

AGROMEDICINE PROGRAM UPDATE

The Newsletter of the Clemson University / MUSC Agromedicine Program

MUSC DEPARTMENT OF FAMILY MEDICINE – DIVISION OF PUBLIC HEALTH AND PUBLIC SERVICE
19 HAGOOD AVENUE – SUITE 305 HOT, P.O. BOX 250805, CHARLESTON, SC 29425

Samuel T. Caldwell, Editor
caldwest@musc.edu
843-792-2281 Fax 843-792-4702

Volume 12
No. 5
May 15, 2000

Previous issues are available at www.musc.edu/oem/apunews.html

Program Notes

➤ Fire Ant Study

The Agromedicine Program has completed its survey of allergy specialists in South Carolina. The objective of the survey was to determine the length of time between patients' initial allergic reactions to fire ant stings and their referral to allergists for immunotherapy.

An improvement in the average length of time for referral was observed over a ten-year period. A manuscript has been submitted for publication in the *Journal of the South Carolina Medical Association*. The study was supported in part with funds from the Clemson Public Service Fire Ant Program.

Pediatric Pesticide Poisoning

An article¹ published last month in *Veterinary and*

Human Toxicology examined pediatric pesticide poisonings in the United States. Data was analyzed from two sources: 1) vital statistics on pesticide-related pediatric fatalities for

- The incidence of pediatric (age <5 years) deaths from pesticides decreased from a three-year running average of about 5 per year in 1984 to about 1 per year in 1996.

- The incidence of pediatric deaths from all poisonings declined less dramatically from a three-year running average of about 0.012 deaths per 100,000 population in 1985 to about 0.011 per 100,000 population in 1996.

The NCHS and AAPCC data demonstrate that the majority of poisonings occur in the home and that pesticides are part of the problem of children getting into household chemicals. The authors suggest

that additional regulation of agricultural use of pesticides will do little to reduce pediatric pesticide poisoning.

¹ Sumner D and Langley R. Pediatric pesticide poisoning in the Carolinas: An evaluation of the trends and proposal to reduce the incidence. *Vet Human Toxicol* 2000; 42(2):101-103.



Progressive Farmer Farm Safety Day Camp was held May 9 at the Richard Carroll Primary School in Bamberg, SC. Dr. William M. Simpson, Jr. spoke on noise induced hearing loss. About 350 children in grades K through 3 attended the camp. Photo by Charles Privette, III.

1974-1996 from the National Center for Health Statistics (NCHS) and 2) total poisoning inquiries and fatalities for 1984-1997 from the annual reports of the Association of American Poison Control Centers (AAPCC). Major findings of the study included:

Agricultural Health Study

The Agricultural Health Study (AHS) began in 1993 and is a collaborative effort between the National Cancer Institute, the National Institute of Environmental Health Sciences, and the Environmental Protection Agency. The objective of the AHS is to determine whether exposure to specific agricultural pesticides is related to cancer and other adverse health effects.

About 90,000 farmers, commercial pesticide applicators, and their family members in Iowa and North Carolina have been enrolled in the study. Most data are collected through self-administered questionnaires and telephone interviews.

The Harvard Center for Risk Analysis and its Advisory Committee on Agricultural Health Risks have performed a critical review² of the AHS to date. MUSC President Dr. Raymond S. Greenberg is a member of

the Advisory Committee. Six problems with the AHS were identified:

1. Low and variable response rates to questionnaires.
2. Concerns over self-reports of non-cancer illnesses.
3. Limited understanding of the reliability and validity of self-reported pesticide usage.
4. Insufficient biological monitoring to validate surrogate measures of exposure.
5. Possible unmeasured risk factors for disease.
6. Absence of detailed plans for data analysis and interpretation that include hypotheses based on prior evidence or concerns.

The critical review also provided recommendations for improvement. Chief among these is the clinical verification, where feasible, of self-reports of disease or wellness.

The validity of reported pesticide usage also needs to

be assessed. This can be done, for example, by interviewing a sampling of the participants and by examining purchasing records.

The review also calls for the AHS to perform special studies to assess the validity of exposure surrogates used in the study. Biomonitoring studies are essential for linking pesticide use information to actual exposure, to correlate exposure and dosage, and to determine whether exposures of family members lead to adverse effects.

An additional AHS need is to determine in advance of data analysis the anticipated effects of exposure to specific pesticides at relevant doses. This must include dose-response relationships. Finally, a detailed plan for data analysis including an analytical framework and specific statistical procedures needs to be developed.

²Gray GM et al. *The federal government's agricultural health study: A critical review with suggested improvements.* *Hum Ecol Risk Assess* 2000; 6(1):47-71.

Tips for Diabetic Farmers

- Take orange juice or snacks with you to the field to deal with a feeling of low blood sugar. Don't keep working when you know you need to stop!
- After checking blood sugar levels, cover the pricked area with a bandage strip and a finger cot. Wear rubber gloves while working for the next 12-24 hours, especially when handling manure and other organic matter.
- Take care of your feet: change your socks a couple of times a day, check for cuts and blisters.
- Don't ignore colds and get flu shots yearly. The Pneumovax® immunization against some kinds of pneumonia should be taken once and repeated as recommended by your physician.
- Make sure that your tetanus immunization is current.