

2009 Year in Review





National Farm Medicine Center staff at the 2009 Stueland Scholar event. Front (from left): Jenni Heeg; NFM Center Director Barbara Lee; Stueland Scholar recipient Cheryl Tevis, senior farm issues editor at Successful Farming magazine; Marlene Stueland; Regina Fisher. Back row: Tammy Ellis; Ruth Mueller; Barbara Marlena; Scott Heiberger; NFM Center Medical Director Steven Kirkhorn; Mark Borchardt; and Marcy Fitz Randolph. Not pictured: Sue Spencer. The Stueland Scholar was established in 2001 to honor the memory of emergency medicine specialist Dr. Dean Stueland, former medical director of the National Farm Medicine Center and vice president of Marshfield Clinic. The award goes to an individual who has made significant contributions in the areas of emergency, agricultural and/or alcohol and drug abuse medicine.

From the Director

This 2009 Year in Review offers a glimpse of achievements, celebrations, and tangible outcomes that marked a year of hard work, challenges and commitment of our NFM Center staff. Just to name a few:

- Scientists have been honored for their achievements through major awards and speaking invitations.
- Our endowments have grown sufficiently to begin recruiting for the Dean Emanuel Endowed Chair/Senior Scientist position.
- We strengthened partnerships to propose a new initiative addressing health and safety of workers in Wisconsin's growing dairy industry.
- We conducted Wisconsin's first AgriSafe Training for rural health practitioners and we formally launched AgriSafe clinical services.
- We enhanced our management of the Journal of Agromedicine: Practice, Policy and Research.
- We marked the first decade of the North American

Guidelines for Children's Agricultural Tasks (NAGCAT), released in 1999, which are known nationally and internationally as an evidence-based strategy for reducing injuries.

- We noted the national rates of childhood agricultural injury declined by 44 percent (from 1998 – 2006) among children who live on farms.
- We acknowledged the superb journalistic contributions of Cheryl Tevis, writer for Successful Farming magazine, through the Dean Stueland Scholar Award.

We remain ever grateful to Marshfield Clinic and the many funding agencies for believing in us and allowing us to continue addressing our mission addressing human health and safety associated with rural and agricultural work, life and environments.

Barbara Lee

***Table* of Contents**

| | |
|----------------------------------------------------|----|
| National Leadership | 1 |
| Agromedicine | 3 |
| Childhood Agricultural Health & Safety..... | 5 |
| Visitors..... | 9 |
| Public Health Microbiology | 11 |
| General Staff | 12 |
| Outreach/Administration | 13 |
| Publications, Presentations, Conferences..... | 15 |
| Childhood Agricultural Safety Network Members..... | 19 |
| Making a Gift..... | 20 |
| Acknowledgments..... | 20 |

Credits

National Farm Medicine Center 2009 Year in Review

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National Leadership

It is increasingly clear that a safer agricultural workplace will best be achieved by researchers and agribusiness leaders working more closely together. To that end, the National Farm Medicine Center led planning and facilitation of “Be Safe, Be Profitable: Protecting Workers in Agriculture,” a first-of-its-kind conference held January 2010 in Fort Worth, TX.

The conference represented an important step forward in bridging the gap between research and industry application by bringing together producers, researchers, and farm health and safety advocates. Panels focused on identification and promotion of evidence-based safety strategies in key areas such as language/literacy barriers, pre-harvest food safety and musculoskeletal disorders. Conference papers will be published in a dedicated issue of the *Journal of Agromedicine: Practice, Policy & Research*, which is edited at the National Farm Medicine Center.

The conference was co-presented by the Agricultural Safety and Health Council of America (ASHCA) and the National Institute for Occupational Safety and Health (NIOSH). The National Farm Medicine Center is a founding member of ASHCA and provides administrative services. Planning has begun for the next conference, January 2011, in Atlanta (www.ashca.com).

NFMC scientists and staff serve on advisory boards and committees of numerous organizations, both government and private. The center continued to be a crossroads of ideas as it hosted visiting scholars who discussed timely issues of interest to the NFMC and its stakeholders.

- **NFMC Director Barbara Lee, Ph.D.**, continued to direct the National Children’s Center for Rural and Agricultural Health and Safety, one of eight agricultural centers funded by the National Institute for Occupational Safety and Health (NIOSH), and the only one dedicated to children. In addition, Dr. Lee and her staff provide leadership and administrative services for the Agricultural Safety and Health Council of America (ASHCA) which was formed in 2007. ASHCA is guided by a



15-member Board of Directors representing major U.S. agricultural businesses and organizations with a mission to proactively address ongoing and emerging occupational safety and health issues.

- **Steven Kirkhorn, M.D., M.P.H.**, medical director of the NFMC and Marshfield Clinic Occupational Health Department, led an expert panel discussion of musculoskeletal disorders and ergonomics at the ASHCA conference. Dr. Kirkhorn continued to serve on the National Pork Board’s Public Health and Worker Safety Technical Advisory Panel. Dr. Kirkhorn also participated in a systematic review of community and environmental health effects of animal feeding operations with a grant from the National Pork Board and Iowa State University.
- **Barbara Marlenga, Ph.D.**, was co-investigator on a study that indicated tractor controls, especially those that are hand-operated, may not be effectively reached by the majority of youth operators aged 12 to 16 years. The study raises further serious questions about the ability of children to safely operate tractors in common use on U.S. farms and calls for reconsideration of age guidelines for the assignment of children to tractor work on farms. An earlier, related study by Dr. Marlenga showed that ergonomic forces required to operate controls on commonly used tractors exceeded the physical abilities of most teens.
- **Mark Borchardt, Ph.D.**, continued his term on the Environmental Protection Agency (EPA) Science Advisory Board’s Drinking Water Committee, and advises on technical issues underlying EPA policies and decision-making. He also serves on an EPA review panel to help develop the third Contaminant Candidate List to identify unregulated contaminants that may require national drinking water regulations in the future. Dr. Borchardt’s board appointments



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also include: Green Tier Advisory Board, Cooperative Environmental Assistance Bureau, Wisconsin Department of Natural Resources; Reviewer of Guidelines for Canadian Drinking Water Quality – Enteric Viruses, Water, Air, and Climate Change Bureau, Health Canada; EPA’s 2007 Report on the Environment: Science Report, Science Advisory Board; Canadian Water Network, Review Panel, Pathogens in Groundwater Consortium; Homeland Security Advisory Committee, Science Advisory Board, U.S. Environmental Protection Agency.

- The NFMC launched a national search to recruit a senior scientist for the Emanuel Endowed Chair position. This scientist will lead a new dairy workers safety and health initiative. Key activities will include research into the ergonomics of dairy tasks and training for language-limited workers, on-farm injury prevention consultation services, and education and training in the use of personal protective equipment. The goal of the initiative will be to identify and address major disease and injury concerns that impact the wellbeing of workers in the dairy industry.
- Dr. Lee served on the U.S. Department of Agriculture Youth Farm Safety Education and Certification

steering committee; the Wisconsin Injury Research Center (Medical College of Wisconsin) advisory board; and the Pacific Northwest Agricultural Research Center advisory board.

- The NFMC continued to facilitate the Childhood Agricultural Safety Network (CASN), a collaborative effort with other national youth-serving organizations to explore methods to reduce childhood agricultural injuries (www.childagsafety.org).



Dr. Marlenga receives the Gwen D. Sebold Research fellowship from Dewey Sebold.



Agromedicine

Agromedicine addresses the health and safety concerns of agriculture by merging the principles of occupational health, industrial hygiene and agricultural safety. Leading the NFMC Agromedicine core is Steven Kirkhorn, M.D., M.P.H., medical director of the NFMC and chair, Marshfield Clinic Occupational Health.

Treatment and prevention of agricultural illness and injury requires special training. Dr. Kirkhorn worked with the not-for-profit AgriSafe Network to set up the first AgriSafe-certified course in Wisconsin to offer a core curriculum in agricultural medicine and health.

Physicians, nurses and other health professionals from across the state attended a three-day class at Marshfield Clinic in November. Course topics included cultural and occupational health issues of special populations, toxicology, veterinary pharmaceuticals, zoonotic diseases, chronic musculoskeletal injuries, ergonomics, environmental health problems, acute trauma, farm trauma rescue, behavioral health issues in agriculture and respiratory disease. Earlier in the year, an AgriSafe-trained nurse began providing agricultural occupational health and safety services to farmers and their families at Marshfield Clinic.





Faculty at the AgriSafe training in Marshfield, WI, included (from left): Steven Kirkhorn, M.D., M.P.H., NFMCC medical director; Cheryl Skjolaas, University of Wisconsin Extension specialist; John Shutske, Ph.D., Associate Dean, College of Agricultural and Life Sciences, University of Wisconsin; and Kelley Donham, D.V.M., M.S., Professor, College of Public Health, University of Iowa, and Director, Iowa's Center for Agricultural Safety and Health.

Dr. Kirkhorn is in his sixth year of editing the peer-reviewed *Journal of Agromedicine: Practice, Policy & Research* www.informaworld.com. In May the Journal published its largest-ever issue, 29 papers from the sixth International Symposium: Public Health and the Agricultural-Rural Ecosystem.

As an educator, Dr. Kirkhorn serves as a clinical faculty member at the University of Wisconsin School of Medicine and Public Health's Office of Rural Health. He gave two presentations to the Wisconsin Academy of Rural Medicine on the topics of agricultural respiratory disease and agrochemical hazards.

Dr. Kirkhorn gave several other invited presentations, including the keynote at the Wisconsin Comprehensive Cancer Control Summit, where he addressed the impact of the rural environment on cancer issues.

Dr. Kirkhorn provided scientific and clinical evidence on matters of policy related to issues such as the sale of unpasteurized (raw) milk. Dr. Kirkhorn's input was used by the Marshfield Clinic Health Policy Group and state legislators.



Dr. Kirkhorn, editor of the Journal of Agromedicine, with editorial assistant Ruth Mueller.



Childhood Agricultural Health and Safety

The National Children's Center is funded by the National Institute for Occupational Safety and Health (NIOSH) to "enhance the health and safety of all children exposed to hazards associated with agricultural work and rural environments." It is located within the NFMCC and is under the direction of **Barbara Lee, Ph.D.** Dr. Lee participates in biannual in-person meetings and quarterly teleconferences with directors of all NIOSH-funded agricultural research centers to facilitate new initiatives and coordination across regions. In addition, Dr. Lee convened a meeting of the center's 10 External Scientific Advisors this past October in Minneapolis, MN. The advisors provided advice on evaluating the impact of current initiatives and setting a long-term direction for the National Children's Center.

Since 1996, the National Children's Center has been a leader in childhood agricultural injury prevention efforts with funding from NIOSH. The center is currently operating under a five-year, \$4.6 million competitive award that runs through fiscal 2013. The funds are allocated for outreach programs and intervention research projects.

The award includes annual funding for four mini-grants (\$20,000 each) that allow community organizations to conduct small-scale projects. For FY

2010, three of the four mini-grants focus on vulnerable populations. Since 2002, 35 projects have been funded in amounts up to \$20,000. Approximately half of the projects have covered vulnerable populations.

Another project is Digital Dissemination, featuring Web-based options for current and proposed National Children's Center projects. Its first output is a search function for the North American Guidelines for Children's Agricultural Tasks (NAGCAT) at www.nagcat.org. Typing the name of the task in the search box will bring up the most relevant of 62 different guideline posters. The most requested guidelines include, "Milking cows," "Farming with an ATV," "Lifting," and Spanish language versions of "Hand harvesting vegetables," and "Driving a tractor." The Digital Dissemination team is currently working to add an interactive element to the Creating Safe Play Areas on Farms page at the National Children's Center Web site, www.marshfieldclinic.org/nccrahs/.

A foundational piece of the Children's Center is the "Blueprint of Knowledge Translation" project directed by Susan Gallagher, M.P.H., of Tufts University in Boston, MA, with assistance from Marshfield staff: Marcy Fitz-Randolph, D.O., M.P.H.; Barbara Lee, Ph.D.; and Barbara Marlenga, Ph.D. A comprehensive synthesis of literature will suggest themes for subsequent lines of inquiry and recommended actions leading to an updated national approach to childhood agricultural injury prevention. A major highlight of 2009 was NIOSH's release of childhood agricultural injury data that revealed a 44 percent decline of injuries (1998-2006) among children living on farms and a 37 percent decline among children who live on, visit or work on farms. Yet, while the drop in nonfatal injuries is promising, the toll of deaths seems relatively constant.

Barbara Marlenga, Ph.D., deputy director of the National Children's Center, is leading a follow-up study of Wisconsin teenagers who participated in an educational intervention to improve hearing protection use. The original study was conducted by the National Farm Medicine Center in the mid-1990s. More than half the original 753 individuals from that study have been recruited to see whether their increase in hearing-





The National Children's Center's external advisors met in October in Minneapolis, MN. From left: facilitator Sharon Dorfman, Sc.M., SPECTRA; David Hard, Ph.D., NIOSH; William Pickett, Ph.D., Queens University, Ontario; Lorann Stallones, Ph.D., CDC-Injury Center at Colorado State University; Paul Gunderson, Ph.D., Dakota Center for Technology-Optimized Agriculture; Deborah Reed, Ph.D., Southeast NIOSH Agricultural Research Center; John May, M.D., Northeast NIOSH Agricultural Research Center; Susan Gerberich, Ph.D., University of Minnesota/Midwest NIOSH-ERC; Karen Mountain, M.B.A., Migrant Clinicians Network; Dennis Murphy, Ph.D., Penn State University; David Parker, M.D., Park-Nicollet Clinic, Minneapolis. Also attending was Susan Gallagher, M.P.H., Tufts University.

protection use continued into adulthood, and whether that protection helped preserve hearing. Dr. Marlenga also continued work that examines the ability of youth to safely operate farm tractors.

Dr. Marlenga's research and dedication to the health and safety of farm children was recognized in November when she received the Gwen D. Sebold Research Fellowship, given annually to an outstanding Marshfield Clinic researcher. Raised on a dairy farm and a former emergency room nurse, Dr. Marlenga understands farm culture's benefits and hazards. She was instrumental in development of the North American Guidelines for Children's Agricultural Tasks (www.nagcat.org), designed to assist parents in assigning farm tasks to children ages 7-16.

Regina Fisher, M.S., agricultural youth safety specialist, leads the Children's Center's national outreach activities and intervention projects. She is the project team leader for Safety Guidelines for Hired Adolescent Farm Workers (SaGHAF). The SaGHAF resource is now online at www.marshfieldclinic.org/saghaf. SaGHAF is based on the success of the North American Guidelines for Children's Agricultural Tasks (NAGCAT). SaGHAF, to be used by crew leaders and other supervisors in the field, addresses hazards for specific work tasks. Each colorful, illustrated poster

addresses supervisor responsibilities for ensuring work conditions are appropriate and adequate (e.g., safety devices are in place, safe transportation to fields) and for assessing their teen workers (e.g., worker can operate vehicle controls, can lift and carry 15 percent of body weight). Each poster includes pertinent federal regulations and referrals to obtain state-specific child labor regulations.

Fisher's ongoing work includes dissemination of the seven SaGHAF guidelines to employers and supervisors of hired adolescent farm workers. This project is a collaboration with representatives from California Polytechnic State University and the Washington Department of Labor and Industries. The first workshop was held in February 2009. The workshops address work conditions, teen assessment, and labor regulations for adolescents. Based on requests to train



NORTH AMERICAN
GUIDELINES FOR
children's
AGRICULTURAL TASKS



supervisors with low English literacy skills, resources are now being adopted into a visually-rich, computer-based program with a nine-button keyboard.

Fisher and Dr. Lee continued to facilitate the Childhood Agricultural Safety Network (CASN). Several first-time attendees were among 30 participants at the CASN annual meeting in June in New Orleans, LA, held in conjunction with the National Institute for Farm Safety Conference. CASN is a coalition of health and safety organizations across North America. Its purpose is to strengthen partnerships and collaborative efforts involving the agricultural community, child injury prevention organizations, and minority serving associations that will improve and expand childhood agricultural injury prevention efforts. To read more, go to www.childsafety.org.

The Network's national campaign to "Keep Kids Away from Tractors" is now on YouTube. A 30-second public service ad featuring country recording artist Michael Peterson is at www.youtube.com/nationalfarmmedicine. Since its launch in 2006 the "Keep Kids Away from Tractors" campaign has won regional and national awards from the National Agri-Marketing Association. It has been featured on AgDay television network (120 stations) and Brownfield radio network (more than 250 stations) in addition to individual television and radio stations. The campaign has also appeared in least 150 agricultural trade journals, newspapers and newsletters.

Amy Liebman, M.P.A., is beginning her eighth year as the National Farm Medicine Center's formal consultant on migrant issues through Migrant Clinicians Network (MCN), working as a "virtual" staff member from her home in Salisbury, MD. Liebman worked with Regina Fisher at the Farm Center to condense key elements of the 2003 Safe Play resource into the "Creating Safe Play Areas on Farms: 2009 Mini-Edition," which was produced in response to requests for a shortened, Spanish-language version. Liebman and Fisher worked with Association of Farmworker Opportunity Programs on the six-page resource.



A poster from the "Keep Kids Away From Tractors" campaign.



Creating Safe Play Areas on Farms; 2009 Mini-Edition (Spanish).



The Web-based search function for NAGCAT underwent usability testing at Marshfield's Biomedical Informatics Research Center.

At MCN, the nation's oldest clinical network for the mobile underserved, Liebman directs a project called Saving Lives by Changing Practices. Liebman helped expand the program to include a focus on clinical practices for pregnant women and their babies. MCN partnered with CommuniCare Health Center in Davis, CA, to design and implement a pilot perinatal program for farmworker women. In response to numerous request from clinicians asking for help in addressing questions about pesticide exposures during pregnancy, MCN developed patient materials such as a Spanish language comic book, "Lo Que Bien Empieza... Bien Acaba," available at www.migrantclinician.org/, and a program in which clinicians are trained to screen perinatal patients for pesticide exposure. Saving Lives by Changing Practices is part of a five-year cooperative agreement with the U.S. Environmental Protection Agency, Office of Pesticide Programs. In addition, Liebman also helped set up programs with Salud Integral en La Montana and Rural Medical Services in Tennessee.

Marcy Fitz Randolph, D.O., M.P.H., research specialist, worked with Dr. Marlenga on the "Hearing Study 15-year Follow-up." She also collaborated with Marshfield's Biomedical Informatics Research Center to create a Web page interface for the NAGCAT poster

series, part of the National Children's Center's Digital Dissemination project. In the fall Dr. Fitz Randolph accepted a senior research associate job at Mapi Values in Boston, MA, the global leader in the international development of patient-reported outcomes.

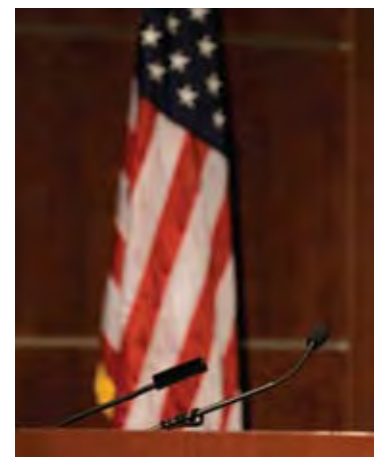


Amy Liebman worked with CommuniCare to pilot a perinatal program for farmworker women.





Julie Sorensen, Ph.D., a social scientist at the New York Center for Agricultural Medicine and Health in Cooperstown, New York, and Humberto Vidaillet, M.D., director of Marshfield Clinic Research Foundation, after Dr. Sorensen presented "Combining Qualitative with Quantitative Research for Public Health" as part of a Scientific Seminar in December.



"Farm safety and health is not a solo act," said 2010 Senior Farm Issues Editor at Successful Farming magazine. He accepted the Stueland Scholar award at the Laird Clinic. Tevis urged farm families, healthcare providers, and others to work together to overcome tradition, economics and other barriers.



Shelly Mayer, right, executive director of Professional Dairy Producers of Wisconsin, met with NFMC staff.



Kent Anger, Ph.D., associate professor at Oregon Health and Science University, presented in December on "Learning and Recall of Worker Protection Standard (WPS) Training in Vineyard Workers."



David Douphrate, Ph.D., right, of the High Plains Intermountain Center for Agriculture Health and Safety in Colorado, with Superintendent Tom Drendel at the University of Wisconsin Marshfield Agricultural Research Station in January 2009.



2009 Stueland Scholar recipient Cheryl Tevis, M.A., the magazine. Tevis made her remarks in September when she Center for Medical Research on the campus of Marshfield ers, media and researchers to continue working her challenges to safer agricultural practices.



James Westaby, Ph.D., an associate professor at Teachers College, Columbia University, is an expert on social and organizational psychology. As a consultant he integrates conceptual and theoretical framework into the National Children's Center's Safe Play and Childhood Agricultural Safety Network projects.



Matt Keifer, M.D., M.P.H., of the Pacific Northwest Agricultural Safety and Health center, presented on "Risk Factors for Cholinesterase Depression in the Washington State Cholinesterase Monitoring Program."



Kathy Schmitt, Wisconsin Department of Agriculture, briefed the NFMC in May on the department's Wisconsin Farm Center and its "Beginning and Minority Farmer Outreach & Assistance Program."



Frank Mitloehner, Ph.D., world-recognized expert in air quality and dairy farming (right), pays an informal visit to Gary Ruegsegger, Maple Ridge Dairy, Stratford, last fall. Dr. Mitloehner is an Associate Professor and Cooperative Extension Specialist at the University of California, Davis.



Mark Borchardt, Ph.D., and visitors from the University of Wisconsin Geology Department.



Sue Spencer, senior research associate.

Public Health Microbiology

As farmers, water utilities and governments worldwide pay increasing attention to groundwater quality, demand increases for the expertise of **Mark Borchardt, Ph.D.**, and the Public Health Microbiology Laboratory.

Dr. Borchardt gave 14 invited presentations in 2009, speaking at the Global Conference on Microbial Contaminants in Drinking Water, Singapore; the EPA Office of Water, Washington, DC; the Wisconsin Dairy Business Association annual conference; the Wisconsin Water Association annual meeting; the Institute for Clinical and Translational Research, University of Wisconsin; and others.

Acting upon a growing body of research, most notably research done by Dr. Borchardt's lab, the Wisconsin Department of Natural Resources is proposing rules to require dozens of Wisconsin communities to install systems that would protect residents by screening out bacteria and viruses from underground drinking water sources. The rules would impact communities that don't currently disinfect their water. Much of the supporting research came from Dr. Borchardt's EPA-funded study of 14 Wisconsin communities that found 34 of 36 wells tested positive for viruses. The viruses can cause gastrointestinal illnesses. Complete results will be published in 2010.

Sue Spencer, senior research associate, developed and validated methods to purify and quantify a suite of cattle pathogens in complex samples such as wastewater, soil and agricultural run-off. Using molecular techniques to detect and quantify human viruses, she analyzed samples from the Menomonee River watershed to determine quantity and variety of viruses measured after a storm event.

A technique developed in the lab for concentrating human viruses from the environment has now been shown to work for concentrating cattle viruses in run-off from manure-applied fields. Sherif Nagi Abdou, a visiting scientist from the National Research Center of Egypt, used a method developed by Dr. Borchardt and Spencer for concentrating human viruses using glass wool filters manufactured in the lab. As part of the lab's work with the Institute for Environmentally Integrated Dairy Management in Marshfield (a unit of the USDA Agricultural Research Service), Abdou tested samples that included bovine rotavirus, bovine coronavirus, bovine diarrheal virus Types 1 and 2, and bovine enterovirus. With this tool in hand, the lab now has the capability for understanding the fate and transport of bovine viruses in the environment. Not only is this important for improving livestock health, but also human public health because there is some evidence there are bovine viruses that may infect humans, Dr. Borchardt said.



Scott Heiberger, communications specialist.



Regina Fisher, M.S., agricultural youth safety specialist.

General Staff

Tammy Ellis, research program associate, is currently working on a National Children's Center project with American Family Insurance and the University of Iowa to determine what motivates farm parents to create or improve a safe play area for their children. As part of the center's Digital Dissemination initiative, Ellis is leading a project to build a Web-based Creating Safe Play Areas on Farms interactive map to help farm parents build their own play areas. She continued to lead the center's agritourism health and safety dissemination efforts and represented the center at the Wisconsin Fresh Fruit and Vegetable Conference. She provided technical assistance and national, state and local outreach for the National Farm Medicine Center. Ellis worked with Dr. Steven Kirkhorn to update the Harvesting Health fact sheets on the topics of children and dairy chemicals, dusts and molds, manure gases, respirators and skin cancer protection. The fact sheets are posted on the Krames Patient Education Provider Web site. Krames is used in more than 80 percent of U.S. hospitals.

Jenni Heeg, administrative secretary, worked extensively with Dr. Barbara Marlenga on the hearing conservation follow-up study and assisted Dr. Mark Borchardt with scientific presentations and manuscript

preparation on topics related to groundwater-borne outbreaks and concentrating and quantifying microbes. Heeg also had a lead role in organizing the 2010 Agricultural Safety and Health Council of America (ASHCA)-NIOSH Conference. In addition, Heeg updated content on the National Farm Medicine Center, National Children's Center and ASHCA Web sites, and provided general support to all NFMC staff.

Scott Heiberger, communications specialist, handled editing, writing and media relations activities for the National Farm Medicine Center as well as the Agricultural Safety and Health Council of America. Heiberger completed his fifth year as managing editor of the *Journal of Agromedicine* and guided publication of the Journal's largest-ever issue, dedicated to the sixth International Symposium: Public Health and the Agricultural-Rural Ecosystem. He continued to edit and write the newsletters of the National Children's Center (*Nurture*) and National Farm Medicine Center (*Cultivate*). In addition, Heiberger produced year-in-review publications for the National Farm Medicine Center and Agricultural Safety and Health Council of America. He works with all members of the center to disseminate research results and outreach materials.



Ruth Mueller, administrative secretary and editorial assistant for the *Journal of Agromedicine*, continued to coordinate correspondence amongst authors, reviewers and National Farm Medicine Center editors, while tracking papers through the review process. She also updates department metrics, calendars and arranges for invited speakers, internal and external meetings, and handles mailings from the center.

Marlene Stueland, center administrator, provided professional support and financial management to the center director, research scientists and staff. She manages the National Farm Medicine Center's major meetings and is responsible for NFMC fiscal management, procedures and project implementation. Stueland also manages the administrative affairs of the Agricultural Safety and Health Council of America, and played a lead role in the planning and execution of the ASHCA-NIOSH 2010 national conference in Fort Worth, TX.



Jenni Heeg, administrative secretary; Marlene Stueland, center administrator.

Outreach/Administration

The National Farm Medicine Center conveys agricultural health and safety research results and evidence-based resources to injury-prevention professionals, agribusiness leaders and farm families. The Farm Center utilizes two newsletters, an annual report, four Web sites, media relations activity, formal presentations and classes, articles in peer-reviewed journals, and technical assistance to public health professionals and local community members. In 2009, NFMC researchers and staff published 17 peer-reviewed articles, reports, mini-editions or other documents and gave 38 presentations at conferences, workshops and to community groups.

The administration core provides a framework to support, guide and monitor the progress of the NFMC's initiatives in research, outreach and education. It also facilitates growth through fundraising, endowments, grants and contracts.

Highlights in 2009:

- The NFMC released updated Harvesting Health fact sheets on the Krames Patient Education Provider Web site. Developed in 1974, Krames is used in more than 80 percent of U.S. hospitals, as well as leading health plans, large employers and pharma-

ceutical manufacturers. Patients and clinicians from around the country can now access the latest agricultural health and safety information on children and dairy chemicals, dusts and molds, manure gases, respirators and skin cancer prevention.

- The NFMC and Marshfield Clinic hosted the first Wisconsin AgriSafe Training in November at Marshfield Clinic, Marshfield, WI. The course offered a core curriculum in agricultural medicine, and health and safety, designed to train rural health care professionals.
- The NFMC participated in AG CONNECT Expo in January 2010, a first-ever expo that brought together the latest in equipment, technology and ideas from around the world of agriculture production. The NFMC led an educational session on agricultural health and safety and networked with global suppliers and producers.
- Through the NFMC main site, www.marshfieldclinic.org/nfmc, visitors can access the National Children's Center for Rural and Agricultural Health and Safety www.marshfieldclinic.org/nccrahs, the North American Guidelines for Children's Agricultural Tasks



NFMC staff at Dairyfest in Marshfield, WI.

(www.nagcat.org) and the Childhood Agricultural Safety Network (www.childagsafety.org).

- The National Farm Medicine Center publishes two newsletters. *Cultivate*, published twice a year, keeps readers informed of all NFMC activities. Nurture, published three times per year, disseminates children's rural health and safety information to professionals in the fields of health and safety, agribusiness, policymaking and the media.

The Farm Center also:

- Presented information about chemical hazards and injury trends on farms at the 14th Annual Ministry Health Spirit Medical Transportation Services Trauma Conference, Marshfield, WI. The conference highlighted current issues in trauma care throughout the continuum: pre-hospital, emergency, critical and acute care, and rehabilitation.
- Promoted hearing conservation and sun safety at the Marshfield Farm Show by providing over 400 pairs of earplugs and hundreds of sunscreen samples donated by the Marshfield Clinic Dermatology Department.
- Provided Pediatric Resident Training on Childhood Agricultural Injury. Marshfield Clinic offers this unique residency training experience with a multi-specialty faculty.
- Established a social media channel on YouTube which promotes "Keeping Kids Away from Tractors."

- Sponsored the 4-H Foundation Governor's Sweepstakes Meat Products Auction at the Wisconsin State Fair.



Dr. Steven Kirkhorn (right) going over a Farm safety checklist.



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NFMC Center Administrator Marlene Stueland at AG Connect Expo in Orlando, Florida.

Presentations

Wisconsin Fresh Fruit and Vegetable Conference

January 5, Wisconsin Dells, WI

“Health & Safety Checklists for Agritourism Operators,” Tammy Ellis

Common Council Meeting

January 22, Ladysmith, WI

“Wisconsin Water and Health Trial for Enteric Risks (WAHTER Study) Risk of Illness from Municipal Groundwater Consumption,” Mark Borchardt

Wisconsin Academy of Rural Medicine

UW-Madison School of Medicine and Public Health

February 19, Madison, WI

“Agricultural Respiratory Disease,” Steven Kirkhorn

University of Wisconsin Institute for Clinical and Translational Research, A Community Health Research Forum

March 2, Stevens Point, WI

“The Wisconsin WAHTER Study: Conducting a Community Intervention Trial,” Mark Borchardt

American Water Resources Association – Wisconsin Section Annual Meeting

March 5-6, Stevens Point, WI

“Human viruses in water supply wells in Madison,” Mark Borchardt

Wisconsin Academy of Rural Medicine

UW-Madison School of Medicine and Public Health

March 12, Madison, WI

“Agrochemical Hazards,” Steven Kirkhorn

Pennsylvania Migrant and Immigrant Health Conference

March 24, Lancaster, PA

“Dying to Work: The Risks from Injury and Death on the Migrant’s Journey to Work and on the Job,” Amy Liebman

6th Annual Wisconsin Comprehensive Cancer Control Summit

April 2, Stevens Point, WI

Keynote presentation-“Rural Cancer Issues: The impact of the rural environment,” Steven Kirkhorn

US Environmental Protection Agency, Region 5 State Drinking Water Program Directors Meeting

April 29, Chicago, IL

“Wisconsin Water and Health Trial for Enteric Risks (WAHTER Study),” Mark Borchardt

First International Conference

May 10-13, Niagara-on-the-Lake, Canada

“Human Enteric Viruses as Tracers of Wastewater Pathways into Municipal Drinking Water Wells: Microbial Transport and Survival in Porous Media,” Mark Borchardt

American Society for Microbiology

May 17-21, Philadelphia, PA

“Role of distribution system contamination on the risk of viral gastrointestinal illness associated with drinking water,” Mark Borchardt

National Institute for Occupational Safety and Health Invitational Intra/Extramural Agriculture, Forestry, and Fishing Safety and Health Workshop

August 11, Cincinnati, OH

“Keep Kids Away from Tractors Childhood Agricultural Safety Public Awareness Campaign,” Barbara Lee

“Development of Safety Guidelines for Hired Adolescent Farm Workers,” Barbara Lee

“National Children’s Center for Rural and Agricultural Health and Safety,” Barbara Lee

“North American Guidelines for Children’s Agricultural Tasks: One Decade Later 1999-2009,” Barbara Lee

14th Annual Ministry Health Spirit Medical Transportation Services Trauma Conference

Aug 13, Stevens Point WI

“Chemical Hazards and Injury Trends on the Farm,” Steven Kirkhorn

Institute for Clinical and Translational Research, University of Wisconsin – Madison

August 26, Madison, WI

“The Wisconsin WAHTER Study: A Community Intervention Trial to Estimate Illness Risk from Municipal Drinking Water,” Mark Borchardt

Wisconsin Water Association Annual Meeting

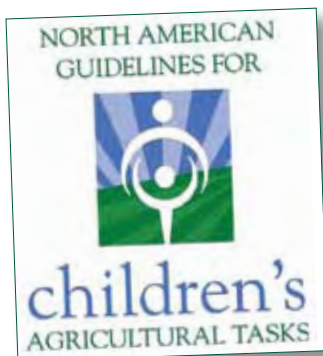
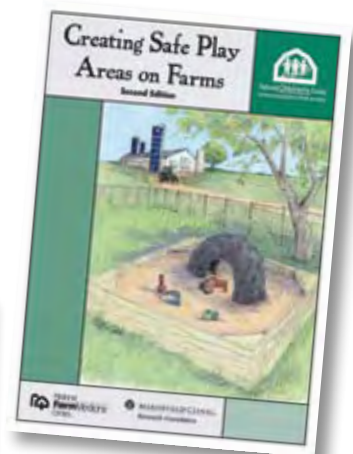
September 24, Wisconsin Dells, WI

“Wisconsin Water And Health Trial for Enteric Risks (WAHTER Study): Risk of Illness from Non-Disinfected Groundwater and Distribution System Intrusions,” Mark Borchardt

Global Conference on Microbial Contaminants in Drinking Water

October 5 – 8, Singapore

qPCR-Measured Viruses in Municipal Tap Water: Association with Community Rates of Acute Gastrointestinal Illness,” Mark Borchardt



“Human Enteric Viruses as Tracers of Wastewater Pathways into Municipal Drinking Water Wells,” Mark Borchardt

Marshfield Rotary Club

October 15, Marshfield, WI

“Wisconsin Water and Health Trial for Enteric Risks: How Safe is Our Groundwater?” Mark Borchardt

8th Conference: Rural Life, Health, Environment – The Full Spectrum

October 16, Kingston, ON, Canada

“Hearing Conservation Program for Agricultural Students: Short-term Outcomes from a Cluster Randomized Trial,” Barbara Marlenga

University of Minnesota/Regions Hospital Occupational Medicine Residency Community Grand Rounds

October 21, St. Paul, MN

“Evolving Occupational Health Issues in Agriculture,” Steven Kirkhorn

National Children’s Center for Rural and Agricultural Health and Safety External Scientific Advisory Meeting

October 21-22, Minneapolis, MN

“Current Projects” Scott Heiberger, Regina Fisher, Tammy Ellis, and Barbara Marlenga

East Coast Migrant Stream Forum

October 24, Atlanta, GA

“Bringing Occupational and Environmental Medicine to Primary Care and Healthcare Justice to the Front Lines,” Amy Liebman

National Environmental Public Health Conference

October 26, Atlanta, GA

“Pesticides and National Strategies for Health Care Providers in the Educational and Practice Settings,” Amy Liebman

Minnesota Department of Health

November 3, St Paul, MN

“Wisconsin Water And Health Trial for Enteric Risks (WAHTER Study): A Community Intervention Trial to Estimate Illness Risk from Municipal Drinking Water,” Mark Borchardt

19th Annual International Society for Exposure Science Conference

November 4, Minneapolis, MN

“Exposure to Enteric Viruses from Small Community Groundwater Systems,” Mark Borchardt

American Public Health Association 137th Annual Meeting

November 10, Philadelphia, PA

“Agricultural Pesticide Use in the Home: A Community-Based Education Program to Promote Safe Pest Control Practices in Peri-Urban Neighborhoods in Ciudad Juárez, Mexico,” Amy Liebman

Wisconsin AgriSafe Training: Agricultural Medicine The Core Course I

November 12-14, Marshfield, WI

“History of Agricultural Health and Safety with a Wisconsin Focus,” Steven Kirkhorn

“Agricultural Toxicology,” Steven Kirkhorn

“Agricultural Respiratory Disease,” Steven Kirkhorn

“Chronic Musculoskeletal Injuries and Ergonomics in Agriculture,” Steven Kirkhorn

“Physical Factors Affecting Health of Agricultural Populations,” Steven Kirkhorn

American Water Works Association Water Quality Technology Conference

November 15-19, Seattle, WA

“Glass Wool Filters for Concentrating Viruses from Water,” Mark Borchardt

“Human Viruses in a Confined Aquifer: The Unexpected Effect of Heavy Precipitation,” Mark Borchardt

“Do Water Distribution Systems Contribute to Acute Gastrointestinal Illness Incidence?” Mark Borchardt

Dairy Business Association 10th Annual Business Conference

December 2, Madison, WI

“When It Hits the Fan...Sources and Risks of Fecal-Borne Pathogens in the Environment,” Mark Borchardt

Childhood Agricultural Safety

Network Members

AgriSafe Network

Spencer, IA

Contact: Natalie Roy

American Farm Bureau Federation

Washington, DC

Contact: Marsha Purcell

Association of Farmworker Opportunity Programs

Washington, DC

Contact: Heather Anderson

Canadian Agricultural Safety Association

Winnipeg, Manitoba, Canada

Contact: David Vielfaure/Diane Wreford

Farm Safety Association

Guelph, Ontario, Canada

Contact: Dean Anderson/Michele Brown

Farm Safety 4 Just Kids

Urbandale, IA

Contact: Marilyn Adams/Shari Burgus

Manitoba Labour and Immigration

Winnipeg, Manitoba, Canada

Contact: Glen Blahey

Migrant Clinicians Network

Austin, TX

Contact: Amy Liebman

National Center for Farmworker Health

Buda, TX

Contact: Sylvia Partida

National Children's Center for Rural and Agricultural
Health and Safety

Marshfield, WI

Contact: Regina Fisher

National Education Center for Agricultural Safety

Peosta, IA

Contact: Dan Neenan

New York Center for Agricultural Medicine and Health

Cooperstown, NY

Contact: Sharon Scofield

Pacific Northwest Agricultural Safety and Health center

Seattle, WA

Contact: Helen Murphy-Robinson

Progressive Agriculture Foundation

Birmingham, AL

Contact: Susan Reynolds/Bernard Geschke

Safe Kids Canada

Toronto, Ontario, Canada

Contact: Pam Fuselli

SAFE KIDS Worldwide

Washington, DC

Contact: Alan Korn/Stephanie Russell

Washington Department of Labor and Industries

Olympia, WA

Contact: Mary E. Miller



Childhood Agricultural Safety Network

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Private donations, including funds from the annual Auction of Champions, provide a significant contribution to the work of the NFMC. The donations support research and outreach on issues that affect farmers and rural residents, including occupational health, child safety and water quality.

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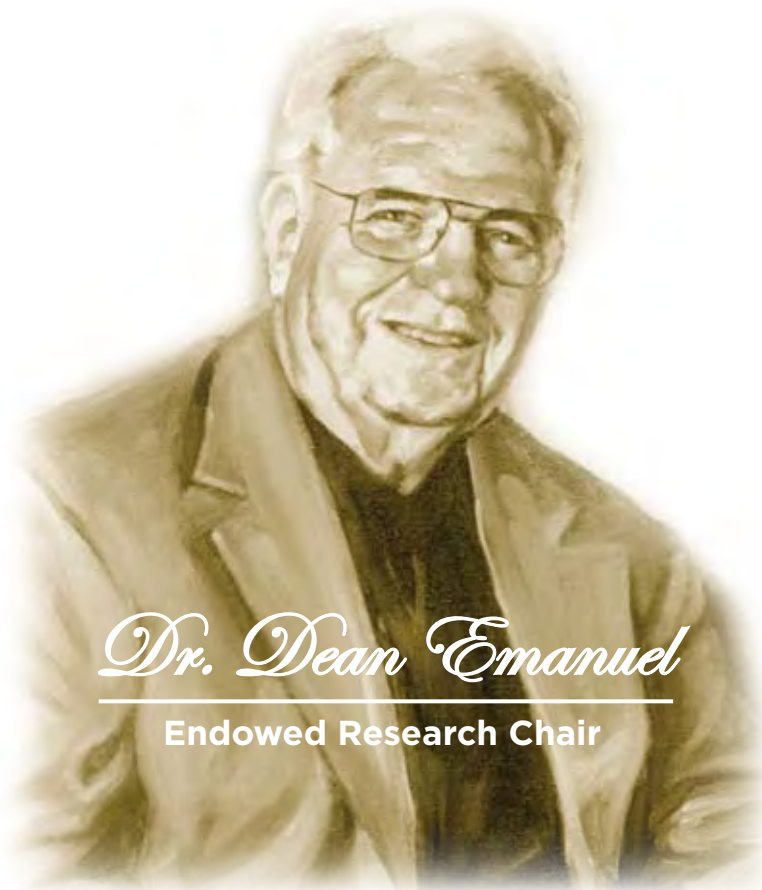
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Dr. Dean Emanuel

Endowed Research Chair



Dr. Dean Stueland

Endowment

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NFMC Mission

To conduct high quality research addressing human
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Marshfield Clinic



National Children's Center
for Rural and Agricultural Health and Safety

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Where the Dairy Industry Meets