The Official Journal of the Canadian Council of Cardiovascular Nurses
La revue officielle du Conseil canadien des infirmières et infirmiers en soins cardiovasculaires

Canadian Journal of Cardiovascular Nursing

Revue canadienne de soins infirmiers cardiovasculaires

VOLUME 25, ISSUE 1 • WINTER 2015
ISSN: 2368-8068 (Online)

Publication Mail Agreement #40051182

Canadian Council of Cardiovascular Nurses

Conseil canadien des infirmières et infirmiers en soins cardiovasculaires

BRILINTA DEMONSTRATED

AN IMPROVED OUTCOME IN THE COMPOSITE ENDPOINT

OF CV DEATH, MI AND STROKE VS. CLOPIDOGREL

BRILINTA significantly reduced the primary composite endpoint of CV death, MI and stroke vs. clopidogrel (9.8% vs. 11.7%, respectively; $p<0.001$) over 12 months in ACS patients (UA, NSTEMI and STEMI population). The difference in stroke alone was not significant (BRILINTA 1.3% vs. clopidogrel 1.1%; $p=0.225$).

BRILINTA REDUCED THE RISK OF CV DEATH VS. CLOPIDOGREL

BRILINTA 3.8% vs. clopidogrel 4.8% ($p=0.001$) over 12 months in ACS patients (UA, NSTEMI and STEMI population)

BRILINTA®
ticagrelor tablets

Canadian Journal of
Cardiovascular Nursing

Revue canadienne de soins
infirmiers cardiovasculaires

ISSN: 2368-8068 (Online)

VOLUME 25, ISSUE 1, WINTER 2015

Canadian Journal of
Cardiovascular Nursing

Revue canadienne de soins
infirmiers cardiovasculaires

Address
Canadian Council of Cardiovascular Nurses
202–300 March Road,
Ottawa, Ontario K2K 2E2
Phone: 613-599-9210, Fax: 613-595-1155
Email: david@cccn.ca

For information on content, please contact:
Paula Price, RN, PhD, Editor

For general information, please contact:
cccnmail@cccn.ca

Publishing
The *Canadian Journal of Cardiovascular Nursing* is published four times per year by the Canadian Council of Cardiovascular Nurses (CCCN).

This is a refereed journal concerned with health care issues related to cardiovascular health and illness. All manuscripts are reviewed by the editorial board and selected reviewers. Opinions expressed in published articles reflect those of the author(s) and do not necessarily reflect those of the Board of Directors of CCCN or the publisher. The information contained in this journal is believed to be accurate, but is not warranted to be so. The CCCN does not endorse any person or products advertised in this journal. Produced by Pappin Communications, Pembroke, Ontario.

Advertising
For information on advertising, please see www.cccn.ca for the rate sheet with full technical specifications.

Yearly subscription rates*

	Canada	International
Individual	$75.00	
Institution	$100.00	$125.00

If you become a member of CCCN for $75.00* (CAD) annually, you will receive your journal subscription at no additional charge.

* Plus applicable taxes

Subscriptions
Subscribe online at: www.cccn.ca

Or send cheque or money order to:
Canadian Council of Cardiovascular Nurses
202–300 March Road,
Ottawa, Ontario K2K 2E2

For general information, please contact:
david@cccn.ca

Indexing
The *Canadian Journal of Cardiovascular Nursing* is indexed in EBSCO.

ISSN: 2368-8068 (Online)

Canadian Publications Sales
Agreement No. 40051182

Canadian Council of Cardiovascular Nurses

Conseil canadien des infirmières(iers) en nursing cardiovasculaire

Canadian Council of Cardiovascular Nurses

Conseil canadien des infirmières(iers) en nursing cardiovasculaire

November 24, 2014

Dear CCCN Members,

I am writing to inform you of some significant financial changes occurring with the Canadian Council of Cardiovascular Nurses (CCCN). Most of you, as members, are probably not aware of the financial operations of CCCN and, as such, I wanted to provide a brief overview of CCCN operations.

CCCN receives funding from the following main sources, in order of significance:

1. Registrations from the Canadian Cardiovascular Congress (CCC)/(Congress)
2. Membership registrations
3. Spring conference registrations and sponsorship
4. General sponsorship, journal subscriptions and interest.

The registration revenue we received from the CCC was approximately $160,000 for 2014 compared to membership, which was approximately $55,000 for 2014. Total CCCN revenues for 2014 are expected to be approximately $260,000.

With these revenues, CCCN produces and mails the *Canadian Journal of Cardiovascular Nursing (CJCN)* four times a year, produces the programming at both the spring and fall conferences, holds two (2) face-to-face Board meetings and covers the administration expenses of the national office—including two (2) staff members. Due to the Board's commitment to be fiscally responsible, CCCN is projecting a balanced budget for 2014.

I am very pleased to inform you of the results for 2014. However, it is with a heavy heart that I inform the membership of a significant revenue loss for 2015 and beyond. Changes are being proposed to the financial structure of the CCC (Congress) and this has forced the BOD for CCCN to make some very difficult decisions for 2015 and potentially even tougher decisions in 2016.

The Canadian Cardiovascular Society (CCS), the organization responsible for coordinating Congress, has made the decision to retain all delegate registration revenue. The impact of this decision is CCCN will no longer receive delegate registration fees from Congress, resulting in a significant financial impact to our annual revenue. CCS has identified 2018 as the implementation date for its decision. For the years 2015 until 2018, a transition plan has been identified by CCS. CCCN will receive a decreasing percentage of registration fee revenue each year, thus easing CCCN to the implementation date of 2018 when CCCN will receive no registration revenue from Congress. CCCN is committed to participating in Congress and educational opportunities surrounding Congress, thereby enabling CCCN members the continued benefit of a reduced Congress registration fee.

CCCN's Board of Directors continues to be committed to operating the association based on a balanced budget. I am pleased to inform you that although some difficult decisions had to be made, we were able to balance the budget for 2015 based on the anticipated loss of revenue from Congress.

In an effort to be environmentally and fiscally responsible, we have decided to distribute the journal electronically, effective January 2015. With today's technology, the Board believes it will be much easier to distribute the journal electronically in a more environmentally friendly format. We trust the members will be supportive of this decision.

In an effort to reduce the operational expenses of our council, the Board of Directors made the decision to place provincial grants, research and clinical grants on hold for the year 2015. While this decision was not made lightly, no funds could be allocated at this time without putting the organization in a deficit. The Board of Directors did agree to revisit this particular decision mid year and should a surplus be projected, its decision would be reconsidered.

In an effort to continue reducing the association's operational expenses, the Board of Directors made the difficult decision to reduce its face-to-face meetings to once a year. This meeting will take place in conjunction with our spring conference. The spring conference is traditionally held in less expensive cities than Toronto, Montreal, and Vancouver. The only board member who will be funded to attend congress will be the director of our annual scientific sessions, currently Sandra Matheson. This decision also means that the Annual General Meeting, which is normally held in conjunction with the CCC, will now be moved to the spring conference. The date and location of the 2015 Spring Conference will be May 29 in Ottawa, Ontario. More details on the conference and AGM will be sent out in the New Year.

The difficult decisions made regarding CCCN's operational expenses for 2015 have allowed for a projected balanced budget without having to increase membership fees. However, CCCN will still be facing a financial crisis in 2016 when the funding from the CCC is reduced even further. The Board of Directors cannot make any additional cuts to operations and still maintain a level of service that our members are accustomed to. Therefore, CCCN's Board of Directors and staff need to look at increasing revenues from other sources to offset the loss it will be facing.

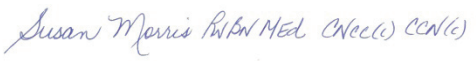
There are two ways that CCCN can increase its revenues immediately. One is to increase the number of members it currently has. The second and less palatable would be to increase the membership rate. While CCCN does not want to increase its membership fees, and will continue to seek out non-dues revenue, an eventual increase in membership fees is inevitable. That increase will be tied directly to our ability to increase our membership numbers. The more members we have, the less of an increase in membership fee is required.

We need your help to increase our membership numbers. You are the Council's best advocates, as you understand the benefits of membership and have a captive audience—your co-workers. Encouraging the individuals you work with to join CCCN would have a significant impact. To put this in context, if every member committed to renewing themselves and enrolling at least one (1) new member (or getting a past member to renew), our membership numbers would double and no membership fee increase would be required in 2016. The increase in fees would offset any loss in anticipated revenues.

We are hopeful that if the time comes to increase membership fees, you will be understanding of that decision and continue to support CCCN.

As always, we value your feedback. Your opinion counts! Please share with us any suggested changes or additional benefits of membership you would like to see. All feedback is welcome and can be sent to either me, as your president at: **Susan.Morris@Horizonnb.ca** or to the National Office staff, David Miriguay (Executive Director) at: **david@cccn.ca** or Kathryn Cyr (Administrator) at: **kathryn@cccn.ca**. ♥

Courageously yours in cardiovascular nursing,



Susan Morris, RN, BN, Med, CNCC(C), CCN(C)
President—Canadian Council of Cardiovascular Nurses

Annual Spring Conference "Update Your Nursing Toolkit"

Friday, May 29, 2015
Brookstreet Hotel, Ottawa, ON

Visit **www.cccn.ca** for complete details and to register.

Come knowing you will hear cardiovascular nursing experts speak on an array of clinically focused and practically based topics. Enjoy the opportunity to network and interact with colleagues from across the country. Discover how to translate knowledge from research into practice, and leave knowing you are better equipped to address the needs of cardiovascular patients and their families.

ACS Education App for iPad

Dear CCCN Members,

Some of you may have experienced some difficulties installing the ACS Education App for the iPad, as a licence number was requested in order to install it. You simply need to select "Other health care professional" and enter your six-digit CCCN membership number.

It was never AstraZeneca's intention to exclude nurses from using the tool with patients. In fact, they feel strongly that nurses are one of the main health care professionals that this kind of tool is geared towards. It was simply an oversight by the developers when they chose the default HCP types (GPs, pharmacists, specialists, other). The licence number was a requirement to keep this tool separate from general public use. Simply use your CCCN membership number and the App can be installed.

If you have any difficulties installing it, please let us know.

David Miriguay
Executive Director
Canadian Council of Cardiovascular Nurses (CCCN)
202 – 300 March Road
Ottawa, ON K2K 2E2
Phone: (613) 599-9210 ext: 1
Fax: (613) 595-1155
www.cccn.ca

Joint CCCN/CHFS Membership

CCCN is pleased to announce a joint Canadian Council of Cardiovascular Nurses/Canadian Heart Failure Society membership. Effective immediately, individuals may choose to join both organizations at a reduced price of $90.00 instead of $100.00.

You can take advantage of the joint membership rate simply by visiting the CCCN website at **www.cccn.ca** and selecting CCCN/CHFS from the membership options when you go to renew your membership.

Have you already renewed your CCCN membership? Please contact Kathryn Cyr at **kathryn@cccn.ca** and you will only be charged an additional $15.00. ♥

ACS Management in the Emergency Department: A Focus on Oral Antiplatelet Therapy

Because recent Canadian guidelines on the use of oral antiplatelet agents are not directed at the acute care setting, opportunities exist to improve the use of these medications in the emergency department (ED). Recent data indicate that while there has been an increase in the early use of adenosine diphosphate (ADP) receptor inhibitors, the newer agents recommended in guidelines are more likely to be administered to patients with ST-segment elevation than those without. A care pathway can promote a standardized approach to management of acute coronary syndromes (ACS) in the emergency department—one that includes accurate risk stratification and early use of antithrombotic agents.

Cardiovascular nursing has witnessed tremendous transformation over the past three decades. The care provided to ACS patients by registered nurses has progressed from supportive care during the pre-lysis era to today's evidence-based algorithms in which registered nurses have the knowledge and autonomy to assist in decision-making.

Registered nurses in an ED work with ACS patients on a daily basis. The care of a patient with ST-elevation myocardial infarction (STEMI) is clearly defined, well understood and globally embraced. Benchmarks such as time to ECG, time to diagnosis, and time to reperfusion are well defined for the STEMI patient. These benchmarks serve as indicators of success when quantitatively evaluating the influence of nursing on mortality and morbidity.

We must now look to expand the breadth of our impact and examine the evidence that exists for care of the patient with non-ST-elevation ACS. The following information is intended to enhance registered nurses' knowledge of the evidence and recommendations for oral antiplatelet therapy in ACS management within the ED. ♥

English version: **https://www.cccn.ca/media.php?mid=993**

French version: **https://www.cccn.ca/media.php?mid=992**

CCCN SCIENTIFIC SESSION CALL FOR ABSTRACTS

In conjunction with the Canadian Cardiovascular Congress, Toronto, ON, October 25–27, 2015

CCCN is announcing a Call for Abstracts related to any aspect of cardiovascular and/or cerebrovascular nursing for presentation at the Scientific Sessions of the Canadian Council of Cardiovascular Nurses in Toronto, ON, October 25–27, 2015.

Abstract submissions are invited for presentation in English or French. Please indicate on the abstract form the language in which you would like to present. Abstracts are invited as four presentation options:

Workshop: Workshop presenters will offer an interactive discussion and analysis of a clinical topic or practice issue in a forum lasting 50–60 minutes. Abstracts for workshop sessions must meet the same criteria as other submissions, and must outline the educational objectives, proposed content area and method of presentation (e.g., case study, multiple choice questions) for attendees to interact with one another and the presenters.

Oral: Paper presentations will be 15 minutes in length with an additional 5 minutes allotted for questions.

Poster: Posters will be displayed over two days of the CCCN conference. Presenters must be available at their poster location for 30 minutes on one of the two days. Poster presenters may be selected by the abstract review committee to present their poster as a moderated oral poster session.

Oral or poster: Submitters are willing to have their abstract considered by the abstract review committee for an oral or poster presentation.

Submissions are peer-reviewed in one of two categories: research and non-research. An abstract submission is reviewed in the "research" category if it describes some aspect of an original piece of research, either as "completed research" or "research in progress".

The "non-research" category includes abstracts that do not describe an original piece of research (e.g., theoretical or clinical application).

Abstracts are considered under one of the following themes: ACS/AMI, stroke, pediatrics and congenital heart disease, dysrhythmia management, health promotion, nursing education, health services, patient safety, heart failure/transplant, cardiac surgery and other.

The submission of an abstract constitutes a commitment by the author(s) to attend the meeting and to present. All presenting authors must register for the meeting and are responsible for their own transportation and accommodation. Abstract grading is performed by blind review and notification of acceptance or rejection of an abstract occurs by email in May–June 2015.

Students are invited to submit their abstract to be considered for an oral or poster presentation award at the CCCN Scientific Annual Meeting. Each award recognizes excellence in a clinical or research presentation. Successful candidates are awarded a free one-year membership and certificate of achievement. To be eligible for an oral or a poster presentation award:

1. Presentation must be based on work completed as a student and related to the program of study.
2. Presentation must be made within a year of graduation.
3. Student must be the lead or co-author, and the presenting author at the CCCN National Scientific Session.
4. Student must be a current CCCN member.

Please note, CCCN has an online submission process and all abstracts must be submitted on the web site at www.cccn.ca. The online submission process opens February 17, and closes April 3, 2015, at 2400 hours. For more information, visit **www.cccn.ca** or **contact info@cccn.ca**

READ CAREFULLY—FAILURE TO COMPLY WITH INSTRUCTIONS WILL LEAD TO DISQUALIFICATION OF AN ABSTRACT

Submission Instructions

A. Guidelines for abstract preparation

1. Abstracts must be no longer than 250 words.
2. Abstracts can be submitted in French or English.
3. Abstracts will be published in the language of original submission unless provided in both official languages.
4. Abstracts must be submitted under only one of the following presentation categories and will be considered ONLY for the selected category: • workshop • oral • poster • oral or poster presentation
5. DO NOT use headings. Abstracts must be submitted in narrative (paragraph) format.
6. Common abbreviations may be used (e.g., mm Hg), but all other abbreviations must be explained the first time that they are used (e.g., "…the Heart Health Survey [HHS] found that…").
7. DO NOT underline or use bold print within the body of an abstract to emphasize words or phrases.
8. It is recommended that abstracts be composed in a word processing program (e.g., WORD) and then cut and pasted into the abstract template. Please ensure that all spelling and/or grammatical errors are corrected before pasting into the abstract template. Webinar link to "Writing Competitive Abstracts": https://cccn.adobeconnect.com/_a1090525665/p4k5wig8yna/?launcher=false&fcsContent=true&pbMode=normal

B. Special additional guidelines for research abstracts

1. Authors must organize and present (do not use headings) the research abstract with the following information: • background or significance of the problem; • purpose of the investigation; • methods to collect and analyze the data; • results of the study; and • conclusions, including implications for practice.
2. If the study is in progress and results/conclusions are not available, it is necessary to include the potential implications for clinical practice.

C. Special additional guidelines for non-research abstracts

1. Organize and present the non-research project according to: • statement of purpose; • a description of the issue/program/technique that will be presented; • summary of major conclusions; and • description of the significance and implications for practice.

D. Policies

1. Abstracts must conform to instructions and be submitted by April 3, 2015, at 2400 hrs.
2. The submission of an abstract constitutes a commitment by the author to present if accepted. Failure to present, if not justified, will jeopardize future acceptance of abstracts.
3. There is no limit on the number of abstracts that an author's name may appear on for submission.
4. Please note: Abstracts that have been previously presented at CCCN Scientific Sessions will not be accepted. Should an abstract be accepted for presentation at CCCN Scientific Sessions in Toronto, it may not be presented in duplicate at another national conference before or within three months following presentation at CCCN. ♥

Canadian Cardiovascular Congress 2014—Vancouver, BC

On October 26, 423 CCCN members descended on the Vancouver Convention Centre to attend the 2014 CCCN Annual General Meeting and Scientific Sessions, which took place as part of the 2014 Canadian Cardiovascular Congress (CCC), the premier annual cardiovascular event in Canada. CCCN's program included 91 CCCN sessions and oral poster presentations showcasing a wide range of outstanding clinical and research work in the CV nursing field. Registration to Congress also permitted nurses to attend a multitude of other sessions being offered through the other congress partners.

CCCN's program began with its Opening Ceremonies and Dr. Sandra Lauck's presentation, "Driving Practice and Improving Outcomes: Strengthening Cardiovascular Nurses' Impact and Partnerships". CCCN also held its Annual General Meeting (AGM) that afternoon where Susan Morris, CCCN President, called it to order at 4:35 PM and welcomed everyone in attendance. Before terminating the AGM, those members in attendance were asked to provide input into some of CCCN's operational areas including the journal, the format of CCCN's program at Congress and other educational opportunities such as the annual spring conference.

Following the AGM, members were invited to attend an informal gathering at a nearby restaurant where they had the opportunity to network with fellow members from across the country, as well as with CCCN's Board of Directors.

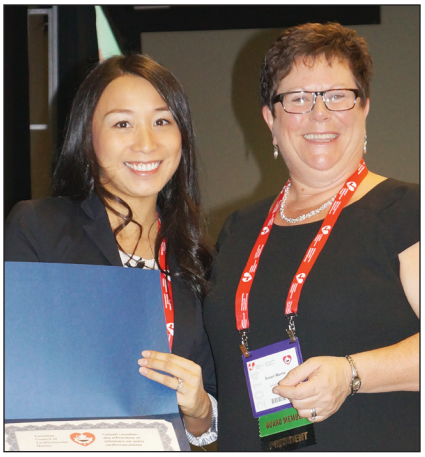
Every year CCCN honours cardiovascular nurses with awards that celebrate nursing excellence. CCCN's 2014 Cardiovascular Nursing awards were presented to Wynne Chiu (Clinical Excellence), Nancy Marko (Leadership Excellence) and Monica Parry (Research Excellence). Nomination guidelines are available on CCCN's website at **www.cccn.ca**.

CCCN wrapped up its portion of Congress on Monday afternoon with a 20-minute interactive demonstration session on the healthy heart benefits of Tai Chi. This session was followed by the CCCN Health Promotion Keynote Plenary Session by Dr. John Oliffe, "Gendering Cardiovascular Disease and Heart Health".

CCCN would like to take this opportunity to thank its National Sponsors—The Personal and AstraZeneca. CCCN would also like to thank all members who were able to join us at Congress 2014.

The 2015 Canadian Cardiovascular Congress will take place in Toronto, October 25–27, 2015. We look forward to seeing you there. ♥

National Sponsors



CCCN President Susan Morris presents Wynne Chiu with the Clinical Excellence Award.

CCCN President Susan Morris presents Nancy Marko with the Leadership Excellence Award.

CCCN President Susan Morris presents Monica Parry with the Research Excellence Award.

Photos from the 2014 AGM Reception

Stay Connected— Renew Your 2015 CCCN Membership Today!

The Canadian Council of Cardiovascular Nurses represents the largest group of Canadian nurses practising within the cardiovascular (CV) field. With more than 800 members, we invite you to **"Stay Connected"** and renew your membership today at **www.cccn.ca** or call 613-599-9210.

Canadian Council of Cardiovascular Nurses

Conseil canadien des infirmières(iers) en nursing cardiovasculaire

New Partnership

CCCN has formed a new partnership with Bushtukah, a leading retailer in Ottawa, that is focused on providing excellent service and complete solutions for active lifestyle needs. CCCN members will receive a 15% discount on all online orders of any GoFit or TigerTail products and a 10% discount on all other regularly priced items.

Simply go to **www.bushtukah.com** and use the coupon code **CCCN** on checkout from your online shopping cart. The GoFit and TigerTail catalogues have been uploaded to our website and can be accessed at **http://www.cccn.ca/media.php?mid=982** and **http://www.cccn.ca/media.php?mid=983** respectively.

Using interactive voice response to improve disease management and compliance with acute coronary syndrome best practice guidelines: A randomized controlled trial

Heather Sherrard, RN, BScN, MHA, Lloyd Duchesne, MD, FRCPC, George Wells, PhD, Sharon Ann Kearns, RN, BScN, and Christine Struthers, RN, MScN

Abstract

Background: *There is evidence from large clinical trials that compliance with standardized best practice guidelines (BPGs) improves survival of acute coronary syndrome (ACS) patients. However, their application is often suboptimal.*

Purpose: *In this study, the researchers evaluated whether the use of an interactive voice response (IVR) follow-up system improved ACS BPG compliance.*

Method: *This was a single-centre randomized control trial (RCT) of 1,608 patients (IVR=803; usual care=805). The IVR group received five automated calls in 12 months. The primary composite outcome was increased medication compliance and decreased adverse events.*

Results: *A significant improvement of 60% in the IVR group for the primary composite outcome was found (RR1.60, 95% CI: 1.29 to 2.00, p <0.001). There was significant improvement in medication compliance (p <0.001) and decrease in unplanned medical visits (p = 0.023). At one year, the majority of patients (85%) responded positively to using the system again. Follow-up by IVR produced positive outcomes in ACS patients.*

Key words: acute coronary syndrome, best practice guidelines, automated calling, interactive voice response technology

Sherrard, H., Duchesne, L., Wells, G., Kearns, S.A., & Struthers, C. (2015). Using interactive voice response to improve disease management and compliance with acute coronary syndrome best practice guidelines: A randomized controlled trial. *Canadian Journal of Cardiovascular Nursing*, *25*(1), 10–15.

Large clinical trials for acute coronary syndrome (ACS) have redefined optimal care and provided evidence for the development of standardized clinical practice guidelines (Braunwald et al., 2002; Ryan et al., 1999). According to Gulati, Patel, Jaffe, Joseph and Calvin (2004), guideline compliance for ACS management by hospital staff demonstrates significantly improved prognosis during initial hospitalization, regardless of a patient's risk score, as well as improved survival at six months in high-risk patients (Vikman et al., 2004). Despite guideline publication, dissemination and evidence that their use improves patient outcomes, significant barriers have limited their adoption such as lack of guideline awareness (Bassand, 2000; Cabana et al., 1999). While the focus of the published research has been on the management of hospitalized ACS patients, management post discharge is also suboptimal and has an impact on longer term outcomes in this population (Fox et al., 2003; Goldberg et al., 2004; Pearson & Peters, 1997; Steg et al., 2002; Yan et al., 2004).

Literature Review

Several studies have examined the use of various technologies to assist in patient care post discharge. A Cochrane Review of 25 peer reviewed RCTs (Inglis et al., 2010) concluded that structured telephone support and telemonitoring are effective in reducing the risk of all cause mortality and congestive heart failure (CHF)-related hospitalizations in patients with CHF. Although Graham et al. (2012) used automated calling technology to decrease 30-day readmission in heart failure patients, it has not been used in the follow-up of ACS patients. The development of improved automated calling (an inexpensive form of structured telephone support) provides an opportunity to test the feasibility of this technology in a new patient population—ACS.

Automated calling or interactive voice response (IVR) uses a speech recognition technology where patients receive automated phone calls at regular intervals based on a preset series of questions. The technology allows the patients to respond to questions in their own voice, receive health information or request services or care. Responses are captured in a database in a central station. Responses are flagged as no action needed or requiring a call for reassessment or action by a registered nurse (RN).

The use of IVR technology to improve compliance with ACS best practice guidelines (BPGs) builds on evidence provided by Inglis et al. (2010) that reminder systems and patient-oriented interventions can be successful in improving patient outcomes. To date there is little, if any, research on the use of IVR in following ACS patients after discharge.

Purpose

The goal of this study was to determine whether ACS patients who are contacted using IVR technology are more likely to be receiving care as recommended by best practice guidelines at one year, as compared to patients who received usual care (UC).

Two primary hypotheses guided this study. The first was ACS patients followed by IVR will have increased medication compliance and decreased adverse events, as defined by emergency room (ER) visits, hospitalization and unplanned physician visits. And the second was ACS patients will be satisfied with the use of an IVR technology in their follow-up after discharge.

Methods

Study Design

The study was a randomized control trial conducted at a quaternary hospital in Ontario, Canada, in which eligible and consenting patients with ACS were randomly assigned to either the IVR or the UC group from May 2006 to November 2008. The primary composite outcome of the trial was increased medication adherence and decreased adverse events defined as hospitalization, ER and unplanned visits to the primary care physician (PCP). A composite endpoint was used to evaluate the "net" effect of the IVR intervention on increased compliance with medication and decreased adverse events. Secondary discrete outcome measures included medication adherence, decrease in hospitalization, ER visits, and unplanned visits to the PCP. Patient satisfaction with the use of an IVR technology was also measured. The hospital research ethics board approved the study prior to recruitment.

Inclusion and Exclusion Criteria

Patients included in the study were over the age of 18 years with a diagnosis of ACS (unstable angina, ST elevation myocardial infarction [STEMI] or non-ST elevation myocardial infarction [NSTEMI]), discharged to a home with a landline telephone or cellular service, and spoke English or French. Patients with a referral for surgical revascularization, hearing and/or cognitive impairment, and absence of consent allowing chart screening were excluded from the study.

Randomization and Enrolment

Patients were randomly assigned to either the IVR or UC group using a single list of random numbers with a permuted-block design generated by an independent statistician. Allocation was blinded by using numbered, sealed envelopes containing the random allocation. Eligible patients were asked to participate during their admission by a research team member and randomized immediately after providing written informed consent.

Follow-up Intervention

IVR follow-up was performed with a commercial system, TelAsk (TelAsk Technologies Inc., Ottawa, Canada), selected on the basis of technical quality and established experience in following patients enrolled in a smoking cessation program and cardiac surgical patients after discharge (Reid et al., 2009; Sherrard et al., 2009). The IVR system uses a series of questions (algorithms) that were developed by an expert multidisciplinary working group based on the ACC/AHA practice guidelines for ACS, as detailed in the updates by Braunwald et al. (2002) and Ryan et al. (1999). Questions were structured to elicit yes/no responses in the following categories: medications, smoking, diet, exercise, and physician follow-up, as detailed in the guidelines. Questions were reviewed by a patient focus group, French (n = 12) and English (n = 13) to ensure content clarity, and the algorithm was modified based on the feedback received.

Patients in the IVR group received automated telephone calls at one, three, six, nine, and 12 months post discharge. Each call lasted five to eight minutes. The system would attempt to call the patient during three call periods between 10–12 a.m., 3–5 p.m., and 6–8 p.m. A maximum of three attempts was made within their preferred period over a span of two days. If no preference was chosen, the calling period of each day was randomly chosen among the three defined periods. When a patient could not be reached by the system, the cardiac nurse would make three attempts to reach the patient by a regular telephone call. Each day, one of two trained cardiac nurses would review the call database and respond to the prompts requiring a call back. Call protocols were developed by the multidisciplinary team to guide the RN in standardized responses. For example, in response to a flag by the system indicating a patient was no longer taking their antiplatelet medication, the nurse would call the patient and follow the call protocol. Further assessment and intervention would consist of obtaining the rationale for stopping the medication, explaining the actions, benefits and potential side effects, and calling the pharmacy, physician and/or cardiologist, as needed.

IVR calls at all time periods (one, three, six, nine, 12 months) required a response to questions regarding taking ACS medications and management of symptoms. In addition, the month one calls also asked questions on nitroglycerin supply and use, cardiac rehabilitation, smoking cessation, diet information, cholesterol levels, and follow-up appointment. For each patient, the IVR database contains patient contact information, the five best practice medication categories with their respective trade and generic names, list of questions and answers, call attempts made by the system including reason for no contact such as answering machine, and nursing documentation authenticated by an electronic signature.

Patients in the UC group received standard medical care once discharged home with no nurse-initiated or automated telephone call during the follow-up period. At one year, the UC group was called by the cardiac nurse to determine compliance with best practice medications, ER and unplanned physician visits, and readmissions.

Statistical Analysis

The analysis was conducted on an intention-to-treat basis. Continuous variables were presented as means and standard deviations, and categorical variables were presented as frequencies with percentages. For patient demographics comparisons, Student's t-tests were used for continuous variables and chi-square tests were used for categorical variables. The primary composite outcome of increased compliance with medication and decreased adverse events (ER visits, hospitalization, unplanned visits) and discrete secondary outcomes including medication compliance, ER visits, hospitalization and unplanned visits were compared between the IVR and UC groups using chi-square test. The effect estimates of differences for the primary outcome and secondary outcomes were reported in the form of relative risks (RR) and 95% confidence intervals (CI). Statistical analyses were performed using SAS (version 9.2, SAS Institute Inc., Cary, North Carolina), and statistical significance was defined as $p<0.05$.

The study had a power of 80% to detect a 15% relative improvement for the primary composite outcome in the IVR group compared with the UC group. Based on a paucity of information from previous studies, the consensus was that a 15% relative improvement in the primary outcome would be clinically important to detect. A sample size of 1,390 patients (695 per group) was needed assuming the rate for the primary outcome in the usual care group to be 56%, an alpha of 0.05, and loss to follow-up rate of 20%.

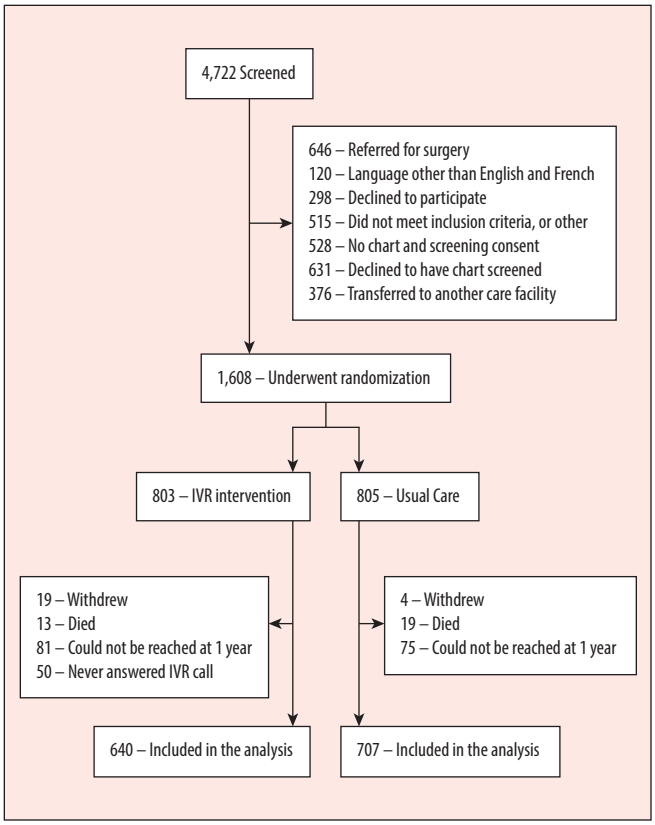


Figure 1. Study enrolment and randomization

Results

Study Population

In total, 4,722 patients were screened for participation in the study. Of the 1,608 patients randomized, 211 did not complete the one-year follow-up and 50 patients in the IVR group did not answer any automated calls (see Figure 1). The final analysis included 640 IVR and 707 UC patients.

Baseline characteristics of the patients were examined for both groups. A statistical difference in age was noted between the two groups. There were no statistical differences ($p>0.05$) in other baseline characteristics between the two groups (see Table 1). The difference in age was considered clinically

Table 1: Patient demographics

Variables	IVR n=803	Usual Care n=805	*p*
Age	62.3±11.3	63.6±11.8	0.028
Male	577 (71.9%)	591 (73.4%)	0.483
Diagnosis			
U/A	474 (59.0%)	476 (59.1%)	0.318
STEMI	187 (23.3%)	185 (23.0%)	
NSTEMI	120 (14.9%)	132 (16.4%)	
Other	22 (2.7%)	12 (1.5%)	
Family Physician	771 (96.0%)	770 (95.7%)	0.716
Employment			
Full time	253 (31.5%)	254 (31.6%)	0.941
Part time	59 (7.4%)	53 (6.6%)	
Unemployed	29 (3.6%)	27 (3.4%)	
Retired	418 (52.1%)	430 (53.4%)	
Homemaker	5 (0.6%)	7 (0.9%)	
Other	39 (4.9%)	34 (4.2%)	
Education			
Post graduate studies	46 (5.7%)	49 (6.1%)	0.052
University (Undergrad)	108 (13.5%)	132 (16.4%)	
College	136 (16.9%)	105 (13.0%)	
High School	379 (47.2%)	354 (44.0%)	
Elementary	130 (16.2%)	156 (19.4%)	
No Formal Ed.	1 (0.1%)	5 (0.6%)	
Other	3 (0.4%)	4 (0.5%)	
Living Alone	159 (19.8%)	171 (21.2%)	0.474

Note: Mean and standard deviation were reported for age, and frequency and percentage were reported for other variables.

insignificant given no difference in other characteristics. The patient demographics were also compared between follow-up patients and lost-to-follow-up patients. As shown in Table 2, the lost-to-follow-up patients tended to be younger, less likely to have a family physician and more likely to be full-time employees and living alone.

Table 2: Patient demographics with missing data

Variables	Follow-up n=1,347	Lost-to follow-up n=261	*p*
Age	63.2±11.4	61.5±12.4	0.031
Male	976 (72.5%)	192 (73.6%)	0.714
Diagnosis			
U/A	811 (60.2%)	139 (53.3%)	0.129
STEMI	303 (22.5%)	69 (26.4%)	
NSTEMI	203 (15.1%)	49 (18.8%)	
Other	30 (2.2%)	4 (1.5%)	
Family Physician	1298 (96.4%)	243 (93.1%)	0.016
Employment			
Full time	423 (31.4%)	84 (32.2%)	0.031
Part time	94 (7.0%)	18 (6.9%)	
Unemployed	40 (3.0%)	16 (6.1%)	
Retired	724 (53.8%)	124 (47.5%)	
Homemaker	11 (0.8%)	1 (0.4%)	
Other	55 (4.1%)	18 (6.9%)	
Education			
Post graduate studies	84 (6.2%)	11 (4.2%)	0.555
University (Undergrad)	207 (15.4%)	33 (12.6%)	
College	198 (14.7%)	43 (16.5%)	
High School	607 (45.1%)	126 (48.3%)	
Elementary	241 (17.9%)	45 (17.2%)	
No Formal Ed.	4 (0.3%)	2 (0.8%)	
Other	6 (0.5%)	1 (0.4%)	
Living Alone	259 (19.2%)	71 (27.2%)	0.004

Note: Mean and standard deviation were reported for Age, and frequency and percentage were reported for other variables.

Study Outcomes

A significant improvement of 60% in the IVR group for the primary composite outcome of increased compliance with medications and decreased adverse events was found (RR: 1.60, 95% CI: 1.29 to 2.00, $p<0.001$). There was also a significant improvement with the IVR group for medication compliance (RR: 2.18, 95% CI: 1.67 to 2.86, $p<0.001$) and a significant reduction with IVR for unplanned visits to a primary care physician (RR: 0.63, 95% CI: 0.42 to 0.94, $p=0.023$). There was no significant difference in the secondary outcomes of ER visits and hospitalization between the two groups, as shown in Table 3. Patient satisfaction with automated calls was high with 85% reporting they would use it again, and 90% reporting it was a good way to follow-up on patients' progress (see Table 4).

The IVR system generated a total of 3,856 calls over the one-year follow-up. Call results were categorized by the system as follows: complete compliance with the BPG (27%), call-back required for further assessment and intervention (30%), and unreachable, meaning the system could not reach the patient (43%).

All calls included questions on symptom management, ACS medication adherence, and lipoprotein (LDL) cholesterol blood level. Additional information collected at the month one call revealed the following: 94.5% of patients had a nitroglycerin supply and knew how to use it, 6.7% were smokers, but <1% wanted a smoking cessation counsellor to contact them, 72% received discharge diet information containing their LDL level, however only 42% recalled knowing their LDL level, 75.5% were offered cardiac rehabilitation programs, 87.5% had increased their physical activity since discharge, and 93.5% had seen a physician within the month of discharge or had an appointment.

Interventions included medication education, obtaining a refill prescription, if required, and addressing the knowledge gaps of family physicians who inadvertently discontinued best practice medications. Despite receiving written cholesterol information on discharge and numerous verbal reminders during subsequent calls, 93.4% of patients did not know their LDL levels at one year.

Table 3: Primary composite outcome and secondary separate outcomes

Outcomes	IVR n=640	Usual care n=707	RR* (95% CI)	p
Primary composite				
Increased compliance with medication and decreased adverse event (ER visit, hospitalization, unplanned visit)	423 (66.1%)	388 (54.9%)	1.60 (1.29,2.00)	<0.001
Secondary				
Medication compliance	542 (84.7%)	507 (71.7%)	2.18 (1.67,2.86)	<0.001
ER visit	94 (14.7%)	129 (18.3%)	0.77 (0.58,1.03)	0.079
Unplanned visit	40 (6.3%)	68 (9.6%)	0.63 (0.42,0.94)	0.023
Hospitalization	83 (13.0%)	92 (13.0%)	1.00 (0.73,1.37)	0.981

Note. *RR=Relative Risk

Discussion

Evidence from large randomized control trials has established that BPGs reduce mortality and morbidity. The challenge is to improve adherence to guidelines, which currently is suboptimal (Bradley et al., 2001; Chapman et al., 2005; Gislason et al., 2006; Horwitz et al., 1990; Irvine et al, 1999). This RCT is larger than many existing studies and demonstrated that effectively designed IVR systems can improve adherence to BPGs. Care gaps in the post-discharge period are reflective of difficulties in patient adherence to therapy (Eagle, Garson, Beller, & Sennett, 2003; Grol, 2001). Cabana et al. (1999) identified physician barriers such as lack of guideline awareness, lack of time, and resources. The IVR system, as designed in this study, embeds the guidelines into the algorithms, thus improving knowledge dissemination through follow-up interventions with physicians and patients.

IVR reduces time constraints and RN costs by automating calls that focus on specific patient responses requiring corrective action. A serendipitous finding of the study was that 27% of patients required no calls at all, representing a net saving of time compared to a standard telephone-based system, which requires personal contact with each patient regardless of need. In addition, the study found that 30% of patients required a "call back", as flagged by their responses. This led to a focussed intervention based on the response to a specific question, thereby improving nurse efficiency. The remaining 43% of patients represents the usual resource requirements of a typical phone call system.

In this study, cardiac nurses were the first point of contact with patients and responded to issues including medication management and education. In some instances the nurses contacted family physicians or cardiologists, but mainly responded to patient issues based on guidelines established for the study. This collaborative model provides more timely responses than other studies where patient issues are referred to physicians for follow-up. This model reduces physician time requirements and removes one of the barriers frequently cited in the literature.

Table 4: IVR patient group satisfaction

Variable	IVR n=640
Overall Impression	
Very helpful	124 (19.4%)
Helpful	235 (36.7%)
Somewhat helpful	148 (23.1%)
Not helpful	129 (20.2%)
No comment	4 (0.6%)
Use Again	
Yes	545 (85.2%)
No	91 (14.2%)
No comment	4 (0.6%)
Good way to follow-up	
Yes	578 (90.3%)
No	58 (9.1%)
No comment	4 (0.6%)

Automated system design should to be tailored to the needs of patients being served. Studies using outbound dialling, where patients receive an automated call, have found improvements in antihypertensive medication adherence and self-care and glycemic control for diabetics (Friedman et al., 1996; Piette, 2000). These studies demonstrated better success when patients are called by the technology rather than relying on patients to call into the system.

Limitations to this study include the reliance on patient self-reporting and recall of outcome information. Generalizability of the results may also be a limitation of this single-centre study. It was used in a cardiac centre and the strategy was embedded within an organization capable of implementing and supporting it. However, the technology is readily available and easily implemented. The algorithms were developed and incorporated into the technology. Cardiac nurses with experience in caring for ACS patients exist in many organizations. Additionally, the nurses in this study required minimal computerized data management training. Furthermore, the call protocol, developed for this study to standardize nursing responses, can be shared with other organizations.

In summary, this large randomized control trial demonstrates that IVR can be an effective technology to improve adherence to best practice medications. In an environment where there is ample technology, it is incumbent on health care providers to develop systems based on patient needs. Our high patient satisfaction demonstrates patients will use these systems in programs that are properly designed and implemented. ♥

About the Authors

Heather Sherrard, RN, BScN, MHA, Vice President Clinical Services, University of Ottawa Heart Institute

Lloyd Duchesne, MD, FRCPC, Associate Professor of Medicine, Division of Cardiology, University of Ottawa Heart Institute

George Wells, PhD, Director Cardiovascular Research Methods Centre, University of Ottawa Heart Institute

Sharon Ann Kearns, RN, BScN, Manager Quality & Performance Measurement, University of Ottawa Heart Institute

Christine Struthers, RN, MScN, Advanced Practice Nurse Chronic Cardiac Care, University of Ottawa Heart Institute

Correspondence concerning this article should be addressed to Christine Struthers, APN Chronic Cardiac Care, University of Ottawa Heart Institute, 40 Ruskin Street, Ottawa, ON K1Y 4W7

Contact: ***cstruthers@ottawaheart.ca****, Phone: 1-613-761-4134; Fax: 1-613-761-4158*

Authors' Note

This research was supported by The Change Foundation.

This research was registered with Clinical Trials NCT0115180.

REFERENCES

Bassand, J.P. (2000). Improving the quality and dissemination of guidelines: The quest for the Holy Grail. *European Heart Journal, 21*, 1289–1290.

Bradley, E.H., Holmboe, E.S., Mattera, J.A., Roumanis, S.A., Radford, M.J., & Krumholz, H. M. (2001). A qualitative study of increasing beta-blocker use after myocardial infarction: Why do some hospitals succeed? *Journal of the American Medical Association, 285*, 2604–2611.

Braunwald, E., Antman, E.M., Beasley, J.W., Califf, R.M., Cheitlin, M.D., Hochman, J.S., … Smith, S.C. (2002). ACC/AHA guideline update for the management of patients with unstable angina and non-ST-segment elevation myocardial infarction—2002: Summary article: A report of the American College of Cardiology/American Heart Association task force on practice guidelines. *Circulation, 106*, 1893–1900.

Cabana, M.D., Rand, C.S., Powe, N.R., Wu, A.W., Wilson, M.H., Abboud, P.C., & Rubin, H.R. (1999). Why don't physicians follow clinical practice guidelines? A framework for improvement. *Journal of the American Medical Association, 282,* 1458–1465.

Chapman, R.H., Benner, J.S., Petrilla, A.A., Tierce, J.T., Collins, S.R., Battleman, D.D., & Schwartz, J.S. (2005). Predictors of adherence with antihypertensive and lipid-lowering therapy. *Archives of Internal Medicine, 65,* 1147–1152.

Eagle, K.A., Garson, A.J., Beller, G.A., & Sennett, C. (2003). Closing the gap between science and practice: The need for professional leadership. *Health Affairs, 22,* 196–201.

Fox, K.A., Goodman, S.G., Anderson F.A., Granger, C.B., Moscucci, M., Flather, M.D., … Gore, J.M. (2003). From guidelines to clinical practice: The impact of hospital and geographical characteristics on temporal trends in the management of acute coronary syndromes. The Global Registry of Acute Coronary Events (GRACE). *European Heart Journal, 24,* 1414–1424.

Friedman, R.H., Kazis, L.E., Jette, A., Smith, M.B., Stollerman, J., Torgerson, J., & Carey, K. (1996). A telecommunications system for monitoring and counselling patients with hypertension. Impact on medication adherence and blood pressure control. *American Journal of Hypertension, 9*, 285–292.

Gislason, G.H., Rasmussen, J.N., Abildstrom, S.Z., Gadsboll, N., Buch, P., Friberg, J., … Torp-Pederson, C. (2006). Long-term compliance with beta-blockers, angiotensin-converting enzyme inhibitors, and statins after acute myocardial infarction. *European Heart Journal, 27,* 1153–1158.

Goldberg, R.J., Currie, K., White, K., Brieger, D., Steg, P.G., Goodman, S.G., … Gore, J.M. (2004). Six-month outcomes in a multinational registry of patients hospitalized with an acute coronary syndrome (the Global Registry of Acute Coronary Events [GRACE]). *The American Journal of Cardiology, 93*, 288–293.

Graham, J., Tomcavage, J., Salek, D., Sciandra, J., Davis, D.E., & Stewart, W.F. (2012). Postdischarge monitoring using interactive voice response system reduces 30-day readmission rates in a case-managed medicare population. *Medical Care, 50*(1), 50–57.

Grol, R. (2001). Successes and failures in the implementation of evidence-based guidelines for clinical practice. *Medical Care, 39*(8 Suppl. 2), 1146–1154.

Gulati, M., Patel, S., Jaffe, A.S., Joseph, A.J., & Calvin, J.E. (2004). Impact of contemporary guideline compliance on risk stratification models for acute coronary syndromes in The Registry of Acute Coronary Syndromes. *The American Journal of Cardiology, 94*, 873–878.

Horwitz, R.I., Viscoli, C.M., Berkman, L., Donaldson, R.M., Horwitz, S.M., Murray, C.J., … Sindelar, J. (1990). Treatment adherence and risk of death after a myocardial infarction. *Lancet, 336*, 542–545.

Inglis, S.C., Clark, R.A., McAlister, F.A., Ball, J., Lewinter, C., Cullington, D., ... Cleland, J.G. (2010). Structured telephone support or telemonitoring programmes for patients with chronic heart failure. *Cochrane Database of Systematic Reviews, 8*. DOI.http://dx.doi.org/10.1002/14651858.CD007228.pub2

Irvine, J., Baker, B., Smith, J., Jandciu, S., Paquette, M., Cairns, J., …Connolly, S. (1999). Poor adherence to placebo or amiodarone therapy predicts mortality: Results from the CAMIAT study. The Canadian Amiodarone Myocardial Infarction Arrhythmia Trial. *Psychosomatic Medicine, 61*, 566–575.

Pearson, T.A., & Peters, T.D. (1997). The treatment gap in coronary artery disease and heart failure: Community standards and the post-discharge patient. *American Journal of Cardiology, 80*, 45H–52H.

Piette, J.D. (2000). Interactive voice response systems in the diagnosis and management of chronic disease. *The American Journal of Managed Care, 6*, 817–827.

Reid, R.D., Mullen, K, Slovenec D'Angelo, M.E., Aitken, D.A., Papadakis, S., Haley, P.M., … Pipe, A.L. (2009). Smoking cessation for hospitalized smokers: An evaluation of the "Ottawa Model". *Nicotine & Tobacco Research, 12,* 11–18.

Ryan, T.J., Antman, E.M., Brooks, N.H., Califf, R.M., Hillis, L.D., Hiratzka, L.F., … Smith, S.C. (1999). 1999 update: ACC/AHA guidelines for the management of patients with acute myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on practice guidelines. *Journal of the American College of Cardiology, 34*, 890–911.

Sherrard, H., Struthers, C., Kearns, S., Wells, G., Chen, L., & Mesana, T. (2009). Using technology to create a medication safety net for cardiac surgery patients: A nurse-led randomized control trial. *Canadian Journal of Cardiovascular Nursing, 19*(3), 9–15.

Steg, P.G., Goldberg, R.J., Gore, J.M., Fox, K.A., Eagle, K.A., Flather, M.D., … Anderson, F.A. (2002). Baseline characteristics, management practices, and in-hospital outcomes of patients hospitalized with acute coronary syndromes in the Global Registry of Acute Coronary Events (GRACE). *The American Journal of Cardiology, 90*, 358–363.

Vikman, S., Airaksinen, K.E.J., Tierala, I., Peuhkurinen, K., Majamaa-Voltti, K., Niemela, M., … Niemela, K. (2004). Improved adherence to practice guidelines yields better outcome in high-risk patients with acute coronary syndrome without ST elevation: Findings from nationwide FINACS studies. The *Journal of Internal Medicine, 256*, 316–323.

Yan, A.T., Tan, M., Fitchett, D., Chow, C., Fowlis, R.A., McAvinue, T.G., … Goodman, S.G. (2004). One-year outcome of patients after acute coronary syndromes (from the Canadian Acute Coronary Syndromes Registry). *The American Journal of Cardiology, 94*, 25–29.

Canadian Journal of
Cardiovascular
Nursing

Information for authors

The *Canadian Journal of Cardiovascular Nursing (CJCN)* publishes four issues annually, featuring articles in both French and English. CJCN welcomes original articles dealing with research findings or issues relating to cardiovascular health and illness.

The Journal provides a forum for:

- research
- literature reviews
- case studies
- discourse relevant to cardiovascular issues

Letters to the Editor in response to our articles or columns are encouraged.

Manuscript Submission

The manuscript should be sent by email to:

Paula Price
Canadian Council of Cardiovascular Nurses
Email: **david@cccn.ca**

The manuscript should be accompanied by the following:

- A cover letter signed by the principal author stating that the manuscript has not been published previously and is not currently under consideration by any other journal.
- Permission from the copyright holder for any previously published material (i.e., excerpts, tables and illustrations) that appears in the manuscript.

Manuscript Preparation

Format

Manuscripts should be typed double-spaced in a standard letter quality font. Side margins should measure 2.5 cm. The manuscript can be a maximum of 20 pages including tables, figures, illustrations and references. (Compute the graphics as equivalent to one half or one full size page depending on anticipated size when published.)

Text Style: Prepare your manuscript in accordance with the style outlined in the American Psychological Association's Publication Manual (6th ed.)

Follow the APA guidelines for grammar, punctuation, gender neutral language, references and citations. Two exceptions from APA are the spelling (should be current Canadian use where applicable), and the abstract should be a maximum of 150 words.

Tables, graphs, illustrations: Prepare in accordance with the APA Manual. Each table, figure or illustration should be submitted on a separate sheet and numbered as it appears in the article (e.g., Figure 1). Illustrations should be computer-generated or professionally drawn. Photographs should be in print form in the manuscript submission, and unmounted.

Reference List: CJCN uses a reference list (in contrast to a bibliography) and its purpose is described in the APA Manual.

Title page

An identifying title page should include the title and names, credentials and affiliations of all authors. The author with whom the editor will correspond should be indicated with telephone, fax and email numbers given.

Four to five keywords from the CINAHL Subject Heading list should appear on the title page.

Acknowledgements

Other contributing individuals and sources of research funding that resulted in this manuscript should appear in the acknowledgement section of the paper.

Review procedure

Manuscripts for original articles are reviewed anonymously by peers for content and clarity. If the peer reviewers recommend publishing with content revisions, the manuscript will be forwarded to the author with a deadline for the return of the revised paper by email.

Expected timeline from submission to response is eight weeks.

Copy editing

Accepted articles are subject to copy editing.

Copyright

It is understood that if the article is published, the Canadian Journal of Cardiovascular Nursing will have exclusive rights to it and to its reproduction and sale.

Check the CJCN web page for a PowerPoint Presentation with further information for authors: **www.cccn.ca/content.php?doc=21** ♥

Renseignements à l'intention des auteur(e)s

La *Revue canadienne de soins cardiovasculaires* (RCSC) paraît quatre fois par année et contient des articles tant en français qu'en anglais. La RCSC apprécie les articles originaux portant sur des résultats de travaux de recherche ou des questions reliées à la santé et à la maladie cardiovasculaires.

La Revue offre une tribune pour :
- la présentation de travaux de recherche,
- la revue de publications,
- la présentation d'études de cas,
- les analyses portant sur des enjeux cardiovasculaires.

En outre, nous accueillons avec plaisir les lettres à l'éditeur rédigées en réponse à nos articles ou à nos chroniques.

Soumission d'un manuscrit

Veuillez acheminer le manuscrit par courriel à l'adresse suivante :

Paula Price
Conseil canadien des infirmières et infirmiers en soins cardiovasculaires
Courriel : **david@cccn.ca**

Le manuscrit devrait être accompagné des documents suivants :
- Une lettre d'introduction signée par l'auteur(e) principal(e) et déclarant que le manuscrit n'a jamais été publié et qu'il n'est présentement pas soumis à un examen par une autre revue.
- Une autorisation de la personne détenant les droits d'auteur et permettant la publication de tout matériel déjà publié (p. ex. extraits, tableaux et illustrations) qui figure dans le manuscrit.

Préparation du manuscrit

Format

Les manuscrits doivent être tapés à double interligne, dans une police couramment employée pour les lettres. Les marges latérales doivent être de 2,5 cm. La longueur maximale permise est de 20 pages, ce qui comprend les tableaux, les figures, les illustrations et les références. (Les graphiques équivalent à la moitié d'une page ou à une page complète, selon la taille prévue lors de la publication.)

Style du texte : le style de présentation du manuscrit doit être conforme au style décrit dans l'American Psychological Association's (APA) Publication Manual (6e éd.).

Le style doit être conforme aux lignes directrices du manuel de publication de l'APA en ce qui concerne la grammaire, la ponctuation, le langage impartial, les références et les citations. Il y a cependant deux exceptions à l'emploi des règles de l'APA : l'orthographe devrait être conforme à l'usage canadien courant, le cas échéant, et le résumé ne doit pas dépasser 150 mots.

Tableaux, graphiques et illustrations : ils doivent être préparés selon les lignes directrices du manuel de publication de l'APA. Chacun des tableaux, figures et illustrations doit être présenté sur une feuille distincte et être numéroté selon son ordre d'apparition dans le texte (p. ex. figure 1). Les illustrations doivent être produites par ordinateur ou dessinées de manière professionnelle. Les photographies doivent être présentées sous forme de duplicata dans le manuscrit soumis, et non montées.

Liste des références : la RCSC utilise une liste de références (par opposition à une bibliographie); la raison en est précisée dans le manuel de publication de l'APA.

Page de titre

Veuillez inclure une page de titre précisant le titre de l'article ainsi que les noms, les titres professionnels et les affiliations de chacun des auteur(e)s. Précisez à qui la correspondance doit être adressée, en prenant soin de donner le numéro de téléphone, le numéro de télécopieur et l'adresse électronique de cette personne.

Indiquez sur la page de titre quatre ou cinq mots clés tirés de la liste des sujets contenus dans la base de données CINAHL.

Remerciements

Les noms des autres personnes qui ont contribué à l'ouvrage et l'information sur l'aide financière obtenue pour conduire les travaux de recherche décrits dans le manuscrit doivent apparaître dans la section des remerciements.

Processus d'examen

Les manuscrits des articles originaux sont évalués de façon anonyme par des pairs qui jugent de leur mérite et de leur clarté. Si les pairs recommandent des révisions du contenu avant la publication, le manuscrit sera envoyé à l'auteur(e) en précisant une date limite pour retourner le manuscrit révisé par courriel.

L'échéancier prévu de réponse aux manuscrits soumis est huit semaines.

Révisions éditoriales

Les articles qui sont acceptés sont sujets à une révision éditoriale.

Droits d'auteur

Il est entendu que si l'article est publié, la *Revue canadienne des soins cardiovasculaire* détiendra les droits exclusifs pour l'article, y compris le contenu de l'article et tout ce qui a trait à sa reproduction et à sa vente.

Consultez la présentation PowerPoint pour vous aider avec les règles de formatage du manuel de publication, qui se trouve sur la page Web de la RCSC à **http://www.cccn.ca/info/cjcn.cfm** ♥