

# NIOSH Immune, Dermal, and Infectious Disease Program

May 2016

## What are our priorities?

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

- Reducing immune abnormalities (including asthma) associated with work place exposures
- Reducing occupational skin disorders and exposures that result in disease

## What do we do?

- Conduct research to better understand the impact 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 modeling to prioritize chemicals to research, rather than investigating all potentially hazardous chemicals.
- Publish Skin Notations (SK), 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 Industry Sector Programs; contributions to field investigations; and publications and presentations of research findings.

## What have we accomplished?

- Collaborated on numerous NIOSH Health Hazard Evaluations (HHEs) including investigations into outbreaks of contact dermatitis at an ink manufacturing plant; asthma among workers at a soy processing plant; sensitization potential of metal working fluids; and evaluations of biological agents in water damaged indoor environments.
- Developed the NIOSH sampler for the detection of airborne influenza and is being use by 100+ agencies/institutes to study disease transmission in the workplace.
- Used data from a study on how nicotine from e-cigarette refill liquids is absorbed through the skin in an OSHA investigation.
- Developed an ASTM analytical standard for the quantification of contact allergens in rubber and nitrile gloves.
- Published dermal permeation data for perfluorooctanoic acid (a synthetic chemical used in the manufacture of Teflon and other consumer products). The New Jersey Department of Environmental Protection used the data for their dermal risk assessment of ground water contamination due to its suspected health effect.
- Published 30 NIOSH SK Notations and 220 publications which have been cited by others over 1800 times.

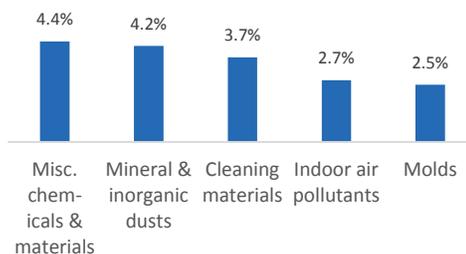
## What's next?

- Publish the first studies on the effect of long term exposure to mold spores in collaboration with the National Institute of Environmental Health Sciences.
- Publish a guidance document on occupational exposure limits for chemical allergens.
- Publish research on how exposure to quaternary ammonium compounds increase allergic disease among healthcare workers.
- Develop and publish 29 NIOSH SK Notation Profiles.
- Publish research on the dermal uptake potential of benzene and other chemicals in gasoline and crude oil after occupational exposures.
- Hold a meeting with external partners and stakeholders to set research priorities; identify research gaps; and to discuss ways to advance the science.

## At-A-Glance

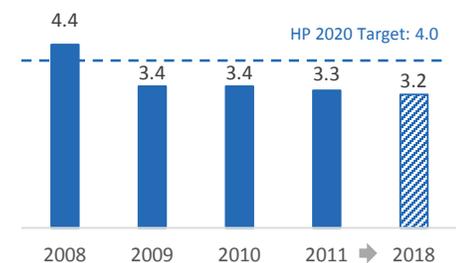
The Immune, Dermal, and Infectious Disease Program primarily focuses on hazard identification to prevent and minimize the effects of work-related dermal and immune diseases. This snapshot shows recent accomplishments and upcoming work.

Most frequently reported causes of occupational asthma, 2009-2011



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

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



Source: Healthy People 2020

Cumulative downloads of web resources:  
Skin Notation Profiles • &  
Skin Permeation Calculator ♦



Source: NIOSH Program Records