



HESIS

HAZARD EVALUATION SYSTEM &
INFORMATION SERVICE

ANNUAL REPORT 2022-23

ABOUT

The Hazard Evaluation System and Information Service, or HESIS, was established in 1978 by 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, 2022 to June 30, 2023, was \$1,839,720; the current budget, for July 2023 to June 2024 is \$1,954,851.

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.”* HESIS’s 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 provided by HESIS enables employers, workers, health and safety 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 unrecognized 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 HESIS work with partners on public health projects and activities to improve workplace safety and health in California in 2022-2023.

November 1, 2022–October 31, 2023

“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 relating to the functions of HESIS.”

- California Labor Code 147.2 (g)

HESIS MISSION

This section describes HESIS activities in general terms; the rest of the report will provide examples and notable highlights from the year.

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, enforcement, 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 workers, employers, physicians, and others in California 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.

Establish health effects of potentially 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.



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.

Develop strategies for hazard reduction and disease prevention

HESIS uses its authority under California's SB 193 of 2014 to obtain customer lists from manufacturers that sell products that represent newly recognized health hazards for California workplaces. We use this information to contact companies where the products are being used to conduct targeted hazard evaluations, develop prevention recommendations, and provide information employers and workers can use to improve safety and health at their workplaces.

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.

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. HESIS also conducts its own research and submits recommendations to minimize exposure to harmful airborne contaminants not yet recognized or addressed by the HEAC.

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.



2022-2023 HESIS ACTIVITIES

In the sections of the report that follow, we provide highlights and examples of the ways that HESIS fulfilled its mandates related to toxic materials and infectious diseases. We also include information on planned HESIS activities for the future.

PROVIDE RELIABLE HAZARD INFORMATION

Preventing reproductive or developmental harm from workplace chemicals

A female scientist from a university research laboratory in California contacted HESIS with concerns about possible adverse effects on her early pregnancy of potential workplace exposures to the hazardous chemicals tamoxifen, isoflurane, paraformaldehyde, xylene, and ammonium hydroxide. HESIS reviewed the Safety Data Sheets (SDSs) for these chemicals and evaluated their potential reproductive toxicity. **Tamoxifen** is an antineoplastic drug listed as a hazardous drug by the National Institute for Occupational Safety and Health (NIOSH). Exposure to tamoxifen is known to cause an increase in reproductive tract tumors both in mice and rats. In addition, tamoxifen is an estrogen receptor modulator that has been associated with adverse pregnancy outcomes in some reports. **Isoflurane** is an anesthetic gas. Its inhalation exposure has been reported to cause abnormalities in animal offspring exposed during pregnancy and these studies point to potential reproductive system harm in women during pregnancy. **Paraformaldehyde** is a polymer of formaldehyde as a solid material and when in solution, it can readily release formaldehyde in air. Formaldehyde has been shown to decrease fertility and increase the risk of spontaneous abortion (miscarriage) in humans. In laboratory animals, formaldehyde can harm the developing fetus and damage sperm.

Xylene in a vapor form is an irritant to eyes, mucous membranes, and skin. In some studies of the reproductive outcomes of women exposed to xylene during the first trimester of pregnancy, small excess risks for spontaneous abortion and for congenital malformation were reported. **Ammonia hydroxide** is simply a mixture of ammonia and water. No studies were located regarding reproductive effects in humans after inhalation exposure to ammonia. To avoid risk to pregnancy and the reproductive system, HESIS recommended minimizing workplace exposures to chemicals that could cause reproductive harm prior to and during pregnancy and provided information for obtaining an occupational medicine consultation.



Reducing transmission of infectious diseases through improved indoor air quality (IAQ)

HESIS staff participated in multiple OHB and CDPH activities to promote ventilation best practices and improve IAQ in a variety of workplace settings.

- Served as co-authors and subject matter experts on various public-facing guidance documents released by CDPH explaining ventilation best practices that can be employed to reduce transmission of respiratory pathogens such as COVID-19 in indoor environments.
- Served as primary authors of CDPH's guidance document, "Best Practices for Ventilation of Isolation Areas to Reduce COVID-19 Transmission Risk in Skilled Nursing Facilities, Long-Term Care Facilities, Hospices, Drug Treatment Facilities, and Homeless Shelters", and presented the content to Cal/OSHA senior industrial hygienists.
- Conducted an in-person training for 20 facility management workers from the long-term care industry in one county on how they could adjust ventilation systems to improve IAQ and reduce disease transmission. After this training, a follow-up in-person training was conducted for 30 facility management workers in schools in the same county on how improvements to IAQ could promote health in schools.
- Conducted four webinars for local health jurisdictions and/or school districts in California on the topics of improving ventilation and IAQ to reduce infectious disease transmission in schools. In total, these webinars reached nearly 500 attendees.
- Presented two webinars on best practices for ventilation to effectively isolate residents with COVID-19 from other residents and staff to prevent disease spread in skilled nursing or long-term care settings. The webinars were attended by more than 500 participants, mostly infection preventionists.
- Shared expertise on general ventilation, basics of airborne infectious disease spread, and steps that organizations can take to improve IAQ, including isolation of COVID-19 positive clients, with 60 homeless services providers.



Other educational activities

- Responded to an inquiry regarding whether Cal/OSHA had a regulatory requirement for healthcare facilities to offer COVID-19 vaccinations to their staff members. HESIS informed the inquirer that the Cal/OSHA Aerosol Transmissible Diseases (ATD) standard does not require employers to offer COVID-19 vaccinations because that vaccine is not listed in Appendix E of the standard.
- Served within the CDPH Incident Command Emergency Response infrastructure as Environmental & Occupational Duty Officers who offered technical assistance to local health jurisdictions, local environmental health offices, and members of the public for hazardous environmental or occupational incidents.
- Served on an interdisciplinary CDPH team that assessed and communicated health risks of Legionella in building water systems to occupants of state office buildings.
- Shared information with a county coroner and a funeral home about the minimum recommended personal protective equipment, including respiratory protection, needed while embalming a person with an infectious disease. HESIS explained that when a decedent is suspected or known to be infected with an aerosol transmissible pathogen, respiratory protection is required by the Cal/OSHA ATD standard, in addition to gloves, eye protection, and other protective clothing, and that respirators must be used in the context of a Cal/OSHA-compliant respiratory protection program.
- Responded to an inquiry from an industrial hygiene consultant about the requirements for additional medical evaluations and clearances for respirator use to prevent exposure to SARS-CoV-2 in healthcare settings.
- Shared information with a caller who was exposed to the fungus that causes Valley fever through construction dust, developed Valley fever, and was hospitalized two times with the disease. Provided a summary of California Labor Code 6709, which requires construction employers to provide effective hazard awareness training on Valley fever to employees working in highly endemic counties. Also shared our [educational materials on Valley fever prevention](#), the contact information for Cal/OSHA, and information on how to file a complaint with Cal/OSHA.
- Assisted a caller who became ill after being exposed to a pesticide at work by directing them to information on the label and the safety data sheet, and providing information on how to make a complaint to the Department of Pesticide Regulation (DPR) that enforces pesticide use safety regulations.
- Provided information to a caller about potential health effects from chemicals that have been found to off-gas from laminate flooring and discussed whether symptoms they experienced could be related to their exposure in the workplace.

ESTABLISH HEALTH EFFECTS OF HARMFUL WORKPLACE EXPOSURES

- HESIS collaborated with the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) to identify and update information on workplace chemicals listed as causing cancer or reproductive/developmental toxicity under California Proposition 65. The updated information also included recent use and exposure to these chemicals in workplaces in California gathered using the California Environmental Protection Agency's California Environmental Reporting System (CERS).
- 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 NIOSH and U.S. Environmental Protection Agency (EPA), as well as OEHHA, the International Agency for Research on Cancer, the National Toxicology Program, and the European Chemicals Agency. HESIS assimilated this research by cataloging key articles in its electronic repository.
- HESIS staff examined occupational contributions to respiratory health disparities for asthma, silicosis, chronic obstructive pulmonary disease (COPD), COVID-19, and lung cancer in a review article and several original epidemiologic analyses:
 - Occupational contributions to respiratory health disparities, published in *Clinics in Chest Medicine*
 - Temporal assessment of disparities in California COVID-19 mortality by industry: a population-based retrospective cohort study, published in *Annals of Epidemiology*
 - Risk factors for COVID-19 among Californians working outside the home, November 2020 - May 2021, published in the *American Journal of Industrial Medicine*
 - Evaluating the association between in-person work and the risk of SARS-CoV-2 infection through June 2021, published in the *American Journal of Industrial Medicine*

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)

DEVELOP STRATEGIES FOR HAZARD REDUCTION AND DISEASE PREVENTION

Silicosis

Workers fabricating engineered stone face high risk for exposure to respirable crystalline silica (RCS) and subsequent development of severe or “accelerated” silicosis. Dozens of 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.

- Published a description of the first 52 cases of silicosis related to engineered stone in California in *JAMA Internal Medicine*. This article was accompanied by an editorial written by national experts and a podcast with the authors that was hosted by *JAMA*'s editor. [Silicosis among immigrant engineered stone \(quartz\) countertop fabrication workers in California](#)



- Published an analysis of surveillance methods for silicosis related to engineered stone in *New Solutions*. The analysis demonstrated improvements in early disease detection using active surveillance methods, such as periodic medical testing as required under the Cal/OSHA silica standard. [Active surveillance of engineered stone workers facilitates early identification of silicosis: A discussion of surveillance of occupational lung diseases.](#)
- Served on Cal/OSHA's Emergency Silica Advisory Committee to provide input to Cal/OSHA on a proposal for emergency changes to the Title 8 section 5204, Occupational Exposures to Respirable Crystalline Silica.
- 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.

Silicosis

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 finalized and posted on the OHB website educational materials for employers and workers in English, Spanish, and Chinese. In addition, the team used multiple data sources to curate a list of countertop fabrication businesses in California and shared that list with partners including Cal/OSHA and several local health departments. Cal/OSHA used the list to identify 800 employers statewide for a mailing about employer requirements under the silica standard. In addition, Cal/OSHA included copies of two OHB publications aimed at employers (Workplace Air Monitoring for Silica: Employer Guide and Cal/OSHA Silica Standard Overview) in the mailing. Los Angeles County Department of Public Health used the list to identify shops for planned educational outreach, including distribution of an OHB publication aimed at workers (Hazard Alert for Workers: Silica Dust From Countertop Work Can Harm You!). By the end of September, 107 businesses in LA County had been visited for outreach.



CASS Aim 2:

Facilitate medical monitoring of silica-exposed workers in the countertop fabrication industry.

In July, project staff published a Health Advisory through the California Health Alert Network (CAHAN), the official public health alerting and notification program for California. The CAHAN, “Global Epidemic Comes to California: Silicosis in Countertop Workers”, is addressed to healthcare providers and local health departments. It describes the epidemic of silicosis related to engineered stone in California and recommends active surveillance and case reporting. The CAHAN was adapted by several large jurisdictions (including Los Angeles and San Diego) and sent out to their local provider networks.

In addition, the team published a one-page fact sheet (Silicosis in Countertop Fabrication Workers: What Providers Need to Know) and finalized a silicosis Continuing Medical Education (CME) course to educate healthcare providers about the risk of engineered stone and the diagnosis and management of silicosis. It is anticipated that the CME course will be available to providers in 2024. Finally, the team is collaborating with investigators at Olive View-UCLA Medical Center on a medical testing study to evaluate the use of more sensitive radiological and functional diagnostic tools for identifying silicosis at an earlier stage. Recruitment and enrollment of countertop fabrication workers who reside in LA County began in October and is expected to continue for several years.

Silicosis

CASS Aim 3:

Enhance public health surveillance of silicosis related to working with artificial stone through increased reporting.

Project staff developed a reporting form and set up a dedicated email address (silicosis@cdph.ca.gov) for healthcare providers to contact OHB if they have identified a patient with silicosis. In addition, the team continued to explore the Reportable Conditions Knowledge Management System (RCKMS) as a mechanism for automatic reporting from the electronic health record of participating health care organizations. Data flow began in December 2022; through July 2023, initial case reports including silicosis were received for 41 persons. A brief report summarizing the early experience was published by CDC's MMWR. Finally, project staff initiated the process to add silicosis to the Title 17 list of reportable conditions by obtaining approval from CDPH leadership and the California Conference of Local Health Officers (CCLHO). The regulatory steps are expected to be completed in early 2024.

Asbestos Exposure and Mesothelioma

Presented a poster at the University of California, San Francisco Division of Occupational and Environmental Medicine Continuing Medical Education course. Poster summarized preliminary analyses from a collaboration with the California Cancer Registry (CCR) on a NIOSH-sponsored study of rapid identification and outreach to newly diagnosed mesothelioma patients.



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.
- HESIS completed review of Safety Data Sheets (SDSs) for 1-BP-containing products that were revised in response to feedback from HESIS. Following the review of these revised SDSs, HESIS identified SDSs from six companies that were deficient in one or more of the nine reviewed hazard elements. HESIS compiled the list of deficiencies from the SDSs from these six companies and will refer them to Cal/OSHA for further action.

COVID-19 and other aerosol-transmissible diseases

HESIS staff have continued to contribute to collaborative efforts to address COVID-19 transmission in the workplace. Many of these strategies address IAQ more generally and thus have implications for prevention of other aerosol-transmissible diseases beyond COVID-19.

- Visited four skilled nursing facilities at the request of local health jurisdictions to evaluate the potential role of ventilation and IAQ in contributing to COVID-19 outbreaks and recommended ways to minimize the spread of infectious respiratory diseases.
- Reviewed and scored grant applications for the CDPH Healthcare Associated Infections Long-term Care Facility Infrastructure Grant Proposal program. HESIS staff offered expertise in evaluating grant proposals aimed at making improvements to the built environment (such as ventilation and isolation areas) and respiratory protection programs aimed at reducing COVID-19 transmission in long-term care facilities.
- At the direction of CDPH and Agency leadership, developed and issued \$50,000 in Innovation Award grants to support the development of five new community education projects on the health benefits associated with improving IAQ. These grants were issued to school districts and local health jurisdictions in California.
- At the direction of CDPH and Agency leadership, developed and issued a \$200,000 grant in collaboration with the UC Davis School of Engineering to develop publicly available training modules for facility management workers on methods to audit and improve IAQ. This grant program is intended to build capacity amongst the facility management workforce in California to allow them to take IAQ management steps that protect workers and other occupants of buildings in California.
- Helped author a successful NIOSH contract proposal aimed at creating respirator fit testing “train the trainer” programs in 3 diverse California communities. The purpose of the program is to increase fit testing capacity in California communities so that workers without an employer-sponsored respiratory protection program and members of the public can wear fit-tested respirators to protect themselves from future occupational or environmental hazards such as wildfire smoke.



Avian influenza



Highly pathogenic avian influenza (HPAI) A (H5N1) has been circulating in wild birds and causing outbreaks in poultry in the US since February 2022. HPAI viruses do not normally infect humans; however, sporadic zoonotic avian influenza infections among people with exposures to sick or dead poultry or wild birds have occurred. With each H5N1 outbreak in a poultry flock, or exposure of an individual who handles an infected wild bird, there is concern for potential human infection, and all exposed poultry workers, backyard flock owners, and wildlife rescue workers or other individuals who handle sick birds, should be monitored for symptoms of avian influenza.

HESIS staff coordinated with the Centers for Disease Control and Prevention (CDC), animal health agencies, local public health, the poultry industry, and wildlife rescue centers to identify and monitor workers and members of the public exposed to infected birds.

- Supported local health jurisdictions in monitoring 85 California residents, including 18 responders deployed to poultry outbreaks occurring in California or other states, 36 poultry producer responders, 21 backyard flock owners who were exposed to sick poultry, and 10 people exposed to wild birds.
- Trained an additional seven staff members to assist in notifying local health jurisdictions and report on surveillance activities.
- Assisted 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.
- Ensured symptomatic persons received testing for avian influenza; all tests to date in California have been negative.
- In collaboration with the CDPH Infectious Diseases Branch and the California Department of Food and Agriculture, updated and sent a letter to poultry producers in the state to inform them of the benefits of holding seasonal influenza vaccination clinics at their worksites to help prevent dual infection in employees with both seasonal and avian influenza and recommended that they hold these on-site clinics to help minimize the chance of developing a pandemic influenza strain.

SUPPORT THE DEVELOPMENT OF OCCUPATIONAL SAFETY AND HEALTH STANDARDS

- Provided technical assistance to Cal/OSHA for COVID-19 Prevention Non-Emergency Regulations.
- Provided medical input into responses to public comments on proposed changes to the lead standard to prevent adverse health effects from occupational exposure to lead.
- Served on the Cal/OSHA Emergency Silica Advisory Committee.
- Continued to support the Cal/OSHA Health Effects Advisory Committee (HEAC) in rulemaking for several chemicals that were addressed earlier by this committee. HESIS also provided support to the Cal/OSHA Research and Standards staff in preparing the final rulemaking documents on the chemicals Trichloroethylene (TCE), 1,1,2,2-Tetrabromoethane (TBE), Cyclohexane, n-Propyl alcohol, Trimellitic anhydride, 2-butoxyethanol or Ethylene glycol monobutyl ether (EGBE), and 2-butoxyethyl acetate or Ethylene glycol monobutyl ether acetate (EGBA) for further action and approval by the Standards Board.
- Conducted a literature review of the workplace protection factor (WPF) studies for N95 respirators to find out whether studies support the assigned protection factor (APF) of 10 for filtering facepiece respirators. The conclusions may be used to determine whether N95 filtering facepiece respirators will be permitted for highly hazardous chemicals in future rulemaking.
- At the request of Cal/OSHA, presented findings from OHB investigations of firefighters' risk of infection with *Coccidioides immitis* (the fungus that causes Valley fever) to members of their advisory committee in advance of Cal/OSHA's rulemaking addressing respiratory protection for wildland firefighters. The presentation to fire department leadership and respirator manufacturers covered the risk of exposure to this fungus, potentially serious consequences, and prevention strategies.



What's Next for HESIS?

In the upcoming year, HESIS will continue to carry out its mandate to identify, evaluate, and provide “early warning” and up-to-date, practical information on toxic chemicals and other workplace hazards. Anticipated activities include the following:

SUPPORT CAL/OSHA

- Continue to provide research, technical assistance, and support to the HEAC in its current rulemaking process to recommend revised PELs for chemicals including Methyl isobutyl ketone, Peracetic acid, and tert-Butyl alcohol.
- Update the toxicity as well as use and exposure information of 10 priority chemicals previously approved by the HEAC.
- 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.
- Support Cal/OSHA rulemaking across a range of exposures including silica.



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).
- 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.
- Continue to offer subject matter expertise to workers, employers, and local health jurisdictions on how improved IAQ can reduce the risk of aerosol-transmissible diseases.

DEVELOP STRATEGIES FOR PREVENTION

- Continue to carry out the aims of the California Artificial Stone and Silicosis (CASS) Project through increased awareness, improved diagnostics, and enhanced public health surveillance for silicosis.
- Engage manufacturers, distributors, and end-users in finding and promoting safer alternatives and improving hazard communication about toxic chemicals.
- Continue to assist local health departments in communicating with commercial poultry operators, farm workers, backyard flock owners, and wildlife care centers about the risk of zoonotic transmission from animals to humans of avian influenza A (H5N1), and on the protective measures needed, to prevent infection.



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DECEMBER 2023**



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