
•CULTIVATION•

The Newsletter for The Southwest Center for Agricultural Health, Injury Prevention and Education

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From the Director...

The Sum of Its Parts

Considerable time and energy is devoted to the selection and integration of principal investigators, advisory board members, and staff personnel into the SW Ag Center. Education and experience are examined and thoughtfully considered. As the organization continues to mature, it is evident that the “whole is greater than the sum of its parts.”

The Center establishes the framework for individuals from various disciplines and perspectives to work toward the common goal of preventing injuries and illness among the agricultural workforce. For scientists the Center provides a haven for collegial discourse, exposure to issues and methods employed by other disciplines and through the synergy of relationships, fosters opportunities for work beyond the scope of the Center. A couple of examples serve to demonstrate this point.

As a result of project support through the SW Ag Center and project updates during board meetings, the National Center for Farmworker Health (NCFH) and UT School of Public Health – San Antonio Regional Campus, successfully competed for funding from the National Institute of Environmental Health Sciences (NIEHS) to build the infrastructure needed to support a national database of occupational disease and injuries treated through Migrant/Community Health Centers. *“Without our affiliation with the SW Ag Center, we wouldn’t have known about Dr. Cooper’s work; the ag center made it possible for us to form a partnership with her to compete for this award.”* Sylvia Partida, COO, NCFH.

Following the tragic Deep Water Horizon oil spill in the Gulf of Mexico, NIOSH and NIEHS mobilized forces to roster clean up workers in order to monitor them for future adverse health outcomes. A SW Ag Center advisory board member, being aware of the ongoing health and safety project with Vietnamese commercial fishermen in the Gulf, was able to bring attention to this group of workers to assure they are included in future monitoring despite the language and cultural challenges to do so. Key community leaders engaged with the SW Ag Center project become trusted sources to share important information with the Vietnamese commercial fishing community.

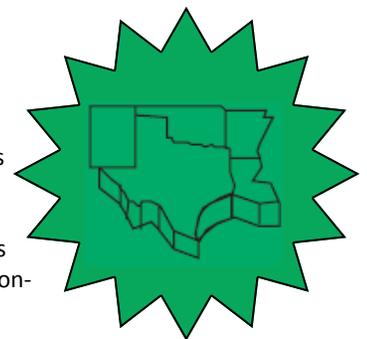
The relationships and expanded network of contacts that develop as a result of both formal and informal interactions between researchers, external/internal advisory board members and staff extend the sphere of influence to promote safety and health among the agriculture, forestry and fishing workforce beyond accomplishments of individuals separately.



Meet the Advisory Board

Featured Member: Tim Struttmann, MSPH

Tim Struttmann, MSPH became involved with the SW Ag Center initially in 2003 when he agreed to analyze Arkansas injury data from several sources. That report served as a basis for an intervention project in the Arkansas delta region and was published in the peer-reviewed literature. As an injury prevention expert, Tim has contributed to the understanding of risks associated with farming, forestry and fishing through the Community Partners for Healthy Farming project and as the Principal Investigator for the Kentucky Fatality Assessment and Control Evaluation Project. He also produced an instructional video to help loggers reduce work injuries. Mr. Struttmann is an enthusiastic pilot; his understanding of the challenges for pilots coupled with his interest in injury prevention in the agricultural sector inspired him to establish a relationship with the National Association of Agricultural Aviators. They are working together to update the needs assessment and educational programs for this work group.



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Tim is currently a project manager for SRA, Inc. overseeing large projects related to surveillance, data management, and health outcomes related to environmental exposures. He has been a member of the SW Ag Center Internal Advisory Board since 2006.



Deputy Director, Matt Nonnenmann, Ph.D. Receives K Award

The SW Ag Center Deputy Director, Matt Nonnenmann, Ph.D., CIH was recently notified that his application for a K Award was approved for funding. The K award is a funding mechanism in the National Institutes of Health to support the career development of young scientists. This is an extremely competitive award. There are several categories of "K" awards; Dr. Nonnenmann's is a K01. This is the Mentored Research Scientist Development Award that enables the awardee to expand expertise in scientific methods in order to enhance one's career. The investigator must have demonstrated the capacity for productive work following the doctorate, and the institution sponsoring the investigator must treat the individual as a faculty member. Dr. Nonnenmann will use this award to refine his laboratory skills and methods related to innovative bio-aerosol sampling and analysis techniques in order to improve assessment of work health risk for lung disease. His mentors for the award include: Stephen J. Reynolds, PH.D., CIH, Professor of Environmental and

Radiological Health Sciences with Colorado State University. Dr. Reynolds is a widely-published scientist who is a recognized leader in the field of environmental exposures and pulmonary function in agricultural workers. Bench scientist, Vijay Boggaram, Ph.D. is a molecular biologist with the University of Texas Health Science Center at Tyler who has made significant contributions to the understanding of conditions that influence the integrity of surfactant in lung tissue and resulting negative health outcomes.

Given the changing nature of the agricultural work force, Dr. Nonnenmann is also undertaking an intensive study of Spanish as part of his career development plan under this award. Overarching mentorship of Dr. Nonnenmann's progress for the K award is under the guidance of Jeffrey Levin, M.D., M.S.P.H., Professor and Chair, Department of Occupational Health Sciences at the University of Texas Health Science Center at Tyler. Dr. Levin is also fluent in Spanish and routinely engages Matt in conversation in Spanish.



Aika Hussain, M.S. Conducts Dairy Study

Aika Hussain, Research Assistant at the University of Texas Health Science Center at Tyler, recently completed her SW Ag Center supported project: Dairy Parlor Worker Exposure to Organic Dust, Endotoxin and Bacteria. Learn more about her project below.

Background: This study assessed organic dust, endotoxin and bacteria exposure among dairy parlor workers and sought to help reduce their inhalation exposure. Furthermore, the effectiveness of increasing the dairy parlor washing frequency was tested to determine any reduction in dairy worker's exposure to dust, endotoxin and bacteria.

Estimates of worker exposure to microbial organisms were determined by using a new innovative molecular analysis termed pyrosequencing. Pyrosequencing enabled us to identify multiple strains and concentrations of different species of bacteria in the inhalable fraction of aerosols generated in the dairy parlor.

Methods: Personal exposure to inhalable organic dust, endotoxin and bacteria were measured among 12 dairy parlor workers during the 8-hour work shift. Exposures to dust, endotoxin and bacteria were evaluated under two conditions: (1) following the normal procedure for washing the parlor and (2)

when the milking parlor was washed eight times during the work shift.

Results: No statistically significant differences were found between washing that occurs at the normal frequency and the treatment condition of washing eight times per shift. Results suggest that the dairy workers are exposed to organic dusts while performing routine tasks.

*A great diversity of infectious and non-infectious agents was found among samples. The bacterial species found most abundantly in the dairy parlor environment were *Papillibacter* (83%), *Clostridium* species (53%) and *Clostridium lituseburense* (51%).*

Conclusions: A limited amount of information exists on the bioaerosols present in the dairy environment. New and innovative techniques should be used to identify unknown and potentially hazardous microorganisms. Previous studies have demonstrated dose-response relationships between organic dust and endotoxin concentrations and their adverse respiratory effects. The results of this study suggest that use of respiratory protection may be warranted among workers performing milking activities.

Sharon Cooper, Ph.D. and NCFH Receive Grant

Sharon Cooper, Ph.D., from The University of Texas School of Public Health-San Antonio Regional Campus and Bobbi Ryder, President and CEO of the National Center for Farmworker Health (NCFH) have been longtime partners of the SW Ag Center. Each of them have served as Principal Investigators for agriculturally focused research projects. Now Dr. Cooper and Ms. Ryder have teamed up with Dr. Ed Henrikson from Salud Family Health Center and Dr. Nick Heyer from Battelle to build a National Farmworker Clinical Research Database. Learn more about their collaborative project in the abstract below.

Abstract:

Hispanic farmworkers and their families suffer a disproportionate number of injuries and illnesses associated with their work and limited personal resources. Over the next two years, we intend to establish a sustainable national farmworker research network based upon a consortium of existing Community and Migrant Health Centers, organized by the National Center for Farmworker Health in conjunction with The University of Texas School of Public Health and Battelle. This reciprocal and equitable community and academic partnership will build the necessary infrastructure for a linkage of electronic medical records from a consortium of clinics to build a National Farmworker Clinical Research Database. This effort, and all associated future research, will be guided by mutually engaged



Sharon Cooper, Ph.D.

partners through a National Steering Committee and National Advisory Committee, including farmworkers, health-care providers, community and migrant health organizations, and academic researchers. This network will be sustained by leveraging established resources, including community and migrant health centers, and long-term federally funded research and training centers in academic health centers. The network will also be supported by future research funding opportunities from federal agencies that have prioritized the need for farmworker research in their vision and goals; and current research agendas to improve health outcomes, reduce health disparities, and increase access to health care for underserved populations.



Bobbi Ryder, B.S.

We also aim to conduct reciprocal research training that involves community-based participatory research training for academic partners and training in the conduct of research for community partners. The goal of our community-academic partnership is to create previously unattainable and relevant research opportunities that will focus on occupational exposures and adverse health outcomes to understand and promote the health of the at-risk and often mobile farmworker population.



Eva Shipp, Ph.D. returns to Texas A&M in College Station

Eva Shipp, Ph.D. is the Co-Investigator for the Migrant Adolescent Health Research Study with her mentor, Sharon P. Cooper, Ph.D. Dr. Shipp began her association with the SW Ag Center in 2001 as a doctoral candidate in Epidemiology at the UT-Houston School of Public Health and project manager for the South Texas Adolescent Rural Research Study (STARRS). Upon earning her doctorate degree she accepted a faculty position in epidemiology with the

Texas A & M School of Rural Public Health. After a 2 year tenure with the UT School of Public Health Regional Campus-San Antonio, Dr. Shipp has returned to College Station where she is currently Assistant Professor in the Department of Epidemiology & Biostatistics for the TAMU Health Science Center School of Rural Public Health. In addition to her teaching responsibilities, she continues her research with adolescent farm workers in Hidalgo County, TX.