Asthma from Isocyanates

Prevention guidance for isocyanate-induced asthma using occupational surveillance data

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Carolyn Reeb-Whitaker, MS, CIH; NJ Anderson, MPH; and DK Bonauto, MD, MPH

Overview

National U.S. surveillance programs rank isocyanates as one of the top 10 causes of occupational asthma.

A total of 27 isocyanate-induced asthma cases were reported to Washington State's work-related asthma surveillance system from 1999 through 2010. The cases are characterized here and prevention strategies are suggested. Injured worker interviews and medical records were used to describe the industry, job title, work process, workers' compensation cost and associated exposure trends.

Key observations are made regarding the development of work-related asthma in association with: a) paint application on large objects difficult to ventilate, b) indirect exposure to isocyanates, c) exposure during secondary or clean-up processes, and d) reports of dermal exposure.

Key Findings

- 27 isocyanate-induced asthma cases were identified from 1999-2010 with 81% classified as new-onset asthma.
- Isocyanate-induced asthma was responsible for 14% of total claim costs for all claims in the asthma surveillance system, totaling $1.7 million for the study period.
- Most cases (48%) occurred from paint processes, followed by foam application or foam manufacturing (22%).
- Nine of the asthma cases associated with spray application occurred during application to large or awkward-shaped objects.
- Six workers who did not directly handle isocyanates (indirect exposure) developed new-onset asthma.
- Two cases suggest that skin contact and processes secondary to the isocyanate spray application, such as clean-up, contributed to immune sensitization.

Impact

Occupational disease surveillance data provides insight for the prevention of isocyanate-induced respiratory disease.

Contact the author:
Carolyn.Whitaker@Lni.wa.gov

Research for Safe Work

The SHARP Program at the Washington State Department of Labor & Industries partners with business and labor to develop sensible, effective solutions to identify and eliminate industry-wide hazards. Learn more at www.Lni.wa.gov/Safety/Research

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