MANITOBA CHAPTER CACCN

SPRING 2009 NEWSLETTER

INSIDE THIS NEWSLETTER

President
Lissa Currie

Wow!! Can you believe that spring is on its way. It has been another productive year for the Manitoba Chapter and I would like to take this opportunity to thank the Executive for their hard work behind the scenes. In response to feedback from our membership, we have concentrated a lot of time and effort on providing more educational opportunities. They have been well attended and feedback has been very positive. The Edge Conference Planning Committee has been hard at work planning the annual "Edge of Excellence" which will be held on May 11, 2009 at the Norwood. So mark your calendars. You don't want to miss it!!!

The Chapter's Annual General Meeting will also be held on May 11th, 2009 as a breakfast meeting. All members are invited to attend the AGM. Simply indicate your plan to attend on your Edge of Excellence registration form in the space provided. Business at hand will include the elections of the 2009-2010 Executive and awarding of the Critical Care Nurse of the Year Award. Please feel free to contact myself or any member of the executive if you or someone you know is interested in becoming involved on the Manitoba Chapter Executive. It is a rewarding learning experience and an excellent way to network with fellow critical care nurses throughout the province.

Throughout the year, the Executive has been busy developing newsletter submission guidelines and revising the Education Fund Guidelines. Both are now on our website. We have continued in our efforts to further develop the chapter web page as an up to date resource for our membership. In addition, we are proud to have established the CACCN Manitoba Chapter Recognition Award. It will be awarded to two graduates of the Winnipeg Critical Care Nursing Education Program. CACCN National is very busy planning Dynamics 2009, "Navigating The Future", which will be held in Fredericton, New Brunswick September 27-29, 2009. Look for brochures arriving in the mail sometime in early May.

That's all for now, hope to see you on May 11th at Edge.

lcurrie@sbgh.mb.ca

Vice President
Tannis Sidloski

It's always an exciting time of year when the snow starts to melt and we're full of hope that we won't see anymore snow. Oddly we look forward to seeing brown grass and better yet, the promise of the hot sun. With spring approaching, it is time to register as an early bird, for the CACCN Manitoba Chapter Edge of Excellence. This year it will be on May 11th, 2009 at the Norwood Hotel Winnipeg, Manitoba. Check out Manitoba Chapter's page via www.caccn.ca for more details.

It's not too early to mark your calendar for Dynamics of Critical Care 2009. It will be September 27-29, 2009 in Fredericton, New Brunswick. As always it will be a great conference to attend and I hope to see you there! Remember that it is well worth becoming/staying a member yourself or encouraging any colleagues that are planning to attend any CACCN events to become a member. One of the many benefits of membership includes a significant tuition discount. The money you save can be put to good use while you sit in the sun at one of the city's outdoor patios as soon as all this snow melts.

tsidloski@sbgh.mb.ca

Secretary
Rhonda Matheson

Again, it has been another busy and exciting year with CACCN. The committee had 3 fantastic workshops, which has helped to increase our

membership. It has been great to see so many new nurses join the association. I look forward to meeting many of you at the upcoming Edge of Excellence Conference, which is shaping up to be a great day of speakers, prizes, and networking with other ICU nurses. Thanks to all new and returning members for your support in CACCN, and thanks to the other members of the Executive for all your hard work this year. CACCN Manitoba Chapter meeting minutes are posted on our website via www.caccn.ca

ronnie_from_canada@yahoo.com

Treasurer
Sandra Christie

Hello CACCN members. In spite of the tough economic times facing many people across the globe, the Manitoba Chapters financial picture is quite secure. Our accounts are healthy and not at risk with fluctuations in the financial market. Our chequing account balance is nearly $15,000.00 and our GIC balance is $5,197.00. If anyone has any questions or concerns regarding financial matters please do not hesitate to contact me.

schristi@sbgh.mb.ca

Membership/Contacts
Rosalie Grant

Welcome new and returning members to the Manitoba Chapter of CACCN. As of January 31, 2009 we have a total of 106 members. We have been E-mailing correspondence to our membership and we believe it has been going very well. If you have not been receiving information on the organized events, please let me know. There have been times where the E-mail address we have is incorrect and a hard copy is generally mailed out. Our contacts get hard copies mailed out, to post in their facilities, about upcoming events organized by the Chapter. I would like to thank our contacts for posting information on educational events. These events are available for members and non-members to attend. Membership has its rewards: discounts for workshops, seminars and conferences; a newsletter is produced and sent out bi-annually and, members can apply for educational funding. Anyone interested in joining the executive or assisting in organizing educational opportunities for our Chapter are welcome to contact any one of our Executive.

rgrant@sbgh.mb.ca

Program Co-Chairs
Chris Kuttnig
Sean Jardine

Happy 2009 to all. Hope you have managed to keep warm in this, thus so far, cold winter. We look forward to continuing to see and hear from previous members and non-members as you contact us to find out about programs that are happening or attend the education sessions that we have provided. Please keep us in mind if you have a particular topic you are interested in hearing about – we are always on the lookout for new and fresh ideas. We have been busy this fall and early winter of 2009. Dr. Adrian Robertson presented his "The Scariest Things are Common Things Gone Rogue" at the Victoria General Hospital (VGH) on November 12, 2008. It was a great session about a case that occurred at the VGH about a young male patient that was critically ill from a common cold virus – scary! Well done, Dr. Robertson. Thank you for your time and sharing your knowledge. A big thank you to Margaret Augusto, a current member and new educator of the ICU at the VGH. Without Margaret's assistance, the venue would not have run as smoothly. The session was well attended.
January 2009 started with a bang as Mike Bager, RN, MN, and Cardiovascular Thoracic Associate led the session on "Chest Xray Interpretation". The session was held at an auditorium at St. Boniface Hospital on January 27th. The session was well attended with 45 members and non-members there. The evaluations were positive with most folks leaving more informed and giving suggestions for future sessions. Thank you Mike for your participation. We were excited to be able to offer an opportunity to see the latest technology at the University of Manitoba's Faculty of Medicine Clinical Learning Simulation Facility (CLSF) or the "sim lab" as you may have heard. We have held two sessions. Facilitators Dr. F. Siddiqui and Dr. Jay Ross did a fantastic job of taking us through the paces of "mock code blue" scenarios. Those in attendance got a chance to participate in being part of a "code blue" scenario and respond. Other members watch on video feed in a separate room. At the end, we all sat together and debriefed on the sessions. It was a great chance to review ACLS algorithms, practice in a friendly environment, and mingle with other critical care nurses. Great to see folks come in from out of the city to attend. If you are interested in further sessions, please let us know and we can see what we can do.

ckuttnig@sbgh.mb.ca
Jardinos@mac.com

Publicity Newsletter
Trica Garrioch

2008-2009 newsletters have seen the introduction of featured ICU's around Manitoba. In the fall we highlighted Brandon. This Spring edition will focus on Victoria General Hospital (VGH). Thank you to both sites for sharing your stories. Are you interested in highlighting your unit in the fall? We would enjoy assisting in this venture. Feel free to contact a CACCN Manitoba Chapter Executive.

pgarrioch@sbgh.mb.ca

NOTICE OF MEETING AND CALL FOR NOMINATIONS

Notice is hereby given by the Manitoba Chapter President of CACCN to all members that the Annual General Meeting of the Chapter will be held on Monday, *May 11, 2009* from 0730 – 0830, @ Norwood Hotel, 112 Marion St., Winnipeg, MB.

This will be a general Chapter meeting where all members are welcome to attend. The purpose of this meeting is to review annual activities of the Chapter, accept committee reports, discuss Chapter business, elect Executive Officers for 2009/10, and present the Manitoba Chapter Critical Care Nurse of the Year Award(s).

Elections for all Executive positions (except Conference Chair) will occur at this meeting. Duties for 2009/10 Executive will begin in June for a term of one year. All Manitoba Chapter CACCN members are invited to nominate for the following positions: President, Vice-President, Secretary, Treasurer, Membership Chair, Program Chair, Newsletter/ Publicity Chair.

NOMINATION PROCEDURE

Approximately two months prior to the date of the election, the membership will be informed of all vacant positions for officers along with the job descriptions of these positions. Members will be invited to submit nominations of members to serve in those positions. This invitation will include the time and date for receipt of nominations, approximately one month prior to the date of the AGM.
Nominations will also be accepted from the floor at this meeting. Once there has been a reasonable opportunity to nominate, it will be announced that nominations are closed. Voting may be performed by secret ballot or by a show of hands.
The chief scrutineer presents the results to the president, who will in turn announce the results to the general membership.

MANITOBA CHAPTER - CANADIAN ASSOCIATION OF CRITICAL CARE NURSES
ELECTION OF ASSOCIATION EXECUTIVE OFFICERS
NOMINATION FORM

I, _____ A MEMBER IN GOOD STANDING WITH THE C.A.C.C.N., DO HEREBY NOMINATE _____

FOR THE POSITION OF _____.

_____ _____

Signature of nominator *Signature of nominee*

_____ _____

Membership number Membership number

VOTING

If members are unable to attend the annual general meeting but wish to have a vote cast, a proxy form may be completed and given to a member who will be in attendance at the meeting.
Each member present (or represented by proxy) shall be entitled to one vote on each matter of business brought before the general membership.
Proxy votes must be registered with the secretary of the Manitoba Chapter prior to commencement of the meeting.
All members shall be entitled to vote and must present their membership card upon request, as proof of active membership.
Voting shall be by a show of hands unless otherwise directed by the residing officer.
The residing officer of the meeting shall appoint two or more members of the general membership to act as scrutineers. The scrutineers shall arrange for the holding of any vote, shall distribute, collect and count ballots if used, and shall report the results. Any decision made, as a result of a vote at a meeting shall take effect at the conclusion of the meeting if it is consistent with the National Association's bylaws.

MANITOBA CHAPTER OF THE CACCN - PROXY FORM

I, _____ A MEMBER IN GOOD STANDING WITH THE C.A.C.C.N., DO AUTHORIZE _____ ALSO A MEMBER IN GOOD STANDING TO VOTE FOR ME ON THE ISSUES OF _____ AT THE MEETING DATED _____ .

_____ _____

Signature C.A.C.C.N. Number

CHAPTER EXECUTIVE COMMITTEE

The Executive Committee will consist of:

a. President
b. Vice President
c. Past President
d. Secretary
e. Treasurer
f. Membership Chairperson
g. Programs Chairperson
h. Publicity/Newsletter Chairperson
i. Conference Chairperson

a. PRESIDENT

Purpose:

1. Oversee chapter activities.
2. Act as chapter spokesperson and liaise with general membership, executive, and the national board.

Responsibilities:

1. Possess a working knowledge of the organizational structure for CACCN.
2. Establish and carry out the annual chapter goals/objectives with the executive.
3. Organize and preside at meetings of the general membership and the executive.
4. Serve as an ex-officio on all standing chapter committees.
5. Communicate chapter progress, nursing issues and national board information to the general membership.
6. Communicate information from the national board meeting minutes to the executive in a timely manner
7. Ensure chapter records are maintained and reports submitted to the national board in a timely manner.
8. Prepare the annual report for the chapter annual general meeting (AGM) and the national board.

b. VICE-PRESIDENT

Purpose:

1. Become familiar with the activities and president role of the chapter.
2. Assume the presidential role in the absence of the president at national and chapter meetings.

Responsibilities:

1. Assist the president and ensure leadership continuity in the executive.
2. Preside at meetings of general membership and the executive in the absence of the president.
3. Promote chapter activities to the critical care community.
4. Assist the executive and the conference planning committee as requested.
5. Be familiar with the chapter constitution and bylaws.
6. Prepare and present a report at the chapter AGM.

c. PAST PRESIDENT:

Purpose:

1. Support and guide the president and vice-president.
2. Assume the presidential role in the absence of both the president and vice-president at national and chapter meetings.
3. Act as a resource for the executive.

Responsibilities:

1. Assist with executive tasks as requested.
2. Preside at meetings of general membership and the executive in the absence of both the president and vice-president.
3. Prepare and present a report at the chapter AGM.

d. SECRETARY

Purpose:

1. Provide continuity of chapter proceedings through record keeping of all official activities.
2. Facilitate open communication among the executive through regular correspondence.

Responsibilities:

1. Maintain all official chapter records, including the constitution, by-laws, and minutes from the executive and the AGM.
2. Prepare and distribute meeting minutes to the executive in a timely manner.
3. Provide a verbal report of chapter minutes from the previous meeting as requested.
4. Remind the executive of upcoming meetings or responsibilities as required.
5. Provide chapter sub-committees with correspondence in their activities as required.
6. Prepare and present a report at the chapter AGM.

e. TREASURER

Purpose

1. Oversee the financial transactions of the chapter
2. Maintain all financial chapter records

Responsibilities

1. Review chapter finances for the previous year and prepare a budget for the fiscal year in consultation with the executive
2. Daily fiscal operation of the chapter, including:
    - Checking invoices and paying bills
    - Preparing bank deposits
    - Recording all payments and deposits
    - Ensuring all discrepancies with the monthly bank account are resolved
    - Processing expense reports of all executive members
3. Maintain accurate, systematic financial reports of the chapter.
4. Prepare and send the quarterly chapter financial reports to the national board as requested.
5. Prepare and present financial reports for executive meetings and the AGM.

f. MEMBERSHIP CHAIRPERSON

Purpose:

1. Promote membership to nurses working in critical care or those with an active interest in critical care.
2. Liaise between executive and the provincial contacts.

Responsibilities:

1. Develop and carry out annual strategies for chapter recruitment and retention.
2. Maintain a current membership list from the national board (including member name, employer, CACCN number, contact information, membership expiry date).
3. Prepare and distribute membership renewal reminders.
4. Update and maintain the list of provincial contact persons.
5. Assist the program chairperson by informing the contact persons of upcoming chapter events.
6. Provide the executive with current mailing list as required.
7. Maintain attendance records for chapter activities and events.
8. Prepare and present a report at the chapter AGM.

g. PROGRAMS CHAIRPERSON

Purpose:

1. Provide quality critical care educational sessions in a fiscally responsible manner.
2. Assess and strive to meet the educational needs of the membership.

Responsibilities:

1. Organize and implement chapter programs based on the educational needs of the membership.
2. Implementation of the following components of program planning:
    - Arrange suitable facility location, date and time
    - Select presenter(s) and presentation topic(s)
    - Arrange presenter requirements (audiovisual, handouts, transportation) as requested
    - Introduction of presenter(s)
    - Compilation of evaluations
    - Design advertising for the educational activity and submit to

the publicity/newsletter chairperson for distribution
- Arrange refreshments as required

3. Collaborate with the treasurer and adhere to budget guidelines for chapter educational programs
4. Communicate with the publicity chairperson regarding printing and distribution of chapter program advertising.
5. Ensure educational sessions are delivered in a fiscally responsible manner by soliciting sponsorship when appropriate.
6. Prepare and present a report at the chapter AGM.

h. PUBLICITY/NEWSLETTER CHAIRPERSON

Purpose:

1. Communicate chapter activities to the general membership and the provincial contact persons.
2. Provide regular chapter newsletters to the membership throughout the year.

Responsibilities:

1. Arrange printing and distribution of chapter correspondence and newsletter to the membership and the provincial contacts.
2. Prepare the newsletter through the following activities:
    - Encourage members to submit items for the newsletter
    - Gather articles, reports and other items submitted for the newsletter and organizing the newsletter layout/format
    - Edit the newsletter content prior to submission to the typist.
    - Submit the hard copy and electronic version of the newsletter to the typist
    - Proof read the newsletter once completed by the typist and arranging the printing
    - Distribute the newsletter to the membership and provincial contacts
3. Arrange printing and distribution of chapter program advertising in collaboration with the program chairperson.
4. Act as the liaison between the typist, printer and the executive.
5. Prepare and present a report at the chapter AGM.

i. CONFERENCE CHAIRPERSON

Purpose

1. Coordinate the annual critical care nursing conference for the Chapter
2. Oversee conference planning activities and develop a program with a variety of critical care nursing presentations.

Responsibilities:

1. Develop a conference planning timetable including long range conference goals.
2. Organize and preside over conference planning committee meetings.
3. Act as a liaison between the conference planning committee and the executive
4. Delegate specific duties to members of the conference planning committee and the executive in relation to the conference.
5. Prepare an evaluation form for the conference and compile the overall conference evaluation.
6. Prepare and present a report on the previous conference at the Chapter AGM

Manitoba Chapter
Critical Care Nurse of the Year Award

Background:

Since 1990, the Manitoba Chapter CACCN has presented the Critical Care Nurse of the Year Award to a local Chapter member who consistently exemplifies critical care nursing excellence. This award recognizes chapter member(s) who promote critical care nursing, exhibit professionalism, and demonstrate proficiency in critical care. Extra-ordinary nurses and their accomplishments should not be taken for granted! The selection will be made by the Manitoba Chapter Executive, Awards Sub-Committee. The award consists of a commemorative plaque and honorarium presented at the Annual General Meeting on May 11, 2009. The nomination deadline is **April 10,2009**.

Eligibility:

1. Must be a member in good standing of the Manitoba Chapter CACCN.
2. A Critical Care Nurse working in Pediatric, Neonatal or Adult Critical Care.
3. A Critical Care Nurse working at the bedside or in management, research, administration or education.

Ineligibility:

1. A member of the Executive of the Manitoba Chapter - CACCN.
2. A past recipient of less than 3 years.

Information Required for Nomination:

1. A completed nominee form found below.
2. A write up (minimum: 250 words) describing why the nominee should receive the award. This should include a specific example in at least one of the following areas:
   - Promotion of critical care nursing in Manitoba
   - Exhibits a high degree of professionalism
   - Demonstration of proficiency in critical care

Submission Deadline – *April 10, 2009*

Nominee Information:

Name:_____

Address: _____ Postal Code_____

Telephone (Home)_____ (Work) _____

Employer _____

Nominated by: (print name/signature)

1._____

2._____

Certification by Nominee:

I, _____ have read the information contained herein and certify it to be accurate. I hereby allow my name to stand for nomination of the Manitoba Chapter Critical Care Nurse of the Year Award.

Mail to: Awards Committee, Manitoba Chapter CACCN
Box 2236
Winnipeg, Manitoba
R3C 3R5

The Victoria General Hospital Intensive Care Unit…

We have a 7 bed unit with 6 beds presently open. Approximately 29% of our admissions are CCU, 57% MICU and 15% SICU. Of our ~ 425 admissions/year, 42% require mechanical ventilation. We provide up to level 5 care, but must send those patients requiring CRRT, dialysis, cardiac intervention/surgery and/or neurosurgery to tertiary centers. Our staff includes 18 RNs, a CRN, a part-time educator and a skilled (and much appreciated) pool of casual RNs. We are developing 2 part-time Clinical Practice Facilitator (CPF) positions. These CPFs roles will provide clinical guidance, mentoring and support to new nurses in ICU. We look forward to the positive influence they will have on our unit.

Our ICU, along with the VGH Clinical Institute of Applied Research and Education (CIARE) and University of Manitoba, have been involved in several notable research studies. The Dr. Wendy Fallis, et al.'s 'Family Presence during Resuscitation' study which won the Space Labs Innovation Award in 2006 and resulted in facility-wide changes in how we approach family presence during resuscitation. We are making this a reality @ the VGH.

Our ER & ICU nurses took part in Dr. Marie Edwards' study of 'Napping during the Night Shift'. We are also presently one of 2 sites participating in Dr. Garland's '2 Attendings' study, examining the benefits of 24-hour/day attending coverage in critical care areas.

In 2007 & 2008 the ICU along with CIARE sponsored a multi-disciplinary symposium on evidence based approaches to cardiac and respiratory care. Our production of "A Pound of Prevention, A Megaton of Cure", an educational video based on a Code Blue Scenario also won the Space Lab Innovation Award 2007.

WINNIPEG CRITICAL CARE NURSING EDUCATION PROGRAM GRADUATES TWENTY-SIX NURSES

February 20, 2009 marked the celebration of the first graduating class of the new Winnipeg Critical Care Nursing Education Program (WCCNEP).

Winnipeg has a rich history of excellence in critical care nursing education dating back to the mid 1960s. Tertiary and community sites are experiencing increasing acuity levels of patients. It was identified that there was a need for not only more critical care nurses but also a more flexible training program. The new program was created to better meet new learning needs as well as the continuing education needs of practicing critical care nurses. The WRHA Critical Care Program embarked on a restructuring of educational programming and the result is the WCCNEP. There is now one program for all critical care nurses in all six Winnipeg sites.

The change was significant and challenging. The curriculum and program structure changes were made through a collaborative process that involved Managers, Educators, Clinical Resources Nurses and clinical nurses from all six units in the city. Clinical nurses provided valuable input through the Nurse Champion Advisory Group which consisted of a representative from each of the units in the city. The new program structure and content was presented at preceptor workshops to all clinical nurses in all six sites.

The WCCNEP consists of a Core (14 weeks) and a Specialized Orientation (4 to 10 weeks depending on the unit the student selects to work in). The first class graduated on February 20, 2009 and thirteen new nurses are beginning the program on February 17, 2009.

Information about the WCCNEP can be found on the WRHA website: www.wrha.mb.ca/prog/criticalcare

You are our best ambassadors to recruit so please encourage nurses to take the program and become critical care nurses!

RECIPIENTS OF THE NEW CACCN MANITOBA CHAPTER RECOGNITION AWARD

Congratulations to Shana Chiborak ***(left)*** and Stephanie Krebs ***(middle)***. Award presented by CACCN Manitoba Chapter President, Lissa Currie ***(right)***, February 20, 2009.

Dates to Remember

January 1 – April 30,2009
Twin & Win is back. Details @ www.caccn.ca

April 30, 2009
Critical Eye End of Life Care in ICU: Changing focus.
Contact: llemoine@hsc.mb.ca

May 11, 2009
CACCN Manitoba Chapter Annual Conference & Meeting.
EDGE of Excellence
Norwood Hotel, Winnipeg
Contact: rgrant@sbgh.mb.ca

For further information go to caccn@caccn.ca
Please send notice of educational opportunities to pgarrioch@sbgh.mb.ca

ECMO for ARDS: A Last Resort.

Dynamics of Critical Care 2008 in Montreal was an amazing adventure of 546 like minded health care professionals striving towards the common theme of Critical Care Advocacy: Past, Present and Future. The conference last September consisted of three wonderful days full of presentations, as well as talented Keynote speakers. I had the privilege of traveling with one of our presenters, Margaret Lukianchuk RN who introduced us to ECMO for ARDS: A Last Resort.

The presentation began with an overview of what ECMO provides for a patient and continued on to a case study describing how the patient presented to the Emergency Department, his progress and concluded with his outcome. With permission from the presenter I am able to give you a synopsis of her presentation including some of her research.

Extra corporeal membrane oxygenation (ECMO) is considered a last resort, although becoming more frequent, to prolong cardiac and pulmonary functioning. A portion of the patients blood is removed, infused with oxygen, and carbon dioxide is removed through an extra corporeal membrane. Veno-venous cannulation of the large vessels is more common for pulmonary support. Veno-arterial is the alternative. Complications of ECMO include decannulation, disseminated intravascular coagulation (DIC), heparin induced thrombocytopenia (HITT), renal failure, decubitus ulcers, sepsis and potential neurological damage. Prevention of complications includes deep sedation with or without paralytics, cautious turning practices, and frequent neurological assessments.

Acute respiratory distress syndrome (ARDS) refers to progressive respiratory distress with diffuse bilateral pulmonary infiltrates as evidenced on chest x-ray (CXR) and hypoxemia. The goal in the case study presented was to use ECMO as a bridge for respiratory failure until the patient's own lungs sufficiently healed.

The 29 year old male presented to the emergency department on November 30, 2007 with flu-like symptoms. He was hypotensive, tachycardic and febrile. The diagnosis was either community acquired pneumonia or influenza. He was admitted to the medical ward and within four days his condition deteriorated rapidly. Arterial blood gases (ABG) revealed increasing CO2 levels and hypoxemia on 15L NRB mask. His O2 saturation dropped to 85%. CXR revealed increasing density in the right upper and middle lobes. He was admitted to the ICU, intubated, sedated and paralyzed, requiring inotropic support.

This patient remained hypoxemic on FiO2 1.0. His temperature rose to 40 degrees Celsius and aggressive cooling techniques were implemented – antipyretics, external cooling, and refrigerated Normal Saline 1000ml wide open. On day 5 after failed pressure support trials and PEEP studies to optimize compliance, recruitment techniques and modified lung protective strategies were implemented and inhaled Nitric Oxide (NO) was added. The next evening, his ABG O2 was 47 and sats were 73%. Day 7 indicated ARDS and cardiac surgery was consulted for ECMO.

December 7th he was placed on veno-venous ECMO. ABG's showed gradual improvement over the next four days. The ECMO cannulas were removed December 11th after a weaning process which included decreasing inotropic support. Extubation occurred December 17th and at that time the adenovirus was isolated in his blood. The working diagnosis was pneumonia secondary to adenovirus. Issues he was still dealing with included myopathy, GI bleed, renal failure (he was on continuous renal replacement therapy for a portion of his ICU stay), query sepsis and methicillin resistant staphylococcus aureus (MRSA).

December 18th, he was transferred to the ward on 10 L NRB with O2 sats greater than 92%. He was placed on hemodialysis for continued rhabdomylosis and poor circulatory function. By December 23rd he was re-admitted to the ICU for agitation, delirium, and increased work of breathing. Finally, on January 18th he was discharged home – wow, what a struggle he went through to get there!

Our presenter, Margaret, did some follow up work: April 10th, four months after his emergency visit, the patient was still experiencing some chest pain; June 27th further pulmonary function tests showed residual pulmonary thrombosis, as a complication of ARDS and moderate restrictive ventilation patterns; July 18th his CT Scan showed scarring in the left mid lung field. Infectious disease clinic was following him for his right heel ulcer.

Thanks to Margaret's great detective work, we know this patient is alive and well today, continues to be followed for his pulmonary issues and his heel pressure ulcer. I am grateful for her diligent research and dedication in this case study. For references used in this information, please contact Margaret Lukianchuk through the CACCN website.

Nancy Vokey RN BN.
CACCN Member
Recipient of Education Funding CACCN MB Chapter

Ask the Expert

HFO VENTILATION -- A CONDENSED REVIEW

High Frequency Oscillation (HFO) ventilation is a mode of ventilation that has been introduced to our adult ICU`s. It is new in Winnipeg but has been used in other Canadian centre's for several years. There is a long history of use in neonatal intensive care units over the past two decades. Since the publication of the ARDSnet study lung protective ventilation with low tidal volumes (6 ml/kg PREDICTED body weight) has become the standard for ventilating patients with ARDS. The use of HFO ventilation has been considered as a potential strategy to keep the lung open and provide ventilation without dangerous lung overdistention. Although no definitive outcome studies are available HFO ventilation is a potential rescue strategy for patients with severe ARDS who are failing conventional ventilation.

HFO can help to keep the lung open with small tidal ventilation. These small lung excursions may result in less trauma to the lungs and could help prevent or reduce ventilator-induced lung injury (VILI). Currently the only available HFO ventilator for adult use in North America is the Sensormedics 3100B ventilator. To date these machines are available at Health Sciences Centre and St.Boniface General Hospital. There are some stark differences between using an HFO ventilator compared with standard conventional adult ventilators used in the ICU setting. First of all the rate is not measured in " breaths per minute" but rather in "Hertz (Hz)" which is cycles per second. One Hertz on ventilator would be one breath per second or 60 breaths per minute". With HFO ventilation it is common to ventilate patients at 6-11 Hz or 360-660 breaths per minute. The volumes delivered are very small and are not measured directly. In general the volume delivered decreases as the frequency (Hertz) increases. A piston/diaphragm in the ventilator generates the volume and produces oscillations in the form of a sine wave. A sine wave is a gentle flow wave that's' size is controlled by the "amplitude" setting on the ventilator. It works in conjunction with the rate control to manipulate the patient's CO_2 levels.

The major controlling factors for patient PaO_2 is the mean airway pressure (mAP) and the FiO_2 delivered by the ventilator. In Winnipeg a table of mAP and FiO_2 has been developed to help the ICU team adjust the ventilator settings if HFO ventilation is employed in a patient. Relatively low saturations and PaO_2 readings are accepted to help reduce possible injury to the lungs from ventilation.

The mAP is an effective substitution for the positive end-expiratory pressure (PEEP) used by traditional adult ventilators. Application of mAP results in a continuously higher distending lung pressure to keep the lung alveoli open and prevent collapse but may need additional support to recruit lung alveoli

To ensure collapse does not occur, occasional "lung recruitment" maneuvers may be done. This involves increasing the mAP to a higher level (usually 45 cm of H_2O) for 45 seconds and then returning to the ventilating mAP. This is usually done during the initiation of HFO and whenever necessary to help increase patient PaO_2 or saturation.

Inspiratory time is still controlled in the same manner as conventional ventilation and is usually set at 33% .

Now that the patient is "ventilating" we can visually see the results of HFO ventilation. The chest does not rise and fall as with traditional ventilation but instead vibrates or "wiggles".You are adequately ventilating the patient when the wiggle is bilateral and can be observed from the clavicles down to the thighs.

Some special precautions are required by all those taking care of the patient on HFO ventilation.

1.) When auscultating you are no longer listening for normal breath sounds. Instead you will be listening to the intensity of the sound of the piston to ensure that oscillations are equal throughout both lung fields.
2.) Hypotension (MAP<65) is a contraindication to HFO if it cannot be corrected by fluids, inotropes, and or vasopressors. The constant mAP generated by the HFO ventilator can result in higher intra-thoracic pressures resulting in decreased venous blood flow and worsening of hypotension.
3.) Pneumothorax is a contraindication to HFO. HFO ventilation does not generate the higher peak pressures required to re-expand a collapsed lung field.
4.) Intracranial hypertension is a contraindication to HFO.
5.) Known severe air flow obstruction is a contraindication.
6.) Severe right ventricular dysfunction is a contraindication.

In addition to the above precautions, the Nurse, Respiratory Therapist, and Physician should consider the following if the patient experiences an abrupt deterioration while being mechanically ventilated on HFO:

1.) Acute Airway Obstruction (mucous plug)
2.) Bronchospasm
3.) Pneumothorax
4.) Right Mainstem Intubation

Should any of the above occur the patient should be assessed for airway function including chest "wiggle", auscultation and direct laryngoscopy. In addition, arterial blood gas procurement and assessment of the HFO ventilator function should be performed.

HFO ventilation provides the healthcare team with another mode of ventilation that may potentially enhance the outcomes of patients suffering from ARDS. A complete understanding of the concepts of HFO and it`s application is necessary before we can fully appreciate the benefits that this mode of ventilation may provide.

Mike Bachynsky
Clinical Specialist, Adult Repiratory Therapy