

AGROMEDICINE PROGRAM UPDATE

The Newsletter of the Clemson University / MUSC Agromedicine Program

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Program Notes

➤ **USDA Project**

The project with the United States Department of Agriculture continues on schedule. The objective of the project is to produce and distribute to family medicine physicians nationwide a brochure advising them of the rights of health care professionals to access information contained in restricted use pesticide application records.

A variety of items are required for the records, but the following pieces of information may be of use to the health care professional: 1) brand or product name of the restricted use pesticide, 2) EPA product registration number, 3) location of the application, and 4) date of the application. This information may assist in the differential diagnosis and treatment of patients with suspected exposures.

There are approximately 50,000 family practitioners in the United States. The working title of the brochure is "The Health Care

Professional's Access to Record Information of Restricted Use Pesticide Applications."

➤ **SC Hospitalized Pesticide Poisonings**

The article, "Hospitalized Pesticide Poisonings Decline in South Carolina, 1992-1996" was published in the December 1997 issue of the *Journal of the South Carolina Medical Association*.¹ The article reports on the most recent of a series of studies on hospitalized pesticide poisonings in the state and summarizes data over a 25-year surveillance period.

Table 1 presents the results of the most recent study.

There were 112 hospitalizations for pesticide poisoning from 1992 through 1996 averaging 22 cases per year. Accidental cases among children and adults accounted for 51% of the total. Intentional ingestions represented 40% and occupationally-related cases accounted for 8%. Eight of the nine occupational cases occurred in agriculture.

Trend data spanning a 25-year period is presented in Table 2. There has been a steady decline in the average number of hospitalizations since the early 1980s.

Of note is the steady decline in occupational cases from

Table 1
112 Hospitalized Pesticide Poisonings
in South Carolina by Exposure Category, 1992 – 1996

Exposure Category	Hospitalizations (n)					Total n (%)
	1992	1993	1994	1995	1996	
Occupational:						
Agricultural	1	2	4	0	1	8 (7)
Other	0	1	0	0	0	1 (1)
Non-Occupational:						
Adult	6	2	8	4	6	26 (23)
Child	4	7	8	2	10	31 (28)
Intentional	5	8	7	11	14	45 (40)
Undetermined	0	1	0	0	0	1 (1)
Total	16	21	27	17	31	112 (100)

37% to 8% of the total. This trend reflects the success of: 1) applicator training programs provided by the Cooperative Extension Service and the Regulatory and Public Service Programs of Clemson University, 2) licensing and certification of applicators who use restricted use pesticides, and 3) the increasing use of less toxic insecticides.

Trend data in Table 2 identifies educational opportunities for pesticide educators and health professionals. Safe pesticide application and storage by homeowners needs to be emphasized if further reductions in hospitalizations are to be observed.

One new feature of the current study was that 34 of the 61 participating hospitals had 256 computerized outpatient (emergency room) records for the period of study. Patients later admitted to the hospital were excluded

from this data base. Sixty-five percent of these cases were children less than age four who ingested or were believed to have ingested pesticides. Accidental exposures to both children and adults accounted for 85% of the total, occupational for 4%, and intentional 7%. Four percent of the ER visits could not be classified.

Thirty hospitals had both inpatient (73) and outpatient (239) records for 1992-1996. This represents a ratio of outpatient to inpatient cases of 3.3 and confirms a declining trend over the 25-year surveillance period. A ratio of 15 to 1 was reported in a 1975 publication and a ratio of 10 to 1 was reported for 1979 in South Carolina by the Agromedicine Program.

¹Caldwell ST et al. Hospitalized pesticide poisonings decline in South Carolina, 1992-1996. *J SC Med Assoc* 1997; 93(12):448-452.

Case History: Outdoor CO Poisoning from Tractor Exhaust²

A 37-year old tobacco farmer in Kentucky was hospitalized for carbon monoxide (CO) poisoning while planting tobacco. The farmer rode a two-seat tobacco setter that was pulled behind a tractor. The tractor's exhaust pipe was beneath the tractor and vented toward the setter. The farmer occupied the seat closest to the exhaust.

The farmer began work at 1:00 p.m. on the day of admission. By 4:00 p.m., the farmer and a co-worker sitting in the adjacent seat developed headaches. The farmer had additional complaints of dizziness and fatigue. The co-worker quit work at 4:30 p.m. and was replaced by a family member.

The farmer continued working in spite of increased severity of symptoms. The co-worker and tractor driver both observed reduced hand-eye coordination in the farmer who refused to stop working. At 6:30 p.m. the farmer collapsed and was transported to the ER.

The farmer's arterial carboxyhemoglobin level was 23.3% (normal = <2%). This confirmed CO poisoning.

²Outdoor carbon monoxide poisoning attributed to tractor exhaust. *MMWR* 1997;46(51):1224-1227.

Table 2
25 Year Surveillance of Hospitalized Pesticide Poisonings
in South Carolina, 1971 – 1996

Parameters	Study 1	Study 2	Study 3	Study 4	Study 5
Time Period	'71-'73	'79-'82	'83-'87	'88-'91	'92-'96
Years (n)	3	4	5	4	5
Hospitals (total/participated)	76/73	74/73	76/75	75/74	69/62
Cases (n)	117	314	312	187	112
Average cases /year (n)	39	79	62	47	22
Deaths (n)	0	7	2	0	1
% Occupational	37	25	20	12	8
% Non-occupational:	42	53	50	59	51
% Child	31	37	30	34	28
% Adult	11	16	20	25	23
% Intentional	18	16	27	29	40