

Wilderness Medicine

Letter

The official newsletter of the Wilderness Medical Society

Featuring 1997 Winter Wilderness Medicine Conference brochure as advertising supplement

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Fall 1996

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Associate Member Survey Results

Tod Schimelpfenig,
Associate Member Representative,
WMS Board of Directors

Last winter, we conducted a survey of the associate members of the Wilderness Medical Society. An associate member is a person who has an interest in wilderness medicine and does not have an academic degree at the doctorate level in a medical or life science.

WMS has 649 associate members (22 percent of the membership of about 3000). Initially, 213 surveys were returned – a 33 percent return rate – and more have trickled in. Here's a summary of the many thoughtful responses:

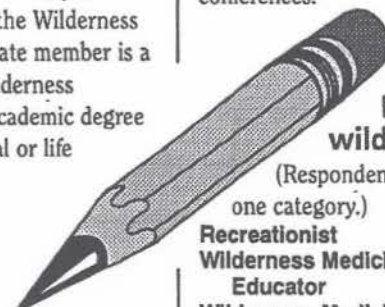
What is your profession?

Resident	21 percent
Paramedic/EMT	21 percent
Registered Nurse	19 percent
Student	13 percent
Physician Assistant	9 percent
Other*	14 percent

*Administrator, avalanche professional, engineer, nurse, practitioner, carpenter, draftsman, retired, educator, law enforcement, military, occupational therapist, physical therapist, pharmacist, registered dietitian, research assistant, wilderness safety instructor.

Comment: The profession that is clearly missing is outdoor educator, leader or guide, the National Outdoor Leadership School and Outward Bound instructor, and the climbing

guide. WMS does not appear to attract these wilderness professionals into our ranks. I know only a few NOLS instructors who are members and see few guides or climbers attending conferences.



How do you participate in wilderness medicine?

(Respondents could check more than one category.)

Recreationist	76 percent
Wilderness Medicine Educator	34 percent
Wilderness Medicine or Search-and-Rescue Provider	30 percent
Wilderness or Outdoor Educator or Guide	26 percent
Other*	2 percent

*Advise patients, camp nurse, altitude research, military.

Comment: There is a WMS membership constituency, who teach locally to the public and consider themselves wilderness medicine educators. This group is in addition to the active wilderness medicine education organizations such as SOLO and Wilderness Medical Associates.

How have you participated in WMS?

(Respondents could check more than one category.)

Attended a conference	51 percent
Attended more than one conference	20 percent

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Wilderness Medicine Letter

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The goals for the *Wilderness
Medicine Letter* are to:

1. Provide timely information re-
garding WMS news and activities;
2. Provide a forum for the ex-
change of ideas and knowledge
regarding wilderness medicine,
and regarding WMS; and
3. Promote active membership
involvement through solicitation
and publication of members' ar-
ticles and photographs.

Society Business

Warren Bowman, M.D.

As I write this column, President Clinton is standing in a grassy meadow eight miles west of where I sit, announcing a proposed land swap with Crown Butte Mines, ending the threat of mining gold four miles to the northeast of me, just outside Yellowstone National Park.

Report from the 1996 WMS Annual Meeting, Kananaskis, Alberta, Canada

The 12th annual meeting of the Society was held in 'K' country, a 4,000 square mile recreation area that, in my opinion, resembles real wilderness more closely than the location of any meeting that we have had to date. I'm told that 'Kananaskis' is an Indian word meaning, appropriately, meeting place. Located west of Calgary, the conference headquarters at Kananaskis Lodge is reached by exiting the TransCanada highway by Route 40 about 36 miles west of Calgary, and driving for 20 minutes.

Despite being logged extensively 100 years ago and designated as a multiuse area by the Canadian Government, the forests are thick again and there is little evidence of human intrusion. Although close to Banff National Park, it lacks the trash accumulations, fast food joints, and souvenir shops that decorate so many U.S. National Park gateway areas. The only drawback to the location was the 12-mile distance to the closest gas station.

The meeting's theme was to examine in depth physical and medical challenges in wilderness medicine. The first two days were devoted to lectures and discussions of how to help disabled persons enjoy the wilderness, and ways of screening and counseling the elderly and those with pre-existing illnesses prior to wilderness excursions. Environmental issues and core and advanced topics in wilderness medicine occupied the remaining three days of the meeting.

Presentations included:

- Blackfoot Indian traditions and customs. There was an evening program and a workshop on traditional Blackfoot approaches to health and an elective participation in the Blackfoot sweat ceremony.
- Accomplishments of disabled persons who are able to cross-country ski despite amputations and climb despite paraplegia.
- The impact of biodiversity on human health.
- Adaptation of civilian trauma protocols to management of military trauma.

- Panels on altitude illness and psychological aspects of adventure travel in Asia.

Dale Wang won the prize for best research paper.

Program Chairman Steve Bezruchka and committee-members Jeff Boyd, Peter Hackett, William Hanlon, and Robert Schoene are to be congratulated for an excellent program. Thanks also go to five members of the student chapter of the Wilderness Medical Society at the University of Minnesota School of Medicine, who helped with registration and other staff functions.

WMS Elections

Edward W. "Mel" Otten was elected by the Board of Directors as the president-elect. He will be inaugurated as the eighth president of the WMS at the 1997 annual meeting. Mel is professor of emergency medicine and pediatrics, and director of the Division of Toxicology, School of Medicine at the University of Cincinnati. He is a former Marine officer and is currently a Captain in the US Naval Reserve. He has served three terms on the WMS Board of Directors, has been WMS treasurer for the past year, and has been chairman of the Publications Committee for the last five years. He is an expert on poisonous animals and plants and wilderness survival, particularly hot weather survival. He has numerous scientific papers and book chapters to his credit.

Newly elected Board members are Anne Dickison, Luanne Hallagan, and Chris Moore. Jim Bagian and Bill Forgey were re-elected to the WMS Board. Many thanks to retiring board members Sue Snider and Ken Zafren.

Anne Dickison, M.D., is board-certified in anesthesiology, pediatrics, critical care medicine, and pediatric critical care. For the last five years she has been Director of the Pediatric Intensive Care Unit at the Dartmouth-Hitchcock Medical Center in New Hampshire. She also has worked as an EMT, R.N., emergency department physician, photographer, and professional river guide. Her outdoor interests include kayaking and international medicine.

She has given many presentations at WMS and other scientific meetings, and has published many scientific articles and book chapters. She is currently chair of the National Association for Search and Rescue (NASAR) Medical Advisory Board. Her special interest is prehospital wilderness emergency care.

Luanne Hallagan, M.D., whose name should be familiar to readers of the *Wilderness Medicine Letter*, practices emergency medicine at Eastern Idaho Regional Medical Center in Idaho Falls.

(Continued on Page 4)

President's Report

Bruce Paton, M.D.

The Nitty Gritty

One definition of wilderness is "more than an hour from medical care." So, I suppose that a spot on I-80, in the middle of Wyoming and 55 miles from the nearest town qualifies as wilderness under that definition.

In the middle of July, some friends and I were headed in two cars and a pickup truck with a camper back to the Wind River Wilderness for a week of hiking and fishing. The Interstate runs mostly straight as an arrow westwards with only a few gentle bends. At about 11 a.m., the two senior members of the group, riding by themselves in the pickup, went careening off the road at one of the few corners, down a 50-foot bank, through a barbed-wire fence, across 50 yards of boggy willow swamp, across a river that was 30-feet wide and 4-feet deep, and ended half in and half out of the water against a small tree.

The accident, caused by the driver, who fell asleep, was witnessed in the rear-view mirror by the wife of one of the victims, and by a truck driver who was behind the pickup. I was a couple of minutes behind and came on the scene to find the others running back along the shoulder of the road. Heart in mouth, I stopped, jumped out of my car, and saw the pickup down in the river. My first wild thought was, "Are they alive?"

The truck driver and his wife had scrambled down and found the two men out of the truck, one sitting on the bank of the river with a flap of scalp hanging down over his forehead, the other lying on the bank complaining of a painful chest. The truck driver was running back along the road to call the State Patrol on his radio. "There's a man down there who has been scalped!" he exclaimed. "Is he alive?" I asked. "Oh yes, and so is the other guy. Amazing!" I felt relief, but no certainty.

Both had been wearing seat belts and the truck had remained upright during its crazy, 70 mph, crashing drive through the bushes. I ran back to my car and brought my first aid kit to put pressure dressings on the bleeding wounds. There were no immediately obvious fatal injuries. Within a short time a State Patrolman arrived

with a capacious first aid kit, then the paramedic rescuers (who were on their fifth trip of the morning!) and two ambulances (from a town 50 miles away).

It was immediately obvious that the paramedics knew what they were doing. The man with chest pain, a retired professor of surgery, explained in detail where he hurt and that he suspected a neck injury and possible cardiac contusion. He was firmly packaged on a back board and carried to the ambulance. The man with the scalp wound was similarly carried to the second ambulance. The cavalcade set off for the hospital where they were well-evaluated and

treated in the emergency department. They subsequently spent two nights in the hospital, then were taken home, loaded with pain killers.

I tell this story with pride. Not because I had anything to do with the care, other than some simple bandaging, but because the reorganization of emergency services in the past two decades, the building of better rural hospitals, and the training of paramedics and ambulance personnel means that even in remote areas, expert help is quickly

and efficiently available.

In the mid-1960s, Dr. Cuth Owens of the University of Colorado School of Medicine made a personal, hospital-by-hospital, survey of every place in Colorado that advertised itself as an "emergency room." The results were horrifying. Most small towns had no signs to indicate if there were a hospital or where it was. Some emergency rooms were equipped with nothing more than a broom, a table and a bottle of bleach. Most of the ambulance care was provided by the local undertaker, who sometimes used his long Cadillac hearse as the ambulance. EMT training did not exist. The undertaker knew more about dead than living bodies.

Dr. Owens, who died this year, was one of the pioneers in stirring up local and state governments to set standards for emergency care, and start EMT and paramedic training. He traveled around the western states with what he called his "dog and pony show," training, testing and questioning.

As my friends were being carried out of the river bed by well-trained and experienced rescuers, properly bandaged and secured, into a functional ambulance, not a converted hearse, I said a silent "Thank you" to my friend Cuth and the others who built these services to standards that we now accept as normal.

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"... All the talks in the world cannot prepare you fully for the nitty gritty of dealing with emergencies. But without the talks and workshops, our skills could be sadly deficient."

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Director of Meetings and Education

Society Business

(Continued from Page 2)

She is Associate Medical Director of Yellowstone Park Medical Services and works part-time in the park at Lake Hospital and at clinics in and around the park. She is past assistant professor of emergency medicine and associate director of the emergency medicine residency program at George Washington University School of Medicine in Washington, D.C. She has many journal articles and textbook chapters to her credit, including several reports of illnesses and injuries in Yellowstone Park.

Her main outdoor pursuits are hiking, fishing, and scuba diving. She has a special interest in the delivery of emergency medical services in remote communities.

Christopher Moore, M.D., is an emergency physician who is currently executive director of University Sports Medicine Center in Chattanooga. He founded the WMS Environmental Council and has served on the CME Committee and many program committees. His outdoor interests include rock-climbing, backpacking, kayaking, and whitewater canoeing. He was coordinator of medical services for the Canoe and Kayak portion of the Atlanta Olympics, is a member of the Tennessee Nature Conservancy, and is co-medical director of the Tennessee Task Force on Wilderness Emergency Medical Training.

WMS Annual Awards

Service Award: Edward Geehr, M.D.

Ed, a founding member and the first president of WMS, was also first editor of the *Wilderness Medicine Letter*. He has served three terms on the Board of Directors and over five years as chairman of the Finance Committee. He was co-editor of the first two editions of *"Management of Wilderness and Environmental Emergencies."* He is former chief operating officer of Albany (NY) Medical Center and is currently senior vice president and medical director for UniHealth, a not-for-profit company based in Burbank, CA. Currently, his main role is introducing his three children to the wilderness.

Education Award: Paul Auerbach, M.D.

Paul is also a founding member and a previous president of WMS. He has been Chairman of Emergency Medicine at both Vanderbilt and Stanford. He was founder and co-editor of the *Journal of Wilderness and Environmental Medicine*, co-editor and most recently editor of the textbook, *"Management of Wilder-*

ness and Environmental Emergencies," and author of *"Medicine for the Outdoors."* He has taught at countless wilderness medical meetings and authored many journal articles on wilderness medical topics and books on hazardous marine animals.



David Shlim, M.D., (left) accepts the Research Award from WMS President Bruce Paton, M.D.

Research Award: David Shlim, M.D.

David is medical director of the CIWEC clinic in Kathmandu, Nepal, and medical advisor to the Himalayan Rescue Association. He is an expert on tropical diseases and has done much clinical research in Nepal.

He is also a member of the editorial boards of WMS' journal, *Wilderness and Environmental Medicine*, and the *Journal of Travel Medicine*.

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President's Report

(Continued from Page 3)

My friends were out of the hospital in two days, sore but safe. The rest of us continued on the trip, a day late, up into the mountains.

The remainder of the trip was relatively anticlimactic. One person got lost for five hours, another impaled her forefinger with a fishing fly (a Leatherman tool is wonderful for extracting fishing hooks), and one person had a near miss with a 100-pound boulder bouncing down a steep slope directly at him. Fortunately, the boulder took a last-second flip to the side and lodged up against a tree.

I learned a lot: I was reminded that all the talks in the world cannot prepare you fully for the nitty gritty of dealing with emergencies. But without the talks and workshops, our skills could be sadly deficient. I learned that having my first aid kit, filled and at hand, is important. I learned to review my own skills. What did I do right? Could I have done anything better? I learned again how important are the functions of the Wilderness Medical Society. Yes, I was proud of our profession, and was proud of what our Society continues to do, but I was humbled by realizing that one cannot learn enough. ❁

Executive Director's Report

James R. Whitehead

Been There, Done That Observations on a WMS Planning Session

Of the many rewarding activities that occurred at the 1996 Annual Meeting, few were more intriguing than a planning session of your WMS Board of Directors.

Such ventures are frequently a snapshot of an association, reflecting the ways its elected leaders interpret the organization's dynamics and needs.

Planning sessions often highlight the tenuous balance between change and continuity. The deliberations in Kananaskis did all of this and more, a fact particularly clear since the planning session utilized benchmark data on WMS priorities that emerged from a previous Board planning session in 1992, and a membership survey done in 1993.

Once an organization has engaged in a planning exercise, there is often the sentiment by some that another effort is superfluous. A common refrain: Been there, done that. But planning is obviously a continuous process, without an end point. And planning separated by years especially allows one to gauge many things. One obvious conclusion from Kananaskis: The leadership of WMS is changing, which both reflects and causes changes in the Society. Although work on the planning document is continuing by the Board, and will be reported when complete, a number of important related themes have emerged.

First, what hasn't changed: the commitment of the Board to wilderness medicine, WMS, and its members, is the same. WMS has been blessed with talented directors and officers. But the perspectives of these leaders has evolved. This is apparent in several ways. For instance, the earlier WMS leaders were true visionaries, building an idea as much as an organization. But over time, individuals serving on the Board have become equally concerned with creating an effective structure for that vision.

To make the Society a sustainable success, the Board has undertaken a series of important steps. The most recent example was the creation of a full-time staff position of WMS Deputy Executive Director. The addition of this post will allow further maturation of WMS, including enhancement of its daily operations, as well as further development of important projects and initiatives. Dave VanDerWege – a senior-level association executive with a background in outdoor education and camping – began duties in September.

Another indicator of change: The current WMS leadership possesses a highly cultivated sensitivity to the professional diversity of the Society. That leadership demonstrates a great willingness to consider and take extra measures to ensure WMS meets the needs of members and



conference attendees. As plans become more concrete, WMS should be even better positioned to address the professional and personal needs of all its members.

Too, the leadership of WMS over time has demonstrated an ever-increasing practicality and realism to growing and developing the association. While the Board-articulated priorities of WMS in 1992 versus 1996 are not radically different, there is a heightened

recognition that nearly all programmatic initiatives require significant human and financial resources. For an association with bright and creative leaders, it is far easier to create an organizational to-do list than it is to achieve the actions on that list. This will likely lead to fewer initiatives in any single year, but also to initiatives more effectively and completely achieved. Furthermore, topics such as corporate partnerships and sponsorships are no longer anathema, but seen as an appropriate means to increase the resources of the Society that can be invested in WMS projects.

These changing attitudes of the officers and board members represent a predictable stage of evolution in the organizational life of WMS. Initial idealism is tempered by the need for increased efficiency and effectiveness. A huge number of under-capitalized projects are being replaced by fewer, more adequately supported ones. Policy decisions are formed by an ever-larger commitment to the needs of the diverse membership.

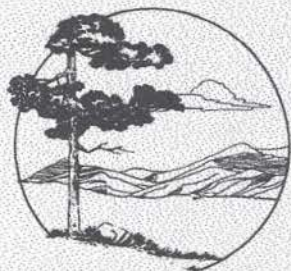
In short, the Society is continuing to grow, and that growth will be reflected in the Board's planning document. In many ways, each of you will be its author, since the leadership of WMS is clearly reflecting and is responsive to the feedback and needs of its members. ❀

"For an association with bright and creative leaders, it is far easier to create an organizational to-do list than it is to achieve the actions on the list."

Wanted

Students/Residents to assist conference staff with the Winter Wilderness Medicine Conference (Feb. 1-5, 1997) and the Annual Scientific Conference (Aug. 2-8, 1997). An opportunity to exchange work with meeting set-up, WMS bookstore and general meeting support for complimentary registration. Time allowed to attend sessions and workshops. Limited number of positions available for each meeting. Apply in writing to the WMS office. Include dates available, skills you can bring to this position, and how the opportunity will benefit you.

**Wilderness
Medical Society
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Society Business

(Continued from Page 4)

Founders Award:

Robert "Brownie" Schoene, M.D.

Brownie, a specialist in pulmonary medicine who is associate professor of medicine, University of Washington, was a member of the 1982 American Medical Everest Expedition. He has done extensive research and written many scientific papers on diseases of high altitude.

One of his notable accomplishments was performing bronchoscopies on many patients with HAPE at 14,000 feet on Denali and establishing that HAPE is an inflammatory edema.



Brownie Schoene, M.D., (left) accepts the Founders Award from WMS President Bruce Paton, M.D.

Other Items from the Annual Board of Directors

The Board met Saturday, August 3, and Tuesday evening, August 6.

The subject of committee function was discussed and it was concluded that WMS does not have the staff to support the large number of committees we have at present. The Board felt resources should be concentrated on membership, development, education, and research.

- WMS membership stands at 3046.
- National Safety Council Wilderness First Aid textbook: the text is about finished. Completion of text plus illustrations is targeted for early 1997.
- Prehospital Emergency Training Standards and Accreditation Committee (PETSAC) issues: Data collection is finished, a list of topics was compiled, and the first draft of the curriculum will be written by Bill Forgey and Holly Weber. It will be sent out for critique by the PETSAC committee and industry representatives.

Motions passed:

- To give a vote to the Associate Member Representative on the board.

- To continue holding three national meetings a year.
- To employ David VanDerWege as Deputy Executive Director. Dave, who lives in Bloomington, IN, comes to us from the American Camping Association, where he served as director of member and field services. (See "Executive Director's Report," page 5.)

Back Issues of Journal Wanted

Outside of the National Library of Medicine, The Countway Library of Harvard University is the largest medical library in the United States. The Library is trying to complete its collection of the *Journal of Wilderness Medicine*.

Thanks to previous appeals in this newsletter, their set is almost complete. Issues still missing are: 1990, Vol 1, Nos. 2-4. If you have these issues, please consider donating them.

A special thanks to WMS member Ronald Bloomfiel who assisted with a previous request for back issues. Please mail them to: Dr. Carolyn Langer, ML Strategies, Inc., One Financial Center, Boston MA 02111.

Flying Doctors of America

Health care professionals are invited to volunteer for 7- to 10-day missions to developing countries. Flying Doctors is a non-sectarian, non-political, nonprofit 501(c)(3) organization that brings together physicians, dentists, pharmacists, other medical personnel, and businesspeople to offer their time, unique talent, resources, and skills.

Flying Doctors provides the logistics to get you there, so that you can make a significant difference. There are three levels of missions:

- **Level I.** Six days. All comforts: hotels, showers, beds, flush toilets. Dominican Republic. Mexico. Guatemala. \$585 plus airfare.
- **Level II.** 10-14 days. All comforts: hotels, showers, beds, flush toilets. Venezuela. Thailand. India. \$1285 to \$2995. Airfare included.
- **Level II plus.** 10-14 days. More remote. Limited comforts: cots, solar or cold showers, outhouse toilets. Peru, Mali, Costa Rica, Ukraine. Cost to be determined.
- **Level III.** 10 to 14 days. Must be used to camping and like outdoors. Whitewater rafts are used to reach some remote villages. Honduras. Guatemala. \$1485 to \$1885, plus airfare.

All airfares are from Atlanta. Missions leave about every three weeks.

Make a difference! Contact: Flying Doctors of America, 1951 Airport Road, Atlanta, GA 30092. Telephone: 770/451-3068. Fax: 770/457-6302. E-Mail: FDoAmerica@aol. Web Page: <http://home.navisoft.com/vip/flyingdoctorsofamerica.htm>.



Medicolegal Issues: High-Risk Sport or Medical Research? Release Clauses

Carolyn S. Langer, M.D., J.D.,
M.P.H., Medicolegal Editor

In the fall of 1989, Mary Smith, R.N., a nurse and stress management/biofeedback therapist, published articles in various newspapers and specialty adventure newsletters describing a trek to Nepal to test a theory on a biofeedback breathing technique to alleviate high altitude sickness.

The articles solicited participants and encouraged interested parties to contact Smith as soon as possible so she would have adequate time to provide breathing training to subjects prior to departure.

Paula Jones, also a nurse and an avid trekker, signed up for the trip, and began the breathing technique training with Smith.

In the meantime, Smith asked Dr. Hall, a trip participant and professor at a nearby university, to collaborate with her on her breathing research. They submitted a research proposal to the university's Human Subjects Research Committee (HSRC) for the biofeedback training and performance at high altitude. Because the biofeedback training had already begun, the HSRC limited its approval to the research involving collection of data, and excluded the training in breathing.

At Smith's request, Jones signed a form entitled, "Release from Liability and Indemnity Agreement," which stated that she had been informed of all dangers of the trek including "illness" and that she released Smith "from all liability, claims and causes of action arising out of or in any way connected with my participation in this trek." Professor Hall and Smith also submitted a copy of this release agreement to the university, but the HSRC invalidated the form because the university never allows releases from liability for negligence as part of any approved study, as the federal government does not permit exculpatory language in human subjects' experimentation. Smith never told the trekkers that the University's HSRC had rejected the release form.

Participants began their trek in the spring of 1990 in Phakding, Nepal. They recorded their oximetry readings and completed environmental symptoms questionnaires. At 8,700 feet, Jones began to exhibit symptoms of altitude sickness.

Smith, who was her roommate and was aware of her symptoms, suggested it might be a food problem. Jones continued to ascend the next day,

but again displayed symptoms of nausea, headache, dizziness, anorexia, anuria, and other symptoms. Jones was given rehydration salts by Smith, and continued to ascend with Smith's physical support. On the day Jones reached 11,300 feet, she reported being very ill, but the group went on. Smith allegedly told Jones she probably had the Khumbu flu and to "breathe away" the symptoms.

On the trek from Phortse Tenge to Dole, Jones' condition became life-threatening. She was evacuated out the next morning and was ultimately diagnosed with cerebral edema, from which she allegedly suffered permanent brain damage.

Jones sued Smith, claiming negligence in promoting the use of her breathing technique, rather than advising Jones to descend to a lower altitude. Defendant Smith moved to have the claim dismissed, arguing that this case involved only a high-risk sport, and that under state law release clauses were valid in the setting of adult high-risk sports activities.

The high court held that whether Jones' injuries arose out of the normal risks of hiking or out of medical research was for a jury to decide. The court noted that outside of certain voluntary high-risk sports situations, pre-injury releases for negligence violated public policy. Therefore, the release would not be enforceable if the injury resulted from medical research. Another important consideration by the court in deciding if the exculpatory clause violated public policy was Smith's control over her research subjects. The expert witness explained that the known symptoms of altitude sickness, such as mental confusion and lack of judgment, made Jones particularly dependent on the research leader to inform her of the need to descend.

The court also held that the causal relationship between Smith's conduct and Jones' injuries was a question of fact for the jury. The medical research was a significant component of the trip, and plaintiff Jones noted that Smith advertised the trip in part as medical research, that the participants thought of themselves as medical subjects in a study, and that they were accompanied by doctors and nurses. Moreover, it is reasonable to assume that one doing research on altitude illness would have knowledge of the symptoms. The exculpatory clause did not release Smith from liability arising out of her negligent diagnosis and treatment of Jones' high altitude sickness.

Dr. Langer is an instructor in occupational medicine at the Harvard School of Public Health; lecturer in health law at the Harvard Educational Resource Center; associate in health care and health law at M.L. Strategies, a consulting group; and flight surgeon and hospital commander in the Army National Guard with a rank of Major. She also recently became a new mother: Her son, Jonathan, is seven weeks old.



"... the known symptoms of altitude sickness... made Jones particularly dependent on the research leader to inform her of the need to descend."

Conclusion

The high court held that a pre-injury agreement that releases a medical researcher for liability for negligent conduct that occurs in the course of medical research violates public policy. To the extent that the pre-injury release here attempted to release Smith for negligent conduct during research on high altitude sickness, it was unenforceable. The high court then remanded the case back down to the trial court to determine whether Smith's alleged conduct leading to the negligence claim occurred within the scope of the medical research project. ❁

"You have a bit of an 'old guard' mentality that could use an infusion of young blood and ideas. Associate members represent that transition and (we) need to assert our roles."

— WMS Associate Member

Associate Member Survey Results

(Continued from Page 1)

Read the newsletter	86 percent
Subscribe to the journal	46 percent
Attend regional meetings	7 percent

Why are you a member of WMS?

Comment: The dominant themes were the combination of interest in medicine and wilderness and a desire to stay informed on wilderness medical topics. Examples follow:

- "To keep abreast of the changes in wilderness medicine and travel medicine. I have been an expedition medical provider on trips to Nepal, Argentina, etc. I enjoy outdoor activity, and safety is a big interest of mine."
- "I have been teaching safety and wilderness medicine for 30 years. I'm a member to be current. I have a professional and personal interest in the wilderness."
- "I believe WMS has an important role in wilderness medicine education and in encouraging responsible outdoor recreation."
- "To learn about topics that were not a part of my formal medical education. I love medicine and the outdoors. My job as medical officer for an armored unit U.S.A. places me in the wilderness."
- "To obtain the newsletter, the journal, and to be part of an organization dedicated to the pursuit of education in a field I love."
- "Membership in WMS is a natural choice given my interest in nursing, environment and wilderness. Continuing education."
- "We are aligned in support of empowering people to be more medically self-reliant."
- "My mother signed me up. I am a medical student with an interest in the outdoors."

General Suggestions and Criticisms

There was a variety of comments in this category with consistent themes including: expense of conferences, offers to present at conferences, and suggestions to network with other organizations. Replies include:

- "I would love to speak at a WMS conference. Sports medicine and women's athletic issues are interests of mine."

- "Conferences have outstanding agendas but are too expensive for me to attend."
- "The relationship of wilderness to health has not been addressed. WMS has been notably silent on environmental issues and wilderness habitat."
- "The relationship between WMS and the NPS could be stronger to offer to certify patrollers in wilderness topics. This would open a large interest area to WMS membership and it would enrich the patroller's training and experience."
- "It is frustrating being a published medical professional and not being allowed full membership in the society."
- "You have a bit of an 'old guard' mentality that could use an infusion of young blood and ideas. Associate members represent that transition and need to assert our roles. I can't afford to summer in Nepal, but I hike in the U.S. wilderness. I appreciate your efforts and would be more than willing to help if asked."
- "It's a great organization despite being too expensive and at times elite."
- "You didn't list snowboard as an outdoor activity. Get with the '90s!"
- "You should communicate more with the Mountain Rescue Association. It is a shame we don't do more together — we'd do great work."
- "Expand into areas of outdoor education — like the Risk Conference at NOLS. Many topics are applicable to WMS. I like your environmental issues but keep the medical focus."

How can WMS serve your needs as an Associate Member?

Comment: There were several clear and consistent messages from these responses, including affordability of conferences, linking CMEs and continuing education requirements of different organizations, and using the newsletter as a vehicle to communicate with associate members. Other representative comments included:

- "The Society could be more sensitive to the costs of services such as conferences and the journal to associate members and students."
- "More winter workshops and affordable workshops. It would be nice if the winter workshops could be used for my NPS certifications."
- "Develop programs that will assist in education and enlighten the general public. We are not meeting the educational needs of the public outdoor recreationist."
- "Obtain clearer CME credits for nurses. I've found it hard to use your credits."
- "I wish there was an active local chapter or regional meeting in my area."

- "WMS is not reaching the outdoor leaders, especially the volunteers who can't afford the money and time to attend the conference. Non-physicians practice far more wilderness medicine than physicians. This area of medicine, more than any other, is a multi-discipline effort. A workshop for nurses on travel counseling would be nice."

- "Recognize the professionalism of health care providers other than physicians. You list me as an EMT when I am a paramedic. I am published but always have to be listed last. There is a clear division between physicians and all others and a good 'ol boy system in the Society."

Action items

Comment: From this survey and from my discussions with Associate Members, I recommend that the Society do the following:

- Design less expensive associate member-focused conferences every 18-24 months (with no intent to exclude regular members). Numerous locations can host large groups in outdoor recreation settings with affordable meal plans and housing. More families may be attracted.

Currently WMS is actively reaching out to the needs of associate members with the Pre-hospital Emergency Training Standards Committee (PETSAC) initiative (See *Society Business*, page 6). WMS should continue to do so with sessions on organizing local seminars, curriculum, teaching techniques, and other resources in conference curriculum, as well as linking with other organizations.

- The newsletter may be our best tool for reaching associate members. We should encourage features by and for associate members.

- Further investigate the CME issue to make it clearer and, perhaps, easier for WMS conferences

to be recognized as CMEs for the variety of medical professions represented in our membership.

Concluding Comments

Overall, the tone of responses was positive, suggestions helpful, and the respondents pleased with their association with WMS.

We're already working on several suggestions. Karl Neumann, editor of the *Wilderness Medicine Letter*, encourages Associate Members to contribute to the newsletter. (See "Wilderness Medicine Letter Feature Needs You," page 14.) I urge you to take advantage of this. Send articles, photos and ideas to Karl at his address listed on page 14.

Bruce Paton, WMS president, asked our conference planner to look into less expensive locations, and the Board will discuss this idea at our next meeting. Bill Forgey built the recent winter meeting with more Associate Member participation than ever.

The issue of a single WMS membership category should receive more debate. Personally, I do not sense a strong double standard, and I appreciate the lower cost of associate membership. If one Society membership category meant a higher membership fee, I would be priced out of the Society.

I thank everyone who took the time and effort to respond to help us grow and meet our membership needs. Please contact me if you have any suggestions, comments or observations. ☸

Wilderness Medical Society Schedule of Educational Conferences

7th Annual Winter Wilderness Medicine Conference
Feb. 1-5, 1997
 Sheraton Steamboat Resort
 Steamboat Springs, CO

Marine and Dive Medicine Meeting
April 16-19, 1997
 Presidente Hotel
 Cozumel, Mexico

Tennessee Regional Meeting
March 7-9, 1997
 Tremont, Tennessee

Annual Scientific Meeting
Aug. 2-8, 1997
 Sun Valley Resort
 Sun Valley, Idaho

8th Annual Winter Wilderness Medicine Conference
February 1998
 Snowbird Ski and Summer Resort
 Snowbird, Utah



The WMS Board of Directors enjoyed a free moment at the 1996 Annual Meeting. Front Row: Ken Zafren, President Bruce Paton, Lily Conrad, and Anne Dickison; Back Row: Bill Forgey, Jim Bagian, Warren Bowman, Susan Snider, Mel Otten, and Kimberly Johnson (WMS Environmental Council Chair).



Full Steam Ahead!

WMS Winter Sports and Wilderness Medicine Conference

February 1-5, 1997 • Steamboat, Colorado



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The Endangered Species Act: What You Can Do to Help

Amy Robinson, M.D., WMS Environmental Council

Imagine you are evaluating an elderly female patient, and you believe she is experiencing an acute myocardial infarction. You quickly administer oxygen and give her two baby aspirin tablets to chew. Her medical history is notable for breast cancer, and she currently takes taxol.

Your patient is benefitting from two medicines derived from plants. Aspirin originated from Willow tree bark, and taxol was found in the Pacific Yew tree in the northwest United States. The National Institutes of Health estimate that more than 80 of the 150 most frequently prescribed drugs in this country include chemical components from plant sources. This group includes digitalis, penicillin, cefaclor, conjugated estrogens, enalapril, vincristine and levothyroxine.

While many of the plants for these medicines are not presently endangered, others are. Protecting endangered species will allow plants to survive so they may become sources of medications to treat currently untreatable illnesses. Only a small percentage of existing plants have been chemically studied to identify possible medicinal benefits.

The Endangered Species Act (ESA) of 1973 helps protect plants and their habitats. Currently about 950 species are protected. An additional 250 species have been recommended for consideration. Presently, ESA does not have permanent status as a law. It is funded year to year via compromise budgets in Congress. Furthermore, various legislative efforts to weaken its effect have been proposed in the past few years, but presently these efforts are not under consideration.

Two individuals have coordinated monumental educational and lobbying efforts to support ESA: Dr. Kevin Browngoehl, a Pennsylvania pediatrician, and Jim Waltman of the Wilderness Society. For the past two years, Kevin has involved his patients in the Medicine Bottle Campaign, which was created by the Washington-based Endangered Species Coalition.

When Kevin gives his patients prescriptions for medicines that originated from natural sources, he offers them a packet containing a fact sheet and four labels. After finishing the pills, patients are asked to complete the labels, affix them to the empty medicine bottles, and send the bottles to President Clinton, to their two senators, or to their congressman. The labels state, "I support the ESA because of the medicinal value of plants."

In the first six months, more than 1,000 bottles were sent to Washington from Kevin's practice.

The project caught the eye of Rep. Curt Weldon, R-Penn., who showed photographs of one of Kevin's patients to the members of the House. The photo was of leukemia survivor Jackie Buckley. Her survival is attributable to vincristine, a drug derived from the rosy periwinkle plant of Madagascar. U.S. Secretary of the Interior Bruce Babbitt also endorsed the project, and has spoken about it at hospitals around the country.

Kevin feels his involvement with the Medicine Bottle Campaign is an opportunity to project "a positive message in a day when medicine doesn't have a lot of positive messages." He acknowledges that "doctors must feel comfortable doing something political in their office" to use this program. He feels this is a chance for kids and their families to take an active role in promoting their health and to learn about the political process.

Kevin's exam rooms have bulletin boards for patient information, including a photograph of he and Jackie, the leukemia survivor, from the cover of *The Weekly Reader*, a children's magazine.

Jim Waltman is keeping his eyes on ESA in Congress. Recently, ESA withstood several attacks. As of March 1995, a moratorium on adding new species of plants was in effect. An early Senate vote to lift the moratorium lost by 61-38. Subsequently, a letter signed by 40 physicians was read on the Senate floor by Senator Harry Read of Nevada. A repeat vote on the issue narrowly lost, by 51-49. However, the Senate permitted President Clinton to use a line-item veto to lift the moratorium.

Jim and Kevin were involved in five different press conferences from October 1995 through March 1996. These were held at Harvard, Emory, University of California at San Francisco, Kaiser-Permanente in Denver, and Los Angeles Children's Hospital. The Wilderness Society and Physicians for Social Responsibility co-hosted them. Also speaking were local patients, a local physician, and a local researcher. These meetings were universally well-received and they highlighted the importance of the ESA.

A variety of other options exist to promote the ESA. More signatures are needed for a letter to Congress, says Jim. This letter has already been signed by more than 1,000 physicians and other medical professionals, and more than 100 physician and medical advocacy groups. Individuals who would like to sign the letter should contact Jim at the number listed in the column, at right.

"Protecting endangered species will allow plants to survive so they may become sources of medications to treat currently untreatable illnesses."

How to Help:

Renewed efforts to undermine the ESA's effectiveness are expected to begin after the November elections. Medical providers can write editorial pieces for local newspapers. The Environmental Information Center in Washington can assist you with this. Contact Chuck Bernstein, 202/797-6522.

You may obtain the 2- by 3-foot poster of leukemia survivor Jackie Buckley from the Wilderness Society to post in your waiting room or office to stimulate patient interest.

For free medicine bottle labels and fact sheets, posters or other information, contact Jim Waltman, Director, Refuges and Wildlife, The Wilderness Society, 202/429-2674.

Dr. Kevin Browngoehl may be reached at 610/623-9080, and he is willing to offer assistance with lobbying efforts. ❀

Special thanks to Kimberly Johnson, M.D., for providing background information for this article and for enthusiastic leadership of the WMS Environmental Council.

Roughly 10 percent of all L. reclusa bites result in serious dermatonecrotic lesions. Yet treatment for these bites is based on very few controlled human or animal studies.

Toxinology Hyperbaric Oxygen to Treat Brown Recluse Spider Bites

Michael L. Maynor, M.D.

Brown recluse – or *L. reclusa* – spider bites can produce severe skin lesions that may require extensive surgical repair. Several reports suggest that hyperbaric oxygen (HBO) may be beneficial in healing these lesions.

Many bite victims do not seek medical attention. Envenomation leads to a wide range of clinical responses, from painless, with only minor urticaria and a 5 mm erythematous papule, to severe dermatonecrosis, to systemic loxoscelism, and even death. This wide range is attributed to the dose of venom injected, the location of the bite, and immunity conferred by previous bites.

The more serious envenomations progress over eight to 24 hours to local induration, erythema, pruritis, and pain. This is followed by a blanching ring with increasing diameter, forming a central pustule and an enlarging blue macule that over one to three days may sink below the level of adjacent skin. The surrounding erythema enlarges and becomes characteristically violaceous and is often bordered by a ring of pallor, hence the name, "halo effect."

In severe cases, lesions spread by continuity, depending on gravity, to involve a whole limb or large part of the trunk. The blue macule becomes a central zone of necrosis, turning black and irregular in three to four days. Four to seven days later there may be gangrenous sloughs with eschar formation and induration. In about seven to 14 days, the central necrotic area becomes mummified, allowing the eschar to separate from the edematous bordering viable skin. The eschar falls off, exposing fatty necrosis 1-3 cm deep and eventually leaving a stellate ulceration ranging from 1-30 cm.

Healing can require one to six months utilizing epithelial, granulation and contracture to decrease the depth and size of the ulceration. Secondary skin grafting may be required. Scars can become sufficiently disfiguring to require plastic surgery.

Roughly 10 percent of all *L. reclusa* bites result in serious dermatonecrotic lesions. Yet treatment for these bites is based on very few controlled human or animal studies. Recent



evidence suggests that HBO may be efficacious in treating dermatonecrosis.

Svensden reported dramatic healing in six patients with at least class III or IV envenomations. These patients, two to six days post-bite, were given twice daily regimens of HBO at 2.0 atm abs for 60-90 minutes for three days in a Sechrist monoplace chamber. Kendall and Caniglia reported similar results in 47 cases with an average of 5.6 treatments. Both reported no third degree skin slough, or scarring or need for surgery, grafting, or hospitalization.

Maynor electively treated 14 adult patients out of 40 suspicious lesions at 2-2.5 atm for 90 minutes twice a day for an average of seven treatments. All patients healed without scarring, disability, or need for skin grafting.

Strain and Snider performed the first in vivo study and found significantly increased histologic healing with twice-a-day HBO (2 atm abs for two hours) compared to controls.

Pathophysiology

Microdissection of *L. reclusa* venom sacs demonstrates alkaline phosphatase, protease, esterase, and collagenase, enzymes that promote the swift diffusion of venom through tissue. However, the dermatonecrotic component of *L. reclusa* venom is sphingomyelinase-D, a complex phospholipase of 32,000 Da that causes a severe cytotoxic reaction in vitro.

Sphingomyelinase-D, in the presence of calcium, attaches to, structurally alters, and degrades the sphingomyelin of human red blood cells and other cellular membranes. This causes cell lysis, hemolysis, and death, and leads to the release of inflammatory mediators – arachnidonic acid and prostaglandins. These mediators cause platelet aggregation and serotonin release, resulting in microvascular thrombosis and ischemia.

Importantly, there is also a significant chemotactic infiltration of polymorphonuclear (PMN) leukocytes leading to intravascular clotting, degeneration of vessel walls, hemorrhage into the dermis, and liquefaction and abscess formation. This occurs over three to five days.

Finally, there is amplification of the initial inflammatory reaction by the intrinsic vascular cascade that is dependent on complement, C-reactive protein, and serum amyloid P component in producing the local and systemic reaction of necrotic arachnidism. In contrast, snake and bee venom produce a lesser necrotic amplification reaction in spite of much higher levels of hyaluronidase and phospholipase A2.

Until recently, there was no general agreement on the definite therapy of cutaneous

loxoscelism. There have been very few controlled human studies demonstrating that any one therapeutic modality decreases the chance of dermatonecrosis. Conservative measures include local cleansing, sterile dressings, cryotherapy, elevation, and administration of antipruritic, analgesic, and sedative medication.

Steroids – intralesional, oral, or systemic – do not affect wound healing because of vasoconstriction and increased intralesional pressure. Early wide incision is expensive, disabling, and disfiguring and increases inflammation because it may be difficult to determine the venom margins.

Dapsone, traditionally used for leprosy, has been used with some success in treating these dermatonecrotic lesions. However, Dapsone usually misses the surge of PMNs one hour post-bite (most victims are not seen that soon), and can cause seizures and hemolytic anemia.

The most promising therapy, intralesional antivenim, inhibits the activity of sphingomyelinase D. The obvious disadvantage is that it is only effective when given in the first 24-48 hours post-bite and most patients are seen much later. Moreover, antivenim is not commercially available.

HBO may be the best treatment for the 10 percent of patients who go on to form necrotic ulcers greater than 2 cm in diameter. HBO treatments are safe and side effects are minor, involving the ear, sinus, and lungs. A benign oxygen toxicity seizure may also occur.

How does HBO aid wound-healing in *L. reclusa* bites?

HBO increases the PO₂ in wound extracellular fluid from 10 mm Hg to over 100 mm Hg by increasing the distance that oxygen perfuses from existing capillaries. This extends the usual oxygen gradient from 30 - 80 μ m away from the vessel walls. The increased oxygen tension could enhance capillary endothelial cell growth (angiogenesis). Wound margin fibroblasts require a tissue PO₂ of 40-50 mm Hg to replicate and produce a collagen matrix sufficiently strong to support angiogenesis and extension into the wound.

Fibroblasts are also attracted to new wound centers by mitogen-releasing macrophages. This supports the use of intermittent HBO with normobaric intervals. It has also been shown that PMN leukocytes exhibit bursts of oxygen consumption after phagocytizing bacteria. The provision of extra oxygen (HBO) in a normally hypoxic wound facilitates phagocytic killing of microorganisms.

Possible mechanisms for a beneficial effect of HBO in the healing of the bites of *L. reclusa* include the sequestration of neutrophils away from the major wound sites; inactivation of sphingomyelinase in venom; the direct inhibition of

neutrophil adherence at the cellular-endothelial interface and subsequent decreased effects of any venom-induced, ischemia-reperfusion injury; and increasing oxygen delivery to ischemic tissue.

HBO therapy is recommended for individuals who witness a *L. reclusa* spider bite or who develop typical lesions more than 2 cm in diameter two days after the bite after being in a place consistent with spider habitat.

Dr. Maynor is at the Department of Emergency Medicine and Hyperbarics of the Louisiana State University Scholl of Medicine in New Orleans. ❀

Letter to the Editor

The Spring 1996 issue of the *Wilderness Medicine Letter* (Vol 13, No. 2, p. 13) contained an announcement regarding the new accreditation examination in tropical medicine and travelers' health offered by the American Society of Tropical Medicine and Hygiene (ASTM&H).

I encourage members of WMS to apply for this certification. While the ASTM&H examination is not meant to certify competence in wilderness medicine, questions are included about exposure to altitude, heat, cold, diving and poisonous plants and animals. This certification process will benefit both patients and participating physicians and will bring increased recognition to a specialty outside the technical mainstream of medicine in the United States.

WMS has profited professionally and economically by joining with ASTM&H in presenting seminars emphasizing travelers' health in meetings held in Santa Fe in 1994 and '96. More such cooperation will benefit both organizations, which have overlapping yet distinctive interests. Many individuals are members of both societies, which helps foster cross-fertilization of ideas.

The more WMS members take and pass the ASTM&H examination, the more influence they are likely to have on its content and purpose. The quality of wilderness medicine is bound to improve in this process.

For more information about certification contact: ASTM&H, Attention: Judy DeAcetis, 60 Revere Drive, Suite 500, Northbrook, IL 60062. Telephone (847) 480-9592.

Sincerely,
Leonard C. Marcus, V.M.D., M.D. ❀

Wilderness Medicine Symposium March 7-9, 1997 Smoky Mountain Institute at Tremont

The Tennessee members of the Wilderness Medical Society announce their third regional educational program. The 1997 program features formal lectures by authorities in various areas of wilderness medicine, workshops, casual evening sessions, and optional afternoon hikes.

Phillip D. Bertram, M.D., FACP, is the program chair for this regional meeting, and he invites WMS members in the Southeast to pack their sleeping bags and travel to the Smoky Mountains for an early spring wilderness break.

A detailed program brochure is available from the WMS Office; call 317/631-1745 for your copy.

Wilderness Medicine Letter Feature Needs You

Whenever WMS members get together, conversation naturally drifts toward their involvement in wilderness medicine. Many members write papers for scientific journals and articles for the public. Others give scientific presentations at scholarly national meetings or talk at a local Scout meeting.

We are interested in all of the above. Please send copies of your material to the newsletter. We will print short summaries.

This will give our members new insights about wilderness medicine and provide ideas on getting wilderness/health information to health care professionals and to the public. And we will get to know each other better.

Please send material to: Karl Neumann, M.D., 108-48 70th Road, Forest Hills, NY 11375. Telephone: 718/263-2072. Fax: 718/261-9082. ☘

Member News

Susan Tripp Snider, M.D.

Laura Helfman is a part-time ER physician and seasonal raft guide. She graduated from the Medical College of Pennsylvania in 1985 and did an internship in Fresno, CA. She followed that with *locum tenens* work while pursuing her interest in whitewater. She did an emergency medicine residency at Long Island Jewish Medical Center, then made a beeline for the mountains in North Carolina.

Presently, Laura works at the Nantahala Outdoor Center as a raft guide, and also teaches first aid and CPR to other guides.

She works ER jobs November to April, and loves the flexibility and variety of her combined careers.

Mark Tucillo, of Petersburg, Alaska, is one of two physicians providing health care to 4,000 people on a small island in Southeastern Alaska. There is a fairly new rural hospital with 10 acute care beds, basic x-ray and lab. There is no true surgical or anesthesia capacity, and referral centers are more than 700 miles away in Seattle or Anchorage.

Mark provides care to remote communities and homesteads through visits, phone calls and development of medical kits and caches. He is developing a course on wilderness care for hunting and fishing guides, a course that can be expanded to commercial fishing crews and remote site inhabitants.

He provided medical support for the 1993 Iditerod race and was director of clinical services for the 1996 Arctic Winter Games in Chugiak. He says, "It's all wilderness care here."

Gregory Shannon, an ER physician in Owosso, MI, has been involved in organized medicine for several years. As an AMA delegate to the hospital medical staff section, he came to the conclusion that enormous amounts of energy go into the development and passage of certain resolutions. The AMA Board then decides for which resolutions it will lobby. The process is cumbersome and indirect, and does not translate easily into votes in legislatures.

He sees a need to balance medical research, medical practice, and political effectiveness, and believes that physicians who are legislators can have a large impact on public policy and legislation. He is therefore running for County Clerk, with the intention of subsequently running for state senate and eventually for Congress.

His particular concerns include biodiversity, conservation, and preservation. His favorite outdoor activities are hunting and SCUBA diving. ☘

Let us hear about your wilderness adventures! Send a brief paragraph about yourself (and include a photo, if possible) to: Susan Tripp Snider, M.D., 112 Hospital Drive, Spruce Pine, NC 28777.

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V.W. Aniol, M.D., Red Lake, ON, Canada
Nader M. Bahadory, D.O., Middletown, CT
Derek Barclay, Santa Fe, NM
Mike Barnes, M.D., Glenwood Springs, CO
Deneen Baron, Burnaby, BC, Canada
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Linda Locati, R.N., San Jose, CA
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Patricia Luce, M.D., Corsicana, TX
Jaimes MacDonald, M.D., Augusta, ME
Michael Mackanic, Norfolk, VA
Philip Mackell, M.D., Brooklyn, NY
Charles Manning, M.D., Tallahassee, FL
Michael Manuel, M.D., Anchorage, AK
Britt Marcussen, M.D., LaCrosse, WI
Christopher K. Marcuzzo, M.D., Scottsdale, AZ
Andrew Matthews, M.D., Yorktown, VA
Beth and Tim Mazzola, Davis, CA
Robert L. Mazzola, River Ridge, LA
Frances McCabe, M.D., Burke, VA
Wayne Merry, Attin, BC, Canada
Anthony Montefusco, M.D., New Orleans
Randall Moore, Eagle City, TX
Roger C. Moyer, Wooster, OH
William Muir, M.D., Shiprock, NM
John H. Nadeau, M.D., Nashville, TN
Nancy Niccum, Tuscon, AZ
Karen Nolan, Denver
Diane Noton, M.D., Casper, WY
Lisa Oakley, M.D., Austeul, GA
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Jonathan D. Olenick, M.D., San Bernardino, CA
William Oley, Columbus, OH
Karen Parker, M.D., Sacramento, CA
James Patterson, M.D., Tomah, WI
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Andre Pennardt, M.D., Universal City, TX

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Jane Ragan, Johnson City, TN
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Lorca Rossman, Dixon, CA
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Edward T. Waters, Coleville, CA
Kent Weissman, M.D., Bristol, RI
Mark Whitman, Valhalla, NY
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