



**PESTICIDE REGISTRATION
AND EVALUATION COMMITTEE (PREC)
Meeting Minutes – January 15, 2021**

Committee Members/Alternates in Attendance:

Amalia Neidhardt – Department of Industrial Relations (DIR)
Dave Tamayo – Structural Pest Control Board (SPCB)
David Ting – Office of Environmental Health Hazard Assessment (OEHHA)
Heather Williams – Department of Resources Recycling and Recovery (CalRecycle)
Jaime Rudd – Department of Fish and Wildlife (DFW)
Jeff Fowles – Department of Public Health (DPH)
Karen Morrison – Department of Pesticide Regulation (DPR)
Kevi Mace – California Department of Food and Agriculture (CDFA)
Lynn Baker – Air Resources Board (ARB)
Matt Hengel – University of California, IR-4 Program
Patti TenBrook – U.S. Environmental Protection Agency (EPA), Region 9
Rich Breuer – State Water Resources Control Board (SWRCB)
Ruben Arroyo – CA Agricultural Commissioners and Sealers Association (CACASA)
Valerie Hanley – Department of Toxic Substances Control (DTSC)

Visitors in Attendance:

Note: Only attendees who identified themselves using their full name are listed below

Anne Katten – California Rural Legal Assistance Foundation
Darin Marlow
James Nakashima – Office of Environmental Health Hazard Assessment (OEHHA)
Katherine Sutherland-Ashley – Office of Environmental Health Hazard Assessment (OEHHA)
Laura Rosenberger Haider
Michael Barber
Ouahiba Laribi – Office of Environmental Health Hazard Assessment (OEHHA)
Suzanne Hume

DPR Staff in Attendance:

Brenna McNabb – Pesticide Registration Branch
Brittanie Clendenin – Pesticide Registration Branch
Denise Alder – Pesticide Registration Branch
Jennifer Ha – Worker Health & Safety Branch
Kara James – Pesticide Registration Branch
Laura Benn – Pesticide Registration Branch
Michel Oriol – Worker Health & Safety Branch
Nan Singhasemanon – Pesticide Programs Division
Val Dolcini – Director's Office

1. Introductions and Committee Business – Karen Morrison, Chair, DPR

- a. Approximately thirty-one (31) people attended the meeting.
- b. The Governor’s recent budget includes several pesticide-related items, including additional support for reporting granular chlorpyrifos use, relaunching the electronic registration submission system, and a joint BCP with CDFA on a transition to safer and more sustainable pest management funded through a proposed increase in the mill assessment.
- c. DPR recently issued the 2018 Pesticide Use Reporting data.
- d. DPR published the 2019-2020 Progress Report, which highlights major activities for the department over the last two years.
- e. U.S. EPA is taking action relative to recent reports of Per- and Polyfluoroalkyl Substances (PFAS) compounds found to have leached into a pesticide product from a fluorinated high-density polyethylene (HDPE) container. For more information on this developing issue, read [U.S. EPA’s press release](https://www.epa.gov/newsreleases/epa-takes-action-investigate-pfas-contamination). <epa.gov/newsreleases/epa-takes-action-investigate-pfas-contamination>
- f. DPR’s regulatory calendar for 2021 will be available on the department’s website in February.

2. Pesticide Illness Surveillance Program (PISP) – Jennifer Ha, DPR

Under California Health and Safety Code section 105200, physicians are required to report any suspected case of pesticide-related illness or injury to the local health officer within 24 hours of examining a patient. Health officers must then complete a pesticide illness report (PIR) and send that report to the Pesticide Illness Surveillance Program (PISP) at DPR, as well as the Office of Environmental Health Hazard Assessment (OEHHA) and the Department of Industrial Relations (DIR).

PISP is a passive surveillance program, meaning that it relies on data gathered through reporting. Because of this, there may be limitations in the quality, quantity, and timeliness of the information received. Staff have taken steps to improve reporting by conducting joint outreach and training with OEHHA to inform physicians of the reporting requirements. DPR’s PISP is unique in that it is the oldest and largest in the nation, and is also housed within a regulatory agency as opposed to a public health agency. County Agricultural Commissioners in all 58 counties investigate suspect pesticide illnesses that occur in their jurisdictions, giving DPR a snapshot of what is happening across the state.

PISP relies on reports that are received through various avenues. Work-related reports are documents associated with workers’ compensation claims that physicians are required to forward to DIR and are subsequently shared with the California Department of Public Health’s Occupational Health Branch (CDPH-OHB). Through an agreement with CDPH-OHB, DPR staff manually extract reports of suspected pesticide illness. A majority of non-occupational reports come from poison control centers. Through a contract with the California Poison Control System, when a medical professional consults with poison control about an illness or injury that may involve a pesticide, poison control offers to submit a pesticide illness report on behalf of the

medical provider. Each business day, DPR staff login to the poison control system and download those reports from the previous day. Illnesses are also reported directly to county local health offices and forwarded to PISP.

To qualify for inclusion in the PISP database, pesticide illness reports must mention a pesticide, include symptoms experienced by the individual, and show evidence of a medical consult. Once all three of those criteria are met, the cases are logged into the PISP database and forwarded to the County Agricultural Commissioner (CAC) where the incident occurred for further investigation. Illnesses can also be directly reported to the CAC through anonymous reporting. Once the CAC office has completed their investigation, they will forward a completed report to DPR.

Upon receipt of the completed reports from the CAC, DPR staff review the report and extract over 120 variables to be entered into the PISP database. These variables include what the person was doing at the time of exposure, how they were exposed, what application equipment was involved, what protective equipment the individual was wearing at the time, any symptoms the individual experience, and the registration numbers of the products involved in the incident. Staff then weigh both the physical and medical evidence to assess the likelihood that the pesticide exposure caused the illness. If staff determine the health effects are related to pesticide exposure they assign it a definite, probable, or possible relationship.

To be classified as a definite relationship, there must be a high degree of correlation between exposure and resultant symptoms, and requires both objective medical findings and physical evidence such as positive clothing or foliage samples. For probable relationships, there must be a high degree of correlation between exposure and resultant symptoms, but either physical or objective medical evidence is not available. For possible cases, the health effects correspond generally to the report exposure but both physical and medical evidence is inconclusive or unavailable. Cases can also be deemed unrelated or unavailable. For example, during the course of an investigation staff may discover that a fertilizer was involved rather than a pesticide or staff may be unable to contact the individual to confirm that a pesticide was involved.

The purpose of the PISP annual report is to provide a descriptive summary of the number and types of illness reports received in a given year. The annual report provides a snapshot of pesticide illness throughout all 58 counties due to the agreement with the CACs. Because of the number of variables collected, there are many different data summaries provided, such as agricultural versus non-agricultural, types of exposure, or where the incident occurred. Data from PISP can provide valuable information to DPR, establishing trends and identifying emerging issues or areas for improvement. This data is provided to industry, advocacy groups, scientists & researchers, and the public, often via public records requests. The data is also cited by other agencies, universities, and stakeholders for research or regulatory purposes.

Of the 2,006 cases of individual exposure identified by DPR staff in 2017, pesticides were determined to be definitely, probably, or possibly associated in 1,342 cases. Roughly half of these cases were identified through the Poison Control System and 13% of cases were identified

via the workers' compensation system. A third of cases were identified through other sources, such as direct reports to the county, cases identified through news media, or additional cases that were identified over the course of an investigation. Less than one percent of cases were identified through a direct physician report to the local health officer. In several instances, reports received via this route provided additional information on cases that were initially reported through other sources.

Illness investigations in 2017 determined that 16% of cases lacked adequate data to associate the exposure with a pesticide, while 17% of cases were unlikely, indirect, unrelated, or asymptomatic. Pesticide associated cases accounted for 67% of illness investigations, and of those, 74% were deemed probable, 15% were deemed possible, and 11% were deemed definitely related to specific pesticide exposure. In 2017, of the 1,342 pesticide associated cases, 36% of cases were attributed to pesticides intended for use in agricultural production, whereas 64% were attributed to non-agricultural use pesticides. From 2008 to 2017, the number of agricultural pesticide related episodes has stayed consistent, however the number of cases can vary year-to-year, based on the number of individuals involved in multi-person episodes.

Non-agricultural episodes accounted for 87% of the total episodes in 2017. Some examples of non-agricultural uses are structural, sanitation, home use, and most industrial and institutional uses. These types of episodes can occur in hospitals, hotels, restaurants, public or private swimming pools, and private residences and involve the more traditional types of pesticides such as insecticides and herbicides, but also include antimicrobials, such as products used as sanitizers or disinfectants.

Of the 482 agricultural cases, a majority were occupational, meaning that the affected individual was on-the-job at the time of the exposure. These would include field workers, applicators, mixer/loaders, or those repairing application equipment. Fieldworkers accounted for 323, or 78%, of the total occupational agricultural cases, resulting from 34 separate episodes. Half of the cases were associated with exposure through drift, primarily inhalation exposures during an application. The largest number of field workers involved in a single episode was 92. These large multi-person episodes will drive up the number of cases, even though the number of episodes remains somewhat steady year-to-year. About 10% of cases involved handlers, specifically applicators or mixer/loaders. Half of these cases were attributed to exposure via direct contact, primarily dermal or ocular exposures resulting from spills, splashes, or direct spray from equipment. Ten of these workers reported some lost work days.

The remaining 14% of agricultural cases were non-occupational. These individuals were exposed to pesticides as bystanders, meaning they were performing activities with minimal expectation for exposure. A majority of bystanders were exposed in residential settings. The largest episode involved 42 residents. In this episode a pest control business made an aerial application to an almond orchard that was about half a mile from the neighborhood. In the ensuing days, the CAC received 55 complaints of odor and four the residents sought medical attention. A swab sample taken from one of the homes tested positive for the active ingredient applied and the pest control business was cited for several violations including failing to prevent substantial drift. Eleven

children were residential bystanders in 5 separate episodes and there were no reported cases in 2017 of children exposed to agricultural-use pesticides while at school.

About 64% of the cases were non-agricultural, and of those most were non-occupational, meaning these individuals were not on the job or working at the time that they were exposed to pesticides. Most of these illnesses occurred in the residential setting and in 54% of the cases, a violation was a contributing factor. This means that the illness/injury could have been prevented by following label instructions, such as wearing protective equipment, properly diluting products, or keeping products out of reach of children.

Over half of the residential cases involved insecticides, such as foggers, aerosol sprays, trigger sprays and baits. 28% of cases involved antimicrobials, such as sanitizers and disinfectants. About a quarter of cases were exposed via direct contact, including splashes or spills on the body. This may happen by accidentally pointing the spray nozzle in the wrong direction, or when children get access to the products and accidentally spill or spray it on themselves. Ingestion of pesticides accounted for about 23% of the residential exposures and includes both intentional and unintentional ingestions. A majority of these exposures occur when the pesticide is stored in a food or beverage container. For example, an individual might pour bleach into a cup to disinfect around the house and then leave the cup with bleach on the counter. Then another person might drink from the cup, thinking it is water. Inhalation exposures accounted for most of the residential handlers cases. These are situations where an individual inhales vapors, mists, or odors while performing their own applications or mix/load activities, such as spraying outside on a windy day.

176 cases involved children under 18 years old, with ingestion accounting for 33% of these exposures. In 74% of these ingestion cases, the child was less than six years of age and improper storage of the pesticide contributed to the exposure. Antimicrobials and insecticides were the two most common types of pesticides that were ingested by children.

As previously mentioned, violations were a contributing factor in a majority of residential cases. One of the most common violations includes improper ventilation, a lack of ventilation, or cleaning for long periods of time in an enclosed space. Other common violations include using products in excess of the label, not wearing the label-required personal protective equipment, mixing incompatible chemicals, storing pesticides in unlabeled or food/beverage containers, and storing pesticide products such that they are easily accessible to children.

Non-agricultural occupational exposures accounted for 303 cases in 2017. Over a third of these involved workers who were exposed while handling the pesticides, either while applying or mixing/loading. In 35% of these cases, failing to use the label-required personal protective equipment contributed to the exposure. Service establishments were the most represented incident location for these non-agricultural occupational cases. These establishments include restaurants and other food facilities, as well as hotels and fitness centers. Unlike residential cases, antimicrobials such as sanitizers and disinfectants were the most implicated type of pesticide. Again, label violations contributed to many of these cases.

DPR staff found that a majority of pesticide-related illnesses and injuries in food facilities could have been prevented, had the employees handling the antimicrobials worn the label-required personal protective equipment. Based on this analysis, they developed sanitizer awareness outreach materials emphasizing the safe use of sanitizers and the importance of wearing the label-required personal protective equipment. This project is one example of how PISP can use data to identify an issue and attempt to mitigate that issue.

To view the annual reports for 2014-2017, including various charts and figures that illustrate the data, visit the [Pesticide Illness Surveillance Program page](https://cdpr.ca.gov/docs/whs/pisp.htm) on the DPR website. <cdpr.ca.gov/docs/whs/pisp.htm> Older reports are available by request, and the report for 2018 is currently under review. To search the database with specific variables, such as year of the incident, county of occurrence, pesticide type, active ingredient, or exposure type, use the [California Pesticide Illness Query \(CalPIQ\)](https://apps.cdpr.ca.gov/calpiq/index.cfm). <apps.cdpr.ca.gov/calpiq/index.cfm>

Committee Comment

Dave Tamayo asked if the department gathers data or does analysis on the extent to which language barriers contributed to episodes or cases. Jennifer Ha responded that while DPR creates outreach materials in multiple languages, there is currently not a method to specifically track issues with a language barrier contributing to a pesticide-related illness. Karen Morrison added that the department is working to expand language access to ensure that individuals that interact with pesticides have the information they need to use the products safely.

Dave Tamayo expressed appreciation for the robustness of the program and the actions being taken. Dave suggested that EPA and DPR should look at mechanisms to support clinically useful tests for the identification of pesticide illnesses, particularly as the program is so dependent on reporting. Karen Morrison commented that DPR works in partnership with OEHHA relative to physician training and reporting of pesticide-related illnesses and also works to develop relationships with physicians and other relevant parties to ensure open communication and accurate tracking of data, to inform DPR policies. Patti TenBrook commented that while clinical tests and exposure markers are tough research, funds could be used to provide additional outreach and training to clinicians on the types of products that are classified as pesticides and the types of questions to ask that would identify potential exposures. Ruben Arroyo commented that CACs, DPR, and OEHHA have been working together for several years to improve this outreach through the Doctor's First Report of Occupational Illness/Injury (DFROII), but staffing and communication methods have presented challenges. Dave added that pesticide-illness symptoms present in a similar manner as other illnesses, and do not help the physician determine the specific chemical involved, which is necessary for guiding treatment. Dave posed the question of whether manufacturers should be held responsible for developing clinically useful tools for identifying pesticide exposures, to the degree that is necessary to support appropriate care. David Ting expressed support for further work on both clinical tools and additional training. David added that OEHHA has developed a training video that explains the importance of the types of questions that physicians ask to determine potential pesticide exposure. Kevi

Mace commented that the outreach mentioned by Ruben could be combined with a study gathering data around potential reporting gaps.

Kevi Mace asked if DPR has looked into how complete the data are, or if there are potential gaps in the data. Jennifer Ha replied that because the program relies on reporting, there are possibilities for missing data, such as agricultural exposure cases where the individual is afraid to report the exposure. Karen Morrison added that although the network of reporting and communication is robust, DPR continues to seek out additional avenues to expand the data for more accurate representation.

Kevi Mace asked how specific the location data is for each incident. Jennifer Ha replied that although the program utilizes GIS data, the incident locations are released at the county level. Karen Morrison added that the specificity of the location information varies based on the reporting source.

Lynn Baker asked about the time-lag between when the counties report the data to DPR and when DPR evaluates the information for potential mitigation needs before completing the formal annual report. Jennifer Ha replied that after receiving a report from a county, DPR enters the information into the database and double-checks the entries for accuracy. Jennifer added that because the county attempts to interview everyone involved in a potential exposure, larger episodes with more resulting cases may take longer to investigate and process. Jennifer further added that the county typically conducts their enforcement actions while DPR is in the process of entering the data from the report.

Public Comment

James Nakashima asked if home use of foggers would account for the fumigant incidents in the non-occupational exposure category. Jennifer Ha replied that it would.

Laura Rosenberger Haider commented on her exposure to pesticide drift, stating that she had itchy rashes around her eyes and over much of her body, which two doctors misdiagnosed as scabies before a dermatologist accurately diagnosed it as eczema. Karen Morrison replied that this further supports the discussion about training and support for pesticide illness identification.

3. Agenda Items for Next Meeting

The next meeting is scheduled for March 19, 2021 at 10:00 a.m. This meeting will be held virtually on the Zoom platform and broadcast live on the [CalEPA webcast page](https://video.calepa.ca.gov/). <video.calepa.ca.gov/>

4. Adjourn