

**California Department of Public Health
Division of Environmental and Occupational Disease Control
Occupational Health Branch**

**HAZARD EVALUATION SYSTEM
AND
INFORMATION SERVICE**

Annual Report

December 2006 – November 2007

A report to the Legislature submitted to the Department of Industrial Relations for the
Hazard Evaluation System and Information Service

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)

This report is mandated in Labor Code Section 147.2. Herein is detailed the implementation and operation of a “repository of current data on toxic materials and harmful physical agents in use or potentially in use in places of employment in the state,” as mandated by the above regulation, and includes:

- ✓ The amounts of and source of funds allocated and spent on repository activities;
- ✓ The toxic materials, harmful physical agents, and other workplace hazards investigated during the past year, and recommendations made concerning them;
- ✓ Actions taken to inform interested persons of possible hazards of exposure to toxic materials and harmful physical agents; and
- ✓ Any recommendations for legislative changes relating to the functions of the repository.

The mandates of the Labor Code have been implemented in the following fashion:

- ✓ Provision of technical support and consultation regarding occupational health to the Department of Industrial Relations (DIR), California Department of Health Services (CDHS), and other agencies.
- ✓ Provision of a telephone information service to individuals seeking information about workplace hazards;
- ✓ Provision of educational materials and an education/outreach function;
- ✓ Provision of a hazard assessment function; and
- ✓ Provision of an extensive information repository.

In 2007, HESIS continued to implement its mandates to protect California workers from occupational illness and disease. HESIS identified, evaluated, and provided practical information on toxic chemicals and other workplace hazards; assisted the DIR Division of Occupational Safety and Health (Cal/OSHA) in determining whether illnesses and diseases were work-related and in promulgating protective occupational health standards; and initiated and worked collaboratively with others on targeted public health projects and activities. HESIS’ accomplishments include:

- Participated in a large-scale, multi-party, hazard evaluation, health surveillance, and intervention project in the flavor manufacturing industry (the Flavor Industry Safety and Health Evaluation Program, or “FISHEP”). This project was initiated jointly with Cal/OSHA as an industry-wide response following the identification of the first California worker known to have bronchiolitis obliterans, a life-threatening lung disease. As detailed below, HESIS’ role in FISHEP has been to provide:
 - ✓ Medical surveillance protocols,
 - ✓ Worker and physician education materials,

- ✓ Ongoing review of spirometry quality and test results,
 - ✓ Data analysis, and
 - ✓ Technical oversight of employer-provided medical surveillance programs in concert with Cal/OSHA and National Institute for Occupational Safety and Health (NIOSH) personnel.
- Provided **41 medical consultations** to Cal/OSHA enforcement staff concerning a total of 69 employees (up from 15 consultations in 2006).

Medical consultations, which often address the issue of work-relatedness of an injury, illness, or fatality, typically begin with a request from Cal/OSHA staff, followed by information gathering, data synthesis, medical literature and records review, and report writing. A typical medical consultation involves approximately 20 hours of time on the part of a HESIS Public Health Medical Officer.

- Prepared **2 issue memos** to Cal/OSHA concerning injury or illness patterns / prevention issues recognized during the course of performing medical consultations. As detailed below, these issue memos concerned:
 - ✓ Heat-related illness
 - ✓ Methicillin-resistant *Staphylococcus aureus* (MRSA) infections in correctional officers.
- Responded to **189 calls to the Workplace Hazard Helpline** (also referred to as the “Telephone Response System” or “TRS”). Seventy-five percent of these calls were initiated by workers, employers, health care providers treating workers, or governmental agencies serving (or employing) workers.

TRS responses generally involve 1-3 telephone interactions with the caller, as well as online technical data retrieval, determination of appropriate referral avenues, and provision of supporting documentation, either as online links or in hard copy. The average TRS response occupies approximately one hour of technical staff (i.e., industrial hygienist or public health medical officer) time.

- Completed a major revision of the following **worker-education document**:
 - ✓ Guide to Getting Medical Care for Job-related Pain That Won’t Go Away
- Posted on HESIS Web site (and/or completed minor revisions of) the following worker-education documents:
 - ✓ Fact Sheet: Methylene Chloride (revision)
 - ✓ Fact Sheet: n-Methyl Pyrrolidone (NMP) NMP is a newly identified reproductive/developmental hazard and is a solvent in increasing use.

- Co-sponsored a workshop on (and review of) safe alternatives for lithographic cleanup solvents in the printing industry.

HESIS' work with collaborators to expand the public health impact of the program continued this year, including participation in meetings and other activities of:

- Healthy Nail Salons Collaborative
- Interagency Indoor Air Quality Working Group
- Western Occupational and Environmental Medicine Association (WOEMA)
- Worksafe

HESIS continued to promote integrated prevention strategies that protect workers, communities, and the environment from toxic chemicals through:

- Work with the Institute for Research and Technical Assistance (IRTA)
- Co-sponsorship of a workshop and report on safer alternatives for lithographic clean-up products.

HESIS continued to provide technical assistance to Cal/OSHA to help prevent workers from becoming ill or injured. HESIS provided medical consultation to Cal/OSHA Enforcement to determine whether 69 cases of illness, disease, or fatalities were work-related, and developed recommendations to assist employers in preventing new cases of work-related health problems. HESIS served on and provided technical assistance to Cal/OSHA Advisory Committees to help develop policies and procedures to amend permissible exposure limits for workplace chemicals and other agents, and to develop standards for diacetyl and aerosol transmissible diseases. HESIS continued to serve as a referral source for inquiries received by Cal/OSHA on the health hazards of chemicals and other workplace hazards, and to inform employers and workers about Cal/OSHA regulations and services through the HESIS workplace hazard helpline and HESIS publications.

Other collaborative public health activities this year included:

- Participation in a project along with the Labor Occupational Health Program at the University of California, Berkeley, to conduct a needs assessment and risk communication pilot study regarding heat-related illness in a predominantly Latino community in California's central valley.
- Participation in a project along with the University of California, San Francisco, to evaluate the accessibility and quality of spirometry provided by local health care clinics involved in performing employer-based medical surveillance services for workers exposed to respiratory hazards.

HESIS staff continued to assess the health hazards of specific work-related exposures and to provide technical assistance to agencies and groups. Surveillance of the occupational health literature, identification of new and unappreciated hazards, and expansion of the information repository are ongoing. The Occupational Health Branch (OHB), California Department of Public Health (CDPH), Web site

(www.dhs.ca.gov/ohb/HESIS/hesispub.htm)

continues to showcase the publications developed by HESIS. HESIS also continued to provide support for OHB through active participation on the management team and serving on Branch-wide and Division-wide committees.

Labor Code Section 147.2 – Mandate 1

Provide reliable information of practical use to employers, employees and representatives of employees, and other governmental agencies on the possible hazards to employees of exposure to toxic materials or harmful physical agents.

1. Workplace Hazard Helpline / Telephone Response System (TRS)

A total of 189 calls were logged between December 2006 and November 2007:

- Callers. Responded most frequently to inquiries from employees (50%) followed by employers (14%), health care providers (6%), governmental agencies including Cal/OSHA (5%), unions and non-governmental organizations (2%), and others (23%).
- Inquiries. Received general requests for information related to specific workplace hazards and issues (58%), questions about the relationship of symptoms to work exposures (21%), and questions related to the impact of work exposures on pregnancy outcome (21%).
- **Examples of TRS calls include:**
 - ✓ A plastics production worker asked whether there were health hazards for exposure to high-temperature injection molding smoke or fume during pregnancy.
 - ✓ A utility worker with pre-existing asthma and allergies reported respiratory symptoms when entering underground transformer vaults. The worker sought advice in obtaining a medical workup and reasonable accommodation from the employer to avoid symptomatic exposures.

- ✓ An employer called for advice on the potential reproductive health effects of fragrance product mixtures in order to plan the work status of a worker who planned to become pregnant.
 - ✓ A retail hardware store clerk called regarding a perceived cancer cluster in the workplace and a possible relationship to pesticides and other garden chemicals.
 - ✓ An industrial waste specialist for a municipality asked for assistance in estimating the risk of polychlorobiphenyl (PCB) exposure for street sweepers and the use of personal protective gear, if appropriate.
 - ✓ A consultant for a California company that is developing a new isocyanate-based adhesive product requested information on air sampling methodology.
- Mail-out Program (MOP). Continued to increase the efficiency of the TRS by developing, revising, and disseminating packets of materials on common toxic materials and other workplace hazards for which HESIS receives a large number of repeat inquiries. The MOP packets include generic letters, fact sheets, and other specific hazard evaluation/prevention information.
 - Quick Response Program. Continued to identify and use comprehensive, existing responses to streamline the TRS process. The database serves as an informational resource for answering repeat questions on complex or unusual toxic materials or hazards.

2. Educational Materials Development

- *Guide to Getting Medical Care for Job-related Pain That Won't Go Away* (October 2007).

This 16-page illustrated booklet is designed for workers who are experiencing persistent symptoms that seem to be related to work tasks. The guide helps workers recognize the symptoms of work-related musculoskeletal disorders, select appropriate health care providers, work effectively with their employer and health care provider during the treatment and recovery period, understand how certain workers' compensation rules may affect them, and understand the Cal/OSHA regulation: *Repetitive Motion Injuries*. This edition has been updated from the original 2001 version (reflecting changes in workers' compensation rules governing the choice of treating physician).

- *Medical Surveillance for Flavorings-Related Lung Disease Among Flavor Manufacturing Workers in California* (August 2007)

This 23-page technical document was designed to provide guidance to medical practitioners providing surveillance services for workers in the flavorings industry. It includes clinical background, worker inclusion criteria, components of, and frequency of, medical surveillance evaluations, criteria for acceptable spirometry (lung function testing), and case confirmation and management.

In addition to the above publication, two Fact Sheets released in print version in late 2006 were **posted electronically to the HESIS Web site** during the current reporting period:

- ✓ *Methylene chloride* (posted 1/22/07)
- ✓ *N-methyl pyrrolidone / NMP* (posted 2/1/07)

3. Educational Materials Dissemination

- HESIS Outreach Activities / Publications Request Line. **Distributed 4,161 HESIS publications** through outreach activities and in response to direct requests during the report period. A portion of these requests were received via the Occupational Health Branch Web site.

Continued to mail HESIS publications to the Cal/OSHA District and Area Offices for further dissemination by Enforcement and Consultation staff, and to serve as resource information for their telephone consultations.

Organizations and groups that requested and disseminated HESIS publications included:

- University of California, Los Angeles (UCLA) - Evaluating Workplace Hazards
 - If I'm Pregnant Can the Chemicals Harm My Baby
- Breathe California of the Bay Area: 50 copies of various publications for training purposes
- University of California, San Francisco - Understanding Toxic Substances (UTS) – distributed at Grand Rounds
- Susan Deason - UTS Training
- California State Library
- San Diego Public Library – variety of publications
- California Wellness Foundation – variety of publications
- University of California, Irvine – variety of publications
- CA Electronic Asset Recovery – variety of publications
- National Institute for Occupational Safety and Health (NIOSH)
- Novozymes
- UCLA / Labor Occupational Safety and Health Program
- Lucaro Technologies, Inc.
- Zenith Company – UTS-Cal/OSHA training

- Conferences, Meetings, Presentations. Continued to distribute HESIS publications, brochures, and publication lists at formal conferences and meetings, and at presentations and lectures given by HESIS and other OHB staff. This year, these included:
 - Painting Contractor Trade Association
 - Pacific Builders Safety Expo
 - WOEMA Conference
 - Western Regional Conference on Lead and Mold
 - Healthy Homes
 - California Wellness Foundation Conference
- TRS Consultations. Disseminated additional HESIS publications to supplement and reinforce the hazard evaluation and prevention information provided to callers.
- OHB Web Site. Continued to disseminate HESIS educational materials via the program's website, www.dhs.ca.gov/ohb/HESIS/hesispub.htm. **214 web pages** (including PDF downloads) **were seen 300,240 times.**

Top ten HESIS publications downloaded or viewed:

- Occupational Exposure to Rabies Virus (18,117)
- Epoxy Resin Systems (17,497)
- Understanding Toxic Substances (12,812)
- Hexavalent Chromium (11,595)
- Perchloroethylene (10,868)
- Trichloroethylene (10,201)
- Workplace Exposure to Hepatitis C (9,943)
- Artificial Fingernail Products (9,718)
- Xylene (9,502)
- Glycol Ethers (7,975)

4. Education / Outreach

- Julia Quint, HESIS Chief, spoke on “Relating Occupational and Environmental Settings in Biomonitoring” at the University of California, Berkeley Workshop on Designing State Biomonitoring Programs. Berkeley, CA, January 12, 2007.
- Julia Quint, HESIS Chief, spoke on “Communicating Risks of Reproductive and Developmental Toxicants: Helping Healthcare Providers and Workers Prevent Adverse Outcomes” at the University of California, San Francisco-Collaborative on Health and the Environment Summit on Environmental Challenges to Reproductive Health and Fertility. Berkeley, CA, January 30, 2007.

- Julia Quint, HESIS Chief, spoke on “How Lithographic Cleanup Solvents Can Affect the Health of Printers” at the University of California, Berkeley-Public Health Institute Safer Cleanup Solvents: Workshop. San Francisco, CA, March 7, 2007.
- Julia Quint, HESIS Chief, spoke on “Biomonitoring of Workers—Past History, Lessons Learned, Future Use” at the California Public Health Association Annual Meeting. Long Beach, CA, March 9, 2007.
- Julia Quint, HESIS Chief, spoke on “Reproductive and Developmental Toxicants” at the Kaiser Permanente 2007 Spring Primary Care Conference. Kohala Coast, HI, April 11, 2007.
- Julia Quint, HESIS Chief, spoke on “Health Effects of Lithographic Cleanup Solvents” to the South Coast Air Quality Management District Rule 1171 Lithographic Printing Technical Advisory Group. Diamond Bar, CA, April 25, 2007.
- Julia Quint, HESIS Chief, spoke on “Workplace Health Hazards: What We Know, Don’t Know, and Need to Know to Protect Workers” for the Occupational Health Internship Program. This presentation helped orient students participating in an 8-week program to interest students in pursuing careers in occupational health and safety. Berkeley, CA, June 20, 2007.
- Thomas Kim, Epidemic Intelligence Service (EIS) Officer assigned to the Division of Occupational and Environmental Disease Control (DEODC) of CDPH, participated in a panel discussion entitled “The New Asbestos: Bronchiolitis Obliterans and Food Flavorings – Diacetyl” at the Western Occupational Health Conference (annual meeting of the Western Occupational and Environmental Medicine Association), San Diego, CA, October 6, 2007.
- Barbara Materna, Acting HESIS Chief, presented a talk entitled “Industry-wide Intervention in California Flavor Manufacturing” as part of a seminar on Occupational Pulmonary Disease and the Flavoring Industry at the American College of Occupational and Environmental Medicine’s State-of-the-Art Conference (SOTAC) in Vancouver, British Columbia, on October 28, 2007.

Labor Code Section 147.2 – Mandate 2

Collect and evaluate toxicologic and epidemiologic data and any other information that may be pertinent to establishing harmful effects on health of exposure to toxic materials or harmful physical agents.

1. Technical Assistance – Cal/OSHA Medical Unit Consultations

- HESIS provided a total of 41 medical consultations in 2007, up from 15 in 2006. Five of the consultations involved multiple cases in the same workplace (ranging from 2-14 employees). The imputed hazards, by class, included:

- Physical (heat) in 33 investigations involving 41 workers
- Chemical in 4 investigations involving 17 workers
- Biological in 3 investigations involving 10 workers
- Traumatic in 1 investigation involving a single worker

- Physical:

Of 41 imputed cases, 27 were medically confirmed as primarily heat-related, 2 as partially heat-related, 2 were inconclusive, and for 10 the role of heat could not be confirmed. Ten investigations involved fatalities. *As noted below*, HESIS staff summarized its experience with this issue in a memo/report to the Chief of Cal/OSHA dated October 18, 2007.

- Chemical:

Of 17 imputed cases, 16 were medically confirmed as chemically related, and one involved uncertainty regarding the timing and severity of symptoms. None resulted in fatalities. The chemical exposures involved in the 4 investigations included carbon monoxide (multiple cases), cadmium sulfide dust, sodium hydroxide solution, and an aerosol room deodorizer.

- Biological:

Of 10 imputed infectious cases reviewed in detail, all had a potential occupational etiology, although the specific probabilities of occupational exposure varied considerably among cases. *As noted below*, HESIS staff reviewed the issue of MRSA infections in correctional officers in a memo/report to the Region II Cal/OSHA District Office dated September 17, 20/07.

- Traumatic:

One traumatic case, involving a soft-tissue infection requiring hospitalization, was reviewed and confirmed as being “serious” in nature.

2. Selected Hazard Assessments

Cal/OSHA Technical Assistance

- Cal/OSHA Investigations of Heat-Related Illness (HRI) 2006. (October 18, 2007)
This memo / report summarized the Cal/OSHA experience with heat-related

illness (HRI) in 2006 (a standard having become effective for outdoor workplaces in July of 2006). A total of 46 HRI cases were confirmed from 38 separate investigations. HESIS provided medical consultation on a number of these investigations. The review identified a higher number of total cases in 2006 but fewer fatalities as compared to 2005. Hispanic male workers were again identified as being at risk for serious HRI. The findings from review of the completed Heat Illness Evaluation Program Questionnaires also identify several areas where compliance with the Heat Illness Prevention Standard (T8 CCR §3395) could be improved and suggests the need for further outreach efforts.

- Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections at Folsom Prison. (September 17, 2007) This memo / report summarized HESIS' review of OSHA Log 300 and medical record information pertaining to suspected and confirmed MRSA infections among Folsom Prison employees, chiefly correctional officers. The report concludes that a significant fraction of the affected employees had confirmed MRSA infections and an opportunity for contact with potentially infected inmates. It communicates established recommendations for infection control previously promulgated by the Federal Bureau of Prisons, the Massachusetts Department of Public Health, the Washington State Department of Health, and the Texas State Health Services and Correctional Facilities Workgroup. In addition to this report HESIS provided medical input into the development of a Cal/OSHA Special Order requiring Folsom Prison to develop an effective program for addressing and mitigating the effects of this infectious hazard. It is hoped that this program can become a model for the prison system throughout California.
- Flavor Industry Safety and Health Evaluation Program (FISHEP). Ongoing investigation and associated activities:
 - ✓ HESIS has continued to provide oversight for the medical surveillance program for the 26 flavor companies covered by FISHEP.
 - ✓ HESIS staff has worked directly with employers and healthcare providers to ensure that the requirements for effective medical surveillance are met.
 - ✓ HESIS staff worked collaboratively with NIOSH and medical experts to develop a protocol for effective medical surveillance for the flavor industry employees, including respiratory health questionnaires in English and Spanish.
 - ✓ With assistance from NIOSH, HESIS and other OHB staff have further established a data system for the analysis of questionnaire and spirometry data to provide feedback on the health impact of diacetyl and other chemicals exposures on flavor manufacturing workers in California.

- ✓ HESIS and other OHB staff have met with Cal/OSHA Consultation Service staff on an ongoing basis to ensure coordination of the medical surveillance with the industrial hygiene interventions.
- ✓ Associated activities include:
 - Provision of medical expertise and updates of the FISHEP program at Cal/OSHA diacetyl regulation advisory committee meetings.
 - Provision of specific medical input into the proposed medical surveillance requirements for the planned diacetyl regulation.
- Mold in indoor air quality -- Cal/OSHA assistance

A Cal/OSHA compliance unit requested HESIS assistance in interpreting a consultant's report on residual mold at a complainant's workplace. Mold remediation had been performed by a different contractor but questions remained. HESIS reviewed the report and commented on the level of contamination and the advisability of further clean-up measures. HESIS also advised that non-essential employees should be excluded during any mold remediation or cleanup.

3. Technical Assistance – Selected Other Constituents

Federal government

- Federal Occupational Safety and Health Administration (OSHA).

1-Bromopropane (1-BP) - Responded to a request from an OSHA industrial hygienist to assist the agency in evaluating 1-BP Material Safety Data Sheets (MSDSs). Provided primary references that supported the 2003 HESIS 1-Bromopropane Health Hazard Alert, including the National Toxicology Program's Center for Evaluation of Risks to Human Reproduction 1-BP report. Sent additional references identified from a 2007 literature search

Local government

- Investigation of potential carbon monoxide exposure to employees and the public at an indoor go-kart track (in concert with Environmental Health Investigations Branch, CDPH)

A request for assistance was received from a county health officer regarding several acute cardiac events among go-kart drivers. In question was whether carbon monoxide (CO) and particulate matter (PM) exposures to employees and patrons at an indoor go-kart arena could pose a potential health hazard, prompting an exposure assessment of potentially hazardous air pollutants within

the facility. CO and PM_{2.5} concentrations were measured using portable, personal, real-time measurement. Track CO levels exceeded the OSHA ceiling (peak) standard for worker exposure. Driver exposures were significantly higher than those measured by stationary monitors on the track, and significantly higher than those measured outside the facility (up to 90 times higher for CO, 2 times higher for PM_{2.5}). Suggested methods to decrease the track's exhaust contamination include alterations to the ventilation system, race scheduling, and modifications to the go-karts themselves. Additional recommendations were given regarding on-site warnings and treatment of sensitive individuals.

Academia

- Protecting California Workers from Respiratory Disease: Assessing the Capacity of Local Health Care Clinics to Provide Spirometry-based Medical Surveillance Services to Employers

This spirometry assessment project involves an interagency agreement with UCSF and is designed to assess CA providers' capacity to perform quality spirometry in order to meet the expectations of FISHEP, the anticipated Cal/OSHA diacetyl standard, and any other standard or recommendation designed to protect the respiratory health of California workers exposed to airborne hazards. During the past year, clinics providing primary occupational medicine services have been identified and a questionnaire has been designed to elicit information about the capacity and quality of spirometry services in CA. The next phase of this project will include administration of the questionnaire and review of findings. This will help HESIS make practical, "best practice" recommendations for medical providers performing spirometry-based medical surveillance and will help inform the development of required medical surveillance guidelines for any proposed Cal/OSHA standard involving the prevention of occupational lung disease.

- Protecting California's Farm Workers from Heat-Related Illness; piloting Health and Safety Communication Strategies for Hard-to-Reach Workers

The project was conducted by the University of California's Labor Occupational Health Program (LOHP) through an interagency agreement. LOHP conducted this work in a predominantly Latino farming community in central California. The goal of the project was to help prevent heat-related illness and fatalities in a vulnerable population group. The project was multi-faceted and involved conducting a needs assessment, pilot testing two outreach strategies based on the needs assessment, implementing a communication model, and evaluating which approach might work best to test on a larger scale. The project successfully involved a community-based organization specializing in employment, training, education, and community service and a health *promotora*

(community-based health “promoter”) program, which prepared local community residents to take on community-wide health issues. This project tailored its health and safety message to a hard-to-reach population by integrating the message into existing community networks and activities. This project helps HESIS better understand how to reach high-risk, hard-to-reach populations in order to provide practical information on workplace hazards.

Nongovernmental organizations

- Healthy Nail Salon Collaborative

In this example of technical assistance to a non-governmental organization, HESIS staff provided technical information in ongoing meetings and helped this group develop a handout on safe work practices and ventilation in the nail salon industry.

- Communication Workers of America and Printing Union

Lithographic Solvent Products. HESIS staff evaluated the health effects of solvents identified on MSDSs for clean-up products used by union members. Staff also participated in a focus group to answer questions and to provide general information on the acute and chronic health effects of solvents and MSDSs.

- IRTA

Pollution Prevention Center Advisory Committee Meetings. HESIS staff continued to participate with other Committee members in discussions of completed and ongoing projects conducted by the Institute for Research and Technical Assistance (IRTA) and applicable environmental and occupational health and safety regulations. Organized by IRTA, the Pollution Prevention Center is a unique partnership of businesses, agencies responsible for regulating air, water and waste streams, and public health agencies. Advisory Committee members include representatives of US EPA Region 9, Cal/EPA’s Department of Toxic Substances Control and California Air Resources Board, the City of Los Angeles Bureau of Sanitation, South Coast Air Quality Management District (SCAQMD), Southern California Edison, Rockwell International, and HESIS. The Center works with agencies and industries to provide the latest technological information on industrial cleaning processes as well as updates on environmental laws and regulations pertinent to all Advisory Committee members.

4. Product substitution / pollution prevention.

Consistent with the “**hierarchy of industrial hygiene controls**,” HESIS has been engaged in the evaluation of safer substitutes for potentially hazardous products

through collaboration with the California Department of Toxic Substances Control, the California Environmental Protection Agency, the US Environmental Protection Agency, industry / trade groups, and worker advocacy groups. Positive results from such activities are expected to have benefits both in terms of worker protection and environmental protection. The following pilot collaborative project addressed this issue:

- Safer Alternatives to Lithographic Cleanup Solvents

This project aims to identify and promote the use of safer alternatives to hazardous clean-up solvents used in lithographic printing that can harm the health of workers and the environment. Key partners in this process were Patrice Sutton (Public Health Institute) and Mark Nicas (UC Berkeley); Alameda County Green Business Program, Northern CA Media Workers Union, Local 39521, CWA, IRTA, Bay Area Air Quality Management District, CA Dept. of Toxic Substances Control, US EPA Region 9, San Francisco Dept. of Public Health and Dept. of the Environment. As part of this project a workshop entitled “Safer Clean-up Solvents: What Printers Need to Know” was held on March 7, 2007, in San Francisco, and a summary report was prepared.

5. Information Repository

- HESIS Repository of Occupational Health Information (ROHI). Continued to review key occupational health and toxicology journals; identify relevant articles; classify them by agent, health effect, or industry; and store them in ROHI binders. The database now consists of over 30,000 articles. ROHI facilitates quick identification and retrieval of information to support HESIS’ hazard evaluation and technical assistance functions.
- HESIS Electronic-Repository of Occupational Health Information (e-ROHI) Re-evaluated eROHI project in light of the increasing availability of occupational epidemiology, toxicology, and industrial hygiene literature in electronic format on an as-needed basis. Future emphasis will be placed on delimited bibliographies pertaining to active standard-setting questions, hazard investigations, and selected questions regarding evidence-based public health practice. HESIS staff, in collaboration with the UC Berkeley Public Health Library, has begun exploring alternatives for web-based bibliographic data base management software to increase the efficiency of our technical support to the 5155 standards-setting process (HEAC) and our conduct of hazard assessments.

Labor Code Section 147.2 – Mandate 3

Recommend to the Chief of the Division of Occupational Safety and Health that an occupational safety and health standard be developed whenever it has been determined that a substance in use or potentially in use in places of employment is potentially toxic at the concentrations or under the conditions used.

Standards Recommendations / Assistance

Cal/OSHA Development of Permissible Exposure Limits (PELs) in California Code of Regulations Title 8 Section 5155

- Standards Recommendations

HESIS staff sent PEL recommendations for a total of 18 substances; since all are recognized carcinogens or reproductive/developmental toxicants currently used in industry, HESIS recommended that they be assigned the highest priority (Priority 1) for consideration for new rulemaking. Consistent with the methodology used to develop PELs for Cal/OSHA regulated carcinogens, HESIS used published Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) unit risk assessment values to derive proposed PELs for the 16 identified carcinogens (acetaldehyde, benzyl chloride, ceramic fibers, p-dichlorobenzene, 1,1-dichloroethane, diesel engine exhaust, 1,4-dioxane, ethylbenzene, ethylene dichloride, hexachloroethane, hydrazine, naphthalene, nickel and nickel compounds, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, and trichloroethylene). The proposed PELs for two identified reproductive/developmental toxicants (1-bromopropane and n-methylpyrrolidone) were also based on quantitative risk assessment methodology used previously by HESIS for other PEL recommendations. In addition to the 18 PEL recommendations, one reproductive / developmental toxicant, di-*n*-butyl phthalate, was nominated for priority consideration in new rulemaking without a numerical recommended PEL, because a quantitative risk assessment is not yet available from OEHHA.

- Using Quantitative Risk Assessment as the Basis for Setting Occupational Standards for Carcinogens and Reproductive Toxins

This project aims to promote the use of accepted quantitative risk assessment methods and results, currently used for setting California environmental regulations, as the scientific, health-based “starting point” for occupational health standards for identified carcinogens and reproductive toxins. This project represents a collaboration between HESIS and the Office of Environmental Health Hazard Assessment (OEHHA) in Cal/EPA. Release of the final report was anticipated for December 2007.

- Health Effects Advisory Committee (HEAC)

HESIS staff participated in meetings of the newly created HEAC, part of the recently revised 5155 standard-setting process. Two former HESIS staff have been selected by Cal/OSHA to serve as HEAC members

Cal/OSHA Standards Advisory Committees (Other than Section 5155)

HESIS staff provided input to Cal/OSHA committees considering standards for the following exposures: indoor heat, aerosol transmissible diseases, diacetyl, and respirator assigned protection factors.

Labor Code Section 147.2 – Mandate 4

Notify the Director of Food and Agriculture of any information developed by the Repository which is relevant to carrying out his or her responsibilities under Chapter 2 (commencing with Section 14001) of the Division of Food and Agriculture Code.

There were no activities under this mandate during the report period.

Labor Code Section 147.2 – Mandate 5

Assure the use of and non-duplication of resources of other governmental agencies.

Use of Other Governmental Agency Services / Resources

- Cal/OSHA. HESIS continued, on a routine basis, to meet with, consult with, and make referrals to Cal/OSHA, and to use and disseminate Cal/OSHA educational materials.
- CDPH. HESIS continued, routinely, to consult with, make referrals to, and use materials and Web site information developed by numerous other CDPH programs to evaluate and provide consultations regarding workplace hazards. In the report period, these programs included: the Environmental Health Laboratory Branch Indoor Air Quality Section, Environmental Management Branch, Vector-Borne Diseases Section, Disease Investigations and Surveillance Branch, Radiological Health Branch, Environmental Health Investigations Branch, and the Immunization Branch.

- Cal/EPA - Office of Environmental Health Hazard Assessment. HESIS continued to consult with OEHHA staff and use risk assessment resources to identify occupational carcinogens and reproductive toxicants and to assist Cal/OSHA in developing Permissible Exposure Limits for workplace chemicals. Continued to share the resources of the Occupational and Environmental Health Library.
- Cal/EPA – Department of Toxic Substances Control Pollution Prevention and Technology Development. HESIS continued to consult with Cal/EPA staff and to use technical information and other resources to recommend pollution prevention strategies to protect workers from the adverse health effects of organic solvents and other hazardous substances.
- National Institute for Occupational Safety and Health. HESIS continued to use and disseminate NIOSH educational materials and to use and refer callers to their Web site for information and publications. Continued to work with NIOSH staff to identify and protect workers who may be at risk for bronchiolitis obliterans in California's flavor manufacturing industry.

Labor Code Section 147.2 – Mandate 6

Recommend legislative changes related to the functions of HESIS.

There were no activities conducted under this mandate in the report period.

Authorized positions in HESIS for 2007

Permanent positions

Public Health Medical Officer III	Dennis Shusterman, MD, MPH	100%
Public Health Medical Officer II	Janice Prudhomme, D.O., MPH	100%
Senior Industrial Hygienist	Elizabeth Katz, MPH, CIH	100%
Management Services Technician	Beverly Broadway	100%

Source of funding

HESIS is supported through an interagency agreement between the Department of Industrial Relations, Cal/OSHA, and the California Department of Public Health (formerly Department of Health Services), Occupational Health Branch.

Annual budget

\$715,423 (2007-2008 fiscal year)