The crowding of swine and poultry in industrial food animal production (IFAP) increases risk for transmission of bacteria. Furthermore, use of antimicrobials at non-therapeutic levels in animal feed to promote growth may contribute to development of resistance in both pathogens and commensal organisms like *Enterococcus*. Transfer of resistance in this environmental microbial community may increase risk to workers for exposure to drug-resistant bacteria. Furthermore, IFAP workers could carry disease between animals in IFAP settings and local human communities. The objective of this work was to evaluate drug-resistant bacterial reservoirs in farm environments in Mexico. Five environmental samples each from two farms and one clinic were taken from dry surfaces using a sterilized dry electrostatic cloth (Swiffer™, Proctor and Gamble). Microbiologic analysis was conducted using a double-enrichment protocol, followed by overnight culture on a chromagenic selective agar for MRSA and other resistant *Staphylococcus* and *Enterococcus* species (MRSA Select™, Biorad, CA). Colonies were sent to Johns Hopkins Hospital microbiology laboratory for subcultivation, identification using a Phoenix system, and antibiotic resistance testing. Further antimicrobial resistance testing was performed using Kirby-Bauer methods. Eleven of fifteen swiffers (73%) yielded growth of *Staphylococcus* and *Enterococcus* species. Eight isolates were multi-drug resistant, 2/3 from the clinic, 3/6 from Farm A, and 4/5 from Farm B. Only 1/3 of isolates from the clinic were tetracycline-resistant, while 6/6 and 3/5 were tetracycline-resistant on Farms A and B respectively. In conclusion, drug-resistant and multi-drug resistant bacteria were cultured from farm environments and showed different resistance patterns than those bacteria cultured from the community clinic. The farms added antibiotics to feed, suggesting that antibiotic use in farm environments may support emergence of drug-resistant organisms.

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Innovative Partnership Approaches to Reach Vulnerable Agricultural Workers

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As demographics and organization of the agricultural workforce continue to change it is challenging to reach hired workers with occupational safety and health (OSH) information. Some obstacles include cultural and language barriers, fears related to immigration status, and concerns surrounding compliance and regulation. Specialization and industrial growth have expanded the employer role in agriculture. The Southwest Center for Agricultural Health, Injury Prevention and Education (SW Ag Center) and the National Center for Farmworker Health (NCFH) have developed OSH training and intervention tools (e.g., heat-related illness) for migrant and seasonal farmworkers (MSFWs). Additional partnerships, utilizing the network of regional Monitor Advocates and other agricultural organizations are being fostered with employers who are instrumental in reaching agricultural workers and assuring a safe work environment. States are required to ensure that MSFWs are provided with services that are "qualitatively equivalent and quantitatively proportionate" to the services offered to others seeking employment. State and regional Monitor Advocates carry out this function in accordance with federal regulations. They support the needs of MSFWs, in part by developing linkages with a broad range of stakeholders, including community- and employer-based organizations. Through a newly formed partnership, the state Monitor Advocate in Texas, the SW Ag Center, and NCFH have been able to participate in a range of shared workshop and conference venues important to agricultural employers for information related to workforce needs, labor rules, wage issues, etc. In doing so, each has been able to establish employer relationships with potential opportunities to implement effective OSH solutions. Examples include the annual conference held by the Midwest Association of Farmworker Organizations (MAFO) and the annual Midwest Stream Farmworker Health Forum produced by NCFH. These partnerships constitute the first steps for fostering relationships with agricultural employers in an effort to inform training and disseminate intervention tools related to OSH for hired workers.

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Promoviendo Farmworker Safety: An Intervention Designed to Increase Farm Safety Practices among Migrant and Seasonal Farmworkers

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Promoviendo Farmworker Safety is a five year project with objectives covering the design and field testing of an intervention to increase farm safety practices related to heat and sun safety among migrant and seasonal farmworkers using the Promotora (lay health worker) model as the mode of dissemination. Intervention Mapping (IM) is being used as the framework to guide the development of the program intervention. IM provides a step-by-step process for using theory, empirical findings, and participant involvement to specify program objectives, select theory-based methods, translate the methods into practical strategies and programs, prepare for program adoption and

implementation, and design the program evaluation instruments. This process allows for the careful design and development of both the intervention materials and the implementation and dissemination plan. This poster will illustrate and describe the results of a needs assessment; creation of matrices of change objectives based on the determinants of behavior and environmental conditions; selection of theory-based intervention methods and practical strategies; and translation of the methods and strategies into an organized program. The program matrices that were created focus on performance objectives and change objectives along with the key messages that need to be delivered to farmworkers to influence behavior change. These matrices are being used to inform and guide material development. The key behaviors identified and that will be addressed in the program include: use of sunscreen, proper clothing, hydration, avoidance of caffeine and alcohol and periodic rest breaks. Educational materials in development include a flip chart (with an emphasis on sun safety behaviors) that will be used by the lay health workers to disseminate safety information to farmworkers, and a fotonovela/photo novel (with an emphasis on proper hydration practices).

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Development of Safety Guidelines for Hired Adolescent Farm Workers

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The North American Guidelines for Children's Agricultural Tasks (NAGCAT) were released in 1999 as a resource to assist parents in assigning farm jobs to their children 7 - 16 years of age, on family farms. Since that time, these guidelines have been proven to reduce the risk of agricultural injuries among family farm children by 50%. The NAGCAT were not intended for use in employment situations because they do not incorporate child labor regulations or reference the Hazardous Occupations Orders in Agriculture which restrict specific tasks in youth employment. This project addressed the gap in resources for employers who hire adolescents for agricultural work. Over a 10 month period, the project team reviewed NAGCAT for tasks pertaining to youth hired to work in agriculture. Only jobs for which adolescents are legally eligible for hire were included. Stakeholder imput was gathered to identify the most common agricultural tasks and NIOSH Child Agricultural Injury Surveillance data were reviewed to identify relevant tasks and major hazards. Guidelines were drafted based on the orginal NAGCAT child development principles. Content from NAGCAT resources was updated to reflect prevailing working conditions. During 2008 content and format was reviewed by peers, employers/supervisors, and growers with labor-intensive crops. Seven guidelines are now available in English and Spanish. Each poster addresses supervisor responsibilities for ensuring work conditions are appropriate and adequate and for assessing their teen workers. Training and supervision tips, specific to teens are provided. Each poster includes illustrations of main hazards and points to remember for quick reference. Finally, each poster includes pertinent federal regulations and referrals to obtain state-specific child labor regulations. This project is funded by NIOSH through the National Children's Center for Rural and Agricultural Health and Safety cooperative agreement. An intervention to test the usability of these guidelines among field supervisors is now underway.

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Hearing Loss among Farmworkers: Perspectives and Prospects

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Occupational hearing loss is the most common occupational disease in the United States. It affects all workers regardless of age, gender, or industrial sector. Agriculture work has been associated with a high prevalence of hearing loss, both in adults and youth. Farmworkers directly associated with intense field work and transport activities, are potentially at risk for the development of hearing loss. Farmworkers in south Texas shared their perceptions about noise exposure and agricultural work. Hearing levels were measured using audiometric pure tone and calculating the sensitivity and specificity of the Hearing Ability Survey in Spanish. Farmworkers reported exposure to noise (e.g., machinery) and potentially toxic chemical exposures (e.g. pesticides) and lacking training about hearing conservation. Most farmworkers reported working in a noisy environment, and reported working in a noisy environment for over 6 years. Hearing loss (≥ 25dB average 500, 1000, 2000 Hz) was found in more than 25% of farmowrkers. This percentage of hearing loss increased when hearing loss was evaluated at higher frequencies (≥ 25dB average 4000, 8000 Hz). The average of the proportion of survey responses classified correctly was 70%, sensitivity was 46%, and specificity was 90%. Addressing occupational health outcomes that permanently impair a socio-economic disadvantaged population is urgent. Hearing loss among underserved populations, particularly Spanish speaking farmworkers needs to be prevented rather than only documenting such health disparity.

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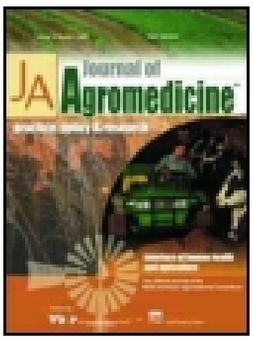

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