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

HAZARD EVALUATION SYSTEM

AND

INFORMATION SERVICE

Annual Report

December 2010 – October 2011

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)

Executive Summary

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), other programs within the California Department of Public Health (CDPH), 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 technical input and recommendations on standards-setting;
- ✓ Provision of a hazard assessment function; and
- ✓ Provision of an extensive information repository.

In 2010-2011, 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 during this period included:

- Provided technical support to Cal/OSHA's Health Expert Advisory Committee for consideration of Permissible Exposure Limits for arsine, gallium arsenide, n-propanol, and methyl iso-butyl ketone.

- Provided 21 medical consultations to Cal/OSHA enforcement staff concerning a total of 21 employees in separate incidents at different work sites.

  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 8 hours of time on the part of a HESIS Public Health Medical Officer.

- Responded to 106 calls to the Workplace Hazard Helpline (also referred to as the "Telephone Response System" or "TRS"). Seventy-three percent of these calls were initiated by workers, relatives of workers, employers, health care providers treating workers, or industrial hygiene / safety personnel serving 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 median TRS response occupies approximately 30 minutes of technical staff (i.e., Industrial Hygienist, Toxicologist, or Public Health Medical Officer) time.

- Published the following new **Fact Sheet**:

  ✓ *Drilling Overhead: Ways to Make a Tough Job Easier*
  http://www.cdph.ca.gov/programs/hesis/Documents/DrillOverhead.pdf

- Revised the following **Fact Sheets**:

  ✓ *Formaldehyde*
  http://www.cdph.ca.gov/programs/hesis/Documents/formaldehyde.pdf

  ✓ *Chromium-6 in the Workplace*
  http://www.cdph.ca.gov/programs/hesis/Documents/Chromium6.pdf

- Began field research for the following new **Fact Sheet**:

  ✓ *Electronics Recycling: Working Safely*

HESIS continued to work with collaborators to expand the public health impact of the program. This year, HESIS participated in meetings and other activities of:

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

HESIS continued to provide technical assistance to Cal/OSHA to help prevent workers from becoming ill or injured. HESIS served on and provided technical assistance to Cal/OSHA Advisory Committees to help develop policies and procedures to amend Permissible Exposure Limits (PELs) for workplace chemicals and other agents. 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:

- Participated in a project along with the University of California, Berkeley and San Francisco, to evaluate the feasibility of characterizing occupational exposures for a cohort of pregnant patients and identifying toxicants that pose risks of developmental toxicity using occupational codes on patient information forms.

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) Web site:

http://www.cdph.ca.gov/programs/ohb/Pages/default.aspx

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.

Specific Accomplishments:

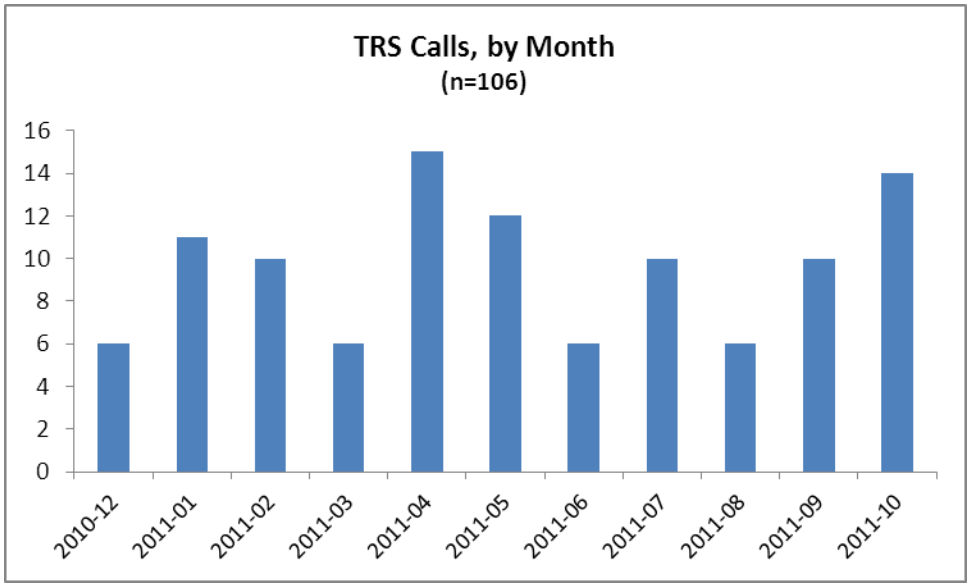
Labor Code Section 147.2 – Mandate 1

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.

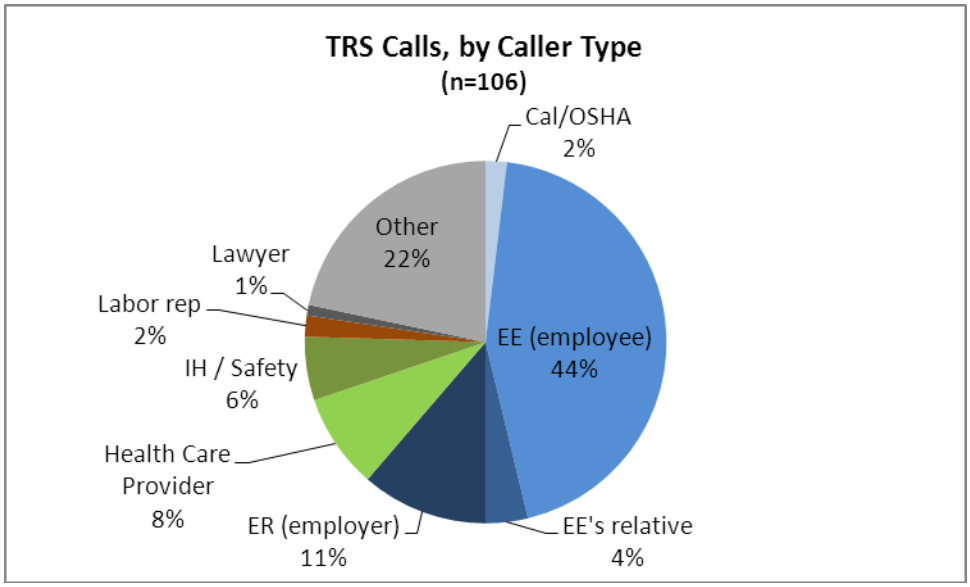
1. Workplace Hazard Helpline / Telephone Response System (TRS)

A total of 106 calls were logged between December 2010 and October 2011:

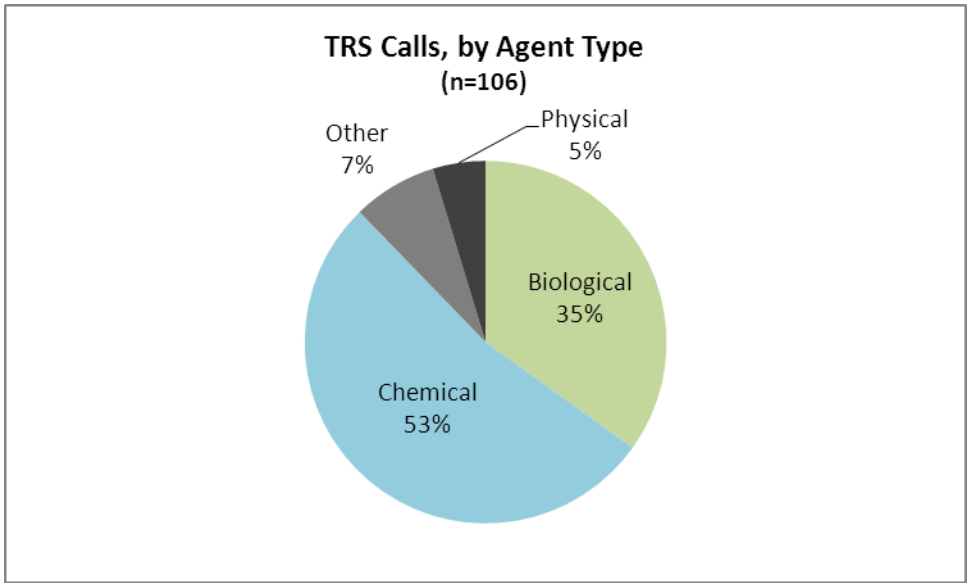
- Monthly calls ranged from 6 to 15, led by April and October.



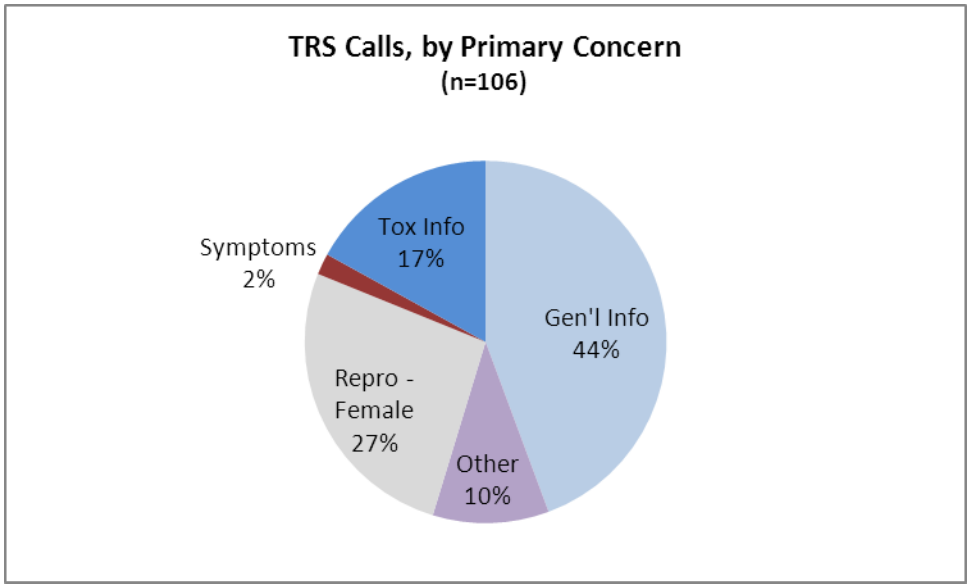
- Callers. Inquiries came from employees and their relatives, industrial hygiene / safety personnel, employers, health care providers, attorneys, and others.



- Agents of concern were principally chemical in nature, followed by biological agents, other work-related issues, and physical agents:



- Major Concern. The greatest numbers of calls related to general workplace information, followed in frequency by the impact of work exposures on pregnancy outcome, specific questions regarding the toxicity of chemicals, questions about the relationship of symptoms to work exposures, and "other."



Examples of 2010-2011 TRS calls include:

- ✓ The manager of an electronics wholesaler inquired about the potential health hazards of electromagnetic fields from nearby high voltage transmission lines. HESIS staff recommended that the company consult the responsible utility company in order to carry out exposure monitoring.
- ✓ A registered nurse called regarding the potential hazard of administering chemotherapeutic agents intravenously while pregnant. HESIS staff provided a link to a NIOSH document on the topic, as well as two literature studies suggesting a link between occupational antineoplastic exposure and adverse health outcomes. The caller planned to discuss these materials with her obstetrical provider.
- ✓ The health and safety coordinator for a regional air quality management district called regarding the advisability of conducting surveillance for beryllium sensitization among their source test engineers. The caller was referred to a local academic expert on beryllium sensitization.
- ✓ A chemist in an analytical laboratory called regarding the potential reproductive hazard of several reagents she handled. MSDSs were reviewed and data provided from the Developmental and Reproductive Toxicology (DART) database of the National Library of Medicine. After delivering a healthy infant, she called back regarding the potential for these same chemicals to appear in breast milk.
- ✓ A supervisor from a visiting nurse service called regarding proper precautions for avoiding exposure to bloodborne pathogens. She was provided links to Cal/OSHA's bloodborne pathogen standard and a telephone number for the Cal/OSHA Consultation Service.

- Electronic database of TRS calls. Our searchable database of TRS calls utilizing EpiInfo software now includes a data field of time spent per call. Utilizing this data, we estimate the median time spent per call (not including record-keeping) as 30 minutes and the mean time as 64 minutes (range: 15 - 960 minutes).
- TRS Intranet Site. HESIS utilizes a CDPH Information Technology Services' Sharepoint utility to maintain an intranet site for use by TRS responders within OHB. The site includes commonly consulted documents, Web site URLs, agency contacts, and other information resources.

2. Educational Materials Development

- A new fact sheet entitled *Drilling Overhead: Ways to Make a Tough Job Easier* was created in collaboration with the University of California, San Francisco, Ergonomics Laboratory. Feedback was obtained from Cal/OSHA's Research and Education Unit. The fact sheet documents an alternative method of overhead drilling (an inverted drill press), which reduces the musculoskeletal

stresses on the operator compared with manual overhead drilling. The fact sheet has been distributed to construction trade associations and trade unions, and was featured in an article in the Contractors State Licensing Board Newsletter.

- *Formaldehyde*. In conjunction with the California Safe Cosmetics Program's release of the document, Brazilian Blowout and other hair smoothing salon treatments, HESIS produced a revision of its 2003 Formaldehyde Fact Sheet. This revision incorporated newer information on formaldehyde's carcinogenicity and reproductive toxicity.

- *Chromium-6*. In recognition of a 2006 change in the Cal/OSHA Permissible Exposure Limit for chromium-6, HESIS produced a revision of its 1992 fact sheet. Besides highlighting the new PEL and associated medical surveillance requirements, the fact sheet features newer control technologies, particularly for the welding industry. These include portable exhaust ("elephant trunk") ventilation, as well as combined welding hoods / powered air purifying respirators.

- *Electronic waste recycling: Working safely*. HESIS has begun an investigation of electronic waste recycling practices to learn about potential exposures and to prepare materials for informing workers and employers of best health and safety practices needed to minimize injuries and illnesses. The HESIS industrial hygienist, along with a visiting preventative medicine resident, is visiting e-waste recycling facilities for observational surveys, interviewing workers and health and safety staff, and interviewing key informants. HESIS staff is also conducting a literature review and reviewing key legislation and voluntary standards to gain insight on best practices. Input has been obtained from Cal/EPA's Department of Toxic Substances Control and from selected non-governmental organizations.

3. Educational Materials Dissemination

- Mass mailing. Distributed over 500 hardcopies of HESIS' revised Chromium-6 Fact Sheet to electroplating shops state-wide. Email distribution of Overhead Drilling fact sheet included over 5,000 separate email addresses.

- HESIS Outreach Activities / Publications Request Line. Distributed hardcopies of HESIS publications through outreach activities and in response to direct requests during the report period.

  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:
  - UCLA / Labor Occupational Safety and Health Program
  - Port of Oakland
  - Cal/OSHA
  - Cosmetology Colleges

- Conferences, Meetings, Presentations. Distributed HESIS publications at formal conferences and meetings, including:
  - Pacific Building Safety Expo
  - California Conference of Local Health Officers (CCLHO) annual meeting
  - Latino Worker Summit
  - Asian/Pacific Worker Summit
  - Worksafe's Triangle Shirtwaist Factory Memorial Event

- TRS Consultations. Disseminated appropriate HESIS publications to supplement and reinforce the information provided to callers.

- OHB Web Site. Continued to disseminate HESIS educational materials via the program's Web site:

  http://www.cdph.ca.gov/programs/hesis/Pages/Publications.aspx.

  The top ten HESIS publications downloaded or viewed were:

  - Xylene
  - Epoxy Resin Systems
  - If I'm Pregnant, Can the Chemicals I Work With Harm My Baby?
  - Methyl Methacrylate (MMA)
  - N-Methylpyrrolidone (NMP)
  - Glycol Ethers
  - Glutaraldehyde
  - Formaldehyde
  - Isocyanates
  - Diesel Engine Exhaust

4. Education / Outreach

HESIS staff spoke regarding workplace hazards to a variety of audiences:

Dennis Shusterman, MD, MPH, HESIS Chief, spoke on the following topics:

- 3/19/11 – "Surveillance for Occupational Allergy" (Annual meeting of the American Academy of Allergy Asthma and Immunology, San Francisco)
- 6/20/11 – "VOCs and Sensory Irritation" (California Indoor Air Interagency Working Group, Richmond, CA).
- 7/8/11 – "Integrating Data in Occupational Medicine" (UCSF Occupational and Environmental Medicine Fellows – Summer Didactics Program)
- 7/14/11 – "HESIS: An Overview" (UCSF Occupational and Environmental Medicine Fellows – Summer Didactics Program)

- 7/25/11 – "Respiratory Toxicology: Irritants and Allergens" (Center for Occupational and Environmental Health [COEH] Summer Institute)
- 7/25-26/11 – Course Coordinator (COEH Summer Institute - Occupational and Environmental Toxicology for the OSH Professional)

Stella Beckman, MPH, CSTE Applied Epidemiology Fellow, spoke on:

- 5/19/11 – "Analysis of female reproductive concerns from a workplace hazard helpline" (Western Regional Epidemiology Network Virtual Meeting)

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 21 medical consultations between December 1, 2010-October 31, 2011, each involving a single worker. The workplace hazards, by class, included:
  - Physical (heat) in 20 investigations involving 20 workers.
  - Biological in 1 investigation involving 1 worker.
  - No investigations involved chemical or traumatic injuries.
- Physical (heat):

  Of 20 suspected heat illness cases, 8 were medically confirmed as primarily heat-related, 7 as partially heat-related, 2 were indeterminate, and for 3 cases heat was judged to have not played a significant role. Four heat-related investigations involved fatalities.

- Biological:

  One infectious disease investigation (a fatality) involved consideration of potential occupational *Hantavirus* exposure, which was ruled out.

2. Support for Cal/OSHA Appeals Hearings

- Physicians from HESIS, the Occupational Health Surveillance and Evaluation Program (OHSEP), and the Occupational Lead Poisoning Prevention Program (OLPPP) provided pre-hearing medical consultation in support of four citation appeal hearings, including cases pertaining to heat illness, chemical exposures, and construction hazards. All of these cases settled, obviating the need for sworn testimony.

3. Selected Hazard Assessments

Cal/OSHA Technical Assistance Requests

- Flavor Industry Safety and Health Evaluation Program (FISHEP). Ongoing investigation and associated activities:

  - ✓ HESIS and other OHB staff have met with Cal/OSHA headquarters and Consultation Service staff periodically to coordinate on issues related to flavor manufacturing worker health and safety.

  - ✓ OHB and Cal/OSHA staff collaborated with NIOSH on a longitudinal analysis of all spirometry data collected under FISHEP, including an assessment of the quality of the spirometry data and the relationship between potential risk factors and impairment of lung function, and submitted a manuscript, "Longitudinal Lung Function Declines Among California Flavoring Manufacturing Workers," for publication in a scientific journal, *Am J Ind Med* (in press).

  - ✓ OHB, Cal/OSHA, and NIOSH staff collaborated on the development of a notification strategy for ensuring that abnormal medical results are shared with individual affected workers, and that spirometry quality scores are shared with providers of medical surveillance and the employers who hire these providers. Employers and medical providers will also be provided resources for improvement of spirometry quality and a link to the recent draft NIOSH Criteria Document for diacetyl and 2, 3-pentanedione, a comprehensive summary of the latest toxicity data on diacetyl and diacetyl substitutes, health and safety recommendations pertaining to flavoring exposed workers, and NIOSH Recommended Exposure Limits.

  - ✓ OHB and Cal/OSHA staff have collaborated to review the draft NIOSH Criteria Document for diacetyl and 2, 3-pentanedione and prepared joint Cal/OSHA-CDPH comments for improvements to this comprehensive document, to be submitted to NIOSH by November 18, 2011, the deadline for public comment.

- Cal/OSHA Enforcement. An OHB physician participated jointly with a Cal/OSHA enforcement officer to document a potential violation of the Ergonomics Standard in a setting involving courtroom recorders.

- Heat Illness. The Epidemic Intelligence Service (EIS) Officer from the Centers for Disease Control and Prevention assigned to the Occupational Health Branch assisted Cal/OSHA staff in tabulating serious heat illness cases from 2009.

4. Technical Assistance – Selected Other Constituencies

State government

- California Department of Public Health

  HESIS personnel toured the animal handling facility at the CDPH Richmond Campus and reviewed work practices, engineering controls, and personal protective equipment. HESIS further provided feedback on medical surveillance procedures and questionnaires with attention to the potential for allergic sensitization to laboratory animals.

  HESIS personnel assisted staff of the Division of Communicable Disease Control in responding to a request for guidance in avoiding exposure to bacterial pathogens (such as E. coli 0157:H7) during agricultural education activities.

- California Department of Corrections and Rehabilitation

  HESIS staff consulted with the chief of the California Department of Corrections (CDCR) Occupational Health Section and physicians from CDCR's federal receivership (California Correctional Health Care Services) regarding staff and inmate infections with *Coccidioides immitis*, the agent that causes Valley Fever. Consultations included environmental monitoring for dust mitigation at a specific correctional institution, as well as guidelines and educational materials concerning potential exposure of inmate-firefighters assigned to CalFIRE.

  HESIS assisted a California correctional facility in addressing water intrusion and mold growth in a correctional treatment center. Along with the Chief of the Environmental Health Laboratory Branch, HESIS staff reviewed sampling results, containment, and ventilation controls. Staff participated in a telephone conference with the Federal Receiver's Office (California Correctional Health Care Services), and provided recommendations for controlling exposures that obviated the need to evacuate prisoners.

Academia

- Pregnancy and Work: Identifying occupational exposures to pregnant women in a prenatal clinical setting

  This project began through an interagency agreement with the University of California, Berkeley (UCB). The goal of the project is to assess the feasibility of integrating a self-administered occupation and hobby questionnaire into standard prenatal and OB/GYN care. This information would help HESIS conduct industry and job-related education and outreach to workers, employers, and health care providers on reproductive and developmental toxicants, and on ways to protect against exposure. The project continues under a no-cost extension, with UCSF's Project on Reproductive Health and the Environment (PRHE). PRHE has interviewed nearly 70 women from San Francisco General Hospital's prenatal

clinic, approximately one-half of whom were referred for further physician interview. PRHE is in the process of analyzing respondents' occupations, exposures, work-related symptoms, and other variables in order to finalize a supplemental questionnaire to integrate into routine OB/GYN care.

Nongovernmental organizations

- California Healthy Nail Salon Collaborative: HESIS staff provided technical information in ongoing Collaborative meetings, and continued to participate in the development of a Cal/OSHA Consultation Service e-tool. The e-tool will cover safe work practices and ventilation in the nail salon industry.
- California Rural Legal Assistance: HESIS staff responded to an inquiry regarding the use of chlorine dioxide for water recycling / disinfection in greenhouse settings. Staff contacted investigators at the University of California, Davis, and obtained information from equipment vendors in order to respond to this request.

  HESIS staff also provided information on Spanish-language worker education materials dealing with musculoskeletal hazards and ergonomic solutions for nursery workers.

5. Information Repository

HESIS Electronic Repository of Occupational Health Information (e-ROHI): HESIS staff, in collaboration with the UC Berkeley Public Health Library, continued electronic document delivery to Cal/OSHA Research and Standards Unit staff. HESIS staff also reviewed table-of-contents alerts of toxicology, industrial hygiene, and occupational medicine journals and compiled selected key articles in electronic format.

7. Chemical Watch List

The following are chemicals for which HESIS personnel are monitoring new developments:

- **Tertiary-Butyl Acetate (TBAc)**

✓ *Background:* TBAc is an organic solvent used in industry for architectural coatings, as a degreaser, and for some surface treatment applications. It is metabolized to tert-butyl alcohol (TBA) (*Hum Exp Toxicol* 1994; 13:478), a reported animal carcinogen (NTP 1995). However, effective December 2004, TBAc was exempted as a volatile organic compound (VOC) by US EPA primarily based on its low photo-reactivity to form ozone (*Federal Register* 2004; 69:69298).

✓ *New developments:* TBAc is also under consideration for a similar VOC exemption by the California Air Resources Board and local air districts. It is anticipated that VOC exemption to TBAc will extend its use at workplaces in California resulting in increased health risk to workers. This raises serious concern about its potential adverse health effects on workers.

✓ *Current activities:* HESIS staff is reviewing the published literature on TBAc toxicity to identify the critical data gaps to argue against the VOC exemption. HESIS is interested to find a safer alternative to TBAc such as water-based products having low toxicity. HESIS closely follows the development in this VOC exemption process at state and district levels.

- **Glymes**

✓ *Background:* Glymes are di-alkyl ethers of ethylene glycol. As inert polar compounds they are used as solvents in industries and in many consumer products (*Federal Register* 2011; 76:40850). Glymes have been shown to cause reproductive and developmental effects as well as genotoxicity in experimental animals, presumably due to their metabolic conversion to corresponding toxic alkoxyacetic acids (*Toxicol* 1987; 43:17; *Teratol* 1987; 35:321; *Toxicol Applied Pharmacol* 1988; 94:150).

✓ *New developments:* In July 2011, US EPA proposed a 'Significant New Use Rule' for the 14 glymes that are in commerce because of its concern about the potential human adverse health effects following their exposure at workplaces and through consumer products. According to this rule, the action requires the advance notification of the significant new use of these glymes by manufacturers and/or users. This will help EPA to evaluate the new use of the glymes and take any necessary action.

✓ *Current activities:* HESIS continues to review the published literature on glymes and may plan to survey the sources of their potential human exposure both at workplaces and through consumer products in California. HESIS may propose to include these chemicals in the Biomonitoring California program in order to assess human exposure. HESIS will follow the outcome of EPA's proposal.

- **Bisphenol-A (BPA)**

✓ *Background:* BPA is widely used in both epoxies and other plastic resins. Animal studies suggest that BPA may be a human endocrine disruptor (*Toxicol Sci* 2009; 108:427).

✓ New developments: There have been a number of studies published in 2010-2011 further suggesting BPA's adverse effects on test animals and potentially humans. Cabaton et al. found a dose response relationship between perinatal BPA exposure in female mice and decreased reproductive capacity (*Environ Health Perspect.* 2011; 119(4):547). Melzer et al. reported associations between BPA exposure and estrogenic gene expression in a

cross-sectional study of a sample of European adult males (*Environ Health Perspect.* 2011 Aug 10; Epub ahead of print).

✓ *Current activities:* HESIS will work with Cal/OSHA and with OHSEP to identify segments of the California workforce with potentially significant BPA exposures, and to monitor the reproductive sciences literature relevant to potential BPA toxicity.

- **Nanoparticles**

✓ *Background:* Nanoparticles (particles measuring less than 100 nanometers in diameter) are contained in a wide range of consumer products from sunscreens and personal care products to sporting goods. While many studies are being performed to describe the toxicological properties of nanomaterials, little is known about how workers are exposed to nanoparticles during the life cycle of products containing them. Evidence from experiments in animals and *in vitro* continues to suggest that some nanoparticles may cause adverse health effects. Carbon nanotubes have been shown to cause effects similar to asbestos *in vitro* and in animal models. Nanoparticulate zinc and titanium oxides, which are widely used in personal care products, have been shown to cause toxicity in a variety of cells, including human.

✓ *New developments:* The National Institute for Occupational Safety and Health (NIOSH) published "Current Intelligence Bulletin 63: Occupational Exposure to Titanium Dioxide" in April, 2011. This document includes guidance for workplace handling of fine and ultrafine (including engineered nanoparticulate) titanium dioxide (TiO_2). Based on available evidence, NIOSH classified ultrafine TiO_2 as a potential occupational carcinogen and recommended an exposure limit of 0.3 mg/m^3 as a time-weighted average for occupational exposures to ultrafine TiO_2 for up to 10 hour days and up to 40 hours per week. The California Department of Toxic Substances Control (DTSC) is currently performing a data call-in (ending December 21, 2011) on various nanomaterials including TiO_2 in order to understand how these materials are used in California.

✓ *Current HESIS activities:* HESIS has convened a Nanotoxicology Working Group consisting of interested staff from the Occupational Health Branch, Environmental Health Laboratory Branch, and Food and Drug Branch of CDPH. The working group has invited academic experts to speak on specific topics within nanotoxicology:

- 2/16/11 – Kent Pinkerton, MD, Center for Health and the Environment, UC Davis. "The Safety of Nanomaterials from a Human Exposure Perspective".
- 6/13/11 – Howard Maibach, MD, Professor of Dermatology, UCSF. "Nanoparticles and the Skin, What to Believe and Why It's Important".

In addition, member(s) of the working group authored an article on surveillance for health hazards among workers exposed to engineered nanoparticles:

- Roisman R, Materna B, Beckman S, Katz E, Shusterman D, Harrison R. The Role of State Public Health Agencies in National Efforts to Track Workplace Hazards and the Relevance of State Experiences to Nanomaterial Worker Surveillance. *Journal of Occupational and Environmental Medicine.* 2011; 53(6 Suppl), S38-41.

HESIS staff continue to monitor the scientific literature – and to liaison with sister agencies – to keep up with developments in this field.

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 provided input on the scientific basis for exposure standards for the following air contaminants:

  - Arsine (AsH_3)
    * Provided assistance with calculation of potential lung cancer risk.
  - Gallium arsenide (GaAs)
    * Provided assistance with calculation of potential lung cancer risk.
  - n-Propanol
    * Provided information on inter-individual variability in susceptibility.
  - Methyl iso-butyl ketone
    * Reviewed mechanistic issues relevant to animal carcinogenicity.

- Health Effects Advisory Committee (HEAC)

  HESIS staff participated in quarterly meetings of HEAC, part of the 5155 standard-setting process. Two former HESIS staff members have served as HEAC members.

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

  OHB staff (specifically, the Occupational Lead Poisoning Prevention Program and OHB Chief) reviewed the recent scientific literature on lead and made health-based recommendations to Cal/OSHA for revising the General Industry and Construction Lead Standards for the protection of workers who are exposed to lead on the job. In response to CDPH's recommendations, Cal/OSHA convened an initial Advisory Committee meeting in February 2011 to consider changes to the lead standards. OHB-affiliated staff also attended a meeting of the Committee on Bloodborne Pathogens in the Adult Film Industry.

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 this report period, these programs included: the Environmental Health Laboratory Branch Indoor Air Quality Section, Environmental Management Branch, Vector-Borne Diseases Section, Infectious Diseases 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 2010-2011

Permanent positions

Public Health Medical Officer III	Dennis Shusterman, MD, MPH	100%
Staff Toxicologist (Specialist)	Kashyap Thakore, PhD	100%
Research Scientist II (Phys / Engr Sci)	Jennifer McNary, MPH, CIH	100%
Management Services Technician	Angela Williams-Bell	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

$659,264 (2010-2011 fiscal year)