



# Asthma in BC Workers

## Surveillance Using New Occupational Research Capacity in the BC Linked Health Database

### Objective

To investigate the relationship between active asthma rates and work characteristics using a newly developed industry of employment variable in the BC Linked Health Database (BCLHD).

### Methods

We defined a cohort of working age (15-64 years) adults in 2001 who had an employer-paid Medical Services Plan (MSP) premium in the BCLHD. Subjects were included if their employer field could be linked to a unique or 'principal' industry code from the North American Industry Classification Scheme (NAICS). Individuals were excluded if they had a diagnosis of Chronic Obstructive Pulmonary Disease.

A combination of health services data (MSP physician billings and hospital discharge abstracts), prescription records (from BC PharmaNet), and workers' time-loss compensation claims (from WorkSafeBC) was used to define our asthma cases. The case definition was:

- Any hospitalization, or workers' compensation claim, or
- Two out-patient physician visits for asthma (ICD9 = 493), or
- Two prescriptions for asthma drugs combined with one physician visit for asthma in a one year window.

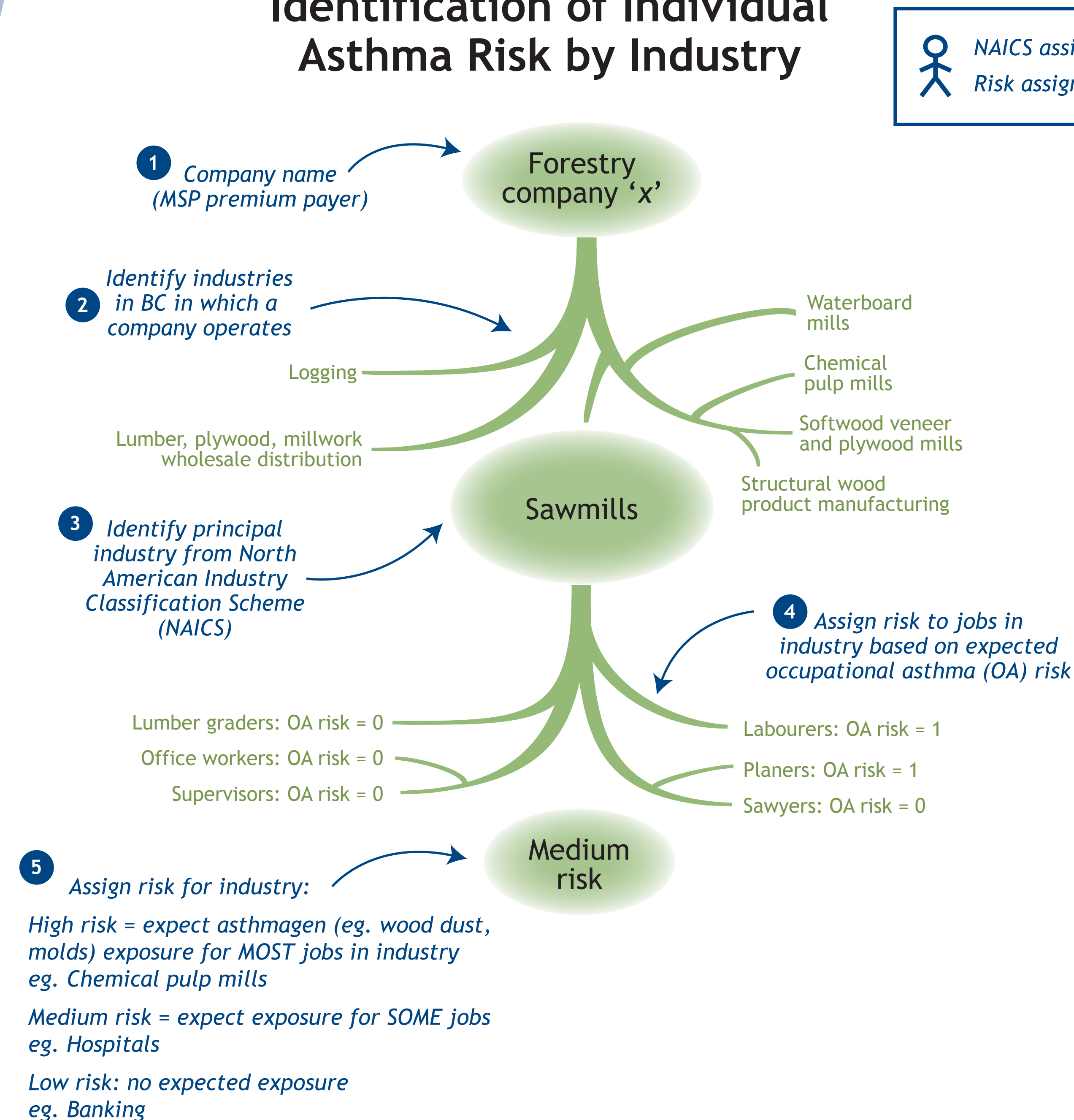
A case was 'active' in 2001 if the subject received asthma-related health care services or prescriptions.

Industries were classified as high, medium or low risk for occupational asthma (OA) by an expert working group using information from an asthma-specific job-exposure matrix<sup>1</sup>.

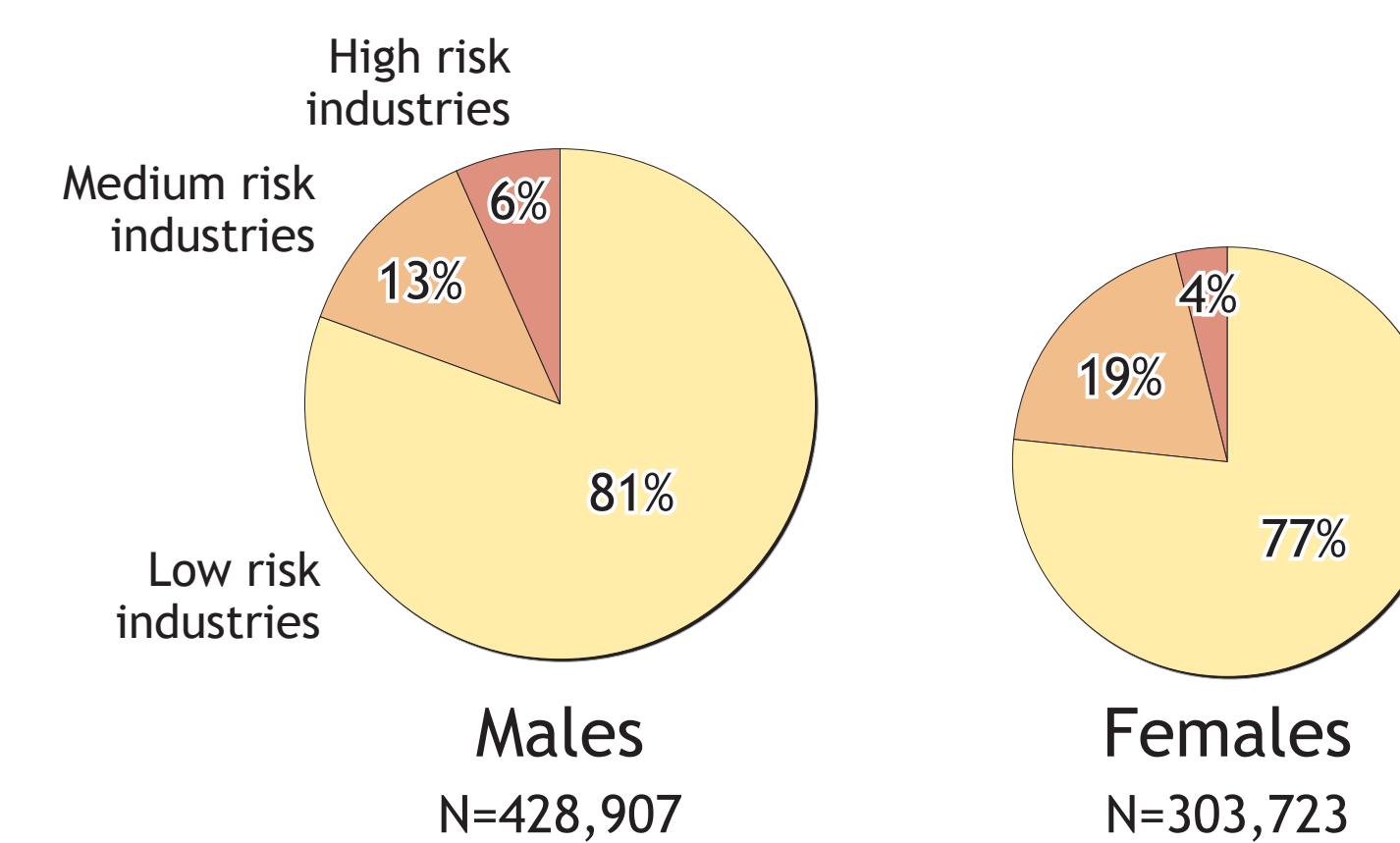
### Results

A cohort of 2.7 million eligible working-age adults was identified, with 732,000 workers linked to a NAICS code and assigned to OA risk groups. The linkage rate was slightly better for men (32%) than for women (22%). This pool of workers represents about 38% of the 2001 BC labour force (about 34% of the female workforce and about 42% of the male workforce).

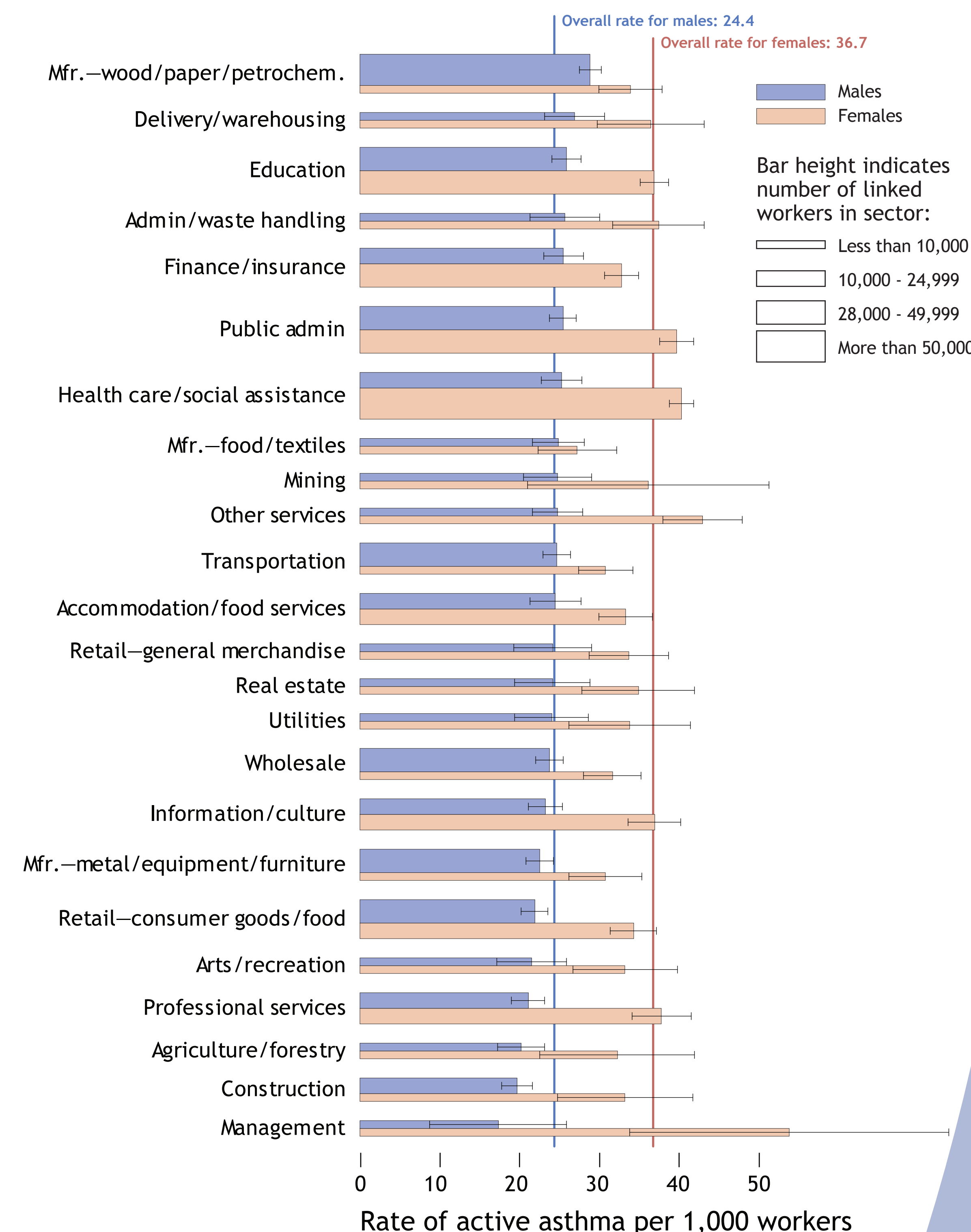
### Identification of Individual Asthma Risk by Industry



### Distribution of Cohort Among Industry Risk Categories



### Age-adjusted Active Asthma Rates in Workers in 2001 by Industry Sector



### Active Asthma Rates in 2001 in the Working Age Population

		15-24	25-34	35-44	45-54	55-64	15-64
In the overall population	Males	24.5 23.9-25.1	25.0 24.5-25.6	22.3 21.8-22.8	20.3 19.8-20.8	20.4 19.8-21.1	22.6 22.4-22.9
	Females	33.6 32.9-34.3	35.4 34.7-36.1	34.4 33.8-35.0	34.5 33.8-35.2	33.2 32.4-34.1	34.3 34.0-34.6
For linked male workers	All linked males	25.5 23.7-27.2	28.6 27.5-29.6	24.0 23.2-24.9	22.0 21.1-22.8	22.6 21.4-23.8	24.4 23.9-24.9
	Linked males at high or med risk	27.6 23.3-31.9	30.2 27.6-32.8	25.9 24.0-27.9	27.0 24.9-29.1	27.4 24.5-30.4	27.4 26.3-28.5
	Linked males at low risk	25.0 23.1-26.9	28.2 27.1-29.4	23.5 22.6-24.5	20.8 19.9-21.7	21.3 20.0-22.6	23.7 23.2-24.2
For linked female workers	All linked females	33.1 30.7-35.4	38.4 37.0-39.8	36.0 34.8-37.2	37.1 35.8-38.4	36.1 34.0-38.2	36.7 36.0-37.4
	Linked females at high or med risk	35.2 28.3-42.0	38.4 35.2-41.6	38.2 35.7-40.7	37.4 34.9-39.9	35.2 31.6-38.9	37.5 36.1-38.9
	Linked females at low risk	32.8 30.3-35.2	38.4 36.9-39.9	35.3 33.9-36.7	37.0 35.5-38.5	36.5 34.0-38.9	36.5 35.7-37.2

A significant increase in active asthma was seen for workers compared to the general working-age population, both for men (24.4 per 1000 for linked workers vs. 22.6 overall) and women (36.7 vs. 34.3).

Medium and high risk groups were pooled to examine the effect of industry OA risk on active asthma. Men working in high or medium risk industries had significantly elevated active asthma rates relative to those in low risk industries (27.4 vs. 23.7). Rates for women in high or medium risk industries were slightly higher than for those in low risk industries (37.5 vs. 36.5), but were not statistically significant.

Age-adjusted rates across industry sectors were also examined. For women, eight sectors containing 61.5% of the female cohort had active asthma rates (36.9-53.8) greater than the overall female rate (36.7). For men, 12 sectors containing 58.9% of the male cohort had rates (24.5-28.9) greater than the overall male rate (24.4).

### Conclusions

This study provides an example of using the BCLHD as an occupational surveillance tool.

Our preliminary results suggest a possible association between industry of employment and active asthma, particularly for men. The job exposure matrix may have limitations for assigning asthma risks for women using industry of employment. The sector employing the largest number of women, Health Care and Social Services, has a significantly higher active asthma rate than of female workers overall. For men, the Wood and Paper Manufacturing sector employs the largest workforce and has significantly higher active asthma rates. These sectors include a significant number of high and medium risk industries and would be good targets for OA prevention measures.

<sup>1</sup>More information on the occupational asthma job exposure matrix can be found at <http://www.cher.ubc.ca/asthmajem/index.htm>.

### Acknowledgements

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