



Lungs@Work



SHARP's Work-Related Asthma Bulletin

A newsletter of the Safety and Health Assessment and Research for Prevention (SHARP) Program
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Dear Health Care Provider:

This issue of *Lungs@Work* provides results of an analysis of surveillance data collected through July 2002. We hope that you find it informative. If you have any questions or suggestions, please feel free to give us a call.

Sincerely,
Christy Curwick, MPH
David Bonauto, MD, MPH

WRA Surveillance Findings: September 2000 – July 2002

In September 2000, SHARP began systematically collecting information on workers with asthma either caused or aggravated by workplace exposures. SHARP collects cases monthly from the workers' compensation system and receives case reports directly from physicians and other health care providers.

From September 2000 through July 2002, we received 410 reports – 382 reports from the workers' compensation database and 28 provider reports. We received duplicate reports for seven individuals and four cases received through the workers' compensation database were excluded from analysis because they contained too little information. Therefore, the following results are based on an analysis of 399 cases.

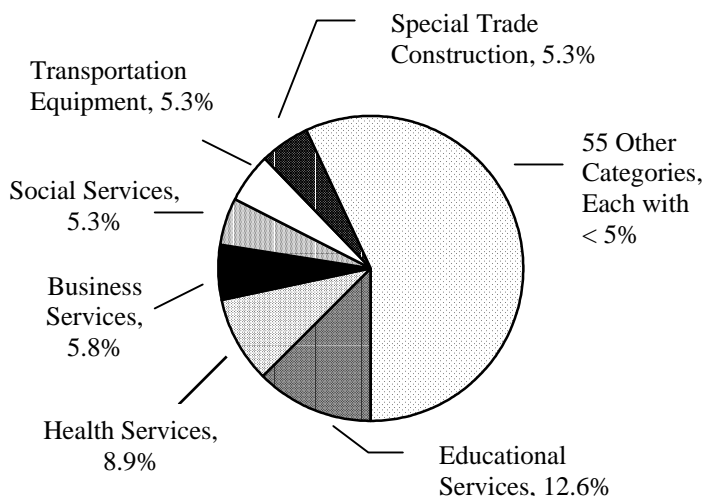
Over half (56%) of work-related asthma (WRA) cases were female and the average age was 41.5 years.

Two-digit Standard Industrial Classification (SIC) codes were available for 380/399 (95%) of cases. Figure 1 demonstrates that cases were distributed over a broad range of industrial categories with Educational Services comprising the greatest proportion of cases.

Standard Occupational Classification codes were available for 281/399 (70%) of cases. Similar to the industrial distribution, WRA cases were dispersed among a large number of occupational categories. The category containing the greatest

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Figure 1: Work-Related Asthma Cases by 2-Digit SIC



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Surveillance Findings (Continued)

proportion of cases (7%), was “Laborers and Freight, Stock, and Material Movers, Hand”, i.e., unskilled manual laborers. The category “Production Workers, all other” contained the next highest proportion of cases (5%). The remaining cases were distributed throughout 138 different occupational categories, each comprising less than 3% of cases. ■

Phone Interview Results: Occupational Asthma versus Work-Aggravated Asthma

In October 2001, SHARP began conducting phone interviews with all WRA cases identified through the surveillance system. Between October 2001 and July 2002, we completed interviews with 134 individuals.

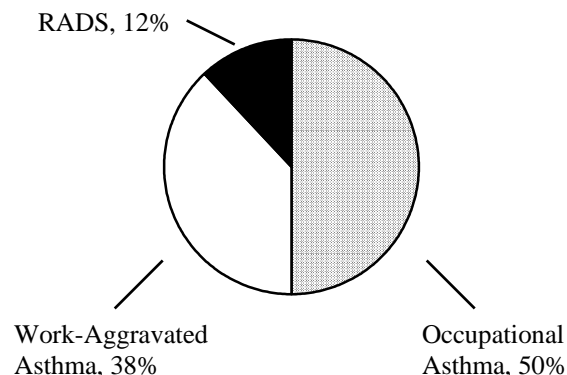
A higher percentage of workers completing interviews were female (65%) relative to the percentage of female cases in the surveillance system (56%). The average age of workers completing interviews was 41.4 years, similar to the mean age of all cases in the surveillance system (41.5 years).

Case Classification

We categorized cases using the classification system used by states conducting WRA surveillance under the Sentinel Event Notification System for Occupational Risks (SENSOR) program.

In general, WRA cases with no prior history of asthma, as well as those who have a history of asthma but were not symptomatic or using asthma medications during the two-years prior to entering their new occupational setting, are classified as having occupational asthma. Workers with pre-existing asthma that have an increase in symptoms or medication use upon entering a new occupational setting have work-aggravated asthma. Those with new asthma

Figure 2: WRA Case Classification



symptoms that developed within 24-hours of a one-time high-level exposure are classified as having Reactive Airways Dysfunction Syndrome (RADS).

Figure 2 shows the distribution of cases among the three asthma classification groups. Of the 134 cases interviewed, 67 had occupational asthma and 51 had work-aggravated asthma. Sixteen cases were classified as having RADS.

Characteristics of Occupational Asthma and Work-Aggravated Asthma Cases

The mean age of workers with occupational asthma was 40.6 years, compared to 42.4 years for those with work-aggravated asthma. Occupational asthma cases were more likely to be male and less likely to have either a personal history of allergies or a family history of asthma and allergies, relative to cases of work-aggravated asthma (Table 1). Workers with occupational asthma were also less likely to be still employed at the workplaces where they developed asthma, compared to workers with work-aggravated asthma. Among the 43 workers with occupational asthma who were still employed in the workplace where they developed asthma, 15 (35%) were still exposed to the source(s) that they believed contributed to their asthma.

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Phone Interview Results (Continued)

**Table 1:
Personal Characteristics of Occupational and Work-Aggravated Asthma Cases**

	Occupational Asthma (n = 67)	Work-Aggravated Asthma (n = 51)	p-value
Males	32 (48%)	10 (20%)	.002
Still employed at workplace	43 (65%) ¹	43 (84%)	.020
Prior history of allergies	19 (28%)	39 (77%)	.000
Family history of asthma	29 (43%)	30 (63%) ²	.042
History of smoking	32 (48%)	21 (41%)	.476
Current smokers	14 (21%)	7 (14%)	.313
Pets in the home	37 (55%)	35 (69%)	.139

¹ One occupational asthma case had an uncertain employment status and was excluded from the analysis.

² Three work-aggravated asthma cases did not know about their family history and were excluded from the analysis.

Exposures

We coded sources according to the Association of Occupational and Environmental Clinics (AOEC) exposure coding system. Eighteen workers (27%) with occupational asthma described multiple sources as potentially responsible for their asthma. Single sources identified by at least two individuals with occupational asthma are listed in Table 2 – these sources were identified by 31 cases, or 46% of the occupational asthma cases interviewed.

Sources identified by at least two workers with work-aggravated asthma that were not identified by multiple occupational asthma cases were pesticides (3 cases), paint (3 cases), and smoke (2 cases).

Table 2: Exposure Sources Identified by Occupational Asthma Cases

Source	Number (%)
Western Red Cedar	5 (7.5%)
Indoor Air Pollutants	5 (7.5%)
Isocyanates, NOS	4 (6.0%)
Chemicals, NOS	4 (6.0%)
Mold	4 (6.0%)
Perfume, NOS	3 (4.5%)
Wood Dust, NOS	2 (3.0%)
Dust, NOS	2 (3.0%)
Bleach	2 (3.0%)

¹NOS = Not Otherwise Specified

We categorized exposures as related to the indoor air quality of the building if they were in non-industrial settings and not isolated to a specific incident or location (i.e., generally distributed throughout the indoor environment). The proportion of occupational asthma cases related to indoor air quality (30%) was smaller, compared to 39% for workers with work-aggravated asthma, though the difference was not significant (chi-square, $p = .287$).

Summary

Data collected from interviews with WRA cases have enabled us to categorize cases using the SENSOR classification system, as well as to describe exposures using AOEC source codes.

Further investigation is needed to determine whether or not the workers who participate in the interview process are representative of all cases identified through the surveillance system.

Additional study is also needed to compare the occupational and industrial distributions among cases of occupational asthma, work-aggravated asthma, and RADS. ■

Need a reporting form?

Call 1-888-66-SHARP

or download one from our website:

www.LNI.wa.gov/sharp/reportable/asthma.htm

AOEC Exposure Database

The Association of Environmental and Occupational Clinics (AOEC) has developed an exposure database intended to contain all occupational and environmental exposures capable of causing illness. The database includes chemical agents such as isocyanates, bleach and beryllium; biological sources like enzymes, mold and viruses; as well as physical hazards such as cold temperatures, radiation and heavy lifting.

In addition to assigning exposure codes, the database also provides common names as well as designations for which exposures are known asthmagens, solvents, and pesticides.

The AOEC exposure-coding database can serve as a good resource for providers when trying to determine whether a given exposure is a likely asthma-causing agent.

The AOEC exposure-coding database is available online at: www.aoec.org/aoeccode.htm. ■

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Please submit your WRA case reports to SHARP:

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