

**WORK-RELATED ASTHMA SURVEILLANCE AND PREVENTION
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ANNUAL PERFORMANCE REPORT
September 21, 2010**

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The overall aims of the project are to identify, characterize and prevent work-related asthma in California by:

1. Continue case ascertainment using multiple data sources
2. Performing case-based field investigations and developing prevention strategies
3. Collaborating with local and state agencies
4. Disseminating results generated from project activities; and
5. Evaluating surveillance activities on an ongoing basis

MAJOR ACCOMPLISHMENTS AND OUTPUTS

Case Ascertainment

The Work-Related Asthma Prevention Program (WRAPP) has identified over 4,400 confirmed cases to present. Historically, cases were only identified through Doctors' First Reports of Occupational Injury or Illness, a statewide reporting mechanism. However, beginning with 2006 data, Workers' Compensation Data, Emergency Department Data, and Patient Discharge Data were added to the system. All four data sources are now routinely used to identify potential cases; for the year 2008, the combined sources identified nearly 900 potential WRA cases. Follow-up was attempted for all identified cases through telephone interview, or medical record retrieval if an interview was not possible. Outputs include data summaries based on multi-year analysis, including calculation of rates. A capture-recapture analysis evaluating the overlap of the four different data sources shows preliminary results for 2006 estimating the true number of work-related asthma cases to be between 2,000 and 3,700 per year. Data summaries have been inserted into a variety of contexts, including reports, publications, websites, and presentations for wide distribution.

Case-based Field Investigations, Prevention Strategies, and Dissemination

WRAPP staff continued work on investigating and promoting asthma-safe cleaning and disinfecting methods in hospitals, schools and childcare settings. WRAPP implemented a mini-grants program to pilot asthma-safe cleaning for three school districts and one statewide charter school in California. The selected districts received \$3000-\$4500 and technical assistance to switch to green cleaning products and methods in at least 3-5 schools per district. Schools also received recognition for successes. WRAPP staff also participated in a national workgroup that generated guidelines for the safe use of disinfectants in schools, and submitted written comments to third-party certification organizations developing standard criteria for cleaning products (EcoLogo, US EPA Design for the Environment).

Results of data analysis and strategies for prevention were presented in a variety of contexts, including presentations at meetings of unions, local asthma coalitions, health care providers,

local health agencies, advocacy organizations, and national public health organizations. A new fact sheet was generated, printed and distributed by the program:

- Cleaning Products and Work-related Asthma.

WRAPP, in collaboration with Green Schools Initiative developed a webinar to raise awareness of WRA and cleaning products and promote safer cleaning in schools.

An analysis of activity on our WRA program website over the last year documents 1,100 views of our WRAPP page, 1,600 downloads of our medical waste report, approximately 800 downloads each of our graffiti remover and wood dust fact sheets, and over 800 downloads of the peer-reviewed publication on WRA and cleaning agents. The analysis also shows hundreds of additional downloads of our many other WRA materials.

Collaborations with Local and State Agencies

We continue to work collaboratively with a wide variety of state, local, and national agencies to foster successful approaches to asthma prevention. WRAPP staff are involved in multiple coalitions, including a statewide workgroup focused on asthma management and prevention in schools and a national workgroup to develop guidelines for using disinfectants in schools. Examples of organizations staff have collaborated with over the past year include: School districts, California EPA, University of California, Regional Asthma Management and Prevention Initiative (RAMP), the School Environmental Health and Asthma Collaborative (SEHAC), American Lung Association, CA Thoracic Society, the Toxics Use Reduction Institute, Green Schools Initiative, Environmental Working Group, Green Purchasing Institute, California Teachers Association, SEIU, San Francisco County, Kern County, US EPA, CDC, and the Cal/OSHA airborne contaminant sensitizer committee.

Evaluation of surveillance activities

We continue to conduct quality assurance and quality control in our project activities. We conduct ongoing evaluation of our case ascertainment activities through capture-recapture analysis, and conduct targeted follow-up assessments to determine if prevention recommendations have been effective.

PLANS FOR THE NEXT YEAR

Our Work-related Asthma Prevention Program will continue to accomplish its specific aims with the following activities:

- Perform capture-recapture analysis of combined 2006 and 2007 years of data, conduct analysis of BRFSS call back survey and National Asthma Survey data, and analyze and summarize 15 years of surveillance data.
- Produce and distribute guidelines for asthma-safe cleaning in schools.
- Investigate glutaraldehyde and *ortho*-phthalaldehyde exposures among workers in the health care industry and develop recommendations for alternatives and prevention.
- Investigate and develop prevention recommendations related to exposures of interest, including swimming pool chemicals, wood dust, and disinfectants used in child care.
- Expand and strengthen collaborations with a wide variety of environmental and community advocacy groups to address and prevent WRA.
- Disseminate findings and prevention recommendations through a variety of methods.

**WORK-RELATED INJURY FATALITIES
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ANNUAL PERFORMANCE REPORT
September 24, 2010**

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The overall aims of the project are to identify, characterize and prevent work-related injury fatalities in California by:

1. Expanding case ascertainment using multiple data sources
2. Performing case-based field investigations and developing prevention strategies
3. Collaborating with local and state agencies
4. Disseminating results generated from project activities; and
5. Evaluating surveillance and dissemination activities on an ongoing basis

MAJOR ACCOMPLISHMENTS AND OUTPUTS

Case Ascertainment

The California Fatality Assessment and Control Evaluation (CA/FACE) program has identified 2,165 work-related injury fatalities (WRIF) from January 1, 1992 through June 30, 2010. Fatalities are coded with 5 codes each (NAICS, SIC, 1990 COC, 2000 COC, ICD-9). Securing more efficient access to files at the Coroner's office, and monitoring media reports and blogs on a daily basis have resulted in more timely case ascertainment. Data summaries based on multi-year analysis have been included in reports, publications and presentations.

Case-based Field Investigation, Prevention Strategies, and Dissemination

CA/FACE program staff conducted nine worksite investigations, including: construction laborer crushed under a concrete patio foundation, electrician falls through a skylight while installing solar panels, chemist burned when he mixed chemicals, maintenance worker falls into a cardboard baling machine, print machine operator is caught in a rotating knob, warehouse worker falls through a skylight, welder falls from a scissor lift, janitor falls into a cardboard baling machine, and tree trimmer falls from a tree and is struck by a limb. Ten investigation reports were approved and published (09CA002, 09CA003, 09CA004, 09CA005, 09CA006, 09CA007, 09CA008, 09CA009, 09CA010, 10CA002) resulting in 23 prevention recommendations. A Spanish-language translator accompanied the CA/FACE field investigator to worksites to eliminate language barriers, and all fact sheets are available in both English and Spanish. Case examples from investigation reports and fact sheets were used in vocational and technical school curriculums, municipal safety seminars, OSHA HAZWOPER trainings, union trainings, employer trainings, trade association newsletters, UCLA Worker Occupational Safety and Health Training and Education Program (WOSHTEP) trainings, and at the Ventanillas de Salud program at the Mexican and Ecuadorian consulates.

Results of data analysis and recommendations for prevention were presented at national public health conferences and workshops (*OSHA/NIOSH Making Green Jobs Safe Workshop, Green*

California Summit, InterSolar Conference, National Action Summit for Latino Worker Health and Safety, CSTE Annual Conference), the NIOSH FACE annual meeting, industry trade association meetings, Worker's Memorial Day events, and state government agency meetings. Program staff co-authored (with NIOSH) October 2009 MetalMag article: *Safe and Green. Worker Safety is an Important Consideration on Green Projects.*

Five new fact sheets were published: Solar Energy Technician Electrocuted! (English and Spanish); Cardboard Balers Crush Workers!; Deadly Skylights!; Solar Energy and Warehouse Workers Killed! (English and Spanish). Twenty one CA/FACE fact sheets have been translated into Spanish, and are posted on the CA/FACE website. A total of 6,459 fact sheets and brochures were distributed at conferences, meetings, health fairs, work sites, and consulates. Our website received an average of 4,923 visits per month. An e-mail blast and hard copy mailing of CA/FACE solar fact sheets and program summary went out to over 1,000 California solar companies, community colleges, California Solar Energy Industry Association, unions, worker training centers, and community based organizations.

Collaborations with Local and State Agencies

We continue to collaborate with a variety of local, state, and national agencies to prevent work-related injury fatalities, including: NIOSH, Division of Occupational Safety and Health (Cal/OSHA), California Department of Transportation (Caltrans), UCLA Labor Occupational Safety and Health (LOSH) Program, Mexican and Ecuadorian consulates, UC Berkeley Labor Occupational Health Program (LOHP) and Center for Occupational and Environmental Health (COEH), State Building Trades Council, unions, career and vocational schools, community colleges, trade associations, consulates, and labor centers.

Evaluation of Surveillance Activities

Quality control of our case ascertainment and data coding is ongoing. Publication and report evaluation questionnaires are available online and printed at the bottom of each fact sheet, and included in all e-mail blasts of our published materials. During the past year, 334 fact sheet evaluations were collected and summarized. In addition, follow-up interviews of all investigated worksites determine if prevention recommendations have been implemented.

PLANS FOR THE NEXT YEAR

Our CA/FACE program will continue to accomplish its specific aims with the following activities:

- Publish two new bilingual fact sheets and two worker fatality alerts.
- Post a year-end summary data report on the CA/FACE website.
- Develop and send the first key informant surveys via e-mail to gain feedback from stakeholders.
- Author or contribute to journal/trade association articles on green job and solar industry safety.
- Post fatality map on the CA/FACE website and update data biannually.

**PESTICIDE-RELATED ILLNESS
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ANNUAL PERFORMANCE REPORT
September 17, 2010**

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The overall aims of the project are to identify, characterize and prevent and occupational pesticide illness in California by:

- Expanding case ascertainment using multiple data sources
- Performing case-based field investigations and developing prevention strategies
- Collaborating with local and state agencies
- Disseminating results generated from project activities; and
- Evaluating surveillance activities on an ongoing basis

MAJOR ACCOMPLISHMENTS AND OUTPUTS

Case Ascertainment

The Occupational Pesticide Illness Prevention Project identified over 4,300 case reports over approximately 12 years. We continued to identify incidents through Pesticide Episode Notification Records, and individual cases through Doctors' First Reports of Occupational Injury or Illness, Pesticide Illness Reports, and reports from the California Poison Control System. We have added and evaluated Workers' Compensation Data, Emergency Department Data, and Patient Discharge Data as sources for identifying additional pesticide illness cases. Medical records were requested for all reported cases. For selected incidents, we utilize investigation reports from respective California Agricultural Commissioners as additional data sources. Data collected from this multi-year surveillance effort includes calculations of rates, industry, occupation, type of pesticide involved, how exposure occurred, and type of health effect. We have utilized data summaries in various ways, including reports, publications, the CDPH website, and presentations for wide distribution. In addition to documenting the significant scope of this important public health problem, we have used the data to characterize the conditions under which pesticide illness occurs so that appropriate prevention strategies can be developed and implemented.

Case-based Field Investigation, Prevention Strategies, and Dissemination

- We conducted a site investigation of illness due to the use of chlorine dioxide in an organic produce processing facility in San Benito County. This investigation was performed in cooperation with personnel from the California Department of Pesticide Regulation.
- Based on a site investigation of pesticide illnesses due to pyrethrin and pyrethroid use in an office building in Orange County we are developing an alert to promote the use of Integrated Pest Management in the office work environment.
- We conducted limited investigations of pesticide illnesses due to:

- Chlorine gas produced from the mixture of sodium hypochlorite and hydrochloric acid at a lumber mill in Plumas County
- Workers entering a field 2 hours after an application of Flint Fungicide in Tulare County.
- Based on investigations due to illnesses associated with the use of *ortho*-phthalaldehyde and glutaraldehyde in hospital and clinic settings we are collaborating with a large hospital-based HMO to learn about their efforts to control exposure through the use of safer alternatives, engineering controls, and better work practices.
- We are collaborating with the San Francisco Department of Public Health and other organizations on their project to decrease the use of bleach in child care centers.
- As part of a national collaboration, the National Disinfectant Work Group, we are developing a School Disinfection Handbook for the Toxic Use Reduction Institute.
- We presented “Illnesses among California Workers Due to Indoor Pyrethroid and Pyrethrin Exposure – Why Banning Organophosphates Was Not Enough” at the Council of State and Territorial Epidemiologists Conference, Portland OR, June 2010.
- We published “Application of the Industrial Hygiene Hierarchy of Controls to Prioritize and Promote Safer Methods of Pest Control – A Case Study,” in the July/August 2009 Special Issue on Occupational Health and Safety Interventions of Public Health Reports.
- To educate against the overuse of disinfectants we published a letter in the July/August issue of J Environ Health in response to “Efficacy of ‘Green’ Cleaning Products with Respect to Common Respiratory Viruses and Mold Growth, May 2009” Letter. J Environ Health. 2009; 72:58.
- We began working on a project with Planned Parenthood Mar Monte designed to improve clinician understanding of pesticide related illnesses and to improve reporting of pesticide illnesses.
- We developed a webpage to post summaries and presentations from our May 2009 conference “Safer Alternatives to Pest Control in Agriculture: Making the Public Health Case for Change” and disseminated the link to a wide range of stakeholders.
- Our collaboration with the California-Baja California Integrated Pesticide Illness Surveillance and Exposure Prevention Project to increase pesticide illness reporting among farm workers near the border was completed in June 2010.
- Information generated from surveillance and investigation activities was presented to a variety of audiences, including health care practitioners, local health officers, and national public health professionals.

Collaborations with Local and State Agencies

We continue to collaborate with partners in our own department (on infectious diseases, environmental health, and border health issues), federal agencies (NIOSH and other branches of CDC, US Environmental Protection Agency), state agencies (California Department of Pesticide Regulation Worker Health and Safety Branch, the Office of Environmental Health Hazard Assessment), local agencies (San Francisco Department of Public Health), university-based programs (UCSF Child Care Health Program) and community based organizations who are interested in the prevention of work-related pesticide illness (Planned Parenthood, California Rural Legal Assistance, Pesticide Action Network, Migrant Clinicians’ Network, Toxic Use Reduction Institute – National Disinfectants Work Group). In addition, project staff continues to contribute to specific reviews of health effects of pesticides and analysis of work-related pesticide regulatory issues, and collaborate with the UC Berkeley Center for Occupational and Environmental Health on physician education activities.

Evaluation of surveillance activities

We continue to conduct quality assurance and quality control in all our project activities. We conduct ongoing evaluation of our case ascertainment activities through capture-recapture analysis, and conduct targeted follow-up assessments to determine if prevention recommendations have been effective.

PLANS FOR THE NEXT YEAR

Our Occupational Pesticide Illness Prevention Project will continue to accomplish its specific aims with the following activities:

- Continue to perform selected investigations in agricultural applications; indoor work environment applications, and antimicrobial pesticide use, including investigations of sentinel events in these priority areas.
- Continue the surveillance of disinfectant-related illnesses as a part of our existing program.
- Further assess the quality of data obtained from the Workers' Compensation data set by conducting phone interviews of cases and reviewing medical records.
- Work with the California Department of Pesticide Regulation to establish a Memorandum of Understanding that will enable us to share additional data and compare and evaluate case ascertainment and case information.
- Publish a journal article reporting on 10 years of our surveillance data.
- Work with the California Department of Corrections and Rehabilitation to determine if we can better characterize and evaluate pesticide (including disinfectant) use in California prisons.
- Based on site visits and research, assess and issue reports including recommendations to reduce pesticide exposure to workers due to indoor pesticide use in structural pest control and due to swimming pool disinfectant use.
- Develop and widely disseminate pesticide health alerts and fact sheets based on findings and recommendations from surveillance activities and site investigations.
- Continue to work with clinicians (through the Migrant Clinicians Network, Planned Parenthood Mar Monte, and others) to improve clinician understanding of pesticide related illnesses and to improve reporting of pesticide illnesses.

**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE: FUNDAMENTAL PROGRAM
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ANNUAL PERFORMANCE REPORT
Period ending June 30, 2010**

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The overall aims of the project of the California Fundamental Program are to:

- Collect Occupational Health Indicators annually and conduct selected in-depth analysis to guide future work.
- Expand assessment of workers' compensation and other data sources for surveillance.
- Enhance relationships with stakeholders to guide and support program work, and increase the use of our work by others to improve workplace conditions.
- Increase dissemination of surveillance data, project findings, and recommendations.
- Perform annual program review/evaluation.

MAJOR ACCOMPLISHMENTS AND OUTPUTS

Occupational Health Indicators

The Employment Demographics Profile and 19 Occupational Health Indicators (OHIs) continue to be calculated annually (since 2000) for publication on the Council of State and Territorial Epidemiologists (CSTE) website. We designed the format for a new "topic page" on our website that will feature all available years of OHI data in graphs and tables, and can be easily updated.

Use of Workers' Compensation Information System and Other Surveillance Data Sources

Behavioral Risk Factor Surveillance System (BRFSS): Assessment of Payment of Work-related Injury by Workers' Compensation

In 2007, ten states including California collaborated on adding questions to the BRFSS to determine whether respondents were injured at work and if so, how treatment was paid for. The percentage of self-reported work-injured persons where medical treatment was paid for by workers' compensation insurance ranged from 47% in Texas to 77% in Kentucky.

- CDC. 2010. Proportion of workers who were work-injured and payment by workers' compensation systems – 10 states, 2007. *MMWR* 59(29):897-900.

Analysis of Ambulatory Surgery Data: Work-related Procedures and Cost Shifting

We mentored a George Washington University graduate student on a project to identify the extent to which procedures related to workplace injury/illness were not paid for by workers' compensation. In 2008, procedures being shifted from workers' compensation in California ambulatory surgery centers accounted for a substantial cost (approximately \$1.7 million).

H1N1 (2009) Influenza, Aerosol Transmissible Diseases, and Worker Protection

The 2009-2010 H1N1 influenza pandemic presented numerous opportunities to collaborate with our colleagues in infectious disease prevention and to highlight the role of occupational health, particularly related to the use of respiratory protection for a novel influenza virus. During this

period, California also implemented the first-in-the-nation OSHA Aerosol Transmissible Diseases (ATD) Standard, increasing the demand for technical assistance and education.

- Contributed to multiple CDPH guidance documents on employee protection and H1N1.
- Developed and pilot tested in two counties a training program to prepare health care facilities (community clinics, long-term care facilities) to implement a respirator program and conduct fit-testing. Obtained federal preparedness funding to conducting 13 statewide regional trainings attended by 377 participants. Created a new topic page on respiratory protection for our website, with useful materials and resource links.
- Collaborated with the NIOSH National Personal Protective Technology Laboratory to design and conduct a field survey to evaluate respiratory protection programs, policies, and practices in 16 acute care hospitals during the H1N1 pandemic. Contributed an item to NIOSH E-News on this project.
- Collaborated with the University of California at Berkeley (UCB), UC Los Angeles, and Cal/OSHA to develop a curriculum and present two continuing education classes for infection preventionists and industrial hygienists on the new Cal/OSHA ATD standard.

Stakeholder Outreach and Dissemination of Data, Findings, and Public Health Recommendations

- Developed a format for a new quarterly electronic newsletter, *Occupational Health Watch*, sent to 4,000 stakeholders. First issue highlighted health hazards associated with chronic, low-level lead exposure and featured new educational materials.
- Collaborated with UCB's Health Research for Action on the development of *Preventing Toxic Exposures: Workplace Lessons in Safer Alternatives*.¹ Disseminated this publication to thousands of stakeholders with an interest in safer chemicals policies to protect workers, communities, and the environment.
- Conducted notification of participants and stakeholders of findings from our public health investigation of lung disease among flavor manufacturing workers exposed to diacetyl. Provided input to the development of a Cal/OSHA occupational standard on diacetyl. Published article: Kim TJ et al. 2010. Industry-wide medical surveillance of California flavor manufacturing workers: Cross-sectional results. *Am J Indus Med* 53(9):857-865.

Program Evaluation

Program staff conducted an evaluation of our program in relation to the NIOSH/CSTE *Guidelines for Minimum and Comprehensive State-based Public Health Activities in Occupational Safety and Health*, to identify areas which warrant further development and to guide program planning for the new cooperative agreement project period, July 1, 2010 – June 30, 2015.

¹ <http://healthresearchforaction.org/perspectives/preventing-toxic-exposures.pdf>