

# Immune, Infectious, and Dermal Disease Prevention Program

## What are our priorities?

The National Institute for Occupational Safety and Health (NIOSH) Immune, Infectious, and Dermal Disease Prevention Program works with partners in industry, labor, trade associations, professional organizations, and academia. The program focuses on these areas:

- Reducing immune abnormalities (including immune aspects of asthma) associated with workplace exposures.
- Reducing occupational skin disorders and exposures that result in disease.
- Reducing exposure and transmission of infectious diseases in the workplace.

## What do we do?

- Conduct research to better understand the impact and basic mechanisms of occupational exposures on the immune system, including exposures to chemical, biological, or infectious agents.
- Identify occupational allergens that cause disease in workers in high burden industries.
- Research occupational chemical exposures to develop strategies for prevention and raise awareness of skin injury materials.
- Maximize resources by using statistical modeling to prioritize chemicals to research, rather than investigating all potentially hazardous chemicals.
- Improve surveillance for hazard identification, exposure assessment, and risk characterization of chemicals absorbed through the skin that lead to immune or systemic toxicity (e.g., damage to internal organs).
- Increase awareness of occupational immune and dermal health issues through collaborations with NIOSH sector programs; contributions to field investigations; and publications and presentations of research findings.
- Conduct investigations of infectious disease occurring in workplaces.
- Provide evidence-based recommendations and guidance on prevention measures for managers and workers that will facilitate reduced transmission of infectious disease in the workplace.
- Publish [Skin Notation \(SK\) Profiles](#), hazard warnings used worldwide, to alert workers and employers to the health risks of skin exposures to workplace chemicals.

## What have we accomplished?

- Completed research that evaluated ultra-violet germicidal irradiation (UVGI) approaches to inactivate the multi-drug resistant fungal pathogen, *Candida auris*, which is an emerging public health threat in the Healthcare Sector.
- [Published](#) a review on the contribution of antimicrobials on allergic disease.
- To improve the safety of first responders, developed a fluorescent covalent bead immunoassay for the identification of drugs of abuse on surfaces including methamphetamine, cocaine, and fentanyl.
- Completed a [health hazard evaluation](#) as part of a multi-agency investigation of the largest psittacosis outbreak among poultry slaughter workers
- Published [updated guidance](#) on medical evaluation, testing, and follow up of healthcare personnel potentially exposed to Hepatitis C virus.

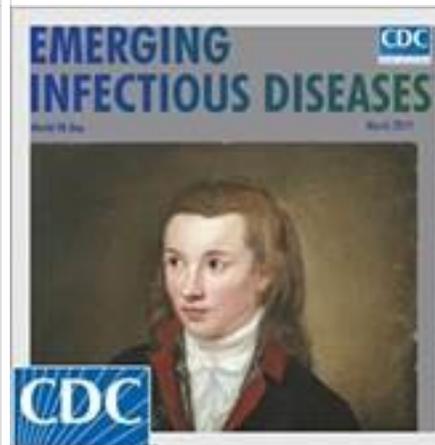
## What's next?

- Publish research on animal studies that characterize murine pulmonary and neurological responses to repeated inhalation exposure indoor fungi exposure following repeated inhalation. [Fungi include *Aspergillus versicolor* and *Vishniacozyma victoriae* (syn. *Cryptococcus victoriae*)].
- Investigate the role of the skin microbiome in allergic disease.
- Publish research on multiple methods to detect misused drugs on surfaces, including multiplex lateral flow immunoassay devices, trace liquid chromatography with tandem mass spectrometry, and direct reading instrumentation.
- Identify and investigate occupational immune hazards.
- Conduct investigations and publish guidance for worker groups related to emerging infectious diseases such as 2019 novel coronavirus.

## At-A-Glance

The Immune, Infectious, and Dermal Disease Program primarily focuses on hazard identification to prevent and minimize the effects of work-related dermal and immune diseases. This snapshot shows recent accomplishments and upcoming projects and activities.

## Publication Spotlight: [Case Investigations of Infectious Diseases Occurring in Workplaces](#), United States, 2006–2015



Source: Lindsley WG, Noti JD, Blachere FM, Szalajda JV, Beezhold DH. Efficacy of face shields against cough aerosol droplets from a cough simulator. *J Occup Environ Hyg.*2014;11(8):509-518. doi:10.1080/15459624.2013.877591

## NIOSH Cough Simulator Used to Study Transmission of Infectious Disease



Aerosols are expelled into a face shield at a distance of 18 inches. Video by Lindsley et al, 2014/NIOSH

To learn more, visit [www.cdc.gov/niosh/programs/idid](http://www.cdc.gov/niosh/programs/idid) December 2020



**Centers for Disease Control  
and Prevention**  
National Institute for Occupational  
Safety and Health

*Mention of any company or product does not constitute  
endorsement by the National Institute for Occupational  
Safety and Health, Centers for Disease Control and  
Prevention*