

poisoned by OP pesticides on farms. However, little research has examined OP pesticide exposure in children. While the neurotoxic effects of acute exposure to OP pesticides are well established, chronic low-level exposure are not well studied in adults and very few studies provide evidence of neurobehavioral deficits in farmworker children compared to controls. Children of farmworkers are presumed to be exposed to pesticides throughout development, and this exposure may produce subtle health effects that would not be detected by clinical examinations nor recognized by parents. The current study has developed methods to assess neurobehavioral functioning in school-age children and a measure of lifetime exposure to pesticides. Children's exposure to pesticides from the parent's work or residence in an agricultural community was measured. Measures of OP exposure and neurobehavioral performance of school-age children exposed to pesticides will be described and presented.

### **The Migrant Adolescent Work-Life Study**

Shipp EM, Cooper SP, Del Junco DJ, Cooper CJ, Levin JL, Bautista LE, Ponder S, University of Texas Health Center, Tyler and University of Wisconsin

Little published data describe chronic disease indicators among migrant farmworker adolescents, a vulnerable working population. To address this gap, we are conducting a five-year (2006-2011) combined cross-sectional/cohort study to examine the prevalence of and risk factors for hypertension, overweight, hyperinsulemia, and back symptoms among students from two South Texas high schools. Along with physical examinations, we are administering a questionnaire soliciting information on work history, health risk behaviors, acculturation, and other factors. Among 628 sampled students, 508 participated (80.9%) after completing consent procedures. Of these, 257 were migrant education students and 251 were their non-migrant counterparts. Approximately, 96.9% of participants are Hispanic and 50.0% are male. Initial analyses of baseline data, comparing migrant and non-migrant students, show a prevalence of 26.7% vs. 26.4% for acanthosis nigricans (AN, a marker of hyperinsulemia); and 26.0% vs. 20.0% for high normal or high blood pressure (>90th percentile for age, height, and gender). The prevalence of AN was 24.6% for males and 28.4% for females. The prevalence of high normal or high blood pressure was 32.0% for males and 17.7% for females. These preliminary results suggest a compelling need for a comprehensive intervention to prevent significant chronic disease in this high-risk Hispanic adolescent population.

### **A Survey of Tractors and Rollover: Protective Structures in Washington State**

Sjostrom T, Clark R, Silverstein B, Washington Fatality Assessment and Control Evaluation (FACE) Program, Safety and Health Assessment and Research for Prevention (SHARP) Program, Washington Department of Labor and Industries

A survey of farms in Washington State was conducted in 2005 to determine tractor characteristics and the presence of rollover protective structures (ROPS) in a state with more inclusive rules on tractor retrofitting than federal regulations. A total of 544 valid surveys were completed from a proportional random sample across different types of farms. Responders indicated that 58% of tractors overall were equipped with ROPS, and 42% of the tractors without ROPS were exempt from the state rules. Seatbelts on tractors equipped with ROPS were reportedly used "sometimes" or more than 30% of the time, and 17% of these tractors had no seatbelt installed. Tractors used for row crop farming were significantly more likely to be equipped with ROPS than those used for tree, vine, or hops farming. Older tractors were used for fewer hours, were less likely to be ROPS-equipped, and were less likely to be operated while wearing a seatbelt. The results were consistent with a positive effect of the Washington State ROPS requirements, demonstrated by the increased percentage of ROPS-equipped pre-1976 tractors, as compared to other states, and by the difference between ROPS-equipped tractors in exempt and non-exempt types of farming. The results point to the need for prevention activities to increase seatbelt use on ROPS-equipped tractors and for further development of practical protection for tractors operating under overhead obstacles.



# Health and Safety in Western Agriculture

## NEW PATHS

The Lodge at Suncadia, November 11-13, 2008

<http://depts.washington.edu/pnash/2008conference/>

## PROCEEDINGS

New Paths was presented by the western NIOSH/CDC Centers for Agricultural Disease and Injury Research, Education and Prevention: Pacific Northwest Agricultural Safety and Health Center; Western Center for Agricultural Health and Safety; Southwest Center for Agricultural Health-Injury Prevention, and Education; and The High Plains Intermountain Center for Agricultural Health and Safety. Funding was provided by The National Institute for Occupational Safety and Health, and The US Environmental Protection Agency.

### OPERATIONS

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