HAZARD EVALUATION SYSTEM
AND
INFORMATION SERVICE

Annual Report

November 1, 2015 – October 31, 2016

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

December 2016
Contents

Executive Summary ........................................................................................................................................... 1

Mandate 1 - Provide reliable hazard information of practical use......................................................... 4
  1. Workplace Hazard Helpline / Telephone Response System
  2. Educational Materials Development
  3. Educational Materials Dissemination
  4. Presentations and Scientific Publications
  5. Stakeholder Outreach and Collaborations for Addressing New and/or Under-appreciated Workplace Hazards
  6. Technical assistance to Cal/OSHA and Selected Other Constituencies

Mandate 2 - Collect and evaluate toxicological and epidemiological data pertinent to establishing harmful effects ........................................................................................................................................ 18
  1. Select Hazard Evaluations and Related Technical Assistance
  2. Information Repository

Mandate 3 - Obtain customer lists for hazard evaluation and communication (SB 193).................................................................................................................................................................. 20

Mandate 4 - Recommend occupational safety and health standards............................... 21
  1. Cal/OSHA Development of Permissible Exposure Limits (PELs)
  2. Cal/OSHA Standards Advisory Committees (Other than HEAC)

Mandate 5 - Communicate relevant information to the Director of Pesticide Regulation........................................................................................................................................................................ 23

Mandate 6 - Communicate relevant information to the Secretary for Environmental Protection.................................................................................................................................................. 23

Mandate 7 - Assure the use and non-duplication of resources ........................................... 23

Mandate 8 - Recommend legislative changes related to the functions of HESIS........ 25

HESIS Staffing and Budget .......................................................................................................................... 26
Executive Summary

This report is mandated in Labor Code section 147.2. Herein are 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 code section. Under legislation signed by Governor Brown in September 2014 (Statutes of 2014, Chapter 830; Senate Bill 193 – Monning), the Labor Code was amended to clarify that “repository” refers to the program which was established in 1978 and is now known as the Hazard Evaluation System and Information Service (HESIS). HESIS is located within the California Department of Public Health (CDPH), Occupational Health Branch (OHB), and is supported by an interagency agreement with the Department of Industrial Relations (DIR).

This report includes:

- 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;
- Any recommendations for legislative changes relating to HESIS functions; and
- The amounts and sources of funds allocated for HESIS activities.

In 2015-2016, 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 promulgating protective occupational health standards; and initiated and worked collaboratively with others on targeted public health projects and activities. The mandates of the Labor Code have been implemented through the provision of:

- A telephone information service for individuals seeking information about workplace hazards;
- Educational materials and education/outreach;
- Evaluations of workplace hazards;
- Technical support and consultation regarding occupational health to DIR, other programs within the CDPH, and other agencies and organizations;
- Rapid access to electronic databases and full-text articles through CDPH’s contract with the Public Health Library of the University of California, Berkeley; and
- Technical input and recommendations on standards setting.

Selected accomplishments of HESIS during this period include the following:

- Responded to 123 calls to the Workplace Hazard Helpline (also referred to as the Telephone Response System or TRS). Seventy-four percent of these calls were initiated by workers, relatives of workers, employers, health care providers treating workers, industrial hygiene/safety personnel, labor unions, or attorneys serving workers; six percent came from Cal/OSHA personnel. A TRS response generally involves 1-3 telephone interactions with the caller, as well as substantial online technical data retrieval and assessment, determination of appropriate referral avenues, and provision of supporting documentation, either as online links or in hard copy.

- Published and disseminated the following new HESIS fact sheet:
  
  Mercury in the Workplace
  

- Conducted several key collaborative public health activities including:
  
  ▪ Response to possible Ebola Virus Disease risk in California. Beginning in the Fall of 2014 and continuing into 2015, HESIS participated in interagency discussion among occupational health professionals and managers from CDPH and Cal/OSHA to recommend the appropriate level of personal protective clothing and respiratory protection for preventing Ebola Virus Disease (EVD) transmission to health care workers. In 2016, HESIS participated in a multi-disciplinary team that surveyed hospitals to assess their preparedness to receive patients with highly infectious diseases such as EVD.

  ▪ Avian influenza in poultry workers. HESIS worked with colleagues in veterinary public health, infectious diseases, the CDPH laboratory, local health officers, and Cal/OSHA to develop guidance that communicates how CDPH and public health partners will monitor, detect, treat, and control possible avian influenza among workers exposed to an infected commercial poultry flock that requires depopulation. The finalized guidance provides a framework for worker monitoring following any future outbreaks of avian influenza in commercial poultry and raises awareness about applicable requirements of the Cal/OSHA Aerosol Transmissible Diseases – Zoonotic standard, Title 8 §5199.1.

  ▪ Coccidioidomycosis (Valley Fever). HESIS continued to raise awareness about this workplace hazard and expanded relationships with other
entities working on this topic. HESIS worked with local health departments to conduct further outreach promoting the HESIS Work-related Coccidioidomycosis (Valley Fever) fact sheet and a coccidioidomycosis curriculum for health care providers. HESIS also collaborated in the development of posters in English and Spanish for outdoor workers and participated in a social media campaign with the CDPH Infectious Diseases Branch and the Office of Public Affairs.

- Evaluated the health hazards of specific work-related exposures and provided technical assistance to numerous agencies and groups.

- Conducted ongoing surveillance of the occupational health literature, identification of new and under-appreciated hazards, and expansion of the information repository. For example, HESIS reviewed the scientific literature and prepared health effects summaries on methylisothiazolinone (MI), 1,2-dichloropropane, and isoflurane.

- Utilized the OHB website at www.cdph.ca.gov/programs/ohb and other information dissemination methods, including the OHB electronic newsletter and partnerships with other organizations, to showcase the publications and other resources developed by HESIS. HESIS also collaborated with DIR communications staff to cross-reference each other as resources on our respective websites.

- Selected the chemical 1-bromopropane for application of Senate Bill 193 authority to obtain California customer lists from manufacturers and suppliers of this potential human carcinogen, neurotoxicant, and reproductive/developmental toxicant.
1. Workplace Hazard Helpline / Telephone Response System (TRS)

A total of 123 calls were logged from November 2015 through October 2016 (including some inquiries received via an email address on the CDPH website). A TRS response generally involves 1-3 telephone interactions with the caller, as well as substantial online technical data retrieval, determination of appropriate referral avenues, and provision of supporting documentation, either as online links or in hard copy. Interns, students, and fellows placed at OHB supplement the HESIS staff and work under their mentorship to assist with TRS response, gaining experience in addressing the questions and concerns raised by callers.

- Monthly calls ranged from 4 to 16, led by April 2016.
• **Callers.** Most inquiries came from employers, followed by employees and their relatives, followed by “other,” health care providers, industrial hygiene/safety personnel, and Cal/OSHA staff. Examples of “other” callers include private individuals, state agencies, and journalists.

![TRS Calls, By Caller Type](image1)

• **Hazardous agents of concern** were principally chemical (e.g., formaldehyde, methylene chloride, isocyanates) followed in frequency by questions about biological agents (e.g., bloodborne pathogens, aerosol transmissible diseases, coccidioidomycosis), physical agents (e.g., heat, physical injuries), and other work-related issues.

![TRS Calls, by Agent Type](image2)
**Primary inquiry.** The greatest number of questions were about ways to control workplace hazards, followed in frequency by “other” questions (e.g., regulatory information, mold in residences, consumer exposures to toxic chemicals), questions regarding workplace exposures (e.g., which chemicals workers might be exposed to and to what extent, medical surveillance resources), questions related to general workplace information, questions regarding the toxicity of specific chemicals, questions about the relationship of symptoms to work exposures, and questions about pregnancy risks. Examples of “general information” include inquiries regarding workplace policies or discrimination issues, workplace sanitation, and guidance on developing injury and illness prevention, hazard communication, and respiratory protection programs.

![TRS Calls, by Primary Inquiry](image)

**Examples of 2015-2016 TRS calls**

- A janitor with lung disease requested help in selecting respiratory protection appropriate for use with his cleaning chemicals. HESIS obtained information about the chemicals and relayed this information back to the worker along with recommendations for minimizing exposures using dispensing systems. HESIS also discussed the employer’s responsibility for all elements of a respiratory protection program. Together we agreed that it was best to involve the safety director in reviewing work practices and protections in place and that HESIS would forward recommendations to her for providing the janitors with respiratory and other types of protection.
A public safety worker with asthma asked whether there was an "acceptable level of mold" in the workplace. HESIS staff responded that there are no standards on how much mold is hazardous to a person’s health but that the presence of water damage, dampness, visible mold, or mold odor in workplaces is unhealthy. HESIS recommended that the worker inform her employer that he needed to control the indoor accumulation of water that caused the mold as required by the Cal/OSHA sanitation regulation. HESIS also referred her to the HESIS fact sheet on Molds in Indoor Workplaces [link] and to U.S. EPA’s best practices for cleaning mold contamination. Staff also assisted the worker in finding out about workers’ compensation and getting a medical evaluation.

An employee with workplace exposure to trichloroethylene (TCE) asked for help in identifying an occupational medicine physician. HESIS staff provided a list of providers, the HESIS fact sheet on trichloroethylene, and the contact information for Cal/OSHA.

An employer called to find out how to test his employees for past exposure to beryllium. HESIS staff referred the caller to a list of occupational medicine clinics and to OSHA’s updated web pages on beryllium safety in the workplace.

A veterinary technician requested guidance on safe work practices for handling antineoplastic drugs at a veterinary oncology hospital. HESIS visited the hospital, consulted current consensus guidelines, interviewed a subject matter expert at the National Institute for Occupational Safety and Health (NIOSH), and prepared recommendations on handling the drugs.

A veterinary oncologist requested assistance in selecting a ventilated cabinet for handling antineoplastic drugs. HESIS staff provided information from the draft Cal/OSHA regulation, “Safe Handling of Antineoplastic Drugs in Health Care,” and from the U.S. Pharmacopeial Convention chapter on Hazardous Drugs regarding ventilated cabinet selection. Staff also referred the oncologist to a recognized expert at the NIOSH Division of Applied Research and Technology.

An employer asked whether a police officer could decline his annual tuberculosis screening and, if so, how would the employer document this for the record. HESIS staff reviewed the requirements of the Cal/OSHA Aerosol Transmissible Diseases (ATD) standard with the employer.

A health care provider called on behalf of her pregnant patient, requesting information on chemicals used in automobile detailing and whether they could
cause harm to the developing fetus. HESIS provided information on products used in auto cleaning and detailing and found that some contain chemicals that have reproductive and developmental toxicity or cause cancer in laboratory animal studies. HESIS also provided recommendations for minimizing exposures, although the worker chose to leave her job instead.

- **Electronic database of TRS calls.** HESIS' searchable database of TRS calls utilizes EpiInfo software and is routinely employed by staff when responding to information requests.

- **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, useful website URLs, agency contacts, and other information resources. Responding to TRS calls, with training and oversight by HESIS staff, provides valuable experience to trainees, fellows, students, and other staff working at OHB.

### 2. Educational Materials Development

- **Mercury in the Workplace fact sheet:** HESIS revised this fact sheet which identifies work settings where workers can be exposed, describes serious health damage that can occur, and offers guidance on working safely around mercury. The fact sheet also provides tips on cleaning up a mercury spill and resources for controlling mercury in the workplace. [http://www.cdph.ca.gov/programs/hesive/Documents/Mercury.pdf](http://www.cdph.ca.gov/programs/hesive/Documents/Mercury.pdf)

- **Posters on preventing occupational Valley Fever (coccidioidomycosis):** HESIS staff collaborated with the CDPH Infectious Diseases Branch in the development of Valley Fever posters for outdoor workers in English and Spanish. A local health department requested that CDPH create the posters for use in raising awareness of Valley Fever in areas with construction of the California High Speed Rail project, as well as broader use. HESIS also assisted with getting the poster translated into Spanish and reviewing the translation. [http://www.cdph.ca.gov/programs/hesive/Documents/VFOccHealth.pdf](http://www.cdph.ca.gov/programs/hesive/Documents/VFOccHealth.pdf) [http://www.cdph.ca.gov/programs/hesive/Documents/VFOccHealthSpa.pdf](http://www.cdph.ca.gov/programs/hesive/Documents/VFOccHealthSpa.pdf)

- **HESIS publications updating process:** HESIS reviewed all of its publications related to chemical substances and initially identified twenty-four publications needing an update based on available new information since their respective dates of publication. HESIS is prioritizing the publications for update based on toxicity and expected use.
• **Educational materials templates**: To streamline development of materials and assure greater consistency, HESIS has created *Hazard Alert, Workplace Hazard Update,* and *Fact Sheet* templates. The templates can be adapted as needed to accommodate specific content and audience needs. They are ready for field testing.

• **Isoflurane in veterinary hospitals**: HESIS continued work on a new educational fact sheet on isoflurane, an anesthetic gas used by veterinarians and veterinary technicians. Work was initiated in this area after HESIS received inquiries from employees regarding possible exposure in veterinary hospitals. Staff conducted a literature review on this chemical and visited a hospital to measure isoflurane exposures to staff during several surgical procedures on animals. The information gained, along with industry stakeholder interviews done previously, will inform the development of the fact sheet on potential health effects and on minimizing exposure to isoflurane.

• **1-Bromopropane (1-BP) Health Hazard Alert**: HESIS is in the process of completing major revisions to this alert which incorporate significant new scientific findings on the health hazards of 1-BP and its use in workplaces in California.

### 3. Educational Materials Dissemination

• **Dissemination through Cal/OSHA and the HESIS Publications Request Line**

HESIS distributed hard copies of its publications through outreach activities and in response to direct requests during the report period.

HESIS continued to mail its 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 include the following:

- UCLA Labor Occupational Safety and Health Program
- California High-Speed Rail Authority
- Cal/OSHA
- Cosmetology colleges
- City and County of San Francisco
- Los Angeles County Department of Public Health
- State Compensation Insurance Fund
- California Department of Food and Agriculture
- California Department of Toxic Substances Control
• **Dissemination through conferences, meetings, and presentations**

HESIS distributed its publications at formal conferences and meetings including the following:

- Workers’ Memorial Day, Oakland
- Association of Orthopaedic Technologists California
- American Industrial Hygiene Association, Northern California Section
- Latino Health Conference
- Cal/OSHA Advisory Committee and Senior Industrial Hygienist Technical Meetings
- Coccidioidomycosis Study Group
- California Conference of Local Health Officers

• **TRS consultations**

HESIS disseminated its publications to supplement and reinforce the information provided to callers.

For example, after learning of possible isocyanate exposure to medical casting technologists, HESIS distributed 230 Isocyanates: Working Safely fact sheets to casting technicians who attended meetings of the Association of Orthopaedic Technologists California. The fact sheets will help raise awareness of the presence of isocyanates in the materials used for medical casts and potential health effects.

• **Websites, newsletters, and social media**

HESIS continued to utilize the program’s CDPH website to disseminate its educational materials:

[www.cdph.ca.gov/programs/hesis/Pages/Publications.aspx](http://www.cdph.ca.gov/programs/hesis/Pages/Publications.aspx).

There were close to 230,000 unique downloads of HESIS publications during the one-year report period. The top ten HESIS publications downloaded or viewed during the report period are listed below in order of volume. These represented 50% of all unique downloads:

1. Understanding Toxic Substances
2. If I’m Pregnant, Can the Chemicals I Work with Harm My Baby?
3. Epoxy Resin Systems fact sheet
4. Formaldehyde fact sheet
5. Isocyanates: Working Safely fact sheet
6. N-Methylpyrrolidone (NMP) Health Hazard Advisory
7. Methyl Methacrylate fact sheet
8. Rabies fact sheet
9. Methylene Chloride fact sheet
10. Artificial Fingernail Products – A Guide to Chemical Exposures in the Nail Salon

In addition to our educational materials, HESIS promotes our activities, other information of interest to stakeholders, and health and safety resources on our web pages. There were 31,205 unique visits to HESIS web pages during the report period.

HESIS publicized the updated Mercury in the Workplace fact sheet through an issue of the OHB electronic newsletter Occupational Health Watch (e-OHW). The issue, entitled “Mercury at Work: Old and New Hazards,” was sent to 5600 recipients including electronic waste recycling stakeholders and dental hygienists.

HESIS also publicized its Electronic Waste Recycling: Working Safely fact sheets (in English and Spanish) through the e-OHW issue, “Protecting Workers Who Recycle “e-Waste.” Workers who recycle “e-waste” from discarded computers and other electronics may encounter hazards that can result in injury, hearing loss, or exposure to toxic dusts and other chemicals. The HESIS e-waste fact sheet describes the hazards present in e-waste recycling facilities and highlights measures companies can implement to control hazards, as well as steps workers can take to protect themselves.

Similarly, HESIS publicized a new educational poster on preventing occupational Valley Fever (coccidioidomycosis) through an e-OHW newsletter, “August is Valley Fever Awareness Month,” sending it to 4000 recipients.

Staff also contributed to the OHB e-OHW newsletter issue on “Preventing Zika Infection Among Workers” that provided information and resources to employers and workers on this disease that may be acquired via blood or body fluids in health care settings or through mosquito bites in outdoor workplaces.

e-OHW topics HESIS staff contributed to during this period (link to full list)
- 10/20/2016 - Free Workplace Lead Poisoning CME Course
- 09/26/2016 - Preventing Zika Infection Among Workers
- 07/29/2016 - August is Valley Fever Awareness Month
- 06/28/2016 - Mercury at Work: Old and New Hazards
- 02/24/2016 - Toxic Paint Removers: Safer Alternatives
HESIS collaborated with DIR communications staff to cross-reference each other as resources on our respective websites. The additions are posted on these web pages:

http://www.cdph.ca.gov/programs/hesis/Pages/default.aspx
http://www.cdph.ca.gov/HealthInfo/workplace/Pages/default.aspx
http://www.dir.ca.gov/dosh/dosh1.html
http://www.dir.ca.gov/dosh/hazard-evaluation-system.html

HESIS publicizes over 60 of its online educational materials and reports through a searchable website created by NIOSH, called the State-Based Occupational Health Surveillance Clearinghouse. The Clearinghouse includes publications from over 25 state occupational public health programs.

During the month of August 2016, HESIS contributed to CDPH's social media campaign to raise awareness about Valley Fever, or coccidioidomycosis, an occupational infectious disease, during Valley Fever Awareness Month. HESIS contributed Facebook posts and tweets on ways to avoid occupational exposure, and directed readers to the OHB website topic page that features several HESIS educational materials on occupational Valley Fever.

4. Presentations and Scientific Publications

- **HESIS and OHB staff presentations**

  Kathleen Attfield, ScD, Epidemic Intelligence Service Officer assigned to OHB by the Centers for Disease Control and Prevention (CDC), spoke about HESIS work on the following topic:

  - 4/28/2016 – “Occupational Health Hazards in Veterinary Hospitals” at the Occupational and Environmental Interdisciplinary Grand Rounds (for medical providers), University of California, San Francisco.

  Barbara Materna, PhD, CIH, OHB Chief, spoke about HESIS work at the following events:

  - 12/7/2015 – “Update from the CDPH Occupational Health Branch” at the California Industrial Hygiene Council annual conference, San Francisco.
8/18/2016 – “Aerosol Transmissible Disease Standard (ATDs) Guidance Document on Local Health Department Roles and Responsibilities” at the California Conference of Local Health Officers (CCLHO), Communicable Disease Control and Prevention Committee meeting, Sacramento.


Jennifer McNary, HESIS Research Scientist, spoke about HESIS work at the following events:

10/25/16 – “Overview of CDPH Guidance, H5, H7, and H9 Subtypes of Avian Influenza A Viruses Known to Infect both Birds and People: CDPH Guidance for Monitoring and Protecting Workers Exposed to an Infected Poultry Flock” at the CCLHO Communicable Disease Committee meeting, Sacramento.

11/17/2015 – “Update on Avian Influenza” to Cal/OSHA Senior Industrial Hygienists in Oakland, Sacramento, and San Diego. She described the potential hazard from workplace exposure to infected poultry and the CDPH protocol for monitoring workers exposed to the hazard. The meeting was held in Oakland with videoconference attendance from other locations.

Saeher Muzaffar, MD, MS, MPH, HESIS Chief as of 3/2/2016, discussed the lead standards and discussion drafts at the following event:

7/18/2016 – “Adult/Occupational Lead Poisoning in California for Occupational Medicine Providers” at the Occupational and Environmental Medicine Clinic Conference, University of California, San Francisco; Mount Zion campus.

Jason Wilken, PhD, Occupational Health Branch, spoke about HESIS work on coccidioidomycosis at the following event:

6/16/2016 – “Recent Outbreaks of Valley Fever in California” at the CCLHO joint meeting of the Communicable Disease Control and Environmental Health Committees, Oakland.
5. Stakeholder Outreach and Collaborations for Addressing New and/or Under-appreciated Workplace Hazards

- **San Francisco Department of the Environment Toxics Reduction Strategy Meeting**: HESIS shared its priorities among emerging chemical hazards, including 1-bromopropane, diacetyl and related flavorings in food and e-cigarettes, and methylisothiazolinone (MI). HESIS staff provided reference material on MI and were able to connect with other potential partners, including staff from Cal/EPA Department of Toxic Substances Control (DTSC), the Natural Resources Defense Council (NRDC), Worksafe, and the Institute for Research and Technical Assistance (IRTA). The meeting aimed to identify opportunities for greater inter-agency collaboration to reduce exposure to toxic chemicals and find safer alternatives to protect worker health.

- **Avian influenza in poultry workers**: HESIS worked with colleagues in veterinary public health, infectious diseases, the CDPH laboratory, local health officers, and Cal/OSHA to develop guidance that communicates how CDPH and public health partners will monitor, detect, treat, and control possible avian influenza (AI) among workers exposed to an infected commercial poultry flock that requires depopulation. The protocol provides detailed guidance on actions local, state, and federal public health partners can take for interagency communication, and for medical monitoring and follow-up of people who work with infected birds. It also includes a short summary of the Cal/OSHA Aerosol Transmissible Diseases – Zoonotic standard, Title 8 §5199.1, to raise awareness among response agencies about the applicable provisions of this standard. Some subtypes of AI have caused serious illness and death in humans. Due to this concern, and because AI may evolve to become more easily transmissible between humans, the guidance objectives include:

  - Quickly identifying AI illness in poultry workers or emergency responders to AI detections
  - Ensuring prompt medical evaluation and treatment
  - Facilitating rapid testing of ill workers at qualified public health laboratories, and
  - If a suspect case is identified, ensuring that infection prevention precautions appropriate for novel influenza viruses are implemented before the person seeks medical treatment.

The finalized protocol provides a framework for worker monitoring following any future outbreaks of avian influenza in commercial poultry.
• **Response to possible Ebola Virus Disease risk in California:** Working with the CDPH Center for Health Care Quality, HESIS participated in two hospital visits arranged by the Healthcare-Associated Infections Program to assess the hospitals' readiness to receive patients with highly infectious diseases such as Ebola Virus Disease (EVD). HESIS also continued to participate in interagency discussion among occupational health professionals and managers from CDPH and Cal/OSHA to develop guidance on the appropriate level of personal protective clothing and respiratory protection for preventing EVD transmission to health care workers.

• **CDPH Coordination Meeting between Chronic Disease programs and Office of Health Equity Policy Unit:** HESIS discussed its efforts to address occupational health disparities and potential collaborative interventions. A follow-up meeting is scheduled for December 2016.

• **Worker Occupational Safety and Health Training and Education Program (WOSHTEP):** The HESIS Health Education Consultant serves on the WOSHTEP Advisory Board.

• **California Partnership for Young Worker Health and Safety:** The HESIS Health Education Consultant is on the Advisory Board, also part of the Young Worker Policy Initiative workgroup. HESIS and OHB promote Partnership activities, such as Safe Jobs for Youth Month, and provide input into the development of social media tools (e.g., Are You a Working Teen app, Instagram campaign).

• **Labor Occupational Health Program (LOHP) at UC Berkeley and Labor Occupational Safety and Health Program (LOSH) at UCLA:** HESIS maintains regular contact with LOHP and LOSH to stay apprised of their projects, share HESIS/OHB resources, and explore collaboration opportunities.

• **Worksafe:** HESIS met with Worksafe staff to discuss relevant HESIS projects and areas for future collaboration to prevent work-related illness among vulnerable workers exposed to chemical and other hazards.

6. **Technical Assistance to Cal/OSHA and Selected Other Constituencies**

• **Support for Cal/OSHA appeals hearings**
  - No sworn testimony was required in 2015-2016.
Technical Assistance – Cal/OSHA Compliance

- HESIS responded to a request for guidelines on crematory ventilation by providing peer-reviewed articles with ventilation control recommendations and occupational exposure monitoring results.

- HESIS responded to a question about whether a needle used in a hospital oncology ward would be considered a safety needle and whether there was a safer product on the market to prevent occupational exposure to bloodborne pathogens. The product was not a safety needle. HESIS called manufacturers to find a safety needle of the same type, gauge, and length.

Technical Assistance – Cal/OSHA Research and Standards (see also Mandate 2).

- HESIS responded to a question regarding which agency regulates hospital non-Resource Conservation and Recovery Act (RCRA) pharmaceutical waste. HESIS referred Cal/OSHA to the chief of the CDPH Medical Waste Program.

Technical Assistance – Selected Other Constituencies

Federal Government

- CDC, NIOSH Education and Information Division. The HESIS Health Education Consultant provided detailed external review of the draft Five-Year Plan for the NIOSH website. The review addressed the following areas: 1) completeness of work plan; 2) underlying strategy; 3) flexibility to account for environment change; 4) appropriateness of resources allocated; 5) sufficient provisions for new and emerging media; and 6) additional information that would strengthen the plan.

- U.S. Government Accountability Office (GAO), Natural Resources & Environment. HESIS participated with the CDPH Infectious Diseases Branch in a phone interview for the GAO’s review of the federal government’s ability to respond to outbreaks of avian influenza (AI). We described CDPH’s interactions with federal agencies, the U.S. Department of Agriculture and the CDC, in our AI response efforts in 2015-2016 regarding preparedness and response. In the interview, we mentioned some of the regulations, documents, and other resources (e.g., ATD-Zoonotic standard, internal CDPH AI Worker Monitoring protocol) unique to California that guide our AI actions.
State Government

- New Jersey, Work Environment Council (WEC). For the WEC Healthy Schools Coordinator, HESIS provided health education assistance and limited technical review of an alert (fact sheet) and health and safety guide on the mercury hazard to staff and students from rubber-like polyurethane floors in schools. HESIS offered suggestions for improving clarity, readability, and impact. Raised questions on technical information; referred requestor to the CDPH Environmental Investigations Branch and Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) to answer her question as to whether the materials’ use of the 2008 OEHHA REL for mercury vapor was appropriate in this context.

Local Government

- At the request of a local fire captain, staff provided information on controlling exposure to diesel exhaust and explained the basis for the HESIS recommendation to keep fire station doors, between the living quarters and the apparatus/equipment bay, closed. Also provided the HESIS Health Hazard Advisory, Diesel Engine Exhaust. [http://www.cdph.ca.gov/programs/hesis/Documents/diesel.pdf](http://www.cdph.ca.gov/programs/hesis/Documents/diesel.pdf).

- HESIS assisted in the review of the Los Angeles Department of Public Works’ “Safety Bulletin, Valley Fever” used for training workers. Provided suggestions for additional content needed for training workers who are exposed to dust in Valley Fever endemic areas and potentially at risk of acquiring this occupational disease.

- In collaboration with the CDPH Infectious Diseases Branch, HESIS provided assistance to county communicable disease controllers in monitoring workers for signs and symptoms of avian influenza following the workers’ exposure to poultry that had this disease. HESIS staff also coordinated with the local health jurisdictions to monitor USDA inspectors returning to California from the emergency response in Indiana in 2016.

Labor Representatives/Advocates

- A representative of the Screen Actors Guild asked whether there is a standard definition for vocal stress and what regulations or guidelines there are to prevent occupational vocal injury. HESIS staff searched the scientific and medical literature and the internet for information on vocal abuse and misuse and for occupational guidelines on preventing vocal injury. No regulations and no consensus guidelines from organized professionals were
located, although a few examples of guidelines for vocal health examinations as part of contracts were found.

- **Worksafe** requested information on which building trades had exposure to isocyanates and flame retardants when applying spray foam insulation. HESIS provided a list of trades that may have exposure to these chemicals based on our outreach efforts and provided examples of safety data sheets for spray foam insulation.

- HESIS assisted the **State Building and Construction Trades Council** in identifying the need for training materials for construction workers on working safely with nanomaterials. Staff provided information on the potential harmful effects from exposure and information about other educational resources.

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**Labor Code Section 147.2 – Mandate 2**

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

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1. **Selected Hazard Evaluations and Technical Assistance**

- **Health effects summary for Methylisothiazolinone**: HESIS prepared a health effects summary on methylisothiazolinone (MI) which is used as a preservative in personal care and cosmetics products as well as in industrial production of paints, adhesives, and varnishes. In recent years, the prevalence of occupational allergic contact dermatitis has increased at an alarming rate due to its use and exposure to workers who breathe in vapors or whose skin directly contacts the chemical.

- **1,2-Dichloropropane literature review**: Based on new information reported on the carcinogenic hazards of 1,2-dichloropropane (1,2-DCP) to workers in the printing industry in Japan, HESIS conducted further review of recent literature on 1,2-DCP toxicity in both laboratory animals and humans. The results of this review indicate that 1,2-DCP has been shown to cause cancer of the bile duct both in animal models as well as in humans occupationally exposed in the printing industry. HESIS is investigating this chemical’s current use in workplaces and exposure to workers in California.
• **Isoflurane exposure in veterinary hospitals and clinics:** HESIS visited a veterinary hospital to measure exposures to the waste anesthetic agent isoflurane. HESIS reviewed the literature on the potential health effects from exposure to isoflurane and prepared a report to the hospital. Educational materials are being developed (see Mandate 1).

• **Coccidioidomycosis (Valley Fever):** In 2016, HESIS staff presented information from our investigation of a large occupational outbreak of coccidioidomycosis at two construction sites at the Cocci Study Group. Participation at this conference promoted collaboration with clinicians who see and treat patients, the CDC, CDPH Infectious Diseases Branch, and researchers working on Valley Fever issues to better understand the epidemiology and control of this disease.

• **Technical Assistance to Cal/OSHA**
  - At the request of the Cal/OSHA Chief to address an inquiry from California Senator Loni Hancock’s office, HESIS staff members reviewed the scientific and medical literature on occupational coal dust exposure at coal terminals and potential health effects. HESIS prepared a summary of exposure data for respirable coal dust during cargo handling and potential harm from coal dust and silica based on available information from federal OSHA and NIOSH.

• **Technical Assistance – Cal/OSHA Research and Standards.**
  - In response to a proposal to regulate occupational exposure to diesel exhaust, HESIS provided information from the scientific literature about workplace exposure levels, monitoring methods, and regulatory exposure limits. Provided information on the basis for the HESIS recommended exposure limit (Diesel Engine Exhaust fact sheet) and shared two review articles that addressed occupational exposure with the requestor.

2. **Information Repository**

• **HESIS Electronic Repository of Occupational Health Information**

HESIS staff, in collaboration with the UC Berkeley Public Health Library, continued electronic document delivery to Cal/OSHA Research and Standards Unit staff and expanded services to the Medical Unit staff. HESIS staff continues to review table-of-contents alerts in toxicology, industrial hygiene, and occupational medicine journals and to compile selected key articles in electronic format.
Chemical manufacturers, formulators, suppliers, distributors, importers, and their agents shall provide to HESIS the names and addresses of their customers who have purchased certain chemicals, or commercial products containing those chemicals, when HESIS, in consultation with DIR, determines that a substance, which may be in use in a place of employment, may pose a hazard under a reasonable anticipated condition of use, and potentially poses a serious new or unrecognized health hazard to an employee.

Chapter 830, Statutes of 2014 (SB 193 – Monning), added this new HESIS authority and mandate, which became effective January 1, 2016. The intent of the bill was to improve HESIS’ ability to inform affected employers and workers about chemicals or chemical products that may pose a hazard in California workplaces, and to support HESIS investigations to evaluate the extent of a particular hazard. The legislation authorizes HESIS to obtain contact information from chemical manufacturers and suppliers for California workplaces that have purchased a particular chemical or product of concern.

In preparation for the effective date of the legislation, HESIS staff met with representatives from Cal/OSHA, the Department of Toxic Substances Control, Worksafe, and other stakeholders to discuss the use of this new authority to enhance the impact of HESIS work. HESIS welcomed suggestions from stakeholders for candidate chemicals as well as criteria by which to select substances.

HESIS currently plans to exercise SB 193 authority for the chemical 1-bromopropane (1-BP), a solvent used in degreasing and spray adhesives. 1-BP has been recently classified as a possible human carcinogen, and other adverse outcomes such as neurotoxicity may occur at levels lower than previously appreciated. The current PEL of 5 ppm was based on reproductive/developmental outcomes and may no longer be sufficiently protective for cancer and non-cancer endpoints.

Documents in preparation to support this effort include:

- 1-BP Rationale Summary
- 1-BP Background
- Letter to manufacturers of products with 1-BP
- Sample product list
- Sample spreadsheet for reporting customers to CDPH
- Revised 1-BP Health Hazard Alert
In terms of workplace intervention, HESIS plans to provide the 1-BP Hazard Alert to employers identified as users of 1-BP, as well as to invite employers to work with HESIS to identify further outreach, education, or resources they would consider beneficial. For example, HESIS seeks to conduct selected worksite visits with exposure monitoring, interviews, workshops, or other activities to inform the development of a worker training guide, new or revised educational materials for workers and employers on 1-BP, and/or a guidance document on exposure control tailored to the relevant industry. Such interventions would include information on safer alternatives to 1-BP, and engineering, work practice, and other controls, including personal protective equipment, known to reduce exposure.

**Labor Code Section 147.2 – Mandate 4**

Recommend to the Chief of the Division of Occupational Safety and Health Administration 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.

1. **Cal/OSHA Development of Permissible Exposure Limits (PELs) in California Code of Regulations Title 8, Section 5155, Health Effects Advisory Committee (HEAC)**

   - **Revised PEL recommendation for tertiary-butyl acetate:** HESIS prepared a proposal recommending a revised Cal/OSHA Permissible Exposure Limit (PEL) for Tertiary-butyl acetate (TBAc) based on its carcinogenic potential recently reported by the National Toxicology Program and its cancer unit risk factor reported by OEHHA in 2015. HESIS recommended a PEL of 0.5 part per million (ppm) to replace the existing PEL of 200 ppm and to better protect workers from potential cancer risk of TBAc in the workplace. TBAc is an organic solvent commonly used in industry for architectural coatings, degreasing, and some surface treatments. Its exemption as a volatile organic compound by U.S. EPA has led to increased industrial use. HESIS continues to investigate its current use in workplaces in California.

   - **Review of 2007 OEHHA report on the Occupational Health Hazard Risk Assessment Project:** HESIS reviewed the 2007 OEHHA report for chemicals listed as causing cancer under Proposition 65 that are not regulated as
occupational carcinogens. HESIS updated unit risk values for these carcinogens, grouped them by excess cases per 1000 workers, and also provided a proposed PEL to limit cancer risk to 1 excess case per 1000 workers.

- **Workplace chemicals recently listed as known to cause cancer under Proposition 65 that do not have Cal/OSHA PELs:** HESIS is currently reviewing the workplace chemicals listed as known to cause cancer under Proposition 65 from 2006 through 2016 that do not have Cal/OSHA PELs. Following the identification of these chemicals, their current use in workplaces and exposure to workers in California will be investigated to prioritize them for further study.

- **Comparison of recent proposed EU OELs for carcinogens vs Cal/OSHA PELs:** HESIS prepared a comparison table of recently proposed Occupational Exposure Limits (OELs) for 13 cancer-causing chemicals listed by the European Commission versus the current Cal/OSHA PELs. In comparison to the proposed EU OELs for these thirteen chemicals, Cal/OSHA PELs for four chemicals (1,2-epoxypropane; 2-nitropropane; ethylene oxide; and o-toluidine) were found to be higher.

2. **Cal/OSHA Standards Advisory Committees**

- **HESIS staff participated in Cal/OSHA’s Advisory Committee Meetings on Housekeeping in the Hotel and Hospitality Industry.** Cal/OSHA has requested that HESIS work with stakeholders to develop an educational material related to the standard that is ultimately adopted by the Standards Board. HESIS staff met informally with labor stakeholders to begin hearing their suggestions for the materials. This project will continue after the standard is finalized.

- **At the request of a member of Cal/OSHA’s Research and Standards Unit, HESIS staff assisted in conducting a literature search on the costs of workplace violence in health care and the benefits of implementing workplace violence prevention programs.** This information was considered in the economic impact analysis of the Cal/OSHA Workplace Violence Prevention in Health Care regulation developed through the Cal/OSHA advisory committee process.
Labor Code Section 147.2 – Mandate 5

Notify the Director of Pesticide Regulation of any information developed by HESIS that is relevant to carrying out his or her responsibilities under Chapters 2 (commencing with section 12751) and 3 (commencing with section 14001) of Division 7 of the Food and Agricultural Code.

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

Labor Code Section 147.2 – Mandate 6

Notify the Secretary for Environmental Protection of any information developed by HESIS that is relevant to carrying out his or her responsibilities.

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

Labor Code Section 147.2 – Mandate 7

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

- **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.

  The OHB Chief and HESIS staff participate in quarterly meetings held with the Cal/OSHA Chief, Consultation Services Branch Chief, Research and Standards Unit staff, and Medical Unit staff, to discuss priorities and share updates on HESIS and Cal/OSHA activities.

  HESIS’ industrial hygienist participates in the Cal/OSHA Senior Technical Meetings for health staff (industrial hygienists) from the entire state, Medical Unit, and headquarters once every two months by video conference. This forum provides an opportunity for information exchange and discussion regarding new regulations, enforcement initiatives and procedures, sampling protocols and
laboratory issues, staffing changes, significant projects, and interesting case reports. HESIS staff discuss investigations and new or revised guidelines and fact sheets.

The OHB Chief and OHB’s medical officers participate in a monthly conference call convened by Cal/OSHA’s Medical Unit to discuss emerging issues, medical aspects of proposed standards, and other activities underway at each agency.

- **CDPH.** To evaluate and provide consultations regarding workplace hazards, HESIS consults routinely with, makes referrals to, and uses materials and website information developed by numerous CDPH programs. In this report period, these programs included the Indoor Air Quality Section of the Environmental Health Laboratory Branch, the Environmental Health Investigations Branch, the Environmental Management Branch, the Radiologic Health Branch, the Vector-Borne Disease Section, the Infectious Diseases Branch, and the Immunization Branch.

- **Cal/EPA Office of Environmental Health Hazard Assessment.** HESIS routinely consults with OEHHA staff to use risk-assessment resources to identify occupational carcinogens and reproductive toxicants, and to assist Cal/OSHA in developing Permissible Exposure Limits for workplace chemicals. HESIS has access to the resources of the Occupational and Environmental Health Library at OEHHA.

- **Cal/EPA Department of Toxic Substances Control, Pollution Prevention, and Technology Development.** HESIS consults with Cal/EPA staff and uses 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 and Federal OSHA.** HESIS uses and disseminates NIOSH and OSHA publications and refers callers to the NIOSH and OSHA websites for additional information and resources. HESIS promotes its publications in the NIOSH-sponsored *State-based Occupational Health Surveillance Clearinghouse*, a centralized online library with publications from over 25 states, including thousands of educational materials, data and case reports, studies, investigations, and articles. OHB has over 800 publications in the Clearinghouse, which is publicly available at: [https://wwwn.cdc.gov/niosh-statedocs/Default.aspx](https://wwwn.cdc.gov/niosh-statedocs/Default.aspx).
Labor Code Section 147.2 – Mandate 8

**Recommend legislative changes related to the functions of HESIS.**

No legislative changes relating to the functions of HESIS were proposed.
**Permanent Positions**

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<tr>
<th>Position</th>
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<tbody>
<tr>
<td>Public Health Medical Officer III</td>
<td>Saeher Muzaffar*</td>
<td>100%</td>
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<tr>
<td>Staff Toxicologist (Specialist)</td>
<td>Kashyap Thakore, PhD</td>
<td>100%</td>
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<tr>
<td>Research Scientist III (Phys/Engr Sci)</td>
<td>Jennifer McNary, MPH, CIH</td>
<td>100%</td>
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<tr>
<td>Health Education Consultant III</td>
<td>Mary Deems, MPH</td>
<td>100%</td>
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<tr>
<td>Management Services Technician</td>
<td>Angela Williams-Bell</td>
<td>100%</td>
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*Barbara Materna, PhD, CIH, OHB Chief, served as part-time Acting HESIS Chief after the previous PHMO III's retirement and before the hiring of Dr. Muzaffar as the new PHMO III on 3/2/2016.

**Source of Funding**

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

**Annual Budget**

The HESIS budget follows the state fiscal year cycle. The annual budget for July 1, 2015 through June 30, 2016 was $975,508, and the budget for July 1, 2016 through June 30, 2017 is $1,016,093.