



# CJRT · RCTR

Autumn 2005, Volume 41 (4)



## World Masters Athlete Magdalena Quirion

*The journal for respiratory  
health professionals in Canada*

*La revue des professionnels de la  
santé respiratoire au Canada*

### Features

- Call for Nominations 9
- President's Message 10
- Health Council Report 13
- Radon and Lung Cancer 19
- Ventilation 101 24

### On Air

- World Masters Games 5
- CSRT Awards 7

**Forum 2006 page 6**



**Canadian Journal of  
Respiratory Therapy**  
**Revue canadienne de  
la thérapie respiratoire**

**Official Journal of the CSRT  
Revue officielle de la SCTR**

CSRT Board Representative / Représentant du Conseil  
d'administration de la SCTR  
**Colya Kaminiarz, RRT**

Managing Editor / Directrice de la rédaction  
**Rita Hansen**

Chair Editorial Committee / Chair  
**Amy Reid, RRT**

President CSRT / Présidente, SCTR  
**Sue Jones, RRT**

The *Canadian Journal of Respiratory Therapy (CJRT)* (ISSN 1205-9838) is produced for RRT: The Canadian Journal of Respiratory Therapy, Inc., by the Graphic Communications Department, Canadian Pharmacists Association and printed in Canada by Gilmore Printing. Publications mail registration no. 40012961. *CJRT* is published 5 times a year (in February, May, July, October and December); one of these issues is a supplement published for the Annual Educational Forum of the Canadian Society of Respiratory Therapists (CSRT).

La *Revue canadienne de la thérapie respiratoire (RCTR)* (ISSN 1205-9838) est produite pour le compte de RRT : The Canadian Journal of Respiratory Therapy, Inc., par Communications graphiques de l'Association des pharmaciens du Canada et imprimée au Canada par Harmony Printing. Courrier de publications no 09846. La *RCTR* paraît cinq fois l'an (en février, mai, juillet, octobre et décembre); un de ces numéros constitue un supplément publié pour le compte du Forum éducatif annuel de la Société canadienne des thérapeutes respiratoires (SCTR).



**CSRT membership inquiries /  
Questions concernant l'adhésion  
à la SCTR :**

102 – 1785 Alta Vista Dr.,  
Ottawa, Ontario, K1G 3Y6  
1-800-267-3422  
**csrt@csrt.com**  
**www.csrt.com**

## Table of Contents



### **On Air .....5**

World Masters Games  
Forum 2006  
Nuggets

### **President's Message .....10**



### **CSRT News .....13**

Health Council Summit  
Patient Stimulation  
National Literacy and Health Program



### **Scientific News .....18**

Abstracts  
Radon and Lung Cancer  
Ventilation 101



### **Industry News .....26**

New Report Issued

The *CJRT* acknowledges the financial support of the Government of Canada, through the Publications Assistance Program (PAP), toward our mailing costs.

#### **Cover Photo**

Magdalena Quirion wins bronze at the World Masters Games in Edmonton, story on page 5.

## Advertiser's Index

<b>Merck</b> .....	<b>IFC, PI 22, 23</b>
<b>Spiriva</b> .....	<b>8, PI 28, 29</b>
<b>Capital Health</b> .....	<b>12</b>
<b>Vancouver Coastal Health</b> .....	<b>25</b>
<b>Classified</b> .....	<b>27</b>
<b>Lung Association</b> .....	<b>30</b>
<b>Radiometer</b> .....	<b>IBC</b>
<b>GE</b> .....	<b>OBC</b>



CANADIAN PHARMACISTS ASSOCIATION  
ASSOCIATION DES PHARMACIENS DU CANADA

**Design and production / Conception et production**

Canadian Pharmacists Association / Association des pharmaciens du Canada

**Marketing and Advertising Sales / Marketing et publicité**

Keith Health Care Inc.  
Mississauga 905 278-6700, fax 905 278-4850  
Montréal 877 761-0447, fax 514 624-6707

**Classified Advertising / Annonces classées**

CSRT  
102 - 1785 prom. Alta Vista Dr.  
Ottawa ON K1G 3Y6  
800 267-3422 or fax 613-521-4314

**Subscriptions / Abonnements**

Annual subscriptions are included in annual membership to the CSRT. Subscription rate for 2005 for other individuals and institutions within Canada is \$44 and \$44(US) for others outside Canada. All Canadian orders are subject to 7% GST / 15% HST as applicable. Requests for subscriptions and changes of address: Member Service Centre, CSRT, 102 - 1785 Alta Vista Dr., Ottawa ON K1G 3Y6.

L'abonnement annuel est compris dans la cotisation des membres de la SCTR. Le tarif annuel d'abonnement pour les non-membres et les établissements au Canada est de 44\$ et de 44\$ US à l'étranger. La TPS de 7% ou la TVH de 15% est ajoutée aux commandes canadiennes. Veuillez faire parvenir les demandes d'abonnement et les changements d'adresse à l'adresse suivante: Centre des services aux membres, SCTR, 102 - 1785 prom. Alta Vista, Ottawa ON K1G 3Y6.

Once published, an article becomes the permanent property of RRT: The *Canadian Journal of Respiratory Therapy*, Inc., and may not be published elsewhere, in whole or in part, without written permission from the Canadian Society of Respiratory Therapists, 102 - 1785 Alta Vista Dr., Ottawa ON K1G 3Y6. / Dès qu'un article est publié, il devient propriété permanente de RRT: The *Canadian Journal of Respiratory Therapy*, Inc., et ne peut être publié ailleurs, en totalité ou en partie, sans la permission de la Société canadienne des thérapeutes respiratoires, 102 - 1785 prom. Alta Vista, Ottawa ON K1G 3Y6.

All editorial matter in *CJRT* represents the opinions of the authors and not necessarily those of RRT: The *Canadian Journal of Respiratory Therapy*, Inc., the editors or the publisher of the journal, or the CSRT. / Tous les articles à caractère éditorial dans le *RCTR* représentent les opinions de leurs auteurs et n'engagent ni le RRT: The *Canadian Journal of Respiratory Therapy*, Inc., ni les rédacteurs ou l'éditeur de la revue, ni la SCTR.

RRT: The *Canadian Journal of Respiratory Therapy* Inc. assumes no responsibility or liability for damages arising from any error or omission of from the use of any information or advice contained in the *CJRT* including editorials, articles, reports, book and video reviews letters and advertisements. / RRT: The *Canadian Journal of Respiratory Therapy*, Inc. décline toute responsabilité civile ou autre quant à toute erreur ou omission, ou à l'usage de tout conseil ou information figurant dans le *RCTR* et les éditoriaux, articles, rapports, recensions de livres et de vidéos, lettres et publicités y paraissant.

All prescription drug advertisements have been cleared by the Pharmaceutical Advertising Advisory Board. / Toutes les annonces de médicaments prescrits ont été approuvées par le Conseil consultatif de publicité pharmaceutique.

## Welcome

RRTs outside of their work place often live dynamic and creative lives. Once such example is on the cover of this *CJRT*.

Congratulations to RRT Maggi Quirion who collected a bronze medal at the World Masters Games! You can read about her experience in the ON AIR section.



Doug Maynard

The CSRT has been moving forward with initiatives that enhance the profile of the Society for its members, as well as providing the membership with information and opportunities to improve the RRT profession. In this *Journal* you will find announcements on CSRT partnerships with several like-minded organizations.

We are excited to announce that planning is well under way for the CSRT Educational Forum in Saint John, New Brunswick. Preliminary information on Waves of Change/Vagues du changement, Forum 2006 can be found in the issue. We look forward to seeing you all in the Maritimes May 26–28, 2006. Information will be posted on our website as it becomes available.

In our Science News section you will find an informative paper on radon gas and lung cancer. As well, we have an option piece on airway pressure release ventilation. We invite you to continue to submit articles, papers and RT information to our review committee.

We also ask our members to share their expertise and experience with the membership by considering volunteering for a position on the Board of Directors. There are interesting options available to expand your personal portfolio while providing direction and opinions that will effect how the CSRT promotes the RRT profession. Please consider volunteering! There are details in the *Journal* and on our website.

Doug Maynard BSc, RRT, MBA  
Executive Director CSRT  
dmaynard@csrt.com

## RRT and World Masters Athlete

Magdalena Quirion, RRT



I am on my last lap. The swimmer in the next lane has caught up with me. I strain every muscle, my fingers looking for the final wall. Kicking faster than ever, I stretch my arms as far as possible. My lungs are burning, all my muscles screaming from the previous seven laps in the pool. Suddenly — I touch the wall!

I am breathing heavily, but not due to an asthma episode. I have just finished the World Masters Games 400 Metre Individual Medley (Butterfly-Backstroke-Breaststroke-Freestyle — known as IM).

The World Masters Games were held this year in Edmonton, AB, July 22 to 31. It is the largest multi-sport event in the world. Masters athletes are usually at least 25 years old and there is no upper age limit. The games have seen competitors into their nineties. In Edmonton there were 27 sports that ranged from badminton, 10-pin bowling and canoeing to golf, ice hockey and synchronized swimming.

IM is my specialty! Once I'm out of the pool I have to wait for all the other ladies in my category (30–34 year-olds) to finish before I know my ranking in the Worlds. So I wait patiently to see if my cross-training has paid off.

My regular routine consists of swimming three to four hours a week — eight to nine kilometres a week; open water swimming at a local lake and some running and casual cycling to work. Winter workouts include cross-country skiing. My last big race was the Birkebeiner 55 km. The Birkebeiner is North America's largest cross-country ski marathon attracting about 8,000 skiers. And of course, I head for the Rockies for some downhill skiing! Just for the pleasure of it — I also do some hiking and canoeing.

The training leading to the World Masters was pretty much the same routine, with more emphasis on swimming. My swim coach helped me choose events that I entered — first for the enjoyment and experience and second for performance. For the Masters, I entered four swim races, a couple of relay team races and one three-kilometre open-water swim. I enjoy being active through new challenges and these events helped me push myself into new territory. Of course, socializing and meeting athletes from all over the world is always a bonus!

I work as an RRT at Royal Alexandra Hospital in Edmonton. Capital Health is very supportive and encourages staff to become more active and live a healthy life style. They supply a healthy food menu for their staff, a bike cage to store bikes for those who cycle to work, as well as a gym which is open 24/7. During breaks on the night shift I clip a pager to my shorts and do some spinning on the stationary bike or walking on the treadmill with an incline. Sometimes I take in a good yoga session with deep breathing for core muscles and stamina, while chatting with co-workers. What more can you ask for?

My top priorities are my friends and my activities and teammates who encourage me during training and events. So, how did I do at the Masters? I took home a Bronze medal for the 400 Metre Individual Medley!

**Saint John**  
**Waves of Change**



Photo credit Saint John Tourism

## Welcome to Saint John!

May 26–28, 2006

Katrina Madsen, BSc. RRT

Saint John Forum Chair

Salt spray, sunshine and seafood! The CSRT Educational Forum 2006 will be in the Fundy City — Saint John, New Brunswick! May 26 to 28, 2006 we will settle in for some Maritime hospitality on the Bay of Fundy at the mouth of the Saint John River in the historic city of Saint John. The Hilton Saint John and the Saint John Trade and Convention Centre will be the location for sessions, accommodations and our exhibit hall.

On behalf of the New Brunswick Respiratory Therapists, and as local chair for the CSRT Educational Forum, I would like to extend a warm and friendly invitation to all my colleagues to attend Waves of Change CSRT Forum 2006.

Our Forum Committee has been working hard all year long to arrange an excellent panel of speakers and to ensure our topics will include the most current and up to date information on a wide variety of respiratory related topics (visit [www.csrt.com](http://www.csrt.com) for a complete list of speakers).

### Lots to See and Do!

Saint John is the gateway to the Bay of Fundy and its spectacular sites — pristine parks, steep history-lined streets, quality dining and shopping. There are unforgettable ocean adventures and attractions around every turn — like the world-famous Reversing Falls. The highest tides in the world created by the Bay of Fundy — they rise and fall the height of a four-storey building, twice a day, every day right in Saint John.

As for Forum 2006 entertainment — as always, Eastcoasters promise to show everyone a fabulous time with legendary Maritime hospitality. We promise to top off the Forum with great food and entertainment that everyone will enjoy. So mark your calendar and watch for registration information on the CSRT website and in future issues of the *CJRT*. I'm looking forward to seeing everyone in the spring!

## Bienvenue à Saint John!

Embrun salé, soleil et fruits de mer... Le Forum d'éducation 2006 de la SCTR se tiendra dans la ville de Fundy : Saint John, au Nouveau-Brunswick! Du 26 au 28 mai 2006, nous jouirons de l'accueil maritime à la Baie de Fundy, à l'embouchure de la rivière Saint-Jean dans la ville historique de Saint John. Le Hilton Saint John et le Saint John Trade and Convention Centre serviront de lieux privilégiés pour les séances, l'hébergement et la salle des exposants.

Au nom des thérapeutes respiratoires du Nouveau-Brunswick et en qualité de présidente locale du Forum d'éducation de la SCTR, j'aimerais inviter chaleureusement et cordialement tous mes collègues au Forum 2006 de la SCTR, Vagues du changement.

Depuis près d'un an, le Comité du Forum travaille sans relâche à mettre sur pied un panel impressionnant de conférenciers et à prévoir des séances qui traiteront des dernières mises à jour sur une vaste gamme de sujets liés à la thérapie respiratoire (pour plus d'enseignements visitez [www.csrt.com](http://www.csrt.com)).

### Tant à faire et à voir!

Saint John est le point d'accès à la Baie de Fundy et à ses sites spectaculaires : parcs vierges, rues historiques escarpées, restaurants et boutiques de qualité. D'inoubliables aventures et attractions de mer vous y attendent, par exemple les Chutes réversibles de renommée mondiale et les plus hautes marées du monde créées par la Baie de Fundy. Deux fois par jour, elles montent et baissent à Saint John d'une hauteur d'un édifice à quatre étages.

Pour ce qui est du divertissement lors du Forum 2006, le célèbre accueil maritime vous réserve beaucoup de plaisir. Nous nous engageons à clôturer le forum par un repas gastronomique et du divertissement qui seront appréciés de tous. Inscrivez ces dates à votre calendrier et surveillez le site Web de la SCTR ainsi que les prochains numéros du Communiqué pour les renseignements liés à l'inscription. Je me réjouis à la perspective de vous revoir au printemps!

## CSRT Awards

### Do you know someone who deserves special recognition?

The CSRT is pleased to provide a series of awards in conjunction with some of our Corporate Members. Awards include financial grants or travel costs as well as recognition within the RRT community.

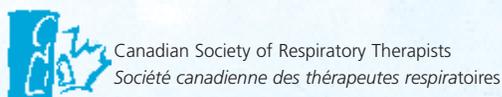


Summit Technologies invites you to nominate an individual for the **Summit Technologies Award in Respiratory Excellence**. This award focuses on the areas of respiratory care involving direct patient care, education or research. The deadline for applications is December 15, 2005.



Medigas, a Praxair company is accepting applications for the **Medigas Award for Excellence** for recognition of a group of RRT's from any facet of the profession who further the profession of respiratory therapy through their activities in their community.

The Award recognizes the active practice of respiratory therapists. Nominations may come from the public, other RRT's who work with the nominees, or members of the health care team.



The **Robert Merry Professional Achievement Award** honours a respiratory therapist from any area of the field, who has exhibited vision, leadership and innovation to further develop respiratory care in Canada. Out of pocket expenses, accommodations and airfare will be paid to the award recipient to aid in ensuring his/her presence at the award presentation at the annual educational forum. Deadline for nominations is January 31, 2006

Please check the Foundations section of the CSRT website for eligibility details on all these awards.

## Respiratory Therapy Week

This year RT Week is October 23–29. What are you and your colleagues doing to promote the profession? Send us a note or a photo on your activities. If you are looking for RT Week give-aways, check the CSRT RT Week catalogue on the CSRT website.

## Exam deadline

The next sitting of the CSRT National Exam is January 9, 2006. Deadline for application for this exam is November 15, 2005. Details are available on the CBRC website.

## CSRT Awards Credential through MRA

To date, under the Mutual Recognition Agreement, 35 individuals have met the qualifications and received the CSRT RRT credential. Under MRA, respiratory therapists from Ontario, Alberta and Quebec have already taken advantage of the mobility available through this agreement. Details on MRA can be found on the CSRT website (under Membership) or by calling Head Office.

## CSRT Forum 2006 — Call for Abstracts

The 2006 CSRT Annual Educational Forum will be held in Saint John, New Brunswick. The Forum provides opportunity for respiratory therapists to network with colleagues, engage in professional development, share experiences and enhance the practice of respiratory therapy in Canada. To that end, the Planning Committee invites the submission of abstracts for poster presentations at Forum 2006.

Abstracts may pertain to any area of respiratory therapy including clinical practice, program development, research investigation, evaluation, and respiratory healthcare delivery. Abstracts of no more than 250 words must be submitted according to the attached guidelines and will be reviewed by a Panel using a blind peer review mechanism. Check the CSRT website for details. The deadline for submission is February 28, 2006.

## CoARTE News — Invitation to Volunteers

The Council on Accreditation for Respiratory Therapy Education would like to invite volunteers to serve as Program Reviewers on teams for accreditation of respiratory programs. Our teams consist of dedicated professionals with invaluable experience at the didactic, clinical and administrative levels. Each team is comprised of respiratory therapists, a senior educational administrator, a regulatory body representative and a physician. The time and expertise of our teams contribute to CoARTE's success and this is a very rewarding process! If you would like more information, please contact the Secretariat by phone at 1-800-267-3422 ext. 26 or e-mail [coarte@csrt.com](mailto:coarte@csrt.com)

### CoARTE annual meeting

The next annual meeting will be held in Ottawa on Friday, November 18 and Saturday, November 19. If any stakeholder wishes CoARTE to consider a particular issue, please submit by e-mail to [coarte@csrt.com](mailto:coarte@csrt.com) by October 28th.

### French language schools

We will need to create a roster of French speaking physicians for the Review teams for our upcoming accreditation site visits scheduled for 2009–2010.

*Aimeriez-vous participer et vous impliquer dans le processus d'évaluation du Conseil pour l'agrément de la formation en thérapie respiratoire (CoAFTR) ?*

*Vous pouvez obtenir plus d'informations en composant le 1-800-267-3422 poste 26 ou par courriel : [coarte@csrt.com](mailto:coarte@csrt.com)*

## CSRT Call for Nominations You Can Make A Difference!

The CSRT invites its members to become pro-active in their profession. Nominations are now open for volunteer positions on the CSRT Board of Directors. These positions are two-year appointments.

### CSRT Positions Vacant:

President-Elect (to become President and Past-President) 2006–2007  
Treasurer 2006–2008  
Director of Professional Advocacy 2006–2008  
Director of Membership Services 2006–2008  
Director of Education and Clinical Standards 2006–2008  
Director of Human Resources 2006–2008

Check our website under About/Board of Directors for job descriptions and nomination forms. Forms can also be obtained through the CSRT Head Office 800-267-3422.

Each nominee must be a Registered Member of the Society. Individuals may be nominated by forwarding the nomination papers, duly signed by five (5) Registered Members in good standing, to the Executive Director of the Society.

Original signatures must be on the nomination forms. Completed forms should be sent to:  
Douglas Maynard  
Executive Director CSRT  
102-1785 Alta Vista Drive  
Ottawa ON K1G 3Y6

**Deadline for nominations is December 1, 2005.**

## Message from the President

Summer comes and summer goes! It seems like just last week when we were all together for the CSRT Educational Forum 2005 in Edmonton. Since my term started in beautiful Edmonton we have been busy over the summer on several fronts.



Sue Jones

A revised membership survey is being finalized and will be sent to you to allow us to collect more information to help us fulfill our strategic plan and improve and expand services you require.

The CSRT recently participated in a meeting in Vancouver held by the Canadian Anaesthesiology Society (CAS). Discussion took place on the role of the anaesthesia assistant in Canada. Also attending were representatives from ORNAC and NAPAN, both nursing groups representing nurses working in the OR. The CAS would like to see the CSRT work with the nursing group to come up with a role description and present it to the CAS. We have very capable RRT's working on this using the SIG group representatives.

Federally the CSRT is working on a proposal to the government looking at a foreign credential recognition program on behalf of the Alliance. The board is looking at ways to increase our membership by proposing a restructuring of fees for students, encouraging students to become members early on in the process to support their professional association.

The advocacy director has been very active in promoting the profession and in turn has involved our profession in a number of committees looking at safer healthcare.

The listserv continues to thrive with a variety of topics and good evidence based practice issues. I encourage you to sign up and participate in discussion in your area of interest. The listserv categories can be found on the CSRT website under the Discussion bar.

The CSRT continues to provide a strong presence on the Alliance, representing the RRT's national perspective on many issues including the newly structured board and its strategic plan.

As Respiratory Week fast approaches there are a number of educational and entertaining events being planned across the country. Send a note to head office and let them know how you organized and executed your event.

The planning for the next forum in New Brunswick is well under way and we hope to see you all there. Details on Waves of Change, CSRT Educational Forum 2006, can be found in this issue.

Sue Jones, RRT  
CSRT President

## Mot de la présidente

L'été tire déjà à sa fin. Comme le temps a filé depuis le Forum 2005! Depuis le début de mon mandat à Edmonton, nous avons travaillé sur plusieurs dossiers au cours de l'été.

Le directeur des Services aux membres a révisé le sondage à l'intention des membres, en voie d'être finalisé, lequel nous permettra de recueillir davantage de renseignements vis-à-vis de vos besoins à titre de thérapeutes respiratoires.

De son côté, le conseil d'administration, désireux d'augmenter nos effectifs, propose de restructurer les frais d'adhésion des étudiants, les encourageant ainsi à devenir membres en début de carrière et à soutenir leur association professionnelle.

Le listserv, le site Web et la RCTR ne cessent de se développer, affichant une gamme de sujets, d'actualités et de renseignements liés à la pratique fondée sur les preuves.

Le directeur de la défense des intérêts, Wrae Hill, a été très actif au chapitre de la promotion de la profession, impliquant celle-ci à de nombreux comités qui s'intéressent à la sécurité des soins de santé en plus de conclure des partenariats qui se traduiront en ressources pour aider nos membres à dispenser de meilleurs soins à leurs patients.

La SCTR a participé à une réunion de la Société canadienne des anesthésiologistes (SCA) à Vancouver, où il fut question du rôle de l'assistant d'anesthésie au Canada. Les infirmières et infirmiers de la salle d'opération y étaient représentés par deux groupes de soins infirmiers, soit l'AIISOC et la NAPAN. La SCA souhaite que la SCTR travaille avec ces deux groupes à la rédaction d'une description du rôle de l'assistant d'anesthésie qui sera présenté à la SCA. Quelques TRA bien outillés œuvrent à ce projet, secondés par les représentants des groupes d'intérêt spéciaux.

En ce qui concerne la réglementation, la SCTR poursuit son travail avec l'Alliance nationale des organismes de réglementation en thérapie respiratoire, en vue de promouvoir la conformité nationale à l'égard des normes de réglementation. De concert

avec l'Alliance, la SCTR rédige une proposition à l'intention du gouvernement ayant pour objet un programme de reconnaissance des compétences étrangères au nom de l'Alliance.

La SCTR continue de faire une présence solide à l'Alliance, représentant la perspective nationale des TRA à l'égard de nombreux sujets, y compris la mise en œuvre du Profil national des compétences et l'élaboration d'un examen fondé sur le nouveau profil des compétences.

Le présent numéro renferme des renseignements sur plusieurs activités, par exemple, la date d'échéance des prix, l'appel de candidatures pour le conseil d'administration, ainsi qu'une mise à jour de la planification liée au Forum 2006 de la SCTR, Vagues du changement, qui se tiendra à Saint John, au Nouveau-Brunswick.

Sue Jones, TRA  
Présidente de la SCTR



Just another reason we're continuing to raise the bar.

To save a life, to get closer to a cure, to teach, to learn, to give someone a second chance and to make an impact...

**C**apital Health is Canada's largest academic health region, serving 1.6 million people across central and northern Alberta, and the leading medical and health sciences centre for Western Canada. With a reputation for creating a culture of innovation and excellence, Capital Health is consistently recognized as a leading health system by the Canadian Institute for Health Information.

Enjoy the challenges and rewards offered by a leader in health care.

Visit our website at [www.capitalhealth.ca](http://www.capitalhealth.ca)

Talk to us today!

Relocation assistance is available

Capital Health Regional Recruitment

Toll-free: 1-877-488-4860 • Local: 735-0124

E-mail: [careers@cha.ab.ca](mailto:careers@cha.ab.ca)



**Capital  
Health**

**Edmonton, Canada**

People who *care*. Work that *matters*.

We welcome all inquiries and thank you for your interest.



# Health Human Resources Summit

Douglas Maynard, CSRT Executive Director

In June 2005 I had the opportunity to represent the CSRT at a Health Human Resources Summit that was hosted by the Health Council of Canada. Part of the CSRT's new strategic plan is to focus more of our organization's energy on key advocacy opportunities. Participation with the Health Council through the Summit is an ideal example of how the CSRT's advocacy efforts can influence national health care policy while those policies are being reviewed and created.

Created in December 2003, as a result of the First Ministers' Health Accord and following the recommendations of the Romanow and Kirby Reports, the Health Council of Canada is mandated to monitor and report on the progress of health care renewal in Canada. The Council is an independent, federally funded organization monitoring and reporting independently to Canadians on health care renewal progress and system performance, identifying strategies for improvement and better health for Canadians. Council members have a broad range of experience bringing perspectives from government, health care management, research and community life from across Canada.

In January of 2005 the Council issued its first report to Canadians as part of its mandate to monitor and report on the progress of Canada's Health Accord. In the report four key areas for improvement were identified. They include: strengthening health human resources planning, expanding the use of multidisciplinary teams in primary health care, employing information technology for patient health records and reducing health disparities, particularly in Aboriginal communities.

To address the human resource issue the Council established a Health Human Resources Working Group. This group has identified four major gaps in the existing health human resource strategies.

### Education and Training

First, they identified a number of issues related to education and training of health care workers. These included questions pertaining to the ability of existing training institutions to meet the existing demand and to balance this with the incorporation of internationally trained graduates. This issue is also complicated by the existence of different educational requirements for

the same professions across jurisdictions. This has severely impaired the public's understanding of skill sets, mobility of personnel, workplace flexibility and institutional accreditation requirements.

Another issue pertaining to education is the recognition by almost all stakeholders of the importance of multidisciplinary practice teams. There are currently very few examples in health care of effective use of multidisciplinary teams. There is limited knowledge among different professionals of the skills and abilities of their colleagues. The Council has suggested a solution must focus on emphasizing collaborative training and education of students, across professions, as well as providing team based patient care training to professionals that are already in the workplace.

Respiratory therapy in Canada is ahead of the game of many of these issues. Through our work with the National Alliance of Respiratory Therapy Regulatory Bodies, the CSRT is participating in a number of projects related to maintaining standards that will be applied consistently across Canada.

We have also created the Student Special Interest Group, chaired by Jason Nickerson. Jason has been in communication with a number of interdisciplinary student groups to ensure that respiratory therapists are included in the development of interdisciplinary training programs.

### Scope of Practice

The second set of issues that were identified by the council were in relation to health care professionals practicing to their full scope of practice, the implementation of collaborative care models, liability and insurance, and entry to practice criteria.

The issue of being allowed to practice to one's full scope of practice is not new to any respiratory therapist, as this is a challenge that many RRTs face on a regular basis. It was articulated by many professions at the summit that there is a clear lack of knowledge of the skills of team members across the various professions that may be involved in the care of a single patient.

*Continued next page*

According to the Council, some of this confusion and lack of knowledge can be attributed to a lack of consistency in determining scope of practice, titles and licensure criteria across the various jurisdictions that regulate the health care professions.

One issue that was identified as a barrier to expansion of a professional to their full scope of practice, is related to insurance and liability. There are many misunderstandings surrounding liability because team practice is often incompatible with regulations and professional insurance plans that are focused on individual accountabilities. A physician may not allow RRTs to make certain decisions because of misinformation about who is responsible for the outcome of the actions of the RRT.

All of the issues related to scope of practice are also compounded by the reality that the regulated scope of practice of the licensing body is often different from the scope of practice defined by the employer, which often differs from the reality of the scope of practice that actually occurs in the clinical setting due to politics or shortages of appropriate staff.

Some of the potential solutions to these issues may relate to the trend toward regional health authorities that are able to standardize scopes of practice across centres as well as jurisdictional collaboration to standardize regulatory frameworks. Again, the CSRT is working with its partners in the National Alliance to increase jurisdictional collaboration and nationally consistent standards.

### **Workplace Practice Issues**

The third set of issues relates to workplace practice issues, which generally pertain to strategies for recruitment and retention, healthy workplace practices, burnout and overall job satisfaction.

There is little agreement among stakeholders of the value and effectiveness of monetary incentives for recruitment and retention, and there has been little work on incorporating non-financial incentives. The lack of agreement is largely due to the fact that there has been little focus, from a funding perspective, on recruiting and retaining professions other than nurses and physicians.

The Council has identified the need to create strategies to improve the workplace of all professions, not just physicians and nurses, and to be creative in combining both financial and non-financial incentives in future recruitment and retention plans.

### **Health Human Resources (HHR) Planning**

The final set of issues is in regards to health human resource planning. Some of the key points include evidence-based approaches to human resource planning, supply and demand of health professionals, the difference between urban and rural needs and the need for national databases.

The theme of HHR planning is very complex and the Council will continue to investigate potential solutions. Creating a national HHR strategy that encompasses all health professions will require the collaboration of the various professions, all levels of government and many other stakeholders. It will also require improved data collection and use of national HHR databases.

### **Conclusion**

The issues being examined by the Health Council of Canada will have a significant and direct impact on the professional lives of all respiratory therapists in Canada and the CSRT will continue to make sure your interests are appropriately represented. Communicating how our profession has proactively addressed a number of the issues identified by the council demonstrates the collaborative, successful solutions that the CSRT has helped foster. This can be an example to other professions. It has also shown us that we no longer attend these meetings to learn and grow our profession. We now attend these meetings to show that we are contributors and, in some areas, are leaders among our health care colleagues. Recognition as a profession at this level can only increase the visibility and recognition of the CSRT and of RRTs as key players in the health care system.

The Health Council will be preparing a report of the results of this summit with a compilation of the input from the various professions that participated. If you are interested in reading more about the Health Council of Canada or the Health Human Resources Summit visit [www.healthcouncilcanada.ca](http://www.healthcouncilcanada.ca).

# Report on Patient Simulation in Canada

Wrae Hill, CSRT Director Professional Advocacy

In light of rising awareness and decreasing acceptance of adverse events in hospitals and an overall increasing focus on patient safety, the traditional concept of “learning by doing” (theory followed by supervised clinical practice) in our hospitals is becoming less acceptable. This, along with changing demographics of hospitalized patients and the high cost of teaching in the clinical environment, has prompted an increase in innovative and complimentary methods to teach medical knowledge and gain procedural expertise, including patient simulation.<sup>1,2</sup>

Similar in concept to flight simulators used in aviation training, complex patient simulators allow healthcare professionals to learn, first hand how to; care for patients, hone skills, manage clinical teams, respond to critical situations. A variety of tools exist, including complex, high fidelity, computer-controlled mannequins and part-task trainers. These tools provide realistic responses to medical interventions. Ten years ago, anaesthesia residents made up the large majority of patient simulation users. Today, the field is broadening to include; medical students, nurses, Respiratory therapists, obstetrical and radiology residents, paramedics and others as part of their continuing education.

The report “Current State Report on Patient Simulation in Canada” is available as a .pdf file from the Canadian Patient Safety Institute. ([www.cpsi-icsp.ca](http://www.cpsi-icsp.ca)). Respiratory therapists are encouraged to use this review for the benefit of their patients. The document was presented at the National Patient Simulation Symposium held in Edmonton on April 28 and 29, 2005.

## References

1. J.Vozenilek J.S. Huff, M. Reznick and J.A. Gordon. See one, do one, teach one — Advanced Technology in Medical Education *Acad. Emerg.Med* Nov 1/2004 11(11): 1149-1154
2. D. Raemer and D. Barron Uses of Simulators for Education and Training in Non-anesthesia Health Care Domains, *American Society of Anesthesiologists Newsletter*, October 1997: 61(10)



## CSRT Corporate Members 2005–2006

Cardinal Health  
 Carestream Medical  
 GE Healthcare  
 Instrumentation Laboratory  
 Methapharm  
 ProResp/ProHealth  
 Radiometer Canada  
 Respan Products  
 VitalAire Canada

## New Literacy and Health Partnership

The CSRT has partnered with the National Literacy and Health Program to provide members with guidance, resources and tools to contribute to a better professional practice.

When approaching a patient to perform a procedure, give instructions or to provide education, the literacy skills of the patient may not be the first thing that comes to mind. However, a patient's literacy skills have been identified as an important determinant of the patient's health. Health literacy is defined as the degree to which a person has the capacity to get, process, and understand basic health information and services needed to make appropriate health decisions. Almost half of Canadians have low literacy skills. These Canadians are more likely to have poorer health than those with higher levels of literacy. For example, the Public Health Agency of Canada ([www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)) has indicated that patients with limited literacy may have difficulty understanding and following medical instructions and are more likely to use emergency health services when they are not medically necessary. Health professionals and the health system share responsibility with patients for ensuring understanding of information for prevention, health promotion and treatment.

Raising awareness of the link between literacy and health is an important first step in helping RRTs better serve their patients and the CSRT is committed to assisting members in this area. To address this issue the CSRT has recently initiated a partnership between itself and the National Literacy and Health Program (NLHP). The NLHP is an initiative of the Canadian Public Health Association. The program focuses on the importance of presenting health information in plain language and improving clear verbal communication skills between health professionals and the clients they serve. A complete list of NLHP partners along with information pertaining to the program is available at [www.nlhp.cpha.ca](http://www.nlhp.cpha.ca).

"As RRTs we must regularly convey highly technical healthcare information, both written and verbal. Whether you are writing content for a pamphlet in an asthma education clinic, instructing a family on how to care for their ventilated child, or explaining a procedure that you are about to perform on a patient in the ICU, plain language and clear verbal communication are critical to the patient's adherence to the treatment regimen and the patient's long term success." states

Douglas Maynard, Executive Director of the CSRT. One of the services provided by the NLHP is the Plain Language Service (PLS), which provides assistance to professionals in designing and/or assessing healthcare documentation to ensure that it is easily understandable for the intended audience.

The NLHP has produced a number of resources to help health professionals work with patients with limited literacy. RRTs will have the opportunity to provide valuable input into upcoming projects, including a plan to increase knowledge and skills of health professionals training at colleges and universities to better serve people with limited literacy in the health system.

The CSRT is committed to providing its members with tools that will allow RRTs to provide the highest quality care. Partnerships of this nature will also help your Society raise the profile of Respiratory Therapists by demonstrating that RRTs are dedicated to taking an active part in solutions that will lead to better health outcomes for Canadians.

If you have any questions about the CSRT's involvement with the NLHP, please contact Danièle Filion, Marketing and Public Relations Coordinator at the CSRT Head Office ([csrt@csrt.com](mailto:csrt@csrt.com)).

**It's black and white.**

**If your clients don't follow instructions, they may have low literacy skills and cannot understand the information you are giving them.**

**Be part of the solution.**

**Plain language can make a difference.**

**For more information, contact**

Canadian Public Health Association  
In Partnership with 27 National Health Associations

613-725-3769 x153

[nlhp@cpha.ca](mailto:nlhp@cpha.ca)

[www.pls.cpha.ca](http://www.pls.cpha.ca)



## Safer Healthcare Now!

CSRT has officially enrolled as a partner with the Safer Healthcare Now (SHN) campaign.

With the aim of improving patient safety, the SHN campaign has identified six evidence-based strategies that are to contribute in the reduction of mortality and morbidity in Canada:

- *At the first sign of patient decline outside the intensive care unit:* deploy Rapid Response Teams
- *To prevent avoidable deaths from heart attack:* consistently deliver reliable, evidence-based care for acute myocardial infarction
- *To prevent adverse drug events (ADEs):* implement medication reconciliation
- *To prevent central line infections:* implement a series of interdependent, scientifically grounded steps called the “Central Line Bundle”
- *To prevent surgical site infections:* reliably deliver the correct perioperative antibiotics at the proper time
- *To prevent ventilator-associated pneumonia:* implement a series of interdependent, scientifically grounded steps called the “Ventilator Bundle”.

Although the scope of the initial campaign is limited to the six targeted interventions, one of the objectives is to establish a foundation to adapt the campaign to include other interventions and healthcare settings in the future.

The CSRT is looking forward to working towards the achievement of a safer healthcare environment for Canadian patients by contributing the expertise of respiratory therapists to the campaign. As respiratory therapy is a fundamental element in the care of the patient populations targeted by the SHN campaign strategies, it is important that respiratory therapists are aware and knowledgeable of the evidence supporting these strategies.

“Respiratory therapists are very knowledgeable of and are in constant contact with most of the patient populations targeted by the Safer Healthcare Now! campaign”, says Douglas Maynard, CSRT Executive Director. “Those patients that are post surgery, in cardiac arrest, on life support or experiencing a critical medical emergency that may require admission to an ICU are some of the most seriously compromised

patients in the healthcare system. These are the patients that respiratory therapists deal with every day. The involvement of respiratory therapists in the implementation of these strategies will be critical to their success. The CSRT is proud to support the Safer Healthcare Now! campaign, and will continue to promote this initiative to our membership and other like-minded organizations.”

SNH, which is patterned after the Institute for Healthcare’s 100,000 Lives campaign, kicked off in March 2005. The initial campaign period began in April 2005 and will run through to December 2006. The list of participants can be viewed at: [www.safer-healthcarenow.ca/www.soinsplussursmaintenant.ca](http://www.safer-healthcarenow.ca/www.soinsplussursmaintenant.ca).

### Contact Us

**Executive Director**  
**Douglas Maynard**  
**[dmaynard@csrt.com](mailto:dmaynard@csrt.com)**

**Communications Manager/Editor CJRT**  
**Rita Hansen**  
**[rhansen@csrt.com](mailto:rhansen@csrt.com)**

**Marketing and Public Relations**  
**Danièle Filion**  
**[csrt@csrt.com](mailto:csrt@csrt.com)**

**Membership Services**  
**Sylvia Stiehl**  
**[sstiehl@csrt.com](mailto:ssstiehl@csrt.com)**

**Mailing Address**  
**Suite 102, 1785 Alta Vista Drive**  
**Ottawa, ON K1G 3Y6**  
**1-800-267-3422 (613) 731-3164**  
**Fax (613) 521-4314 [csrt@csrt.com](mailto:csrt@csrt.com)**



## Abstracts

### Smoking in Contemporary American Cinema\*

Karan Omidvari, MD, FCCP; Klaus Lessnau, MD, FCCP; Jeannie Kim, MD; Donald Mercante, PhD; Ann Weinacker, MD, FCCP and Carol Mason, MD, FCCP

\* From the Pulmonary and Critical Care Section, St. Michael's Medical Center, Newark, NJ (Dr. Omidvari), Lenox Hill Hospital, New York, NY; New York University School of Medicine (Dr. Lessnau), New York, NY; the Section of Pulmonary and Critical Care Medicine (Dr. Kim), University of California, San Diego, San Diego, CA; the Section of Pulmonary and Critical Care Medicine (Dr. Mason), Louisiana State University Health Science Center (Dr. Mercante), New Orleans, LA; and the Section of Pulmonary/Critical Care Medicine (Dr. Weinacker), Stanford University Medical Center, Stanford, CA.

**Correspondence to:** Karan Omidvari, MD, FCCP, 268 King Blvd, Newark, NJ 07102; e-mail: komidvari@yahoo.com

**Objective:** The true prevalence of smoking among characters portrayed in the movies is unknown. This study examines this prevalence objectively.

**Design:** The top 10 movies on the weekly box office charts were reviewed. Whether or not the top five characters in these movies smoked, was documented. It was determined prior to the start of the study that 300 male characters and 300 female characters were needed to detect any significant difference. A total of 447 movies, composed of 193 movies rated restricted (R) [children < 17 years of age must be accompanied by an adult], 131 movies rated PG13 for parental guidance suggested for children < 13 years of age (PG) and 123 movies rated PG for parental guidance suggested, were examined until the sample size was reached.

**Results:** Smoking prevalence is the same in contemporary American movies and in the general US population (23.3% vs 24.8%, respectively). However, there was more smoking in these movies among men than among women (25.5% vs 20.5%, respectively;  $p < 0.006$ ), among antagonists than among protagonists (35.7% vs 20.6%, respectively;  $p < 0.001$ ), lower vs middle vs upper socioeconomic class (SEC) [48.2%, 22.9%, and 10.5%, respectively;  $p < 0.001$ ], among independent vs studio movies (46.2% vs 18.2%, respectively;  $p < 0.001$ ); and among R-rated vs PG13-rated vs PG-rated movies (37.3%, 16.2%, and 8.1%, respectively;  $p < 0.001$ ). In R-rated movies, and in both subcategories of R-rated studio movies and R-rated independent movies, smoking prevalence is higher than in the US population (37.3%, 30.5%, and 50.6% vs 24.8%, respectively;  $p < 0.001$  for all). Additionally, compared to the US population, men, women and lower SEC members smoke more in R-rated movies, R-rated studio movies, and R-rated independent movies. In R-rated movies, antagonists smoke more than protagonists (43.9% vs 35.8%, respectively;  $p < 0.001$ ), and whites smoke more than nonwhites (38.3% vs 26.4%, respectively;  $p < 0.001$ ). In R-rated studio movies, antagonists smoke more than protagonists (42.6% vs 26.6%, respectively;  $p < 0.001$ ), and men smoke more than women (32.0% vs 27.9%, respectively;  $p = 0.03$ ). In R-rated independent movies, whites smoke more than nonwhites (51.8% vs 40.5%, respectively;  $p < 0.001$ ). Smoking prevalence is higher in R-rated independent movies than in R-rated studio movies (50.6% vs 30.5%, respectively;  $p < 0.001$ ). Smoking prevalence is also higher in R-rated independent movies than in R-rated studio movies in subcategories of men (32.0% vs 49.8%, respectively;  $p < 0.001$ ), women (21.8% vs 51.8%, respectively;  $p < 0.001$ ), protagonists (26.6% vs 51.6%, respectively;  $p < 0.001$ ), whites

(31.5% vs 51.8%, respectively;  $p < 0.001$ ), nonwhites (24.7% vs 40.5%, respectively;  $p < 0.001$ ), and all three SECs.

**Conclusions:** In contemporary American cinema, the smoking prevalence is higher for men, antagonistic characters, lower SEC, independent movies, and R-rated movies. Smoking prevalence is higher than in the general US population in R-rated movies, and in both its subcategories of R-rated studio movies and R-rated independent movies. There is more smoking in R-rated independent movies than in R-rated studio movies. Smoking in contemporary American cinema is associated with male sex, lower SEC, and antagonistic (ie, bad) characters.

**Key Words:** motion pictures • smoking • tobacco • tobacco industry

(Chest. 2005;128:746-754.)

© 2005 American College of Chest Physicians

### Is it traffic type, volume, or distance? Wheezing in infants living near truck and bus traffic

Patrick H. Ryan, MSa, Grace LeMasters, PhDa, Jocelyn Biagini, MSa, David Bernstein, MD, Sergey A. Grinshpun, PhDa, Rakesh Shukla, PhDa, Kimberly Wilson, MSa, Manuel Villareal, MD, Jeff Burkley, BSa, James Lockey, MDa

Published online 16 June 2005. Cincinnati, Ohio

**Background:** Previous studies of air pollution have not examined the association between exposure to varying types, distance, and amounts of traffic and wheezing in very young infants.

**Objective:** We sought to determine the relationship between types of traffic, traffic volume, and distance and wheezing among infants less than 1 year of age.

**Methods:** A geographic information system and a classification scheme were developed to categorize infants enrolled in the study as living near moving truck and bus traffic (highway > 50 miles per hour, > 1000 trucks daily, < 400 m), stop-and-go truck and bus traffic (< 50 miles per hour, < 100 m), or unexposed and not residing near either. Symptom data were based on health questionnaires administered to parents when the infants were 6 months of age and monthly health diaries.

**Results:** Infants living very near (< 100 m) stop-and-go bus and truck traffic had a significantly increased prevalence of wheezing (adjusted odds ratio, 2.50; 95% CI, 1.15-5.42) when compared with unexposed infants. The prevalence of wheezing among nonwhite infants was at least twice that of white infants, regardless of exposure. Infants living less than 400 m from a high volume of moving traffic, however, did not have an increased prevalence of wheezing.

**Conclusion:** These results suggest that the distance from and type of traffic exposures are more significant risk factors than traffic volume for wheezing in early infancy.

**Key words:** Diesel, traffic, truck, bus, wheezing, Geographic Information System, infants

**Abbreviations used:** CCAAPS, Cincinnati Childhood Allergy and Air Pollution Study, DEP, Diesel exhaust particle, GIS, Geographic information system, mph, Miles per hour, OR, Odds ratio, PM, Particulate matter, SPT, Skin prick test

# Canadian Population Risk of Radon Induced Lung Cancer

Dr. Jing Chen, Ph.D and Dr. Bliss L. Tracy, Ph.D  
Radiation Protection Bureau, Health Canada

## Abstract

**Background:** Indoor radon has been determined to be the second leading cause of lung cancer after tobacco smoking. This study evaluates the Canadian population risk for radon induced lung cancer.

**Methods:** The proportion of lung cancer deaths in Canada attributable to indoor radon is estimated using the log-normal distribution of radon concentrations from a cross Canada survey and the risk model developed recently by U. S. Environmental Protection Agency (EPA). Population attributable risks are calculated with Canadian age-specific rates for overall and lung cancer mortalities (1996–2000) and the Canadian smoking prevalence data in 2002.

**Results:** The theoretical estimates show that 9.4% of lung cancer deaths among Canadian male ever-smokers are attributable to radon exposure; the attributable fraction increases to 19% for male never-smokers. Similar radon-attributable risks for Canadian women are estimated to be 8.8% and 18%, respectively.

**Conclusions:** If effective action were taken to reduce indoor radon concentrations, a significant number of lung cancer deaths could be prevented.

**Key words:** Radon, Lung cancer, Risk assessment.

## Introduction

Radon is an inert radioactive gas produced by the decay of natural uranium in rocks and soils throughout the earth's crust. A certain fraction of the radon escapes into the air. In the outdoors radon is quickly diluted by atmospheric mixing and is of no further concern. However, in confined spaces such as mines or homes, radon can accumulate to harmful levels. Radon gas itself is not significantly retained in the lungs, but short-lived radon progeny can become attached to aerosol particles. These particles can in turn be deposited in the lungs and bombard sensitive lung tissue with alpha radiation. Over a period of time, this may lead to malignant transformation and the formation of lung cancer.

Data that characterize the distribution of radon levels in Canadian homes are limited. For this study, we use the radon distribution obtained from a cross-country survey of 14,000 homes conducted by Health Canada.<sup>1</sup> Applying the age-specific risk model for lung cancer recently published by US EPA,<sup>2</sup> an estimate can be made for the number of lung cancers in Canada which may be attributable to radon exposure in homes and the amount of lung cancer that is potentially preventable with actions of radon reduction.

## Methods

Following *Lubin and Boice*,<sup>3</sup> the attributable risk (*AR*) of lung cancer due to ionizing radiation is defined as the proportion of lung-cancer deaths attributable to radon progeny exposure. This risk indicates the proportion of lung cancer deaths that theoretically could be prevented by reducing indoor radon concentrations to outdoor levels. Given the exposure-response relationship for radon and lung cancer risk, the distribution of indoor radon concentrations, and the mortality rates of lung cancers and all cases, the attributable risk can be estimated:

$$(1) \quad \frac{\int [RR(C) - 1]f(C)dC}{\int RR(C)f(C)dC}$$

where  $f(C)$  is the probability density of radon concentration,  $RR(C)$  is the lifetime relative risk of lung cancer for a lifetime exposure to radon at a constant concentration of  $C$  in the presence of competing risks, i.e. the ratio of lifetime lung cancer risk for exposure rate  $C$  to lifetime lung cancer risk for "zero" exposure.

The proportions of Canadian homes with different ranges of radon concentration are based on the Health Canada cross-country radon survey carried out in the late 1970s.<sup>1</sup> The observed radon concentration in Canadian homes follows log-normal distribution with a

geometric mean of 11.2 Bq/m<sup>3</sup> and a geometric standard deviation of 3.9.<sup>1</sup> Only about 3.2% of 14,000 Canadian homes tested showed radon concentrations in excess of 185 Bq/m<sup>3</sup> (5 pCi/L). For the relatively small number of homes above this level, a further breakdown in several exposure ranges up to 800 Bq/m<sup>3</sup> is done by calculating number of houses in each radon range which fits the experimentally observed log-normal distribution. It was assumed that males and females were distributed equally in the various radon concentration ranges.

The lifetime relative risk, *RR(C)*, at a given radon concentration, C, can be calculated from the exposure-response relationship for radon and lung cancer risk. Based on world-wide epidemiological studies, the BEIR VI committee recommended two models for estimating radon risks: the Exposure-Age-Duration model and the Exposure-Age-Concentration model.<sup>4</sup> The two models are equally preferred and it is not easy to decide which one to use in practice. Recently, the United States Environmental Protection Agency devised a single model<sup>2</sup> that gives risk values midway between the two BEIR VI preferred models. The EPA model is used here. The computation of lifetime risks

depends on the choice of the background age-specific lung-cancer and overall mortality rates. In this study, Canadian age-specific mortality rates averaged over five years from 1996 to 2000<sup>5</sup> are used. Details of lifetime relative risk calculation can be found in a previous publication.<sup>6</sup>

In the adjustment of age-specific lung cancer mortality rates to reflect smoking status, Canadian age-specific smoking prevalence data for males and females in 2002 are used.<sup>7</sup> The average age of smoking commencement is 18 among Canadians. According to the BEIR VI report, never-smokers are defined as those persons who had not yet smoked 100 cigarettes, and ever-smokers are those who had smoked at least 100 cigarettes in their lifetime. It is accepted that smoking and radon exposure combine in a fashion that is submultiplicative on the relative-risk scale. It further assumed that smoking-induced lung cancer has a 10 year latent period and the relative risks for ever-smokers compared with that for never-smokers are approximately 14 for males and 12 for females.

**Table 1:** Lifetime relative risks at different radon exposures, the distribution of attributable risks for Canadian men from indoor radon exposure, and estimated lung-cancer deaths attributable to radon for the year 2000.

RADON RANGE BQ/M <sup>3</sup>	PROPORTION OF HOMES IN RANGE, %	RELATIVE RISK, <i>RR(C)</i>		CONTRIBUTION TO AR		LUNG-CANCER DEATHS IN 2000 ATTRIBUTABLE TO RADON	
		EVER-SMOKER	NEVER-SMOKER	EVER-SMOKER	NEVER-SMOKER	EVER-SMOKER	NEVER-SMOKER
0 - 18	59.53	1.0414	1.0937	0.0223	0.0450	204	22
19 - 37	15.74	1.0847	1.1924	0.0121	0.0244	111	12
38 - 56	8.83	1.1277	1.2911	0.0102	0.0207	94	10
57 - 74	4.26	1.1682	1.3844	0.0065	0.0132	59	6
75 - 92	3.07	1.2084	1.4777	0.0058	0.0118	53	6
93 - 111	1.94	1.2505	1.5760	0.0044	0.0090	40	4
112 - 130	1.03	1.2924	1.6742	0.0027	0.0056	25	3
131 - 148	1.15	1.3317	1.7672	0.0035	0.0071	32	4
149 - 166	0.61	1.3708	1.8600	0.0021	0.0043	19	2
167 - 185	0.59	1.4118	1.9580	0.0022	0.0046	20	2
186 - 200	0.55	1.4439	2.0352	0.0022	0.0046	20	2
201 - 250	0.83	1.5498	2.2921	0.0042	0.0087	38	4
251 - 300	0.60	1.6536	2.5482	0.0036	0.0075	33	4
301 - 400	0.59	1.8555	3.0583	0.0046	0.0098	42	5
401 - 500	0.24	2.0500	3.5655	0.0023	0.0050	21	2
501 - 600	0.16	2.2373	4.0696	0.0018	0.0041	17	2
601 - 800	0.13	2.5916	5.0692	0.0019	0.0043	17	2
> 800	0.12	2.9206	6.0573	0.0021	0.0049	19	2
<b>TOTAL</b>	100.00	-	-	0.0944	0.1945	864	94

The radon ranges below 185 Bq/m<sup>3</sup> (5 pCi/L) are taken from the original data given in pCi/L. Radon range of 0 - 18 in Bq/m<sup>3</sup> corresponds to 0 - 0.5 in pCi/L.

**Table 2:** Lifetime relative risks at different radon exposures, the distribution of attributable risks for Canadian women from indoor radon exposure, and estimated lung-cancer deaths attributable to radon for the year 2000.

RADON RANGE BQ/M <sup>3</sup>	PROPORTION OF HOMES IN RANGE, %	RELATIVE RISK, RR(C)		CONTRIBUTION TO AR		LUNG-CANCER DEATHS IN 2000 ATTRIBUTABLE TO RADON	
		EVER-SMOKER	NEVER-SMOKER	EVER-SMOKER	NEVER-SMOKER	EVER-SMOKER	NEVER-SMOKER
0 - 18	59.53	1.0382	1.0862	0.0207	0.0420	121	27
19 - 37	15.74	1.0782	1.1770	0.0112	0.0228	65	15
38 - 56	8.83	1.1180	1.2677	0.0095	0.0194	55	13
57 - 74	4.26	1.1554	1.3536	0.0060	0.0123	35	8
75 - 92	3.07	1.1926	1.4394	0.0054	0.0111	32	7
93 - 111	1.94	1.2317	1.5298	0.0041	0.0084	24	5
112 - 130	1.03	1.2705	1.6201	0.0025	0.0052	15	3
131 - 148	1.15	1.3070	1.7056	0.0032	0.0067	19	4
149 - 166	0.61	1.3433	1.7910	0.0019	0.0040	11	3
167 - 185	0.59	1.3814	1.8811	0.0021	0.0043	12	3
186 - 200	0.55	1.4113	1.9521	0.0021	0.0043	12	3
201 - 250	0.83	1.5099	2.1883	0.0039	0.0081	23	5
251 - 300	0.60	1.6069	2.4239	0.0033	0.0070	19	5
301 - 400	0.59	1.7961	2.8928	0.0043	0.0092	25	6
401 - 500	0.24	1.9790	3.3590	0.0022	0.0047	13	3
501 - 600	0.16	2.1561	3.8224	0.0017	0.0038	10	2
601 - 800	0.13	2.4930	4.7409	0.0018	0.0040	10	3
> 800	0.12	2.8084	5.6486	0.0020	0.0046	12	3
<b>TOTAL</b>	<b>100.00</b>	<b>-</b>	<b>-</b>	<b>0.0880</b>	<b>0.1817</b>	<b>513</b>	<b>118</b>

## Results

### Attributable risks

Based on Eq. (1), attributable risks are calculated for Canadian men and women, respectively. Results are given in Tables 1 and 2. The total attributable risks for Canadian males are 0.0944 for ever-smokers and 0.1945 for never-smokers. For Canadian women, the corresponding values are 0.0880 and 0.1817, respectively. The total attributable risk is the sum of attributable risks for each radon range. The detailed breakdown of AR in different radon ranges is listed in Tables 1 and 2.

### Attributable lung cancer deaths

The estimated lung cancer deaths attributable to indoor radon exposure were based on Deaths 2000 from Statistics Canada data for the year 2000.<sup>5</sup> In that year there were 16,111 deaths from lung cancer in Canada (9635 in men and 6476 in women). As in BEIR VI, it was assumed that 95% of lung cancer deaths in men are ever-smokers and 90% of lung cancer deaths in women are ever-smokers.

The attributable risks for Canadian males are 0.0944 for ever-smokers and 0.1945 for never-smokers. This means that, of the 9635 lung cancers in men reported for the year 2000, 958 were attributable to

radon exposure. This is the sum of 864 ( $9635 \times 0.95 \times 0.0944$ ) in ever-smokers and 94 ( $9635 \times 0.05 \times 0.1945$ ) in never-smokers. The attributable risks for Canadian females are 0.0880 for ever-smokers and 0.1817 for never-smokers, which gave 631 radon-induced lung cancer deaths (513 in ever-smokers and 118 in never-smokers) for the year 2000. Details are given in columns 5 and 6 in Tables 1 and 2.

**Table 3:** Estimated lung cancer deaths that could be prevented in 2000 if all homes with radon concentrations above given action levels had taken effective remediate actions.

ACTION LEVEL BQ/M <sup>3</sup>	LUNG CANCER DEATHS PREVENTED		
	MALES	FEMALES	TOTAL
150	273	183	456
200	208	139	347
300	129	87	216
400	82	56	138
600	40	28	68
800	21	15	36

### Effect of radon mitigation on attributable risk

The overall attributable risk describes the anticipated consequences of virtual elimination of indoor radon exposure. A realistic assessment of the reduction of

*Continued on page 27*

Merck  
PI  
2/3 page  
pickup summer issue  
  
please top align with  
calendar

1 COLOUR

for position only  
key lines don't print

## CALENDAR OF EVENTS

October 15–20, 2005  
**AHIMA 77th Convention and Exhibit.**

American Health Information  
Management Association  
San Diego, California  
<http://www.ahima.org/>

October 15–18, 2005  
**World Association of Sleep  
Medicine & 13th Annual Meeting  
of the German Sleep Society**  
BERLIN, Germany  
<http://www.wasm2005.org>

October 29–November 3, 2005  
**CHEST 2005**  
Montreal, Canada  
[www.chestnet.org/](http://www.chestnet.org/)

November 3–5, 2005  
**15th Annual Canadian Home Care  
Association's National Conference**  
Banff, Alberta  
[www.cdnhomecare.ca/main.php](http://www.cdnhomecare.ca/main.php)

November 12, 2005  
**Pediatric Assembly of the European  
Respiratory Society**  
Prague, Czech Republic  
[ers-eaaci2005@guarant.cz](mailto:ers-eaaci2005@guarant.cz)

November 21–24, 2005  
**Pharmacology of Asthma & COPD  
Symposia**  
London, England  
<http://www1.imperial.ac.uk/medicine/nhli/events/>

November 26, 2005  
**Asian-Pacific Bronchology &  
Interventional Pneumology**  
Makuhari Messe, Chiba, Japan  
[www.apcb2005.com](http://www.apcb2005.com)

December 3–6, 2005  
**51st International Respiratory  
Congress AARC**  
San Antonio, Texas  
[www.aarc.org/](http://www.aarc.org/)

December 11–14, 2005  
**17th Annual National Forum on  
Quality Improvement in Health  
Care**  
Orlando, Florida  
[www.ihl.org/ihl](http://www.ihl.org/ihl)

**2006**  
January 21–25, 2006  
**35th Critical Care Conference**  
New Orleans, Louisiana  
[www.sccm.org/education/index.asp](http://www.sccm.org/education/index.asp)

# Airway Pressure Release Ventilation 101

Thinking 'outside the box' of conventional ventilation

Celina Rogers, RRT

As Respiratory Therapists (RTs) working in critical care, it goes without saying that ventilating patients poses many challenges. Our career holds a constant learning curve that we must embrace in order to ensure the best quality of care that we are capable of giving.

Advances in microprocessor controlled ventilators now allow us to apply different therapies to target specific diseases. Our knowledge base has grown beyond the simple understanding of lung mechanics. Research-based evidence proves that we have the means to protect a lung from barotrauma and we no longer need to accept the 'sink or swim' method of traditional weaning. The tools of our trade are smarter and we are smarter, thanks to a growing technology within our field.

What we need to address, and work through, is our struggle as professionals (and humans) to break out of our comfort zone. Conventional ventilation, whether it be by volume or pressure control, is the norm; the core, if you will, of our clinical essence. These modes have served us well and proven themselves worthy and effective. However...there is a new mode on the horizon. A millennium breakthrough. It's different, it's unconventional and it works!

The mode is called Airway Pressure Release Ventilation, or APRV. Forget what you know about Assist Control Ventilation for the moment. This new mode has its own agenda, its own language. The goals of this tool are lung recruitment and improved oxygenation with the added bonus of effective carbon dioxide removal. In order to understand APRV one must wipe clean the mindset of the typical 1:3 inspiration/expiration ratio. In theory it is hard to visualize. In practice it just makes sense.

This new mode is presently available on the Drager Evita 4 and Puritan Bennett 840 ventilators and initiated by accessing the Bilevel option.

At the institution of my employment, Credit Valley Hospital in Mississauga, Ontario, APRV was initiated on its first patient who was proving very difficult to ventilate and hemodynamically unstable. Working with an educated knowledge and understanding of the research provided, the RTs found that this method of

treatment aided in successfully improving a poor PaO<sub>2</sub> of the failing patient. Our new found therapy proved itself as an alternative to maintaining protective lung strategies while still ensuring adequate ventilation and oxygenation. Our intensivists were pleased with the results and were willing to stand behind our drive to initiate APRV in appropriate patients of the future.

In some circumstances, permissive hypercapnia was accepted by the intensivist and the result in most cases showed a favourable outcome. APRV has become a natural choice of ventilation in our ICU when conventional modes are unable to provide adequate tissue oxygenation to compromised patients.

APRV can be defined as 'a continuous positive airway pressure (CPAP) with regular, brief, intermittent releases in airway pressure. The release phase results in alveolar ventilation and removal of carbon dioxide (CO<sub>2</sub>).'<sup>1</sup> APRV facilitates lower peak inspiratory pressures (PIP) and mean airway pressures (MAP) in relation to conventional ventilation. Longer intervals of lower mean airway pressure by use of APRV can greatly improve mismatched ventilation/perfusion (V/Q) and achieve a greater PaO<sub>2</sub> level.

To simplify, APRV consists of the following main settings. The need to adjust set parameters, once a steady state is achieved, is based on arterial blood gases. Experience has shown that steady state may take longer than the standard 20–30 minutes due to the time it takes to promote proper recruitment of compromised lungs.

PEEP High -to maintain mean airway pressure; set at 25–35 cmH<sub>2</sub>O  
PEEP Low — research to date states to set this level at zero Respiratory rate (frequency of 'dumps' for CO<sub>2</sub> removal) — set < 12

Time High — length of time by which PEEP High is maintained (minimum of 4.0 seconds)

Time Low — length of time by which PEEP Low is maintained to establish a baseline of 5–8 cmH<sub>2</sub>O

Intrinsic PEEP (generally between 0.5–0.8 seconds; pressure/volume waveform will give insight)

Pressure support — set greater than highest PEEP level to aid support during spontaneous breathing

APRV is ideally a spontaneous mode of ventilation. Patients are free to breathe at will but due to short Time Low settings the majority of these breaths will take place during the Time High phase (thereby enhancing airway recruitment and removal of CO<sub>2</sub>). The key is to ensure an effective Time Low to maintain an end expiratory pressure of greater than a zero baseline. In patients with poor lung compliance, Time Low may need to be set <0.50 sec. These values may seem intimidating but you must keep in mind that the goal is to achieve an acceptable Intrinsic PEEP level to avoid lung collapse. Alveolar recruitment is the objective and a means to decreasing peak inspiratory pressures which in turn may stave off future lung insult.

Weaning on APRV consists of lowering PEEP High (minimize PIP) and increasing the length of Time High, as appropriate, with the end result of attaining a straight CPAP level. CPAP levels can then be weaned as tolerated and assessment for extubation can commence.

Research states that ventilating in the APRV mode may decrease the need for patient sedation and paralysis. Use of APRV may increase cardiac output by decreasing intrathoracic pressure. With APRV, patient comfort is enriched with their autonomy over spontaneous respiratory efforts. Considering all of these factors, a greater patient outcome may be achieved with initiation of this mode at the acute stage of respiratory failure.

The intent of this article is to educate and give awareness of a mode that is available on ventilators found in most ICU settings. Thinking 'outside the box' is great in theory, but if we never do it then it becomes just another metaphor for 'something outside our reach'. If, as an RT, you are privileged to have access to APRV I encourage you to advocate this mode in your institution. Educate your physicians; educate your co-workers. Promote this advancement in ventilation therapy: it is out there and it is yours to give for the greater good of patient care.

This article was written with a patient's best interest at heart. This is just one RT's experience on the use of APRV. Take from it what you will, but understand that an alternative therapy is available, it is effective and early implementation could provide a rapid weaning tool in the most critical of patients.

## References

1. Frawley PM, Habashi, NM. Airway Pressure Release Ventilation: Theory and Practice. AACN Clinical Issues.2001;12(2):234-246.
2. Kaplan et al, licensee BioMed Central Ltd. Airway pressure release ventilation increases cardiac performance in patients with acute lung injury/adult respiratory distress syndrome. Critical Care.2001;5(4):221-226.
3. Weavind L, Wenker OC. Newer Modes of Ventilation: An Overview. The Internet Journal of Anesthesiology.2000;4(4).
4. Smith RA, Smith DB. Does airway pressure release ventilation alter lung function after acute lung injury? *Chest*. 1995; 107(3):805-809.
5. Kaplan LJ, Bailey H. Lessons learned from airway pressure release ventilation. Critical Care(online). 2001;5 (Suppl 1):019. <http://ccforum.com>.

The views expressed in this article are not necessarily the opinion of the CSRT. Feedback is welcomed and will be forwarded to the author.

Vancouver Coastal Health is one of Canada's largest health-care providers offering a comprehensive range of health services to more than a million people in Greater Vancouver, and in the communities of the Sea to Sky and on the Sunshine Coast. We offer an inspiring work environment where innovation is key and employees are our greatest asset.

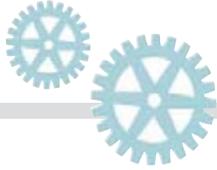
We currently have a variety of opportunities for both new and experienced Respiratory Therapists in acute care and community health settings:

- Respiratory Therapists
- Anaesthetic Technologists (AT or RT2)
- Polysomnographic Technologists

We offer a 36-hour work week, ongoing educational opportunities, excellent benefits packages and generous relocation assistance. For complete position details and to apply, please visit our website at [www.vch.ca](http://www.vch.ca) and click on "Careers", "Career Opportunities" to view positions. For further information, call us toll-free 1-800-565-1727 or direct 604-875-5152.

**Vancouver Coastal Health**  
Preserving Wellness. Securing Lives.

[www.vch.ca](http://www.vch.ca)



# New Lung Volume Report Issued



**The Canadian Coordinating Office for Health Technology Assessment (CCOHTA) has just released a Technology Report:**

**“Lung Volume Reduction Surgery for Emphysema: Systematic Review of Studies Comparing Different Procedures.”**

The Brief includes the following:

### Technology

Lung volume reduction surgery (LVRS) using buttressing (reinforcing) or no buttressing; staples or laser; unilateral or bilateral procedures; staged or simultaneous procedures; and median sternotomy (MS) or video-assisted thoracoscopic surgery (VATS).

### Disease

Emphysema is a chronic obstructive pulmonary disease (COPD) that mainly affects adults older than 65. The disease causes shortness of breath and reduces quality of life. According to a 1998 survey, 3.2% of adult Canadians were diagnosed with chronic bronchitis or emphysema. Health care costs are expected to rise as the population of seniors is projected to continue to increase.

### Issue

When medical management of emphysema is no longer effective, surgical treatment options (LVRS and lung transplantation) are considered. LVRS may be used as a bridge to lung transplantation or when lung transplantation is unavailable. LVRS can be performed in different ways. It is an expensive procedure with associated risks.

### Methods and Results

The relative benefit and harm of different LVRS procedures were determined by examining their impact on the quality of life (QoL), complications associated with treatment, mortality, shortness of breath (dyspnea) and pulmonary function. Four randomized controlled trials (RCTs) and 10 cohort studies comparing different LVRS procedures were identified.

The report, in full, can be found in both official languages at: [www.ccohta.ca](http://www.ccohta.ca)

# Canadian Population Risk of Radon Induced Lung Cancer

continued from page 21

radon attributable risk can be made on exposure-reduction scenarios that are realizable in practise. We consider a scenario in which all homes above a specified action level are remediated to the outdoor radon level. Table 3 provides estimates of the number of Canadian lives that could be saved each year in such a scenario. In spite of the high individual risk at 800 Bq/m<sup>3</sup>, the number of lives saved is only 36 per year, due to the very small proportion of homes above this level. At an action level of 200 Bq/m<sup>3</sup>, the number of lives saved rises to 347, out of a total of 1589 radon-induced lung cancers.

## Conclusion

The theoretical estimates show that 9.4% of lung cancer deaths among Canadian male ever-smokers are attributable to indoor radon exposure; the attributable fraction increases to 19% for male never-smokers. Similar radon-attributable risks for Canadian women are estimated to be 8.8% and 18%, respectively.

Based on statistical data from year 2000 and the lognormal distribution of radon concentration in Canada, only 36 lives per year would be saved if those homes with radon concentration above 800 Bq/m<sup>3</sup> were mitigated. However, if all homes with radon levels above 200 Bq/m<sup>3</sup> were remediated to outdoor level, 347 out of a total of 1589 radon-induced lung cancers could potentially be prevented per year.

## References

1. McGregor, R.G., P. Vasudev, E.G. Letourneau, R.S. McCullough, F.A. Prantl, and H. Taniguchi. 1980. Background concentration of radon daughters in Canadian homes. *Health Phys.* 39:285-289.
2. Environmental Protection Agency. EPA assessment of risks from radon in homes. Office of Radiation and Indoor Air. Washington DC; 2003.
3. Lubin, J.H., Boice, J.D. 1989. Estimating Rn-induced lung cancer in the United States. *Health Phys.* 57:417-427.
4. National Research Council. Biological Effects of Ionizing Radiation (BEIR) IV Report. Health Effects of radon and Other Internally Deposited Alpha Emitters. Washington DC: *National Academy Press*; 1988.
5. Data source: Canadian Vital Statistics — Death Database 1996-2000, Statistics Canada, Health Statistics Division.
6. Chen, J. 2004. Canadian Individual Risks of Radon Induced Lung Cancer for Different Exposure Profiles. *CJPH* in press
7. The analyses were performed on Health Canada's DAISnesstar edition of anonymized microdata from the Canadian Tobacco Use Monitoring Survey, 2002 Annual-Persons File, which contains anonymized microdata from collected by the Special Surveys Sub-division, Labour and Household Surveys Branch, Statistics Canada.

## EMPLOYMENT OPPORTUNITY

**Regional Health Authority Four is currently seeking the services of Seven Respiratory Therapists for Edmundston Regional Hospital**

### Full Time Positions

Regional Health Authority Four is located in Northwestern New Brunswick, gateway to the Maritimes and bordered by the United States and Quebec (just a 3-hour drive to Quebec City!)

The successful applicant will contribute to the implementation of services in the respiratory therapy field and provide professional care to clients in various areas such as: critical care, surgical suite, respiratory care on various units (medical, surgical, pediatric/neonatal), transfer and cardiopulmonary resuscitation team.

He/she must be or be eligible to become an active member of the Canadian Society of Respiratory Therapists in New Brunswick and be an active member of The Canadian Society of Respiratory Therapists or the "Ordre professionnel des inhalothérapeutes du Québec". He/she must have a minimum of two years clinical experience and have a functional knowledge of both official languages.

Interested candidates are invited to get a job application at our offices or on our Website: [www.rrs4-rha4.nb.ca](http://www.rrs4-rha4.nb.ca) and send it to us along with all requested documents.

Vice-president — Human Resources  
Regional Health Authority Four  
275 Hébert Blvd.  
Edmundston, New Brunswick, E3V 4E4  
Phone (506) 739-2251; Fax (506) 739-2350  
E-mail: [emplois.rrs4@health.nb.ca](mailto:emplois.rrs4@health.nb.ca)

*Version française disponible sur demande*

## CHALLENGE YOURSELF

**Leadership Opportunity in Pulmonary Diagnostics  
St. Paul's Hospital — Providence Health Care  
Vancouver, BC**

Accepting applications for Cardiopulmonary Specialist in the Respiratory Therapy Department. The successful applicant will have a leadership role in Pulmonary Function and Exercise Testing, and will oversee quality control standards and equipment maintenance in a large, state-of-the-art laboratory. Other areas of responsibility include coordinating work assignments, determining related training and orientation/education requirements for staff/students, participating in research studies, and performing lung function/exercise testing.

Those interested in applying should have experience in pulmonary diagnostics testing, with advanced education and/or equivalent training/experience.

St. Paul's Hospital is an acute care, academic and research hospital located in downtown Vancouver. With over 500 acute care beds in use and home to many world-class medical and surgical programs, the hospital serves both the local community and patients from across BC. This exciting and vibrant city on the beautiful West Coast of BC offers a unique blend of natural splendors, cosmopolitan amenities, and cultural attractions. Vancouver has a mild climate, a fabulous outdoor setting, and a rich cultural diversity.

Interested professionals should contact Rennie London, Professional Practice Leader, Respiratory Services, by calling 604-806-8043 or via email at [rlondon@providencehealth.bc.ca](mailto:rlondon@providencehealth.bc.ca).