



Department of Pesticide Regulation



Paul Helliker
Director

MEMORANDUM

Arnold Schwarzenegger
Governor

TO: Sue Edmiston, Agriculture Program Supervisor III
Worker Health & Safety Branch **HSM-04020**

FROM: Kathy Orr, Associate Environmental Research Scientist (*original signed by K. Orr*)
Worker Health & Safety Branch
(916) 445-4196

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SUBJECT: COOPERATION WITH CALIFORNIA POISON CONTROL SYSTEM FOR
TIMELY PHYSICIAN REPORTING OF PESTICIDE ILLNESSES

Background

Physicians have a legal obligation under Health and Safety Code section 105200 (HSC 105200) to report known or suspected pesticide-related illnesses. Physicians report pesticide illnesses, usually by phone, to the local health officer. Each health officer has designated a phone number for pesticide illness reporting. Up to one third of the pesticide illness cases received by the Department of Pesticide Regulation (DPR) originate with the Pesticide Illness Reports (PIRs) submitted to the local health officer. The majority of pesticide-related illness cases, however, are identified by other mechanisms. Historically the Pesticide Illness Surveillance Program (PISP) scientists retrieved approximately two-thirds of all cases by review of Doctor's First Reports of Occupational Illness or Injury (DFR) for evidence of pesticide involvement. This source has dropped in recent years from a total of 1947 cases identified in 1992, to only 378 cases identified in 2002. The reason for this pronounced and sustained decline has not been identified. All other cases are identified by other mechanisms including citizen complaints and media reports. County agricultural commissioners (CAC) investigate all cases identified as potentially related to pesticide exposure.

PISP maintains a database of pesticide-related illnesses and injuries. DPR maintains the database in order to evaluate the circumstances of pesticide exposures that result in illness or injury. Staff regularly consult the data collected to evaluate the effectiveness of the DPR pesticide safety regulatory programs and assess the need for changes. Worker Health and Safety (WHS) Branch staff evaluate CAC reports and undertake a complex task of determining the likelihood that a pesticide exposure caused the incident.

Investigations of pesticide exposure and illness incidents are hindered by the lack of timely and consistent notification. Establishing procedures to improve the notification process will assist WHS in evaluating and assessing pesticide related illnesses. Without early notification, CACs often lose the opportunity for sampling and observation for reconstruction of the exposure scenario. Furthermore, this delay increases the difficulty of locating the people involved to interview them, thus further limiting the information that can be collected. DPR has explored several routes to try to improve completeness and timeliness of pesticide illness reporting,



including alternative sources of case identification as well as methods of encouraging direct physician reporting. Direct physician reporting has the advantage of providing notification more quickly than any indirect route, which facilitates informative investigations. Approximately half of all direct physician reports are received within two weeks of the incident and about 90 percent within the month following exposure. Reports through alternative routes typically take weeks or months to reach DPR. Direct reporting also provides DPR with cases that do not appear in alternative sources such as DFRs or hospital records, and which consequently would be overlooked if not reported by the physician.

DPR made several efforts to remind physicians of their responsibilities under Health and Safety Code section 105200, but now seeks strategies for cooperation that offer assistance to medical personnel. Starting in 2000, in response to physicians who have expressed interest in learning the outcome of pesticide related illnesses, DPR sent each filer a summary letter describing our objective with a prepaid response card offering them the opportunity to accept or decline further information when the next year's data is released. The letter acknowledged the fact the medical provider reported a pesticide-related illness or injury to the local health officer in accordance with the Health and Safety Code section 105200. The letter advised the doctors that the CAC thoroughly investigated the case and that DPR entered the resulting data into the pesticide illness surveillance database. In addition, the letter pointed out DPR uses the data to identify pesticide-related illness trends and evaluate the effectiveness of the regulatory program.

The California Poison Control System (CPCS) provides free and immediate expert treatment advice over the telephone in the event of exposure to poisonous substances. CPCS provides the service to citizens and medical professionals, toll-free, 24 hours a day, 365 days a year. In 1997, the CPCS consolidated operations of the unaffiliated regional poison control centers into four centers, establishing collective treatment guidelines and common management practices. The four centers are located at the U.C. Davis Medical Center in Sacramento, San Francisco General Hospital in San Francisco, Valley Children's Hospital in Fresno/Madera and U.C. San Diego Medical Center in San Diego. They operate under a single administration and medical advisory group. Medical facilities regularly consult CPCS early in the management of chemical exposures.

In a series of three contracts, DPR contracted with the U.S. Environmental Protection Agency (U.S. EPA) to evaluate the potential of using poison control contacts with physicians to assist them in reporting pesticide cases. Under terms of the contracts, poison control technicians reminded health care workers that state law requires doctors to report any disease or condition that they suspect of deriving from pesticide exposure. The poison control staff also offered to record the information required and to fulfill the reporting requirement on the doctor's behalf. The following summarizes the goals and results of each of the three projects.

Pilot Project

In fiscal year 1996-1997, DPR initiated a pilot project by cooperating with a single regional poison control center, the Central Valley Regional Poison Control Center, serving the San Joaquin Valley. During this period, specialists at this poison control center offered to report pesticide cases on the physicians' behalf. This agreement specified that the role of the poison control center staff would be to assist physicians in complying with the mandatory reporting requirements for pesticide exposures. In so doing, the poison control center expanded its public health role beyond individual consultations to providing the state with reliable information on the health issues related to pesticide use in California.

Consultation between DPR staff and the poison control specialists identified a list of 63 substance codes to be used to identify likely cases. When they received calls about exposure to substances on the list, poison control specialists were to explain the reporting requirement and offer to fulfill it on behalf of the physician who consulted them. A subset of the code list was identified as requiring verification, that is, as related to categories of substances that include both pesticides and non-pesticides. If consulted about those substances, poison control specialists were to attempt to determine whether or not the product was used to kill or control some deleterious organism. If so, the use was pesticidal and should be reported. DPR provided the poison control center with a list of local health officers' fax and phone numbers to which to transmit reports.

Three criteria were identified as necessary for reporting: a) exposure to at least one product identified by the list of codes; b) patient is symptomatic; and c) patient is seen by a physician. The requirement for physician consultation was implemented by selection of all cases in which a health care provider called poison control, all cases in which the affected person was said to be already at or in route to a health care facility, and all cases in which poison control recommended that callers seek medical evaluation.

This initial pilot study identified 75 cases, including 24 involved in 7 group episodes, during its effective dates from July 1996 through June 1997. DPR received two of the 75 reports on the actual date of injury and another 15 on the day following the event. In all, 51 of these notifications arrived within a week of the occurrence, and all but five within two weeks. By contrast, about half of all PIRs filed by the standard mechanism arrive two weeks or more after the episode, and the majority of DFRs take more than a month to work their way through the system. We eventually located DFRs for 24 of the 75 cases reported by the poison control center. Most of the DFRs arrived two to ten weeks later than the notifications from poison control.

This constituted an encouraging pilot. We received notification by this route much more rapidly than through any other mechanism, and several potential problems did not materialize. In

particular, the poison control center reporting did not inundate us with antimicrobial cases or suicide attempts. It enhanced our coverage of non-occupational episodes without suggesting any severe public health menace. It allowed the CACs to promptly initiate investigations and document exposures with environmental sampling. It relieved the medical community of a paperwork burden, and if pursued and publicized, may enhance both reporting and utilization of poison control centers. The cases reported through this one center were rather heavily agricultural, but that probably resulted from its location.

Second Cooperative Agreement

Federal funding received in 1998 supported extension of this pilot to the entire CPCS. This contract ran from November 1, 1998 through October 31, 1999.

The goals of the second agreement were: (1) To assist physicians in complying with HSC 105200, which requires them to report any disease or condition that they know or have reason to believe resulted from pesticide exposure. (2) To streamline the process by which CPCS staff members provide this assistance. (3) To design and implement a mechanism to provide timely status reports on the disposition of cases potentially eligible for reporting.

Reports again arrived promptly, enabling informative investigations, and provided information on domestic, accidental and voluntary exposures rarely identified by other means. Discussions with CPCS staff members also uncovered several problems. In an attempt to streamline the reporting process a computer application notified the CPCS specialist that the condition may be related to a pesticide. However, the notification often came late in the procedure, forcing specialists to contact health care facilities again just to obtain information for the pesticide incident report. In addition, the reporting procedure required specialists to reenter data they had already recorded elsewhere. And although the contract had attempted to specify reconciliation procedures to measure the program's success, the implementation did not fulfill that goal.

Between November 1 1998 and October 31 1999, CPCS transmitted 156 case reports. These reports included 11 (85 percent) of the 13 reports received on the day of the event 27 (87 percent) of the 31 reported the day after and 124 (56 percent) of the 222 reported within one week of occurrence. The average time from occurrence to notification was 5 days for cases CPCS helped report, in sharp contrast to 145-day average delay for DFRs.

Third Cooperative Agreement

In May of 2001, DPR accepted an extension to the federal contract for the purpose of continuing cooperation with CPCS and addressing shortcomings identified in the earlier work. This allowed DPR and CPCS to negotiate a new agreement, which ran from July 2001 through November of 2002.

The new contract reduced from three to two the criteria to be met before poison control specialists were alerted to offer reporting assistance. It continued to require a) exposure to at least one product identified by the list of pesticide codes and b) that the patient be seen by a physician (defined as in previous contracts). The earlier contracts, however, had implemented the requirement that the patient be symptomatic as a requirement that the poison control specialist evaluate symptoms as related to exposure. This often delayed the automated reminder to the specialist until after consultation was complete. The new contract did not specify that patients must have symptoms. Poison control specialists were asked to consider reporting as soon as it could be determined that a medical facility was evaluating a patient potentially exposed to a pesticide.

DPR had also identified failures of communication as critical shortcomings of previous contracts. Consequently, the new contract included funding for a part-time liaison between DPR and CPCS, who helped to resolve malfunctions and difficulties of communication. The liaison was recruited from one of California's state-supported universities to facilitate the development of an automated tracking system, to maintain regular contact with CPCS staff at all four centers, and to propose strategies to overcome barriers. These strategies were anticipated to include communication with county and State officials, contacts with health care providers and their professional organizations, and development of both devices and software tools to increase efficiency in performing required tasks.

During consultation with DPR, the liaison tracked receipts of notifications from CPCS. This allowed the liaison to evaluate the importance of the data elements requested by DPR. It also constituted the basis for feedback to poison control staff during visits. She largely functioned as an advocate and a troubleshooter. She presented training to specialists at all four centers on when and how to report pesticide cases, and coordinated resolution of problems involved in transmission of faxes or other elements of the process.

Under this contract, CPCS transmitted 876 case reports in 17 months. These reports included 88 (93 percent) of the 95 reports received on the day of the event 315 (93 percent) of the 340 reported the day after and 745 (85 percent) of the 894 reported within one week of occurrence. The average time from occurrence to notification was 6 days for cases CPCS helped report. By contrast, the average time from occurrence to notification of cases identified through DFRs was 145 days.

CPCS transmitted fewer than half of the contacts identified by codes as potentially eligible for reporting. The service was very rarely refused or not offered; most cases were not transmitted because poison control specialists judged that they did not meet criteria. Centers at which the program had an internal advocate forwarded more cases than others. The liaison worked at the San Diego center, which transmitted reports on 28% of the potentially eligible cases. At the Sacramento Center, the director took a personal interest; specialists there transmitted 34.5% of

potentially eligible cases. Fresno and San Francisco centers transmitted only 15% of potentially eligible cases. Neither had an internal advocate.

Conclusion

Cooperating with CPCS to facilitate reporting is currently our most promising source for a collaborative approach to improvement in reporting. Cooperation between DPR and CPCS proved to be an effective means for physicians to recognize and report pesticide-related illnesses through the assistance of the CPCS. Report timeliness was impressive. On average, DPR received a pesticide illness report from CPCS within five days after it occurred. Prompt notification via CPCS enhances the ability of CACs to conduct informative investigations. In episodes or group exposures, early knowledge of the event allows DPR to obtain biological and environmental samples that document the extent of exposure. Timely investigations resulted in more accurate information, found cases not identified otherwise and enhance physician awareness of the reporting requirement.

More critically, CPCS annually receives hundreds if not thousands of calls about events that doctors did not report. These missing cases could change our understanding of the pesticide risks we are charged with controlling. The continuation of a working relationship with the CPCS is important for pesticide illness recognition, management, and reporting. The most recent contract between DPR and CPCS ended in November 2002, when a U.S. EPA \$100,000 contract was exhausted. If funding becomes available, DPR plans to resume working with CPCS. The CPCS may be reluctant, at a later date, to revise its procedures to accommodate our needs. We have the opportunity now to further develop this information channel that promises insights into the ways in which pesticides affect the health of children and home users. We have had enough positive experience with CPCS reporting to want to continue to develop this service, and to identify possible funding options. To continue pursuing them, we need to know how much money we are looking for. This will enable the branch to evaluate long-term, stable funding options for funding this source of notification.