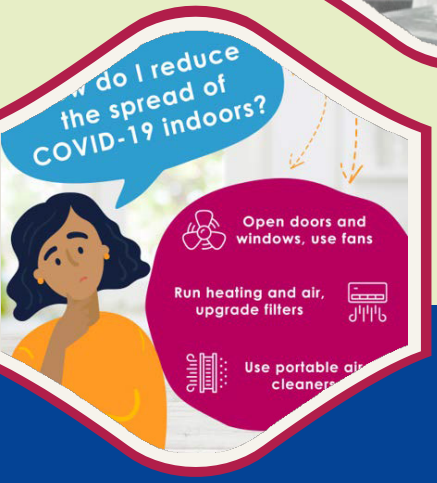
HAZARD EVALUATION SYSTEM AND
INFORMATION SERVICE

HESIS

ANNUAL REPORT
2021 - 2022



HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE
OCCUPATIONAL HEALTH BRANCH | CALIFORNIA DEPARTMENT OF PUBLICHEALTH

HESIS ANNUAL REPORT

November 1, 2021 - October 31, 2022

The Hazard Evaluation System and Information Service, or HESIS, was established in 1978 in California Labor Code 147.2. HESIS is located within the California Department of Public Health (CDPH), Occupational Health Branch (OHB), and is supported by an interagency agreement with the California Department of Industrial Relations (DIR). The HESIS annual budget for July 1, 2021, to June 30, 2022 was $1,316,762; the current budget for July 2022 to June 2023 is $1,839,720.

HESIS work reflects its original legislative mandate to "establish and operate 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." Its mission is to identify, evaluate, and provide "early warning" and up-to-date, practical information on toxic chemicals and other workplace hazards. This information, and the toxicological, technical, and medical expertise that HESIS provides, enables employers, workers, occupational health professionals, and others to take action to make workplaces safer.

This report describes HESIS's major activities. These activities include (i) how HESIS operates as a reliable source of technical assistance in the public health and occupational health and safety communities, (ii) how HESIS staff investigate new and underappreciated workplace hazards, and (iii) HESIS's role in supporting DIR's Division of Occupational Safety and Health (Cal/OSHA) in promulgating protective occupational health and safety standards. The report highlights HESIS's major accomplishments and provides examples of work with partners on public health projects and activities to improve workplace safety and health in California in 2021-22.

As the COVID-19 pandemic evolved during this report year, so did the need for systematic scientific study to characterize risks, provide public health guidance, and identify best practices to prevent disease. However, the potent new Omicron variant of the SARS-CoV-2 virus that causes COVID-19 was not the only public health crisis California faced: the emergence of the Mpox and avian influenza viruses posed additional challenges to our public health system. Once again, HESIS and OHB were at the forefront of CDPH's response. OHB-HESIS collaborated with state and federal regulatory agencies, local health jurisdictions, and private enterprise to prevent the spread of these infectious diseases in the workplace by characterizing exposure and transmission risks, tracking work-related cases and outbreaks, assuring appropriate use of personal protective equipment (PPE), and providing expert input into the development of workplace regulations and guidance.

The report describes how the unique knowledge, expertise, and dedication of HESIS and other OHB staff were mobilized to protect the workers of California from infectious diseases as well as debilitating and deadly illness caused by other workplace hazards.

HESIS's unique role as a repository of reliable information and provider of technical support continued to be utilized by Cal/OSHA to develop protective occupational health and safety standards, as well as by CDPH programs and others with an interest in exposures to toxic materials.

OHB-HESIS efforts to address prevention of COVID-19 transmission in the workplace, silica exposure in countertop manufacturing, and Valley fever in wildland firefighters have opened new doors and opportunities with partners that will strengthen our work in the future.

The Department of Industrial Relations shall submit a report to the Legislature detailing the implementation and operation of HESIS including, but not limited to, the amount and source of funds allocated and spent on repository activities, the toxic materials and harmful physical agents investigated during the past year and recommendations made concerning them, actions taken to inform interested persons of the possible hazards of exposure to toxic materials and harmful physical agents, and any recommendations for legislative changes...

- California Labor Code 147.2 (g)

HESIS MISSION IN A CHALLENGING YEAR

HESIS's mission and the mandates that guide its activities remained the same in 2021-22. Much of HESIS's work was, once again, driven by the needs and challenges presented by infectious diseases: the continuing COVID-19 pandemic, avian influenza, and Mpox (previously referred to as monkeypox disease). Nevertheless, HESIS staff made strides in addressing other important threats to workplace health and safety such as accelerated silicosis and Valley fever. In addition to doing its "usual work" to protect the workforce from chemical and other hazards on the job, HESIS took action in response to a myriad of infectious disease-related requests from CDPH, DIR, and local health jurisdictions, including the herculean task of standing up a statewide reporting system to prepare for and track the arrival of avian influenza in California birds. This section describes HESIS activities in general terms; the rest of the report will provide examples and notable highlights from another impressive year of HESIS work.

Provide reliable hazard information

HESIS is a well-known and trusted source of occupational health and toxicological information on workplace hazards; many individuals and groups turn to us when they need help or answers to their questions. Cal/OSHA relies on HESIS to provide top-rate technical assistance and guidance on a range of topics for its rulemaking and educational activities. HESIS staff regularly review Cal/OSHA and other agency guidance documents, contribute to scientific publications, and present at meetings and conferences.

HESIS places a high priority on providing information that is of practical use. HESIS operates the Workplace Hazard Helpline (Telephone Response System or TRS), a toll-free telephone number that California workers, employers, physicians, and others use to ask questions about the health effects of chemicals, potential workplace exposures, regulatory standards, and workers' rights. HESIS works with a variety of partners to address new or underappreciated workplace hazards; this can include developing and disseminating new informational products and materials such as those addressing accelerated silicosis in countertop fabrication, discussed later in the report.

Establish health effects of harmful workplace exposures

HESIS plays a critical role in identifying new or unappreciated workplace hazards to provide early warning and protect worker health. HESIS staff collect and evaluate toxicological studies and other relevant information to identify chemicals and physical agents that may be harmful to worker health. We use peer-reviewed scientific literature, published reports, and various databases to ascertain whether harmful substances are being used in California workplaces and, if so, how much and where.

HESIS provides this information to other occupational and public health agencies, Cal/OSHA, local health jurisdictions, employers, and health and safety advocates. HESIS staff also provide technical assistance to other agencies on hazard evaluations of selected chemicals or workplace exposures

HESIS MISSION

Develop strategies for hazard reduction and disease prevention

HESIS uses its authority under California's SB 193 of 2014 to obtain customer lists and product safety information from manufacturers who sell products that represent newly recognized health hazards for California workplaces. We use this information to contact companies using the products to conduct targeted hazard evaluations, develop prevention recommendations, and provide information for employers and workers to improve safety and health at their workplaces.
OHB-HESIS staff provide extensive support to CDPH whenever it must respond to a public health emergency that involves workplace health and safety. We develop workplace guidance, review draft regulations and guidance from other state agencies, respond to questions from health care facilities, local health jurisdictions, and the public, and participate in developing and disseminating critical health education materials about the emergency. COVID-19, avian influenza, and Mpox were primary examples of this activity in 2021-22. OHB-HESIS also participated in efforts to improve hazard communication and promote the use of safer alternatives for the chemical 1-bromopropane (1-BP), and advance measures to prevent Valley fever in wildland firefighters, silicosis in stone countertop manufacturing, and traumatic injury in young workers.

Support the development of occupational safety and health standards

HESIS supports the work of the Cal/OSHA Health Effects Advisory Committee (HEAC) in the development of permissible exposure limits (PELs) for airborne contaminants, published in the California Code of Regulations, Title 8, Section 5155. HESIS staff obtain and analyze data to evaluate harmful chemical exposures in California workplaces. We provide toxicological information and make recommendations for new or revised PELs. The HEAC did not meet in 2021-2022; however, HESIS continued to offer its support for future activities. HESIS continued to conduct its own research and prepare recommendations to minimize exposure to harmful airborne contaminants not yet recognized or addressed by the HEAC; an example of this is the HESIS collaboration with Cal EPA's Office of Environmental Health Hazard Assessment (OEHHA) to identify workplace chemicals that are on the Proposition 65 list, discussed later in the report.

OHB-HESIS provides similar support for Cal/OSHA standard-setting on other workplace hazards by providing technical assistance to other standard advisory committees. We assist Cal/OSHA staff with evaluating complex technical data for the purpose of developing standard language and responding to inquiries, statements, and proposals from stakeholders. In 2021-22 OHB-HESIS provided expertise for Cal/OSHA's rulemaking related to COVID-19, respiratory protection for firefighters, and wildfire smoke.

2021-22 HESIS Activities

In the sections of the report that follow, we offer highlights and examples of the ways that HESIS fulfilled its traditional mandates related to toxic materials and contributed to CDPH's emergency response for infectious disease. We also include information on planned future activities.

Workplace Health and Safety Activities Related to Toxic Materials

PROVIDING RELIABLE HAZARD INFORMATION

Reproductive or developmental harm from industrial chemicals

An employee in a large manufacturing company in her third trimester of pregnancy contacted HESIS with concerns about her potential exposure to solvents used during an epoxy resin curing process. HESIS reviewed the safety data sheets (SDSs) for the chemical products provided by the caller and evaluated the toxicity of all chemicals involved in the epoxy resin curing process. Most of the chemicals used in the process commonly cause eye, skin, and respiratory irritation; however, of greater concern, was that some are reported to cause reproductive effects, while others can potentially cause cancer. The HESIS responder explained the factors that affect the potential severity of health effects from exposure to chemicals. These include the inherent toxicity of a chemical or chemicals, the mode, amount, and duration of exposure, and any personal health factors. HESIS also provided available information related to the epoxy resin curing process, including two HESIS factsheet publications: one on epoxy resin toxicity and the other on workplace hazards and pregnancy.

Young workers: health and safety on the job

Youth are a relatively small but important part of the U.S. workforce. However, they are at an increased risk for work-related injuries due to their physical, psychological, and social characteristics. OHB-HESIS staff serve on the California Partnership for Young Worker Health and Safety (the Partnership) to help promote awareness and prevention of injuries among youth who work. When OHB's Fatality Assessment & Control Evaluation (FACE) program investigated the death of a 16-year-old tire repair assistant on the job, OHB-HESIS, FACE, and other Partnership members took action on the issue:

- OHB featured young workers and the recent fatality in its February 2022 newsletter, Keeping Young Workers Safe on the Job.
- California collaborated with the U.S. Equal Employment Opportunity Commission (EEOC) and other Partnership members to present the webinar Young Worker Job Safety – Proactive Employer Practices. Attendance was promoted by DIR through their social media channels and included a diverse group of employers, job development and youth services specialists, health and safety professionals, and youth safety advocates.
- OHB-HESIS teamed up with UC Berkeley Partnership staff to produce the 2022 Safe Jobs for Youth Month Resource kit, which shared lessons learned from the tragic death of the young worker and offered strategies to promote young worker safety for teachers, employers, and working youth.

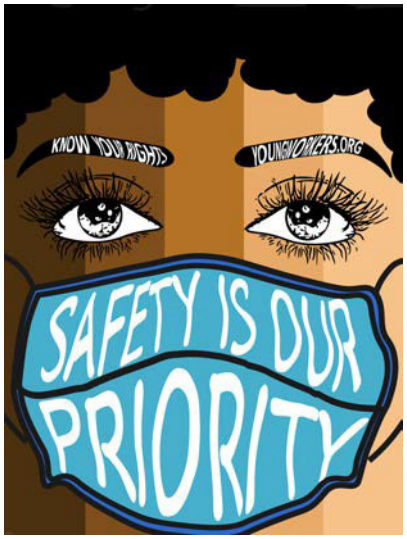


Image: Winner, 2021 Poster Contest
youngworkers.org

Workplace Health and Safety Activities Related to Toxic Materials

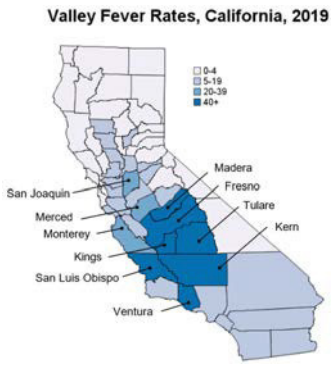
PROVIDING RELIABLE HAZARD INFORMATION

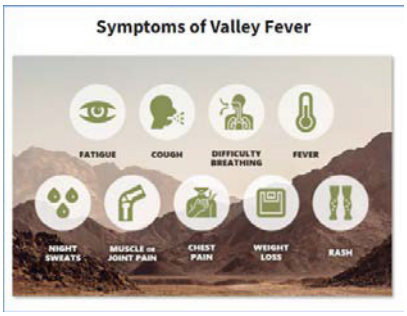
Protecting workers from wildfire smoke

A deputy health officer asked about the need for fit testing for workers who are provided respiratory protection against wildfire smoke. The HESIS responder described the requirements of the new Cal/OSHA Protection from Wildfire Smoke standard and provided references and resources for fit testing that can be passed along to employers in their county.

Preventing Valley fever in wildland firefighters

Valley fever (also known as coccidioidomycosis) is a potentially severe illness caused by inhaling spores of a fungus found in the soil in many parts of California. Valley fever cases in California continue to be high in recent years. In fall 2021, the OHB and the CDPH Infectious Diseases Branch investigated a cluster of Valley fever in a wildland firefighter crew that was linked to a three-day fire in central California, an area known for high rates of Valley fever. Recognizing the need for awareness and up-to-date prevention materials OHB-HESIS:





OHB recommends that wildland firefighters and firefighters responding to fires in the wildland-urban interface are trained on Valley fever and encouraged to report symptoms that could be from Valley fever.

- Collaborated with stakeholders in the firefighter and firefighter health and safety communities to update our training guide Preventing Work-Related Valley Fever in Wildland Firefighting (PDF).
- Shared investigation findings and promoted the issue in OHB's July 2022 Occupational Health Watch newsletter, Fire season brings more than smoke: Valley fever is still hot in parts of CA.
- Teamed up with Cal/OSHA to identify and conduct outreach to stakeholders with an interest in wildland and WUI (wildland-urban interface) firefighter health and safety. OHB-HESIS sent the tailgate training to 90 individuals and groups across the state and around the country. This generated additional interest and dissemination of the materials. One such outcome was a presentation to 85 members of the US Forest Service's National Incident Management Organization (NIMO), Incident Management Response Roundtable. Others offered to share the resources with their organizations and professional networks to get the word out and improve education and increase awareness of this hazard.

Workplace Health and Safety Activities Related to Toxic Materials

ESTABLISHING HEALTH EFFECTS OF HARMFUL WORKPLACE EXPOSURES

HESIS shall… fulfill the following functions:
Collect and evaluate toxicological and epidemiological data and any other information, which may be pertinent to establishing harmful effects on the health of workers exposed to toxic materials or harmful physical agents.

- California Labor Code 147.2 (c)

Workplace chemical hazards

- Continued to collaborate with California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) to identify chemicals used in the workplace that are listed as causing cancer or reproductive/developmental toxicity under California Proposition 65.
- Assisted the CDPH-OHB California Safe Cosmetics Program (CSCP) by providing summaries on the toxicity of harmful chemical ingredients used in some cosmetics. These included benzene, beta-myrcene, pulegone, aloe vera, talc, cocamide diethanolamine, limonene, linalool, and 2-(4-tert-butylbenzyl) propionaldehyde (Lilial). The HESIS toxicologist obtained toxicity information from the authoritative scientific bodies cited in the CSCP enabling legislation. HESIS's important input enhanced the program's ability to fulfill its mandate to collect information on hazardous and potentially hazardous ingredients in cosmetic products sold in California, and to make this information available to the public.

Workplace physical hazards

- Conducted a literature search for scientific articles on acclimatization of workers to assist in determining whether additional guidance or regulation was needed to prevent heat illness.

Information repository (HESIS Electronic Repository of Occupational Health Information)

- With support from a CDPH contract with the Los Angeles County Public Health Library, HESIS continued electronic document delivery to Cal/OSHA's Research and Standards Unit.
- HESIS continued to review table-of-contents alerts in toxicology, industrial hygiene, and occupational medicine journals, as well as evidence-based reports from sources such as national professional societies.
- HESIS also followed the activities of authoritative agencies to identify emerging hazards and issues. These agencies included the National Institute for Occupational Safety and Health (NIOSH) and U.S. Environmental Protection Agency (EPA), as well as OEHHA, the International Agency for Research on Cancer, National Toxicology Program, and European Chemicals Agency. HESIS assimilated this research by cataloging key articles in its electronic repository.

Workplace Health and Safety Activities Related to Toxic Materials

DEVELOPING STRATEGIES FOR HAZARD REDUCTION AND DISEASE PREVENTION

Occupational dust diseases

Silicosis

Workers fabricating engineered stone face high risk for exposure to respirable crystalline silica (RCS) and subsequent development of severe or "accelerated" silicosis. Multiple cases of silicosis among immigrant workers in the countertop fabrication industry in California are notable for the workers' young age at onset and poor outcomes, including lung transplantation and premature death. HESIS and other OHB staff have participated in several efforts to address this significant and emerging hazard.

- Completed analysis of records from Cal/OSHA inspections from its Special Emphasis Program at countertop fabrication facilities. Shared summary findings of workers' silica exposures and employers' adherence to Cal/OSHA's RCS and respiratory protection standards in a July 2022 American Journal of Industrial Medicine article: Elevated exposures to respirable crystalline silica among engineered stone fabrication workers in California, January 2019–February 2020.
- Advanced the work of the California Artificial Stone and Silicosis (CASS) Project, a NIOSH-funded effort to promote respiratory health among vulnerable workers in the California countertop fabrication industry based on its three stated aims.

  CASS Aim 1: *Increase awareness in the countertop fabrication industry about the risk of silicosis to workers using artificial stone and methods for effective strategies for prevention*. Project staff completed a review to assess educational resources available for countertop fabrication workers and employers; developed employer and worker questionnaires to assess silicosis knowledge and control methods used; conducted telephone interviews with nine (9) countertop fabrication employers, three (3) countertop fabrication shop site visits, and eleven (11) in-person worker interviews; developed two new educational materials for employers, Workplace Air Monitoring for Silica: Employer Guide and Cal/OSHA Silica Standard Overview. OHB-HESIS is collaborating with Cal/OSHA as it resumes its Special Emphasis Program on silicosis in countertop fabrication by identifying industry employers and providing the newly published materials for their outreach.

  CASS Aim 2: *Facilitate medical monitoring of silica-exposed workers in the countertop fabrication industry.* To promote more widespread use of currently mandated medical surveillance (chest radiography and spirometry) among healthcare providers, project staff have developed an outline and draft content for a Silicosis Continuing Medical Education (CME) Course and are exploring options for engaging delivery using online platforms. The project has also obtained institutional review board approval and identified a clinical setting for a medical testing study to evaluate the use of more sensitive radiological and functional diagnostic tools (low dose computed tomography of the chest and diffusing capacity of the lung for carbon monoxide) for identifying silicosis at an earlier stage.

Silicosis, cont.

CASS Aim 3: *Enhance public health surveillance of silicosis related to working with artificial stone through increased reporting.* The project has obtained approval to use CDPH's Reportable Conditions Knowledge Management System (RCKMS) for electronic case reporting of silicosis on a pilot basis. Silicosis will be the first non-infectious disease to be included in RCKMS in California. Use of RCKMS may facilitate identification of cases throughout the state.

- Identified and engaged with health professionals around the state who are seeing advanced silicosis cases in their practices, which has led to new collaborations to identify, track, and treat more workers suffering from accelerated silicosis.

Papers and presentations related to the silicosis effort

Surasi K, et al. Elevated exposures to respirable crystalline silica among engineered stone fabrication workers in California, January 2019—February 2020. *Am J Ind Med*. 2022.

Spiegel A, et al. Self-reported silica exposures and workplace protections among engineered stone fabrication workers in California. *Am J Ind Med*. 2022.

Gandhi S, et al. Active surveillance of artificial stone workers facilitates early identification of silicosis. *Am J Respir Crit Care Med*. 2022.

Cummings KJ. Silicosis related to engineered stone in California. Presentation at the *Western States Occupational Network (WestON)*. 2022.

Workplace Health and Safety Activities Related to Toxic Materials

DEVELOPING STRATEGIES FOR HAZARD REDUCTION AND DISEASE PREVENTION

Asbestos Exposures and Mesothelioma

- Collaborated with the California Cancer Registry (CCR) on a NIOSH-sponsored study of rapid identification and outreach to newly diagnosed mesothelioma patients.
- Established infrastructure to receive patient contact information, conduct outreach, and administer questionnaire about occupational history and asbestos exposure. Solicited participants' feedback on the implementation of the questionnaire.
- Interviewed 36 newly diagnosed mesothelioma patients. Overall, the participants reported the questionnaire's usage to be acceptable, appropriate, and feasible.
- Questionnaire responses about exposure will be analyzed and inform future prevention activities.

Protecting workers from the hazards of 1-bromopropane

The solvent 1-bromopropane (n-propyl bromide, 1-BP) is a known neurotoxicant, a known reproductive and developmental toxicant, and now a recognized carcinogen. HESIS continued its efforts to improve hazard communication regarding 1-BP and promote the use of safer alternatives.

- Completed review of all Safety Data Sheets (SDSs) for 1-BP-containing products that were submitted to HESIS under its SB 193 authority. In 67% of companies (66% of products), HESIS successfully assisted the manufacturers in correcting their product SDSs or ascertained that the 1-BP product had been discontinued or replaced by a non-1-BP alternative. Many of the companies that revised their SDSs did so after receiving detailed feedback and scientific research data about the health hazards of 1-BP from HESIS. HESIS will continue collaborating with Cal/OSHA to assist in following up with the remaining companies that have still not corrected these important hazard communication tools.
- Developed infrastructure to track and characterize chemical (1-BP) use, improve hazard communication among manufacturers, distributors, and end-users (by correcting SDS deficiencies), and conduct outreach on prevention strategies. This process was very informative in shedding light on the chemical product supply chain, how products are manufactured, sold and marketed, and where HESIS and others can intervene to raise awareness and improve workplace practices. This infrastructure will greatly facilitate future chemical hazard tracking, efforts to promote effective hazard communication, and outreach to prevent exposure to workplace chemical hazards by HESIS and other OHB programs.
- Worked closely with a cleaning technology expert and companies in key industries where 1-BP is used to develop and test alternative products and processes that can eliminate the hazard of 1-BP from the workplace altogether.

Personal protective equipment for workplace safety and health

- HESIS Chief serves on the National Academies of Sciences, Engineering, and Medicine Standing Committee on Personal Protective Equipment for Workplace Safety and Health.

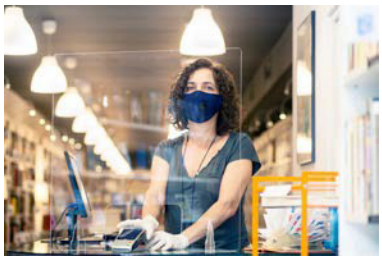
Workplace Health and Safety Activities Related to Toxic Materials

SUPPORTING THE DEVELOPMENT OF OCCUPATIONAL HEALTH STANDARDS

Workplace chemical hazards

HESIS continued to support the HEAC in its work on the rulemaking process for several chemicals that were earlier addressed by the committee, including turpentine, sulfur dioxide, and trichloroethylene.

Other workplace hazards



- COVID-19 Emergency Temporary Standards, a non-emergency COVID-19 standard, and revisions to the Aerosol Transmissible Diseases (ATD) Standard. HESIS provided ongoing scientific and public health support to Cal/OSHA in the development and revision of standards to protect workers against the virus that causes COVID-19.
- Cal/OSHA rulemaking for respiratory protection for wildland/wildland-urban interface (WUI) firefighters

- HESIS staff participated in Cal/OSHA's Technical Advisory Committee Meeting (TAC) on Firefighter Respiratory Protection in May 2022.
- HESIS staff collected, reviewed, and shared literature about exposures to wildfire smoke, health effects, and respiratory protective devices.
- HESIS prepared comments on the draft regulatory language, and
- Met with Cal/OSHA staff to make recommendations for developing and field testing a WUI/wildland respirator in conjunction with respirator manufacturers in support of rulemaking.

Preventing heat illness

HESIS reviewed and shared peer-reviewed journal articles and other resources on acclimatization to heat in a bibliography with abstracts. The articles provide guidance on the need for acclimatization, methods for acclimatizing workers, and information on the types of activities and settings in which people require acclimatization to avoid heat illness.

Statewide Emergency Response to to Infectious Diseases: COVID-19, Avian Influenza, and Mpox

COMMUNICATED

COVID-19

- Contributed to the OHB COVID-19 communications efforts on a worker education campaign around COVID-19 prevention and treatment. The campaign included designing multimedia, multilingual materials such as posters, digital banners, and videos for high-risk workers and sponsoring paid online ads with messaging about long COVID, vaccines, testing, and treatment. These resources were seen by huge numbers of people.

- Developed educational material to share with skilled nursing facilities and local health departments (LHDs) that covers ventilation practices for establishing medical quarantine/isolation rooms for patients with COVID-19, or other airborne infectious disease, to reduce the risk of transmission to other patients and staff.

SHARED EXPERTISE

COVID-19

- Produced and offered a webinar on ventilation principles for skilled nursing facilities and local health departments (LHDs) to improve indoor air quality and establish isolation areas using ventilation best practices. Worked with a skilled nursing facility advocacy organization to help disseminate the webinar.
- At the request of Cal/OSHA, conducted a literature search for articles that assessed the risk of COVID-19 transmission during dental procedures and the effectiveness of control measures.
- Contributed to the guidance, Responding to COVID-19 Cases and Outbreaks in the Workplace.

MPOX

- Reviewed the scientific literature on routes of Poxvirus transmission in occupational settings and shared this information with public health partners.
- ·Provided technical assistance on laboratory procedures for Mpox. Participated in discussions with California lab directors and wrote a lab protocol for handling specimens safely.
- Assisted in writing guidance to prevent transmission of Mpox to healthcare workers when collecting and testing specimens in sexually transmissible infections (STI) clinics.
- Participated in CDPH's review of Cal/OSHA's guidance on Mpox.

Statewide Emergency Response to to Infectious Diseases: COVID-19, Avian Influenza, and Mpox

INVESTIGATED

COVID-19

HESIS staff served on the OHB COVID-19 Epidemiology (Epi) team that collected, analyzed, and interpreted data from a variety of sources to characterize the burden of COVID and inform prevention measures, guidelines, and other interventions. Examples include:

- Examined COVID-19 mortality by occupation and changes in mortality by industry over time by analyzing death certificate data. Looking at occupational groups with higher-than-average age-adjusted COVID-19 mortality rates helps us better understand and address disparities in disease burden related to work.
- Published a Viewpoint journal article that compiled data from a variety of sources to document the tremendous impact of COVID on California's workplaces. Sources include the state's case registry, workers' comp claims for COVID, and COVID deaths reported to Cal/OSHA because they were suspected to be work-related.
- Surveyed 451 non-healthcare workers who were recently tested for COVID-19, finding that those with employers who implemented mitigation measures in all three control categories—engineering, administrative, and personal protective equipment — had lower odds of test positivity than those with fewer mitigation measures.
- Examined COVID-19 outbreaks and mortality among public transportation workers in California, documenting that these workers are at higher risk and should be prioritized for COVID-19 prevention strategies.
- Supported the Occupational Health Branch's COVID-19 Outbreak Consultation Team by contributing expertise in ventilation, respiratory protection, and other occupational health best practices.

- Based on an outbreak investigation conducted in the previous year with federal, state, and local public health partners, OHB-HESIS staff contributed to the article, Severe acute respiratory coronavirus virus 2 (SARS-CoV-2) outbreak investigation in a hospital emergency department-California, December 2020-January 2021.
- Evaluated the effectiveness of Abbott BinaxNOW Rapid Antigen Test for the detection of SARS-CoV-2 infections in an outbreak among horse racetrack workers.

Statewide Emergency Response to to Infectious Diseases: COVID-19, Avian Influenza, and Mpox

PROTECTED

COVID-19

OHB-HESIS staff supported industrial hygienists on the new CDPH Outbreak Consultation Team (OCT) to provide technical assistance to a variety of stakeholders.

Personal protective equipment

- In conjunction with the Department of General Services, established standards for, and continued to review personal protective equipment offered by vendors to replenish the state stockpile with items that protect health care workers against COVID-19.

Ventilation

- Assisted in demystifying ventilation for public health officials. Contributed to an assessment tool to guide public health officials in evaluating a facility's building ventilation practices. The tool will help public health staff make recommendations on ventilation best practices to create effective airborne infection isolation spaces in facilities and improve indoor air quality to prevent transmission of COVID-19 in facilities.

- Participated in advisory committee meetings and provided assistance to Cal/OSHA in making the revisions to the Emergency Temporary Standards (ETS) for COVID-19 Prevention, and the proposed COVID-19 Prevention Non-Emergency standard.
- At the request of Cal/OSHA, reviewed the evidence for COVID-19 aerosol transmission in space over short and long distances and prepared a bibliography of recent literature with links to 40 studies and a "Table of Studies Demonstrating possibility of Long-range Transmission of COVID-19."
- In collaboration with our Healthcare-Associated Infections Team, responded to questions from health care facilities' staff and local health departments regarding building ventilation, respiratory protection, and other exposure reduction measures.
- Participated in the COVID-19 response to offer assistance to the safety officer in the CDPH Medical and Health Coordination Center (MHCC) for deployed staff and contractors. In this role, participated in the CDPH Staff Health & Safety Workgroup to offer expertise on qualifications and activities needed for a new, expanded employee health and safety function in CDPH. Also advised on personal protective equipment for responders to wear when deployed to health care, correctional, or industrial settings; or to shelters, vaccination clinics, laboratories, or homes, during the pandemic.

OHB-HESIS COVID-19 Publications

- Cummings KJ, et al. COVID-19 in the workplace: the view from California. *Ann Am Thorac Soc*. 2022.
- Cummings KJ, et al. Disparities in COVID-19 fatalities among working Californians. *PLOS ONE*. 2022.
- Free H, et al. Reported exposures among in-person workers with SARS-CoV-2 infection in 6 states, September 2020-June 2021. *Clin Infect Dis*. 2022.
- Heinzerling A, et al. COVID-19 outbreaks and mortality among public transportation workers — California, January 2020–May 2022. *MMWR Morb Mortal Wkly Rep.* 2022.
- Li R, et al. Severe acute respiratory coronavirus virus 2 (SARS-CoV-2) outbreak investigation in a hospital emergency department-California, December 2020-January 2021. *Infect Control Hosp Epidemiol*. 2022.
- Sondermeyer Cooksey GL, et al. Severe Acute Respiratory Syndrome Coronavirus 2 and respiratory virus sentinel surveillance, California, USA, May 10, 2020–June 12, 2021. Emerg Infect Dis. 2022;28(1):9-19.
- Surasi K, et al. Effectiveness of Abbott BinaxNOW Rapid Antigen Test for Detection of SARS-CoV-2 Infections in Outbreak among Horse Racetrack Workers, California, USA. *Emerg Infect Dis*. 2021.

Statewide Emergency Response to to Infectious Diseases: COVID-19, Avian Influenza, and Mpox

PROTECTED

AVIAN INFLUENZA

Avian influenza is caused by a type of novel influenza virus that spreads among wild aquatic birds and can infect domestic poultry and other bird and animal species. AI viruses do not normally infect humans; however, sporadic human infections with avian flu viruses have occurred. The risk of AI infection to California poultry workers and other individuals who handle infected birds appears to be small at this time. However, with each AI outbreak in a poultry flock, or exposure to an individual who handles an infected wild bird, there is concern for potential human infection, and all AI-exposed poultry workers and other individuals should be monitored appropriately.

- In response to outbreaks of avian influenza A (H5N1) in poultry in the United States that began in February 2022, OHB-HESIS staff collaborated with CDPH partners to establish a system for active monitoring of workers and members of the public exposed to infected birds.
- Coordinated with CDC, animal health agencies, local public health, the poultry industry, and wildlife centers.
- Deployed staff from three CDPH branches and contractors to assist with infectious disease surveillance, worker interviews, developing educational materials, and assisting local health departments with their surveillance efforts, communicating about risk and protective measures to take to prevent zoonotic transmission, and how to get help with testing and treating individuals if symptoms were present.
- Supported local health jurisdictions in monitoring 136 California residents, including 65 responders deployed to poultry outbreaks occurring in California or other states, 39 poultry producer responders, 13 farm owners who were exposed to sick poultry, and 20 people exposed to wild birds.
- Ensured symptomatic persons received testing for avian influenza; all tests to date in California have been negative.

WHAT'S NEXT FOR HESIS?

Preventing exposures to hazardous materials

HESIS WILL

Support Cal/OSHA

- Continue to provide research, technical assistance, and support to the HEAC [DM1] in its current rulemaking process to recommend revised PELs for turpentine, sulfur dioxide, and trichloroethylene.
- Gather usage and exposure information for additional identified priority chemicals and prepare toxicity summaries for new or revised PEL recommendations for the HEAC as needed.
- Continue to provide technical support to Cal/OSHA for rulemaking on antineoplastic drugs administered in the workplace and on surgical plume and smoke.

Provide reliable information

- Develop and disseminate educational materials on alternatives to the hazardous solvent and cleaning chemical 1-bromopropane (1-BP). Identify employers to prioritize for educational outreach to assist them in switching to safer alternatives and improving their work practices.
- Work with Cal/OSHA to promote improved hazard communication by manufacturers of products used at the workplace that contain hazardous chemicals such as 1-BP through more accurate product Safety Data Sheets (SDSs).
- In collaboration with colleagues from Cal EPA's OEHHA, develop educational outreach and information about chemicals used in the workplace that are listed as causing cancer or reproductive and/or developmental toxicity under Proposition 65.

WHAT'S NEXT FOR HESIS?

Preventing exposures to hazardous materials

HESIS WILL

Develop strategies for prevention

- Advance the work of the California Artificial Stone and Silicosis (CASS) Project to increase awareness among healthcare providers and improve medical monitoring of silica-exposed workers in the countertop fabrication industry through a pilot project with a Los Angeles-based community clinic and an online Continuing Education (CME) course on silicosis. Collaborate with Cal/OSHA's efforts to improve prevention of silicosis among countertop fabrication workers; and continue to explore ways to enhance public health surveillance of silicosis.
- Engage manufacturers, distributors, and end-users in finding and promoting safer alternatives and improving hazard communication about toxic chemicals.

Preventing infectious diseases on the job

HESIS WILL

- Examine changes in patterns of COVID-9 mortality over the course of the pandemic by industry and occupation to inform prevention efforts.
- Work with state and local partners to explore automated approaches to monitoring workers exposed to birds with avian influenza.
- Continue to promote awareness and prevention of Valley fever in wildland firefighters and other at-risk groups.

HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE

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HESIS ANNUAL REPORT

NOVEMBER 1, 2021 - OCTOBER 31, 2022

California Department of PublicHealth

State of California Department of Industrial Relations

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