Utilizing pesticide safe storage devices in village communities in Sri Lanka - a pilot study

Manjula Weerasinghe[1], Ravi Pieris[1], Flemming Konradsen[1, 2]

1South Asian Clinical Toxicology Research Collaboration, Faculty of Medicine, University of Peradeniya, Peradeniya, Sri Lanka. 2 Department of International Health, Immunology and Microbiology, University of Copenhagen, Cph K, Denmark

Objective: To assess the use of pesticide safe storage devices with the aim of reducing the number of occurrences of acute pesticide poisoning. **Method:** Members of 368 farming households, randomly selected from four study villages in an irrigated area of Sri Lanka, were interviewed on a structured questionnaire to obtain information on pesticide use and storage. Based on farmers' preferences, five prototypes - four in-house and one in-field - of safe storage devices were developed. In-house storage devices manufactured with either mango wood or metal were provided exclusively to the households in two villages. The communities in the other two villages had the option of choosing between an in-house storage device manufactured with pinewood or an in-field device made of concrete. Households were provided with their choice along with a strong padlock and keys, free of charge, and its members were encouraged to store all pesticides in the locked device at all times. Two follow-up surveys were conducted in all four villages seven months after the initial distribution and a separate survey was done in the first two villages 24 months after the initial distribution. **Results:** In the two villages where only the in-house devices were installed, seven months after the distribution all pesticides were exclusively stored and locked away in 82% (n = 172) of the households; twenty four months after initial distribution this safe storage practice was reduced to 55% (n = 161) of the households. In the two villages where both in-house and in-field storage devices were distributed, only 68% (n = 156) maintained the pesticides exclusively in a locked storage device seven months after the initial distribution. Prior to the distribution of safe storage devices only 2% to 5% of the households in the four villages stored pesticides under lock and key. Over the study period, 12 severe acute pesticide poisoning cases were reported from the four villages, including four deaths. Out of the12 acute pesticide poisoning cases, seven were among the families that had received a device. There were two deaths among these seven cases and these victims had a key to open the device. In five of the poisoning cases the individuals attempted to force open the storage device but only one individual succeeded but survived the attempt. **Conclusion:** This study confirms the high acceptance of lockable storage devices by the community. The reduction in usage over time raises the possibility that a continuing education campaign directed at adults and children may improve usage just as it improves compliance in many other health interventions. Despite the intervention there were seven attempts of poisoning during the period of study. However, in five of them the device had posed some barrier to pesticide accessibility. Nevertheless, the keeper of the key is highly vulnerable since he/she has easy access to the pesticides. **Acknowledgements:** We appreciate the financial support provided by South Asian Clinical Toxicology Research Collaboration Research grant (Wellcome Trust / NHMRC International Collaboration Research grant GR071669MA) and from the Danish Development Agency, DANIDA (104.Dan.8-902).