

# Pesticide Illness Reporting

William Ngai, M.D., M.P.H.

Pesticide Epidemiology Section

Pesticide and Environmental Toxicology Branch

Office of Environmental Health Hazard Assessment

California Environmental Protection Agency

Phone (510) 622-3170





1-23-16 San Diego





1-23-16 San Diego



NOTICE OF PESTICIDE APPLICATION

Ordinance no. 274-97

Pesticide Name(s): Roundup Pro
Active Ingredient: Glyphosate
Target Pest: Grass and weeds
Area to be Treated: Reforestation plot
Date / Time of Application: Jan -9-17 / 7:00 - 10:00am
Signal Word: CAUTION
EPA Number: 524-475
Re-entry Period: Treated areas will be safe to re-enter once sprays have dried
For Information Call: Mike Hegnerhorst 753-7042

San Francisco Recreation and Park Department
Integrated Pest Management (415) 753-7242

Application made as scheduled
Application postponed to



# Pesticide Usage in 2013

- California (58 counties)
  - 193,597,806 lbs. of pesticide active ingredients applied (mainly agricultural use)
  - Fresno, Kern, Tulare counties applied the most per county
  - San Diego was 25<sup>th</sup> with 1,653,180 lbs.
  - Imperial was 12<sup>th</sup> with 4,311,787 lbs.



# Pesticides Sold in California for 2013

- 635,302,883 lbs. of pesticide active ingredients sold
- This includes the amounts used cited on the previous slide as well as sanitizers and anti-microbials



# Definition of Pesticide

“Any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, or mitigating any pest,...., which may infest or be detrimental to vegetation, man, animal, or households, or be present in any agricultural or nonagricultural environment whatsoever.

(California Food and Ag code)



# Definition of Pest

“Any of the following that is, or liable to become, dangerous or detrimental to the agricultural or nonagricultural environment of the state:

- (a) Any insect, predatory animal, rodent, nematode, or weed;
- (b) Any form of terrestrial, aquatic, or aerial plant or animal, virus, fungus, bacteria, or other microorganism (except viruses, fungi, bacteria, or other organism on or in living man or other living animals);
- (c) Anything that the director, by regulation, declares to be a pest.”

(California Food and Ag code)





# Classification of Pesticides

## Target

- Insecticides: insects
- Herbicides: weeds
- Fungicides: fungi
- Acaricides: mites
- Rodenticides: rodents
- Nematicides: worms
- Antimicrobials:  
microbes

## Chemical Groups

- Organophosphates
- N-methyl carbamates
- Pyrethroids
- Organochlorines



Is pesticide illness a  
reportable condition?

**YES!**



# Reporting Requirement

California Code of Law, Health and Safety Code Section 105200

- **Who** - *“Any physician or surgeon who knows, or has reasonable cause to believe...”*
- **What** - *“...that a person is suffering from pesticide poisoning or any disease or condition caused by a pesticide...”*
- **To whom** - *“...shall promptly report that fact to the local health officer...”*
- **How** – *“...by telephone...”*
- **When** – *“...within 24 hours...”*



# Reporting Requirement

California Code of Law, Health and Safety Code Section 105200

- **For the case of a worker** - “...and by a copy of the report required pursuant to subdivision (a) of Section 6409 of the Labor Code within seven days...”
- **Failure to comply** - “...shall be liable for a civil penalty of two hundred and fifty dollars...”
- **Not first aid** - “In no case shall the treatment administered for pesticide poisoning or a condition suspected as pesticide poisoning be deemed to be first aid treatment.”



# Why Report Pesticide Illness

- Can serve as an early warning system
- Can get state agencies to assist
- Establishes history and trends in poisonings
- Helps identify problem pesticides
- Assists State in health based investigations
- Assists State in writing pesticide regulations
- Requirement of California Code of Regulations Health and Safety Code



# Why Physicians Don't Report Pesticide Illness

- People won't see a physician (esp. if non work related)
- M.D.'s may not recognize pesticide illness
- M.D.'s unaware of reporting requirement or how to report
- Confusion over what is a pesticide
- “Cumbersome reporting process”
- Forms burdened with questions that can't be answered
- Doubt on when to report
- M.D.'s overburdened with paperwork
- Concern about patient confidentiality
- Loss of capture of California workers who seek medical treatment in Mexico



# Pesticide Illness Surveillance Program

(Department of Pesticide Regulation)

## Number of Pesticide Illness Reports

Year	Total	Definite, Probable, Possible		
		Total	Agric	Non-Agric
2009	1329	918	252	654
2010	1114	811	231	572
2011	1473	1067	239	816
2012	1418	992	245	741
2013	1718	1128	435	685

Which pesticide usually generates the most reports?



# Pesticide Illness Reports from San Diego County

Year	Total	Definite, Probable, Possible		
		Total	Agric	Non-Agric
2009	85	50	1	49
2010	91	60	4	56
2011	105	82	2	79
2012	88	60	0	60
2013	80	53	1	52





# Pesticide Illness Reports from Imperial County

Year	Total	Definite, Probable, Possible		
		Total	Agric	Non-Agric
2009	17	12	6	5
2010	43	39	37	2
2011	44	39	31	8
2012	21	11	3	8
2013	19	9	1	8



# Pesticide Illness Surveillance Program

- Physician reporting rates of pesticide illness
  - 15% to 30% in 1990's (occupational cases)
- Penalty for not reporting is a fine of \$250.  
enforced by Occupational Safety and Health of the Department of Industrial Relations



# Pesticide Illness Surveillance Program of 2013

- Cholinesterase inhibiting pesticides
  - 103 (8%) of 1267 reports classified as possibly, probably, or definitely
    - In past, usually 30-35%
- Antimicrobials
  - 342 of 1267 reports (poss., prob., def.)
  - 137 of 1267 reports from sodium hypochlorite



# Pesticide Illness Surveillance Program of 2013

- Occupational cases
  - 627 of 1116 reports classified as possibly, probably, or definitely due to pesticides
  - Fieldworkers (266), applicators (120), routine indoor (58), packaging/processing (32), mixer/loaders (24), emergency response (16)
- Non-occupational cases
  - 489 of 1116 reports



# Pesticide Illness Surveillance Program of 2013

- 26 hospitalizations
  - 16 for ingestions
  - 9 intentional ingestions to cause “self harm”
- 8 deaths were reported
  - 6 from intentional ingestions to cause “self harm”
  - 1 due to an inappropriately stored pesticide
  - 1 due to someone ingesting 2 “pills” (aluminum phosphide rodenticide) to get high



# Children

- Study of organophosphate and carbamate poisoning from Dallas Children's Medical Center
  - 37 patients, 1 month to 11 years old
    - **28 (76%) oral ingestion**
    - **25 (70%) drank improperly stored OP**
    - 6 (16%) dermal absorption
    - 3 (8%) unknown
- 20 patients were transferred from other ER's
  - **16 of these 20 had incorrect diagnoses**

(Zweiner et al.)



# Pesticide Illness Surveillance Program of 2013

- 131 of 685 non-agricultural cases classified definitely, probably, or possibly involved children (less than 18 y. o.)
  - 4 involved hospitalizations
    - 3 resulted from “self harm” attempts
  - 57 (44%) exposed by ingestion
    - 46 less than 6 years old
    - 42 probably due to improperly stored pesticides
- None of these cases involved exposures at school

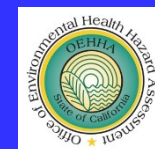


# Reporting Pesticide Illnesses in California

Physicians must report pesticide illnesses using one of these methods:

1. Call or fax the local health officer. Numbers to call for each county can be found at: [www.oehha.ca.gov/pesticides/pdf/pestnums.pdf](http://www.oehha.ca.gov/pesticides/pdf/pestnums.pdf)
2. Call the California Poison Control Center at:
  - a. For general public: (800) 222-1222
  - b. For health care providers: (800) 411-8080
3. Report it on the Confidential Morbidity Report, available at: [www.cdph.ca.gov/pubsforms/forms/Ctrldforms/pm110.pdf](http://www.cdph.ca.gov/pubsforms/forms/Ctrldforms/pm110.pdf)
4. In many counties physicians can report electronically using CaREDIE, the California Reportable Disease Information Exchange at: [www.cdph.ca.gov/data/informatics/tech/Pages/CaREDIEHelp.aspx](http://www.cdph.ca.gov/data/informatics/tech/Pages/CaREDIEHelp.aspx)

*There are additional requirements for reporting work related cases of pesticide illnesses*





# Reporting Pesticide illnesses

## San Diego County

- Health and Human Services Agency  
Epidemiology Program
  - Phone (619) 692-8499
  - FAX (619) 715-6458
- County Agric., Wghts, and Measures Dept.
  - Phone (858) 694-8980
- CalREDIE not available

## Imperial County

- Call Public Health Depart.
  - Phone (442) 265-1350
  - FAX (442) 265-1477
- Electronic reporting using CalREDIE is available in this county



# Reporting Pesticide Illnesses in California

An article on physician pesticide illness reporting requirements can be found in the Summer 2014 edition of the Medical Board of California Newsletter at:

[http://www.mbc.ca.gov/Publications/Newsletters/newsletter\\_2014\\_08.pdf](http://www.mbc.ca.gov/Publications/Newsletters/newsletter_2014_08.pdf)



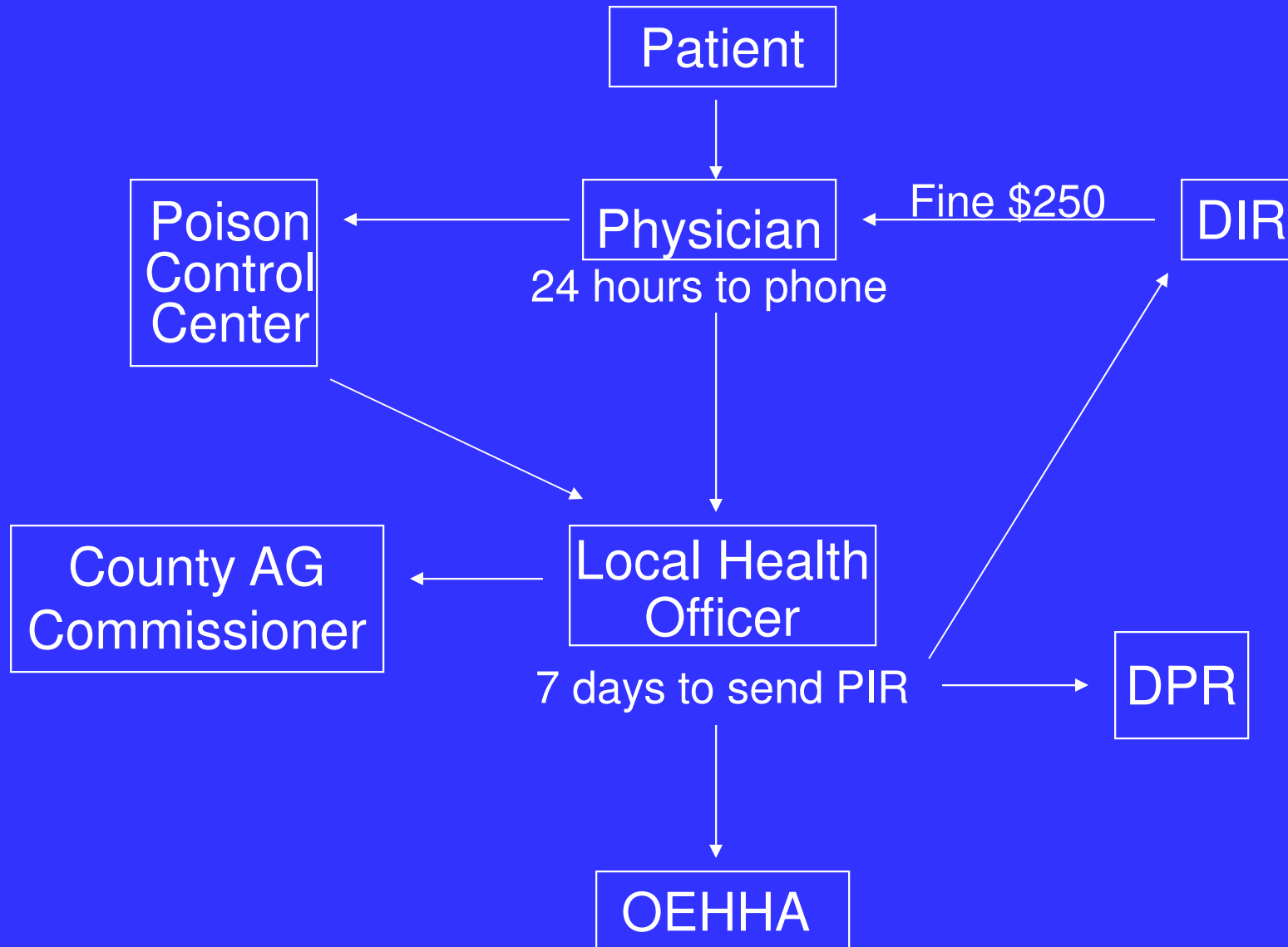
# Reporting Pesticide Illnesses in California

## Confidential Morbidity Report Form

- It appears from this that “health care providers” other than physicians are required to report pesticide illnesses.
- Other “health care providers” listed are:
  - veterinarians, podiatrists, nurse practitioners, physician assistants, registered nurses, nurse midwives, school nurses, infection control practitioners, medical examiners, coroners, dentists.
- Penalty for not reporting is a misdemeanor punishable with a fine up to \$1000. and/or up to 90 days in jail



# Flow Sheet for Patient with Pesticide Illness



# Local Health Officer (LHO)

- “...shall immediately notify the county agricultural commissioner...” (CCL H&S 105200)
- “...and shall report to the Director of Pesticide Regulation, the Director of Environmental Health Hazard Assessment, and the Director on Industrial Relations, on a form prescribed by the Director of Health Hazard Assessment ... within seven days after receipt of the report.” (CCL H&S 105200)
- Can help with investigation of a pesticide illness



# Pesticide Illness Report (PIR)

- LHO must send a pesticide illness report form (within 7 days after a physician reports a pesticide illness) to:
  - Department of Pesticide Regulation (DPR)
  - Office of Environmental Health Hazard Assessment (OEHHA)
  - Department of Industrial Relations (DIR)
- Most important information needed from the M.D.
  - Whether others were involved and how to locate them
  - The name of the pesticide and/or active ingredient
  - Person's activity at time of exposure and how exposed
  - The severity of the illness



# County Agricultural Commissioner

- Investigates all cases of pesticide illness identified by PIRs and DPR's review of DFRs
- Priority investigation cases
  - If a person dies
  - If a person is hospitalized for  $\geq 24$  hrs. and is treated
  - If 5 or more symptomatic people seek medical evaluation
- Prepares reports describing the circumstances under which pesticide exposure may have occurred and other relevant information
- Can assess fines and penalties.



# Department of Pesticide Regulation (DPR)

- Largest state dept. that regulates pesticides
- Receives and reviews PIR's
- Reviews the DFR from DIR of cases of occupational pesticide related illness
- Writes, reviews, and updates regulations (with OEHHA)
- Pesticide Illness Surveillance Program
- Can investigate cases and levy fines





# Office of Environmental Health Hazard Assessment (OEHHA)

- Receives and reviews PIR's
- Reviews and updates regulations (with DPR)
- Educates health care providers on the recognition, management, and reporting of pesticide illnesses



# Dept. of Industrial Relations (DIR)

- Receives the *Doctor's First Reports of Occupational Injury or Illness* (DFR) from physicians and the PIRs from LHO
- DFRs are reviewed by the Division of Labor Statistics and Research. Pesticide exposure cases are identified by DPR (by regulation) and DHS-OHB
- Enforcement branch can fine physicians up to \$250. for not reporting
- Leads in the investigation involving the death of a worker or if a worker is made ill by the pesticide during the formulation of the pesticide



# Poison Control Center

- Very useful and important resource. If called by the M.D. about a pesticide illness, the Poison Control Center can provide information about the pesticide and may remind the M.D. to report the case
- Can report the case for the treating M.D. to the LHO



# Sources of Information

- Material Safety Data Sheet (MSDS)
- Pesticide label
  - [www.cdpr.ca.gov/docs/label/labelque.htm](http://www.cdpr.ca.gov/docs/label/labelque.htm)
- Employers
- Agricultural commissioner
- Poison Control Center (800-411-8080)
- U.S. Environmental Protection Agency
  - [www.epa.gov/pesticides](http://www.epa.gov/pesticides)



# Sources of Information

- California Department of Public Health
  - Environmental Health Investigations Branch (510-620-3620)
  - Occupational Health Branch (510-620-5757)
  - [www.cdph.ca.gov](http://www.cdph.ca.gov)
- California Department of Pesticide Regulation
  - Worker Health and Safety Branch (916-445-4222)
  - [www.cdpr.ca.gov](http://www.cdpr.ca.gov)
- California Office of Environmental Health Hazard Assessment
  - (510-622-3200)
  - [www.oehha.ca.gov](http://www.oehha.ca.gov)



# Sources of Information

- Recognition and Management of Pesticide Poisonings 6<sup>th</sup> edition by the U.S. EPA
  - <http://www.epa.gov/pesticide-worker-safety/recognition-and-management-pesticide-poisonings>
    - Electronic version
    - Info. on how to order free hard copies
    - Link for Spanish version of 5<sup>th</sup> edition





**HAPPY NEW YEAR**

1-28-16 San Diego



Office of Environmental Health Hazard Assessment  
California Environmental Protection Agency

Oakland, California

Phone (510) 622-3200

[www.oehha.ca.gov](http://www.oehha.ca.gov)

William Ngai, M.D., M.P.H.

Phone (510) 622-3221

[william.ngai@oehha.ca.gov](mailto:william.ngai@oehha.ca.gov)

