

E-NEWS

EDITORIAL NOTE – October 2018

The E-News is the monthly newsletter of CUHMA used to share news and information. We invite relevant content, including announcements, upcoming conferences, new publication abstracts, job postings, professional perspectives, incident reports, and relevant images of related professional scenes. All past issues are available at <https://cuhma.ca>. See BOD candidate profiles in this issue.

Neal W. Pollock, PhD
Université Laval

NEWS/ANNOUNCEMENTS

CUHMA Board of Directors - Call for Nominations

The nomination period closes on October 01. Electronic polling will open on October 15 and close on November 02 at 2200 ET.

Cold Water Diving Symposium - Online Learning

A two-day symposium on the health and safety of cold water diving was held at the Institute Maritime in Rimouski, QC in March 2018. The goal was to expand communications and develop educational material for the diving and diving oversight communities. A total of 36 mini-talks on a variety of topics, in a mixture of French and English, are now available at no cost for educational purposes. They can be accessed at:

https://www.youtube.com/playlist?list=PLHJt-7L92RI5f2zAIOaeLmqN1x_YNNxbJ

PERSPECTIVES

Tobermory 1970

A sleepy hamlet surrounded by crystal clear water in an area littered with shipwrecks has been chosen by Natural Resources Ontario as the site for the first Canadian Underwater Park. The environmentalists are dismayed by plans that could result in an environmental disaster, a Disneyland north. The divers are ecstatic but worried about a rising incidence of diving mishaps and deaths with the nearest recompression facility 3.5 hours away in Toronto. What to do? For more on the history and facilities, see <https://cuhma.ca>.

Tobermory Hyperbaric Facility, La Raison D'être

George D. Harpur, MD

September 22, 2016 was a very significant day for Denise Block. She was making a second dive on the Niagara II and nearing the end of the planned excursion when, for reasons we will never know due to persistent memory issues regarding the event, she abruptly initiated a rapid ascent. Despite her companion's efforts to slow her she streaked to the surface, arriving unconscious with no vital signs. Recovered to the vessel and given CPR, she regained pulse, blood pressure, and respirations, and was then swiftly evacuated by Coast Guard only to be taken for a 40 min excursion by the ambulance services up and down Highway 6 right past the waiting hyperbaric unit 3 min from the dock. When she was finally delivered back to us her vitals were intact but with Glasgow coma scale (GCS) 3. Back under pressure within 10 min of arrival, she was treated with an extended US Navy Treatment Table 6. She was then transferred to the Toronto General Hospital with GCS 4 to 6 and stable vitals.

Several HBOT sessions, a tracheotomy, and months of rehab work later she was able to talk then later, in early 2017, stand and take a few steps. Continuing to improve, she returned to the hyperbaric unit in Tobermory in the summer of 2017 to thank those involved in her care. Her partner and companion in the problem dive, David Phelps, has been her constant support through all this and on Saturday the 22nd of September 2018 they were married at the lighthouse at the entrance to Big Tub Harbour with most of those who participated in her rescue and treatment in attendance. We hope that everyone in CUHMA joins us at Tobermory Hyperbaric Facility in wishing them a very long and happy marriage. A wedding party picture follows.

PS. Unfortunately, the difficulty with the ambulance services in Ontario remains unresolved at this time.



Professional Life for a Saturation Diver

Atlas Obscura published 'The weird, dangerous, isolated life of the saturation diver' by Jen Banbury on May 09, 2018: <https://www.atlasobscura.com/articles/what-is-a-saturation-diver>.

CUHMA BOD 2018 ELECTION CANDIDATES

(presented in randomized order)



Julie Malone, RT

Nominated for Treasurer / Director-at-Large

Julie Malone obtained her Bachelor of Health Science with a major in respiratory therapy from Dalhousie University in 2007. Working as a registered respiratory therapist since 2004, she gained experience at both the Horizon Health Network and the Capital District Health Authority before moving to Toronto in 2007 to work in critical care for the University Health Network (UHN), Toronto General Hospital. Julie made the move from critical care to leadership in 2015 when she became a Practice Lead in the Respiratory Therapy department of the Peter Munk Cardiac Centre. Julie started training in hyperbaric medicine in 2015, becoming a certified hyperbaric technologist in early 2017. She has gained valuable experience as a safety director, controller, assistant controller and attendant in the Fink multiplace chamber and as a controller of the Pan-America Hyperbarics (PAHI) and Sechrist monoplace chambers. She has served as an educator and advisor within the hyperbaric medicine unit at Toronto General Hospital. Demonstrating a passion for safety and quality improvement, Julie is a member of the hospital acquired conditions safe medication practice committee, the professional advisory council and standardization and product evaluation steering committee. She is also an educator for the caring safety initiative at UHN. Julie works closely with the University of Toronto Wrightman Berris Academy, York UHN Nursing Academy, and Michener Institute of UHN to provide advanced health professional education. In her spare time Julie volunteers with the 58th Scout Group in Toronto, and spends time with her husband and son.

Julie Malone - What are the most important initiatives you would like to champion as a CUHMA BOD member?

The first initiative I would like to accomplish as a member of the CUHMA board of directors is increased engagement

with associate members through the establishment of working groups and professional practice committees. The purpose would be to bring more opportunities for participation to associate members to advocate and improve practice at the national and international level.

The second initiative I would champion would be to work with the CUHMA board of directors to advocate for better enforcement of safety standards by regulatory and governing bodies. Focusing on improved patient and hyperbaric governance it would ensure there are uniform safety standards between public and private clinics.



Geoff Zbitnew, MD, BSc, FRCPC

Nominated for Director-at-Large

Geoff Zbitnew is currently an Associate Professor of Anesthesiology at Memorial University of Newfoundland and Staff Hyperbaric Physician for Eastern Health. Originally from Edmonton, Alberta, he moved to St. John's after completing medical school at the University of Alberta in 2000. He started in hyperbaric medicine in 2003 at the Medicor multiplace facility in St. John's while completing his anesthesia residency. Geoff is involved with medical education from the undergraduate to continuing medical education level. He has been an active ATLS instructor for the last 12 years. His additional professional interests include perioperative transesophageal echocardiography having recertified his NBE exam in July 2017. Geoff has instructed at several point of care ultrasound courses at the Canadian Anesthesiologists' Society meeting over the years and has been a previous speaker at the CC-UHMS and CUHMA meetings. His current hyperbaric practice is limited to monoplace therapy. He is an active member the Memorial anesthesia simulation sub-committee and involved in the hyperbaric emergency team simulation pre-course. Geoff has been a member of the Royal College examination board for anesthesiology from 2010-2017. He has more recently traveled to Kuwait with Royal College International to assist with anesthesiology examinations. He has been a member of the development committee for Royal College AFC in Hyperbaric Medicine and is current Vice-Chair of the AFC committee in Hyperbaric Medicine. Geoff is looking forward to assisting the board of directors in the planning the 2019 meeting in St. John's.

Jeff Zbitnew - What are the most important initiatives you would like to champion as a CUHMA BOD member?

As a member of the CUHMA board of directors I would

like to see more collaboration between Canadian hyperbaric facilities. We should be sharing data on the conditions we treat, tables and number of treatments given, as well as outcomes and adverse effects. Ideally this would occur in a national hyperbaric database.

As we begin the development of Canadian hyperbaric medicine training programs, I would like to see CUHMA members coming together to share the expertise of our respective centers to allow trainees to benefit from multiple perspectives. As the requirements of the AFC in hyperbaric medicine are now accepted by the Royal College of Physicians and Surgeons of Canada, we can work together to develop a national training curriculum.



Neal W. Pollock, PhD

Nominated for Secretary / Director-at-Large

Neal Pollock is an Associate Professor in Kinesiology at Université Laval in Québec, QC and Research Chair at the Centre de médecine de plongée du Québec, Hôtel-Dieu de Lévis, QC. He was previously Research Director at Divers Alert Network (DAN) and conducted research at the Center for Hyperbaric Medicine and Environmental Physiology, Duke University, both in Durham, North Carolina. Prior to completing his doctoral studies he served as Diving Officer at the University of British Columbia. His academic training is in zoology, exercise physiology and environmental physiology. His research interests focus on human health and safety in extreme environments, primarily related to diving. He is currently Editor-in-Chief of the journal *Wilderness & Environmental Medicine* and on the editorial board of the journal *Diving and Hyperbaric Medicine*. He has served as a peer reviewer for 29 different scientific journals. He currently serves as a director-at-large on the CUHMA board, as scientific director of Undersea Medicine Canada, and on the diving control board of the University of the Virgin Islands. He held previous board appointments with the Canadian Association for Underwater Science (including President) and the American Academy of Underwater Sciences, and was a voting member on the Canadian Standards Association Technical Committee on Diving and Caisson Systems. He established and serves as editor of the CUHMA *E-News*. He lectures extensively, locally through internationally.

Neal Pollock - What are the 3 most important initiatives you would like to champion as a CUHMA BOD member?

CUHMA is in an important stage of development in which growth must be encouraged. The initiatives I am most interested in championing are those that promote engagement, education, and research. I see the CUHMA *E-News* as a vital vehicle in this effort. The publication informs readers about the latest news and research. I would like to continue to develop it as a resource for the community. I see scientific meetings as another critical tool to promote communication, education, research capabilities, and collaboration. I have served as one of the co-organizers of the last two annual meetings, and would like to continue to foster the increasing focus on best science. The third initiative that I would like to champion is the development of programs to fund research, particularly for students and young investigators. I believe that the time is right to develop competitive awards (modest at first) to support new research initiatives and to present new material at CUHMA meetings. It is the science content that makes scientific meetings broadly compelling.



Kenneth LeDez MB ChB FRCPC

Nominated for Director-at-Large

- Led the establishment of our organization, which involved being inclusive and welcoming of differences and diversity and ensuring broad representation on the board
- As Chair of the Standards of Practice and Patient Safety Committee I developed the guidelines for the practice of hyperbaric medicine and provision of hyperbaric oxygen treatment
- Led the successful effort to establish the Diploma in Hyperbaric Medicine through the Royal College of Physicians and Surgeons of Canada, current Chair of the Hyperbaric Medicine Specialty Committee for the College.
- First President of our organization, organizer for our first and multiple other meetings.
- Former Vice-President of the UHMS
- Established hyperbaric medicine device in St. John's, NL, medical director of the service
- Medical coverage of the large majority of offshore saturation diving in Canada since 1992
- Diving medical advisor to university, provincial and federal governments

- Staff anesthesiologist, Associate Professor and former academic Chair of the Discipline of Anesthesia, Memorial University
- Multiple research studies and publications, including the book "Gas bubble dynamics in the human body" published by Elsevier in 2017
- Represents Canada at the International Standards Organization (ISO) for anesthesia equipment (TC121), Chair of sub-committee (SC4), also advocating ISO role for hyperbaric medicine equipment
- Training in Canada, UK, Europe, Australia
- Numerous lectures and courses
- As a BOD member I have always played a full and active role, leading many initiatives.

Ken LeDez - At this time I am advocating the following:

Strategic planning retreat at the 2019 annual meeting in St. John's - When the CC-UHMS, now CUHMA, was set up it was done with no resources and no membership. Surviving as an organization and complying with the various regulations and requirements was a constant challenge. With progress and success in getting this far there are new challenges on how to move to the next level of professionalism and service to members and furthering the objectives of our corporation. It is now time to review how best to proceed for the future in terms of the board of directors, our by-laws, policies, finances and organization. Should we consider a part-time employee to improve our effectiveness and financial administration? We need detailed consideration on how best to proceed in the future. This should be preceded by a membership survey and opportunities for members to contribute their views about how best to develop and strengthen our corporation. It is important to have a comprehensive strategic planning retreat, using no-cost facilities available at our 2019 meeting.

Functioning of the board of directors (BOD) - The BOD must ensure compliance with the Not-For-Profit Act. Decisions are sometimes difficult and discussions may be contentious and sometimes even strained. BOD members are volunteers and all make valuable contributions that need to be recognized and respected. To ensure effective functioning regulatory compliance we need to have robust policies on conflicts of interest, a code of conduct and harassment and intimidation. A key element to enhance effectiveness is improved orientation and training for BOD members. More work should be done at committee level, with reports sent to the BOD for decisions. We must avoid having divisive factions on the BOD. Our guidelines need to be updated and hopefully shortened.



Caroline Bain, MD
Nominated for Director-at-Large

Caroline Bain graduated from medical school in Kingston, Ontario, Canada in 1992 and completed a family medicine residency in Edmonton, Alberta. She has a thriving medical practice in Calgary Alberta with 5 other physicians. Her love of the oceans, water and travelling began as a child snorkelling in the Caribbean. She obtained her open water diver certification in 1985 and continued training eventually becoming certified as a Master Scuba Diver Trainer, full cave diver and advanced trimix diver. To combine her work and passion, she completed training in diving and hyperbaric medicine first at the NOAA/UHMS course in Seattle, WA. Numerous courses followed in various locations around the world. She has been working at the hyperbaric chamber in Calgary since 1999 as well as performing recreational and commercial dive medicals as part of her practice. She is currently the medical director of the hyperbaric facility at the Foothills hospital. In 2010 she successfully passed her Certificate in Travel Health. She has been involved in a number of expeditions most notably the Sedna expedition to the Arctic. In 2015 she was elected to membership in the Explorer's Club.

Caroline Bain - What are the most important initiatives you would like to champion as a CUHMA BOD member?

I am relatively new to CUHMA but was involved with the UHMS for years. I practice in Calgary, Alberta and feel a greater representation of the West on the board would be beneficial. I would like to see a greater communication and collaboration amongst the centres in Canada both to foster friendships and also hopefully increase our research potential. I feel we operate somewhat in isolation sometimes with very different ideas and standards. Being a family doctor as well, I would like to explore ways the new hyperbaric medicine diploma could be more easily accessed by family physicians.



**Jay MacDonald, MD, PhD, FRCPC
Nominated for Vice President / Director-at-Large**

Jay MacDonald is a physician member of the hyperbaric medicine team at Hamilton General Hospital. He earned his medical degree from the University of Toronto, and completed his residency at McMaster University in emergency medicine. Throughout his training, Jay placed an emphasis on hyperbaric, critical care and environmental medicine. Prior to his medical training, Jay completed his Master's and PhD in Medical Science (physiology and pharmacology) at McMaster University. A portion of his comprehensive examinations focused on the role of hyperbaric oxygen in carbon monoxide poisoning. Following his PhD, he spent time at Stanford University as a post-doctoral fellow working with the US Army Research Institute of Environmental Medicine team. During this time he conducted research focused on high altitude medicine. The culmination of this work included two months atop Pike's Peak studying the physiological effects of altitude. Jay's medical and research career led him to be one of the top 25 candidates selected from an applicant pool of 5500 in Canada's 2008-2009 astronaut recruitment campaign. As a competitive sailor, Jay's interests in hyperbaric medicine stem from his combined love of the water and physiology.

Jay MacDonald - What are the most important initiatives you would like to champion as a CUHMA BOD member?

As CUHMA continues to evolve from a chapter of the UHMS to a free-standing, independent association, our growth depends on strengthening cohesion amongst both individual and institutional members. This includes fostering such solidity through formal and informal communication channels as well as inter-facility co-operation. The relative sparsity of scientifically-based hyperbaric facilities in Canada requires the need for such inter-facility co-operation in ensuring uniform protocols, standards of care and identification and tracking of outcome variables as well as the ability to enable smooth inter-facility referrals to ensure patients are treated at the most appropriate facility in a timely manner.

Additionally, it will be crucial for CUHMA to ensure its members achieve value for their membership. This value can be demonstrated by continuing to ensure and expand the offerings of accredited educational opportunities as well as producing tools to assist hyperbaric practitioners and facilities in public education, liaison management and documentation.

I look forward to working with CUHMA members to strengthen our bonds, and enhance your value for membership.



**William (Bill) Bateman, MD, CD, DiplAvMed
Nominated for Director-at-Large**

Bill Bateman works as a consultant at Toronto's Judy Dan Research & Treatment Centre (since 2007), providing coverage and consulting approximately twice per week, and serves on the board of directors thereof. He also serves on the board of CUHMA, having done so since its inception in 2010. He is a medical graduate of Queen's University, and Diplomate in Aviation Medicine from the RAF School of Aviation Medicine in the United Kingdom. He is qualified to consultant-level in both aerospace and diving medicine, and is also a certified scuba diver and commercial pilot. He served as a Canadian Forces Medical Officer (1980-2000, retiring at the rank of Commander). From 1991 until 2018, he worked as a Consultant in Aerospace and Diving Medicine at Defence Research & Development Canada (Toronto), where he contributed to all of that institute's teaching, research, and consulting roles. Dr. Bateman practiced Emergency Medicine for 25 years prior to joining Toronto's Medcan Clinic in 2008, having worked in ER settings ranging from urban (eg, University Health Network in Toronto) to rural (West Parry Sound Health Centre). He also worked ER at Humber River Hospital in Toronto, where he now does daytime and on-call surgical assisting. His other pursuits include advanced cardiac life support (ACLS) instructing (has taught several courses per year since 1988). He also lectures extensively in his other areas of specialty (including as Lecturer, Faculty of Medicine, University of Toronto 2000-2005), and has an extensive publication list. He practiced cruise ship medicine, working four contracts for Holland America Line 1993-96. He is married with one daughter, and outside interests include cottage life, Taoist Tai Chi, and fine cuisine. He is a survivor of Lyme disease and actively promotes awareness of its pitfalls.

Bill Bateman - Statement for candidacy

Elected 2016 as director-at-large. Previously so-appointed during transition from Canadian Chapter of UHMS (CCUHMS). Served as a founding director when CCUHMS inaugurated 2010. Active member of CCUHMS's ancestor,

the 'Great Lakes Chapter (GLC)': presented almost yearly 1995-onwards (honored 2007 with Rokitka Award).

My role as director-at-large: I regard this as 'watchdog' for board of directors and CUHMA activities. While some wish progress were faster, I confidently attest to how far we have come: from our GLC origins (essentially a continuing-education forum with a sole yearly meeting) to today's CUHMA – a national voice for diving and hyperbaric medicine in Canada, with now-international recognition.

My contributions: for health reasons (Lyme disease and convalescence), these have been limited to watchdog role and BoD meeting attendance this past tenure. Despite this, I can boast that in my view, CUHMA is on the right track. Examples include governance (conflict-of-interest policy), qualification (Royal College's recognition of area of focused competence in hyperbaric medicine), and international recognition (for second time, one of our number, Dr Ron Linden, elected Vice-President of UHMS)...just to name a few (but I claim no role in any of these - beyond support and applause!).

I was more actively involved in early years of CUHMA/CCUHMS. Examples include helping Dr Ken Ledez develop standards of practice document, and initial 'military' rep who sought CAF leadership support for Hyperbaric Medicine AFC. Also active participant in ASM planning and participation (several updates in CAF Diving Medicine; organized tour of DRDC Toronto at 2015 meeting).

If re-elected, will continue my 'watchdog' role, but with more regular participation. I hope also to be more active in CUHMA's committee work: membership, and standards-of-practice are areas of particular need, but I will gladly support whatever committee work CUHMA needs of me.



Paul Cervenko, MD
Nominated for Director-at-Large

Hello, I would like to let you know what attributes and experience I can bring for you and our organization. I am a Queen's grad (Meds '87), following which I have had wide experiences in the public service at the provincial and federal levels, where I continue to work, plus 34 years of military reserve and regular force experience. My diving career began while I was in the ranks, as a Ship's Diver, and after many (mostly cold water) dives, I finished family medicine at Mac, and took my commission as a medical officer, eventually becoming qualified in diving medicine at

the basic and advanced levels. This all was, I cannot help thinking, for a purpose: I was sent to Haiti in 2010 as the initial Canadian medical platoon commander, and as the sole MD in the country who could medically supervise a chamber, temporarily was attached to an American dive ship to treat a Haitian fisherman who had had severe neurological decompression sickness for over a week. After several days of treatment, he was continent and able to walk again, so that he could continue to provide for his young family. The compassion and dedication of the ship's crew and divers was amazing. It is teamwork such as this that can make such big differences, as I have learned through progressive levels of responsibility in the organizations where I have served. I hope to bring ideas, discussion, and practical results for CUHMA as a director, and look forward to meeting you in Quebec, where I am happy to talk with you either of Canada's official languages.

Paul Cervenko - Two things I would bring to CUHMA as a board member:

Firstly, I would ask how we could make our organization relevant and helpful for our members. There are many organizations out there and we need to demonstrate why CUHMA deserves to attract a member who is going to see the reason for being part of this special diving community in Canada. This involves not just getting names and addresses, but engagement of all members to the level that satisfies their needs.

Secondly: keeping pace with the practical day to day problems that the CUHMA diving community faces, and promoting a forum where solutions are found that make our days in the diving world interesting and fun again. We, as CUHMA members, need to keep sight of why we became involved in diving in the first place.



Chris Wherrett, MD, FRCPC
Nominated for Director-at-Large

Chris Wherrett is an anesthesiologist at the Ottawa Hospital, and Assistant Professor at the University of Ottawa. He obtained his medical degree from the University of Western Ontario in 1988, followed by specialty certification in anesthesiology and in critical care medicine. He has been practising hyperbaric medicine since co-founding the hospital's hyperbaric medicine unit in 1996. He has previously served as medical director of the unit and remains actively involved in quality improvement. He is a current member of the board of directors of the Canadian

Undersea and Hyperbaric Medicine Association and is a member of the standards committee and the clinical guidelines committee. His current responsibilities include: treasurer of the Anesthesia Associates of the Ottawa Hospital General Campus, Director of the Department Practice Management Educational Program, Department Lead for infection control, for renal transplantation, and for hepatobiliary surgery and clinical trials research. He is also a member of the department quality and patient safety committee.

Having been a scuba diver with an interest and appreciation of environmental medicine, he took the opportunity when the Ottawa General Hospital opened its hyperbaric unit to expand his skills in anesthesiology and critical illness to include hyperbaric medicine and management of the critically ill hyperbaric patient. Recreationally, he can be found riding the trails on his mountain bike or traversing them on skis when the back-country powder is deep.

Chris Wherrett - Initiatives to champion:

The clinical practice of hyperbaric medicine is full of questions and challenges on how to manage our patients. The literature and American guidelines are often inadequate. The result can be uncertainty, inconsistency, and suboptimal care. One year ago, I proposed that the board include a clinical guidelines committee be included in its restructuring of committees. It is important that we show leadership and guidance to patients, colleagues, and health organizations in how clinical hyperbaric medicine is best practised in a Canadian setting.



Rita Katznelson, MD, FRCPC
Nominated for President-Elect / Director-at-Large

Rita Katznelson is a staff anesthesiologist and medical director of the hyperbaric medicine unit in the department of Anesthesia and Pain Management at the Toronto General Hospital, University Health Network, and an Associate Professor of Anesthesia at the University of Toronto. She completed her training in anesthesia in Israel and obtained a fellowship in cardiac anesthesia and pain medicine at the University of Toronto. She has been practicing hyperbaric medicine since 2012. Dr. Katznelson is an author of 47 peer reviewed publications, two book chapters and is a recipient of a number of peer reviewed research grants. Her areas of interest include postoperative neurocognitive dysfunction, chronic pain and the new therapeutic applications for

hyperbaric medicine. She adores her kids and her puppy. She likes hiking, skiing, dancing and playing tennis.

Rita Katznelson - What are the most important initiatives you would like to champion as a CUHMA BOD member?

The two most important initiatives I would like to champion as a member of the CUHMA board of directors are implementation of the Canadian national clinical guidelines in hyperbaric medicine and introduction of new indications for HBOT based on the clinical and research evidence.



Anton Marinov, MD, FRCPC
Nominated for Director-at-Large

Anton Marinov is a hyperbaric physician at the Toronto General Hospital and an anesthesiologist at the Oakville-Trafalgar Memorial Hospital. He has served on the CUHMA board of directors as a director-at-large since 2016. He obtained his medical degree at Queen's University and trained as an anesthesiologist at the University of Toronto. He obtained his Royal College fellowship in anesthesiology in 2008 and certificate in hyperbaric and diving medicine from NOAA in Seattle. He has worked in the field of hyperbaric medicine for over 10 years and has been actively involved in research and education. His areas of interest include research on the benefits of hyperbaric oxygen, clinical practice guidelines, hyperbaric accreditation and community outreach.

Anton Marinov - What are the 3 most important initiatives you would like to champion as a CUHMA BOD member?

I am asking for your vote for re-election as a member-at-large of the CUHMA board of directors (BOD). I bring to the board extensive clinical experience in hyperbaric medicine spanning more than 10 years and established relationships with hyperbaric professionals across the country. In my current term on the BOD, I have been actively involved in decision-making at the organization and have worked to develop national clinical practice guidelines. If re-elected, I will focus my work at the BOD on the following initiatives: development and completion of clinical practice guidelines; working with the Royal College on hyperbaric competency assessment; development and protection of the CUHMA brand; and the adoption of hyperbaric facility standards.



**George Harpur, MD
Nominated for Director-at-Large**

George Harpur started diving at age 14 doing construction in the Muskoka's. He graduated from University of Toronto with medical degree in 1964, and then qualified as a ship's diving officer in 1967, the first Air Force officer to do so. He worked at the Defense and Civilian Institute of Environmental Medicine in 1968, engaged in research conducted in diving and altitude chambers, including work used in the development of the Canadian Forces diving tables. He was in general practice anesthesia and family medicine in Huntsville Ontario from 1969 through 1974. Appointed as a coroner in the province of Ontario in 1969, he was involved in inquests that supported the introduction of seatbelt legislation in Ontario. George qualified as a scuba instructor with National Association of Underwater Instructors and the American Canadian Underwater Certification agencies and taught basic scuba. He received certification as a Diving Medical Officer from the School of Operational and Aerospace Medicine, Canadian Forces in 1975, and was appointed as medical director of the new Tobermory hyperbaric facility in 1976.

His research efforts have included investigation into diving emergencies, rescue of unconscious divers, defensive diving techniques, field management of incidents, and efficacy of hyperbaric oxygen therapy for patients with multiple sclerosis. He has been involved in the investigations of 47 diving fatalities in Ontario and 26 in scattered jurisdictions from Barbados and Australia to Alaska. He collaborated with Dr Ray Sawchuck to produce the protocol for post-mortem assessment of diving accident victims that was adopted by the Ontario Coroner's service in the early 1980s.

Dr Harpur is a charter member of CUHMA (past President at inception), and he currently serves as a director-at-large on the board of directors.

George Harpur - What are the most important initiatives you would like to champion as a CUHMA BOD member?

There are two things I want to achieve for the organization; first, to work assiduously to improve the efficiency of the board work and the meetings, and second (and very much a part of the first objective), to assist in getting all of the committees established and functional to involve a larger share of the membership. Further evolution of the organization requires transparency to make the general membership aware of what we are doing to enhance

to enhance the effective application of HBOT where it can make a difference to people's lives.



**Ray Janisse RRT, CHT
Nominated for Director-at-Large**

Ray Janisse has been employed at the University Health Network –Toronto General Division for over 28 years and has extensive experience in critical care and hyperbaric medicine. He graduated from the Michener Institute where he received his training as a respiratory therapist and completed his clinical training at Toronto General. In 2003 he advanced into a Practice Leader role within the hyperbaric medicine unit (HMU) where he was instrumental in establishing the existing hyperbaric medicine unit at TGH. During this time he served on the board of directors of the Great Lakes Chapter of the Undersea and Hyperbaric Medical Society. Ray received his CHT certification from the National Board of Diving and Hyperbaric Medical Society in 1992 and continues to maintain an active role within hyperbaric medicine. In 2008, he expanded his practice leadership role to include the Respiratory Therapy Department where he maintains responsibility for the day-to-day service provision of the RTD at Toronto General and Princess Margaret Cancer Center, by ensuring quality and consistency in patient care, enforcing standards set by the profession and the hospital, and providing educational and research opportunities.

Ray's principal responsibilities within the RTD/HMU include: performing human resource management, budgeting and other financial responsibilities; monitoring and overseeing the day-to-day operations; participating in the operational and strategic planning process; developing quality initiatives, academic, and research projects; summarizing and evaluating findings related to quality management program; and performing corporate responsibilities, including acting as a spokesperson for the department within the hospital and the external community. He participates in several corporate committees within UHN and is currently the co-chair of UHN's acute resuscitation committee.

Ray Janisse - What are the most important initiatives you would like to champion as a CUHMA BOD member?

I have served on the CUHMA board as a director-at-large for the past two years and I am seeking re-election. My

passion for the profession of respiratory therapy and hyperbaric medicine is to foster and develop evidence-based practice through research and education. My aspirations for CUHMA is to unify the practice of hyperbaric medicine across Canada and inspire individuals to make positive contributions to everyday practice and reflect on behaviors that shape the tone of how we work with our patients. I am hoping to be an integral member of the team working on shaping the CUHMA practice guidelines while being an active member on the Canadian Standards Association (CSA) committee for hyperbaric medicine in Canada.



Tara Planetta, BSc, RRT
Nominated for Director-at-Large

Tara Planetta is currently the Registrar for the Nova Scotia College of Respiratory Therapists (NSCRT), as well as a clinical respiratory therapist in the hyperbaric medicine unit at the QEII Health Sciences Centre in Halifax, NS. She graduated from the respiratory therapy program at the Victoria General Hospital in Halifax in 2000, following completion of a BSc at Dalhousie University in 1998. During Tara's 18-year career as an RT, she has been fortunate to have practiced in a variety of patient care of settings, including: critical care, primary care, ambulatory clinics, and now regulation. As registrar of the NSCRT she oversees the administration and statutory responsibilities of the College and is an active participant in quality assurance and policy/guideline development. Tara is a passionate advocate for patients and is a dedicated employee of the hyperbaric medicine unit, where she takes pride in providing high quality, patient-centered care as member of the hyperbaric medicine team.

Tara Planetta - What are the most important initiatives you would like to champion as a CUHMA BoD member?

As a member of the board, my priority would be participation in the development of a 5-year strategic plan. Strategic planning provides clarity, direction and focus for the BoD and assists them in deciding on what initiatives should be pursued.



Ron Linden, BSc, MD, CCFP
Nominated for Director-at-Large

Hyperbaric and diving medicine practice for three decades, medical consultant for commercial dive programs. Conducts fitness to dive assessments for recreational, commercial and police divers. Former Chair of the Canadian Standards Association committee on diving and hyperbaric medicine.

1987: Completed the UHMS/NOAA physician training course. Served on board, Great Lakes Chapter UHMS, including two terms as president.

2005: Founded Ontario Wound Care Inc., a federally registered charity, raising funds to provide HBO and advanced wound care.

2007: Established the Judy Dan Research and Treatment Centre in a Toronto hospital to provide hyperbaric oxygen for UHMS approved conditions.

2010: Co-founder of the Canadian Chapter UHMS (now Canadian Undersea and Hyperbaric Medical Association).

2012-2014: Second President of CC UHMS.

2009-2018: Investigator with Princess Margaret Hospital in development of Moleculte imaging camera, now used internationally for wound care.

2007-2012: Investigator, providing all patients, HBO and wound care in Toronto study on HBO for diabetic foot ulcers. Study report and subsequent publication claimed no benefit from HBO and 50% of patients were amputated or met study's (unvalidated) criteria for amputation at interim 12-week outcome. One-year outcomes not reported.

2013: Dissented with report. Reviewed study data and documented multiple protocol violations, lack of REB approval for primary outcome measure, forgery and limbs completely healed, reported as amputated. Presented an abstract at the UHMS ASM.

2013-2018: Has worked tirelessly to expose the false and misleading Toronto diabetic foot ulcer study. His persistent efforts led to the Government of Ontario abandoning its own proposal to delist HBO for DFU.

2014-2018: CUHMA board member, chaired the accreditation committee to develop the CUHMA accreditation program. Assisted with development of the credentialing program and standards of practice.

2018: Elected as Vice President, UHMS.

Ron Linden - What are the 3 most important initiatives you would like to champion as a CUHMA BOD member?

1) As Vice President UHMS, I am responsible for international relations with other hyperbaric scientific

societies. As a Member-at-Large on the CUHMA Board, I will endeavor to increase collaboration of CUHMA with other societies.

2) Work with the regulatory colleges and government agencies for acceptance and implementation of the CUHMA accreditation program.

3) Encourage more frequent BOD meetings. In the past we have had fewer meetings and tried to accomplish too much at one time. With more frequent meetings, we should aim to cover a couple or even one topic, in much more depth, focusing on committee work.

UPCOMING EVENTS

Divescapes Conference and Exhibition 2018

Divescapes will be held October 19-20 in Calgary, AB. A range of speakers, both Canadian and international, will present. This is a biannual event hosted by the Alberta Underwater Council. For details: <http://www.divescapes.ca>.

CUHMA Annual Scientific Meeting 2018

The 2018 CUHMA ASM will be held November 02-04, in Quebec City, hosted by Université Laval and Hôtel-Dieu de Lévis. One day of pre-conference events will be followed by two days of scientific talks. Pre-conference events include:

- CHT exam offered by the National Board of Diving and Hyperbaric Medical Technology (NBDHMT)
- Hyperbaric emergency team simulation (HETS) course to be held at the hyperbaric chamber at Hôtel-Dieu de Lévis
- Board of Directors meeting

A welcome reception will be held on Friday evening, and the awards banquet on Saturday evening. Visit our website for details: <https://cuhma.ca>.

EUROTEK 2018

EUROTEK is Europe's premiere advanced and technical diving conference. The meeting will be held December 01-02 in Birmingham, England. Lectures and exhibitors will cover the range of current and emerging equipment, concepts, and issues. Visit: <http://eurotek.uk.com>.

OZTek 2019

OZTek 2019 will bring together an impressive roster of speakers and exhibitors from around the world. It will be held March 16-17 at the International Convention Centre in Sydney, Australia. Visit: www.diveoztek.com.

Undersea Medicine Canada Level 2 Course

Undersea Medicine Canada is offering a CSA Z275.2-15 Level 2 'Advanced Course in Diving Medicine: Diagnosis and Treatment' in Halifax, NS May 6-11, 2019. Augmenting classroom instruction and case-based learning, site visits will be arranged to observe commercial diver training and diving operations. A CSA Z275.2-15 Level 1 'Introductory

Course in Diving Medicine: Fitness to Dive' or equivalent training is a prerequisite for this 50-hour course. Further details will be added to the Undersea Medicine Canada website in the coming weeks (www.underseamedicine.ca). Registration will open in early 2019.

RECENT PUBLICATIONS

Arieli R. Taravana, vestibular decompression illness, and autochthonous distal arterial bubbles. *Respir Physiol Neurobiol.* 2018 Aug 30. pii: S1569-9048(18)30257-X. doi: 10.1016/j.resp.2018.08.010. [Epub ahead of print]

Decompression bubbles can develop only from pre-existing gas micronuclei. These are the nanobubbles which appear on active hydrophobic spots (AHS) found on the luminal aspect of all blood vessels. Following decompression, with the propagation of blood along the arterial tree, diffusion parameters cause increased transfer of nitrogen from the tissue into the artery, and more so if perfusion is low. Taravana is a neurological form of decompression illness (DCI) prevalent in repeated breath-hold diving. A nanobubble on an AHS in a distal artery of the brain may receive an influx of nitrogen after each dive until it occludes the arterial blood flow. The vestibular organ has very low perfusion compared with the brain and the cochlea of the inner ear. We suggest that a nanobubble on an AHS in the distal artery of the vestibular organ will receive a high influx of nitrogen from the surrounding tissue after decompression due to the low nitrogen clearance, thus expanding to cause vestibular DCI.

Chen CY, Wu RW, Tsai NW, Lee MS, Lin WC, Hsu MC, et al. Increased circulating endothelial progenitor cells and improved short-term outcomes in acute non-cardioembolic stroke after hyperbaric oxygen therapy. *J Transl Med.* 2018 Sep 12;16(1):255. doi: 10.1186/s12967-018-1629-x.

BACKGROUND: Acute ischemic stroke is a leading cause of mortality and long-term disability, and profiles of endothelial progenitor cells (EPCs) reflect the degree of endothelial impairment. This study tested the hypothesis that hyperbaric oxygen therapy (HBOT) both improves the clinical short-term outcomes and increases the number of circulating EPCs and antioxidant capacity. **METHODS:** The numbers of circulating EPCs [CD133+/CD34+ (%), KDR+/CD34+ (%)], biomarkers for oxidative stress (thiols and thiobarbituric acid-reactive substances), and clinical scores (National Institutes of Health Stroke Scale [NIHSS], Barthel index [BI], and modified Rankin Scale [MRS]) were prospectively evaluated in 25 patients with acute non-cardioembolic stroke under HBOT at two time points (pre- and post-HBOT). The biomarkers and clinical scores were compared with those of 25 age- and sex-

matched disease controls. **RESULTS:** The numbers of KDR+/CD34+ (%) in the HBOT group following HBOT increased significantly, whereas the numbers of CD133+/CD34+ (%) also showed a tendency to increase without statistical significance. The mean high-sensitivity C-reactive protein levels showed significant decrease post-HBOT follow-up in the HBOT group. The changes in KDR+/CD34+EPC (%) numbers were positively correlated with changes in clinical outcomes scores (BI, NIHSS, and MRS) in the HBOT group. **CONCLUSIONS:** Based on the results of our study, HBOT can both improve short-term clinical outcomes and increase the number of circulating EPCs in patients with acute non-cardioembolic stroke

Curi MM, Condezo AFB, Ribeiro KDCB, Cardoso CL. Long-term success of dental implants in patients with head and neck cancer after radiation therapy. Int J Oral Maxillofac Surg. 2018;47(6):783-8.

The purpose of this study was to analyze the long-term success and factors potentially influencing the success of dental implants placed in patients with head and neck cancer who underwent radiation therapy with a minimum total dose of 50Gy during the years 1995-2010. Thirty-five patients (169 dental implants) were included in this study. Data on demographic characteristics, tumour type, radiation therapy, implant sites, implant dimensions, and hyperbaric oxygen therapy (HBOT) were obtained from the medical records and analyzed. Implant survival was estimated using Kaplan-Meier survival curves. Seventy-nine dental implants were placed in the maxilla and 90 in the mandible. The mean follow-up after implant installation was 7.4 years (range 0.3-14.7 years). The overall 5-year survival rate for all implants was 92.9%. Sex ($P < 0.001$) and the mode of radiation therapy delivery ($P = 0.005$) had a statistically significant influence on implant survival. Age, time of implantation after irradiation, implant brand and dimensions, and HBOT had no statistically significant influence on implant survival. Osseointegrated dental implants can be used successfully in the oral rehabilitation of patients with head and neck cancer with a history of radiation therapy. Risk factors such as sex and the mode of radiation therapy delivery can affect implant survival.

Hugon J, Metelkina A, Barbaud A, Nishi R, Bouak F, Blatteau JE, Gempp E. Reliability of venous gas embolism detection in the subclavian area for decompression stress assessment following scuba diving. Diving Hyperb Med. 2018;48(3):132-40.

INTRODUCTION: Ultrasonic detection of venous gas emboli (VGE) in the precordial (PRE) region is commonly used in evaluation of decompression stress. While subclavian (SC) VGE detection can also be used to augment and improve the evaluation, no study has rigorously compared VGE grades from both sites as

decompression stress indicators. **METHODS:** This retrospective study examined 1,016 man-dives breathing air extracted from the Defence Research and Development Canada dataset. Data for each man-dive included dive parameters (depth, bottom time, total ascent time), PRE and SC VGE grades (Kisman-Masurel) and post-dive decompression sickness (DCS) status. Correlation between SC and PRE grades was analyzed and the association of the probability of DCS (pDCS) with dive parameters and high bubble grades (HBG III- to IV) was modelled by logistic regression for SC and PRE separately for DCS risk ratio comparisons. **RESULTS:** PRE and SC VGE grades were substantially correlated ($R = 0.66$) and were not statistically different ($p = 0.61$). For both sites, pDCS increased with increasing VGE grade. When adjusted for dive parameters, the DCS risk was significantly associated with HBG for both PRE ($p = 0.03$) and SC ($p < 0.001$) but the DCS risk ratio for SC HBG ($RR = 6.0$, 95% CI [2.7-12.3]) was significantly higher than for PRE HBG ($RR = 2.6$, 95% CI [1.1-6.0]). **CONCLUSIONS:** The association of bubble grades with DCS occurrence is stronger for SC than PRE when exposure severity is taken into account. The usefulness of SC VGE in decompression stress evaluation has been underestimated in the past.

Koopsen R, Stella PR, Thijs KM, Rienks R. Persistent foramen ovale closure in divers with a history of decompression sickness. Neth Heart J. 2018 Sep 3. doi: 10.1007/s12471-018-1153-x. [Epub ahead of print]

OBJECTIVE: To study the effect of percutaneous patent foramen ovale (PFO) closure in divers with a history of decompression sickness (DCS). **STUDY DESIGN:** (1) Retrospective study of patient records and (2) telephonic follow-up. Patients with unexplained decompression sickness, who were referred to a cardiologist with a focus on diving medicine between 2000 and 2017, were included in the study **RESULTS:** A total of 62 divers with DCS were included. In all cases transoesophageal echocardiography (TEE) was performed, showing 29 PFOs and 6 atrial septum defects (ASDs) in total $n = 35$ (56%). The highest prevalence was found in divers with cutaneous and vestibular DCS. At follow-up (mean follow-up duration 6.8 years), 21 PFOs/ASDs were closed using a percutaneous procedure. One diver was lost to follow-up. One diver quit diving. The remaining divers were able to resume unrestricted diving; there was no recurrence of major DCS. Of the divers with an open PFO or ASD, 14 were included of whom 7 are currently diving. All (except one diver with a small PFO) divers are using a conservative diving profile to reduce nitrogen load and the appearance of venous nitrogen bubbles. There was no recurrence of major DCS in this group. **CONCLUSION:** Percutaneous PFO closure may be an effective and safe treatment for divers who have suffered a major DCS to return to unrestricted diving. Alternatively, conservative

treatment seems safe when divers refrain from unrestricted diving and use a conservative technique in order to reduce nitrogen load

Lippmann J, Lawrence C, Fock A, Jamieson S. Provisional report on diving-related fatalities in Australian waters in 2012. Diving Hyperb Med. 2018;48(3):141-67.

INTRODUCTION: An individual case review of known diving-related deaths that occurred in Australia in 2012 was conducted. **METHOD:** The case studies were compiled using statements from witnesses and reports of the police and coroners. In each case, the particular circumstances of the accident and details from the post-mortem examination, where available, are provided. **RESULTS:** There were 26 reported fatalities (four less than the previous year). Only two of the victims were female (one snorkeller and one scuba diver). Fourteen deaths occurred while snorkelling and/or breath-hold diving, 11 while scuba diving and one diver died while using surface supplied breathing apparatus in a commercial pearl diving setting. Two breath-hold divers likely drowned as a result of apnoeic hypoxia. Cardiac-related issues were thought to have contributed to the deaths of at least three and possibly seven snorkellers and four scuba divers. **CONCLUSIONS:** Pre-existing medical conditions; poor organisation, planning and supervision; equipment-related problems; snorkelling or diving alone or with loose buddy oversight and apnoeic hypoxia were features in several deaths in this series.

Steiner T, Seiffart A, Schumann J, Bucher M. Hyperbaric oxygen therapy in necrotizing soft tissue infections: a retrospective study. Adv Exp Med Biol. 2018;1072:263-7.

Necrotizing soft tissue infection is a severe life-threatening disease correlated with high mortality. Until now, therapeutic concepts include antimicrobial, intensive care and surgical interventions, as well as the application of hyperbaric oxygenation (HBO), which still has a controversial status. Evidence of the therapeutic concept of HBO is, so far, limited to positive experiences in case studies and physiological benefits in animal studies. That is why the HBO therapy method is not yet fully established. In this light, a retrospective data analysis was conducted. The analysis involved 91 intensive care patients in the Clinic for Anesthesiology and Surgical Intensive Care at the University Hospital Halle (Saale) who, because of a necrotizing soft tissue infection, were treated with HBO therapy (period of observation from 2008 to second quarter 2017). Treatment outcome was examined with regard to mortality, complications, time spent in the intensive care unit, and functional limitations. The criteria of therapy relevance, therapy management, and conclusions drawn from the treatment results were evaluated. By examining the result of combining all four

categories of treatment, we aim to investigate established guidelines and their practicability. We expect treatment with HBO to have no disadvantages compared with acknowledged treatment concepts. This study considers the success of treatment as a result of complying with optimal therapy. In a contribution to establish coverage use and an inventory of hyperbaric chambers, we also aim to create a national case register, so that patients do not have to depend on long and risky transportations.

CUHMA-ACMHS is the Canadian voice for the advancement of hyperbaric and diving medicine throughout our country and beyond. Our activities include continuous medical education for physicians, nurses, respiratory therapists and anyone involved in the fields of hyperbaric and diving medicine. We are also promoting dissemination of clinical research, publishing position statements, liaising with related professional associations and government agencies. Our main goal is advocating on behalf of our patients. Our vision is to be the reference for the development and delivery of hyperbaric and diving medicine in Canada and beyond. Our mission is to promote excellence in hyperbaric and diving medicine through leadership in education, promotion of best practices and advocacy for our patients. Our values are excellence, leadership, collaboration, communication, and integrity.

Canadian Undersea and Hyperbaric Medical Association
10 Plumtree Place, Portugal Cove-St. Philips,
Newfoundland and Labrador, A1M 3T1
info@cuhma.ca <https://cuhma.ca>

Editor: Neal W. Pollock, PhD - neal.pollock@kin.ulaval.ca

CUHMA BOARD OF DIRECTORS

Debbie Pestell	President
Jay MacDonald	Vice-President
Afshin Khazei	President-Elect
Daniel Gericke	Secretary
Richard Johnson	Treasurer
Dominique Buteau	Past-President
Bill Bateman	Director-at-Large
Jocelyn Boisvert	Director-at-Large
Wayne Evans	Director-at-Large
Sherri Ferguson	Director-at-Large
Tara Fowler	Director-at-Large
George Harpur	Director-at-Large
Ray Janisse	Director-at-Large
Rita Katznelson	Director-at-Large
Ken Ledez	Director-at-Large
Ron Linden	Director-at-Large
Anton Marinov	Director-at-Large
Ron Nishi	Director-at-Large
Neal Pollock	Director-at-Large
Chris Wherrett	Director-at-Large