

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

**HAZARD EVALUATION SYSTEM  
AND  
INFORMATION SERVICE**

**Annual Report**

**December 2008 – November 2009**

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), 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 a hazard assessment function; and
- ✓ Provision of an extensive information repository.

In 2009, 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, employer, and physician education materials,
  - ✓ Ongoing review of spirometry quality and test results,
  - ✓ Technical oversight of employer-provided medical surveillance programs in concert with Cal/OSHA and National Institute for Occupational Safety and Health (NIOSH) personnel,
  - ✓ Contributions to data analysis and report writing,
  - ✓ Development of employer and worker notification documents, and
  - ✓ Technical input on Cal/OSHA's draft occupational standard (including medical surveillance requirements) for diacetyl exposure in flavoring formulation and food processing operations.
- Provided **14 medical consultations** to Cal/OSHA enforcement staff concerning a total of 54 employees.

Medial 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.

- Responded to **136 calls to the Workplace Hazard Helpline** (also referred to as the "Telephone Response System" or "TRS"). Seventy-seven 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 average TRS response occupies approximately 40 minutes of technical staff (i.e., Industrial Hygienist or Public Health Medical Officer) time (range: 15 -180 minutes).

- Completed a major revision of the following **Fact Sheet**:
  - ✓ *Sewing Machine Operators: Feel Better, Work Better*
- Drafted the following **Hazard Alert**:
  - ✓ *Shared Tagging Guns and Bloodborne Disease Risk*

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 provided medical consultation to Cal/OSHA Enforcement to determine whether 29 cases of illness, disease, or fatalities were work-related, and arranged for medical screening of an additional 25 cases with potential exposure to infectious agents on the job. 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 (butter flavoring), aerosol transmissible diseases (e.g., H1N1 influenza), and sensitizers (allergens). 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 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.
- Participation 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 :**

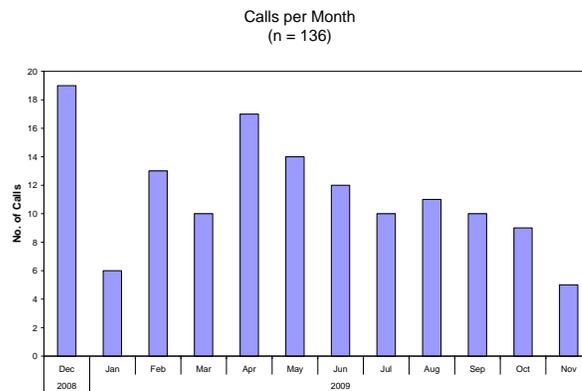
**Labor Code Section 147.2 – Mandate 1**

**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.**

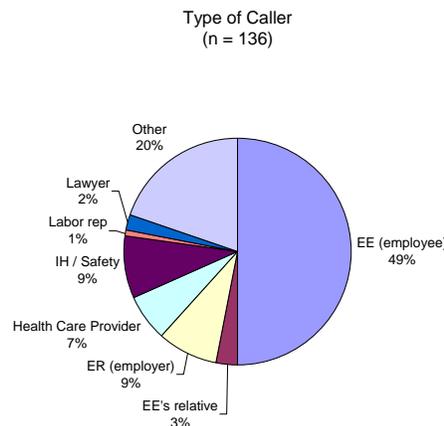
**1. Workplace Hazard Helpline / Telephone Response System (TRS)**

**A total of 136 calls were logged between December 2008 and November 2009:**

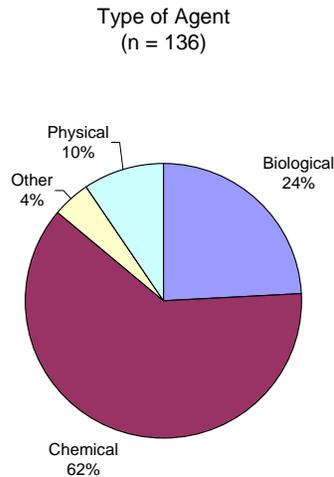
\* Monthly calls varied in number from 5 to 19, led by December, April, and May.



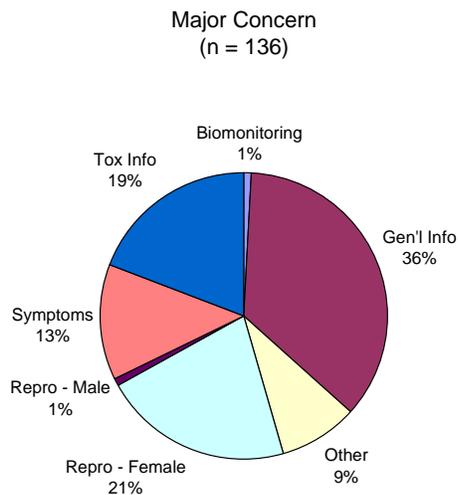
- Callers. Responded most frequently to inquiries from employees and their relatives, followed by employers, industrial hygiene / safety personnel, health care providers, attorneys, labor representatives, and others.



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



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



- **Examples of 2008-2009 TRS calls include:**

- ✓ A construction worker called and reported persistent respiratory symptoms after applying an epoxy coating product.
  - ✓ A pregnant manufacturing worker called concerning potential adverse reproductive outcomes related to exposure to epoxy putty.
  - ✓ An occupational medicine physician called asking advice about safety precautions for laboratory workers analyzing botulism toxin.
  - ✓ A pregnant nursing student called concerning potential adverse reproductive outcomes due to exposure to a tissue preservative in an anatomy lab.
  - ✓ An office manager called regarding multiple employees who experienced headaches, dizziness, and nausea attributed to perchloroethylene vapors from an adjacent dry cleaning establishment.
  - ✓ A pregnant dental assistant called regarding the potential reproductive hazard of nitrous oxide exposure in the workplace.
  - ✓ A labor representative called requesting information regarding potential male reproductive hazards to borate miners.
- Electronic database of TRS calls. Our searchable database of TRS calls utilizing EpiInfo software was modified to include a data field of time spent per call. Utilizing this new data, we estimate the median time spent per call (not including record-keeping) as 30 minutes and the mean time as 37 minutes.
  - \* TRS Intranet Site. Utilized CDPH Information Technology Services' Sharepoint utility to establish an intranet site for use by TRS responders within OHB. Site includes commonly consulted documents, Web site URLs, and other information resources.
  - \* Interface between TRS and Cal/OSHA field activities:
    - ✓ Late in the previous contract year, TRS received a call from a utility worker who lost consciousness briefly after removing a utility hole cover and was concerned with potential hydrogen sulfide intoxication. HESIS provided the worker with medical advice and referred him to Cal/OSHA Compliance (DOSH). Independently, DOSH learned of the incident, conducted a field investigation, and requested medical consultation by HESIS staff (delivered in 2008-2009). A citation was issued for a serious violation of Cal/OSHA regulations.

- ✓ A TRS call was received from a flavorings worker with respiratory symptoms. The worker is an employee of a company participating in FISHEP (the Flavoring Industry Safety and Health Evaluation Program), but reportedly had not been afforded the medical surveillance services mandated under this collaborative effort. As a consequence, the case was referred to the Santa Ana District office of DOSH for further investigation. The worker reports having called TRS after reading HESIS' Hazard Alert on Diacetyl.
- ✓ A pregnant RN was assigned to care for hospitalized pneumonia patients where the patients' H1N1 influenza status was not known. The employer reportedly did not provide N95 respirators. The caller was referred to DOSH, which had already initiated an investigation of related complaints at the facility in question.
- ✓ A construction worker who used an epoxy coating product in an institutional setting called the TRS line because of persistent respiratory symptoms. He was referred to a university occupational health clinic for workup of his respiratory status. HESIS obtained relevant material safety data sheets from DOSH, which had earlier conducted a site visit and issued citations for violations of the Cal/OSHA regulations.
- ✓ Two calls were received from outpatient surgical centers in which employees reported respiratory symptoms from the disinfectant, Cidex OPA (ortho-phthalaldehyde). In one case the Cal/OSHA Consultation Service had been contacted by the employer for an unrelated issue, and HESIS personnel coordinated services with Cal/OSHA Consultation. In another case HESIS referred the center to NIOSH, which is evaluating potential health effects from this chemical.

## 2. Educational Materials Development

- A revised version of *Sewing Machine Operators: Feel Better, Work Better*, one of HESIS' ergonomic publications, was developed with the help of OHB's Occupational Health Surveillance and Evaluation Program, the Ergonomics Program of the University of California, and the Labor Occupational Safety & Health program (LOSH) at the University of California, Los Angeles. LOSH conducted a worker focus group in order to identify suggested changes; they also provided a Spanish translation of the revised document. English and Spanish versions are currently being finalized for printing.
- A new hazard alert entitled: *Shared Tagging Guns and Bloodborne Disease Risk* was created after completion of a collaborative field investigation by DOSH, HESIS, CDPH's Immunization Branch, and a local health department. The investigation involved a case of Hepatitis B in a retail worker who had suffered

multiple needlesticks on-the-job using a device (“tagging gun”) for inserting price tags into retail materials using a sharp needle. The alert is currently undergoing final revisions. Since a related investigation had been completed (and citation for violation of the Bloodborne Pathogen Standard had been issued) by DOSH some 15 years earlier with minimal resulting publicity, it is hoped that this hazard alert will achieve increased dissemination of knowledge regarding this potential hazard.

### 3. Educational Materials Dissemination

- HESIS Outreach Activities / Publications Request Line. **Distributed 1,847 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
  - SMD – Safety training
- Reprints. Bundled Lithographic Printers Pollution Prevention Fact Sheet with new peer-reviewed article on this subject (published in the *Journal of Occupational and Environmental Hygiene*). Disseminated to various printers.
  - Conferences, Meetings, Presentations. Continued to distribute HESIS publications at formal conferences and meetings, including:
    - Pacific Building Safety Expo
    - California Conference of Local Health Officers (CCLHO) annual meeting
  - 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 Web site:

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

**139 Web pages** (including PDF downloads) **were seen 126,279 times during the reporting period.**

**The top ten HESIS publications downloaded or viewed were:**

- Epoxy Resin Systems
- "If I'm Pregnant, Can the Chemicals I Work With Harm My Baby?"
- N-Methylpyrrolidone (NMP)
- Glycol Ethers
- Cycloheximide
- Glutaraldehyde
- Understanding Toxic Substances
- Isocyanates
- Trichloroethylene (TCE)
- Formaldehyde

#### **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:*

- “The effects of second-hand smoke on sino-nasal patency” at the University of California, San Francisco (UCSF) on 1/20/09.
- “The differential diagnosis of episodic dyspnea in the workplace” *and* “Can clinical practice help inform public health priorities?” at the University of California, Irvine (UCI) on 2/10/09.
- “Irritants and odorants: Health effects in the allergic and nonallergic patient” *and* “Physiologic reactivity of nonallergic rhinitics to cold air provocation” at the Annual Meeting of the American Academy of Allergy Asthma and Immunology (AAAAI) in Washington, DC, on 3/17/09.
- “The differential diagnosis of episodic dyspnea in the workplace,” “Occupational conditions of the upper airway,” *and* “HESIS: An overview” as part of the Summer Didactic Program for UCSF Occupational and Environmental Medicine Residents on 8/11 and 8/25/09.
- “Acute respiratory toxicology and allergy” at the Center for Occupational and Environmental Health (COEH) Summer Institute on 7/30/09.

- “Effects of second-hand smoke on the upper airway” at UCSF’s Otorhinolaryngology Update in San Francisco on 11/6/09.
- “The range of sensitivity: From cutaneous responses to rhinitis to asthma” at UCSF’s Occupational and Environmental Medicine Update continuing education course on 11/13/09.

*Elizabeth Katz, MPH, CIH, HESIS Industrial Hygienist, spoke on:*

- “Office ergonomics” to the CDPH Division of Occupational and Environmental Disease Control on 6/24/09.

*Jennifer Zipprich, PhD, CDC Epidemic Intelligence Service (EIS) Officer, spoke on:*

- “Potential bloodborne pathogen exposure in a retail setting” to the CDPH Division of Occupational and Environmental Disease Control on 11/3/09.

## 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 14 medical consultations in 2008-2009 (involving 54 workers). Five of the consultations involved multiple cases in the same workplace (ranging from 2-26 employees). The workplace hazards, by class, included:
  - Physical (heat) in 5 investigations involving 5 workers
  - Chemical in 3 investigations involving 7 workers
  - Biological in 1 investigation involving 26 workers
  - Traumatic in 4 investigations involving 7 workers
  - Unspecified (indoor air) in 1 investigation involving 9 workers
- Physical (heat):

Of 5 suspected heat illness cases (5 investigations), all were medically confirmed as primarily heat-related. One heat-related investigation involved a fatality.

- Chemical:

Of 7 suspected chemical exposure cases (3 investigations), all were medically confirmed as chemically related, and none resulted in fatalities. The chemicals involved included carbon monoxide, mercury vapor, and hydrogen sulfide.

- Biological:

The single infectious disease index case investigated (reviewed in detail below) resulted in secondary screening of another 19 (of 25 potentially exposed) workers, with 17 undergoing medical testing for potential bloodborne pathogen infection.

- Traumatic:

Of the 7 suspected traumatic / cumulative trauma cases (4 investigations), all were confirmed as work-related.

## **2. Support for Cal/OSHA Appeals Hearings**

- Physicians from HESIS and OHB's Occupational Lead Poisoning Prevention Program (OLPPP) provided pre-hearing medical consultation and/or testimony in support of three citation appeal hearings, including cases pertaining to heat illness and stoop labor.

## **3. Selected Hazard Assessments**

### **Cal/OSHA Technical Assistance Requests**

- Hepatitis B / bloodborne pathogen risk in retail operation. HESIS worked in conjunction with Cal/OSHA field personnel, the CDPH Immunization Branch, and the County Health Department to investigate the case of a retail employee with acute Hepatitis B potentially related to needle-stick injury with a "tagging gun" used to apply price tags to durable goods. After preliminary investigation revealed shared use of tagging devices having a hollow-bore needle, as well as a lack of established procedures to mitigate the potential for cross-employee transmission of bloodborne pathogens, HESIS (through the efforts of OHB's CDC Epidemic Intelligence Service officer) conducted a field investigation. This investigation included identification of 25 additional potentially exposed employees, questionnaire-based interview of 19 of these employees, and serologic screening (for Hepatitis B and C, as well as HIV) of 17 employees. The interviews confirmed that needlesticks were a common occurrence and that hazard mitigation procedures were not in place. In addition, laboratory screening identified one employee with serologic evidence of resolved infection with

Hepatitis B. The relationship of the additional case to the index case could not be confirmed.

Results of this collaborative effort included agreement by management that the firm would adopt a state-wide strategy to mitigate potential bloodborne pathogen hazards associated with tagging guns. In addition, HESIS developed a Hazard Alert on the subject (referenced above), which it hopes to distribute widely in conjunction with Cal/OSHA.

- Flavor Industry Safety and Health Evaluation Program (FISHEP). Ongoing investigation and associated activities:
  - ✓ HESIS and other OHB staff have worked directly with employers and healthcare providers to provide technical assistance and oversight for the medical surveillance program for 26 flavor companies covered by FISHEP.
  - ✓ HESIS and other OHB staff have met with Cal/OSHA Consultation Service staff periodically to coordinate the medical surveillance activities with the industrial hygiene interventions.
  - ✓ With assistance from NIOSH, HESIS and other OHB staff participated in the analysis of cross-sectional questionnaire and spirometry data to assess the health impact of diacetyl and other chemical exposures on flavor manufacturing workers in California, and prepared an article based on the findings for publication in a scientific journal. OHB staff have prepared written summaries to use for employer and worker notification of the findings, and the worker summary is being translated into Spanish. Notification is expected to be conducted in January 2010.
  - ✓ Associated activities include:
    - Provision of specific technical input into the proposed medical surveillance and other requirements of the planned diacetyl regulation, and provision of CDPH comments and testimony in support of the proposed standard at the November 19, 2009 Standards Board hearing.
  - 2009 H1N1 influenza response. Various CDPH staff worked collaboratively with Cal/OSHA Research and Standards Unit staff to respond to the 2009 H1N1 influenza pandemic, including: reviewing and producing employer and employee guidance documents; responding to respirator supply issues; and coordinating with NIOSH, CDC, Federal OSHA local health departments, and other stakeholders.

#### **4. Technical Assistance – Selected Other Constituencies**

##### **State government**

- California Dept. of Forestry and Fire Protection. Responded to inquiry concerning respiratory protection for wildland firefighters.
- California Department of Consumer Affairs, Contractors State Licensing Board. Provided assistance to update and clarify the document: “Asbestos: A Contractor’s Guide and Open Book Exam” and related materials.
- California Department of Food and Agriculture (CDFA). Worked with CDFA and CDPH’s Veterinary Health Branch to help define occupational health issues related to the emerging pathogen, 2009 H1N1 influenza virus.

### **Academia**

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

This spirometry assessment project involves an interagency agreement with the University of California 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 that relies on spirometry as a component of medical surveillance. During the past year, a questionnaire was circulated to several clinics regarding their capacity to perform spirometry. The results of this survey are currently being analyzed.

- Evaluating Occupational Coding on Patient Information Forms to Identify At-Risk Exposure to Pregnant Workers

This project is being implemented through an interagency agreement with the University of California, Berkeley (UCB). It was developed in response to the ongoing inquiries HESIS receives about the effects of chemicals and other workplace exposures on pregnancy outcome. The goal of the project is 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. 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 was granted a no-cost extension due to the need to identify a new health care facility in which to conduct the clinical aspect of this project after the originally identified facility was unable to complete the work. The Project Lead at UCB is now working directly with clinicians at the University of California, San Francisco,

to incorporate selected questions into the existing patient forms and to capture the necessary data for completion of this project.

- Labor Occupational Safety and Health Program (University of California, Los Angeles)

Worked with UCLA's LOSH program, OHB's OHSEP program, and UC's Ergonomics Program to revise HESIS' pamphlet on safe practices for Sewing Machine Operators (see also, "Publications," above).

### **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.

## **5. Product substitution / pollution prevention.**

In collaboration with IRTA (Institute for Research and Technical Assistance), participated in discussion regarding potential collaborative submission of an EPA Pollution Prevention grant pertaining to safer substitutes for graffiti removal agents and graffiti-resistant paints.

## **6. 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 Standards and Research staff and utilized web-based bibliographic data base management software for purposes of shared internal literature review.

## 7. Current chemicals of concern

The following are chemicals (or classes of chemicals) for which HESIS personnel are monitoring new developments:

- 1-Bromopropane (1-BP).
  - ✓ Background: 1-BP has been promoted as an “environmentally friendly” alternative to perchloroethylene. However, animal studies document the potential for reproductive effects, and both animal studies and human case reports have documented a neurotoxic potential. In 2003 HESIS issued a Hazard Alert on 1-BP documenting these health concerns. [On December 17, 2009, the California Occupational Safety and Health Standards Board voted to adopt a Permissible Exposure Limit of 5 ppm for 1-BP.
  - ✓ New developments: In December of 2008, the CDC published two new case reports documenting 1-BP related neurotoxic effects in workers (*MMWR* 2008; 57:1300-1302). In September of 2009, NIOSH issued a Request for Information on 1-BP exposures (and health effects) in workers. In November 2009 HESIS received confidential medical records pertaining to a case of peripheral neuropathy in a California worker exposed to 1-BP on-the-job.
  - ✓ Current HESIS activities: HESIS has reviewed medical records, conducted a worker interview, and is gathering additional information regarding the above-referenced case. HESIS will share its conclusions with Cal/OSHA, and may make further public health recommendations based on its review of this and other cases.
  
- Nanoparticles.
  - ✓ Background: Nanoparticles (particles measuring less than 100 nanometers in diameter) have found increasing usage in microelectronics, medicine, and materials science. Over 1,000 products containing nanoparticles are listed in the Project on Emerging Nanotechnologies’ Nanotechnology Consumer Products Inventory. There is increasing evidence from animal experimental studies that some nanoparticles may cause adverse health effects.
  - ✓ New developments: A recent article by Song et al. linked exposure to a nanoparticle-containing paste to lung disease and death in factory workers in China (*Eur Respir J* 2009; 34: 559).
  - ✓ Current HESIS activities: HESIS personnel:
    - Reviewed the primary report cited above and the resulting discussion of the report in both print and electronic media, noting a number of uncertainties regarding the report’s conclusions.
    - Recognize the importance of conducting regular and ongoing review of potential human health hazards related to nanoparticle exposures, and
    - Are considering the possibility of producing a summary document of occupational health issues of the nanotechnology industry.

- Fluoracrylate waterproofing agents
  - ✓ Background: Several case reports have linked exposure to fluoroacrylate waterproofing agents with the occurrence of acute lung injury. Specific products linked to this outcome have included leather protector sprays (*Ann Emerg Med*, 1995; 25:841-844) and more recently, grout sealers (*J Med Tox* 2009; 5(3):125-129).
  - ✓ New developments: A major building supply retailer, with the help of the US Consumer Product Safety Commission, conducted a voluntary recall of a fluoroacrylate-containing grout sealer in 2005. This product, which had been purchased by both contractors and the general public, remained on the shelves through 2006.
  - ✓ Current HESIS activities: HESIS personnel are currently attempting to obtain access to proprietary structural data on the specific fluoroacrylate compounds involved in previous incidents of pulmonary injury. HESIS hopes to interrupt an apparent pattern of recurrent outbreaks involving structurally similar compounds used in distinct waterproofing products.
  
- Ortho-phthalaldehyde (Cidex OPA®)
  - ✓ Background: Cidex OPA® has been marketed as a safer alternative to glutaraldehyde for use as a disinfectant in medical settings.
  - ✓ New developments: A 2006 case report in the Japanese literature linked ortho-phthalaldehyde to the development of asthma-like symptoms in an exposed worker (*J Occup Health* 2006; 48:413-416). In late 2008, HESIS received a call via the TRS system documenting potential asthma symptoms in medical personnel at a surgicare center at which Cidex OPA® was used.
  - ✓ Current HESIS activities: During the current contract year, HESIS coordinated services with the Cal/OSHA Consulting Service to control exposures in the index surgicare center. In addition, HESIS referred another surgicare center to NIOSH for participation in their field studies pertaining to Cidex OPA® usage. HESIS personnel continue to monitor developments resulting from NIOSH's respiratory surveillance efforts.
  
- Bisphenol-A.
  - ✓ Background: Bisphenol-A (BPA) is widely used in both epoxy resin systems and in plastic resins.
  - ✓ New developments: Li et al. recently released a study documenting male sexual dysfunction in Chinese workers exposed to BPA in plastics manufacturing (*Human Reproduction*, in press).
  - ✓ Current HESIS 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.

## 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, both directly and through a subcontract with the Office of Environmental Health Hazard Assessment (OEHHA) in Cal/EPA, provided feedback on the scientific basis for exposure standards to the following air contaminants: toluene, ethylbenzene, n-methyl pyrrolidone, hydrogen chloride, sulfuric acid, and trichloroethylene.

- Health Effects Advisory Committee (HEAC)

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

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

HESIS (and Occupational Health Branch) staff provided input to Cal/OSHA committees developing standards for the following issues: aerosol transmissible diseases (e.g., tuberculosis, H1N1 influenza), diacetyl (artificial butter flavoring), and sensitizers (allergens).

### **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 2008-2009

#### Permanent positions

Public Health Medical Officer III	Dennis Shusterman, MD, MPH	100%
Public Health Medical Officer II <sup>1</sup>	Janice Prudhomme, OD, MPH	100%
Senior Industrial Hygienist	Elizabeth Katz, MPH, CIH	75%
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

\$715,413 (2008-2009 fiscal year)

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<sup>1</sup> Dr. Prudhomme took a position with Cal/OSHA in May 2009. For the HESIS budget starting October 1, 2009, Cal/OSHA requested that this position be changed to a Staff Toxicologist; HESIS conducted recruitment in the Fall of 2009.