SENSOR

Occupational Lung Disease Bulletin

Massachusetts Department of Public Health
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Dear Healthcare Provider,

The analysis presented in this issue of the Bulletin is part of a joint effort of the Occupational Health Surveillance Program and Asthma Prevention and Control Program to look at asthma prevalence across occupations in Massachusetts using data from the 2010 Behavioral Risk Factor Surveillance System (BRFSS.) Until now, population-based estimates of the burden of asthma among MA workers in different occupations have not been available. Estimates of asthma prevalence by occupation can guide broad-based prevention and control efforts in MA and may provide useful information for clinicians treating workers with asthma.

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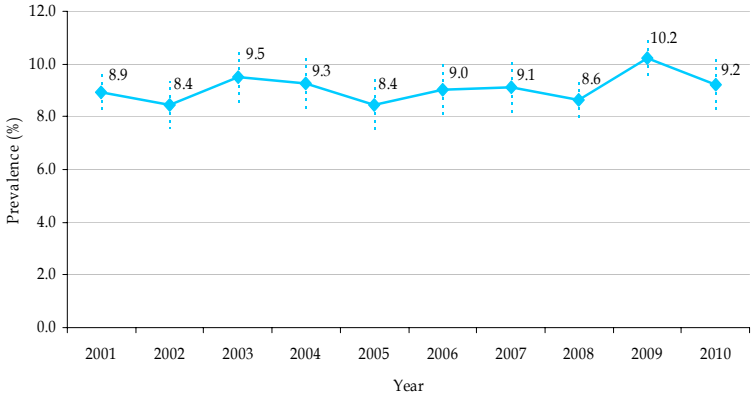
Burden of Asthma among Massachusetts Service Workers, 2010

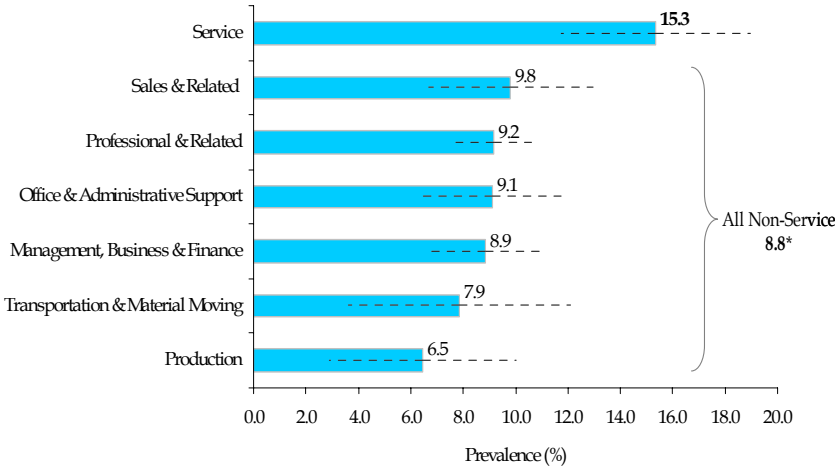
The prevalence of current asthma among working adults in MA has remained stable over the past decade, with nearly one in ten reporting asthma each year in the MA BRFSS (Figure 1). In 2010, 9.2% reported current asthma, which means an estimated 340,000 Massachusetts workers had asthma that year.

Figure 1. Current asthma prevalence among workers aged 18+, by year, Massachusetts, 2001 - 2010



Source: MA Behavioral Risk Factor Surveillance System, MDPH

Figure 2. Current asthma prevalence among workers aged 18+, by occupation group, Massachusetts, 2010



* Occupation groups included in 'All Non-Service', but not shown separately: Production; Farming, Forestry, & Fishing; Construction & Extraction; Installation, Repair, & Maintenance.
Note: Error bars are 95% confidence intervals.
Source: MA Behavioral Risk Factor Surveillance System, MDPH

By occupation, we found that the prevalence of current asthma among workers in *Service* (15.3%) was nearly twice the prevalence for those in all other occupations combined (8.8%) (Figure 2). Also, among all workers who had ever been diagnosed with asthma, those in *Service* occupations were more likely to still have asthma (82.5% vs. 62.2%).

A Closer Look at Service Occupations

Employing an estimated 531,000 (17%) workers in 2010, *Service* was the state's third largest occupation group behind *Professional and Related* and *Management, Business and Financial Operations* (BLS, 2010). Service is a broadly defined group that includes *Healthcare Support*; *Protective Service*; *Food Service*; *Cleaning and Maintenance*; as well as *Personal Care and Service* occupations. Looking more closely at these *Service* occupation subgroups, we found that asthma prevalence varied and that workers in *Personal Care and Service* had a particularly high prevalence; almost one in four of these workers reported having asthma (Figure 3).

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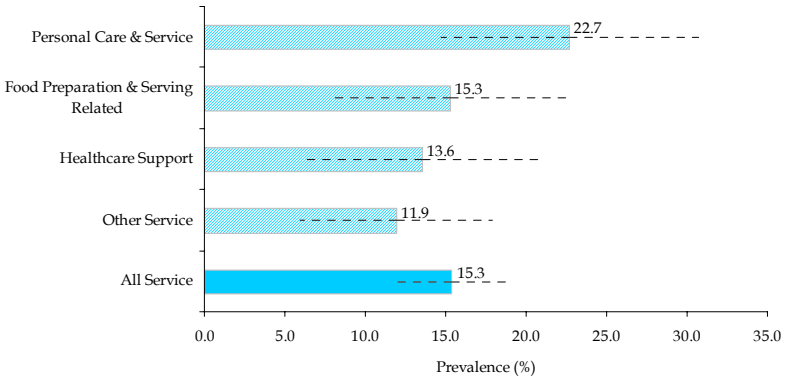
Figure 3. Current asthma prevalence among workers aged 18+, by Service occupation subgroup, Massachusetts, 2010



Note: 'Other Service' includes Protective Service and Building & Grounds Cleaning & Maintenance. Error bars are 95% confidence intervals.
Source: MA Behavioral Risk Factor Surveillance System, MDPH

According to the MA BRFSS, *Service* workers were more likely than all other workers to be aged 18-25 years, female, current smokers, and to have low educational attainment - factors known to be associated with asthma in adults. However, multiple sources indicate that *Service* workers are also potentially exposed to a number of well known asthma-related substances in the workplace (See Table).

While we were unable in this analysis to assess the proportion of asthma that may be attributed to work, it is possible that occupational exposures contribute to the excess of current asthma in this group. Factors outside of work, such as harmful environmental exposures at home or in the community, might also play a role. More research is needed in this area.

The National Institute for Occupational Safety and Health (NIOSH) recently reported that an estimated 42% of ever-employed adults with current asthma in MA believe their asthma is related to workplace exposures, but only 6% have been diagnosed with work-related asthma (Knoeller, 2011). It is important for clinicians treating adults with asthma who are employed in *Service* jobs to consider the potential role of occupational exposures. Also, remember to report cases of work-related asthma to the MA Department of Public Health (MDPH) as required by public health regulations.

Table. Select potential exposures for Service occupations
Note: References available upon request

Service Occupation Subgroup	Example Occupations	Select Potential Exposures
Healthcare Support	home health aide, nurse's aide, medical aide, dental assistant, pharmacy assistant, massage therapist	cleaning products, latex, glutaraldehyde, formaldehyde, paints/solvents, mold, animals, environmental tobacco smoke
Protective Service	corrections officer, police officer, fire fighter, bailiff, animal control worker, security guard, lifeguard	acute inhalation exposure to fire, cleaning products, chloramines from swimming pools, animals
Food Preparation & Serving Related	chef/cook, baker, waiter/waitress, bar tender, dishwasher, host/hostess	baking flours & enzymes, cleaning products, environmental tobacco smoke
Building & Grounds Cleaning & Maintenance	janitor, housekeeper, landscaper, pest control worker, pesticide applicator, tree trimmer	cleaning products, dust, plant pollens, mites, pesticides, mold, animals
Personal Care & Service	barber, hairdresser, cosmetologist, manicurist, embalmer, daycare worker, flight attendant, animal trainer, recreation attendant	hair dyes, bleaches & straightening products, cleaning products, formaldehyde, animals

With healthcare reform has come an increased emphasis on prevention, including wellness initiatives that incorporate both health protection and promotion strategies. Such programs should address prevention and control of asthma. Healthcare providers can advise employers and wellness professionals in designing strategies to reduce workplace hazards as well as activities focused on asthma management both during and outside of work. Useful guidance and tools are available from the following:

- www.cdc.gov/nationalhealthyworksite
- www.oehc.uchc.edu/healthywork
- www.mass.gov/massinmotion

Data Source

The Behavioral Risk Factor Surveillance System (BRFSS), a collaborative effort of the federal Centers for Disease Control and Prevention (CDC) and the states, is an annual random-digit-dial telephone survey of adults aged 18 and older that collects data on health conditions, risk factors, and behaviors. Annually, in addition to a core set of CDC questions, the MDPH includes questions on a number of other health-related topics in the MA BRFSS survey. Workers were identified as adults who reported being employed for wages, self-employed, or out of work for less than one year. In 2010, open-ended questions about occupation and industry were added to the survey. Workers were asked "What kind of work do you do, that is, what is your occupation?" The free-text responses were coded by NIOSH according to the Census Occupation Codes. Workers with current asthma were defined as those who responded 'Yes' to both questions: "Have you ever been told by a doctor, nurse, or other health professional that you had asthma?" (lifetime asthma), and "Do you still have asthma?" For more information on the MA BRFSS visit www.mass.gov/eohhs/consumer/community-health/brfss/.

References

BLS (U.S. Bureau of Labor Statistics). Current Population Survey, 2010. http://www.bls.gov/opub/gp/pdf/gp10full.pdf

Knoeller GE, Mazurek JM, Moorman JE. Work-Related Asthma Among Adults with Current Asthma in 33 States and DC: Evidence from the Asthma Call-Back Survey, 2006–2007. Public Health Reports. 2011; 126:603-611.

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