

#### PILOT STUDY OF FACTORS ASSOCIATED WITH PESTICIDE POISONING INCIDENTS IN CALIFORNIA AGRICULTURE.

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Approximately 1,000 cases of illness attributed to occupational exposure to pesticides are reported annually in California. For illnesses reported in agriculture from 1984 to 1990, 52% involved residue exposures to field workers; 42% involved mixers, loaders, and applicators; and 6% resulted from drift exposures. Knowledge of the proximate causes of these cases would assist in the design of interventions to prevent future cases. The California illness reporting system, maintained by the Department of Pesticide Regulation, compiles case reports from physicians for incidents of known or suspected pesticide poisoning. The California pesticide illness reporting system data is used to identify factors associated with poisoning incidents in agriculture. For a sample of cases, data about the events leading to illnesses are compiled and analyzed to identify contributing factors. Interventions to address contributing factors are identified.

#### SELF-REPORTED PESTICIDE HANDLING PRACTICES AND EXPOSURES BY VERMONT APPLICATORS

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Although evidence of the association between agricultural exposure and various diseases continues to emerge, relatively little is known about the actual behavioral handling practices which can lead to exposure. We administered surveys to pesticide applicators at recertification meetings during Winter, 1993 throughout the state of Vermont. The survey included items inquiring about types of exposure to pesticides and use of protective gear during application. Of approximately 400 total meeting attendees, a total of 332 certified applicators responded to the survey which was offered on an anonymous and voluntary basis. Regarding exposure to pesticides, 58.8% of the sample reported at least some contact with pesticides on their skin. The majority of the sample (89.5%) also reported they had inhaled pesticides at least once during use, whereas only 12% reported having ever swallowed or ingested pesticide chemicals during use. We will provide additional data on the use of protective gear during application and discuss the implications of our findings for the design of pesticide risk reduction programs for applicators.

#### PESTICIDE POISONINGS IN THE LAWN CARE INDUSTRY

Margaret Gádon, M.D., M.P.H.

Although pesticides are used extensively by lawn care and tree service workers, the incidence of pesticide poisonings among this population has never been systematically assessed. This paper is a review of suspected and confirmed pesticide poisonings of lawn care and tree service applicators that were reported to the New York State Pesticide Poisoning Registry from 1990-1993. Thirty-nine (39) cases were identified, of which 28 satisfied the criteria for a suspected or confirmed poisoning. At the time of the poisoning, the majority of applicators reported the use of more than one class of pesticide. The most common classes of pesticide applied were organophosphates (71%) and herbicides (43%). Twenty-four (24) cases were identified through laboratory reporting. All 24 laboratory tests had been ordered for worker surveillance. Twenty (20) of the reported workers were symptomatic. Personal protective equipment was used routinely by 22/27 for whom information was available. These data suggest that significant pesticide exposures are occurring among a subset of the lawn care and tree service applicators, despite the reported routine use of safety measures. More rigorous evaluation of control measures employed in the lawn care and tree and shrub industry is warranted.

#### EFFECTIVE LABELING OF PESTICIDE CONTAINERS: IS IT ENOUGH?

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An investigation found a thirty-seven year old farmer who died as a result of prolonged exposure to endosulfan. There has never been a previously published report of a fatality that occurred in the U.S. This case study explores contributing factors, product labeling and prevention strategies. Endosulfan is a non-restricted use pesticide and the victim did not require training to use the product. Ninety percent of Kentucky farms are exempt from OSHA regulations which compounds the regulatory issue. Research has shown that those mixing/applying pesticides are to be at greatest risk of exposure. Material safety data sheets are available to the distributors and are thoroughly written, but farmers may not be aware of their availability. Many farmers may not read or understand the labels, nor realize that a skull and crossbone means danger and may be lethal. Further research/surveillance and education needs to be done to identify those at risk and reduce chemical exposures.

#### ELEVATED DIOXIN BLOOD LEVELS IN CHINESE AGRICULTURAL WORKERS EXPOSED TO PENTACHLOROPHENOL

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Technical grade pentachlorophenol (PCP), contaminated with dioxins and dibenzofurans, has been sprayed in a middle province of China to kill snails which act as carriers of schistosomiasis. Dioxin blood analysis was performed on pooled blood samples from residents of sprayed areas and PCP handlers to determine if dermal, gastrointestinal, or respiratory intake of dioxins had occurred. Pooled breast milk was also analyzed to identify possible hazards to nursing children. Dioxin tissue levels from exposed persons were compared with levels from control general population age-matched groups. The general population samples from the world's most populous country had very low levels of dioxins, as would be expected from a less industrialized developing country. Dioxins and dibenzofurans were elevated in the tissues of exposed persons, in a congener pattern which matched those in a sample of the Chinese PCP. Authorities were informed of the hazard so that remedial measures would be possible, further public health evaluation is indicated.

#### SEASONAL TRENDS IN SKIN DISORDERS AMONG FARM WORKERS IN WASHINGTON STATE.

Joanne Walker Shields, PhD, MPH

Farm workers are a group of workers considered to be unlikely to file a claim for workers' compensation for work-related disease or injuries. Though underreporting may occur, a surveillance program using workers' compensation records can provide us with clues to disease causation and possible strategies for prevention. Workers' compensation claims from state-insured companies with skin disorders listed as the nature of injury (ANSI Z-16.2 Code = 180-184 or 189) were reviewed. These claims had a reported date of injury from June 1, 1989, through June 30, 1993. Of the 524 claims filed by farm workers (1980 Standard Occupational Classification code = 479), 144 were rejected for compensation while 380 (72.5%) were approved. Summary statistics of the reported causal agents, body parts affected, and claimant demographics are presented. Rates for approved claims by the Standard Industrial Classification code listed on the claim and risk classes were calculated. Seasonal trends of skin disorders rates were examined by county, crop, and pesticides used.

#### OLDER WORKER SAFE AGRICULTURAL DESIGN AWARENESS

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Older people (55 and older) work in many industries, but agriculture is one in which the average age has been increasing. Older workers often perform the same manual work tasks that younger people perform. Objectively, redesign of some of these tasks to accommodate older workers could prevent injuries and fatalities. The National Institute for Occupational Safety and Health (NIOSH) National Traumatic Occupational Fatalities data indicate a fatality rate in agriculture for ages 55-64 as 26.5 fatalities/100,000 workers and for age 65+ as 52.3. During 1985 to 1987, the Bureau of Labor Statistics' Supplementary Data System reported 5544 workers' compensation cases from 21 States for people over the age of 54 working in crop production (SIC 01), livestock production (SIC 02), and agricultural services (SIC 07). Of these injuries to older people working in agriculture, 31.3% (n = 1735) were sprain-strains. Two types of manual tasks in the agriculture industry 1) lifting tasks and 2) manual adjustment tasks for adjustable rollover protective structures (ROPS), provide examples of tasks needing older worker design awareness. Agricultural lifting tasks for older people should be modified to match NIOSH criteria. For manual adjustment tasks for adjustable ROPS, older operators prefer an adjustable ROPS that is easier to lift, or one that would deploy, and provide protection automatically.

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#### PAN AMERICAN HEALTH ORGANIZATION'S (PAHO) WORKERS HEALTH PROGRAM.

Inequality in health in the Americas is a reflection of the social and economic inequalities in the wider society. The PAHO has designed and is implementing a program with a view to contribute to improving the health and well-being of workers, as part of a strategy which aims to achieve economic development and social justice. The Program emphasizes the following: • Policies and programs through National Plans for the Development of Workers' Health. Plans which are cognizant of the global economy and integration processes like NAFTA, MERCOSUR, CARICOM etc. Processes which are becoming increasingly important, particularly since in some countries the macroeconomic indicators have improved while in others 50% of the population live in conditions of absolute poverty; 13% of the working population is comprised of children between 5 and 14 years; unemployment, subemployment and the informal sector are increasing. • A system of information which allows the identification of effective interventions for the prevention of occupational accidents and diseases. Based on existing inadequate registers it is estimated that 5 million accidents occurred per year, with mortality and disability rates four times higher than in developed countries. • Technical cooperation and mobilization of resources with the parties that play a role in the advancement of workers' health, both at the national and international level. • Increased coverage of workers and human resources development. The Latin American and Caribbean workforce is approximately 160 million and only a small percentage (12%) receive limited preventive, curative or rehabilitative care.



ABSTRACTS

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