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Comments

The inception of the NIOSH Childhood Agricultural Injury Prevention Program in 1996 has brought obvious success in preventing childhood death and injury related to agricultural work. The statistics speak for themselves: the total number of injuries has decreased from 37,800 in 1998 to 27,600 in 2004, work-related youth injuries have decreased nationwide by 51%. In looking forward, there are several areas in which NIOSH could improve their efforts in order to make the program even more successful in the years to come. In particular, improvement can be made by expanding the Federal Interagency Work Group to several other key agencies in order to target specific ethnic populations that are experiencing higher rates of agriculture-related injuries and to address suicide and substance abuse among youth. Additionally, in setting priorities for future extramural grant applications, proposals should not fail to include further research into the workplace dynamics of multiracial agricultural settings and pesticide-related illnesses and diseases in youth.

The Federal Interagency Work Groups

As stated in the NIOSH draft report, previous interagency cooperation has been between NIOSH and representatives from the Departments of Agriculture, Labor and Education because these have been determined to be the primary agencies that could potentially "impact research and prevention of childhood agricultural injuries."¹ In looking at the statistics produced by the M-CAIS Surveys, 2003 data revealed that youth living on racial minority farms accounted for the most farm injuries in that year and that the rate of injury differed based on race. The highest rate of youth injury was among Native American farming operations with almost 20 injuries per 1,000 youth. This was substantially higher than the rate of injury in Asian, Black and Hispanic farming operations. Rate of injury on multiracial farming operations was the only one that came close at 18.4 injuries per 1,000 youth, which will be discussed later. Another important statistic that has been demonstrated by surveillance of death certificates is that youth between 16-19 years of age have the highest rate of on-farm deaths and that the leading cause of death is suicide, while the leading cause of death for youth under 16 is machinery accidents. These statistics help inform the Federal Interagency Work Group of potential future partners who could provide useful information, unique preventative strategies and fresh perspectives to stakeholders involved.

The Indian Health Service is an agency within the Department of Health and Human Services whose mission is, "to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level."² In many ways the statistics revealed by surveillance done through the NIOSH Childhood Agricultural Injury Prevention Program reflect overarching public health concerns within the Native American community of the United States. For Native American youth under the age of 19, unintentional injury is the leading cause of death. For American Indians 15-19 years old, suicide was the second leading cause of death. Compared to other racial groups within

the same age range (19 years and younger), Native Americans are at a much greater risk of preventable injury-related deaths. The Indian Health Service has already developed and Injury Prevention Program which collaborates with tribes and communities in order to increasing understanding of the impact of unintentional injury, "sharing effective strategies, and assisting communities in implementing prevention programs."³ Therefore, representation by the Indian Health Service could be an effective means to improve the Federal interagency work group dialogue and create solutions that address the high rate of injuries among Native American youth working in agriculture.

Another important collaborator in the Federal Interagency Work Group would be the Substance Abuse and Mental Health Services Administration (SAMSHA). As provided by surveillance data, suicide is the leading cause of death among youth 16-19 working or living in agricultural communities. SAMSHA provides resources for youth suicide prevention techniques and interventions as well as grants for youth suicide prevention research programs. A partnership with SAMSHA could help develop appropriate strategies for youth agricultural workers who suffer from mental health issues in order to prevent more suicides within this population.

Childhood Agricultural Safety and Health Research Grants

Priority areas established for future research applications in the draft are worth pursuing but additional topics of further research should include proposals for understanding dynamics of multiracial farming operations and should also continue to explore the complex relationship between pesticide exposure and pesticide-related injuries among youth agricultural workers.

As demonstrated by data revealed by the M-CAIS survey, the second highest rate of injuries occur on multiracial farming operations, with around 18.4 injuries per 1,000 youth. Language and cultural barriers on multiracial farming operations could lead to a lower rate of health safety communication and understanding among workers, leading to higher rates of injury. In a study of occupational health and safety among indigenous and Latino agricultural workers in Oregon, the authors concluded that various cultural needs require "diverse occupational and health needs."⁴ Additionally it was found that all Latino workers surveyed said that Spanish was their primary language while indigenous workers spoke several different languages. Adding to this complexity, Asian agricultural workers could add a host of other languages to an already multilingual environment making effective communication on multiracial farming operations a challenge. Understanding language and cultural barriers on multiracial farms could be an effective way to develop successful strategies in preventing youth injuries within these cultural environments. Oregon State University held a Multicultural Farmer Roundtable in 2008, acknowledging the growing diversity of the agricultural workforce in Oregon, which allowed representatives from various backgrounds to speak on important issues and share knowledge and experience.⁵ These types of considerations should be explored in regard to agricultural worker health and safety on a national scale, especially considering youth who generally less adequate training and knowledge compared to their adult counterparts.

There have been two previous extramural grant-funded research projects that have addressed pesticide exposure among youth in agricultural environments. Both of the projects, "Pesticide Training for Adolescent Migrant Farmworkers" and "Biomarkers of Pesticide Toxicity Among Teen Farmworkers," are an important first step in understanding the complex and dangerous affects of pesticide exposure among youth. There are a few studies demonstrating the necessity for further research on pesticide related injuries on youth farm workers. As mentioned previously, research on Latino and indigenous farm workers in Oregon demonstrated that Indigenous farm workers were less likely to have had suitable work safety training and less knowledge of the health consequences of pesticides, an important variable to consider in light of the high rate of occupational injury among Native American youths. Also in an article published in the American Journal of Public Health, Geoffrey Calvert and co-authors analyzed state health department surveillance data on acute pesticide-related illnesses among working youth. The analysis revealed several important trends: acute pesticide-related injury was more prevalent among youth employed in the agricultural sector than other industrial sectors, the incidence rate ratio of acute pesticide-related illness was higher in youths than in adults, and youth farm workers were more frequently exposed to the EPA's top three toxic categories of pesticides than youth working in different sectors. Increased research on this subject is incredibly important because the long term effects of pesticide and insecticide exposure in children and young adults are poorly understood.

There are several important programs and agencies which can be useful in tracking and analyzing pesticide-related injuries among children in the agricultural environment. Calvert et al. utilized both state health department surveillance as well as the Toxic Exposure Surveillance System as a means to track injuries, which can also be applied to the NIOSH surveillance system. The National Institute of Environmental Health Sciences (NIEHS) has a research project looking specifically at neurobehavioral performance deficits of children in agricultural communities. The results of these studies show that children from agricultural communities generally perform slightly worse on tests that measure cognitive and neurobehavioral function compared to children from non-agricultural communities. Neurological deficits of youth exposed to pesticides is a particularly important variable to consider in workplace

injury prevention programs and work safety training initiatives. Lastly, the EPA Endocrine Disruptor Screening Program has recently released the final list of pesticide active ingredients to be screened under their program, which may be beneficial and informative in understanding the toxic effects of pesticides on young adults who have much higher rates of exposure in an agricultural environment to categorically much more toxic pesticides than other young adults. The previously mentioned projects and research by other government agencies and scientists are an important resource to consider in developing the final draft for future activities under the NIOSH Childhood Agricultural Injury Prevention Initiative.

Sincerely,

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