OCCUPATIONAL HEALTH SURVEILLANCE AND EVALUATION PROGRAM
CALIFORNIA DEPARTMENT OF HEALTH SERVICES

FACTSHEET #2 • JUNE 2002

ASTHMA

Prevention of Occupational Asthma in California

THE SENSOR PROJECT

Asthma is the most commonly diagnosed occupational respiratory disease in developed countries. It is estimated that workplace exposures are responsible for up to 29% of all asthma cases among adults. In some industries, such as those involving exposure to isocyanates or red cedar, approximately 5% of workers have been documented to develop occupational asthma. In 1996, asthma was estimated to be responsible for approximately 2.5 million lost work days in the U.S.

Occupational asthma is underdiagnosed and underreported. A Michigan study estimated that only 0.2–2.7% of the occupational asthma cases in that state were identified through standard reporting mechanisms. An additional study in the U.K. estimates that the true incidence of occupational asthma is 3 times the reported incidence.

The primary treatment for occupational asthma is removal from the source of exposure. The prognosis for recovery after exposure ceases is significantly affected by the amount of time elapsed from exposure to diagnosis. The majority of people who develop occupational asthma fail to fully recover, even after several years without exposure. A number of studies have shown that 50–60% of workers were still symptomatic 3 to 4 years after exposure had ended.

Interviewed Cases by Diagnosis
Surveillance of Occupational Asthma in California – 3/1/93–12/31/99
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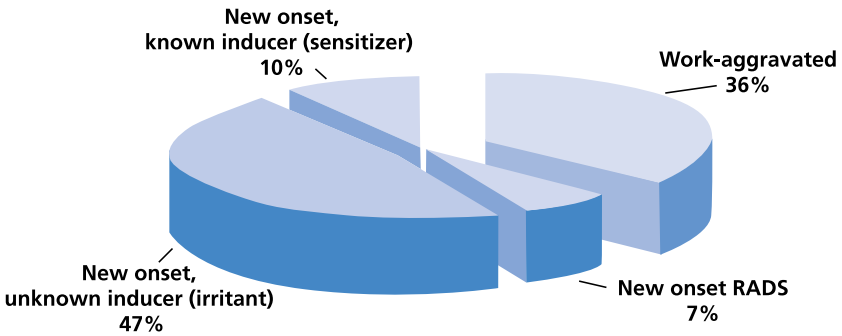


Risk factors for occupational asthma remain poorly understood and controlled.

California is one of three states to receive funding from the National Institute for Occupational Safety and Health (NIOSH) to conduct surveillance of occupational asthma. The California Department of Health Services' Sentinel Event Notification System for Occupational Risks (SENSOR) program was developed to identify primary and secondary cases of occupational asthma, characterize exposures and disease, develop interventions in the workplace, and devise prevention strategies.

California law requires that physicians file a Doctor's First Report of Occupational Injury or Illness for each case of suspected illness or

Funding provided by National Institute for Occupational Safety and Health (NIOSH)

injury caused on the job. The SENSOR program depends upon Doctor's First Reports for case identification. These reports constitute a sentinel event, providing an opportunity for follow-up, investigation and prevention.

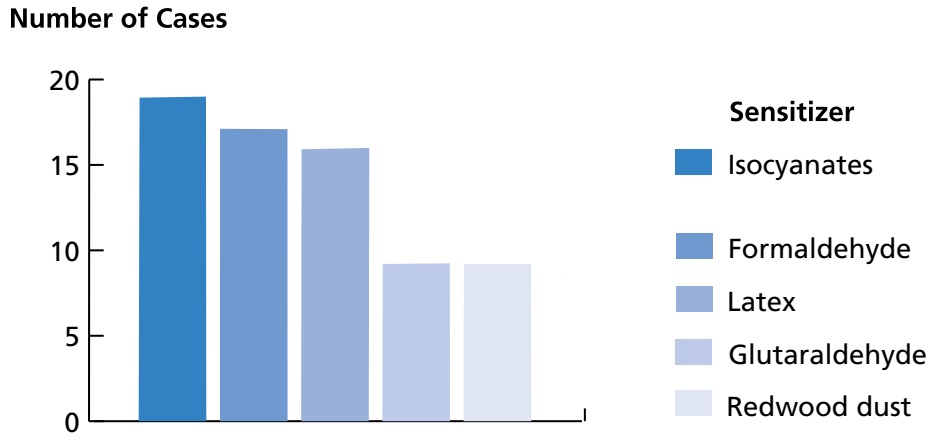
The SENSOR project has documented that occupational asthma is a significant problem in California. Since 1993, an average of 323 cases of work-related asthma have been reported to the SENSOR program each year, with cases reported from every region of the state. Workers reported to have occupational asthma are 43% male and 57% female, compared with the California workforce which is 56% male and 44% female. Nearly 60% of the cases were in the age range of 30 - 50 years. The overall rate of occupational asthma by industry is 2.4 cases per 100,000 workers, with especially high rates in local transit agencies (13.9), lumber and wood manufacturing (7.8), electric, gas and sanitary services (7.4), heavy construction (6.6) and transportation equipment manufacturing (5.7). Close behind are social services (5.2) and health services (5.1). Among the occupations with especially high rates are firefighters (28.6/100,000), correctional officers (27.7), welfare eligibility clerks (20.1), laborers except construction workers (13.3) and respiratory therapists (13.2). Of the ten occupations with the highest rates, four are jobs within the health care industry.

Approximately 55% of the occupational asthma cases reported through Doctor's First Reports could be reached by telephone and asked to complete a telephone interview. Among those cases that were reached, the interview completion rate was 78%. The interview collects additional information on work practices, chemical exposures, and medical history. Nearly 2/3 of the interviewed workers did not previously have asthma until it started at work, whereas 1/3 had existing asthma that was exacerbated by their work. The most common categories of exposure agents identified were mineral and inorganic dusts, cleaning agents, unclassifiable chemicals, solvents, smoke/exhaust, indoor air exposures, mold and plant materials. Of the documented asthma sensitizing agents, the most commonly reported were isocyanates, formaldehyde, latex, glutaraldehyde, and redwood dust.

Physicians play a crucial role in preventing occupational asthma.

Identifying cases promptly is critical to stopping exposure and significantly improving the chance for recovery. It is important for all clinicians to be aware of the prevalence and consequences of occupational asthma and to file a Doctor's First Report whenever the condition is identified or suspected. For more information about occupational asthma in California or the SENSOR program, contact Dr. Robert Harrison at 510-622-4404. ●

Interviewed Cases by 5 Most Frequently Identified Sensitizer Exposures
Surveillance of Occupational Asthma in California – 3/1/93–12/31/99



FINDINGS FROM THE FIELD...

The California SENSOR project collects field information on cases that fulfill at least one of the following criteria: A large number of cases ("cluster") are received from a particular industry, occupation, or employer; the case represents an occupation with a large number of employees at risk for asthma in a particular industry or plant; worksite evaluation suggests that prevention recommendations are feasible; there is an opportunity to distribute industry-wide prevention materials; or the case represents a sentinel event (i.e., the case presents an opportunity to collect important information on a new agent). Examples of exposures that we have studied include:

- flour dust exposure in a bagel bakery
- isocyanate usage in a statue manufacturing plant
- wood dust exposure in a lumber mill and a furniture manufacturing factory

Custodian removing graffiti in a bathroom stall with no gloves and the wrong type of respiratory protection (e.g. a dust mask)

Graffiti removers can cause work-related asthma.

Since 1993, the California SENSOR Program has received reports of 13 cases of occupational asthma from workers who use graffiti removers. Occupations include custodians, laborers, painters, bus service attendants, phone booth cleaners, and teachers. These workers may work in a number of different industries, including public transportation, city governments, and school districts. California alone has hundreds of workers removing graffiti as part of their daily job duties. There have been few studies on the hazards of this population of workers.

Graffiti removers contain numerous chemicals, with new formulations coming out on the market frequently. Some common chemical constituents include:

- glycol ethers (eg., 2-butoxyethanol)
- d-limonene
- N-methylpyrrolidone

Most of the chemicals found in graffiti removers are strong respiratory, eye and dermal irritants. Monoethanolamine has been the only asthmagen identified to date.

Some risk factors for work-related asthma in this population include:

- lack of hazard communication training
- providing the wrong type of personal protective equipment (PPE), such as latex gloves and dust masks, or no PPE
- working in confined areas with little ventilation, such as in a subway system or within narrow stairways

In addition, material safety data sheets (MSDSs) often contain inadequate health and safety information on graffiti removers. Ingredients are frequently classified as "trade secret" or "proprietary." Therefore, the chemical information is not available to a company for hazard communication training of its employees.

Some recommendations include:

- providing chemical-specific hazard communication training;
- selecting products based on toxicity evaluation, and not only by effectiveness, cost and odor; and
- providing the right type of personal protective equipment, after thorough toxicity evaluation.

For more information on graffiti removers and other field studies, please call Jackie Chan at 1-800-970-6680. ●

CONTACT US...

For more information about our projects or to see a list of our publications, contact:

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