

Curriculum Vitae

Alan M. Steinman MD, MPH, FACPM
Rear Admiral, USPHS / USCG (RET)

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Present Positions: *Consultant: Hypothermia, Water Survival and Cold Weather Medicine;
*Professional Associate in the Health, Leisure and Human Performance
Research Institute, University of Manitoba;
*Broadcast and print media consultant on hypothermia, water survival
and cold weather medicine;
*Executive Advisory Council, Mission: Readiness

Date of Birth: 7 February 1945

Education: Massachusetts Institute of Technology
Bachelor of Science, 1966.

Stanford University School of Medicine
Doctor of Medicine, 1971

Mayo Graduate School of Medicine
Post-Graduate Year I (medicine/surgery), 1972

U.S. Navy School of Aerospace Medicine
U.S. Navy Flight Surgeon, 1973

University of Washington
Occupational Medicine Residency 1984-1986
Master of Public Health, 1986

Professional Certification: Board Certified in Occupational Medicine, 1988
Fellow, American College of Preventive Medicine, 1989

Previous Positions: Member: Presidential Special Oversight Board for Department of
Defense Investigations of Gulf-War Chemical and Biological Incidents,
July, 1998 - January, 2001

Director of Health and Safety, U. S. Coast Guard
U. S. Coast Guard Headquarters
Washington, DC
August, 1993 to September, 1997

Chief, Wellness Branch
Office of Health and Safety
U.S. Coast Guard Headquarters
Washington, DC
February, 1991 to August, 1993

Chief, Medical Branch
Division of Commissioned Personnel
Office of the Surgeon General
U.S. Public Health Service
Rockville, MD
February, 1990 to February, 1991

Deputy Director of Medical Affairs
Office of Surgeon General
U.S. Public Health Service
September, 1989 to February, 1990

Chief, Clinical and Preventive Medicine
U.S. Coast Guard Headquarters
April, 1987 to September, 1990

Medical Officer and Flight Surgeon
USCG Support Center, Kodiak, AK
January-May, 1987

Medical advisor for search and rescue operations,
Search and Rescue Division, Office of Operations
USCG Headquarters
1982-1984

Chief of Special Medical Operations Branch
Operational Medical Division, Office of Health Services
USCG Headquarters
1978-1982.

Senior Medical Officer and Flight Surgeon
USCG Group Astoria, OR
1976-1978

Senior Medical Officer and Flight Surgeon
USCG Group Port Angeles, WA
1974-1976

Senior Medical Officer and Flight Surgeon
USCG Air Station, Cape Cod, MA
1973-1974

Senior Medical Officer
Support Center Elizabeth City, NC
July-September, 1972.

Professional
Licenses and
Certificates:

Commissioned Officer, USPHS, 1972 to 1997
State Medical Board of Washington, 1974 to present
Professional

Organizations:

American College of Preventive Medicine
American Occupational Medicine Association

Professional Achievements

2015: Consultant to U.S. Coast Guard and National Association of Boating Law Administrators on hypothermia, immersion in ice water and ice rescue at the 1st Biennial International Ice Rescue Operations & Training Meeting, Bay City, MI.

2016, 2011, 2007, 2001, 1995, 1989: Co-authored the chapter on Immersion Hypothermia in the medical textbook Wilderness Medicine - Management of Wilderness and Environmental Emergencies, 2nd - 7th editions (see publication section).

2013: Consultant to U.S. Coast Guard in revising the sea survival and hypothermia sections of the Rescue and Survival Systems Manual.

2012: Consultant to U.S. Coast Guard for development of a new International Post-Incident Survival Evaluation form and website to gather data on survival incidents in cold-water, warm-water, and land survival episodes, as well as for bridge jumpers and submerged automobile incidents.

1998-2012: Consultant to U.S. Department of Justice re hypothermia, drowning and cold-water immersion.

2010: Consultant to U.S. Marine Corps Mountain Warfare Training Center, Pickle Meadow, CA re hypothermia, and cold-water immersion.

2009-2010: Consultant to Popular Mechanics Magazine on issues of hypothermia and drowning.

2006: Consultant and participant, U.S. Coast Guard Workshop on Survivability of Distressed Mariners, USCG R&D Center, New London, CT.

2005: Consultant and participant in University of Alaska / U.S. Coast Guard / University of Manitoba video production on water survival and hypothermia.

2005: Consultant and participant in the Great Lakes Beach and Pier Safety Task Force / video production on water safety and hypothermia.

2003-2004: Served as advisor on hypothermia, near-drowning and water survival to the U.S. Public Health Service for publication of its medical text, Ship's Medicine Chest.

2003-2004: Co-investigator on a U.S. Coast Guard research project to evaluate the effect of head-cooling on mental status, cognitive impairment and core temperature during immersion in cold-water while wearing various types of flotation devices; University of Manitoba.

2002: Invited participant and panel moderator at the World Congress on Drowning, Amsterdam, Netherlands.

2002 – present: Provided medical consultations to CBS Television, Discovery Channel and National Geographic channel for issues relating to sea-survival, hypothermia and drowning.

2001-present: Scientific advisor on drowning, hypothermia and sea-survival to the U.S. Coast Guard for: 1) accident investigation; 2) revision of water survival and survival time sections of official Coast Guard publications; 3) cold-water survival training and research studies.

1998-2001: Served as the only medical member of a Presidential Board, chaired by Senator Warren Rudman (R-NH), overseeing the Department of Defense investigations into Gulf War Illnesses. Authored the medical sections of the Board's Final Report, presented to the Secretary of Defense in December, 2000.

2000: Served as technical consultant to the United States Coast Guard for the development of software to estimate cold-water survival time. The Coast Guard uses these survival time estimates in search and rescue operations. The survival time estimates are based in part on data from my human subject hypothermia research.

2000: Member of International Advisory Committee for Harvard University's IFISH Conference, Woods Hole, MA, October, 2000.

1999: Technical consultant for an article on sea-survival in National Geographic Adventure magazine, March/April 2000.

1999: Technical consultant for article on drowning resuscitation for Funworld Magazine, a publication written for owners, managers and life-guards at aquatic recreational parks.

1993-1997: Served as Director of Health and Safety (equivalent to the Surgeon General) of the United States Coast Guard; managed a comprehensive health care program for over 160,000 beneficiaries with a budget of over \$250,000,000. Served as Director of the Coast Guard's Safety and Environmental Health programs, which included serving as chief advisor to the Commandant of the Coast Guard on matters of sea survival, medical aspects of search and rescue, cold-weather protective clothing, and environmental medicine.

1991 to 1993: Designed and implemented a Coast Guard wellness program for all Coast Guard beneficiaries and employees, including the establishment of a wellness training program for Coast Guard counselors, publication of a weekly Wellness Bulletin, complete revision of the Coast Guard physical fitness programs for recruits and officer candidates, implementation of an aggressive anti-tobacco program, and revision of the menus for all Coast Guard dining facilities.

1986: Co-authored the section on hypothermia for the Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC). This section served as part of the national CPR guidelines from 1986-1992 (see publications section).

1986: Designed and coordinated a realistic test of rescue capabilities following a simulated multi-victim vessel mishap in Puget Sound. This experiment involved City of Seattle and Coast Guard rescue resources to evaluate the response to a ferryboat disaster.

1986: Tested a prototype one-man liferaft in rough seas. The results of this study were used to accelerate the acquisition of this raft for both Coast Guard and Navy helicopter crewmen.

1984-1986: Developed criteria and procedures for human subject testing of protective clothing and flotation equipment in rough seas. All previous environmental testing of survival equipment had been conducted in laboratory tanks or in calm water.

1984-1986: Performed the only realistic, rough-sea tests, to date, of U.S. Coast Guard and U.S. Navy immersion protective clothing. These tests permitted a more accurate evaluation of garment performance and allowed a more accurate estimation of survival times for crewmen of aircraft or vessel mishaps in heavy seas. The results of this research led to revisions of the survival tables used by both the Coast Guard and the U.S. Air Force. This research won the 1989 Arnold D. Tuttle Award from the Aerospace Medical Association for "contributions toward the solution of a challenging problem in Aerospace Medicine."

1983-1984: Co-designed the anti-exposure, fire-retardant protective clothing used by Coast Guard helicopter crewmen in cold-weather operations.

1983: Performed the human-factors evaluation of the prototype Coast Guard 30-foot Surf Rescue Boat. This evaluation resulted in improvements in both the rescue capability of this vessel and in crew habitability.

1980-1983: Co-developed an underwater escape breathing device for use by Coast Guard helicopter pilots and crewmen trapped within capsized or submerged aircraft.

1979-1982: Designed and supervised the implementation of a servicewide emergency medical services system for Coast Guard search and rescue operations, including the establishment of the EMT training school, the development of standardized emergency medical equipment for vessel and aviation use, the implementation of a data collection system, and the establishment of a Coast Guard EMT Qualification code.

1976-1978: Co-designed an inhalation-rewarming device for treating hypothermic patients transported during Coast Guard rescue operations.

1977: Served as the physician member of a three-person team of Department of Health and Human Services advisors to improve emergency medical services in Egypt, including the on-site establishment of EMT training programs in Cairo and Alexandria.

Honors and Awards

Letter of Appreciation from President Clinton for distinguished service on the Presidential Oversight Board for Department of Defense Investigations on Gulf War illnesses, 2000.

U.S. Coast Guard Distinguished Service Medal, May, 1997 for "exceptionally meritorious and distinguished services in the duties of Coast Guard Director of Health and Safety."

U.S. Public Health Service Surgeon General's Medallion, July, 1997, for "exceptional service in providing medical and health care to the United States Coast Guard."

U.S. Armed Forces Legion of Merit, October, 1993, for "exceptional service in providing medical and health care to the United States Coast Guard."

U.S. Public Health Service Unit Commendation, July, 1992, for serving as one of the "few committed and dedicated physicians willing to [spend time] at the Uniformed Services University of Health Sciences interviewing medical school applicants for the University."

U.S. Public Health Service Unit Commendation, January 1992, for serving as Medical Faculty during the National Disaster Medical System-RCSU Summer Exercise.

U.S. Coast Guard Achievement Medal, March, 1991, for "superior performance of duty as a member of the Coast Guard's special Health Care Delivery Systems Study."

U.S. Coast Guard Meritorious Service Medal, 1990, for "outstanding history of service to the Coast Guard from July, 1972 to September, 1989."

Arnold D. Tuttle Award, 1989, from the Aerospace Medical Association: "Awarded for original research that has made annually the most significant contribution toward the solution of a challenging problem in Aerospace Medicine."

Arthur S. Flemming Award, 1981. "Awarded to the top ten young federal employees." In recognition of my contributions in operational medicine to the U.S. Armed Forces.

U.S. Public Health Service Commendation, 1978. For on-site technical assistance in establishing a system of emergency medical services in Cairo and Alexandria, Egypt.

U.S. Coast Guard Commendation Medals, 1975 and 1978. For advancements in the fields of hypothermia resuscitation and emergency medical services.

First prize in the annual A.E. Bennet competition for Research in Biological Psychiatry. 1969: "Epinephrine metabolism and formation in the mammalian brain."

Publications

Immersion in Cold Water. Giesbrecht G, Steinman A. In: **Wilderness Medicine**. 7th edition. Auerbach P, editor. C.V. Mosby, St. Louis, 2016, in press.

Comparison of Distal Limb Warming with Fluidotherapy and Warm Water Immersion for Mild Hypothermia Rewarming. Parveen K, McDonald GK, Chitkara R, Steinman AM; Gardiner PF. *Wilderness and Environmental Medicine* 2015 26: 406-411.

Pre-hospital Management of Immersion Hypothermia. M.B. Ducharme, A.M. Steinman, G.G. Giesbrecht. In: **Drowning: Prevention, Rescue, Treatment**. 2nd Edition. Editors: Bierens JJ, et al., Springer-Verlag, Heidelberg, 2014

Medical Aspects of Transgender Service. Elders M, Brown GR, Coleman E, Kolditz TA, Steinman AM. *Armed Forces and Society*, August 19, 2014: 1-22.

Comparison of heat donation through the head or torso on mild hypothermia rewarming. Bhupinder JKS, Sran BPT, McDonald, GK, Steinman AM, Gardiner PF, Giesbrecht GG. *Wilderness and Environmental Medicine* 2014 25: 4-13.

Pre-hospital Management of Immersion Hypothermia. M.B. Ducharme, A.M. Steinman, G.G. Giesbrecht. In: **Handbook on Drowning: Prevention, Rescue, Treatment**. 2nd Edition. Editors: Bierens JJ, et al., Springer-Verlag, Heidelberg, 2012.

Immersion in Cold Water. Giesbrecht G, Steinman A. In: **Wilderness Medicine**. Sixth edition. Auerbach P, editor. C.V. Mosby, St. Louis, 2011.

The four stages of cold-water immersion. Steinman A, Giesbrecht G. *On Scene-The Journal of USCG Search and Rescue*, COMDTPUB P16100, Spring, 2011.

Signs of Hypothermia and Cold-Water Shock. Dr. Alan Steinman. In: **Seamanship Secrets: 185 Tips & Techniques for Better Navigation, Cruise Planning, and Boat Handling Under Power Or Sail**. John Jamieson. McGraw Hill, 2009.

Hypothermia, Drowning, and Cold-Water Survival, RADM Alan M. Steinman, U.S. Coast Guard Passenger Vessel Safety Program, <http://www.uscg.mil/pvs/docs/Coldwater1.pdf>, 2008.

Immersion in Cold Water. Giesbrecht G, Steinman A. In: **Wilderness Medicine**. Fifth edition. Auerbach P, editor. C.V. Mosby, St. Louis, 2007.

Prehospital Management of Immersion Hypothermia. Ducharme M, Steinman A, Giesbrecht G. In: **Handbook of Drowning; Prevention, Rescue, Treatment**. Bierens JJLM, editor. Springer-Verlag Publications, Berlin, 2006

The four stages of cold-water immersion. Steinman A, Giesbrecht G. On Scene-The J of USCG Search and Rescue, COMDTPUB P16100.4, Fall 2006.

Thermal effects of whole head submersion in cold water on non-shivering humans. Pretorius P, Bristow GK, Steinman AM, Giesbrecht GG. J. Appl. Physiol. 2006 Apr, 101: 669-675.

Thermal effects of dorsal head immersion in cold water on nonshivering humans. Giesbrecht GG, Lockhart TL, Bristow GK, Steinman AM. J. Appl. Physiol. 2005 Nov, 99(5): 1958-64.

Life jacket design affects dorsal head and chest exposure, core cooling, and cognition in 10 °C water. Lockhart TL, Jamieson CP, Steinman AM, Giesbrecht GG. Aviat Space and Environ Med 2005 Oct, 76(10): 954-62.

Pre-hospital Management of Immersion Hypothermia. M.B. Ducharme, A.M. Steinman, G.G. Giesbrecht. In: **Handbook on Drowning: Prevention, Rescue, Treatment**. Editors: Bierens JJ, et al., Springer-Verlag, Heidelberg, 2005.

The facts about falling into cold water. RADM Alan M. Steinman. Editorial in The Standard-Times, Bedford, MA, 14 February 2005.

Flotation Posture in the Design of Personal Flotation Devices: The Effects of Dorsal Head Cooling on Core Temperature and Mental Performance, A.M. Steinman, et al; Final Technical Report for the U.S. Coast Guard, 2004.

Immersion Hypothermia, Near-Drowning and Water Survival. Steinman, A. In: **The Ship's Medical Chest and Medical Aid at Sea**. 2003 edition. U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2004.

Cold-Water Immersion. Steinman A, Giesbrecht G. In: **Wilderness Medicine**. Fourth edition. Auerbach P, editor. C.V. Mosby, St. Louis, 2001.

Overview of Health Effects. In: **Final Report: Special Oversight Board for Department of Defense Investigations of Gulf War Chemical and Biological Incidents**. December, 2000. U.S. Department of Defense.

The Role of Stress as a Contributing Factor in Gulf War Undiagnosed Illnesses. In: **Final Report: Special Oversight Board for Department of Defense Investigations of Gulf War Chemical and Biological Incidents**. December, 2000. U.S. Department of Defense.

Cold-Water Immersion. Steinman A, Hayward J. In: **Management of Wilderness and Environmental Emergencies**. Third edition. Auerbach P and Gehr E, editors. C.V. Mosby, St. Louis, 1995.

Protective clothing in cold water survival. Steinman A. In: Myers ML, Klatt ML eds. **Proceedings of the National Fishing Industry Safety and Health Workshop**. Anchorage, AK: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. DHHS (NIOSH) Publication No. 94-109, 1994.

Cold-Water Immersion. Steinman A, Hayward J. In: **Management of Wilderness and Environmental Emergencies**. Second edition. Auerbach P and Gehr E, editors. C.V. Mosby, St. Louis, 1989.

Contributor to: **Improving Transportation for a Maturing Society**, U.S. Department of Transportation, (DOT-P10-97-01), January 1997.

Pre-hospital management of immersion hypothermia. Steinman A. **Emergency Care Quarterly** 4(3):33-37; 1988.

Immersion hypothermia: comparative protection of anti-exposure garments in calm vs. rough seas. Steinman A, Hayward J, Nemiroff M and Kubilis P. **Aviation, Space and Environmental Medicine** 58:550-8; 1987.

Prehospital management of hypothermia: rescue, examine, insulate and transport. Steinman A. **Journal of Emergency Medical Services**, 1987.

Adverse effects of heat and cold on military operations: history and current solutions. Steinman A. **Military Medicine** 152(8): 389-92; 1987.

Prehospital management of hypothermia. Steinman A. **Response** 6:18, 1987.

Cardiopulmonary resuscitation and hypothermia. Steinman A. **Circulation** 74(6):29-32; 1986.

Survival at sea: the effects of protective clothing and survivor location on core and skin temperature (abstract). Steinman A, Kubilis P. **Annals of Physiological Anthropology** 5(3):158; 1986.

A comparison of protection against immersion hypothermia provided by Coast Guard anti-exposure clothing in calm vs. rough seas (abstract). Steinman A, Hayward J, Nemiroff M and Kubilis P. **Annals of Physiological Anthropology** 5(3):156; 1986.

Heat balance wearing anti-exposure suits in warm conditions (abstract). Nunneley S, Steinman A, Krock L. **Aviation, Space and Environmental Medicine** 57(5):500; 1986.

Special resuscitation situations (hypothermia). In: Standards and guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC). **Journal of the American Medical Association** 255(21):2931; 1986.

Immersion hypothermia. Steinman A. **Proceedings of the 1986 Wilderness Medicine Symposium**, University of Washington School of Medicine; 1986.

Survival at sea: the effects of protective clothing and survivor location on core and skin temperatures. Steinman A, Kubilis P. U.S. **Department of Transportation Report No. CG-D-26-86, NTIS No.A175316**, November 1986.

A comparison of the protection against immersion hypothermia provided by Coast Guard anti-exposure clothing in calm vs. rough seas. Steinman A, Nemiroff M, Hayward J, Kubilis P. U.S. **Department of Transportation Report No. CG-D-17-85, NTIS No. AD A158413**, June 1985.

Pre-hospital management of hypothermia: rescue, examine, insulate, transport. Steinman A. **Proceedings of the 1985 Mountain Medicine Symposium**, University of California, Davis School of Medicine; 1985

Environmental Emergencies (contributing editor) In: **Emergency Medical Care, A Manual for the Paramedic in the Field**. National Highway Traffic Safety Administration, U.S. Department of Transportation, 1984.

A few more thoughts on water survival. Steinman A. **On-Scene National Maritime Search and Rescue Review**, 3:14, 1984.

A few thoughts on water survival. Steinman A. **On-Scene National Maritime Search and Rescue Review**, 2:12, 1984.

The hypothermic code: CPR controversy revisited. Steinman A. **Journal of Emergency Medical Services**. 10:32-35; 1983.

Emergency medical services in U.S. Coast Guard search and rescue operations. (abstract). Steinman, A. **Proceedings of the 1979 Aerospace Medical Association Scientific Meeting**.

Accidental hypothermia: an experimental study of practical rewarming methods. Collis M, Steinman A, Chaney R. J. **Aviation, Space and Environmental Medicine**. 48:625-632; 1977.

Immersion hypothermia. Steinman A, Parris J. **Emergency** 9:24-28; 1977.

Accidental hypothermia: an experimental study of inhalation rewarming. Hayward J, Steinman A. **Aviation, Space and Environmental Medicine**. 46:1236-1240; 1975.

Epinephrine formation and metabolism in mammalian brain. Barchas J, Ciaranello R, Steinman A. **Biological Psychiatry**. 1:31-48; 1969. (This paper was awarded 1st Prize in the A.E. Bennett Neuropsychiatric Research Competition).

Epinephrine metabolism in mammalian brain after intravenous and intraventricular administration. Steinman A, Smerin S, Barchas J. **Science** 165:616-617; 1969.

Presentations

Hypothermia, Drowning and Water-Survival, Cruise Club of America, Seattle Yacht Club, Seattle, Washington, June, 2016.

Hypothermia, Drowning and Water Survival, to Boy Scout troop staying aboard historic vessel USCG Cutter Comanche, Tacoma, WA, November, 2015.

Hypothermia, Drowning and Water-Survival, Washington State Marine Law Enforcement Conference, Tacoma, WA, September, 2015.

Keynote Address at 1st Biennial International Ice Rescue Operations & Training Meeting, February 26, 2015, Bay City, MI.

Hypothermia and Cold-Water Survival, Washington State Civil Air Patrol, Renton, WA, 2013.

Drowning, Hypothermia and Sea-Survival, Uniformed Services University of Health Sciences, Bethesda, MD; 2006 - 2011.

Hypothermia and Cold-Water Survival, International Ice Symposium, Bay City, MI, February, 2006.

Hypothermia: The Silent Killer – video presentation for the Great Lakes Beach & Pier Safety Task Force; Grand Haven, MI. In: Respect the Power DVD, December, 2005.

Hypothermia and Cold-water Survival, North Atlantic International Maritime Rescue Coordination Center Conference, Boston, MA, October, 2005.

Immersion Hypothermia and Cold-Water Drowning, International Association of Dive Rescue Specialists, Hartford, CT; October, 2005.

Hypothermia, Drowning and Sea-Survival, USCG Passenger Vessel Safety Conference, Seattle, WA; May, 2005

Drowning, Hypothermia and Sea-Survival, Uniformed Services University of Health Sciences, Bethesda, MD; April, 2005.

Hypothermia, cold-water survival and PFD design; Personal Flotation Device Manufacturer's Association annual meeting, Newport Beach, CA: March 2005

USCG Rescue Coordination Center staff, Boating Safety personnel, and First Coast Guard District staff, Boston, MA; Hypothermia and Cold-Water Survival; March, 2004.

USCG Ice Rescue Symposium, Bay City, MI; Hypothermia and Cold Water Survival; February, 2004.

USCG Commercial Fishing Industry Vessel Safety Advisory Committee, Washington, DC; Hypothermia and Cold Water Survival; November, 2003.

USCG National Motor Lifeboat School, Cape Disappointment, WA: Hypothermia and Cold Water Survival, September, 2001.

Long Beach, WA and Ilwaco, WA EMS, Fire Dept. and Police Dept, Ilwaco, WA: Hypothermia and Cold Water Survival, September, 2001.

University of California, San Diego, Wilderness Medicine Conferences, Keystone, CO: Cold water immersion and hypothermia, July, 2001 and July 2000.

National Fishing Industry Safety and Health Workshop. Anchorage, AK: Protective clothing in cold water survival, 1993.

University of California, San Diego, Marine Medicine Conference: Hypothermia and cold-water survival. 1992

University of California, San Diego, Marine Medicine Conference: Hypothermia and cold-water survival. 1991

University of California, San Diego, Marine Medicine Conference: Hypothermia and cold-water survival. 1990

University of California, San Diego, Marine Medicine Conference: Hypothermia and cold-water survival. 1989

University of California, San Diego, Marine Medicine Conference: Hypothermia and cold-water survival. 1988

The 4th International Environmental Ergonomics Conference, Austin, Texas, 1990. Recent advances in hypothermia research.

National Conference on Standards and Guidelines for CPR and Emergency Cardiac Care, Dallas, TX, 1985. Selected as faculty by the American Heart Association for the pre-hospital treatment of hypothermia.

International Red Cross Symposium on Emergency Medical Care, Copenhagen, Denmark, 1981. Selected as the American Red Cross representative to the panel on hypothermia and frostbite management.

Aerospace Medical Association, Annual Meeting, New Orleans, LA, 1987: Rough sea survival and protective clothing.

Safety at Sea Conferences, U.S. Coast Guard Academy, New London, CT, 1987-1992. Hypothermia and cold-water survival.

The 2nd International Environmental Ergonomics Conference, Whistler Mountain, British Columbia, 1986. Thermal characteristics of cold-water immersion protective clothing.

International Rescue '86 Conference, Vancouver, British Columbia, 1986. Hypothermia and cold-water immersion.

International Dive Rescue Conference, Fort Collins, CO, 1985. Hypothermia and cold-water drowning.

International Conference on Disaster at Sea. Cuxhaven, Germany, 1982. Triage problems during disasters at sea.

National Safety Conference Annual Meeting, Chicago, 1983. Hypothermia and cold-water survival.

International Conference on Hypothermia. Univ. of Rhode Island, 1980. Chairman, panel on inhalation warming for accidental hypothermia.

Safety at Sea Conference. U.S. Naval Academy, Annapolis, MD, 1980. Hypothermia.

International Conference on Disaster Medicine, Monte Carlo, Monaco, 1979. U.S. Coast Guard Search and Rescue Operations.

Aerospace Medical Association Scientific Meetings, Washington, D.C., 1979. U.S. Coast Guard EMS.

American Trauma Society Annual Conferences, 1977. Management of Accidental hypothermia.