CUHMA ACMHS
Canadian Undersea and Hyperbaric Medical Association
Association Canadienne de Médecine Hyperbare et Subaquatique

E-NEWS

The E-News is the monthly newsletter of CUHMA, the primary outlet to share news/announcements, upcoming events, abstracts of recent publications, job postings, professional perspectives, and images of relevant professional scenes. Submission of applicable content is welcome. New issues are released on the last business day of each month. Past issues are available at https://cuhma.ca. Direct correspondence to info@cuhma.ca.

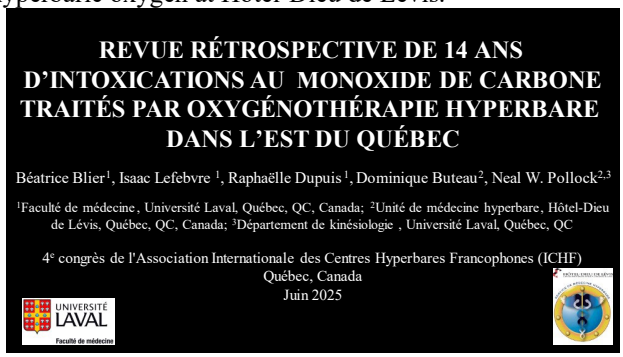
Neal W. Pollock, PhD
Université Laval

NEWS/ANNOUNCEMENTS

ICHF Biennial Congress Completion

The International de Centres Hyperbares Francophones conference was held June 08-10 in Quebec, QC. A total of 84 delegates came from 12 countries. Six workshops addressed a range of clinical topics and a creative session on conducting rescues in small boats.

The 34 conference presentations covered a wide range of topics and provided a great showcase of local student activity. The Swiss Society of Hyperbaric Medicine bestowed the best trainee presentation award on Dr. Béatrice Blier, a medical resident at Université Laval, for her review of 500 cases of carbon monoxide poisoning treated with hyperbaric oxygen at Hôtel-Dieu de Lévis.



Presentations by local medical student on carbon monoxide levels in field environments and on the evaluation of an autofluorescence tool to aid in evaluation of chronic wounds were also well received.

The local organizational leads were Dr. Dominique Buteau and Josh Boisvert, both recognized at the conclusion of the program for their highly successful efforts. Conference sponsors included CUHMA and Dr. George Harpur.

UPCOMING EVENTS

CUHMA Online Safety Seminar

Tuesday July 29 at 1930 Eastern Time

Cultural Sensitivity in Healthcare

Cultural sensitivity in healthcare is essential for providing equitable and effective patient care. It involves understanding and respecting diverse cultural beliefs, practices and values that influence health behaviors and decision making. By demonstrating cultural sensitivity, health care providers can build trust, improve communication, and reduce disparities, ensuring that patients feel valued and understood. Often a significant barrier to this understanding is communication. Sometimes it is a language barrier and sometimes it is a cognitive issue. This presentation will address ways to adapt the typical "cookbook" approach to care planning making sure

the patient understands and agrees with the plan of care and the risks and benefits utilizing the "ASK" techniques and where needed medical interpreters.

Speaker Bio

RB "Gus" Gustavson has been involved in healthcare for over 56 years, initially as a respiratory therapist and then as a nurse specializing in hyperbaric medicine and wound healing. This experience includes 23 years in the Navy Reserve. As a UHMS accreditation surveyor, he has surveyed hyperbaric medicine programs in the United States and internationally. He serves or has served on multiple UHMS committees and on the NFPA Technical Committee on Hyperbaric and Hypobaric Facilities. His education includes an Associate of Science Degree in Nursing, a Bachelor of Science Degree in Management, and a Master of Public Health with honors in epidemiology. He completed additional graduate studies in ethics and policy studies and in education. He is a Certified Hyperbaric Registered Nurse Clinician, Certified Hyperbaric Technologist (Admin), and Certified Respiratory Therapist, and is certified in Hyperbaric Safety by the Hyperbaric Certification Commission. He is currently self-employed as a consultant in hyperbaric medicine education, implementation, and operations and teaches introductory classes in hyperbaric medicine, hyperbaric safety and cultural sensitivity in healthcare.

CUHMA Online Safety Seminar Series

This series explores key safety considerations in the practice of undersea and hyperbaric medicine. It provides relevant safety updates to support CUHMA members in maintaining the highest standards of patient and worker safety. There is no cost to participate for CUHMA members.

This session is under review by the National Board of Diving & Hyperbaric Medical Technology (NBDHMT) for 2 Category A credits.

https://mun.webex.com/mun/j.php?MTID=mabf3a46fc7d8a54e171004f583966205

EUBS Annual Scientific Meeting 2025

The annual scientific meeting of the European Underwater and Baromedical Society will be held September 02-06 in Helsinki, Finland. Information will be posted on the dedicated conference website: www.eubs2025.com.

Canadian Association of Wilderness Medicine 2025

CAWM is a non-profit organization with the goal of connecting Canadian practitioners and researchers with an interest in wilderness medicine, and in promoting the field as an area of focus and specialization. The sixth annual conference - Prepared for the Unpredictable: Advancing Medicine in the Wild - will be held October 03-05 in Canmore, AB and virtually in a hybrid format. Visit: https://cawm.ca/cawm2025-2.

Brazilian Congress of Hyperbaric Medicine 2025

The 10th Brazilian Congress of Hyperbaric Medicine & 2nd Brazilian Congress of Hyperbaric Medicine will be held October 16-18 at the Hotel Laghetto Viverone in the Serra Gaúcha region of Brazil. The conference will address six main areas: maritime medicine, diving, hyperbaric oxygen therapy, safety in maritime environments, safety in hyperbaric environments, and wound care. Visit: https://sbmh.com.br/evento/10o-congresso-brasileiro-de-medicina-hiperbarica-2o-congresso-brasileiro-de-medicina-maritima.

RECENT PUBLICATIONS

Abdelhakim H, Hebishy A, Shune L, McGuirk J, Baran A, Allin D, Mina A, Aljitawi OS. Impact of hyperbaric oxygen on post-UCB transplant blood transfusion and growth factor support. Transfus Apher Sci. 2025 Jun 19;64(4):104176. doi: 10.1016/j.transci.2025.104176.

Objectives: This study seeks to evaluate time to packed red blood cell (PRBC) and platelet independence and growth factor use for the HBO study population in comparison to historic UCB transplant data from the same institution. Background: Umbilical cord blood (UCB) transplantation is limited by low stem/progenitor cell numbers and impaired homing, causing delayed engraftment and higher rates of engraftment failure, which increase post-transplant transfusion needs. Hyperbaric oxygen (HBO) therapy has shown to improve engraftment and blood count recovery in animal models and initial human trials. Methods/materials: Fifteen subjects underwent HBO therapy at the University of Kansas Cancer Center (KUCC) after reduced intensity conditioning (RIC) or myeloablative conditioning (MAC) regimens in preparation for UCB transplantation. Six hours following HBO therapy, they received single or double UCB units. Patient records were reviewed for post-transplant PRBC and platelet transfusion requirements and for growth factor use. One HBO patient was excluded from this analysis due to graft rejection and autologous recovery. These were compared to standard UCB recipient requirements from previous KUCC patients. Results: In the first 100 days post-transplant, HBO patients required fewer consecutive days of G-CSF support and achieved PRBC and platelet independence significantly faster than standard group patients. By days 66 and 74, 100% of HBO patients were PRBC and platelet independent, respectively, compared to 67.4% and 65.1% in the standard group by day 100. Conclusion: HBO-therapy may offer a potential improvement in growth factor support and TTI in adult patients undergoing UCB transplantation.

Allocco A, van Waart H, Connell CJ, Wong NY, Charukonda A, Gant N, Vrijdag XC, Mitchell SJ. An unblinded training exposure to hypoxia enhances subsequent hypoxia awareness. Diving Hyperb Med. 2025;55(2):136-44. doi: 10.28920/dhm55.2.136-144.

Introduction: Malfunctions and human errors in diving rebreathers can cause hypoxia, hyperoxia, and/or hypercapnia. We evaluated whether a prior unblinded hypoxia experience enhances a diver's ability to recognise hypoxia and initiate self-rescue. Methods: Forty participants were randomised to receive either an information leaflet describing hypoxia symptoms or an unblinded hypoxia experience, prior to a blinded hypoxia testing exposure during a virtual reality dive over one month later. The primary outcome was the comparison of the proportion of participants in these two groups who initiated self-rescue before reaching a peripheral oxygen saturation of 70% in the blinded exposure. An individual's 'symptom profile' was assessed by comparing symptoms during the unblinded hypoxia experience and blinded testing exposures. Results: During the blinded hypoxia testing exposure, 18/20 (90%) participants in the hypoxia experience group performed a self-initiated rescue compared to 6/18 (33%) in the information leaflet group (P <0.001). Participants in the information leaflet group had lower mean S_pO_2 (73.4% vs 81.4%, mean difference 8% [95% CI=2.5-13.5%, P=0.005]) and lower inhaled oxygen fraction (7.6% vs 9.4%, mean difference 1.8% [95% CI=0.6-3.1%, P=0.005]) at self-rescue. The most frequent and severe symptoms were light-headedness and shortness of breath. Of the 20 participants completing both hypoxia exposures, 14 (70%) had a consistent hypoxia symptom profile, which was not related to the ability to recognise hypoxia. Conclusions: Self-rescue was approximately three times more likely for participants who had previously experienced hypoxia compared to simply receiving information on relevant symptoms. Most participants exhibited a consistent pattern of individual symptoms, which did not result in earlier or improved detection of hypoxia.

Blake DF, Crowe M, Lindsay D, Turk R, Mitchell SJ, Pollock NW. Oxygen treatment and retrieval pathways of divers with diving-related conditions in Townsville, Australia: a 15-year retrospective review. Diving Hyperb Med. 2025;55(2):79-90. doi: 10.28920/dhm55.2.79-90.

Introduction: First aid for injured divers includes oxygen delivery prior to definitive care. Delay to specialist assessment and/or hyperbaric oxygen treatment (HBOT) may be due to dive site remoteness and limited access to facilities. Townsville has the only hyperbaric facility along the Great Barrier Reef. Analysis of oxygen therapy and retrieval pathways of divers treated in Townsville may assist with establishing future education strategies and resource allocation. Methods: Data were retrospectively collected on divers assessed at the Townsville hyperbaric medicine unit from November 2003 through December 2018. Demographics, dive incident location, oxygen treatment, retrieval platform and pathway, and initial disease grade were reviewed. Data are presented as frequencies and percentages. Results: A total of 306 cases were included (184 males). Divers typically received oxygen therapy (87%, 267/305 known) prior to specialist review. The non-rebreather mask was the most frequently used (44%, 28/63) followed by in-water recompression (24%, 15/63). While 34% of the divers were retrieved from the scene (n=104), only 11 (11%, 11/104) were retrieved directly to Townsville. Most divers initially classified as severe were retrieved from the scene (82%, 27/33), only two directly to Townsville. Fifteen cases had three retrieval legs (5%, 15/306). Conclusions: Most injured divers received oxygen first aid and were transported to Townsville for definitive care with a variable number of retrieval stages. Continuing education of retrieval physicians should address knowledge of diving related injuries and highlight cases that may benefit from expedited transfer.

Bonner LB, Sadler C, Lindholm P, Scholtens DM, Dulai PS; HBOT-UC Consortium. Hyperbaric oxygen therapy for ulcerative colitis patients hospitalized for moderate to severe flares (HBOT-UC): study protocol for a multi-center, randomized, double-blind, sham-controlled trial. Trials. 2025;26(1):220. doi: 10.1186/s13063-025-08932-5.

Background: Chronic intestinal hypoxia and accompanying mucosal inflammation is a hallmark of ulcerative colitis. Hyperbaric oxygen therapy involves breathing 100% oxygen under increased atmospheric pressure to increase tissue oxygenation. It reduces systemic and local inflammation and up-regulates hypoxia response pathways, making it an attractive therapeutic option. In this trial we aim to confirm the treatment benefits of hyperbaric oxygen therapy for hospitalized ulcerative colitis patients and assess the long-term durability of treatment effect. Methods: This prospective, double-masked, multicenter, 1:1 randomized, sham-controlled trial will enroll 126 participants with known or newly diagnosed ulcerative colitis hospitalized for an acute moderate to severe flare. Participants will be randomized to either hyperbaric oxygen therapy with steroids or sham air with steroids. The trial will involve a 5-day intervention period followed by a 12-month observational period with a 90-day standard of care visit and 12-month telephone visit. The primary outcome measure is clinical response defined as complete resolution of rectal bleeding and improvement in stool frequency, without need for in-hospital biologics, small molecules, or colectomy by study day 5. Secondary endpoints include additional key patient-reported outcomes and histo-endoscopic measures of disease activity. Discussion: Novel and effective treatments are needed for this population to optimize disease outcomes while minimizing treatment-related risks. Demonstrating the

ability of hyperbaric oxygen therapy to improve clinical response to steroids and avoid in-hospital rescue therapy has the potential to change the management of hospitalized ulcerative colitis flares. Trial registration: ClinicalTrials.gov NCT05987852. Registered on August 14, 2023.

Canarslan-Demir K, Yel AK, Aydin G, Zaman T. Healing fragile bones: a case report on hyperbaric oxygen therapy in pycnodysostosis. Diving Hyperb Med. 2025 Jun 30;55(2):191-4. doi: 10.28920/dhm55.2.191-194.

Pycnodysostosis is a rare lysosomal storage disorder characterised by short stature, craniofacial dysmorphisms, dental anomalies, and increased bone fragility due to osteoclast dysfunction caused by cathepsin K gene mutations. This case report describes a 43-year-old female pycnodysostosis patient with recurrent subtrochanteric fractures and delayed bone healing following multiple surgical interventions, including femoral osteotomy and bone grafting. Despite these efforts, bony union was not achieved. The patient underwent 39 sessions of hyperbaric oxygen therapy (HBOT), administered at 243.2 kPa for 120 minutes daily, five days per week. Post-treatment radiographs revealed significant fracture healing, with improvements continuing one month after therapy. Visual analogue pain scores decreased from 4 to 1, and quality of life (SF-36) improved. HBOT enhances tissue oxygenation, stimulating osteogenesis, neovascularization, and immune responses, while optimising osteoclast function, making it a promising treatment for pycnodysostosis-related fracture complications. Although ideal, a controlled trial of HBOT in this rare disorder is probably unachievable. Nevertheless, this report highlights HBOT as a potentially useful adjunctive treatment for enhancing healing of refractory fractures in pycnodysostosis patients.

D'hoore L, Germonpré P, Rinia B, Caeyers L, Stevens N, Balestra C. Effect of normobaric and hyperbaric hyperoxia treatment on symptoms and cognitive capacities in Long COVID patients: a randomised placebo-controlled, prospective, double-blind trial. Diving Hyperb Med. 2025 Jun 30;55(2):104-13. doi: 10.28920/dhm55.2.104-113.

Introduction: Long COVID syndrome is a major health issue. Multiple treatments have been proposed but efficacy is inadequately investigated. Hyperbaric oxygen therapy (HBOT) has been promoted based on a small number of publications. As there is potential for a placebo effect and the financial cost of HBOT is high, we sought to investigate the effects of HBOT in Long COVID in a randomised trial. Methods: We randomised 101 patients into four treatment groups, receiving 10 sessions of oxygen 'treatment' inside a pressure chamber, according to one of four modalities: A: 100% O_2 at 253 kPa (2.5 atmospheres absolute); B: 40% O_2 at 253 kPa; C: 100% O_2 at 101.3 kPa (1 atmosphere absolute); and D: 21% O_2 at 101.3 kPa. Groups B and C thus received a similar effective oxygen dose of 101.3 kPa. Quality of life symptom scores (Visual Analogue Scale; EQ-5D-5L, C19-YRSm), a 6-minute walking test and five neurocognitive tests were administered before and after the treatment series. At three months post-treatment, a telephone questionnaire probed for lasting effects. Results: All groups were comparable with regards to demographics, Long COVID symptoms and severity. After treatment, there were no significant differences in subjective symptoms, functional scores, and cognitive performance between any groups. The response to treatment was highly variable, with some patients in even the 'placebo' group D reporting a significant improvement in their well-being. This was not reflected in any objective outcome scores. No subgroups of patients responded better to any of the treatments. Conclusions: There was no significant effect from different doses of oxygen in a hyperbaric chamber. It is possible that the very modest improvements reported in other studies were due to a placebo effect. Claims that HBOT has a significant effect on Long COVID need further investigation before indiscriminately prescribing or promoting HBOT.

Gouin E, Monnot DPM, Michot T, Guerrero F, Blatteau J-E. Diving practices in technical divers' community and behaviour towards self-reported unusual symptoms. Diving Hyperb Med. 2025 Jun 30;55(2):114-25. doi: 10.28920/dhm55.2.114-125.

Introduction: The use of gas mixtures containing helium for deep recreational diving is increasingly common, involving complex logistics and decision-making compromises. The characteristics and inherent risks of this practice remain poorly documented. This study aims to provide an epidemiological inventory of practices and diving-related incidents within the technical diving community. Methods: An international online survey was disseminated on social networks targeting certified trimix divers. It collected demographic data, diving experience, and dive management practices, along with self-reported unusual symptoms, treatments, and outcomes following trimix dives. Results: A total of 558 questionnaires were analysed, predominantly from males (92%), mostly over 46 years old (61%), with high certification levels and recreational diving purposes. Forty-two percent reported one or more medical risk factors related to diving. Rebreather use was prevalent (79% at least occasionally). Decompression was primarily managed using compartmental models (85%) with gradient-factors adjustment. Dive planning varied significantly among individuals. Gas density at depth frequently exceeded the current recommendations. Ten percent had experienced symptoms suggestive of gas toxicity, mainly related to nitrogen narcosis. Thirty-six percent (199/558) reported experiencing, at least once, symptoms of diving-related incidents, with 61% (n = 121/199) expressing certainty. In

48% (120/261) of incidents involving decompression sickness (DCS) or breathing symptoms, no treatment was initiated. Among episodes involving DCS symptoms (n = 254), 42% received normobaric oxygen, and 23% sought medical advice, while 16% were treated with hyperbaric oxygen. Only 2.5% reported probable long-lasting sequelae. Conclusions: The diversity of practices highlights the lack of robust scientific data supporting them. The accident rate in mixed-gas diving may be higher than in typical scuba air diving, though mostly of mild severity. Treatment appears to be neglected despite divers' high knowledge levels. Continued research into decompression and the physiological effects of these dives is essential, along with ongoing awareness and education efforts in diving first aid within this exposed community.

Kouki N, Messelmani M, Moncef A, Guediche NE, Mrissa NF, Gharsallah H, Zaouali J. Brain under pressure: Insights into diving-related lesions: a descriptive study. J Neurol Sci. 2025 May 19:474:123553. doi: 10.1016/j.jns.2025.123553.

Background: Diving-related injuries remain as a significant health threat, when involvement of the central nervous system (CNS). Decompression sickness (DCS), particularly type II involving neurological symptoms, can lead to brain lesions though specific patterns. Objective: This study aims to characterize the clinical and radiological features of brain involvement in diving-related injuries, with a focus on corpus callosum lesions. Methods: We conducted a retrospective study from 2011 to 2023 in the neurology department of a military hospital in Tunis, including divers with acute neurological injuries. Data were collected on diving history, clinical presentations, and radiological findings. MRI protocols included T1, T2, FLAIR, gradient echo, and diffusion-weighted imaging (DWI) sequences. Results: Among 41 enrolled patients, 10 exhibited cerebral involvement, all male professional divers with a mean age of 41 years. Symptoms manifested within 10 min of surfacing in 65.8 % of cases and included sensory-motor deficits, vertigo, and headache. MRI revealed diverse patterns: corpus callosum hyperintensities on T2 FLAIR in five cases, an acute ischemic stroke in one patient, and punctiform or nodular lesions in others. DWI abnormalities suggested both cytotoxic and vasogenic edema. Conclusion: Cerebral DCI presents with variable clinical and radiological patterns. Corpus callosum involvement is a hallmark finding, reflecting its vulnerability to ischemia and vasogenic edema. Early detection through a detailed clinical examination allows targeted follow up and recompression therapy. Future research should focus on integrating clinical and imaging data to identify prognostic factors and improve management strategies.

Manheim M, Mogilevsky L, Geva A, Zehavi G, Knoll O, Gur I. Effects of hyperbaric oxygen therapy initiation latency on auditory outcomes following acute acoustic trauma. Diving Hyperb Med. 2025 Jun 30;55(2):126-35. doi: 10.28920/dhm55.2.126-135.

Introduction: Hyperbaric oxygen (HBO) is a potential adjunct treatment to improve hearing following acute acoustic trauma. However, the optimal time frame for HBO initiation has not been elucidated. Methods: Patients exposed to intense noise as part of active military service that met our audiometric criteria were referred for combined HBO (253 kPa for 80 min, treatment numbers titrated to response) and corticosteroid treatment. The primary outcome was defined as an improvement of at least 10 dB in any of the measured high pure tone frequencies (3, 4, 6 or 8 kHz). Additional outcomes included the absolute change in high pure tone (3, 4, 6 and 8 kHz) summation (HPTS), relative change in HPTS compared to baseline (rHPTS) and the proportion of patients returned to auditory combat readiness. Results: Of 129 ears (103 patients) included in the final analysis, 59/67 (88%) of the patients treated within seven days but only 14/25 (56%) of patients treated 21 days or more from exposure met the primary outcome (Bonferroni adjusted P=0.002). Similarly, HPTS improvement (55 dB vs -5dB), rHPTS improvement (55% vs 3%) and return to combat readiness (32/56 (57%) vs 3/20 (15%)) were significantly (P<0.001, P<0.001 and P=0.017, respectively) more pronounced in patients treated earlier. These results were unchanged despite adjusting to age, degree of initial hearing loss and the mechanism of injury. Conclusions: Early initiation of HBO following acute acoustic trauma is associated with improved response to therapy. The optimal treatment latency appears to be within seven days from injury, with response rates dropping when treatment is delayed beyond three weeks.

Meijering JR, Risvanoglu N, Nederhoed JH, Hoencamp R, van Hulst RA, Ubbink DT. Shared decision-making when considering hyperbaric oxygen therapy: a systematic review. Diving Hyperb Med. 2025 Jun 30;55(2):180-5. doi: 10.28920/dhm55.2.180-185.

Introduction: Hyperbaric oxygen therapy (HBOT) is a treatment modality used for various non-acute medical conditions, ranging from ischaemic diabetic ulcers to late post-radiation damage. Despite its wide application, HBOT is often time-consuming, requires multiple sessions, and can be physically and psychologically challenging for patients, contributing to high drop-out rates. In addition, treatment results can vary significantly. These challenges suggest the need for more patient-centred approaches, such as shared decision-making (SDM), to improve patient engagement, satisfaction, and adherence to treatment. SDM, which involves patients in the decision-making process, could potentially improve outcomes and reduce dropout rates. This systematic review presents currently available evidence on the extent of SDM in patients eligible for HBOT. Methods: A comprehensive literature

search was conducted in the Medline, Embase, TRIP and Cochrane Central databases, from inception up to 29 August 2024, to find all studies with original data on SDM when considering HBOT as a treatment option. Study selection was conducted by two reviewers independently. Desired study outcomes were the application and observed levels of SDM. Results: The search yielded 988 articles of which 24 appeared eligible. After assessing the inclusion criteria and outcomes in the full text articles, zero remained for inclusion: none reported on patient involvement in the decision-making process regarding HBOT. However, six articles did mention that SDM should be an important element when developing clinical practice guidelines for HBOT. Conclusions: Despite the obvious need for preference-sensitive decision-making in HBOT, there is no scientific evidence available on this topic. Possibly, physicians and patients consider HBOT as a last-resort or even the only treatment option. Consequently, involving the patient's preference regarding HBOT in the decision-making process is rarely documented. Hence, more awareness of the need for SDM is advocated when considering HBOT, which should be corroborated by research in this area.

Querido AL, Wingelaar TT. Psychosis and diving. Diving Hyperb Med. 2025 Jun 30;55(2):173-9. doi: 10.28920/dhm55.2.173-179.

Psychotic disorders, characterised by impaired reality testing and a spectrum of symptoms, present significant challenges in assessing fitness for diving. While diving can be a safe and rewarding activity, the unique physiological and environmental stresses of hyperbaric conditions can exacerbate psychotic vulnerability or mimic psychotic symptoms. This article reviews the literature on psychosis and diving, exploring the implications of psychotic disorders, psychotropic medications, and hyperbaric effects. It highlights the critical importance of illness insight, the absence of comorbid conditions, and complete remission in determining diving fitness. Key recommendations include avoiding deep dives, careful evaluation of medication use, and a nuanced differentiation between chronic and transient psychoses. By synthesizing existing evidence, this article aims to guide diving medicine professionals in making informed decisions about psychosis and diving suitability.

Schmitz G. Comparison of three infusion pumps as an option for intensive care treatments in monoplace hyperbaric chambers. Diving Hyperb Med. 2025 Jun 30;55(2):145-53. doi: 10.28920/dhm55.2.145-153.

Introduction: Hyperbaric oxygen therapy (HBOT) is used in critical care for managing certain severe conditions. However, the reliability of infusion pumps under hyperbaric conditions remains a critical concern. This study evaluated the performance of three infusion pump models - the Mindray BeneFusion VP5, Baxter Flo-Gard 6201, and Braun Infusomat Space - under hyperbaric conditions. Methods: Infusion pumps were modified to deliver flow into an environment pressurised up to 284 kPa. Accuracy of flow delivered into a pressurised monoplace chamber were tested across a range of infusion rates (1-100 $mL \cdot h^{-1}$), with different absolute chamber pressures during the iso-pressure phase (243-284 kPa) and a range of different pressurisation/decompression rates (6.9-34.5 $kPa \cdot min^{-1}$). Results: More than 3.6 million measurements were obtained. At iso-pressure the Mindray BeneFusion VP5 and the Baxter Flo-Gard 6201 under-performed at low infusion rates (<20 $mL \cdot h^{-1}$) and over-performed at high infusion rates (>20 $mL \cdot h^{-1}$). Both models exhibited significant under-delivery during pressurisation and over-delivery during decompression. For all conditions the Mindray BeneFusion VP5 demonstrated superior performance. The Braun Infusomat Space was unsuitable for hyperbaric use, failing to maintain performance at pressures above 90 kPa. Conclusions: The Mindray BeneFusion VP5 outperformed the Baxter Flo-Gard 6201 and Braun Infusomat Space under hyperbaric conditions, offering enhanced reliability for critical care HBOT using monoplace chambers. Clinical protocols should prioritise pumps capable of maintaining flow accuracy during pressure fluctuations. These findings inform best practices for infusion pump use in hyperbaric intensive care, addressing a critical gap in HBOT safety and efficacy.

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.

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