

2.1 Projet d'amélioration de la pratique clinique : pour une mise à jour ou la modification de politiques ou programmes de soins aux patients (programmes d'enseignement), de cheminements cliniques et de matériel éducatif tant pour les infirmières que les patients.

2.2 Projet clinique innovateur : pour l'élaboration de nouvelles approches ou programmes de soins aux patients, de matériel éducatif tant pour les infirmières que les patients ainsi que des outils cliniques (algorithmes, outils de documentation et d'évaluation d'approches innovatrices de planification de congés).

Date limite : 15 octobre, 2011

** Le féminin est utilisé uniquement pour alléger le texte et est inclusif des deux genres*

CCCN Research Grant—Call for Applications

Submission deadline: October 15, 2011

The purpose of this grant is to provide "seed money" for research projects pertaining to cardiovascular nursing in Canada. A maximum award of $5,000 is available. Funds will be allocated at the discretion of the National Research Committee.

Application eligibility:
- Canadian citizen, or permanent resident
- A current member of CCCN, and
- Full active membership in a provincial/territorial professional association.

All grant applications will be peer-reviewed for relevance and scientific merit. Awardees will be announced at the CCCN Annual General Meeting, to be held in Vancouver, B.C., on October 23, 2011.

For application forms and guidelines, visit our website at **www.cccn.ca** ♥

Programme de subvention de recherche du CCIISC Appel de candidatures

Date limite: 15 octobre 2011

L'objectif de cette subvention consiste à offrir un financement de départ à des projets de recherche se rapportant aux soins infirmiers cardiovasculaires au Canada. La subvention maximale s'élève à $5,000.

Critères d'éligibilité :
- Citoyenneté canadienne ou statut de résident permanent du Canada
- Membre en règle du CCIISC
- Membre en règle et actif d'une association provincial ou territorial

Toutes les demandes de subventions seront évaluées par un comité de pairs en fonction de leur pertinence et de leur mérite scientifique. Les noms des lauréats seront annoncés dans le cadre de l'assemblée générale annuelle du CCIISC, à Vancouver, C.B., le 23 octobre 2011.

Pour les formulaires et lignes directrices de demande, visitez notre site internet au : **www.cccn.ca** ♥

Call for Resolutions for the 2011 CCCN Annual General Meeting

Resolutions are invited for discussion at the 2011 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 CCCN by **September 30, 2011.**

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 30, 2011

Appel de résolutions pour l'assemblée générale annuelle du CCIISC de 2011

Nous vous invitons à nous faire parvenir vos demandes de résolutions pour qu'elles puissent être discutées à l'occasion de l'assemblée générale annuelle du CCIIS de 2011. Les membres qui souhaitent présenter une demande de résolution doivent soumettre un document dactylographié et signé par au moins deux personnes, le demandeur et le codemandeur. Les demandes de résolutions qui auront fait l'assentiment du président et de la secrétaire pourront être présentées à l'assemblée et être inclus à l'ordre du jour. Lors de l'assemblée générale annuelle, le demandeur ou son représentant devra présenter, au besoin, le contexte de la résolution et de procéder à son acceptation.

Veuillez soumettre vos résolutions au CCIISC avant **le 30 septembre 2011.**

Format de présentation des resolutions

La demande de résolution comporte deux parties, d'abord le "Préambule", puis la partie "Il est résolu que". Veuillez fournir le nom et l'adresse de chaque personne participant à la demande de résolution. Voici un exemple de demande de résolution :

Préambule—CONSIDÉRANT *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 :

Demandeur : Nom : _____ Adresse : _____

Codemandeur : _____ Codemandeur : _____

Adresse : _____ Adresse : _____

Date : le 30 septembre 2011

Canadian Council of Cardiovascular Nurses Nursing Excellence Recognition Program

Through our Cardiovascular Nursing Excellence Recognition Program, CCCN seeks to:

- Celebrate and profile Cardiovascular (CV) Nursing Excellence within CCCN
- Acknowledge nurses who obtain CV certification/recertification
- Acknowledge outstanding students who have completed a CV practicum
- Recognize Canadians who have advocated for CV health and/or CCCN

CCCN's Recognition Program offers the following annual awards:

- Cardiovascular Nursing Clinical Excellence Award
- Cardiovascular Nursing Leadership Excellence Award
- Cardiovascular Nursing Research Excellence Award
- Cardiovascular Nursing Health Promotion and Advocacy Excellence Award
- Lynne Child Cardiovascular Nursing Certification Award
- Mae Gallant Cardiovascular Nursing Student Award
- Honorary Lifetime Member Award

The nominee in each award category whose application successfully meets the criteria and nomination requirements, will be honoured with the award. There will not be multiple award winners for each category.

Nomination DEADLINE: August 31, 2011

For more information on criteria and nomination forms please visit the Recognition Awards Section at **www.cccn.ca.**

Awards ceremony: Sunday October 23, 2011, in Vancouver, as part of the CCCN Annual General Meeting. ♥

Programme de reconnaissance du mérite en soins infirmiers cardiovasculaires du CCIISC

Par son programme de reconnaissance du mérite en soins infirmiers cardiovasculaires, le Conseil canadien des infirmières et infirmiers en soins cardiovasculaires vise à :

- Faire connaître et célébrer l'excellence en soins infirmiers cardiovasculaires au sein du CCIISC
- Reconnaître les infirmières et infirmiers qui obtiennent leur certification en soins infirmiers cardiovasculaires ou qui la renouvellent
- Reconnaître les étudiants exceptionnels qui ont terminé un stage en soins cardiovasculaires
- Reconnaître les Canadiens et Canadiennes qui ont fait des interventions de sensibilisation en faveur de la santé cardiovasculaire ou du CCIISC

Le programme de reconnaissance du mérite du CCIISC offre les prix suivants :

- Prix d'excellence clinique en soins infirmiers cardiovasculaires
- Prix d'excellence pour le leadership en soins infirmiers cardiovasculaires
- Prix d'excellence pour la recherche en soins infirmiers cardiovasculaires
- Prix d'excellence pour la promotion de la santé et les interventions en faveur des soins infirmiers cardiovasculaires
- Prix Lynne Child pour la certification en soins infirmiers cardiovasculaires
- Prix Mae Gallant pour une étudiante ou un étudiant en soins infirmiers cardiovasculaires
- Prix membre honorifique à vie

Pour chacune des catégories, le prix d'excellence sera décerné au candidat qui répond le mieux aux critères et aux exigences de nomination. Il n'y aura plus de multiples récipiendaires pour une même catégorie de prix.

Date limite pour soumettre une candidature : 31 août 2011

Pour obtenir plus d'information sur les critères et pour obtenir le formulaire de mise en candidature, veuillez consulter la section sur les prix de reconnaissance du mérite de notre site internet à **www.cccn.ca**

Cérémonie de remises des prix : le dimanche 23 octobre 2011, à Vancouver, dans le cadre de l'Assemblée générale annuelle du CCIISC. ♥

Western Canada Best Practices—Knowledge Translation

Five cardiac care teams from Western teaching hospitals met last February to share their best practices and discuss ways to improve uptake through collaboration. Since then, some awareness and interest has been generated through presentations at national and international meetings (ACC Lake Louise, STEMI Care meeting in Montreal). Some projects that are based on the RADAR program (which facilitates early referral to cardiac rehabilitation for low-risk STEMI patients) are also beginning in B.C.

There have been attempts to secure funding in British Columbia for the "nurse navigator" position that is required for the RADAR model. Unfortunately, those have been unsuccessful so far. However, there has been agreement to standardize the referral process within the Vancouver area, as a starting point, with the hope of expanding this to the other B.C. health authorities, as it evolves.

Some groups are also actively evaluating the current evidence for the radial, as opposed to the femoral approach for interventional procedures.

Alberta Innovates has launched a Sharepoint website for this initiative, linked to their website. They have also agreed to provide support for the group to meet again in the fall. ♥

Martha Mackay, RN, PhD, CCCN(C)
Clinical Nurse Specialist, Cardiology
Heart Centre, St. Paul's Hospital,
Cardiovascular Outcomes Research Fellow, Cardiac Services, B.C.
Clinical Assistant Professor, School of Nursing, University of British Columbia, Vancouver, B.C.

NOTICE
CCCN Annual General Meeting

Date: Sunday October 23, 2011
Time: 16:30–18:30
Location: Vancouver Convention Centre, Vancouver, BC

AVIS
Assemblée générale annuelle du CCIISC

Date : Le dimanche 23 octobre 2011
Heure : 16 30–18 30 h
Lieu : Au Vancouver Convention Centre, Vancouver, C.-B.

CCCN Annual Membership Renewal

CCCN is an organization dedicated to advancing cardiovascular nursing through leadership, advocacy, research, and knowledge translation. We are the voice of cardiovascular nursing in Canada. Being part of a national organization that represents the largest group of Canadian nurses practising within the cardiovascular field offers many benefits including four peer-reviewed journals annually and a registration discount to the annual Canadian Cardiovascular Congress. The annual membership fee is $75.00/year *(before tax)*.

*Visit our website at **www.cccn.ca** to renew your membership today!*

Renouvellement de l'adhésion annuelle au CCIISC

Le Conseil canadien des infirmières et infirmiers en soins cardiovasculaires (CCIISC) est une organisation qui s'engage à faire progresser les soins infirmiers cardiovasculaires grâce au leadership, aux interventions de sensibilisation, à la recherche et à l'application des connaissances. Nous sommes la voix des soins infirmiers cardiovasculaires au Canada.

Adhérer à une organisation nationale qui représente le plus grand groupe d'infirmières et d'infirmiers canadiens dans le domaine cardiovasculaire offre plusieurs avantages, en outre de recevoir quatre numéros de la Revue canadienne de soins infirmiers cardiovasculaires à chaque année et d'obtenir une réduction sur les frais d'inscription au Congrès canadien sur la santé cardiovasculaire. Les frais d'une adhésion annuelle sont de 75,00 $/année *(avant les taxes)*.

*Visitez notre site internet à **www.cccn.ca** afin de renouveler votre adhésion dès aujourd'hui !*

Predictors of Cardiac Symptom Attribution Among AMI Patients

Tina Dunlop, RN, MScN, and Susan Fox-Wasylyshyn, RN, PhD

Background: Care-seeking delay represents a major cause of death and disability for cardiac patients. With more than 70,000 new and recurrent acute myocardial infarctions (AMI) in Canada each year, recognizing symptoms as heart-related and seeking prompt medical care is essential for increasing the likelihood of successful treatment and survival. However, little is known about the factors associated with whether or not individuals attribute their symptoms to the heart (i.e., adopt a cardiac symptom attribution).

Purpose and design: Secondary analyses were conducted on data from a sample of 135 patients from four North American hospitals to identify the predictors of correct symptom attribution (CSA) during AMI.

Results and conclusions: Logistic regression investigations revealed that patients with a prior diagnosis of coronary heart disease and patients whose AMI experience paralleled their pre-existing symptom expectations were associated with greater odds of adopting a CSA. Results suggest that patient education and a clearer understanding of patients' beliefs about AMI can help nurses in acute care and community settings identify and manage misconceptions that may interfere with correctly attributing symptoms to a cardiac cause.

Address for correspondence: Tina Dunlop, Regional Consultant, Public Services Health and Safety Association, 1505-4950 Yonge St, Toronto, ON M9N 6K1. Tel: 519-735-9961; Fax: 519-735-4025; Email: tdunlop@pshsa.ca

Facteurs prédictifs de l'attribution des symptômes cardiaque chez les patients atteints d'un infarctus aigu du myocarde

Introduction : Les délais associés aux demandes de soins de santé représentent une cause importante de mortalité et d'incapacités pour les patients cardiaques. Dans un contexte où plus de 70 000 nouveaux cas d'infarctus aigu du myocarde et de cas récurrents sont rapportés au Canada chaque année, il est essentiel de reconnaître les symptômes spécifiques à l'infarctus et d'entreprendre une démarche d'accès à des soins médicaux appropriés. Un tel accès à des soins appropriés permettra d'augmenter les chances de succès du traitement et par conséquent la survie. Malheureusement, il existe peu d'information sur les facteurs qui sont associés à l'attribution des symptômes à une cause cardiaque (i.e. attribution à des symptômes cardiaques).

But et méthodologie : Des analyses secondaires ont été réalisées auprès d'un échantillon de 135 patients de quatre hôpitaux d'Amérique du Nord, afin d'identifier les facteurs prédictifs de l'attribution à des symptômes cardiaques au cours de l'infarctus aigu du myocarde.

Résultats et conclusion : Des analyses de régression logistique ont révélé que les patients qui avaient un diagnostic initial de maladie cardiaque coronaire, et ceux dont l'expérience d'infarctus du myocarde survenait parallèlement à des symptômes pré existants, étaient plus susceptibles de démontrer une attribution à des symptômes cardiaques. Les résultats suggèrent qu'un enseignement aux patients et une meilleure compréhension des croyances qu'ont les patients à l'égard de l'infarctus du myocarde peut aider les infirmières des milieux de soins aigus et des milieux communautaires à mieux identifier et corriger les interprétations erronées qui peuvent nuire à l'attribution spécifique des symptômes à une cause cardiaque.

Acute myocardial infarction (AMI) is the leading cause of death among men and women. Although the overall number of deaths caused by AMI is steadily improving, nearly 50 Canadians continue to die each day from such events (Canadian Institute for Health Information [CIHI], 2009). Medical interventions such as thrombolytic medications and angioplasty, aimed at restoring coronary blood flow, can minimize damage to the heart and reduce unnecessary complications (Boersma, 2006; Castle, 2006; Fibrinolytic Therapy Trialists' [FTT] Collaborative Group, 1994). However, a critical factor contributing to the effectiveness of these therapies is the time from symptom onset to receipt of treatment (Boersma, Steyerberg, van der Vlugt, & Simoons, 1998). Unfortunately, many eligible patients do not receive treatment within the suggested timeframe due, primarily, to excessive delays in deciding to seek care (De Luca, Suryapranata, Ottervanger, & Antman, 2004; Eagle et al., 2008; Gibler et al., 2002; Welsh, Travers, Huynh, & Cantor, 2009). In fact, AMI patients delay an average of five to 24 hours before seeking medical treatment (National Heart, Lung, and Blood Institute,

2009). This issue is especially important considering that every 30 minutes of treatment delay increases the risk of mortality by approximately 7.5% (De Luca et al., 2004; Rawles, 1997), and effectiveness of treatment is significantly reduced if administered more than six hours after symptom onset (Johnson, Brightwell, & Ziman, 2006).

Review of the literature suggests that patients' interpretations of their AMI symptoms as heart-related is one of the most powerful influences in choosing to seek prompt medical care (Fukuoka, Dracup, Ohno, Kobayashi, & Hirayama, 2005; McSweeney, Lefler, Fischer, Naylor, & Evans, 2007; Quinn, 2005; Wu, Zhang, Li, Hong, & Huang, 2004). In fact, several investigators have shown that failure to develop a cardiac symptom attribution (CSA) is associated with significantly longer delays in seeking medical care (Banks & Dracup, 2006; Fox-Wasylyshyn, El-Masri, & Artinian, 2010; Martin et al., 2004; Perkins-Porras, Whitehead, Strike, & Steptoe, 2009). Carney, Fitzsimons, and Dempster (2002) found that patients who attributed their symptoms to the heart were five times more likely to seek care within one hour of symptom onset than those who did not. Despite the benefits of accurate symptom recognition, several authors (Fukuoka et al., 2007; Gassner, Dunn, & Piller, 2002; Johansson, Strömberg, & Swahn, 2004; Kaur, Lopez, & Thompson, 2006; King & McGuire, 2007; Martin et al., 2004; Meischke et al., 1995; Perkins-Porras et al., 2009) have found that less than 50% of individuals experiencing an AMI attribute their symptoms to the heart.

Our literature review revealed only four quantitative studies (Fukuoka et al., 2007; Martin et al., 2004; Meischke et al., 1995; Racyznski et al., 1994) over the past two decades that provided multivariate examination of the correlates of CSA. The first (Racyznski et al., 1994) examined the relationship of selected demographic characteristics with cardiac symptom attribution among 2,614 patients admitted to hospital with coronary artery disease, ischemic heart disease, myocardial infarction, or to rule out myocardial infarction. Results showed that white race, higher education, and a previous history of coronary heart disease (CHD) were all associated with CSA. Variables unrelated to CSA were gender, age, marital status, employment, type of medical insurance, family history of CHD, smoking, and co-morbidities (hypertension, diabetes, and hypercholesteremia). In another study examining factors associated with utilization of emergency medical services by patients with possible AMI (N = 2,131), Meischke et al. (1995) found that younger age, male gender, previous AMI, and severe symptom intensity were associated with attributing symptoms to the heart. In a more recent study of 1,059 AMI patients from five countries, Fukuoka et al. (2007) conducted separate analyses for men and women. Having a positive history of CHD was the strongest predictor of CSA for both genders (OR = 4.04 and 4.95, men and women respectively; both $p < .001$). Experiencing severe symptoms (pain scale 9 to 10 out of 10) was associated with a greater propensity to attribute symptoms to the heart for men, but not for women. Interestingly, being married and experiencing symptoms at home was associated with CSA for women, but not men. Variables unrelated to CSA in both sexes were age, country, income, education, presence of a witness, and co-morbidities (diabetes and hypertension). Martin et al. (2004) reported that male gender and previous treatment for a cardiac problem were significantly associated with CSA.

We found only one study (Lovlien, Schei, & Hole, 2006) that examined CSA in terms of its correlates with cognitive factors. Using univariate analysis of data obtained from 533 men and women recently discharged from hospital for a first AMI, the authors found that familiarity with AMI symptoms, symptoms in accordance with expectations (i.e., symptom congruence), and experiencing symptoms that were stronger than expected were all associated with CSA. Within the context of studying predictors of treatment-seeking delay, two other studies (Fox-Wasylyshyn et al., 2010; Quinn, 2005) also found positive relationships between symptom congruence and CSA. With the exception of symptom intensity (Meischke et al., 1995; Fukuoka et al., 2007) and the presence of chest pain (Lovlien et al., 2006), it is interesting to note that none of the aforementioned studies examined CSA in terms of the *nature of symptoms* that patients experience during AMI.

Given the significance of symptom attribution in terms of its influence on when people decide to seek medical care for AMI, and the small number of studies focusing on this important topic, the purpose of this study was to examine the factors associated with whether or not individuals with AMI attribute their symptoms to the heart.

Method

Secondary analysis was performed on data collected as part of a descriptive study that examined the factors associated with care-seeking delay among 135 AMI patients (Fox-Wasylyhyn et al., 2010). Whereas symptom congruence and history of AMI were found to be predictors of CSA in the original study, the current study differs from this and other previous studies by including a broader array of potential predictors that include demographic, clinical (i.e., medical history), cognitive, social, and symptom-related variables. The sample was

recruited from two hospitals in the United States and two in Canada. Eligible participants included English-speaking subjects, aged 18 or older, who had been hospitalized for 24 to 96 hours with a primary diagnosis of AMI. Patients with unstable vital signs, mechanical ventilation, and ongoing symptoms such as chest pain were excluded. Patients who had experienced an in-hospital AMI were also excluded. Data were collected using structured interviews. Approval to conduct the study was obtained from the Research Ethics Board of the University of Windsor. However, because this study involved secondary analysis of data, informed consent was not required.

Variable definitions and instrumentation. The dependent variable, CSA, refers to an individual's assumption that his/her symptoms are due to the heart. It was operationally defined dichotomously (yes/no), indicating whether or not the individual concluded that his/her symptoms were cardiac in origin. A variety of variables, described below, were selected as potential predictors of CSA. These included symptom, cognitive, clinical, social, and demographic variables.

Symptom variables. Symptoms are defined here as subjective bodily experiences that signal a change in normal function and often act as stimuli that lead people to seek health care (Lenz, Pugh, Milligan, Gift, & Suppe, 1997). Symptoms were operationalized with a questionnaire, the Experience of Heart Attack Symptoms questionnaire (EHAS), that presented participants with a list of descriptive words that could be used to describe the nature, location, quality, and intensity of symptoms experienced during AMI. The EHAS is a modification of the Representation of Heart Attack Symptoms questionnaire (RHAS) that was developed by Zerwic (1998) to elicit AMI symptom expectations among the lay public. Both the EHAS and RHAS include symptoms that are likely and unlikely to be experienced during AMI. On the RHAS, participants used a Likert scale to indicate the likelihood that they would expect each itemized symptom during a heart attack. Using the same symptoms included on the RHAS, the EHAS asked participants to indicate whether or not (yes/no) the symptom descriptors were reflective of their actual AMI symptoms. Sixteen types of symptoms (e.g., nausea, shortness of breath, palpitations), 18 locations, and 12 quality descriptors were included on the list. For this secondary analysis, variables from the original list of 16 symptoms that were either similar in nature, or known to occur together (i.e. nausea and vomiting) were collapsed into one variable to yield a more parsimonious list of symptoms. Other symptoms from the original study (e.g., headache) were excluded from the current study, as they were unlikely to be associated with AMI. The resulting seven symptoms were examined: (a) nausea & vomiting, (b) shortness of breath, (c) dizziness and faintness, (d) sweating/fever/chills, (e) fatigue, (f) palpitations/irregular heartbeat, and (g) discomfort. The 18 descriptors of location were similarly collapsed to yield five locations: (a) chest (included central and right or left sides of chest), (b) jaw/neck/throat, (c) back, (d) abdomen, and (e) shoulders/arms. The 12 original descriptors of quality of discomfort were combined to yield three variables: (a) pressure/heaviness/crushing, (b) aching, and (c) sharp/stabbing/knife-like/cutting. Finally, severity of discomfort was measured using a 10-point horizontal visual analogue scale (VAS) on which participants indicated the intensity of their discomfort on a continuum ranging from 0 (no discomfort) to 10 (maximum discomfort). Content validity and test-retest reliability of the RHAS were previously established (Hwang, Ryan, & Zerwic, 2006; Zerwic, 1998).

Cognitive variables. The study explored the relationship between CSA and the following two cognitive variables: symptom congruence and intensity congruence. Symptom congruence refers to the extent to which a patient's AMI symptom experience matches what they expected (Fox-Wasylyshyn et al., 2010). It was measured using a 10 cm horizontal VAS with anchors 0 (not at all similar) and 10 (exactly as expected). Intensity congruence relates to how similar or different one's prior notion of AMI discomfort is in relation to that experienced, and was measured by asking participants to rate their experienced discomfort as more severe, approximately as severe, or less severe than expected.

Clinical variables. Previous or comorbid conditions that were assessed as potential predictors of CSA are: (a) diabetes, (b) hypertension, (c) angina and coronary artery disease, (d) congestive heart failure, (e) and history of prior heart attack. Each variable was measured in terms of whether or not a participant had ever experienced the medical condition prior to admission.

Social and demographic variables. Two items were used from a 15-item Likert-type questionnaire (Zegrean, Fox-Wasylyshyn, & El-Masri, 2009) that measured the extent to which participants responded to their AMI symptoms with specified behaviours. Two behaviours on the instrument (told someone nearby, and telephoned someone to tell them) were collapsed into a single dichotomous (yes/no) "social interaction" variable that indicated whether or not the respondent told someone else about their symptoms. Data were also collected on the following demographic characteristics: age, gender, income, education, and country.

Data analysis. Data were analyzed using Statistical Package for Social Sciences (SPSS), Version 17. The data had been screened and treated for missing data and

outliers by the original researcher (Fox-Wasylyshyn, 2005). Prior to analysis for the present study, data were inspected to ensure that assumptions underlying each statistical test were met. Descriptive statistics were used to describe the sample and to summarize responses to specific items. Multivariate logistic regression analysis was performed to examine the predictors of CSA. Prior to conducting the multivariate analysis, t-test (for continuous variables), chi square comparisons (for dichotomous /categorical variables) were conducted to examine univariate associations with the outcome variables to determine which potential predictors would be included in the regression analyses. Variables with a p value of ≤0.25 (Hosmer & Lemeshow, 2000) were entered into the model using a forward stepwise approach.

Results

As reported elsewhere (Fox-Wasylyshyn et al., 2010; Zegrean et al., 2009), a total of 135 AMI patients residing in Canada (n=100) and the United States (n=35) participated in the study. The majority of participants were hospitalized for their first heart attack (n=109; 80.7%) and had few or no medical co-morbidities. Ninety-seven respondents (72%) were male while the remaining 38 (28%) were female. The age of participants ranged from 32 to 91 years (M=59.68; SD=12.95). While the most frequently reported household income was greater than $70,000, 20% of participants reported total annual earnings below $20,000. More than one third of the sample (36.3%) had less than a high school education.

Table 1: Comparison of CSA Frequency by Potential Predictor Variables (Categorical)

Variables			Total Sample (n=135) N	Cardiac symptom attribution		χ^2/ Fisher's Exact	p
				Yes (n=72) n (%)	No (n=63) n (%)		
Demographics	Gender	Male	97	50 (51.5%)	47 (48.5%)	0.44	0.506[a]
		Female	38	22 (57.9%)	16 (42.1%)		
	Education	< High school	82	44 (53.7%)	38 (46.3%)	0.01	0.925[a]
		> High school	53	28 (52.8%)	25 (47.2%)		
	Country of residence	U.S.	35	17 (48.6%)	18 (51.4%)	0.43	0.512[a]
		Canada	100	55 (55.0%)	45 (45.0%)		
	Income	1 <$19,999	13	8 (61.5%)	5 (38.5%)	(See Table 2)	
		2 $20,000–29,999	15	3 (20.0%)	12 (80.0%)		
		3 $30,000–39,999	27	17 (63.0%)	10 (37.0%)		
		4 $40,000–49,999	25	15 (60.0%)	10 (40.0%)		
		5 $50,000–59,999	14	8 (57.1%)	6 (42.9%)		
		6 $60,000–69,999	10	6 (60.0%)	4 (40.0%)		
		7 >$70,000	31	15 (48.4%)	16 (51.6%)		
Clinical Variables	AMI	History	26	21 (80.8%)	5 (19.2%)	9.74	0.002[a]
		No history	109	51 (46.8%)	58 (53.2%)		
	CAD	History	33	26 (78.8%)	7 (21.2%)	11.37	0.001[a]
		No history	102	46 (45.1%)	56 (54.9%)		
	CHF	History	9	8 (88.9%)	1 (11.1%)	4.9	0.037[b]
		No history	126	64 (50.8%)	62 (49.2%)		
	Diabetes	History	34	22 (64.7%)	12 (35.3%)	2.36	0.124[a]
		No history	101	50 (49.5%)	51 (50.5%)		
	Hypertension	History	60	33 (55.0%)	27 (45.0%)	0.12	0.728[a]
		No history	75	39 (52.0%)	36 (48.0%)		

Table 1 continued on page 18…

Table 1 continued from page 17…

Symptoms	Nausea & vomiting	Yes	52	30 (57.7%)	22 (42.3%)	0.64	0.422[a]
		No	83	42 (50.6%)	41 (49.4%)		
	Shortness of breath	Yes	76	45 (59.2%)	31 (40.8%)	2.44	0.120[a]
		No	59	27 (45.8%)	32 (54.2%)		
	Dizziness	Yes	53	28 (52.8%)	25 (47.2%)	0.01	0.925[a]
		No	82	44 (53.7%)	38 (46.3%)		
	Diaphoresis	Yes	97	53 (54.6%)	44 (45.4%)	0.24	0.627[a]
		No	38	19 (50.0%)	19 (50.0%)		
	Palpitation	Yes	35	22 (62.9%)	13 (37.1%)	1.72	0.189[a]
		No	100	50 (50.0%)	50 (50.0%)		
	Fatigue	Yes	88	51 (58.0%)	37 (42.0%)	2.17	0.141[a]
		No	47	21 (44.7%)	26 (55.3%)		
	Chest pain/ Discomfort	Yes	116	66 (56.9%)	50 (43.1%)	4.21	0.040[a]
		No	19	6 (31.6%)	13 (68.4%)		
	Pain intensity	Mild	18	8 (44.4)	10 (55.6%)	1.46	0.48[a]
		Moderate	37	18 (48.6%)	19 (51.4%)		
		Severe	80	46 (57.5%)	34 (42.5%)		
Pain Location	Jaw/Throat/ Neck pain	Yes	65	38 (58.5%)	27 (41.5%)	1.33	0.250[a]
		No	70	34 (48.6%)	36 (51.4%)		
	Back pain	Yes	51	29 (56.9%)	22 (43.1%)	0.41	0.522[a]
		No	84	43 (51.2%)	41 (48.8%)		
	Abdominal pain	Yes	28	16 (57.1%)	12 (42.9%)	0.21	0.65[a]
		No	107	56 (52.3%)	51 (47.7%)		
	Chest pain	Yes	121	68 (56.2%)	53 (43.8%)	3.85	0.050[a]
		No	14	4 (28.6%)	10 (71.4%)		
	Shoulder/ Arm pain	Yes	87	51 (58.6%)	36 (41.4%)	2.75	0.097[a]
		No	48	21 (43.8%)	27 (56.2%)		
Pain Quality	Sharp	Yes	63	33 (52.4%)	30 (47.6%)	0.04	0.836[a]
		No	72	39 (54.2%)	33 (45.8%)		
	Pressure	Yes	111	60 (54.1%)	51 (45.9%)	0.13	0.718[a]
		No	24	12 (50.0%)	12 (50.0%)		
	Ache	Yes	79	41 (51.9%)	38 (48.1%)	0.16	0.691[a]
		No	56	31 (55.4%)	25 (44.6%)		
Cognitive	Pain congruence	Less severe	69	34 (49.3%)	35 (50.7%)	1.99	0.371[a]
		As severe	26	17 (65.4%)	9 (34.6%)		
		More severe	40	21 (52.5%)	19 (47.5%)		
Social	Told/called someone	Yes	119	63 (52.9%)	56 (47.1%)	0.06	0.803[a]
		No	16	9 (56.3%)	7 (43.7%)		

[a] Chi square; [b] Fisher's exact test

Just over half (n=72; 53.3%) of participants adopted a CSA. Although a number of clinical symptoms were reported, the most prevalent were: (a) chest pain (n=116; 86%), (b) diaphoresis (n=97; 72%), (c) fatigue (n=88; 65%), and (d) shortness of breath (n=76; 56%). Nearly all patients experienced some degree of discomfort during their AMI (n=132; 98%); 87% of whom rated the sensation as being moderate to severe.

Table 1 provides a summary of the results of the chi square and Fisher's exact tests comparing CSA frequency by the categorical variables that were examined. Table 2 compares those who did and did not adopt a CSA in terms of continuous variables. Note that income appears as ordinal data in Table 1, but was treated as a continuous variable for the purpose of statistical analysis. The 12 variables that had p values ≤.25 were used in the regression analyses.

When all 12 variables were entered in the regression model (see Table 3, Model 1), only history of CAD and symptom congruence were independently associated with CSA. Together, these two variables explained between 13.4% (Cox Snell R square) and 17.9% (Nagelkerte R square) of the total variance in CSA. Although CAD was significant, AMI, CHF, and diabetes were not significant when all were included in the multivariate analysis. Given the importance of each of these clinical variables, three additional models were tested to determine the relative importance of each. Table 3 (Model 2) shows that AMI was strongly predictive of CSA when CAD was not included in the analysis, and that CHF became significant when neither CAD nor AMI were included (Model 3). Diabetes never achieved significance (Model 4). Because CAD is inclusive of AMI, and to a large degree CHF, it was decided to accept Model 1 as the final model.

While only symptom congruence and CAD were found to be independent predictors of CSA in the accepted model, Hosmer and Lemeshow goodness-of-fit statistic (p=0.576) indicates good fit between the model and the data. Further, the classification indices (Table 4) suggest that the model has acceptable sensitivity (67%) and specificity (68%).

Discussion

Our findings suggest that only two variables were independently associated with CSA: history of CAD and symptom congruence. Specifically, patients with a known history of CAD were almost four times more likely to attribute their symptoms to a cardiac origin

Table 2: Comparison of CSA Frequency by Potential Predictor Variables (Continuous)

Variable	Total sample (N = 135) M ± S	Cardiac symptom attribution		t	P
		Yes M ± SD	No M ± SD		
Symptom congruence	3.82 ± 3.5	4.71 ± 3.51	2.81 ± 3.20	-3.28	0.001
Age (years)	59.68 ± 12.95	59.06 ± 12.17	60.39 ± 13.85	0.59	0.55
Income	4.23 ± 1.99	4.25 ± 1.93	4.21 ± 2.07	-0.126	0.90

Table 3: Logistic Regression Models for Variables Predicting CSA

Model	Independent Predictors	B	SE	OR (95% CI)
1	Symptom Congruence	0.148	0.056	1.16 (1.04–1.30)
	CAD	1.367	0.483	3.92 (1.52–10.11)
2	Symptom Congruence	0.144	0.056	1.16 (1.04–1.29)
	AMI	1.351	0.548	3.86 (1.32–11.30)
3	Symptom Congruence	0.174	0.056	1.19 (1.07–1.33)
	CHF	2.171	1.10	8.77 (1.01–75.95)
4	Symptom Congruence	0.167	0.054	1.18 (1.06–1.31)

Variables entered in models:
Model 1: AMI, CAD, CHF, diabetes, symptom congruence, SOB, palpitations, fatigue, discomfort, chest pain, jaw/throat/neck pain, arm/shoulder pain
Model 2: AMI, CHF, diabetes, symptom congruence, SOB, palpitations, fatigue, discomfort, chest pain, jaw/throat/neck pain, arm/shoulder pain
Model 3: CHF, diabetes, symptom congruence, SOB, palpitations, fatigue, discomfort, chest pain, jaw/throat/neck pain, arm/shoulder pain
Model 4: Diabetes, symptom congruence, SOB, palpitations, fatigue, discomfort, chest pain, jaw/throat/neck pain, arm/shoulder pain

than were patients without such a history. Consistent with the findings of other studies (Fukuoka et al., 2007; Meischke et al., 1995; Raczynski et al., 1994), pre-existing CAD was the strongest predictor of correct symptom attribution. We suspect that those who are aware that they have CAD may have more accurate conceptualizations of AMI as a result of information provided by health care professionals, as well as knowledge acquired through personal investigation. Individuals with CAD are also more likely to be aware that they are at higher risk for AMI (Dracup et al., 2008; Finnegan et al., 2000). Improved knowledge, coupled with increased risk perceptions, might result in increased awareness and responsiveness to AMI symptoms. Conversely, those less familiar with cardiac disease, and who are less likely to perceive themselves as at risk for AMI, may be more likely to search for alternative causes of their symptoms.

Patients with hypertension and diabetes were not more likely than those without these conditions to attribute their symptoms to the heart. Although these findings are not surprising, they are concerning—as people with diabetes and hypertension are at substantially higher risk for AMI than the general population (Grossman & Messerli, 2008; Ho, Paultre, & Mosca, 2003). Interestingly, approximately 50% of participants with hypertension and diabetes in the current study reported pain levels that were less than they had expected with a heart attack. Perhaps this incongruence between pain expectations and experiences contributed to misattribution of symptoms. As previous studies (Mayer & Rosenfeld, 2006; Miller, 2002; Ryan & Zerwic, 2003) have shown, it is also possible that participants with hypertension or diabetes experienced more atypical or overlapping symptoms that are difficult to distinguish. For example, Mayer and Rosenfeld (2006) found that patients with diabetes commonly associate atypical AMI symptoms to respiratory and gastrointestinal conditions. Finally, diabetic and hypertensive patients may not be aware that they are at increased risk for AMI because they feel that their conditions are controlled and, thus, may not be as mindful to symptoms as patients with CAD (Meischke et al., 2000).

Table 4: Classification Index of Observed and Predicted Values for CSA (Regression Model 1)

Observed	Predicted		% Correct
	Yes	No	
Yes	48	24	67
No	20	43	68
Overall precision			67

Note. Sensitivity=48/(48+24)%=67%. Specificity=43/ (43+20) %=68%. Overall precision=(48 + 43)/135=67%

Attribution of symptoms to the heart was associated with the extent to which participants' symptoms were consistent with their preconceived expectations of how an AMI would present. Specifically, the odds ratio of 1.16 suggests that, for each one-unit increment in symptom congruence, the odds of attributing symptoms to the heart (adopting a CSA) increased by a factor of 1.16. This finding is consistent with previous quantitative research (Lovlien et al., 2006; Quinn, 2005) and suggests that AMI symptoms are interpreted within the context of prior knowledge and personal experiences (Reynolds & Alonzo, 2000).

Although discomfort and chest pain were significant in the univariate analysis, we were surprised to find that they were not significant in the multivariate analysis. Given that individual symptom variables had no multicollinearity with symptom congruence, it is unlikely that symptom congruence was a singular variable that encompassed individual AMI symptoms. Thus, it appears that symptom congruence was not consistent across individuals with regard to specific symptoms.

Although other researchers have reported that CSA was more likely to occur among men (Kaur et al., 2006; Martin et al., 2004; Meischke et al., 1995), younger adults (Meischke et al., 1995), and persons with higher education levels (Raczynski et al., 1994), these variables were unrelated to CSA in this study. However, it is important to note that comparison with previous research is difficult because none of the aforementioned studies adjusted for the effect of symptom congruence. Without adjusting for potential confounding variables, it is not possible to determine if the observed differences in symptom attribution that were found in other studies were truly a function of age or gender, or merely reflective of spurious relationships resulting from lack of statistical adjustment of potential confounding effects.

Although conferring with others regarding AMI symptoms was not associated with CSA, it is difficult to discount an association between social interaction and symptom attribution without being fully aware of the nature of the discussions that took place. For instance, it is unknown whether the study participants initiated contact with others: (a) to obtain assistance with interpreting their symptoms, or (b) to communicate their decision to seek medical care after a CSA or other cause of symptoms was established. It is also unclear whether the persons with whom the patients interacted were able to recognize the symptoms of AMI and, therefore, facilitate adoption of a CSA and emphasize the urgency of seeking medical attention. In an earlier study, Reeder (2007) indicated that only 53% of lay consultants attributed AMI patients' symptoms to the heart, and only 69% advised patients to seek care.

Implications of the Study

Results of this study highlight important implications for practice that nurses and other health professionals should consider when caring for individuals who are at risk for AMI. First, cardiac education efforts should integrate messages to improve knowledge of AMI symptoms so that symptom congruence can be achieved. Generally, individuals expect an AMI experience to be signalled by unrelenting chest pain (Dempsey, Dracup, & Moser, 1995; Finnegan et al., 2000). Providing information regarding the wide range of symptoms with which an AMI may present can facilitate accurate conclusions about the origin of AMI symptoms when they are experienced. Specifically, educational messages should communicate that symptoms may be different from person to person, and within a person from one AMI event to another. While it is encouraging that CAD patients were more likely to attribute their symptoms to the heart, it is concerning that individuals with hypertension and diabetes, who were at especially high risk for AMI (Grossman & Messerli, 2008), were not different from those without these conditions in terms of their propensity to adopt a CSA. Therefore, while it is important to target all members of the public with AMI educational messages, it is especially important that special focus be directed towards individuals with diabetes and hypertension. Such focus should include informing these groups that they are at higher risk for AMI than the general public, and that AMI symptoms in these groups tend to be atypical in nature.

Finally, the results suggest that the majority of participants called or told someone else about their symptoms. This finding highlights the importance of educating the general public about AMI, as they may be in a position to influence the symptom interpretations of others and their subsequent decisions pertaining to seeking medical care. Including education about cardiac symptom attribution in public education campaigns, occupational wellness programs, and first-aid training may provide an opportunity for promoting CSA through better-informed social networks.

The findings should be interpreted with the understanding that they may not be amenable to broad generalization without replication. This is especially important in light of the fact that little prior research has been conducted on this topic and that the data were collected from relatively medically stable Caucasian patients who may not be representative of the entire AMI population. Hence there is a need to validate the current findings with future research. Given that this was a secondary analysis of data that were already collected, we were unable to examine the influence of risk perception, a variable that has been shown to influence CSA in other studies (Meischke et al., 1995; Dracup et al., 2008). Despite these limitations, the knowledge gained in this research contributes to a better understanding of how AMI patients interpret their symptoms and provides insight for improving care-seeking behaviours. ♥

About the Authors

Tina Dunlop, RN, MScN, Regional Consultant, Public Services Health and Safety Association, Toronto, ON.

Susan Fox-Wasylyshyn, RN, PhD, Associate Professor, University of Windsor, Faculty of Nursing, Windsor, ON.

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Family Presence During Cardiopulmonary Resuscitation: Cardiac Health Care Professionals' Perspectives

Sarah Kosowan, RN, MN, NP, and Louise Jensen, RN, PhD

Background: Family presence (FP) during cardiopulmonary resuscitation (CPR) is becoming an increasing practice. Within current literature, the attitudes and beliefs towards FP of cardiac health care professionals in Canada are limited.

Purpose: The purpose of this project was to examine the perceptions of cardiac health care professionals (n=368) concerning FP during CPR.

Method: A survey was conducted to explore the attitudes and beliefs of cardiac health care professionals towards family presence during CPR within five Edmonton and surrounding area hospitals.

Results: The response rate was 46%, with the greatest response from nurses and physicians. Of the respondents, 44.3% believed that family should have the option to be present, and 40.9% believed that family should be allowed at the bedside during CPR. Less than half of the respondents had experience with FP during CPR. The barriers identified towards FP were lack of support for families, the experience would be too traumatic for families, families would not understand the procedures, fear of families physically interfering with procedures, FP would increase stress levels among staff, and tradition and politics excludes FP.

Conclusion: Despite less than half the respondents supporting FP, the majority endorsed development of policy and procedures to overcome barriers to FP during CPR.

Address for correspondence: Louise Jensen, RN, PhD, Professor, Faculty of Nursing, 3rd Floor Clinical Sciences Building, University of Alberta, Edmonton, AB T6G 2G3

Phone: 780-492-6795 (Office); Fax: 780-492-2551; Email: louise.jensen@ualberta.ca

Key words: family presence, cardiopulmonary resuscitation, invasive procedures

Présence de la famille lors d'une réanimation cardiorespiratoire: perceptions des professionnels de la santé en cardiologie

Introduction : La présence de la famille lors d'une réanimation cardiorespiratoire (RCR) est une pratique de plus en plus courante. Les écrits disponibles font peu état des attitudes et des croyances des professionnels de la santé en cardiologie au Canada à l'égard de la présence de la famille lors d'une RCR.

Objectif : Cette étude avait pour objectif d'identifier les perceptions des professionnels de la santé en cardiologie (n=368) à l'égard de la présence de la famille lors d'une RCR.

Méthode : Cette étude a été réalisée afin d'explorer les attitudes et les croyances des professionnels de la santé en cardiologie à l'égard de la présence de la famille lors d'une RCR et ce, dans cinq hôpitaux d'Edmonton et des régions avoisinantes.

Résultats : Le taux de participation à l'étude était de 46 %; les infirmières et les médecins ayant présenté le plus haut taux de participation. Parmi les répondants, 44.3% ont indiqué que la famille devrait avoir le choix d'être présente ou absente, alors que 40.9% ont répondu que la famille devrait avoir le droit d'être au chevet lors d'une RCR. Moins de la moitié des répondants avaient vécu une expérience en lien avec la présence de la famille lors d'une RCR. Différentes contraintes ont été identifiées pour exclure la famille lors d'une RCR : le manque de soutien pour les membres de la famille, la possibilité que l'expérience soit traumatisante pour les familles, l'incompréhension des familles quant aux procédures de réanimation, la crainte que les familles puissent nuire au déroulement des procédures de réanimation ou encore générer davantage de stress chez les intervenants et enfin, les traditions et les politiques actuelles qui interdisent la présence des familles lors de RCR.

Conclusion : Malgré des résultats suggérant que moins de la moitié des répondants sont favorable à la présence de la famille lors d'une RCR, la majorité des répondants soutiennent le développement de politiques et procédures qui permettraient d'encadrer la présence de la famille et ainsi alléger les contraintes quant à leur présence lors d'une RCR.

Cardiopulmonary resuscitation (CPR) techniques have changed how health care professionals treat patients in cardiac arrest. Health care professionals are now faced with a controversial challenge: should the patient's family be allowed to witness the CPR efforts? The health care team voices concerns that the experience will be too distressing for families, the family may interfere with care of the patient, staff stress will increase due to lack of emotional distance from the family, and family presence (FP) may result in legal action on the health

care team (Grice, Picton, & Deakin, 2003; Meyers et al., 2000). On the other hand, families view their presence as a right and would choose to remain present (Meyers et al., 2000). Families perceive being present as a chance to provide support to their loved one, to offer vital information to the health care team, to be present with the family member at the time of death, and to help with the grieving process (Duran, Oman, Abel, Koziel, & Szymanski, 2007; Grice et al., 2003; Weslien, Nilstrun, Lundqvist, & Fridlund, 2006). Yet, the majority of literature is from the United States and Europe; little is known about FP practices within Canada.

Background

Health care professionals' perspectives on family presence. Within the cardiopulmonary resuscitation team, nurses and physicians differ in allowing family to be present. Nurses tend to have a higher rate of acceptance and a more positive attitude to FP compared to physicians (Duran et al., 2007; Meyers et al., 2000; Grice et al., 2003). When family members asked to remain, 82% of nurses and 70% of physicians would allow them to stay if a trained professional acted as a support (Grice et al., 2003). In contrast, McClenathan, Torrington, and Uyehara (2002) found that only 20% of physicians and 43% of nurses would allow FP during CPR. Further, Baumhover and Hughes (2009) found that FP during CPR is supported less by older health care professionals.

The health care team often indicates concerns that the experience will be too emotionally traumatizing for families, and witnessing such an event may lead to distress (Ellison, 2003; Grice et al., 2003; Meyers et al., 2000, Miller & Stiles, 2009). Redley and Hood (1996) found 29% of nurses thought the general public was not "equipped" to remain present during CPR. Offord (1998) pointed out that though the family may feel ready through their experiences of watching CPR on television, television does not compare to real life situations. However, Robinson, Mackenzie-Ross, Campbell Hewson, Egleston, and Prevost (1998) reported no adverse effects among relatives who witnessed a resuscitation event, and after three months, showed decreased symptoms of grief and intrusive imagery compared to those who were not present.

Health care professionals perceive an inability to maintain a professional emotional distance from the family that would increase the stress of the situation (Ardley, 2003; Mian, Warchal, Whitney, Fitzmaurice, & Tancredi, 2007). However, Tsai (2002) suggested that the stress of the situation may be balanced by the positive feelings that FP can produce. Miller and Stiles (2009) found that FP for both CPR and invasive procedures was a positive experience for the nurses involved, which allowed them to make a connection with the family, and to feel as though they made a difference. Health care providers also report a fear of giving up some control when family members remained present (Belanger & Reed, 1997). In contrast, Miller and Stiles (2009) found that through FP, the health care team was able to satisfy the needs of both patient and family.

Ellison (2003) identified operational constraints (lack of space at the bedside and lack of support for family) may occur with FP during CPR. Meyers et al. (2000) found that 38% of health care providers thought the family might interfere during invasive procedures or CPR. Helmer, Smith, Dort, Shapiro, and Katan (2000) found that trauma surgeons were more likely to think the family would interfere as compared to nurses. Fernandez, Compton, Jones, and Velilla (2009) found that family who displayed an overt grief reaction might delay the time to when the first cardiac defibrillation was delivered. In contrast, Tsai (2002) stated that family rarely physically interfered with the resuscitation effort, and when incidents occurred, they took place in institutions where policy and procedures were not in place.

Often, health care providers believe that FP would increase the likelihood of legal action toward themselves or the resuscitation team (Grice et al., 2003; Meyers et al., 2000). The literature remains scant in this area, but no judicial decisions have been made for or against FP (Boyd, 2000). Robinson et al. (1998) found that family members did not comment on difficulties occurring in the resuscitation efforts during their presence. Rattrie (2000) proposed that the family is less likely to bring litigious action toward the health care team because of the therapeutic bond formed. However, Boyd (2000) identified confidentiality issues that could arise from FP due the patient's inability to give consent and the sharing of sensitive information. Yet, Mcmahon-Parkes, Moule, Benger, and Albarran (2009) found patients thought this disclosure was needed for family to understand their condition and future prognosis.

Health care providers have noted several advantages on having family present during CPR. With the family present, health care providers thought that family members could see that everything was being done for their loved one, that being present could assist in the family grieving process, and could provide emotional and spiritual support, as they were able to spend the last moments together (Fulbrook, Albarran, & Latour, 2005; Grice et al., 2003; Mcmahon-Parkes et al., 2009; Meyers et al., 2000; Miller & Stiles, 2009). Another advantage identified was that FP promoted open communication between family and staff (Ellison, 2003; Mcmahon-Parkes et al., 2009; Miller & Stiles; 2009; Sanford, Pugh, & Warren, 2002).

Family's perspectives on family presence. Family members desire to be present during CPR varies throughout the literature. Grice et al. (2003) found 47% of family members surveyed, while Meyers, Eichhorn, and Guzzetta (1998) found 80% of families surveyed, would want to be present. Meyers et al. (2000) found 97% of family members stated that they had the right to be pres-

ent. Belanger and Reed (1997) found that all 24 families surveyed in a rural health care setting after being present during resuscitation efforts, would want to remain present if placed in the same situation. Mazer, Cox, and Capon (2006) conducted a telephone survey of the public's attitudes toward FP and found 49.3% wanted to be present while CPR was being performed on a loved one.

Families recognized similar benefits to FP as those reported by health care professionals. Families who witnessed the event reported that it allowed them to see that everything was done, to provide support, as needed, to provide vital information to the health care team, and to be together with their family member at the end (Grice et al., 2003; Mcmahon-Parkes et al., 2009; Meyers et al., 2000; Weslien et al., 2006). Meyers et al. (2000) found having family present reminded the health care team that the patient whom they were treating was part of a family, and was a real human being. Similarly, Miller and Stiles (2009) noted that resuscitation efforts became more respectful when FP occurred. Furthermore, Axelsson, Zettergren, and Axelsson (2005) suggested that FP enhanced the care being provided.

Providing support and comfort to the patient is one of the strongest reasons why family wished to remain present. Limited literature was found regarding patients' views in this situation. Patients undergoing emergent events felt less afraid and safer when family remained (Eichhorn et al. 2001; Olsen, Dysvik, & Hansen, 2009). Mcmahon-Parkes et al. (2009) had similar findings when comparing resuscitated and non-resuscitated patients.

Often, families believe it is their right and obligation to be present with the patient at the time of CPR (Mcmahon-Parkes et al., 2009; Meyers et al., 2000). Families questioned regarding FP stated that it was their right to be given the choice to be present for resuscitation efforts and/or invasive procedures (Duran et al., 2007). However, Weslien et al. (2006) found that families were often limited by their fear that they would somehow disturb the resuscitation efforts, therefore taking away from the care of their family member. By remaining with the patient, families can witness the experience occurring with the patient, therefore having a better understanding (Duran et al., 2007; Mcmahon-Parkes et al., 2009). Robinson et al. (1998) reported fewer symptoms of grief for those families who remained present.

Family presence policy and procedures. Limited literature was found on policies and procedures for family presence. MacLean et al. (2003) surveyed members of the American Association of Critical Care Nurses and the Emergency Nurses Association and found only five per cent had access to a written policy and procedure concerning FP. Similar results were reported by Fallis, McClement, and Pereira (2008) who found only eight per cent of Canadian critical care nurses have access to policy and procedures regarding FP. However, Fulbrook et al. (2007) presented a European position statement clearly supporting FP during CPR. Mian et al. (2007) showed through implementation of an education program and the formation of a supporting policy and procedure that FP became a meaningful part of everyday practice within the emergency department. Furthermore, Baumhover and Hughes (2009) support that development of policy and procedures for FP may promote holistic family-centred care. Producing policy or guidelines may help satisfy the needs of patients, and provide consistent and standard practices (MacLean et al., 2003). Carter and Lester (2008) also found that FP occurs more often when policy and procedures are present.

Purpose

The purpose of this survey was to explore the attitudes, beliefs and barriers surrounding FP held by health care professionals working in Canadian Cardiac Units. The following questions were explored:

- What are the attitudes and beliefs of cardiac health care professionals on the practice of FP during CPR and invasive procedures?
- Have health care professionals had prior experience with FP during CPR and invasive procedures?
- What are the major concerns, perceived benefits and barriers of FP during CPR and invasive procedures held by cardiac health care professionals?
- Do policy and procedures for FP during CPR exist and are health care professionals aware and in support of them?

Methods

A survey was conducted to explore the attitudes and beliefs of cardiac health care professionals within five Edmonton and surrounding area hospitals. Written approval was obtained from the American Emergency Nurses Association (ENA) for the use of an established survey titled "Health Care Professional Attitudes and Beliefs toward Family Presence Assessment Survey" (Guzzetta, Clark, & Halm, 2007). The survey examines the beliefs and attitudes of health care professionals towards FP, prior experience with FP, perceived barriers and benefits of FP, and perceptions towards policies and procedures regarding FP. Respondents were asked to answer 19 questions: 10 questions use a five-point Likert scale, six questions require a "yes" or "no" response, plus three short answer questions.

Ethics approval was obtained through the Health Research Ethics Board for distribution of the survey. Both patient care managers and unit managers of each cardiac unit were contacted and given a verbal explanation of the survey. After arranging a meeting, an initial letter of contact, details of the survey, and a copy of the survey were given to each manager. A short presentation summarizing the survey was given to the health care professionals on each unit. An information sheet and the survey were then distributed. All health care professionals were assured their responses would be kept anonymous.

Health care professionals included: registered nurses, licensed practical nurses, nurse practitioners, clinical nurse educators, physicians, fellows/residents, medical students, pharmacists, occupational heath, physiotherapists, respiratory therapists, and hospital chaplains. Participants were given approximately 10 minutes to complete the survey, and then were asked to return the survey to a secured collection box located on the unit. At the unit managers' request, additional surveys were left in their care for distribution to health care professionals who were unable to attend the information session.

Data from each survey were entered into SPSS version 8.2. Common themes constructed from the short answer questions were coded and also entered into SPSS. Descriptive statistics were then performed on each question.

Findings

Participants. There were 169 health care professionals who participated in the survey from a possible 368 surveys that were distributed to the cardiac units. Of the 169 (46%) respondents, the largest percentage were registered nurses (72%, n=117), followed by physicians and medical students (12%, n=20), respiratory therapists (4%, n=6), hospital chaplains (3%, n=4), clinical nurse specialist/nurse practitioners (3%, n=3), and licensed practical nurses (3%, n=2). (See Table 1).

Health care professionals' attitudes and beliefs towards family presence. Responses to items of the survey are summarized in Table 2. The majority of health care professionals (84.6%, n=143) strongly agreed and agreed that providing psycho-social-spiritual support to family members is an aspect of their job. When health care professionals were asked about their comfort level when providing psycho-social-spiritual support to family members, slightly more than half were comfortable providing this type of support to family members (65.9%, n=110) and 21.3% (n=36) were undecided.

Less than half of the respondents strongly agreed and agreed that appropriate psycho-social-spiritual care is provided to either patients or their family members during invasive procedures (39.4%, n=70), while 36.1% (n=61) of health care providers remained neutral. Of the respondents, 39.4% (n=65) strongly agreed and agreed that proper psycho-social-spiritual care is provided to family members of patients undergoing cardiopulmonary resuscitation. Comparably, a large portion of respondents remained neutral 32% (n=54).

Only 44% (n=75) believed that the family should not have the option to be present. Furthermore, less than half of the respondents (40.9%, n=69) strongly agreed and agreed to giving family members the option to be present during cardiopulmonary resuscitation. Of the respondents, 43.8% (n=77) strongly agreed and agreed that FP during cardiopulmonary resuscitation is a patient/family right. However, the majority of respondents (45.0%, n=76) believed that FP would interfere with patient care.

When health care professionals were asked if FP during resuscitation would make the effort more stressful for team members, the majority of respondents strongly agreed and agreed (61.5 %, n=104). Only a small portion of respondents (15.3%, n=26) believed that by excluding families during CPR would put them at higher risk of litigation.

Just over half (56.8%, n=96) of the respondents had participated in FP during invasive procedures and 51.5% (n=87) during CPR. Less than half (42.6%, n=72) reported FP presence hampered their job performance. Health care providers perceived increased staff stress during FP and the family's presence was viewed as a distraction. Lack of knowledge, emotional situation, and cultural differences were possible reasons given why their job performance may be hampered.

The majority of health care professionals would choose to be present during a family member's invasive procedure (63.9%, n=108) and more than half would choose to be present during a cardiopulmonary resuscitation effort (55.6%, n=94). Half of the health care professionals believed their family members should have the option to be present during an invasive procedure (52.6%, n=89) and during a cardiopulmonary resuscitation effort (53.9%, n=91).

The majority of health care professionals (72.2%, n=122) would advocate for the option of FP for themselves. Possible reasons included: to advocate/aid in decision making, to understand the severity, to decrease family anxiety and fear, to support and comfort, and to see that everything was done. Other respondents stated that they felt the family had the right to be present. Of the health care professionals (21.9%, n=37) who did not

Table 1: Respondents

Role	N	Percent
Registered Nurse	117	72%
Physicians/Medical Student	20	12%
Respiratory Therapist	6	4%
Chaplain	4	3%
Clinical Nurse Specialist/ Nurse Practitioner	3	2%
Licensed Practical Nurse	3	2%
Radiology Technician	2	1%
Nursing Attendant	2	1%
Manager/Administrator	2	1%
Pharmacist	2	1%
Social Worker	1	1%
Rehabilitation Medicine	1	1%

Table 2: Survey results

Survey items	Health care professionals' attitudes and beliefs						Measures of central tendency		
	SA	A	N	D	SD	MD	N	ME	MO
Providing psycho-social-spiritual support to family members is part of my job/practice	87	56	11	9	6	0	169	1	1
I feel comfortable providing psycho-social-spiritual support to family members during treatment situations	53	57	36	16	5	2	167	2	2
I feel appropriate psycho-social-spiritual care is provided to patients and their family members when patients are undergoing invasive procedures	20	50	61	28	8	3	167	3	3
I feel appropriate psycho-social-spiritual care is provided for family members of patients undergoing resuscitation	20	45	54	35	11	4	165	3	3
I believe family members should have the option to be present during invasive procedures	17	35	39	44	31	3	166	3	4
I believe family members should have the option to be present during resuscitation situations	27	42	36	28	36	0	169	3	2
The option of family presence during resuscitation is a patient/family right	30	44	35	29	28	3	166	3	2
Family presence during resuscitation would interfere with patient care	30	46	44	37	12	0	169	3	2
Family presence during resuscitation would make the effort more stressful for members of the code team (health care providers responsible for the resuscitation)	43	61	25	28	12	0	169	2	2
Excluding families during resuscitation exposes caregivers to greater risk for litigation	7	19	47	54	35	7	162	4	4
	Yes	**No**	**N**	**MD**					
I support a hospital family presence policy if the situation is appropriate and a designated family presence facilitator is present	140	22	162	7					
Have you participated in a treatment situation in which a family member was present during the performance of a invasive procedure	96	68	164	5					
Have you participated in a treatment situation in which a family member was present during the performance of a resuscitation	87	79	166	3					
Has your job performance ever been hampered by the presence of a patient's family members	72	86	158	11					
If your family member was ill or injured, would you (as a health care provider) want the option to be present during an invasive procedure	108	55	163	6					
If your family member was ill or injured, would you (as a health care provider) want the option to be present during a resuscitation	94	70	164	5					
If your family member was injured, do you feel other members of your family (non-health care providers) should have the option to be present during an invasive procedure	89	74	163	6					
If your family member was injured, do you feel other members of your family (non-health care providers) should have the option to be present during a resuscitation	91	71	162	7					
If you were critically ill/injured, would you want the option to have your family member present at your beside	122	37	159	10					

Legend: SA= Strongly agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, MD= Missing Data, N= Sample, ME= Median, MO= Mode.

wish to have the option of their family present, their reasons given were that family would have a lack of knowledge, the experience would be too traumatic and disturbing, family may interfere with the procedure, and it would cause increased staff stress.

Barriers to family presence. Health care professionals were asked to list what they perceived as barriers and personal reservations surrounding family presence. The largest percentage of health care providers perceived lack of support for family as the greatest barrier to FP (39.6%, n=67), followed by the belief that FP will be too traumatic for the family (24.9%, n=44). Respondents also perceived the traditional practice of excluding families during invasive procedures or CPR as one of the greatest barriers to FP (15.4%, n=26). Other perceived barriers identified included who makes the decision to allow FP, consideration of patients' rights, cultural differences, and the current model is task orientated rather than patient/family orientated.

Policy and procedures. The majority of respondents (82.9%, n=140) supported a hospital family presence policy if the situation is appropriate and a designated family presence facilitator is present.

Discussion

Cardiac health care professionals have indeed experienced FP both professionally and personally. Within their professional experience, they perceived the following regarding FP: it may increase stress of staff, the experience may be too traumatic for the family, families have a lack of knowledge about procedures being performed, there is a lack of support for family, family may interfere with procedures, and there is a tradition of excluding the family. Perceived benefits of FP during CPR were that it could provide support and comfort to the patient and their family, families can advocate and help in the decision making process, it can help with the grief process, and it can decrease anxiety and fears.

The acceptance rate for FP during CPR or invasive procedures among the cardiac health care professionals was less than half. In addition, only 44% of the respondents believed that FP is a patient and family right. This is similar to the findings of McClenathan et al. (2002) who also reported low acceptance of FP among physicians and nurses. However, significantly higher acceptance rates for FP were noted by Duran et al. (2007), Meyers et al. (2000), and Grice et al. (2003). A possible explanation could be that respondents in these studies may have had greater experience with FP than respondents in this survey. Despite this low acceptance rate, 83% of respondents supported a hospital policy and procedure for FP with a designated family facilitator.

Respondents of this survey perceived a lack of support for the family as the greatest barrier to FP. This is consistent with Ellison (2003) who also listed lack of support for family as one operational constraint to FP. The respondents' perception that family may physically interfere during CPR or an invasive procedure, are congruent with findings of Meyers et al. (2000) and Helmer et al. (2000). They also thought the experience of FP would be too traumatic, or emotionally distressful for family members, and television was not accurate to the reality of the situation, which are common themes found within the literature (Ellison, 2003; Grice et al., 2003; Meyers et al., 2000; Miller & Stiles, 2009; Redley & Hood, 1996).

Respondents also strongly believed that FP during CPR would make the situation more stressful for the resuscitation team. Ardley (2003) also found this to be a major concern for health care professionals. Miller and Stiles (2009) noted that once staff overcame the stereotypes that surround FP and transitioned into the practice, they reported being less anxious and having positive experiences. Furthermore, Miller and Stiles suggested the transition or change to FP could also be a potential source of stress for health care professionals.

A common barrier cited within the literature was the fear that FP may increase the likelihood of legal action toward members of the resuscitation team (Grice et al., 2003; Meyers et al., 2000). Though this is a concern held by the respondents of this survey and listed as a possible barrier to FP, it was only held by less than 10%.

Health care providers perceived the benefits of FP to be that if family members are able to see the severity of illness and that everything was done, it can assist in the family's grieving process, it allows the family to advocate for the patient, and it can provide information and emotional support for the patient and family (Fulbrook et al., 2005; Grice et al., 2003; Mcmahon-Parkes et al., 2009; Meyers et al., 2000). The common reasons why respondents wanted FP for themselves in the survey was to provide support and comfort, advocate and aid in decision making, understand the severity of the situation, help with coping and grief, and help decrease their family's anxiety and fear.

Limitations. The greatest limitation is with the sample. The sample size was small and, therefore, may not accurately reflect the opinions held by all cardiac health care professionals in the Edmonton and area hospitals. Furthermore, surveying only cardiac health care professionals excluded other health care providers that may have had experience with family presence, such as emergency department or general intensive care. Also, the survey did not include information on the respondents' culture and religion, which may influence attitudes, or specify specific procedures or treatments such as intubation or central line placement. This survey also focused on health care professionals' attitudes and beliefs towards family presence. The wants and needs of patients and their families also require consideration.

Conclusion

Family presence during cardiopulmonary resuscitation or invasive procedures has occurred and will continue within the practice of cardiac health care professionals. The benefits of this practice have been clearly outlined within the literature and are congruent with the perceived benefits held by health care professionals who responded to this survey. Health care professionals also supported the development of a policy and procedure for family presence. Through the development of policy and procedures, health care professionals perceived barriers and concerns to FP being diminished. ♥

About the Authors

Sarah Kosowan, RN, MN, NP, Cardiology, Misericordia Hospital, Edmonton, AB.

Louise Jensen, RN, PhD, Professor, Faculty of Nursing, University of Alberta, Edmonton, AB.

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Coaching in the Cardiovascular Surgical Population

Suzanne Fredericks, RN, PhD

Background: More than one quarter of all cardiovascular surgical patients are re-admitted to hospitals with post-operative complications experienced during the first three months of recovery.

Aim and method: The purpose of this discursive paper is to review the literature pertaining to a self-management coaching intervention that is currently being evaluated using a randomized controlled clinical trial.

Relevance to clinical practice: A discussion of how to integrate coaching into clinical practice is presented. The use of coaching in the clinical setting has implications for nurses in that it can be used to assess behaviours, knowledge, and learning needs; provide individualized education that is reflective of a patient's identified learning needs; collaborate with patients in setting goals; identify barriers and engage in problem-solving to overcome barriers; and create a specific plan for follow-up.

Address for correspondence: Suzanne Fredericks, RN, PhD, Associate Professor, Daphne Cockwell School of Nursing, Ryerson University, 350 Victoria St., Toronto, ON M5B 2K3

Telephone: 416-979-5000 ext. 7978; Fax: 416-979-5332; Email: sfrederi@ryerson.ca

Key words: coaching, self-management, cardiovascular

Le coaching auprès d'une population cardiovasculaire de chirurgie

Introduction : Plus d'un quart de tous les patients de chirurgie cardiovasculaire sont ré hospitalisés pour des complications postopératoires qui surviennent au cours des trois premiers mois lors du rétablissement.

But et méthode : Ce manuscrit a pour objectif de présenter une revue de la littérature sur l'intervention de coaching autogestionnaire qui est présentement en évaluation à l'aide d'un devis de type essai clinique randomisé contrôlé.

Pertinence pour la pratique clinique : Une discussion sur l'intégration du coaching dans la pratique clinique y est présentée. L'utilisation du coaching dans le milieu clinique a des implications pour les infirmières puisqu'il peut servir à évaluer les comportements, les connaissances et les besoins d'apprentissages. Le coaching peut être utilisé pour offrir un enseignement individualisé qui tient compte des besoins d'apprentissages identifiés par le patient, collaborer avec les patients afin de fixer des objectifs, identifier les barrières et s'engager dans des activités de résolution de problèmes qui permettront de franchir ces barrières, et enfin définir un plan d'action spécifique pour le suivi.

Background

Coronary artery bypass graft (CABG) and valve replacement (VR) are the most common surgical treatments for cardiovascular disease. In Ontario, approximately one in every 1,000 individuals undergoes CABG and/or VR annually (Cardiac Care Network of Ontario, 2009). Despite the advantages, heart surgery may result in negative changes in the physical functioning of individuals within the first three weeks following surgery (Ai, Dunkle, Peterson, Saunders, & Bolling, 1998; Cebeci & Celik, 2007; Chunta, 1999; D'Agostino et al., 1999). These changes include fluid retention; sudden fluctuations in heart rate and rhythm; increased feelings of nervousness; and the presence of symptoms such as fatigue, dyspnea, pain, and muscle soreness (Beckie, 1989; Watt-Watson & Stevens, 1998). These changes are significant, as patients are spending less time in hospital due to the gradual decrease in the length of hospitalization (Cardiac Care Network of Ontario, 2009), which means reduced access to health care providers, requiring patients to become more engaged in the self-management of their condition throughout their recovery than was previously required. In particular, patients are required to carry out specific self-management behaviours to promote recovery that include monitoring their fluid and nutrition intake; ongoing assessment and modification of activity, such as bathing, dressing, and moving about; managing new and, at times, complex drug therapies; and recognizing and appropriately responding to signs and symptoms of pulmonary, wound, and abdominal complications, such as pain, dyspnea, fatigue, and edema (Cardiac Care Network of Ontario, 2009).

Within the current acute care cardiovascular surgery (CVS) settings, education is typically provided to all patients who have undergone CABG and VR surgery (Fredericks, Ibrahim, Puri, 2009; Koertke, Minami, Bairaktaris, Wagner, & Korfer, 2000). The intended outcome of these education programs is the increased confidence and effectiveness to self-manage behaviours following discharge. The delivery of education generally occurs 24 to 48 hours prior to hospital discharge (Fredericks, 2009) and usually involves presenting standardized information that addresses medication management, "healthy heart" diet, activity, signs and

symptoms of infection, incision care, and complications (Public Health Agency of Canada, 2009; Winslow, 1986).

In Ontario, although resources in the form of education are made available to promote recovery, more than a quarter of all CABG and VR patients are re-admitted to hospital with post-operative complications within the first three months of recovery (Cardiac Care Network of Ontario, 2009). The most common reasons for re-admission are post-operative infections (28%) and heart failure (18%) (Hannan, Racz, & Walford, 2003). The hospital re-admission rate for CABG and VR patients is one of the highest across the province and has significant implications for health care resource utilization and continuity of care. A possible reason for the high rate of re-admission following heart surgery is the quality of patient engagement in learning and performing self-management behaviours. In particular, patients who have had CABG and VR may not be fully engaged in the required self-management behaviours, contributing to the onset of complications, leading to hospital re-admissions.

Aim and Method

To complement existing patient education programs, an interactive communication strategy may be required. In this article, the author presents a review of the literature related to a self-management based intervention that is currently under evaluation, beginning with a brief description of self-management and coaching, followed by a literature review. A summary of the study currently underway will then be presented.

Literature Review

Self-management. There is no single definition for self-management; but, it is commonly referred to as the day-to-day tasks an individual undertakes to control or reduce the impact of disease on physical health status (Robertson & Keller, 1992). Interventions to promote self-management differ from patient education interventions in that they are based on five principles: assessment of behaviours and knowledge; provision of specific information about health behaviours; collaborative goal-setting between the patient and the health care provider; identification of barriers, strategies, problem-solving techniques; and creation of a specific plan for follow-up (Robertson & Keller, 1992).

During the home recovery period, the individual may engage in self-management behaviours developed in collaboration with his or her health care provider (Robertson & Keller, 1992). Successful self-management requires sufficient knowledge of the condition and its treatment, performance of certain activities to manage the condition, and application of necessary skills to maintain adequate psychosocial functioning. The goals of interventions to promote effective self-management are increased self-efficacy and improved clinical outcomes.

Self-efficacy is the confidence individuals have regarding their ability to perform self-management behaviours (Robertson & Keller, 1992; Sallis, Hovell, Hofstetter, & Barrington, 1992; Stretcher, DeVellis, Becker, & Rosenstock, 1986). It is influenced by the individual's ability to understand health teaching. King et al. (2010) examined the relationship between self-efficacy and self-management behaviours. Their findings suggest that self-efficacy is a strong predictor of self-management following hospital discharge, with daily activities increasing gradually after discharge ($p < 0.05$). The higher the level of self-efficacy an individual possesses related to his/her ability to engage in self-management behaviours, the more likely he or she will engage in this behaviour. Thus, interventions to promote effective self-management are geared towards enhancing the individual's level of self-efficacy.

Self–management interventions and chronic illness. Goldstein, Whitlock, and DePue (2004), Ockene, Reed, and Reiff-Hekking (2009), Newman, Steed, and Mulligan (2004), and Guevara, Wolf, Grum, and Clark (2003) examined self-management interventions delivered to patients living with chronic illnesses including diabetes, alcoholism, asthma, and depression. They all reported significant increases in the performance of behaviours ($p < 0.05$) following delivery of the self-management intervention. The findings support the need to move towards providing not just information about how and when to perform specific behaviours, but encouraging and motivating patients to be able to master behaviour performance. These findings also support the need to work with patients to establish and achieve goals relating to behaviour performance. Thus, to facilitate behavioural change, it is important to motivate patients to gain the capability to engage in desired behaviours.

Researchers who have investigated the effectiveness of CABG and/or VR patient education interventions in producing changes in performance of behaviours reported non-significant effects on the outcomes (Beckie, 1989; Fredericks, 2009). These non-significant findings can be attributed to the nature of the treatment, which consisted of the delivery of educational materials without the integration of a supportive mechanism. Thus, the education was provided at one time, without follow-up or assessment of the patient's knowledge and performance of behaviours. As well, patients were not encouraged or shown how to establish goals related to behaviour performance during their recovery period. These activities have the potential to enhance the likelihood of the individual engaging in the required self-management behaviours during their post-operative recovery period. Assessing patients' knowledge, providing education to address knowledge gaps, collaborating with the individual to establish goals related to behaviour performance, and

supporting and encouraging the individual to perform specific behaviours are the defining qualities of self-management support interventions. An example of a self-management support intervention is coaching, which consists of the assessment of an individual's values and beliefs about performing specific behaviours, followed by the provision of education based on the identified values and beliefs pertaining to the behaviour. This phase is then followed by goal setting related to behaviour performance and, finally, an evaluation of the achievement of goals from previous sessions (Vale, Jelinek, Best, & Santamaria, 2002).

Coaching as a Self-Management Intervention

Coaching is a motivational approach often used to encourage the implementation of self-management behaviours (Vale et al., 2002). It has been shown to be effective in the cardiac population as a means of achieving target cholesterol within the home environment (Vale et al., 2002). Coaching is typically provided by a therapist who has specialized training and experience with patients from a specific patient population (e.g., cardiovascular surgery). The self-management approach to coaching is delivered in four stages, ranges between 20 and 30 minutes in duration, and is delivered at two different times.

The first stage involves asking questions to establish the patient's knowledge about specific behaviours in which he or she is required to perform during his or her home recovery period. Having an understanding of previous self-management knowledge provides a context for evaluating the successes and difficulties, as well as level of understanding and misunderstanding related to the content. In addition, information related to reasons as to why engagement in recommended behaviours was not performed is also collected.

The second stage of a coaching intervention consists of behaviour reinforcement in which misconceptions are clarified and self-management information is presented in greater depth. For example, if it appears that the patient has misunderstood the educational information, the therapist will review the content with the patient to clarify any misconceptions.

Stage 3 consists of problem-solving and motivational guidance in which the therapist works with the patient to identify personal barriers that prevent performance of self-management behaviours. The therapist works with the patient to problem-solve these barriers, negotiate realistic goals, and brainstorm creative, concrete, and realistic strategies for engagement in self-management behaviours within the home environment. During the final stage of the coaching session, when the intervention is first delivered, the therapist works with the patient to establish timelines for completion of goals. On the second delivery of the intervention at two weeks following hospital discharge, during stage 4 of the coaching intervention, the therapist assesses whether or not established goals have been achieved. The therapist also provides positive encouragement, praise, and support for efforts and relapses (Vale et al., 2002).

Description of Current Study

A randomized controlled trial is currently underway to evaluate the effectiveness of a coaching intervention as it relates to improved self-management, decreased incidence of co-morbid conditions, and reduced hospital re-admission rates. This study is being conducted on a cardiovascular surgical unit at a university-affiliated teaching hospital in a large Canadian urban centre. This study is unique because it is the first to evaluate the effectiveness of a self-management intervention that focuses on coaching patients to achieve desired self-management behavioural changes following either CABG or VR surgery or both. The results from this study will be used to design appropriate interventions to enhance the recovery of patients following heart surgery. As well, the results will be used to shape policy and nursing practice guidelines for caring for patients post-CABG and VR.

Description of the self-management coaching intervention. During the delivery of the self-management intervention, patients will be coached to take responsibility for the achievement and maintenance of behaviours related to activity modification, nutrition, medication management, and management and prevention of complications. Specifically, the following topics will be discussed: the type, frequency and time to perform activity; the amount of fluid to consume in a day, strategies to manage sudden weight gain; management of medication; performance of deep breathing and coughing exercises; the number of times to use the incentive spirometer, how often to clean incisional wounds, how frequent to assess the incision for signs of complications, and when to contact a healthcare provider when signs of complications are noted. The self-management coaching intervention consists of a systematic process for providing self-management information, aimed at enhancing understanding and performance of self-management. As compared to usual care, the self-management coaching intervention involves the assessment of patient knowledge, provision of educational reinforcement, and motivational guidance, which involves establishment of goals.

The self-management coaching intervention will be given above and beyond usual care. The usual patient teaching that is delivered on the unit is in the form of a video and discharge booklet. The content of the booklet is based on a literature review of the learning needs of the CABG and VR patients and addresses salt intake, fluid restrictions, basic function of typical medications (such as beta-

blockers, ace-inhibitors, Warfarin, and analgesics) along with strategies to facilitate taking medication, improving activity performance (such as lifting objects, climbing stairs, walking, and sexual activity), and attending follow-up appointments. Usually, the nurse reviews the content of the booklet, at one point, with the patient and his or her family members prior to discharge.

The goal of this self-management coaching intervention is to enhance patients' self-care behavioural performance while reducing the onset of post-operative complications and hospital readmission rates following CABG or VR surgery, or both.

Conclusion and Relevance to Clinical Practice

The use of coaching sessions to complement the existing in-patient education program within the cardiovascular surgical population has not been examined. Such an intervention may lead to reduced hospital readmission rates, as well as a decline in the incidence and severity of post-operative complications within the first three months of recovery following CABG, VR, or both surgeries.

Using coaching to supplement existing CVS patient education initiatives would require trained CVS nurses with dedicated time to be able to engage in the coaching dialogue with the individual. Integrating this intervention would also require nurses to assess behaviours, knowledge, and learning needs; provide individualized educational materials that are reflective of a patient's identified learning needs; collaborate in setting goals with patients; identify barriers and engage in problem-solving to overcome barriers; and create a specific plan for follow-up. As well, dedicated space to allow for confidential patient interaction and access to a telephone are also required. It is important that the coach (nurse) provide evidence-based advice. However, coaching must be tested and shown to be efficacious in changing behaviours, reducing complications, and preventing hospital re-admissions before integrating it into the clinical setting. ♥

About the Author

Suzanne Fredericks, RN, PhD, Associate Professor, Daphne Cockwell School of Nursing, Ryerson University, Toronto, ON.

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Did you know?

2010 Resuscitation Guidelines Update

Susan Morris, RN, BN, MEd, CNCC(C), CCN(C)

The International Liaison Committee on Resuscitation (ILCOR) is an assembly of health care providers responsible for resuscitation guideline revisions. Their mandate is to provide revisions every five years. This group is made up of international experts from the field of medicine, nursing/allied health,

Basic Life Support		
Topic	**Change**	**Rationale**
Layperson CPR	Compressions only, omit the airway and breathing component.	Potential to increase survival rate as bystanders may be less hesitant to do compressions if breaths are omitted.
Trained providers and health care providers	CAB method: compressions first followed by opening the airway and offering two breaths.	Bring compressions to the forefront and stress the importance.
Compression ratio	Unchanged: 30:2 as a lone rescuer for all victims and then 15:2 for two-person infant and child.	Ratio is unchanged but compressions first.
Compression rate	At least 100 per minute instead of about 100 per minute.	Higher survival rates are associated with increased # of compressions.
Compression depth	1.5 inches in an infant. Two inches in a child. At least 2 inches in an adult.	More effective at circulating blood.
Hand position	Unchanged: Centre of chest lower part of sternum avoiding the tip of the sternum.	Hand placement between the nipples proved to be an unreliable landmark, but the hand position has not changed
Breathing Assessment	If the victim is unresponsive and not breathing (or only gasping) begin CPR. Treat the victim with gasps as though there is no breathing and begin CPR with the CAB method (breaths are still delivered with a barrier device over one second).	There is a high likelihood of agonal or irregular gasping in early cardiac arrest that confuses responders. Simplifying the breathing assessment by looking for no breathing or only gasps is intended to help laypersons and health care providers respond more quickly
Key: CAB = compressions, airway, breathing, CPR = cardiopulmonary resuscitation.		

Miscellaneous		
Topic	**Change**	**Rationale**
Cricoid pressure	Routine use of cricoid pressure not recommended.	Regardless of expertise this is not done effectively and can complicate or prevent advanced airway placement.
Defibrillation pad placement	Four pad positions are equally effective: (anterolateral, anterior/posterior, anterior left infrascapular, anterior right infrascapular).	Four pad positions appear to be equally effective to treat atrial and ventricular arrhythmias. There are no studies directly pertaining to placement of pads/paddles for defibrillation success with the end point of ROSC. All four positions are equally effective in shock success. Any of the four pad positions is reasonable for defibrillation (Class IIa, LOE B). For ease of placement and education, anterolateral is a reasonable default electrode placement (Class IIa, LOE C). Ten studies indicated that larger pad/paddle size (8 to 12 cm diameter) lowers transthoracic impedance.
Use of an AED in infants	For infants a manual defibrillator is preferred but if one is not available, an AED with pediatric capabilities is preferred. If neither is available, an AED for adults may be used.	AEDs designed to be used on adults have been successful when used on infants with out-of-hospital cardiac arrest when coupled with bystander CPR. Minimal heart muscle damage and good neurological outcomes were reported.
Key: ROSC = return of spontaneous circulation, LOE = level of evidence, AED = automated external defibrillator.		

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Advanced Cardiac Life Support		
Topic	**Change**	**Rationale**
Ventricular tachycardia and fibrillation	One cardiac arrest algorithm that asks shockable or non-shockable rhythm. Consider induced hypothermia for post arrest victims.	Immediate induction of hypothermia has demonstrated significant neurological improvement.
PEA/asystole	One cardiac arrest algorithm that asks shockable or non-shockable rhythm. For non-perfusing, non-shockable rhythms (PEA/asystole) both pacing and atropine have been removed from the algorithm	Routine use of atropine and pacing has not shown benefit. SPECIAL POPULATIONS MUST BE CONSIDERED (i.e., for post-op cardiac surgery population pacing is recommended and is highly effective). Note: of particular importance following ROSC in PEA/asystole is the treatment of hypoxemia and hypotension. Consider induced hypothermia following ROSC.
Bradycardia	Atropine first and if ineffective go to dopamine infusion OR epinephrine infusion OR TC pacing	Dopamine at 2–10 mcg/kg/min. Epi at 2 mcg/min. Dopamine/Epi/pacing are equally effective if atropine fails to increase heart rate.
Unstable tachycardia	Synchronized cardioversion.	No recommended changes.
Stable tachycardia	The only addition is to consider adenosine in wide, regular monomorphic tachycardia	Some studies showed that adenosine converted an undifferentiated wide complex tachycardia to sinus rhythm. Ensuring the rhythm is regular is key. May be diagnostic.
Miscellaneous	Waveform capnography immediately following endotracheal intubation.	A low ETCO2 < 10 mmHg indicates low blood flow and can be an indicator to improve quality of compressions. As CPR continues the ETCO2 also rises until ROSC where a significant rise is observed.
	Aim for an SPO2 of 94% as opposed to 100%.	Hyperoxygenation has been identified with poor patient outcomes.
	If an arterial line is insitu continuous assessment of diastolic pressure is indicated.	Since coronary perfusion pressure cannot be routinely assessed during CPR a reasonable substitute is arterial relaxation or diastolic BP. If DBP less than 20 mmHg it is reasonable to consider trying to improve the quality of CPR or giving a vasopressor or both.
Additional link in the chain of survival	With ROSC must consider induced hypothermia. Treat hypotension post resuscitation with four-degree fluid if inducing hypothermia and or vasopressors to maintain SBP > 90 mm Hg.	Immediate induction of hypothermia has demonstrated significant neurological improvement.
Key: PEA = pulseless electrical activity, ROSC = Return of spontaneous circulation, ETCO2 = End-tidal carbon dioxide, SPO2 = pulse oximetry, CPR = Cardiopulmonary resuscitation, DBP = diastolic blood pressure, SBP = systolic blood pressure, TC = transcutaneous pacing.		

and emergency medical system specialists. The latest guidelines were released in October 2010, and the milestone celebration theme was "Hands of Time: Celebrating 50 Years of CPR". Special thanks go to Drs. Jude, Knickerbocker, and Kouwenhoven for their discovery 50 years ago. We continue to use their basic principles of external compression along with early defibrillation to improve survival from sudden cardiac death (SCD). The following is a summary of the guideline changes for basic life support (BLS) and advanced cardiac life support (ACLS) taken from the November 2010 supplemental issue of *Circulation*.

About the Author

Susan Morris, RN, BN, MEd, CNCC(C), CCN(C), Clinical Nurse Educator, New Brunswick Heart Centre, Saint John, New Brunswick. Email: ***Susan.Morris@HorizonNB.ca***

Reference

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Saviez-vous que?

Mises à jour 2010 des lignes directrices en soins de réanimation

Susan Morris, inf., B.Sc.Inf., M.Ed, CNCC(C), CCN(C)

L'*International Liaison Committee on Resuscitation* (ILCOR) est une association de professionnels de la santé qui a pour responsabilité la révision des lignes directrices en soins de réanimation. Leur mandat est de faire une révision à tous les cinq ans. Ce groupe est composé d'experts internationaux issus des domaines médical, infirmier/autre professionnel de la santé et de spécialistes en soins d'urgence. Les dernières lignes directrices sont disponibles depuis octobre 2010, sous le thème honorifique « Le gardien du temps : célébrons 50 ans de RCR ». Des remerciements particuliers vont aux Drs Jude, Knickerbocker et Kouwenhoven pour leur découverte, il y a maintenant 50 ans. Nous continuons d'utiliser leurs principes de base pour les compressions thoraciques externes accompagnées d'une défibrillation précoce, pour augmenter la survie lors d'une mort subite d'origine cardiaque. Le texte qui suit est un résumé des changements apportés aux lignes directrices des soins immédiats en réanimation (SIR) et des soins avancés en réanimation cardiovasculaire (SARC), publiés dans le supplément de la revue *Circulation* en novembre 2010. ♥

Soins immédiats en réanimation		
Thème	**Changement(s)**	**Justification(s)**
Secouristes non-qualifiés en RCR	Compressions thoraciques seulement; omettre le volet des voies aériennes et de la respiration.	La possibilité d'augmenter le taux de survie peut encourager une personne non-initiée à la RCR à débuter les compressions thoraciques si le volet respiratoire est exclu.
Secouristes en RCR et dispensateurs de soins	Méthode CAB: compressions thoraciques en premier lieu, suivies par l'ouverture des voies aériennes et l'administration de 2 ventilations.	Prioriser les compressions thoraciques et insister sur leur importance.
Rapport compression thoracique: ventilation	Inchangé: 30:2 à 1 secouriste pour tous types de patients et 15:2 à 2 secouristes pour les enfants et les nourrissons.	Le rapport est inchangé mais les compressions thoraciques se font en tout premier lieu.
Fréquence des compressions thoraciques	**Au moins** 100 par minute au lieu **d'environ** 100 par minute.	Un plus haut taux de survie est associé à un nombre plus grand de compressions thoraciques.
Profondeur des compressions thoraciques	4 cm pour un nourrisson, 5 cm pour un enfant, au moins 5 cm pour un adulte.	Circulation sanguine plus efficace.
Position des mains (repères anatomiques pour la compression thoracique)	Inchangée: centre du thorax, portion inférieure du sternum en évitant la pointe du sternum	Positionner les mains entre les mamelons s'est révélé être un repère peu fiable mais la position des mains demeure inchangée.
Évaluation de la respiration	Si la victime est inconsciente et ne respire pas (ou démontre une respiration agonale ou irrégulière), débuter la RCR. Traiter la victime avec respiration agonale ou irrégulière comme si elle ne respirait pas et débuter la RCR avec la méthode CAB (les ventilations sont encore administrées avec un matériel de protection d'une seconde).	Il existe une forte probabilité d'observer une respiration agonale ou irrégulière au début d'un arrêt cardiaque, ce qui peut être mal interprété par la personne qui porte assistance à une victime. Simplifier l'évaluation de la respiration en observant l'absence de respiration ou la présence d'une respiration agonale ou irrégulière aura pour effet d'aider les secouristes non-qualifiés en RCR et les dispensateurs de soins à réagir plus rapidement.

Légende : CAB = Circulation (Compression), voies Aériennes (Airway), respiration (Breathing), RCR = réanimation cardiorespiratoire.

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Divers		
Thème	**Changement(s)**	**Justification(s)**
Pression cricoïdienne	L'utilisation routinière de la pression cricoïdienne n'est pas recommandée.	Peu importe le degré de compétence, cette procédure n'est pas réalisée de façon efficace et peut compliquer ou empêcher la sécurisation des voies aériennes.
Positionnement des électrodes du défibrillateur	Quatre positions pour les électrodes sont tout aussi efficaces: antéro-latérale, antéro-postérieure, antéro-sous scapulaire droite, antéro-sous scapulaire gauche.	Les quatre positions des électrodes semblent avoir la même efficacité pour traiter les arythmies auriculaires et ventriculaires. Il n'existe pas d'étude spécifique qui aborde le positionnement des électrodes du défibrillateur comparant son efficacité selon un critère d'évaluation tel que le RCS. Les quatre positions sont d'une efficacité équivalente pour un choc réussi. **N'importe laquelle de ces quatre positions peut être utilisée pour la défibrillation** (Classe IIa, Cote B). Afin de faciliter le positionnement et l'enseignement, la position antérolatérale est utilisée par défaut lors de la mise en place des électrodes (Classe IIa, Cote C). Dix études ont indiqué que l'utilisation de larges électrodes (8 à 12 cm de diamètre) diminue l'impédance transthoracique.
Utilisation d'un DEA chez le nourrisson	Chez le nourrisson, il est préférable d'utiliser un défibrillateur manuel. En l'absence de ce dernier, un DEA pédiatrique est recommandé. Si aucun n'est disponible, un DEA pour adulte peut être utilisé.	Un DEA pour adulte a été utilisé avec succès chez le nourrisson, lors d'un arrêt cardiaque en milieu préhospitalier, lorsque combinée avec la RCR. Des dommages minimaux du muscle cardiaque et une bonne récupération neurologique ont été rapportés.
Légende : RCS = retour de la circulation spontanée (présence d'un pouls), DEA = défibrillateur externe automatisé, RCR = réanimation cardiorespiratoire.		

Soins avancés en réanimation cardiovasculaire		
Thème	**Changement(s)**	**Justification(s)**
Fibrillation et tachycardie ventriculaires	**Un** algorithme de l'arrêt cardiaque qui spécifie le rythme défibrillable ou non-défibrillable. Envisager l'induction d'une hypothermie.	L'induction immédiate de l'hypothermie a démontré une amélioration significative de l'état neurologique.
AÉSP/asystolie	**Un** algorithme de l'arrêt cardiaque qui spécifie le rythme défibrillable ou non-défibrillable. Pour un rythme non-perfusé ou non-défibrillable (AÉSP/asystolie), l'installation d'un PME et l'administration d'atropine ont été retirées de l'algorithme.	L'utilisation routinière de l'atropine et du PME n'a pas démontrée de bénéfice. UNE CLIENTÈLE PARTICULIÈRE EST À CONSIDÉRER (i.e. pour les patients en post-chirurgie cardiaque, l'utilisation du PME est recommandé et hautement efficace). N.B.: Le traitement de l'hypoxémie et de l'hypotension, suivant un RCS dans l'AÉSP/asystolie, est d'une grande importance.
Bradycardie	Administrer l'atropine en premier lieu, et si non efficace, considérer une perfusion de dopamine ou d'épinéphrine, ou installer un pacemaker transcutané.	Dopamine de 2–10 mcg/kg/min. Épi à 2 mcg/min. Dopamine/Épi/pacemaker sont tout aussi efficaces si l'atropine ne réussit pas à augmenter la fréquence cardiaque.

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Tachycardie avec pouls instable	Cardioversion synchronisée	Aucun changement recommandé.
Tachycardie avec pouls stable	Le seul ajout est de **considérer l'administration d'adénosine** dans la tachycardie à complexes QRS larges, réguliers et monomorphes.	Quelques études ont démontré que l'adénosine a convertie sans différenciation une tachycardie à large complexe en rythme sinusal. Il est primordial de s'assurer que le rythme est régulier. L'adénosine peut être utilisée comme agent diagnostique.
Divers	Utilisation de la capnographie à ondes continues immédiatement après l'intubation endotrachéale.	Un taux abaissé (< 10 mm Hg) du CO_2 expiré indique une mauvaise circulation sanguine et peut être un indicateur servant à améliorer la qualité des compressions thoraciques. Tant et aussi longtemps que la RCR est en cours, le CO_2 expiré augmentera jusqu'au RCS, où une élévation significative du taux de CO_2 expiré est observée.
	Objectif d'une SPO_2 à 94 % au lieu de 100 %.	L'hyperoxygénation a été identifiée comme ayant des effets néfastes pour le patient.
	Si une ligne artérielle est présente, l'évaluation en continue de la TA diastolique est indiquée.	Puisque la pression de perfusion coronarienne ne peut pas être évaluée de façon routinière durant une RCR, il convient d'utiliser la pression de relaxation artérielle ou la TA diastolique comme substitut. Si la TA diastolique est inférieure à 20 mm Hg, il est suggéré d'évaluer la qualité de la RCR ou de donner des vasopresseurs, ou encore les deux.
Nouveau maillon dans la chaîne de survie	Avec le RCS, il faut considérer l'induction d'une hypothermie. Traiter l'hypotension post-réanimation avec du liquide refroidi à 4° C, si l'hypothermie est induite, et/ou des vasopresseurs, afin de maintenir une TA systolique > 90 mm Hg.	L'induction immédiate de l'hypothermie a démontré une amélioration significative de l'état neurologique.

Légende : AÉSP = activité électrique sans pouls, RCS = retour de la circulation spontanée (présence d'un pouls), PME = pacemaker externe, CO_2 expiré = dioxyde de carbone en fin d'expiration, SPO_2 = saturation partielle du sang en oxygène, RCR = réanimation cardiorespiratoire, TA = tension artérielle.

Au sujet de l'auteure

Susan Morris, inf., B.Sc.Inf., M.Ed, CNCC(C), CCN(C), Clinical Nurse Educator, New Brunswick Heart Centre, Saint John, NB. Courriel : ***Susan.Morris@HorizonNB.ca***

Référence

American Heart Association. (2010). Supplement to Circulation. *Journal of the American Heart Association, 22*(18, Suppl. 3), 685–862.

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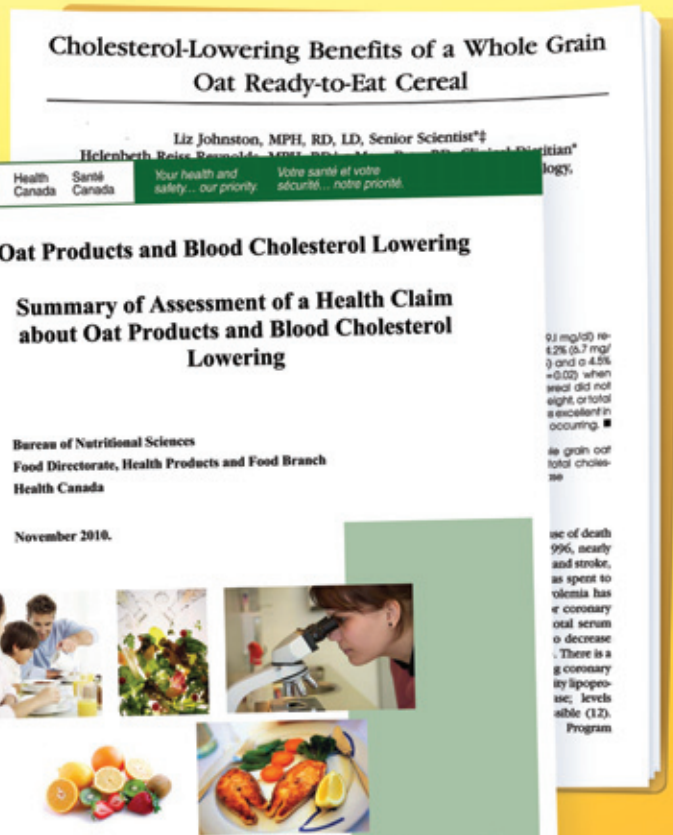
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1. www.hc-sc.gc.ca/fn-an/label-etiquet/claims-reclam/assess-evalu/oat-avoine-eng.php
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