



FJ EYEOPENER

Volume 2, Issue 2

Welcome to Farmworker Justice's electronic newsletter, the EyeOpener, covering recent developments in policy and research relevant to migrant farmworkers in the US. Please feel free to send comments, questions, or suggestions for future issues to the address provided at the end of the newsletter. A PDF version of this letter is available at <http://www.farmworkerjustice.org/Health&Safety/resources1.htm>.

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1. Autism Spectrum Disorder May Be Linked with Prenatal Exposure to Pesticides
Roberts EM, English PB, Grether JK, Windham GC, Somberg L, Wolff C (2007). Maternal residence near agricultural pesticide applications and Autism Spectrum Disorders among Children in the California Central Valley. *Environmental Health Perspectives* 115(10): 1482-1489.

Over the past decade, the number of children diagnosed with neurodevelopmental problems such as autism spectrum disorder (ASD) has increased dramatically. Exposure to known toxins at certain points in a child's development is considered a possible cause of this alarming increase. Many common agricultural pesticides have well-established neurological effects and thus may play a role in the etiology of ASD. By linking the detailed records of the state of California's pesticide application registration system with state-level vital records, researchers investigated the relationship between geographical residence during pregnancy with a child's risk for being diagnosed with ASD. The results indicated that risk for ASD increased directly with the amount of certain pesticides applied near the mother's residence and

decreased the farther she lived from the fields where pesticides were applied during pregnancy.

The researchers identified a total of 465 children diagnosed with autism spectrum disorder in a population of nearly 270,000 children born in the heavily cultivated central river valleys of California during a three-year period (1996 - 1998). Each diagnosed child was matched with 15 children without a diagnosis of ASD (6,975 controls). Because exposure to pesticides even before conception may be toxic to a developing fetus, information was collected on pesticide applications starting one year earlier and continuing for four years. During this time (1995 - 1998), more than 6.7 million pesticide applications were recorded in the areas where the mothers lived pre- and post-conception. The analysis revealed that exposure to dicofol and/or endosulfan (both neurotoxic organochlorines) during a critical period for central nervous system development was associated with increased risk for ASD in children of mothers who were living closer to an application site, or near sites where larger amounts were applied. The association was strongest when the exposure took place during the 8 weeks following closure of the neural tube (26 days of gestation).

The exposure assessed in this study occurred as a result of drift from application sites into residential areas. The women in this study were not necessarily working in the fields or applying pesticides themselves; under those conditions, which would be the case for many farmworker women, the exposures and accompanying increase in risk could have been much greater. This study underscores the importance of continued research into the health implications of pesticide exposure throughout the lifecycle, and of patient education for farmworker women who are or may become pregnant.

2. Alcohol Use and Abuse Varies Widely Among Immigrant Latino Farmworkers in North Carolina

Grzywacz JG, Quandt SA, Isom S, Arcury TA (2007). Alcohol Use Among Immigrant Latino Farmworkers in North Carolina. *American Journal of Industrial Medicine* 50:617-625.

While farmworkers are often assumed to be heavy drinkers, few studies have been conducted that document the actual level of drinking in this population. Most studies of alcohol use that might include farmworkers in their samples are actually conducted with a Latino or a migrant population, and information on farmworkers is rarely analyzed or reported separately. Farmworkers do in fact have many risk factors for heavy drinking, such as youth, low education, work stress, social isolation, and separation from family. The question is an important one because alcohol use by farmworkers could increase the risk of accident and injury in an already dangerous occupation.

In order to address lack of knowledge about alcohol use among farmworkers, researchers in North Carolina interviewed 151 male farmworkers about their drinking habits and attitudes. The data were analyzed to see how often and how heavily farmworkers reported drinking, and to identify factors that predict frequency and

amount. Fully one-fourth of farmworkers reported abstaining from alcohol entirely, and another 14% drink less than once a month. Around one-third drink monthly, and one-quarter drink weekly. Contrary to general belief, farmworkers with a secondary school education or higher were *more* likely to report frequent heavy drinking (defined as more than once per week, more than 5 drinks per occasion), as were farmworkers who did not follow crops and unmarried farmworkers.

These findings underscore the wide variation in alcohol use among farmworkers, from the large percentage of farmworkers who do not drink at all, to the unexpected finding that lower education was not a predictor of frequent or heavy drinking. They also suggest that interventions intended for one group may not be appropriate or applicable to another if the underlying factors that contribute to behavioral issues are very different. Health care providers and outreach farmworkers in migrant health centers are the best situated for identifying potential abuse and assisting farmworkers in accessing services in their communities that will best meet their needs.

3. Community Health Aide Program Increases Acceptability of Eye Protection Among Florida Citrus Workers

Luque JS, Monaghan P, Contreras RB, August E, Baldwin JA, Bryant CA, McDermott RJ (2007). Implementation evaluation of a culturally competent eye injury prevention program for citrus workers in a Florida migrant community. *Progress in Community Health Partnerships* 1(4):359-369.

Anyone who has ever tried to pick an orange or apple that was not quite ready to be picked knows the swiftness and strength with which a branch can spring back and strike the face or body. That activity is performed many hundreds of times a day by workers in citrus groves, putting them at a very high risk of eye injury. While this type of eye injury would seem to be a relatively straightforward problem to reduce or avoid, remarkably few citrus grove workers wear eye protection on a regular basis. In order to identify the factors that interfere with the adoption of this simple prevention measure, a group in Florida conducted a community-based prevention marketing program, or CBPM. CBPM combines social marketing with community research that guides the structure, content, and implementation of the project at all levels. This approach is intended to enhance the acceptability of the marketing message to the target audience and therefore improve both its initial impact and long-term success.

Before attempting to educate citrus grove workers about eye safety, the project team conducted interviews and focus groups to assess the current level of knowledge, practices and attitudes of the grove workers regarding eye safety. They learned that while 35% of grove workers reported that eye injuries were a fairly common occurrence, grove workers regarded eye wear as “uncool” (i.e., culturally inappropriate) and were concerned that it would be uncomfortable and/or interfere with their ability to work. These findings were used to inform the content and structure of the behavioral intervention, which included distribution of eye wear, individual and group educational encounters, and modeling of the desired behavior by community health aides. The curriculum for the project was based on a program

by Migrant Health Promotion, an organization based in Michigan that specializes in developing culturally appropriate educational materials focusing on the needs of migrant farmworkers.

Over the course of the two-year study, the intervention reached more than 400 citrus workers, whose use of eye protection went from less than one percent to approximately 35% of grove workers based on direct observation (rather than self-report). In addition, reports of dirt in the eyes dropped from 40% to less than 24%, the percentage of grove workers who had “no complaints” about the eye wear increased from 12% to over 30%, and more grove workers believed that wearing glasses would help them to harvest more oranges (from 39% to nearly 54%). These are all statistically significant improvements in attitude and behavior that demonstrate the value of incorporating the target audience’s viewpoint into all phases of an intervention. They also reinforce the importance of the community-based health grove workers, such as those who work with migrant health centers, in promoting occupational safety behaviors.

Note: The *Eye Health Training Kit* and other educational programs targeting migrant farmworkers are available for download free of charge from Migrant Health Promotion’s website (http://migranthealth.org/materials_and_tools/).

4. Pesticide Education Materials Fill Need for Migrant Clinicians

Hiott AE, Quandt SA, Early J, Jackson DS, Arcury TA (2006). Review of Pesticide Education Materials for Health Care Providers Providing Care to Agricultural Workers. *Journal of Rural Health* 22(1):17-25.

Health care providers rarely receive training on issues of pesticide exposure and poisoning, especially in rural or agricultural contexts. Fortunately, advocacy organizations as well as academic researchers are attempting to address this educational gap by publishing a wide variety of training curricula, textbooks, and web-based continuing education resources. This article reviews and evaluates the available materials and provides recommendations for those seeking a general overview of pesticides and health care. It also identifies those resources and materials that provide additional or more in-depth information on specific aspects of pesticide exposure diagnosis and management.

Reviewed materials were divided into three categories for evaluation purposes: (a) working knowledge, e.g., general effects of acute toxicity, differential diagnoses, major pesticide classes, potential long-term health implications, effects on special populations such as children and the elderly, and methods of prevention; (b) skill set, e.g., obtaining exposure history, reading pesticide labels, and handling contaminated patients; and (c) references, e.g., sources of additional detail on specific pesticides and regional crop information, exposure symptomatology, diagnosis, and treatment. A total of 39 relevant and generally available items published since 1995 were reviewed. No one resource was found to be comprehensive in all areas; the following were identified as the best in the various evaluation categories (noted in parentheses following each reference).

- Reigart JR, Roberts JR (1999). *Recognition and Management of Pesticide Poisonings*, 5th ed. Washington DC: Office of Pesticide Programs. Available online at <http://www.epa.gov/pesticides/safety/healthcare/handbook/handbook.pdf> (accessed on 1/18/2008). (Best resource overall: pesticide brand and trade names, exposure diagnosis and management, decontamination, references)
- Sanborn M, Cole D, Abelsohn A, Weir E (2002). Identifying and managing adverse environmental health effects: 4. Pesticides. *Canadian Medical Association Journal* 166:1431-1436. (Best for working knowledge: exposure history, prevention, acute management, chronic effects, special populations)
- Simpson S, Schuman W (2002). Recognition and management of acute pesticide poisoning. *American Family Physician* 65:1599-1604. (Decontamination, acute toxicity management)

Note: The online CME course described in the article, “Pesticide Exposure and Treatment Education for Health Care Providers,” produced by the Northwest Area Health Education Center in North Carolina, expired on November 30, 2007. However, it can be viewed, along with other pesticide information resources for clinicians, on the Migrant Clinicians Network’s website (http://www.migrantclinician.org/resources_search?filter_program=84).

The *FJ EyeOpener* is an electronic newsletter covering important recent developments in research and regulation on issues affecting the health and safety of migrant farmworkers. It is a joint project of Farmworker Justice and Migrant Clinicians Network, supported by the Health Resources and Services Administration’s Bureau of Primary Health Care. Each issue includes summaries of recent articles and reports, as well as advice on using this information to help health professionals, outreach workers, *promotores de salud*, and advocates strengthen their efforts on behalf of farmworkers and their families.

The contents of this publication are solely the responsibility of Farmworker Justice and Migrant Clinicians Network and do not necessarily reflect the official views of the Bureau of Primary Health Care or the Health Resources and Services Administration.

Please send comments, questions or suggestions for topics you would like to see covered to prao@farmworkerjustice.org, or contact Shelley Davis or Pamela Rao, co-authors, at 202-293-5420.

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