

President's Message



Dear Colleagues,

It is an honour and a privilege to serve as President of the CAS and I am very excited about moving forward the priorities of our Society over the next two years. I must extend thanks to Dr Rick Chisholm, Past President, and look forward to his counsel during my term. Dr Susan O'Leary is Vice President, having stepped down as Treasurer, and Dr Sal Spadafora continues in his role as Secretary. Please welcome Dr Douglas DuVal who joins the Board as Treasurer and completes our executive team.

During his term, Dr Rick Chisholm became a champion in working with government on the communication about and management of drug shortages. He will continue to lead this work for the CAS and to provide leadership in setting the strategic priorities for the next five years. Rick also was instrumental in furthering the relationship between the Association of Canadian University Departments of Anesthesia (ACUDA) and the Royal College Specialty Committee. Working with these two groups, the CAS has become a strong advocate for the need for appropriate education and credentialing to safely practice in Canada.

I would like to thank Dr Pierre Fiset, the retiring Past President, who leaves the CAS executive team as of September. Pierre has served the CAS Board in numerous capacities, including having chaired the Annual Meeting Committee, the Research Committee, the Allied Health Committee, the Allied Health Task Force and, during his term on the Executive, led the Society through some major issues including the development of the CAS position paper on the education and role of Anesthesia Assistants.

The CAS Board of Directors will be hosting a retreat in November at which we will be discussing two important initiatives. Dr Daniel Chartrand, Chair of the Patient Safety Committee, will be leading a task force to develop recommendations for an Anesthesia Patient Safety Registrar for Canada. We will be also entering into a formal partnership arrangement with the Canadian Patient Safety Institute and look forward to their support for this important project. Drs Daniel Bainbridge, the Annual Meeting Committee Chair, and Susan O'Leary will provide leadership to the Annual Meeting Committee to develop recommendations as to the future direction for the Annual Meeting so that we ensure it best meets the educational needs of our membership.

I would like to take this opportunity to thank Dr William Splinter who has served as Chair of the Annual Meeting Committee since June 2008. Under his leadership, many excellent and innovative changes to the annual meeting format and content have been introduced.

I want to thank all of the individuals who volunteer on the Executive, Board, Committees and Sections of the CAS. The time you give and the work you do are invaluable.

I look forward to serving the CAS during my presidency and to working with you, our members.

Dr Patricia Houston, FRCPC
President, CAS



Learning, Networking and Enjoying Quebec City!

2012 CAS Annual Meeting

By all accounts, the 2012 Annual Meeting in Quebec City was a big success. Thanks to the hard work of the Annual Meeting Committee, the extensive scientific program, well-attended trade exhibit, Fun Run for CARF and diverse social activities got high marks from the attendees. Thank you to everyone who contributed to a superb event!

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2012 photos can be found at: http://www.pinpointnationalphotography.com/gallery_cas.php

Instructions for downloading photos: right mouse click on the photo of your choice.

If you want a high resolution version or a set of photos, please note the number of the picture(s) you want and send an email request to webservices@cas.ca

Video recording of selected Annual Meeting sessions can be found at: <http://www.cas.ca/English/2012-Annual-Meeting-videos>

Passport to Calgary Winners

Exhibitors at the CAS 2012 Annual Meeting contributed to a charitable pot and the proceeds were divided between the Canadian Anesthesia Research Foundation (CARF) and the CAS International Education Foundation (CAS IEF). Delegates were issued either a CARF or a CAS IEF passport and were required to have it validated by the exhibitors whose booths they visited.

The charity with the most completed passports won 75% of the pot and the other charity received 25%. Delegates were eligible to win prizes ranging from complimentary full meeting registration at the CAS 2013 Annual Meeting in Calgary to hotel and restaurant gift certificates.

Charitable Foundation: CAS IEF

First prize: Dr Liz Ling, Dundas, ON

Second prize: Dr Johanna Dickie-Clark, West Vancouver, BC

Third prize: Dr Doug Crawford, Barrie, ON

THANK YOU TO OUR EXHIBITORS

CAS is very pleased to report that \$2,400 was raised for the charitable pot in Quebec City.

A special "thank you" to all the exhibitors at the 2012 Annual Meeting who contributed – your support is sincerely appreciated!

Symposium Now on CAS Website

During its Annual Meeting in June 2012 in Quebec City, the Canadian Anesthesiologists' Society held a Patient Safety Symposium. The files can be found at: <http://www.cas.ca/English/Symposium-2012>

2012/2013 Board of Directors

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Invited Guests

CARF Chair	Dr Doreen Yee, Toronto
CAS IEF Chair	Dr Francesco Carli, Montreal
CJA Editor-in-Chief	Dr Donald Miller, Ottawa
RCPSC Rep	Dr Michael Sullivan, Aurora

You may contact members, representatives, and invited guests of the Board of Directors through the CAS central office.

Editor-in-Chief	Dr Salvatore Spadafora
Managing Editor	Andrea Szametz
Design and Production	Marco Luciani

The Self Assessment Program from the Canadian Journal of Anesthesia — CPD Online

NEW CPD MODULE: Competency-based professionalism in anesthesiology
(September 2012)

ALSO AVAILABLE

- Fluid and vasopressor management for Caesarean delivery under spinal anesthesia (**June 2012**)
- Postoperative delirium: risk factors and management (**March 2012**)
- Airway management in the patient with potential cervical spine instability (**December 2011**)
- Anesthetic management of patients with an anterior mediastinal mass (**September 2011**)
- Assessment and treatment of preoperative anemia (**June 2011**)
- Perioperative glucose control: living in uncertain times (**March 2011**)
- Locating the epidural space in obstetric patients: ultrasound a useful tool (**December 2010**)

HOW TO ACCESS THE MODULES

Instructions can be found on the Canadian Anesthesiologists' Society website at: <http://cas.ca/Members/CPD-Online>

Successful completion of each module of the self-assessment program will entitle readers to claim four hours of continuing professional development (CPD) under section 3 of CPD options, for a total of 12 maintenance of certification credits. Section 3 hours are not limited to a maximum number of credits per five-year period.

Publication of these modules is made possible through unrestricted educational grants from the following industry partners:



COVIDIEN

positive results for life™



ROYAL COLLEGE
OF PHYSICIANS AND SURGEONS OF CANADA
COLLÈGE ROYAL
DES MÉDECINS ET CHIRURGIENS DU CANADA



FRESENIUS
KABI

CONGRATULATIONS ... to Dr Angela Enright on being named the recipient of the American Society of Anesthesiologists' (ASA) 2012 Nicholas M Greene, M.D. Award for Outstanding Humanitarian Contribution!

This award recognizes Dr Enright's commitment to humanitarian aid and disaster relief, as well as her contributions to anesthesia and training. The Committee on Global Humanitarian Outreach also recognized Dr Enright's "fine work" and the "unique sacrifice" she has made in serving others in the international community.

The award will be presented to Dr Enright during the Opening Session at the 2012 ASA Annual Meeting in Washington, DC on Saturday, October 13 from 9:15 – 10:15 a.m.

Award Winners Recognized at CAS Annual Meeting

Since the June issue of *Anesthesia News* – where the winners for the Gold Medal (Dr Francesco Carli), the Clinical Teacher Award (Dr Mary Ellen Cooke) and the Research Recognition Award (Dr Scott Beattie) were announced along with Research Program Operating Grants, Subspecialty Awards and Open Awards, additional award winners have now been recognized. Congratulations to all!

Emeritus Membership

In recognition of significant contribution to anesthesia



Dr David Bevan
Huntsville, ON



Dr Joan Bevan
Huntsville, ON

Medical Student Prize Winners

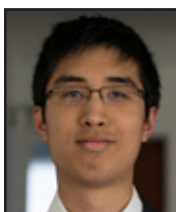
To increase awareness among undergraduate medical students of the specialty of anesthesia and the role of anesthesiologists in healthcare

First place: \$1,000

Andrew Wei

*University of Sherbrooke,
Sherbrooke, PQ*

Environmental Effects of Waste
Anaesthetic Gases



Second place: \$500

Andrew Tse

McMaster University, Hamilton, ON

On the Pulse of Patient Safety:
Anesthesiology's Approach to Reducing
Medical Error



Third place: \$250

Sara Horne

University of Alberta, Edmonton, AB

Beyond the Operating Room.
A Chronicle of the Evolving Role of the
Anesthesiologist in Patient Care



The following are the awards from the annual meeting abstracts, including the Best Paper Awards:

Richard Knill Oral Competition

Dr Mrinalini Balki

*Mount Sinai Hospital and
University of Toronto, Toronto, ON*

Carbetocin vs Oxytocin: In-Vitro
Contractions in Oxytocin Pre-Treated
Myometrium



Residents' Oral Competition

First place:

Dr Gregory Kostandoff

*McMaster University,
Hamilton, ON*

Predictors of Unanticipated Admission
Following Ambulatory Surgery

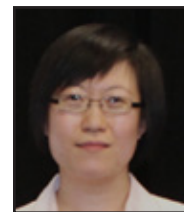


Second place:

Dr Louise Sun

*University of Ottawa Heart Institute,
Ottawa, ON*

Post-Operative Tracheostomy and Cardiac
Surgical Site Infection



Third place:

Dr Alexander Gregory

University of Calgary, Calgary, AB

Echocardiographic Assessment of Aortic
Compliance and its Relation to Left
Ventricular Diastolic Dysfunction
Using Speckle Tracking Imaging:
An Observational Study



Best Paper Awards

Ambulatory Anesthesia: \$500

Dr Natalie Clavel

University of Ottawa, Ottawa, ON

Caregiver Burden after Ambulatory Surgery in the Elderly



Education and Simulation in Anesthesia: \$500

Dr Fahad Alam

University of Toronto, Toronto, ON

Using Novel Podcast Technology to Enhance Knowledge Acquisition



Obstetric Anesthesia: \$1,000

Dr Caitriona Murphy

Sunnybrook Health Sciences Centre and University of Toronto, Toronto, ON

Ultra-Low Compared to Higher Concentration Epidural Local Anesthetic Solutions in Labor: A Meta-Analysis



Pediatric Anesthesia: \$500

Dr Joy Sanders

Pediatric Anesthesia and Anesthesiology, Pharmacology and Therapeutics, BC Children's Hospital and University of British Columbia, Vancouver, BC

Serum Levels of Oral Morphine in Children



CVT Raymond Martineau Prize: \$,1000

Dr Tenille Ragoonanan

University Health Network and University of Toronto, Toronto, ON

Cardiac Complications in Post-PCI Patient Undergoing Non-Cardiac Surgery



Regional Anesthesia and Acute Pain: \$500

Dr Naveed Siddiqui

Mount Sinai Hospital and University of Toronto, Toronto, ON

Hand Washing Technique for Epidurals – Effect on Reduction of Contamination Risk



Ian White Patient Safety Award: \$500

Dr Limei Zhou

University Health Network and University of Toronto, Toronto, ON

Parameters from Pre-Operative Nocturnal Oximeter Predicting Post-Operative Complications



Report From ACUDA

By Dr Audrey Peng, FRCPC, ACUDA CEPD Chair

At the annual ACUDA CEPD Committee meeting held in Québec City this past June, members had a chance to learn more about earning credits for the Royal College's Maintenance of Certification (MOC) program, which was revamped last year. Following are some of the interesting points that were mentioned during our discussions:

- Under the new MOC program, earning credits for journal article reading has changed to a "per article" format, where each article read is worth one Section 2 credit. Although reporting of journal article reading is now a bit more time-consuming, MOC participants are encouraged to continue reporting this activity and all other educational activities to ensure that an accurate overview of activities is obtained.
- Unless otherwise indicated, ATLS and ACLS courses should be reported as traineeships under Section 2 of the MOC program at a rate of two credits per hour.
- Dalhousie University's Anesthesia Department has created podcasts of their Grand Rounds. These are available free of charge on iTunes and are called "Dalhousie CDHA IWK Anesthesia Grand Rounds". Although attending Grand Rounds is considered a Section 1 (group learning) activity, listening to podcasts of Grand Rounds is considered a Section 2 (self-learning) activity, as the live group discussion is not possible with the podcast. Half a credit per activity can be earned when listening to podcasts.
- Participation in educational committees such as the ACUDA committee is considered a systems learning activity and can be counted for 15 Section 2 MOC credits per committee per year.
- MOC participants are encouraged to undertake activities that can be reported in Section 3, the assessment category, as reporting of these activities will likely become mandatory in the near future.
- Individuals can collaborate on activities to earn MOC credits. For example, an individual can earn Section 3 credits at a rate of three credits per hour by completing a chart audit and providing feedback to their colleague. The individual receiving the feedback can then use this information to develop a personal learning project, which can be reported as a Section 2 activity at a rate of two credits per hour.

More information about the MOC program can be found online at www.royalcollege.ca/moc. Information about MAINPORT, the online reporting system, as well as a list of continuing professional development (CPD) educators, can be found online at www.royalcollege.ca/mainport. CPD educators can be contacted to answer your questions about the MOC program and MAINPORT.

Email inquiries about MOC or MAINPORT can also be directed to cpd@royalcollege.ca.

In Search of Excellence

"By nominating a peer through the CAS Awards Program, you are helping us to collectively recognize excellence. I can't think of a better way to showcase the efforts of others as we celebrate their achievements in Calgary in June 2013. Please join us!"

Dr Richard Bergstrom, CAS Membership Committee Chair

Do you know someone who has inspired you with drive, leadership, ingenuity and achievement? Nominate this individual for an award to recognize their contributions to anesthesia. Awards cover a range of accomplishments, including the Gold Medal Award, the Research Recognition Award, the Clinical Teacher Award, the Clinical Practitioner Award, the John Bradley Young Educator Award and the Emeritus Membership Award.

Hear It From The 2012 Award Winners!

GOLD MEDAL: Dr Francesco Carli, Montreal, Quebec

I am very honoured to have been awarded the 2012 Gold Medal.

What I have achieved during my career in several areas is what this award represents – international education, clinical innovation, academia and research. However, you can't get an award based on just you and, behind this award, there is so much more. You need people around you to flourish and develop. It is through all of the wonderful colleagues, mentors and students that I have met and worked with over the years who really reflect how I benefitted from the wisdom, knowledge and collegiality of others. It was truly a collaborative effort.



EMERITUS MEMBER: Dr David Bevan, Huntsville, Ontario

We are the first husband and wife to receive Emeritus Member recognition together. Over our careers, Joan and I did a lot in combination (neuromuscular pharmacology) and a lot apart (Joan's involvement with research ethics and mine in administration). There were very few occasions when we received awards at the same time, so this is very special.

Appointment to Emeritus Membership is, I believe, recognition of our time in Canada since we arrived from England in 1978. It was surprising to see how few Emeritus Members there were and flattering to receive this as a nice addition to "life".

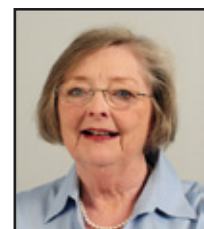
It is wonderful that CAS maintains an interest in its members by recognizing them at different times in their careers. The Emeritus Member recognition is very personal and we appreciate the gesture shown by our friends and colleagues who recommended us.



EMERITUS MEMBER: Dr Joan Bevan, Huntsville, Ontario

I echo David's words and it was rather nice to receive the Emeritus Member recognition.

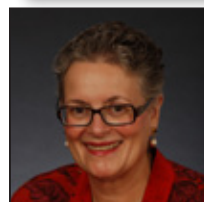
I have been interested to observe how women in medicine have come a long way. It is very positive to see our friends receiving awards, such as Mary Ellen Cooke, and leading our specialty in Canada and internationally, such as Angela Enright, Joanne Douglas, Beverley Orser and Patricia Houston. I look back on my own career with pride at the influence of women in anesthesia.



CLINICAL TEACHER: Dr Mary Ellen Cooke, Toronto, Ontario

I have always enjoyed teaching and working hard at it, but never really worried too much about my reputation. Now that I have started to win a few awards in the last few years, I have mixed feelings! Delight that colleagues and students have made the effort to recognize me but also a little frisson of fear: the good reputation that I seem to have acquired is in the public arena and I have to live up to it! Receiving this award doesn't mean I can sit back and rest on my laurels!

My cherished and favourite teachers and mentors include not only anesthesiologists but also my parents – a surgeon and a physician anatomist who are themselves both award-winning medical educators and still very active at 87 and 98. When I reflect on my teachers in grade school, the common thread was high expectations and, to this day, I, too, have high expectations of my students and believe it brings out the best in them.



For more information about the 2013 nominations process, visit the CAS website and go to "Awards and Grants".

"Dr. Diane Biehl's generous gift to CARF will make a positive difference in the way we treat patients. We certainly could use more people like Diane. CARF is one of my causes. Please make it one of yours."



Dr. Hilary P. Grocott
Professor of Anesthesia and Surgery
University of Manitoba

A black ink handwritten signature, appearing to read 'Hilary Grocott', written in a cursive style.

Our profession
deserves a firm
foundation

CARF

Canadian Anesthesia Research Foundation
La Fondation canadienne de recherche en anesthésie

www.anesthesia.org/carf

CARF Receives Generous Endowment from Dr Diane Biehl

The Canadian Anesthesia Research Foundation (CARF) is pleased to announce that it has received its first bequest. Dr Diane Biehl of Winnipeg, Manitoba has bequeathed an outright gift to CARF. An endowment fund will be created on her passing to assist with funding of research in obstetrical anesthesia, regional anesthesia or pain management.

As a founding member of the Canadian Anesthesiologists' Society Section of Obstetrical Anesthesia in 1978 and with a long-standing involvement with CAS, Dr Biehl understands the importance of funding to initiate the careers of Canadian anesthesiology clinical investigators.

Dr Diane Biehl is a graduate of the University of Manitoba, where she obtained her MD in 1969. After her internship and a year of pediatrics, she practiced in Northern Ontario for two years and then returned to complete her specialty training in anesthesiology at the University of Manitoba.

Dr Biehl became a member of the Department of Anesthesia at St Boniface General Hospital and the Section Head of Obstetrical Anesthesia for that hospital. During that time, she pursued clinical and basic science activities, working in the obstetrical unit at the hospital and "the sheep lab" at the Medical College.

In 1987, Dr Biehl was appointed Head of the Department of Anesthesia for St Boniface Hospital, and held that position for six years. She then moved to the Dean's Office at the Medical Faculty to become the Associate Dean for Postgraduate Medical Education for the University of Manitoba. She retired from that position in 1999.

Dr Biehl prides herself on being one of the founding members of the Canadian Anesthesiologists' Society Section of Obstetrical Anesthesia in 1978. In 1988, she became a member of the Scientific Affairs Committee of the CAS, and chaired the committee from 1991-1993. As well, Dr Biehl held the position of Treasurer for the Canadian Anesthesiologists' Society from 2001- 2007. She has also served on committees with the Royal College of Physicians and Surgeons of Canada.

Dr Biehl, along with Nancy Steuber of Steuber Financial (Winnipeg), joined forces to create her endowment to the Canadian Anesthesia Research Foundation.

Show your support for our profession and be an architect of the future. For more information, go to: anesthesia.org/carf/plannedgiving.html



Introducing Dr Douglas DuVal As CAS Treasurer



Dr DuVal is a graduate of the University of Manitoba. Following an internship at Ottawa Civic Hospital and basic anesthesia training in Manitoba, he spent two years in general practice and anesthesiology in Churchill, Manitoba.

Subsequently returning to Winnipeg to complete specialty training in anesthesiology, Dr DuVal then relocated to the University of Alberta Hospitals in Edmonton. In ensuing years, he served the University of Alberta as Anesthesia Program Director, and the Royal College as a member of the Specialty Committee and the Examination Board. He has since enjoyed a broad-based practice of adult anesthesia involving most hospitals in the Edmonton Region, and the majority of his time is now spent at the

Sturgeon Community Hospital, where he is Site Chief of Anesthesia.

Dr DuVal has also been a member of several committees of the Alberta Medical Association (AMA) including the Fees Advisory Committee, and has represented the AMA to the provincial Schedule of Medical Benefits Committee. He has served two terms on the executive of the Alberta Medical Association's Section of Anesthesia, representing Alberta to the Board of Directors of the Canadian Anesthesiologists' Society. His most recent term was completed in August 2012. Since 2010, Dr DuVal has been Co-chair of the CAS Economics Committee.

Dr DuVal is married to Monique, who has a background in ICU nursing and has worked for several years in Finance with Alberta Health Services. The family includes four grown children and recreational pursuits, while too infrequent, tend to involve mountains, lakes and occasional travel.

COMING UP....

October 29 – November 2, 2012

California Society of Anesthesiologists' Fall Hawaii Anesthesia Seminar

For more information, go to: www.csahq.org/CMEevents

Board Update

Ceremony of Newly Certified Anesthesiologists

The Board has approved the idea of a welcome ceremony at the Annual Meeting for newly certified anesthesiologists. In addition to participating in the ceremony, the certificant will receive one year of complimentary membership and a ticket to the President's Dinner.

Palliative Medicine

CAS supports the application to the Royal College of Physicians and Surgeons of Canada to establish a new subspecialty in palliative medicine with a proposed entry route from anesthesiology.

New CAS Treasurer

As a result of Dr Susan O'Leary's election as Vice President, the Board has appointed Dr Douglas DuVal to complete her term as Treasurer from September 2012 to August 2013.

CPSI/CAS Partnership Agreement

The Canadian Patient Safety Institute (CPSI) was established by Health Canada in 2003 at the same time as the CAS Patient Safety Committee. CPSI's first chair was Dr John Wade, an anesthesiologist who also served as a corresponding member on the CAS Patient Safety Committee. The two organizations have collaborated in several areas:

- CAS is a Voting Member of CPSI (in the membership category of National Organizations)
- CPSI has a corresponding member on the Patient Safety Committee
- CPSI previously hosted on their website the audio recordings of the Patient Safety Symposium delivered at the CAS Annual Meeting

In addition, CPSI provided partial sponsorship (\$10,000 annually) to CARF for the Dr R A Gordon Patient Safety Award over several years.

In 2011, at CPSI's request, CAS sent a letter of support for the implementation of the Canadian Pharmaceutical Bar Coding Project. Among other things, CAS allowed CPSI to use the Society's logo in communication supporting this initiative.

At CPSI's initiative, the Board agreed to enter into a partnership agreement between the two organizations that will give

CPSI greater involvement and visibility at the CAS Annual Meeting.

Ethics Committee

The Board approved a new Policy on Commercial Sponsorship, particularly as applied to the annual meeting. http://www.cas.ca/English/Page/Files/731_Code%20of%20Conduct%20Sponsors.pdf

Research Grants

The Board approved a new Open Award, to be known as the *Canadian Journal of Anesthesia* Research Award with a value up to \$30,000, to be offered in 2013. The first three years of funding (\$90,000) was transferred to CARF as a restricted donation from CJA's revenues in 2011. Also taking effect in 2013: the CAS will no longer provide funding to the ICRH Young Investigator Travel Award and thereby ends its involvement in this initiative; and a Research Recognition Award Nominating Sub-committee will be created.

Standards Committee

The Board has approved the Standards Committee's proposed changes to the *Guidelines to the Practice of Anesthesia* with respect to Anesthetic Equipment and Anesthetising Location, The Pre-Anesthetic Period, the Anesthetic Period, Patient Monitoring and Appendix 6: Position Paper on Procedural Sedation.

Allied Health Committee

The Committee will be exploring the potential of a national mechanism for Anesthesia Assistant training and recognition.

CAS 2011 Annual Report and Auditor's Report now Online

To view the CAS Annual Report and Auditor's Report, go to the Member Portal at:

<https://www.cas.ca/Members/Documents>

News From Research: Progress Reports

2011 CAS/Vitaid Residents' Research Grant

Dr Sinziana Avramescu
Department of Anesthesia,
University of Toronto
Toronto, ON



Does Inflammation Alter Sensitivity to Anesthetics?

Final Report

I received the 2011 CAS/Vitaid Residents' Research Grant to test the hypothesis that pro-inflammatory

mediators increase the sensitivity of neurons to anesthetics by increasing the activity of inhibitory γ -aminobutyric acid (GABA) type A receptors (GABA_ARs) *in vitro* and this may contribute to the enhanced efficacy of anesthetic endpoints *in vivo*. This research project was completed in collaboration with Dr Dian-shi Wang and Mr William To from the Orser Laboratory at the University of Toronto.

As detailed in the previous six months report, we started with the *in vitro* experiments, and we were able to show that IL-1 β causes a direct enhancement of extra-synaptic GABA_A receptor activity. Pre-treatment of neurons with clinically relevant concentrations

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of IL-1 β markedly increases the efficacy of etomidate and isoflurane.

During the last six months, we continued with the *in vivo* experiments that were carried out in male mice injected with the endotoxin lipopolysaccharide (LPS, 125 μ g/kg, i.p.) or vehicle. Different anesthetic endpoints were tested 3h later using appropriate behavioural assays: loss of righting reflex (LORR) for hypnosis, tail-pinch for immobility and contextual fear conditioning for memory. The LORR was reduced by etomidate ($p < 0.001$) and isoflurane ($p < 0.001$) in a dose-dependent manner, and this was further diminished by LPS. Similarly, more animals in the LPS treated group were unresponsive to tail-pinch after etomidate compared to control ($p < 0.05$). Contextual fear memory was also reduced by etomidate in a dose-dependent manner ($p < 0.05$), and was further exacerbated by LPS ($p < 0.001$).

The data collected during this research project are included in 2 manuscripts, as detailed below:

- Dianshi Wang, Agnieszka Zurek, Irene Lecker, Armen Abramian, **Sinziana Avramescu**, Paul Davies, Stephen Moss, Wei-Yang Lu, Beverley Orser, "Inflammation-induced memory deficits are regulated by $\alpha 5$ subunit-containing GABAA receptors", under review
- **Sinziana Avramescu**, William To, Dianshi Wang, Antonello Penna, Irene Lecker, Helen Zheng, Beverley Orser, "Inflammation increases the GABAergic efficacy of etomidate and isoflurane", in preparation.

2011 Baxter Corporation Canadian Research Award in Anesthesia

Dr Ahtsham Niazi, FRCPC

Toronto Western Hospital,
University Health Network and
University of Toronto
Toronto, ON



The Use of an Interactive 3D Anatomic Model to Improve Initial Performance in Ultrasound Scanning of the Spine

Final Report

The hypothesis of this study was that exposure of anesthesia Residents to an on-line interactive 3D model of the lumbar spine integrated with ultrasound imaging in the two weeks following a Basic Ultrasound Guided Neuraxial workshop will improve their performance in determining defined landmarks when performing ultrasound imaging of the lumbar spine. In this report, we wish to report successful recruitment of 16 anesthesia first year Residents who have attended the basic

ultrasound neuraxial workshop and subsequently been randomized to two groups. The control group was given password-protected access to only the anatomy component of our model and the study group was provided password-protected access to the complete model for a period of two weeks. We were able to track their log-in times in a completely confidential manner.

After the two weeks, the Residents were assessed for their ability to perform a pre-puncture scan and identify 12 key anatomical structures. The Residents were evaluated on the number of structures they were able to identify and a global technical skills rating scale by a single evaluator. The evaluation was performed on two models with easily identified landmarks. Our study has now been completed and the data organized. Our results show that the use of the interactive 3D virtual spine model for two weeks has improved performance of the study group Residents in identifying key anatomical structures and at the Technical Skills Global Rating Scale than Residents in the control group. These results are statistically significant.

Our paper was presented at the Canadian Anesthesiologists' Society Annual Meeting in Quebec in June 2012 as a poster in the Education Section. The manuscript is awaiting final review and will be ready for publication by the end of the month.

2011 Canadian Research Award in Pain and Regional Anesthesia

Dr Michael Zaugg, FRCPC

Department of Anesthesiology and
Pain Medicine, University of Alberta
Edmonton, AB



Anti-proliferative Effects of Local Anesthetics on Mesenchymal Stem Cells: The Critical Role of Dipeptidyl Peptidase-2 (DPP-2). Implications for Perioperative Tumor Spreading and Wound Healing

Summary of Progress to Date (12 months)

Mesenchymal stem cells (MSC) are self-renewing clonal progenitor cells of non-hematopoietic tissues that exhibit a marked tropism to wounds and tumors. The author's studies aimed at exploring how local anesthetics would affect MSC biology. Proliferation, colony formation, *in vitro* wound healing, and bone differentiation assays of culture-expanded bone-marrow-derived murine MSC were performed in the presence of increasing concentrations of lidocaine, ropivacaine, and bupivacaine. Cytotoxicity was monitored by measuring lactate dehydrogenase activity and phosphatidylserine exposure/propidium iodide staining (early

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apoptotic cells/necrotic cells). Measurements of mitochondrial function in intact and permeabilized cells, transcriptional changes, and changes in nuclear factor κ -light-chain-enhancer of activated B cells signaling in MSC treated with ropivacaine were used to further characterize the biologic effects of local anesthetics on MSC. All local anesthetics reduced MSC proliferation at 100 μ M, consistent with cell cycle delay or arrest at the G0/1-S phase transition. They increased lactate dehydrogenase release and the number of annexin V-positive MSC but not necrotic MSC. Colony formation was decreased, differentiation into osteoblasts impaired, and in vitro wound healing delayed. Mitochondrial respiration and adenosine 5'-triphosphate concentrations were reduced. Microarray analysis revealed significant expression changes in lysosomal genes and genes controlling sterol metabolism,

indicating an impaired phospholipid metabolism in the lysosome. Multiple transcriptional programs related to cell differentiation, tumorigenesis, and metastasis were negatively affected by ropivacaine. The author's studies demonstrate that local anesthetics significantly affect important aspects of MSC biology. These experiments provide novel rationales for the peri-operative use of local anesthetics in patients with cancer but also highlight the potentially detrimental effects of local anesthetics on wound healing.

CAS Research Program Grants

How the CAS Research Advisory Committee Manages the Review Process

The CAS Research Advisory Committee has the responsibility for reviewing submissions and selecting the recipients of research awards and grants. This rigorous, comprehensive and committee-based process is conducted annually and is a single-blinded evaluation process that is very similar to the review process of other major funding agencies, including the Canadian Institutes of Health Research (CIHR).

"We have made great strides in making the process as objective as possible," says Dr Neal Badner, Chair of the Research Advisory Committee. "And we continue to work on improvements in this regard."

A key element in managing the application, review and adjudication process every year is ensuring fairness in the selection process. To that end, the Chair of the Research Advisory Committee is tasked with ensuring there are no conflicts of interest in the review process. "We take the concept of conflict of interest very seriously," says Dr Badner. "We make every effort to both avoid it if possible and declare it otherwise."

Application

The on-line submission process opens in the fall and the deadline for submissions is early January. For the 2013 award cycle, the deadline is January 11, 2013.

Review

The Chair of the Research Advisory Committee assigns

three reviewers to each application. One of those reviewers is a member of the Research Grant Standing Sub-committee member and acts as the "lead" reviewer.

Reviewers are selected by matching the areas of expertise of the submission and also avoiding any conflicts of interest with that application and other applications in its category.

The reviewers are given four weeks to review and score three or four applications each. Applications are assessed based on eligibility, appropriateness and scientific content. Reviewers must score the applicant as well as the proposal, and summarize their assessment of the applicant, synopsis of the proposal and assessment of proposal.

Adjudication

At the April adjudication meeting, all Research Grant Standing Sub-committee members convene to adjudicate the applications. The meeting includes a presentation by the lead reviewer, followed by a discussion on each of the applications. Applications are then scored by all the attending members who have not declared any conflict. The average of all the scores is then used to rank the applications under each of the various eligible categories. Once the Grant Sub-committee members agree on the selection of the recipient for each award and grant (adhering to the guidelines established by the Research Advisory Committee), a recommendation is forwarded to the CAS Board of Directors.

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The First Use of Divinyl Ether in Humans

By Dr BT Finucane, FRCPC

One of the most interesting stories in the History of Medicine was the discovery of anesthesia. It is difficult to believe that anesthesia was first used less than 170 years ago. Prior to that time very little surgery was performed for obvious reasons. Morton¹ deserves the credit for the discovery of anesthesia even though he was clearly not the first individual to administer anesthesia. Within months of Morton's demonstration of etherisation at the Massachusetts General Hospital on October 14th 1867, anesthesia was being administered all over the world and effectively this discovery launched the remarkable era of surgery. Prior to that time, surgery was performed only in dire emergencies and in many cases patients died from the agony suffered during the barbaric process.

The initial enthusiasm of the wonders of anesthesia continued for some time and the numbers of surgical procedures increased exponentially all over the world. It was soon realised that anesthesia was not entirely safe. The first published report of death from anesthesia² occurred in England and the patient was a 15 year old girl presenting for surgery on an ingrown toenail. The patient died before the surgery began. The cause of death was clearly linked with the anesthetic, which in this case was chloroform.

Some 80 years after the introduction of anesthesia only three anesthetic drugs were in common use – ether, chloroform and nitrous oxide – and the latter did not meet the criteria of an anesthetic and never did. There was a great need for better anesthetic agents. Ether anesthesia although safe was associated with considerable nausea and vomiting postoperatively and was flammable. Induction of anesthesia was a very slow process and took as much as 30 minutes to achieve surgical anesthesia and was quite irritating to inhale. Chloroform on the other hand was not flammable, was less pungent and faster in onset but occasionally was associated with sudden death from malignant cardiac arrhythmias even in healthy patients. Nitrous oxide was not adequate as a sole anesthetic. Therefore there was a great need for a better anesthetic agent in the 1920s. The anesthetic properties of ethylene were described in 1923 by Luckhardt and Carter³ from the University of Chicago and Brown⁴ from the University of Toronto. For a number of reasons, ethylene was not very successful as an anesthetic and therefore the hunt continued to find a more suitable agent.

Leake was a very prominent pharmacologist in the United States at that time and was very interested in anesthetic drugs. This was the golden age of pharmacology and there was a great interest in structure activity relationships of drugs and pharmacologists predicted the action of many medications by studying structure. Ethylene had many good properties such as rapid onset and short duration with less nausea and vomiting than ether but did not produce the same degree of muscle relaxation as ether. Ether on the other hand was very slow in onset and had a prolonged duration of action and was associated with considerable nausea and vomiting. By combining the good properties of each agent, Leake predicted that he would produce the “ideal anesthetic”. Leake⁴ and his colleague, Chen, conducted experiments in animals using this new agent entitled divinyl ether (DVE) and as he predicted DVE was a very good anesthetic at least in animals. The next step was to do clinical experiments in humans. Leake was the Chair of Pharmacology at the University of California (San Francisco) but his clinical colleagues at that institution were not interested in experimenting with this new agent. Samuel Gelfan, a basic scientist at the University of Alberta, indicated that he was interested in further experiments with DVE so Leake forwarded samples of DVE to Gelfan in Canada

In 1932, Dr Irving Bell administered DVE to Dr Samuel Gelfan for a period of 10 minutes at the University of Alberta. Dr Bell gave the following description: “Divinyl oxide is not unpleasant to inhale. It is sweetish in taste but lacks the burning pungency of diethyl ether, and does not apparently irritate the respiratory passages. The induction with divinyl oxide is

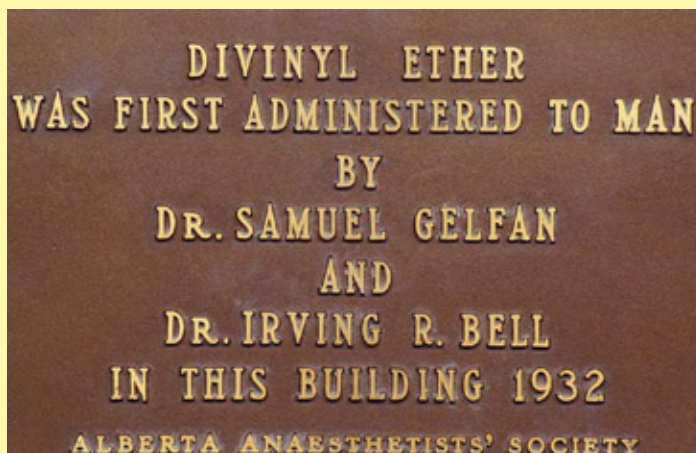


Fig. 1 Plaque unveiled in 1955 commemorating the first human administration of divinyl ether at the University of Alberta

impressively smooth, prompt and even, and the recovery rapid.” Dr Gelfan recovered rapidly after two minutes and returned to his teaching duties. Dr Gelfan received DVE again several days later, this time for 18 minutes, again without incident. Dr Gelfan was interested in observing the effects of this new anesthetic himself and therefore recruited one of his basic science colleagues to volunteer for this final experiment. DVE was administered to Dr Winnifred Hughes, this being the third time it was used in humans.

The effects of this new anesthetic on the circulation, the respiratory system and the central nervous system were carefully recorded in all three experiments. An electrical current was applied to the foot and leg to determine the completeness of anesthesia, which proved to be adequate. Recovery was rapid in all cases and there was a notable absence of nausea and vomiting. Based on these first human experiments, it was determined that divinyl ether was a safe and efficacious inhalation anesthetic in humans.

Divinyl ether was released for clinical use by Merck Inc. in 1936 and was used successfully for approximately 30 years in Europe and America. It was particularly useful when rapid induction of anesthesia was required and for shorter procedures. It also had a very valuable role in obstetric anesthesia.

Gelfan and Bell's work was published in combination with Leake's animal work in the *Journal of Pharmacology and Experimental Therapeutics* in 1933.⁵ A plaque was unveiled on the site of this experiment by the Alberta Anaesthetist's Society in 1955 and is now among the archives of the Department of Anesthesiology and Pain Medicine at the University of Alberta (Fig.1). This historical report is one of many examples of important contributions made by Canadian researchers to help advance the discipline of anesthesia.

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CAS IEF Update

By Dr Franco Carli, FRCPC

While the summer is coming to an end, I wish to report the activities in which CAS IEF has been involved.

Quebec City

Last June at the annual CAS meeting in Quebec City, CAS IEF organized a symposium on Haiti where issues were discussed related to education and safety of anesthesia delivery. There was a general consensus that as Canadians we should consider some involvement in the anesthesia training. Dr Alexandre Dauphin, the vice chair of CAS IEF, who travels often to Haiti on various humanitarian missions, has accepted the task to coordinate possible educational anesthesia activities with various stakeholders working for Haiti.

The CAS IEF dinner was held at the Chapelle d'amerique, a very beautiful place in the heart of Quebec City. Dr Ron George, an obstetric anesthesiologist from Dalhousie, was the dinner speaker and he presented many data on maternal mortality in low income countries.

Lifebox

I am pleased to report that the Lifebox appeal, launched by IEF in conjunction with the CAS in June 2011 to purchase 250 oximeters for Rwandan operating and labour delivery rooms reached its target within eight months! This is absolutely outstanding! Donations for oximeters came from anesthesia practice corporations, staff anesthesiologists, Residents and friends. CAS IEF wishes to thank all donors for the outstanding generosity and all oximeters will be distributed in Rwanda next January at the time of the SAFE course.

Rwanda

Our mission in Rwanda is in its 6th year and, thanks to our donors, we have been able to continue to send volunteers every month. We also want to acknowledge the support we receive from the ASA by sending (on average) three volunteers every year.

Dr Claude Gakumba, a Rwandan final year anesthesia Resident, is completing his six months of training at Queen's University in Kingston as part of the CAS IEF initiative to

provide extra training to some finishing Rwandan Residents. CAS IEF is very grateful to the Department of Anesthesia for receiving Dr Gakumba.

Global Outreach Course

Last May, the 5th Global Outreach course in Halifax – organized by the Dalhousie University's Department of Anesthesia and CAS IEF – was again another success with over 25 North American participants and an international faculty with outstanding experience in anesthesia practice in low income countries. We recommend all those who wish to work as volunteers in medical missions to attend this course.

WFSA

CAS IEF continues to provide educational assistance to the Palestine mission organized under the auspices of the WFSA. CAS IEF is assisting WFSA with recruiting volunteers from all over the world to participate. Those interested should contact Ms Ruth Hooper, Administrative Coordinator at the WFSA office in London, England at wfsahq@anaesthesiologists.org.

New Educational Initiative on Maternal Safety in Rwanda

Finally, I want to take the opportunity to inform our friends, colleagues, donors and volunteers that, at the last CAS IEF board meeting in Quebec City, it was decided to support a new educational initiative on maternal safety in Rwanda.

Maternal mortality is very high in Rwanda and, through education and hard work, we hope to improve safety standards to reduce maternal mortality significantly throughout Rwanda. Dr Patty Livingston, a CAS IEF board member, together with other CAS IEF members and our Rwandan partners, have established a new educational initiative aiming at teaching obstetric anesthesia skills to nurse anesthetists working in rural Rwanda with the goal to provide safer anesthesia. This is the second major initiative launched by CAS IEF after the success of Lifebox. CAS IEF asks you again to be generous. Thanks.

CAS IEF Supports SAFE (Safer Anaesthesia from Education) Obstetric Anesthesia Course & Anesthesia Practice Network to Improve Maternal Health in Rwanda

By: Dr Patty Livingston, FRCPC, Dalhousie University, Halifax

Maternal mortality remains unacceptably high in low-resource countries. As many as one in six women in the poorest parts of the world will die as a result of pregnancy, compared to one in 30,000 for wealthier nations.¹ Rwanda, a small country in Central Africa, is facing significant maternal health challenges. Maternal mortality has been estimated to be 540 per 100,000 live births in Rwanda in 2008.² This contrasts with a maternal mortality rate of seven per 100,000 live births the same year in Canada.

In Rwanda, there are only ten anesthesiologists to provide anesthesia for a country of ten million people. Anesthesia technicians provide the majority of anesthesia services in the district hospitals yet they have only received up to three years of training after high school. These practitioners work in isolation, under harsh circumstances, and often without supervision in managing complex patient problems. They have few opportunities for continuing education or collaboration with colleagues. As a result, sub-optimal practices are

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Dr Bona celebrating the arrival of the first batch of Lifeboxes donated by CAS members



Cesarean section for a severely ill woman with pre-eclampsia



Anesthesia Residents, Dr Benjamin and Dr Gaston, practice intubation on a neonatal resuscitation mannequin

not corrected. A prospective observational study at Muhima District Hospital in Kigali, Rwanda identified sub-standard care for patients undergoing cesarean section.³ The investigators found that pre-anesthetic assessment was performed for only 5% of patients, 84% had general anesthesia with an unprotected airway, and the cesarean section maternal mortality rate was 500 per 100,000 operations.

CAS IEF plans to build on a long history of support for Rwandan anesthesia by working with anesthesia technicians in Rwanda to improve capacity for obstetric anesthesia. The SAFE Obstetric Anesthesia Course has been designed for anesthesia providers who work in the highly challenging practice environment found in sub-Saharan Africa. The four-day program teaches a systematic approach to routine and emergent obstetrical anesthesia challenges.

In January 2013, CAS members Drs Angela Enright, Patty Livingston and Faye Evans will work with Rwandan anesthesiologists, Drs Jeanne d'Arc Uwambazimana, Theogène Twagirumugabe, and Paulin Banguti Ruhato to deliver the SAFE Obstetric Anesthesia Course to 128 anesthesia technicians from all districts of Rwanda. The course will empha-



size anticipation and prevention of common obstetrical problems with solutions that are relevant to the local context. The SAFE course includes a training-of-trainers component for sustainable teaching. Sessions on pulse oximetry and WHO surgical safety guidelines will be enhanced by the distribution of the Lifebox pulse oximeters, which were generously donated by CAS members.

Following the course, an Anesthesia Practice Network (APN) will be created. The APN consists of mentorship by experienced anesthesia providers, peer support, reflective practice with a logbook, and an online communication strategy. Course participants will work with their mentors to explore obstacles and enablers for change that allow new learning from the course to be incorporated into practice improvement. Both the course and mentorship network will include a robust system for monitoring and evaluation.

If you would like to donate to support this important work, please make your donation to CAS IEF marked for the SAFE Course. You will find information at: <http://www.cas.ca/English/Safe-Project>.

For more information about the program, contact Dr Patty Livingston at plivings@dal.ca.

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