

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 transmission of infectious diseases in the workplace.

What do we do?

- Conduct research to better understand the impact and basic mechanisms of occupational exposures to chemical, biological, or infectious agents on the immune system.
- Identify occupational allergens that cause disease in workers in the industries with the highest burden.
- Research occupational chemical exposures to raise awareness of materials that can cause skin injury and develop strategies to prevent exposure.
- Maximize resources by using statistical modeling to prioritize chemicals to research, rather than investigating all potentially hazardous chemicals.
- Publish *Skin Notation (SK) Profiles*, hazard warnings used worldwide, to alert workers and employers to the health risks of skin exposures to workplace 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.
- Investigate the routes of transmission of influenza to help assess risk of infection in healthcare workers exposed to influenza patients and determine how the virus utilizes the infected patient's own cellular machinery to mount an infection.

What have we accomplished?

- Published research in collaboration with the National Toxicology Program (NTP) on subchronic inhalation exposures to *Aspergillus fumigatus* (NTPCo8022).
- Published research on the dermal uptake potential of nicotine from e-cigarettes refill liquids and applications of the data to dermal risk assessment.
- Published data about the transmission of a low pathogenic avian influenza (H7N2) virus based

on the collection of air and surface samples at an animal shelter where an outbreak was identified.

- Conducted hazard identification on the next generation quaternary ammonium occupational disinfectant compounds, didecylmethyl ammonium bromide and didecylmethyl ammonium chloride, and published the research describing the mechanism of sensitization.

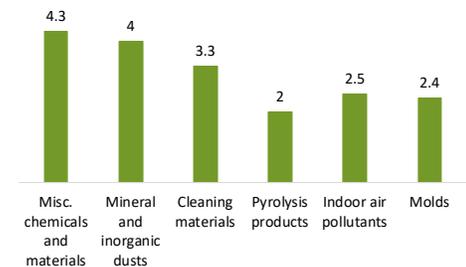
What's next?

- Explore the relationship between the skin microbiome and allergic disease, and determine the potential impact of occupational exposure to high level disinfectants.
- Investigate effects of recurring low-level occupational chemical exposures on dermal, immune and infectious diseases.
- Generate detailed information on the contributions of skin exposure to the overall body burden of toxic substances.
- Utilize animal models to further investigate the incidence and transmission of infectious disease in the workplace.
- Publish research in collaboration with the NTP on subchronic inhalation exposures to *Aspergillus versicolor* (NTPC15017)
- Develop at least 10 NIOSH SK Profiles.

At-A-Glance

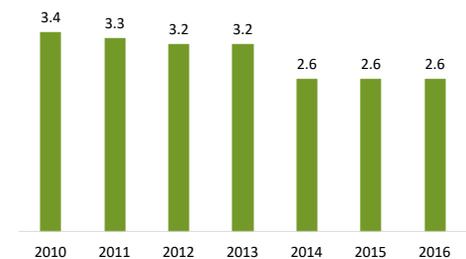
The Immune, Infectious and Dermal Disease Prevention Program primarily focuses on hazard identification to prevent and minimize the effects of work-related dermal and immune diseases. This snapshot shows recent accomplishments and upcoming work.

Most frequently reported causes of occupational asthma 2009-2012



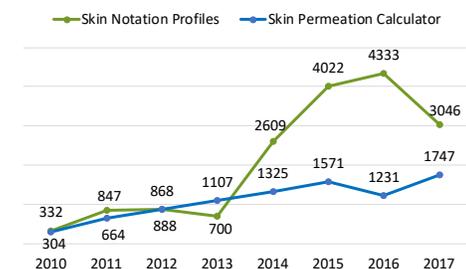
Source: NIOSH Work-Related Lung Disease Surveillance System (eWoRLD)

Rate of occupational skin diseases or disorders (per 10,000 workers)



Source: U.S. Bureau of Labor Statistics

Cumulative downloads of web resources:



Data source: NIOSH Program Records