



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Malathion incidents related to Medfly spraying in 1981

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THRU: Michael Firestone, Ph.D., Chief
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TO: Penelope Fenner-Crisp, Ph.D., Director
Health Effects Division (H7509C)

In 1981, the U.S. Consumer Product Safety Commission tabulated all reports of pesticide-related cases seen in a sample of the nation's emergency rooms. A total of 463 case reports were received in 1981 resulting in a national estimate of 21,246 persons treated in emergency room facilities for pesticide-related problems.

One emergency room in Santa Clara county in California reported 52 cases related to the Medfly spraying that went on that year. In 35 of the 52 cases malathion was specifically identified as the cause of the visit. All 35 malathion cases were treated and released, none were hospitalized.

According to the emergency room record, the attending physician considered 20 of the 35 malathion cases to be definite poisoning and the other 15 were considered suspected poisoning. Symptoms were reported in 32 of the 35 cases, most commonly nausea or vomiting (16 cases) or skin or eye irritation (16 cases). Other symptoms reported included abdominal pain or diarrhea (13 cases), headache (11 cases), difficulty breathing (10 cases), dizziness (6 cases), and other symptoms were reported in 11 cases. No results from cholinesterase tests are available to confirm any of these cases. All of these 35 cases were 17

years old or older, none of the incidents involved children. 32 of the cases were at their workplace when exposed. It appears that some of these cases were actually workers directly involved in the spray operations.

Had the proposed interagency agreement with the Consumer Product Safety Commission (\$85,000) been approved for the current workplan (see my memorandum, June 5, 1989), it would have been possible to monitor the extent of problems related to Medfly spray operations. The new proposed plan would have included interviews with exposed victims and verification of cholinesterase tests results which would have provided an accurate appraisal of the hazard from the use of malathion.

cc: Malathion File
Correspondence File

MEMORANDUM

DATE: June 5, 1989

SUBJECT: Pesticide Poisoning Studies, Extramural Funding

TO: Penelope Fenner-Crisp, Director
Health Effects Division (H7509C)

THRU: Reto Engler, Chief
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THRU: Bruce Jaeger, Chief
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FROM: Jerome Blondell, Health Statistician
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The purpose of this memorandum is to outline proposed pesticide poisoning survey activities for FY90.

Background

Starting in the late 1970s, OPP conducted surveys of reported pesticide poisoning through its own retrospective national survey of hospitalized cases and through an interagency agreement with the Consumer Product Safety Commission which surveyed product-related injuries in a sample of the nation's emergency rooms. Both surveys were based on medical records which often did not contain sufficient detail to permit identification of the specific pesticide or the exact circumstances responsible for poisoning.

In 1985, Congress requested and provided initial funding for upgraded surveys of both hospitals and emergency rooms that would be reported annually. Research Triangle Institute, under contract to OPP, used this initial funding to evaluate all existing databases that might supply poisoning data. They developed a recommended design for the most cost-efficient way of obtaining data while at the same time providing high quality information that could be used for the registration standard and special review processes. The design provided for interviews with poisoning victims so that the specific pesticide and circumstances associated with the case could be identified. This design was transmitted to Congress in November 1986, but no funding was provided to implement the design. OPP was unable to provide funds from within its own budget due to overall cutbacks and the absence of any additional money.

Proposed Activities for FY90

Listed below in order of priority are the proposed studies for collecting pesticide poisoning statistics. Note that all activities utilize existing surveys conducted by other agencies so that costs are far less than they would be if OPP initiated these studies itself.

1. Consumer Product Safety Commission Emergency Room Survey \$85,000
A pilot test of the questionnaire for this activity was successfully completed in the fall of 1987. An acceptable response rate was obtained and pesticides responsible for poisoning were identified. This agreement would provide poisoning statistics on pesticides of regulatory interest on an ongoing basis.
2. National Center for Health Statistics Hospital Survey Pilot \$15,000
This is a new proposed agreement. A pilot test would be needed to determine appropriate codes for accessing medical records, to develop procedures for obtaining hospital cooperation in order to interview poisoning victims, and to test the survey questionnaire. Annual costs of collecting hospital data on poisonings would have to be negotiated with NCHS, but would probably be similar to those charged by CPSC, namely \$85,000 per year.
3. California State Pesticide Poisoning Summaries \$30,000
California is currently the only State that systematically collects data on all physician-diagnosed pesticide poisonings in the workplace. OPP already relies heavily on California statistics to identify safety problems with agricultural pesticides. OPP contracted with California (1987-88) to provide pesticide specific data summaries that cover many years for chemicals in Special Review or Registration Standards. Specialized computer searches can answer specific questions about spray drift, worker field reentry, sites of exposure, etc. which permit tailored recommendations for safe pesticide use.
4. Poison Control Center Association Agreement \$60,000
Over the past few years half of the nation's Poison Control Centers (PCCs) have participated in a national computerized data collection system. In 1987, the participating PCCs received over 57,000 calls related to potentially hazardous pesticide exposures. This large database of cases, if properly used, could provide OPP with an excellent resource for identifying and documenting hazards due to pesticides. Data could be obtained on the number of exposures, extent of symptoms, and resultant medical outcome for specific pesticide active ingredients.
5. State Poisoning Reporting System Development \$30,000
Other States besides California have recently introduced requirements for reporting of pesticide poisoning. A number of these states have come to us seeking assistance in setting up their reporting systems. RTI recommended that a small investment on EPA's part to help states develop their own systems would result in databases that EPA could later tap into at minimal cost. Such a project has been funded with the New Jersey State Health Department (1987-89).

Regulatory Use of Poisoning Data

It is **not** possible to anticipate in advance all the possible uses of poisoning data. However, a sense of this potential can be gained by looking at the following past uses:

1. Data from past poisoning surveys was used to support the cancellation, upheld by the administrative hearing, of arsenical ant baits which were responsible for 5,000 exposures annually of young children.
2. California documented excessive poisoning and hospitalization due to two highly toxic organophosphates despite extensive restrictions on their use. This information was used to justify initiating a special review on each chemical.
3. California documented extensive skin injuries to workers due to propargite. This information, used in the Special Review, supported the assumption that dermal exposure might result in 100 percent skin absorption.
4. Evidence of diazinon poisoning was used in the proposed decision to restrict homeowner products in the Tox I and Tox II categories.
5. The lack of serious reentry-related poisonings among low toxicity pesticides was used to support exemptions from data requirements for such pesticides in the reentry guidelines.

Anticipated Regulatory Uses of Data

1. The arsenical ant bait case has brought the child-resistant packaging toxicity criterion (oral LD50 of 1500 mg/kg) into question. Analysis of other pesticides responsible for childhood poisoning may demonstrate a need to change this criterion.
2. Several cases of explosion have been reported when indoor foggers have been used too close to pilot flames. Continued review of this situation may result in a requirement that low flammability propellants be used.
3. Special data requirements are now being developed for lawn care chemicals. Data is needed on who is most at risk of poisoning (e.g., children, pets, neighbors) and whether the problem, if any, is mainly due to direct exposure to sprays, spray drift, or contact with treated foliage.
4. The **newer** single-dose anticoagulant rodenticides have apparently caused serious problems in some pets. Exposures in children have not been evaluated.
5. Decisions to restrict chemicals and require certified applicator training (e.g., chlorine applications to residential swimming pools) could be better made with data on the extent and circumstances of accidental poisoning.