
Hawaii Poison Center Data Reveals a Need for Increasing Hazard Awareness About Household Products

Premlata Menon PhD and Arthur M. Kodama PhD
Environmental and Occupational Health, School of Public Health, University of Hawaii, Honolulu

This study examined for the fiscal years 1995-1996 and 1996-1997, the frequency of calls to Hawaii Poison Center related to household products and pesticides poisoning, the frequency of the source of calls (professional versus layperson), and the patient's age distribution. The data was compared with the data recorded in 1989 which was reported earlier in the literature. We found the most frequent calls were from general public (6 to 8 times) and were related to household products (30% in 1996-97, 39% in 1995-96, and 39% in 1989) involving children less than 5 years of age. Results strongly suggest the need for increasing the awareness of hazards related to household products amongst the general public.

Introduction

Researchers in the field of emergency medicine have reported the vulnerability of children to household poisoning. Sixty-six percent of the 1,837,939 enquiries reported to the American Association of Poison Control Centers National Data Collection System in 1991 were related to children under 13 years.¹ Children under 10 years accounted for 52% of the 10,719 enquiries to the Honolulu Poison Center (HPC) over a 13 month period in 1989-90, 42% of the 12,667 enquiries to the Portuguese Poison Center in 1991 and 41% of the 8,144 enquiries received by the Irish National Poisons Information Center in 1991.^{2,3,4}

In the 1982-1988 United Kingdom home accident surveillance system, 15,144 pediatric cases of suspected poisoning were recorded.⁵ Only 514 (3.4%) of the 15,144 cases involved pesticide poisoning. In the 1989-1991 United Kingdom home accident sur-

veillance system, 6,478 pediatric cases of suspected poisoning were reported.⁶ Only 250 (4%) of 6,478 cases involved pesticides. Despite the fact that pesticides contribute to a small fraction of the suspected poisoning, researchers have focussed primarily on pesticide cases. The 1989-1990 HPC reported data did not have a separate category for pesticides, which were included under household items.² Even though 1989-1990 HPC data clearly shows that the most frequently involved substance was a household product, the authors did not emphasize it being of any particular importance. The authors of this paper were unable to locate any literature related to suspected poisoning from household hazardous products except one warning message transmitted on November 7, 1996 to the public via PR NEWSWIRE over the internet from the American College of Emergency Physicians. The warning described the circumstances under which two toddlers nearly died after coming in contact with a very small amount of widely available car wheel cleaner. The following is an excerpt from the warning message:

Each child was rushed to the emergency department after becoming drowsy and vomiting, but other signs of chemical poisoning were not initially apparent. Both children appeared to get better, then experienced cardiac arrest. When the parents remembered that their child had been playing near a bottle of ARMOR ALLTM Quicksilver wheel cleaner, emergency physicians were quickly able to diagnose and treat for poisoning. One child, who was believed to have been sprayed with the cleaner, has some long-term motor and speech delays. The other child recovered completely.

The Emergency Physician pointed out that the poisoning was attributed to hydrofluoride acid-like substances, mainly ammonium bifluoride and that less than one teaspoon of the ammonium bifluoride mix can prove dangerous to children. The message further stated that the U.S. Consumer Product Safety Commission (CPSC) had received several reports of adverse health effects associated with products containing ammonium bifluoride.

Household hazardous products are stored in almost every room of a typical American home—cleaners in the kitchen, fresheners in the bathroom, and hobby supplies in the workroom, to name a few. Accidental releases or incorrect use of these products may create unnecessary health risks for family members. It is reported that a typical household contains 60 hazardous chemical products such as paints, glues, cleaners, disinfectants, metal polishers, stain remov-

Correspondence to:
Premlata Menon PhD
School of Public Health
University of Hawaii
Biomed Bldg. D104H
1960 East West Road
Honolulu, HI 96822
Phone: 956-5744 Fax: 956-4585

ers, paint strippers, oven cleaner, pesticides etc. Some are either toxic, flammable, corrosive or chemically reactive.⁷ In order for all consumer product manufacturer's to comply with the Occupational Safety and Health Administration's 1985 Hazard Communication Act, CPSC enforced the requirement of certain signal words for example POISON (meaning highly toxic), DANGER (meaning extremely flammable, corrosive, or highly toxic), WARNING (meaning moderate hazard), CAUTION (meaning low hazard) on labels of household products containing hazardous ingredients.

The potential for accidental exposure to hazardous chemicals exists in an occupational setting, or community setting or in individual homes. The OSHA's Hazard Communication Act (HCS) of 1985 provides an excellent mechanism by which the workers in any occupational settings are ensured receiving the necessary and essential hazard information.⁸ HCS is designed so that employers who simply use chemicals, rather than produce or import them, are not required to evaluate the hazards of those chemicals. Chemical manufacturer's, importers, and distributors of hazardous chemicals are all required to provide the appropriate labels and material safety data sheets (MSDS) to the employers to which they ship the chemicals. The information is to be provided automatically. However, consumers of hazardous products are just provided with fine print labelling on the products. The authors of this paper strongly believe that very few consumers are even aware of the existence of the signal words on the label and amongst those who read it very few understand the real meaning or know that they have a right to request a MSDS from the dealer for health and safety reasons. No voluntary effort is demonstrated by the shop owners to provide MSDS's to their customers.

This paper attempts to find for the fiscal year 1995-1996 how frequently the Hawaii Poison Center received calls related to household products and pesticides incidents, and which category (professional versus layperson) of the population constituted the most frequent callers. Further, it attempts to investigate the patient's age distribution regarding toxic exposure to household products and pesticides.

Methods

This study involved reviewing the Hawaii Poison Control annual reports for the fiscal years 1995-1996 and 1996-1997. Data of the total number of calls by source (professional versus lay person) were compiled and categorized from the 1995-1996 and 1996-1997 HPC annual reports. The Hawaii Poison Center provided exposure data related to household products and pesticides for the fiscal years 1995-1996 and 1996-1997. Data obtained from the HPC for the number of calls by source for the last two years for exposures from household products and pesticides were compiled and categorized. Further data for the patient's age distribution regarding toxic exposure to household products and pesticides by age group was compared with that of HPC 1989-1990 data.

Results

Table 1 indicates household products to be the most common substance of poisoning (30% of 10,778 calls in 96-97, 39% of 10,044 calls in 95-96, and 39% of 11,158 calls in the 13 month period of 1989-1990) reported in Hawaii followed by medications (prescription and OTC) and bites/stings. Calls related to pesticide poisoning

Table 1.—Number and Percentage of Calls to HPC related to different substances for the fiscal period 1996-1997, 1995-1996, and January 1989-January 1990.

Substance Type	1996-97*	1995-96**	1989***
Household products	3,238 (30%)	3,873 (39%)	4,357 (39%)
Prescription Medication	2,514 (23%)	3,363 (34%)	1,421 (13%)
OTC Medication	1,755 (16%)	NA?	1,694 (15%)
Bites/Stings	1,306 (12%)	1,357 (14%)	914 (8%)
Pesticides	670 (6%)	694 (7%)	NA
Plant	597 (6%)	757 (8%)	2,331 (21%)
Food	509 (5%)	NA	NA
Street Drugs	98 (1%)	NA	51 (1%)
Liquor	91 (1%)	NA	29 (0.3%)
Other	NA	NA	229 (2%)
Unknown	NA	NA	132 (1%)
Total	10,778 (100%)	10,044 (100%)	11,158 (100%)

NA: Not available

*Data from HPC Annual Report (1996-1997, page 20)⁹ modified by combining the value for Industrial products (non-pesticide) with Household product.

**Data from HPC Annual Report (1995-1996, page 8)¹⁰ does not sub-categorize medications by prescription and OTC. Hence NA? is against OTC. Further the ordering of the variables Pesticides and Plant is interchanged to match the current tabular listing.

***Data from Yamamoto, 1991, Table 3, page 145 modified by including stings/bites under variable Substance class and assuming Natural items to mean category Plant and Food.

Table 2.—Number and Percentage of Calls to HPC during the three periods (1989-1990, 1995-1996, and 1996-1997) Related to household products and pesticides exposure by age group.

Data Year	Age Group (years)				Total
	<6	6 - 15	>15	Unknown	
1989-90*	2,586 (59%)	257 (6%)	1,329 (31%)	185 (4%)	4,357
1995-96 (Household) products	1,749 (54%)	226 (7%)	867 (26%)	411 (13%)	3,253
1996-97 (Household) products	1,708 (54%)	218 (7%)	841 (26%)	418 (13%)	3,185
1995-96 (Pesticide)	209 (30%)	32 (5%)	239 (34%)	214 (31%)	694
1996-97 (Pesticide)	183 (27%)	20 (3%)	206 (31%)	259 (39%)	668

*1989-90 HPC data did not have a separate category for pesticides.

are only 6% in 96-97 and 7% in 95-96. Pesticide is not listed as a separate category in 89-90 data. It is possible that pesticide was included with household products thus explaining a higher rate of 41%.

The general public (lay person) was found to be the most frequent caller, constituting 86% and 87% of the total calls during the fiscal years 1996-1997 and 1995-1996, respectively. In other words, the general public called six times more frequently than professionals. Similarly when the data were classified considering exposures related to household products, the ratio of the calls from the general public to that of professionals was 8 and 6 times. Additionally when the data was classified considering exposures related to pesticides, the ratio was 3 and 4. The ratio is lower for pesticides indicating more professionals called when pesticide poisonings were involved. (Table not presented)

Table 2 shows the patient's age group distribution for the 13 month period of 1989-1990, the fiscal years 1995-1996 and 1996-1997 relative to data for household products and pesticides exposure. The 1989-1990 data did not have a separate category for pesticides. For household products children aged less than 6 years of age were most frequently involved, with more than 50% constituting this group. The age group 6-15 were the least frequent with just 6 to 7%. This was true for all three periods considered. In the case of pesticides, the age group less than six years and the group greater than 15 years old had almost equal rates with 30% and 31% in the fiscal years 1995-1996 and that for the year 1996-1997 being 27% and 31%, respectively. Further in the case of pesticides, higher rates

of "unknowns" in terms of age exist indicating some lapse in data entry.

Conclusions

Results from this study strongly suggest the need for increasing the awareness of hazards related to household products amongst the general public. It will be useful to conduct an in-depth review of the case reports (both retrospective and prospective) related to household products to obtain information about the type of household product, circumstances of exposure and severity. This will enable future development of training materials to educate the public about the adverse health effects and potential dangers of household products containing hazardous chemicals. Further, it is recommended that family physicians and pediatricians can play an important role by routinely advising parents with children below 6 years of age to be cautious when using consumer items labeled with poison, danger, warning and caution signs.

Acknowledgments

The authors would like to thank Debbie Ahina, of the Hawaii Poison Center, Honolulu for her assistance with this study.

References

- Litovitz TL, Holm KC, Bailey KM, et al. 1991 Annual report of American Association of Poison Control Centers National Data Collection System. *Am J Emerg Med* 1992;10:452-505.
- Yamamoto LG, Wiebe RA, Matthews W. Toxic exposures and ingestions in Honolulu: I. A prospective pediatric ED cohort; II. A prospective poison center cohort. *Pediatric Emergency Care* 1991;7:141-48.
- Dorges A. Portuguese Poison Center Annual Report 1991.
- Irish National Poison Information Center. 1991 Annual Report, Dublin, Ireland.
- Casey PB, Thompson JP, and Vale JA. Suspected paediatric pesticide poisoning in the U.K.I-Home accident surveillance system 1982-1988. *Human and Experimental Toxicology* 1994;13:529-533.
- Thompson JP, Casey PB, Vale JA. Suspected paediatric pesticide poisoning in the U.K.I-Home accident surveillance system 1989-1991. *Human and Experimental Toxicology* 1994;13:534-536.
- FEMA, USEPA, DOT, 1990. Hazardous Materials: A Citizen's Orientation. Federal Emergency Management Agency, Emmitsburg, MD.
- Code of Federal Regulations (40CFR.1910.1200). Hazard Communication Standard. OSHA's Right-to-Know Act, 1985.
- Hawaii Poison Center. Annual report 1996-1997:20. Honolulu, Hawaii, 1997.
- Hawaii Poison Center. Annual report 1995-1996:8. Honolulu, Hawaii, 1996.

STRAUB WELCOMES

Jeffrey C. Kam, MD

Straub is proud to announce that Dr. Jeffrey Kam is now practicing medicine at Straub King Street and Straub Pali Momi.

Dr. Kam specializes in the treatment of allergic disorders and asthma and is a valuable addition to Straub's integrated, patient-focused health care system. We extend a warm welcome to all of his patients and are currently taking appointments. Straub is committed to providing you with the finest health care in Hawaii.

Straub participates with HMSA and Medicare, and accepts over 150 insurance plans.

Straub
When it really matters

Visit Straub's homepage at <http://www.straubhealth.com>

Straub King Street

888 South King Street, Honolulu, HI 96813 • Phone: (808) 522-4310

Straub Pali Momi

98-1079 Moanalua Road, 6th Floor, Aiea, HI 96701 • Phone: (808) 487-2477



Jeffrey C. Kam., MD

Allergy/Immunology-
National Jewish Medical
and Research Center

Pediatrics -
Kapiolani Children's
Medical Center

American Academy
of Pediatrics

American Academy of Allergy,
Asthma, Immunology

Hawaii Medical Association

**Children Act Fast
So Do POISONS!**



**Hawaii
Poison Center**

941-4411

Neighbor Islands Toll Free
1-800-362-3585

More than
40 years of service.
Donate to help
us save lives.