

E-NEWS

EDITOR'S NOTE – October 2020

The E-News is the monthly newsletter of CUHMA, our primary outlet to share news and information. We invite relevant content, including news/announcements, upcoming events, new publication abstracts, job postings, professional perspectives, incident reports, and images of relevant professional scenes. Please feel free to share the publication with interested colleagues. Past issues are available at <https://cuhma.ca>.

Neal W. Pollock, PhD
Université Laval

NEWS/ANNOUNCEMENTS

Editorial on Predatory Publishing

Predatory publishing is a huge concern in science reporting. A recent editorial in *Wilderness & Environmental Medicine* discusses the issue in the context of the recent retraction of two articles in high profile journals. The following link allows free access to the article for the next 47 days: <https://authors.elsevier.com/a/1bpr33risB5jMv>.

CUHMA Membership Renewal

Membership renewal notices are sent out to CUHMA members via e-mail on the 15th of the month in which their memberships expire. The most recent notices were sent out on September 15. A current CUHMA membership is required to both run and vote in board elections. If you recently received a renewal notice, please consider renewing your membership through the membership portal: <https://cuhma.ca/about/membership>.

CUHMA Board of Directors Election

Electronic polling will open on October 07 and close on October 23 at 2200 EDT. The maximum number on the board of directors is 18; 6 on the executive, and 12 director-at-large positions. There are two critical rules to qualify candidates for board positions: 1) a simple majority of votes is required for any candidate to be elected; and 2) two-thirds of the board must be comprised of regular members. In addition, Regular members may vote on any position; Associates may vote only on positions for which they are eligible to run (which excludes President-Elect, President, Past-President, and Vice-President).

The BOD election results will be reviewed and summarized by a panel of three members. They will be announced in an on-line annual general meeting on October 28 (time TBD) and published in the November 2020 issue of the E-News.

CUHMA BOD 2020 ELECTION

A total of 18 individuals are on the roster for the 2020 board of directors election. The names, provinces/territories and positions appear in randomized order below, followed by photos, bios, and candidacy statements presented in the same order.

Caroline Bain (AB)	Director-at-Large
Neal Pollock (QC)	Secretary/Director-at-Large
Mike Hatcher (ON)	Director-at-Large
Geoff Zbitnew (NL)	President-Elect/Director-at-Large
Sherri Ferguson (BC)	Secretary
George Harpur (ON)	Director-at-Large
Mustafa Wahaj (ON)	Director-at-Large
Hafeez Jamal (ON)	Director-at-Large
Ken LeDez (NL)	Vice-President
Joseph Kay (ON)	Director-at-Large
Anton Marinov (ON)	Director-at-Large
Julie Malone (NS)	Treasurer
Ron Linden (ON)	Director-at-Large
Daniel Gericke (ON)	Director-at-Large
Ray Janisse (ON)	Director-at-Large
Joanne Provencher (QC)	Director-at-Large
Deryck Kelly (NS)	Director-at-Large
Debbie Pestell (NS)	Director-at-Large



Caroline Bain, MD
Nominated for Director-at-Large

Caroline Bain graduated from medical school in Ontario, Canada and completed a family medicine residency in Edmonton, Alberta. She has a thriving family medical practice in Calgary Alberta with five 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, 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 most recently the Advanced Diving Medicine course in Halifax, Nova Scotia. 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 was elected to the board of the Canadian Undersea and Hyperbaric Medical Association in 2018. In 2010 she successfully passed her Certificate in Travel Health. She has been involved in a number of expeditions and joined the 2019 Sedna Epic Expedition to Norway. In 2015, she was elected to membership in the Explorer's Club. In her spare time, Caroline enjoys photography, yoga, playing golf, and skiing.

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

Two issues I feel are important to champion on the board are 1) starting a blog on the website to engage our members and provide a space for communication and sharing of knowledge. I feel this could be of great value for members to share experiences and gain information from one another. It would be somewhere to share difficult cases and issues surrounding dealing with provincial medical authorities. 2) I would like to see more initiatives to increase exposure of hyperbaric medicine across Canada and legitimize our field in all provinces. I feel it is important to have representation from all areas of the country.



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 has an extensive record in publication and peer review. He currently serves as Editor-in-Chief of the journal *Wilderness & Environmental Medicine* and on the editorial boards of the journals *Diving and Hyperbaric Medicine* and *Environmental, Aviation and Space Physiology*. He also currently serves as secretary 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*.

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

CUHMA is at an important stage where dedicated effort is needed to advance the organization. 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, informing readers about the latest news and research. My first effort would be to continue to develop it as editor. My second would be to continue to foster high quality scientific meetings as another critical tool to promote communication, education, research capabilities, and collaboration. My third would be to promote the professional development of students and young investigators. This will in part include encouraging presentation of new material at CUHMA meetings and peer reviewed publication. It is current content and active efforts that make scientific meetings and scientific organizations compelling.



Mike Hatcher, MD, FRCP
Nominated for Director-at-Large

Born and raised in Newfoundland I started out in marine biology and decided to switch to medicine partway through my degree. I completed my MD at Memorial University of Newfoundland in 1993, followed by the Royal College

training pathway in emergency medicine from 1993 to 1998. I have work full time in emergency medicine since graduation. More importantly, in my mind anyway, I have been a diver since 1984 and trained extensively at the technical level to dive trimix with TDI and technical wreck penetration for doing wreck penetration on mixed gas with NAUL.

I am also certified as an Assistant Instructor with SDI. My first passion is and always has been diving. I have had the great privilege in addition to receiving multiple teaching awards from McMaster University of being the team physician for the Niagara Regional Police Underwater Search and Recovery Unit and the Emergency Tactical Unit. Hopefully, I can bring these perspectives and experience to the board of directors as a member at Large.

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

My first and primary goal with CUHMA is in promoting the education and awareness of emergency medicine physicians and staff concerning diving medicine conditions, especially those in remote or community hospitals. Even those trained formally through the CCFP-EM or FRCPC pathways often do not have a firm grasp on the uniqueness of the diving environment especially now with the proliferation a mixed gas diving to depths beyond 35 m (120 ft). I believe CUHMA is in an excellent position to elevate the level of awareness and improve the safety of all divers whether they are recreational, technical or commercial/occupational divers. In addition to this I would like to see CUHMA take a leading role in changing or educating the culture in commercial diving regarding divers who have had provoked DCS. I have seen firsthand how these divers can sometimes have great difficulty in returning to the water despite being cleared and deemed medically fit to dive. I believe as an organization we can support them and as well elevate the status of female commercial divers in what is typically been a male-dominated profession.

I hope my goals are in keeping with those of the organization and look forward to working with everybody. CUHMA has greatly increased my own personal knowledge and skill set over the past several years and I think there is a lot of good that can be done to improve the lives of all divers in Canada.



Geoff Zbitnew, MD, BSc, FRCPC

Nominated for President-Elect / Director-at-Large

Dr. 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 14 years. In 2019 he completed the Physician Management and Leadership course from the Gardiner Centre and served as Acting Chair for the Memorial Discipline of Anesthesia.

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.

Currently, his practice is limited to monoplace hyperbaric therapy. He is an active member the Memorial anesthesia simulation sub-committee and involved in the hyperbaric emergency team simulation (HETS) pre-course. Geoff has been a member of the Royal College examination board for anesthesiology from 2010-2017. More recently travelling to Kuwait with Royal College International to assist with anesthesiology examinations there. 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 was head of the planning committee for the 2019 annual scientific meeting in St. John's.

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

Since its inception CUHMA has accomplished a great deal, we have an annual accredited scientific meeting for MDs, there is now a Canadian certification in Hyperbaric and Diving Medicine for Canadian physicians through the Royal College AFC program, and we established the hyperbaric emergency teams simulation (HETS) course. We need to ensure that all future meetings have the required accreditation for our affiliate members to maintain their required certification. As a member of the BOD I would strongly champion more hyperbaric team educational activities. Where our community is relatively small nationally I would like to expand our network to increase collaboration between all Canadian chambers, there are still many pockets that are not represented.

I still believe we should be pursuing Canadian hyperbaric treatment guidelines as well as looking at the possibility of a national hyperbaric database. There is a tremendous opportunity to pursue novel research ideas as Canadian

training programs in hyperbaric medicine get underway. A national curriculum could be developed if there was interest amongst the training sites.

As a member of the CUHMA BOD 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.

One of the first activities I would like to see for the new BOD is a strategic planning session to identify goals for CUHMA over the next 5-10 years. These would be circulated to members for feedback and a long-term organizational plan could be developed. I would like to see CUHMA be more than the annual meeting. I would like to see CUHMA become the go to resource for Canadian divers and hyperbaric staff.



Sherri Ferguson, MSc
Nominated for Secretary

Sherri Ferguson is the current Director of the Environmental Medicine and Physiology Unit at Simon Fraser University, and has been with the lab since 2007. She holds a Master of Science degree in Biomedical Physiology, her research focuses on hyperbaric physiology. The lab houses Canada's only civilian hyper/hypobaric research facility in an educational institution. In addition to academic research and industry contracts the lab is accredited by the Divers Certification Board of Canada, and with the National Board of Diving and Hyperbaric Medical Technologists.

She is the current Vice-Chair of the CSA Z275 Technical Committee for the series of standards for diving and hyperbaric operations. She has chaired the sub-committee on work in hyperbaric and compressed air environments since 2013. As Chair she has attended the ASME PVHO committee meetings representing the CSA and liaises with the NFPA standard for hyperbaric operations. She has served as a member of the safety committee for the Undersea and Hyperbaric Medical Society since 2014.

Her history with CUHMA goes back to its inception as the Canadian Chapter of the UHMS and served as the organizations first Treasurer, and later as a member-at-large for a total of eight years of service on the executive. She has been on the organizing committee for the annual meeting seven times, including hosting two meetings. She is the recipient of the James Wilson award and a special

recognition award for her service to CUHMA. She is also the recipient of the Paul Baker award for contributions to hyperbaric safety from the UHMS.

Sherri is an advisor on safety standards to the Canadian Association of Underwater Science and serves on several diving safety committees at various institutions. She is a former Diving Safety Officer at both the University of British Columbia and the University of Victoria.

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

One of the largest obstacles of access to hyperbaric medicine is the lack of provincial health funding for technical staff. Unlike other services such as x-ray, MRI, CT, to name a few that require a trained technician to operate, hyperbaric technicians do not have a billing code for their service. This makes freestanding clinics not profitable for physicians to open and afford the costs of operations and puts small rural hospitals in a position where it is not sustainable within the budget to cover the costs of operating a facility. In Canada we have more off-label clinics without licenced physicians practicing medicine than we do units with licenced trained MDs. I would like to see Canada grow hyperbaric medicine to be able to provide services to the more vulnerable populations in the North. I would like to see the organization coordinate itself to tackle this hurdle that prevents access to hyperbaric medicine.

The second initiative that I would like to champion is to have more involvement at the annual meetings from technical staff, graduate students and residents to be able to present their work in order to foster collaborations and mentorships. Like many other organizations a call for abstracts (not only in our newsletter) with ample time dedicated to their presentations would encourage many institutions to attend and keep our format from becoming old by injecting fresh new faces at the podium.



George Harpur, MD
Nominated for Director-at-Large

George Harpur started diving at age 14 doing construction in the Muskokas. 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 with the Kidd Stubbs team. He had DCS on several occasions during this work but responded well to treatment. 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. 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 52 diving fatalities in Ontario and 29 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, continuing to work to improve the efficient and orderly running of board meetings, and second (and very much a part of the first objective), to assist in insuring that the membership of committees and subcommittees of the board are provided with detailed terms of reference and that their work is accorded appropriate respectful review.



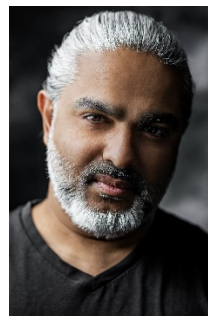
**Mustafa Wahaj, RRT, Hon. BSc, CHT
Nominated for Director-at-Large**

Mustafa is a Core Respiratory Therapist in the Hyperbaric Medicine Unit at Toronto General Hospital, responsible for

the daily management of hyperbaric elective/ emergency patient treatments and overseeing the daily operation of the unit alongside its practice leader. Mustafa obtained his CHT certification from the National Board of Diving and Hyperbaric Medical Technology in 2017 and finished the Safety Director course in 2020. Mustafa is a strong advocate of chamber and patient safety, and he is keenly interested in exploring innovative way in which to continuously improve the patient and staff experience. He has spent time teaching in the Introductory Hyperbaric Medicine course, and has trained as a controller in both multi and monoplace chambers. Mustafa is an active supporter of continued professional development and championing forward-thinking practices for evolving the industry practice. Mustafa has been with the University Health Network since 2014, upon his qualification as a Registered Respiratory Therapist at the Michener Institute. He holds an Hon. BSc in Integrative Biology from the University of Toronto.

Mustafa Wahaj - What are the two most important initiatives you would like to champion as a CUHMA BoD member?

As a CUHMA BoD member I would propose forming a working group with chamber attendants, safety directors and physicians, with an aim of coming to a consensus on different facilities' management techniques for the safety of tenders inside chambers. After this we can develop a set of suggestions that facilities can refer to ensure their staff are safe during and after dives. I would also like to develop a forum on our CUHMA website where members can ask questions regarding practice which can then be discussed and answered as a group.



**Hafeez L. Jamal, hBSc MD CCFP(FPA) FCFP
MES DTMH LEED-AP IIWCC
Nominated for Director-at-Large**

Hafeez Jamal is deeply interested in the relationship between humanity and the sea. He is a PADI Divemaster with experience in coral reef restoration and has worked as a Dive Medic, Divemaster, or Assistant Dive Instructor in Canada, East Africa, Central America, the Maldives, and the Caribbean.

Hafeez's academic career is focused on re-designing the human-nature relationship, with focus on coastal regions. He has postgraduate degrees in Environment & Health,

Ecological Design and Coastal Development, and he is an accredited professional in LEED - leadership in energy and environmental design.

Presently, Hafeez practices anesthesia, hyperbaric and dive medicine, and wound care in Ontario. He is a hyperbaric medical supervisor and wound care specialist at Medical Oxygen Repair. He is a Fellow of the College of Family Physicians of Canada and a graduate of the NOAA Hyperbaric and Dive Medicine Course and the International Interprofessional Wound Care Course.

Hafeez Jamal – Candidacy statement:

I have a vested interest in the professional development of our specialty and I am excited about joining the board of directors at CUHMA. As such, I hope to build on the foundation already laid by my colleagues in fostering solidarity and standardization across Canadian hyperbaric facilities. I believe that solidarity and standardization go hand-in-hand. That through collaboration and sharing of experiences and data, Canadian hyperbaric facilities can support each other towards the consistent application of evidence-based best practices and clinical guidelines across institutional and provincial boundaries. I believe that CUHMA provides the appropriate platform from which to engage in this work, and I believe the association will directly benefit from it.

In addition, with my passions for scuba diving and sustainable development, I am excited to explore and develop the relationships between CUHMA and the myriad associations for dive professionals in Canada – to develop supportive roles for diver safety and also to come together in solidarity to address the various aquatic environmental issues that we face in North America.



Ken LeDez, MD
Nominated for Vice-President

The role of the Vice-President is to assist the President and the Board as needed and directed. In the event that the President is unavailable for any reason the VP must also be prepared to fulfill the responsibilities of the President. As a founder and the first President of our organization I am well prepared and ready to assist as VP and to support the leadership of the incoming elected President, Rita Katznelson. Some brief information about me:

- Associate Professor, Memorial University, NL

- Medical Director, Hyperbaric Medicine Service Staff Anesthesiologist, Eastern Health
- Chair, Hyperbaric Medicine Specialty Committee, Royal College of Physician and Surgeons of Canada, and with strong support from the committee led the successful effort to reform the Royal College AFC Diploma system to ensure equal and fair recognition of family physicians
- Editor and lead author CUHMA standards of practice guidelines
- Medical coverage of offshore saturation diving since 1992
- Former Vice-President of the UHMS
- CSA and ISO standards committees
- Multiple book chapters and peer-reviewed publications
- Co-author of book "Gas bubble dynamics in the human body" (Elsevier)
- HETS and HEPS course faculty – hyperbaric simulation courses
- Initiated and contributed to CUHMA response to COVID pandemic

Ken LeDez – Candidacy statement:

If elected I will support initiatives for long-term strategic planning and other measures to secure and strengthen CUHMA. This type of initiative should involve consulting the membership, enhanced training of board members about the requirements for not-for-profit federal corporations and building constructive respectful relationships on the Board and with all CUHMA members.



Joseph Kay, MD FRCPC
Nominated for Director-at-Large

Joe is a NOAA-UHMS trained diving and hyperbaric medicine physician who works at the Rouge Valley Hyperbaric Medical Centre in Toronto. He also works as an anesthesiologist at Oakville Trafalgar Memorial Hospital, where he was chief of the department for 7 years. He currently has an academic appointment as an Assistant Clinical Professor at McMaster University. He has been a recreational scuba diver since 1984.

He obtained his medical degree from McGill University, followed by a residency in anesthesiology at the University of Toronto, and additional pain subspecialty training at Harvard. He worked as an academic anesthesiologist at Sunnybrook Health Sciences Centre for 18 years, doing clinical research and teaching. During this time, his

academic focus was on postgraduate education and continuing medical education. He initiated and ran a major, award-winning, anesthesia and pain medicine conference, for 20 years. He received the Dr. David Fear Award in 2010, in recognition of outstanding contributions to continuing medical education and continuing professional development at the University of Toronto.

Joseph Kay – Candidacy statement:

As a scuba diver and diving and hyperbaric medicine physician, with extensive experience in organizing continuing medical education, and with leadership experience, I am eager to offer my skills in CPD to the CUHMA Board, specifically in helping to organize the annual meeting. I have already been heavily involved in organizing the 2020 Niagara meeting with Jay MacDonald, before it was postponed to 2021.

The two most important initiatives that I would like to champion as a member of the board of directors are: 1) encouraging collaborative research and 2) improving CPD education through a robust, clinically relevant and exciting annual meeting, and by the creation of an on-line library of practical and useful learning modules and workshops, given by our own experts, in their fields, that are easy for all members to access and use.



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

Dr. 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 most important initiatives you would like to champion as CUHMA BOD member?

As a director-at-large, I will continue my work on clinical practice guidelines, incorporating the knowledge and

experience obtained across the academic and community settings from a multitude of diverse elective and emergency cases. In addition, I strongly believe in the central role that the CUHMA annual scientific meeting plays in advancing knowledge and collaboration within the field of hyperbaric medicine. Following the disruptive hiatus we experienced over the past year in the context of the pandemic, I plan to redouble my efforts in helping bring back a vibrant and uniquely successful scientific program at the upcoming meetings in Ontario.



Julie Malone, RT
Nominated for Treasurer

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) where she spend the last five years in leadership. Julie started training in hyperbaric medicine in 2015, becoming a certified hyperbaric technologist in early 2017. Julie trained as a controller, assistant controller, attendant and is a safety director. Julie recently left UHN to return to the Maritimes and is now the Health Services Manager for the Respiratory Therapy, Pulmonary Function and Hyperbaric Departments for the Central Region of Nova Scotia Health. She has served as CUHMA Treasurer for the past two years. Julie is currently obtaining her Masters of Arts in Leadership at the University of Guelph.

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 to continue to build 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 look for continued funding opportunities to bring further

opportunities to highlight the important work the CUHMA does behind the scene.



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

Dr. Linden is the medical director at the Judy Dan Research & Treatment Centre in Toronto and currently a director-at-large on the Board of CUHMA. He has provided a strong effective voice for hyperbaric medicine and integrity of hyperbaric research.

- 2 terms as President Great Lakes Chapter UHMS.
- Hyperbaric and diving medicine practice for over 30 years, including fitness to dive for recreational, commercial and police divers.
- 2005: Founded Ontario Wound Care Inc. a federally registered charity for HBOT and advanced wound care.
- 2007: Established the Judy Dan Research & Treatment Centre in a Toronto hospital for UHMS-approved conditions.
- Former Chair of the CSA subcommittee on diving and hyperbaric medicine.
- 2010: Co-founder and second president of the Canadian Chapter UHMS (renamed CUHMA in 2015).
- Numerous national and international lectures on HBOT for universities, hospitals, medical societies, colleges, Department of Defense, Ministry of Health, sports organizations and community groups.
- Chair, CUHMA hyperbaric facility accreditation committee.
- Assessor of hyperbaric physicians for College of Physicians and Surgeons of Ontario.
- 2012-2020: Participated in multiple research studies and publications.
- 2007-2012: Key investigator, providing HBOT and wound care in a government funded Toronto study on HBOT for diabetic foot ulcers. Study report and publication claimed no benefit from HBOT.
- 2013-2019: Dissented with report. Reported multiple protocol violations, lack of REB approval for the primary outcome measure, forgery and limbs completely healed, reported as amputated. Successfully exposed study as false and misleading with multiple presentations, to national and international organizations, 2013 UHMS AGM, Ontario Minister of Health and government, resulting in the Government of Ontario cancelling its proposal to delist HBOT for DFU, based upon this research.

- 2018-2020: Vice-President, UHMS
- 2019: Recipient of the Meritorious Service Medal from the Governor General of Canada for work in hyperbaric medicine and research.

Ron Linden - Position statement:

Dr. Linden believes there are two significant issues facing CUHMA;

- The need for accreditation of hyperbaric facilities to ensure safety and quality of care. Accreditation will need to be recognized and supported by the provincial ministries of health.
- The dissemination of false and misleading HBOT research and failure to confront, expose and hold accountable researchers, institutions and journals for misleading the medical profession and public.

As a CUHMA director, he will continue to make these priority issues.



**Daniel Gericke, CHT, DMT-A, LST
Nominated for Director-at-Large**

Daniel Gericke began his career in the South African Navy Marines and Diving Unit specializing in and teaching underwater explosive clearance diving and disposal. Taking a keen interest in HBOT and its applications he went on to direct the South African Navy decompression chamber program and began treating hyperbaric therapy patients. In 2000, Daniel founded the first multiplace hyperbaric medical centre in South Africa at Saint Augustine's Hospital in Durban and later in 2005 opened a sister monoplace facility at Milpark Hospital in Johannesburg.

In 2006, Daniel accepted the position of Safety Director at the Bermuda Hospitals Board where in 2011 the Island's Multiplace facility achieved its first international safety accreditation. Under Daniel's stewardship and commitment to safe diving in this active community, King Edward Memorial Hospital Hyperbaric Center was chosen as a DAN Preferred Provider Facility. Daniel was nominated as DAN International's Top Instructor Trainer in 2010. He also occupied the position of Technical and Safety Director at the Judy Dan Research & Treatment Centre in Toronto. In 2019, Daniel worked part time as CHT at the Rouge Valley Hyperbaric Centre in Scarborough Toronto.

He has served two terms as Secretary of CUHMA and participated in putting together the CUHMA guidelines to the practice of hyperbaric medicine in Canada. Daniel has also been part of the planning committees for CUHMA

conferences. He has maintained his membership in South Africa's SAUHMA. He has given courses and talks on hyperbaric medicine in South Africa, Bermuda and Canada, including at Simon Fraser University.

Daniel and cofounder Deane Nesbitt Jr. have now organized Gericke-Nesbitt Inc. to provide hyperbaric services to the public and to work with research institutions to find ways hyperbaric medicine might help with conditions other than the 14 conditions officially recognized.

Daniel Gericke - Candidate statement:

Having a military background and being a trained mixed-gas and bell commercial diver helped me give back, in serving the diving community.

With the support of my family and many people, I was instrumental in the establishment of three hospital-based HBO facilities. I do understand the pressures and workings of running a hyperbaric facility. This can be a valuable asset when serving on the CUHMA board.

I am a champion for hyperbaric safety and I assisted Mr. Francois Burman with several hyperbaric clinic risk assessments. Hyperbaric safety is the cement that keeps us and our patients safe. I was fortunate to participate in helping bring to life the CUHMA guidelines on the practise of hyperbaric medicine in Canada, thanks to Dr. Ken LeDez.

I have served two terms as CUHMA Secretary and have been part of the planning committees for the Toronto and the recently cancelled Hamilton CUHMA conferences. I am currently still a SAUHMA (South Africa Undersea and Hyperbaric Association) member.

I feel strongly that CHTs and hyperbaric support staff have to have a voice on the CUHMA board. I would like to be that voice on the board for the backbone people who run hyperbaric clinics safely for their doctors. Taking care of the patients in hyperbaric facilities is what adds the most value to hyperbaric centres. This is how we will grow this important limb and lifesaving modality in Canada.



Ray Janisse RRT, CHT, Charge Therapist, Safety Director

Nominated for Director-at-Large

Ray Janisse has been a member of Team UHN at the University Health Network –Toronto General Division for over 31 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 (RTD) 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 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 four years and I am seeking re-election. During my term, I have been part of the faculty at our CUHMA annual scientific conferences and have provided continuing education to conference attendees at our hyperbaric emergency training simulation event. 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 our CUHMA practice guidelines while being an active member on the Canadian Standards Association committee for hyperbaric medicine in Canada.



Joanne Provencher, MD

Nominated for Director-at-Large

My name is Joanne Provencher. I have worked at Hôtel-Dieu de Lévis hyperbaric unit since January 2017. I am a family physician who graduated from Laval University in 1995 and got a certificate in emergency medicine in 2002. I have been working at Institut de Cardiologie et de Pneumologie de Québec (IUCPQ) since 1998 in the emergency department where I was head of department from 02/2012 to 12/2015. My past experience as a military medical officer has taken me in Central Africa to establish a medical evacuation program for our troops while in mission and that interest in aviation medicine led me to work in aeromedical evacuation in Quebec since January 2000. I am currently an instructor for CAMATA (Canadian Aerospace Medicine and Aeromedical Transportation Association).

My interest in scuba diving, diving medicine and hyperbaric medicine pushed me to undertake two level 2 courses in diving medicine, one from the Canadian point of view with the first cohort of the program completed in Halifax in May 2019, and one from the international point of view through a program in South Africa in October 2018.

Being a mother of four children with a professional life has made me an efficient person, able to accomplish my work with efficacy and in an organized manner. My favorite hobbies aside from scuba diving are travelling and hiking.

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

As a CUHMA BOD member, one of the things that is very important to me is the recognition of hyperbaric medicine and diving medicine as a specific certification by the College of Family Physicians of Canada. I would like the process to get such a certification to be more accessible to family physicians without having to go through the process with the Royal College of Physicians. Also, I think hyperbaric and diving medicine should be more extensively understood by our colleagues from different specialties so I would like to be able to be part of the solution to make that happen.



Deryck Kelly, RT
Nominated for Director-at-Large

Deryck Kelly is a registered respiratory therapist, working both clinically and in hyperbaric medicine at the QEII Health Sciences Centre in Halifax, Nova Scotia. He

graduated from Dalhousie University in 2009 with a Bachelors of Health Science in Respiratory Therapy, and went to further pursue a specialty in anesthesia holding his Certified Clinical Anesthesia Assistant (CCAA). Deryck has been working clinically for 12 years, and within that time has practiced in various areas including ambulatory care, critical and primary care, general OR, obstetrics, and regional anesthesia. He is an active participant of the Nova Scotia College of Respiratory Therapists (NSCRT), sitting as a member of the credentials committee. The committee is responsible for overseeing the eligibility of applications for registration and renewals referred by the registrar, and development of improved processes in regards to registration and continuing competency. Deryck is a strong advocate of the respiratory therapy profession, from the patients whom he cares for, to the interdisciplinary team he has the privilege of working with.

Deryck Kelly - What are the most important initiatives that you would like to champion as a CUHMA BOD member?

The two most important initiatives that I would like to champion as a member of the 2020-2022 CUHMA BoD are to: 1) assist in developing a National Standard of Practice and 2) help improve public awareness and promotion of hyperbaric oxygen therapy. As a member of the board, my goals would include working on developing a national standard of practice. This collaboration among hyperbaric facilities would be beneficial to providing clarity and consistency in therapeutics among its members, resulting in high quality patient-centered care. I also feel that the umbrella of hyperbaric medicine is under-represented, both within the general public as well as other fields of the medical profession. I wish to develop ways to promote public awareness, and to strengthen interdisciplinary relationships within the medical field, both from a therapeutic standpoint as well as in research.



Debbie Pestell, MD, CCFP
Nominated for Director-at-Large

Dr. Debbie Pestell joined the Canadian Forces in 1990 under the Medical Officer Training Plan. She graduated from McMaster University Medical School in 1993 and boarded in Family Medicine in 1995. After four years as a Ship's Medical Officer in Victoria, BC with deployments to the Middle East and Asia, she completed a master's degree

in Public Health and a fellowship in Diving and Hyperbaric Medicine with the US Air Force in San Antonio, TX and the US Navy in Panama City Beach, FL. Dr. Pestell returned to Canada in 2001 where she spent five years at DCIEM in Toronto, ON providing medical support to the Experimental Diving Unit, teaching courses in diving and aviation medicine, and serving on the NATO Underwater Diving Working Group. In 2006, she was posted to Halifax, NS as the Consultant in Submarine and Diving Medicine. She provided medical consulting services to divers and submariners, served as the course director for the international Submarine Medicine Course for naval physicians, and represented Canada on the medical panel of the NATO Submarine Escape and Rescue Working Group.

Since retiring from the Canadian Forces as a Lieutenant Commander in 2011, Dr. Pestell has worked as a Diving and Hyperbaric Medicine Consultant at the QEII Health Sciences Centre in Halifax, Nova Scotia. She also provides medical support to the commercial diving community in the Maritimes, trains physicians in diving medicine through Undersea Medicine Canada, and lectures at national and international medical conferences in diving and hyperbaric medicine. She continues to serve in the Reserves.

Debbie Pestell - What are the most important initiatives you would like to champion as CUHMA BOD member?

1) I would like to see the CUHMA website expanded to include more articles on current issues in diving and hyperbaric medicine that affect the specialty in Canada, as well as a password-protected member's section where archived documents can be stored for the use of the CUHMA membership, and where a blog-style forum can be developed for discussion of challenging issues and cases in diving and hyperbaric medicine amongst colleagues.

2) I would like to be involved in developing a fellowship-style training program in Atlantic Canada where physicians can complete the requirements needed to obtain the new Royal College Fellowship in Hyperbaric/Diving Medicine.

UPCOMING EVENTS

UHN Introductory Hyperbaric Medicine Course

The University Health Network, Toronto General Hospital, course runs November 24-28. The program is suitable for physicians and other health professionals looking to become CHT certified or obtain Level 1 certification. It is accredited by the Undersea and Hyperbaric Medical Society for 40 CME credits, and by the National Board of Diving and Hyperbaric Medical Technology for 40 CME credits. For more information and registration:

https://www.uhn.ca/Surgery/Treatments_Procedures/Hyperbaric_Medicine_Unit#tab4

RECENT PUBLICATIONS

Andren J, Bennett MH. An observational trial to establish the effect of hyperbaric oxygen treatment on pelvic late radiation tissue injury due to radiotherapy. *Diving Hyperb Med.* 2020;50(3):250-5.

Introduction: Rates of pelvic cancer are growing globally with around half of these patients receiving radiotherapy. In a small proportion, radiotherapy results in significant late radiation tissue injury (LRTI) to surrounding tissue, most commonly affecting the bladder and bowel mucosa. We conducted a combined prospective and retrospective observational trial to establish the effectiveness of hyperbaric oxygen treatment (HBOT) in improving the symptoms and signs of LRTI in these patients. Methods: Fifty-two patients were included after receiving radiotherapy for cancers of the bowel, bladder, cervix, prostate or vulva. They received HBOT at 203-243 kPa (2.0-2.4 atmospheres absolute (atm abs)) for 90 minutes with the median number of treatments being 30 (IQR 1). Late effects normal tissues - subjective, objective, management, analytic (LENT-SOMA) scores were recorded before and after treatment. Results: The mean LENT-SOMA scores before and after HBOT were 11.7 (SD 5.3) and 8.1 (5.1) respectively. This reduction in score of 3.7 (95% CI 2.6 to 4.8) was statistically significant (P<0.001). For radiation cystitis the mean reduction was 3.7 (95% CI 2.4 to 5.0, P<0.001) and for radiation proctitis was 3.8 (95% CI 1.4 to 6.1, P=0.004). There were no significant adverse effects recorded. Conclusions: Hyperbaric oxygen treatment may be an effective and safe treatment for pelvic late tissue radiation injury

Clark R. Monoplace chamber treatment of decompression illness: review and commentary. *Diving Hyperb Med.* 2020;50(3):264-72.

This paper summarises the history and capabilities of monoplace chambers in treatment of decompression illness (DCI); both in support of diving operations and in the hospital setting. In the field, monoplace hyperbaric chambers provide victims of DCI immediate access to recompression in settings where traditional multiplace chambers are not available. Alternatively, they may facilitate pressurised transport to a multiplace chamber for continued management. Recently, collapsible lightweight versions have improved suitability for field deployment aboard small vessels in remote settings, and for use by less technically capable military, occupational and civilian operators. The resulting elimination of treatment delays may prove lifesaving and central nervous system sparing, and avoid subsequent diving fitness disqualification. Monoplace chambers thus facilitate diving operations that would otherwise be difficult to condone on health and safety grounds. The 1960s saw the introduction of multiplace hyperbaric chambers into the hospital setting, as a number of non-diving conditions appeared to benefit

from hyperbaric oxygen. This coincided with interest in hyperbaric oxygen as a solid tumour radiation sensitiser. Development of a novel acrylic-hulled single occupancy chamber enabled patients to undergo radiotherapy while pressurised within its oxygen atmosphere. Increasing numbers of health care facilities adopted this chamber type as a more economical, less complex alternative to the multiplace chamber. Incorporation of relevant biomedical technologies have allowed monoplace chambers to support increasingly complex patients in a safe, effective manner. Despite these advances, criticism of medical centre-based monoplace chamber treatment of DCI exists. This paper evaluates this controversy and presents relevant counter-arguments.

Coleman B, Davis FM. Dysbaric osteonecrosis in technical divers: the new 'at-risk' group? *Diving Hyperb Med.* 2020;50(3):295-9.

Introduction: Dysbaric osteonecrosis (DON) in people working under increased atmospheric pressure is well documented. It is generally less common in military and commercial divers than in caisson workers, except in some high-risk groups, such as in many indigenous diving industries where workers have little or no understanding of decompression principles. With the increasing popularity within the recreational diving community of deep air and mixed-gas decompression diving ('technical diving'), it is likely that diving physicians may see an increase in the prevalence of DON in this group in the future. **Methods:** The case report is presented of a technical diving instructor, with a 30-year history of deep diving, who developed bilateral humeral head DON and required a right shoulder hemi-arthroplasty. A focused literature search was also undertaken to identify published cases of DON in recreational divers. **Results:** The frequency, duration and depth of exposure to pressure, inadequate decompression, the occurrence of DCS and increasing age have been common features associated with DON in both divers and caisson workers. Many of these features were present in this technical diver. **Conclusions:** Whilst DON is uncommon in recreational air scuba divers, all the above risk factors are present to a greater degree in technical diving. It is suggested that medical review for DON is merited from time to time in this potentially high-risk group of recreational divers

Gorenstein SA, Castellano ML, Slone ES, et al. Hyperbaric oxygen therapy for COVID-19 patients with respiratory distress: treated cases versus propensity-matched controls. *Undersea Hyperb Med.* 2020;47(3):405-13.

Objective: Given the high mortality and prolonged duration of mechanical ventilation of COVID-19 patients, we evaluated the safety and efficacy of hyperbaric oxygen for COVID-19 patients with respiratory distress. **Methods:** This is a single-center clinical trial of COVID-19 patients

at NYU Winthrop Hospital from March 31 to April 28, 2020. Patients in this trial received hyperbaric oxygen therapy at 2.0 atmospheres of pressure in monoplace hyperbaric chambers for 90 minutes daily for a maximum of five total treatments. Controls were identified using propensity score matching among COVID-19 patients admitted during the same time period. Using competing-risks survival regression, we analyzed our primary outcome of inpatient mortality and secondary outcome of mechanical ventilation. **Results:** We treated 20 COVID-19 patients with hyperbaric oxygen. Ages ranged from 30 to 79 years with an oxygen requirement ranging from 2 to 15 liters on hospital days 0 to 14. Of these 20 patients, two (10%) were intubated and died, and none remain hospitalized. Among 60 propensity-matched controls based on age, sex, body mass index, coronary artery disease, troponin, D-dimer, hospital day, and oxygen requirement, 18 (30%) were intubated, 13 (22%) have died, and three (5%) remain hospitalized (with one still requiring mechanical ventilation). Assuming no further deaths among controls, we estimate that the adjusted subdistribution hazard ratios were 0.37 for inpatient mortality ($p=0.14$) and 0.26 for mechanical ventilation ($p=0.046$). **Conclusion:** Though limited by its study design, our results demonstrate the safety of hyperbaric oxygen among COVID-19 patients and strongly suggests the need for a well-designed, multicenter randomized control trial.

Hampson NB. Carbon monoxide poisoning while scuba diving: a rare event? *Undersea Hyperb Med Third.* 2020;47(3):487-90.

Contamination of breathing gas is a risk for all divers. Some hydrocarbon contaminants will be sensed by the diver and the dive profile aborted. On the contrary, carbon monoxide may not be recognized by the diver and catastrophic consequences can result. Reported here is the fatal case of carbon monoxide poisoning while scuba diving, an event that has rarely been reported in the medical literature. A detailed review of other published cases of CO poisoning while scuba diving is included, attempting to identify causes in common and propose methods of prevention.

Jepson N, Rienks R, Smart D, Bennett MH, Mitchell SJ, Turner M. South Pacific Underwater Medicine Society guidelines for cardiovascular risk assessment of divers. *Diving Hyperb Med.* 2020;50(3):273-7.

The South Pacific Underwater Medicine Society (SPUMS) diving medical for recreational scuba divers was last reviewed in 2011. From 2011 to 2019, considerable advancements have occurred in cardiovascular risk assessment relevant to divers. The SPUMS 48th (2019) Annual Scientific Meeting theme was cardiovascular risk assessment in diving. The meeting had multiple presentations updating scientific information about assessing cardiovascular risk. These were distilled into a

new set of guidelines at the final conference workshop. SPUMS guidelines for medical risk assessment in recreational diving have subsequently been updated and modified including a new Appendix C: Suggested evaluation of the cardiovascular system for divers. The revised evaluation of the cardiovascular system for divers covers the following topics: 1. Background information on the relevance of cardiovascular risk and diving; 2. Defining which divers with cardiovascular problems should not dive, or whom require treatment interventions before further review; 3. Recommended screening procedures (flowchart) for divers aged 45 and over; 4. Assessment of divers with known or symptomatic cardiovascular disease, including guidance on assessing divers with specific diagnoses such as hypertension, atrial fibrillation, cardiac pacemaker, immersion pulmonary oedema, takotsubo cardiomyopathy, hypertrophic cardiomyopathy and persistent (patent) foramen ovale; 5. Additional cardiovascular health questions included in the SPUMS guidelines for medical risk assessment in recreational diving; 6. Updated general cardiovascular medical risk assessment advice; 7. Referencing of relevant literature. The essential elements of this guideline are presented in this paper.

Mao JZ, Laird PS, Imperato NS, Knepley KD, Khan A, Agyei JO, O'Connor TE, Pollina J, Mullin JP. Utilization, utility and variability in usage of adjunctive hyperbaric oxygen therapy in spinal management: a review of the literature. World Neurosurg. 2020 Sep 1;S1878-8750(20)31842-8.

The objective of this review was to understand the clinical utilization, utility, and variability in the usage of adjunctive HBOT. Surgical site infection is associated with high morbidity and mortality, increased healthcare expenditure, and decreased quality of life. With the increasing prevalence of adult spinal deformity and spinal fusion surgery, it is imperative to understand the potential benefits of adjunctive treatments. Hyperbaric oxygen therapy (HBOT) is a safe and common procedure indicated to treat various medical conditions. To do this, we conducted a literature search across 3 databases for English articles published between 12/1/2000 and 12/1/2019. Thirteen studies were included. HBOT may lessen the duration of antimicrobial therapy and mitigate instrument removal and revision surgery. The current usage indications for HBOT are supported by level III evidence for chronic osteomyelitis and level IV evidence for osteoradionecrosis. However, the same level of evidence exists to support the beneficial use of adjunctive HBOT for non-complicated spinal infections within 2 months post-surgery. When cultured, the most common organism was *Staphylococcus aureus* and other low-virulence organisms. The most common treatment protocol consists of 90-minute sessions of 100% F₁O₂ at 2-3 absolute atmospheres with a mean of 35.3±11.6 sessions

for 5.2±1.4 weeks. Adjunctive HBOT should be considered in select high-risk patients. Further improvements in diagnosis and categorization of spinal infections are necessary and will indelibly aid the decision making for the initiation of HBOT.

Sellman A, Katzman P, Andreasson S, Löndahl M. Long-term effects of hyperbaric oxygen therapy on visual acuity and retinopathy. Undersea Hyperb Med. 2020;47(3):423-30.

Hyperbaric oxygen (HBO₂) therapy is an adjunct treatment for diabetic foot ulcers. Since plausible mechanisms of action for this treatment include increased angiogenesis and high tissue oxygen concentrations, concerns about deterioration of retinopathy have been raised. The aim of this study was to evaluate the effects of HBO₂ on visual acuity (VA) and retinopathy in patients with chronic diabetic foot ulcers during a two-year follow-up period. This is a randomized, single-center, double-blinded and placebo-controlled clinical trial evaluating the effects of HBO₂ in patients with diabetes mellitus and chronic foot ulcers. All study participants underwent an ophthalmological examination before the first study treatment and then at three, six, 12 and 24 months. Fifty patients with a median age of 67 years were included. Visual acuity was similar between groups and did not change during the two-year observation period. No differences in retinopathy were seen between groups; neither were any differences found in numbers or areas of bleedings, hard exudates, microaneurysms or edemas, nor between groups or visits. New clinically significant macular edema was identified in four eyes in the HBO₂ group and in three eyes in the placebo group. In this population of diabetic foot ulcer patients HBO₂ seems to be neutral in an ophthalmological perspective. From a retinal point of view, we could not identify any indication of harmful effects of HBO₂ on the microvascular bed in the placebo group.

Tsur N, Bar R, Hilly O, Handzel O. Balloon Eustachian tuboplasty in a professional Navy SEAL diver: case report. Undersea Hyperb Med. 2020;47(3):467-70.

Middle ear barotrauma due to dilatory Eustachian tube dysfunction (ETD) is probably the most common medical disorder related to diving. Moreover, ETD makes divers prone to other diving-related accidents, including inner ear barotrauma and alternobaric vertigo. Until the development of Eustachian tube balloon dilation no diving-compatible surgical options existed to effectively and safely prevent recurrence. We present a case of an Israeli Navy SEAL diver who dives in extreme strenuous combat-related closed-circuit rebreather (CCR) dives. Due to repeated middle ear barotrauma, the patient underwent Eustachian tube balloon dilation of the affected side. Following surgery, the patient returned to both CCR and scuba dives but still suffered from middle ear symptoms and repeated

barotrauma hence was eventually disqualified from further combat diving.

Ureña KGC, Nava JCR, Celedonio FGM, Nolasco OIS, Domínguez JEV, Crespo-Cortés CN. Clinical efficacy of adjuvant therapy with hyperbaric oxygen in diabetic nephropathy. Undersea Hyperb Med. 2020;47(3):415-22.

Background and objective: Diabetic kidney disease (DKD) is the most common microvascular chronic complication of diabetes mellitus. Hyperbaric oxygen (HBO₂) therapy will increase the partial pressure of oxygen (P_aO₂) and may improve cell repair processes, which can lead to better renal function. The objective of this study was to quantify the efficacy of adjuvant HBO₂ to increase the glomerular filtration rate and urinary albumin excretion in diabetic patients, as well as determine its effectiveness to modify the clinical course of DKD. Materials and methods: An experimental study was performed on patients with stage 3 and 4 DKD. Twenty sessions of HBO₂ or ambient air in a hyperbaric chamber were administered. Estimated glomerular filtration rate, urine albumin:creatinine ratio calculation and clinical stage stratification were made prior to and after HBO₂ administration. A descriptive, inferential and clinical efficacy analysis was performed. Results: Urinary albumin/creatinine (UACR) mean values prior to HBO₂ were 1452.9±644.3 mg/g and decreased to 876.1±504.0 mg/g at the end of the study (p=0.06). The patients in the control group showed a UACR mean of 2784.5±2128.6 mg/g and 2861.4±2424.2 mg/g at baseline and at the end of the study, respectively (p=0.82). Patients in the experimental/HBO₂ group showed an estimated GFR of 27.3±9.5 mL/min /1.73m² before HBO₂, with a 34.4±6.9 mL/min/1.73m² after treatment (p=0.017); control group eGFR was 30.1±9.2 mL/min/1.73m², decreasing to 22.2±6.8 mL/min/1.73m² (p=0.004). Relative risk 0.00, relative risk reduction -100%, absolute risk reduction -71.4%, 95% CI (-104.9% to -38.0%), NNT 1, 95% CI (1 to 3). Conclusions: Management with HBO₂ for DKD was associated with decreased excretion urinary albumin, improved GFR and clinical stage of patients in stages 3 and 4 of kidney damage unlike those receiving ambient air.

Villela MA, Wever-Pinzon O, Parikh M, Deru K, Muhlestein JB, Anderson JL, Weaver LK. Patterns of cardiac dysfunction after carbon monoxide poisoning. Undersea Hyperb Med. 2020;47(3):477-85.

Objective: To describe the structural sequelae of carbon monoxide (CO) poisoning on the heart assessed using stress cardiac MRI (CMR). CO poisoning is common. While acute cardiac injury is frequent among survivors, the mid- and long-term effects of CO on the myocardium are unclear. Methods: CMR studies performed between the years 2005 and 2014 for a primary diagnosis of CO poisoning at a tertiary care center were reviewed by an experienced cardiologist. Variables of interest were

compared between patients with normal and abnormal studies to identify factors associated with cardiac dysfunction. Results: Eighty-eight patients underwent stress CMR, age 34 years (range 11-70); 49% were male, 74 had acute poisoning and 14 had chronic poisoning (CO exposure for longer than 24 hours). Time from CO poisoning to imaging was 24 months (1 day-120 months). Patients were stratified into four categories, which included those with acute poisoning imaged: ≤12 months; 12-60 months; >60 months from the event; and those with chronic poisoning. Overall, 26 studies (30%) were abnormal. The most common findings were: left ventricular systolic dysfunction in 14 patients, right ventricular systolic dysfunction in nine, and LV dilatation in six. Abnormalities were mild in most cases and were equally prevalent in all four patient categories. Dyspnea at the time of follow-up was more frequent among those with abnormal studies. Conclusion: Mild alterations in ventricular structure and function are frequent in survivors of CO poisoning. Myocardial scarring is rare, suggesting that acute hypoxic injury may not fully explain these abnormalities.

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

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