

A View of Asthma in Oregon

Volume 2 Issue 1

Spring 2003

In This Issue

Active Smoking and Asthma: A Volatile Mix

Pathophysiology	1
Prevalence of Asthma and Smoking	1-2
Increased Symptoms	2
Activity Reductions	3
Conclusions	3
How You Can Help	3-4

"All by itself, smoking is destructive and often deadly. In someone with asthma, smoking seems unfathomable, but they are addicted. People with asthma who smoke need everyone's help and support to quit using tobacco."

Kirsten Jensen,
Asthma Policy and Programs Manager
American Lung Association of Oregon

Active Smoking and Asthma: A Volatile Mix

Pathophysiology

Asthma is a disease characterized by ongoing inflammation of the airways, an overproduction of mucus, and airway constriction due to tightened muscles. These conditions are thought to contribute to permanent structural changes in the lungs, called airway remodeling. In turn, these changes usually lead to accelerated declines in lung function, including irreversible decreases in airflow due to narrowed air passages.

Smoking has been shown to directly damage the defense mechanisms of the respiratory tract by reducing the ability of the cilia to clear the respiratory tract,

and by altering bronchial mucus production. In addition, an inflammatory process of the small airways develops in smokers, and in susceptible individuals, this process becomes progressive and causes airway narrowing.

Through these mechanisms, smoking frequently causes chronic bronchitis and emphysema. Bronchitis is characterized by excessive mucus secretion and chronic or recurrent cough. Emphysema results when the alveoli, or air sacs, of the lung lose their elasticity. Normal airflow in and out of the lung becomes obstructed and lung function is compromised.

Prevalence of Asthma and Smoking¹

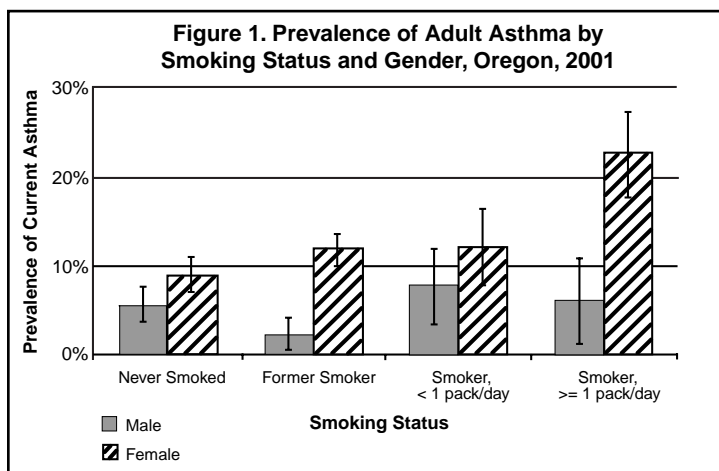
Armed with this information, you may assume that people with asthma avoid smoking. This is a reasonable, albeit incorrect, assumption. Although smoking

is a known trigger for asthma, many asthmatics smoke. This publication takes a peek at Oregon data on this incongruous phenomenon.

1. The Behavioral Risk Factor Surveillance System (BRFSS) is a random-digit-dialed cross-sectional telephonic survey administered every year in the state of Oregon to adults aged 18 and older. In 2001, over 6,000 Oregonians participated in the survey, reporting on their own health behaviors, health conditions, and demographic profiles. Analyses in this publication focus only on adults up to 55 years old to mitigate the potential effects of comorbidity with chronic obstructive pulmonary disease (COPD).

Data presented in this publication have been weighted to represent the population of Oregon. Initial data analyses were performed in SPSS 11.0 for point estimates, and in Stata 7.0 for statistical tests. Differences between variables were analyzed by two-tailed Student's *t*-tests. All *p*-values reported as *p*<.05 are statistically significant, and confidence intervals (CI's) are reported at the 95% level.

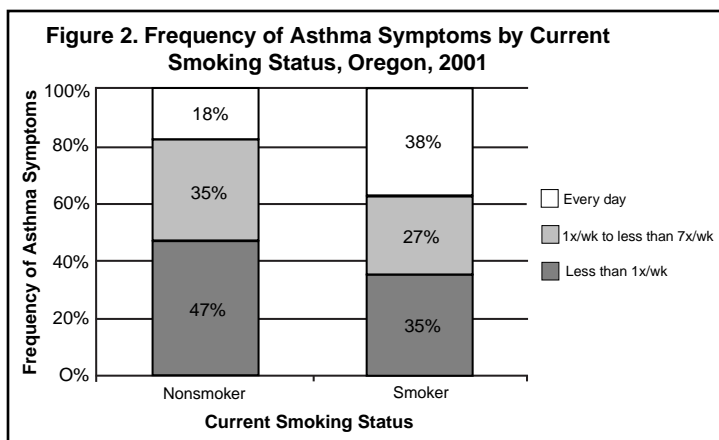
In 2001, 7.9% of the adult population in Oregon reported that they currently have asthma (CI 7.0, 8.8). Prevalence is significantly lower for men (5.6%; CI 4.5, 6.7) than for women (10.2%; CI 8.9, 11.6). Compared to adults without asthma, a higher proportion of Oregon adults with asthma smoke (23 vs. 31%, $p < .05$). This finding is consistent with at least one other very large cross-sectional study. In our study, nearly twice as many heavy smokers (those who smoke one or more packs a day) reported having asthma compared to those who have never smoked. Figure 1 reveals that this relationship is particularly pronounced for women who are heavy smokers — they were two and a half times more likely to report having asthma than women who have never smoked ($p < .05$). The aforementioned cross-sectional study also noted a trend of asthma prevalence increasing for women in proportion to the number of cigarettes smoked per day, but not for men. Whether these data represent true



prevalence differences between men and women, or represent gender bias in diagnosing is not known. However, new research indicates that women's lungs may be more susceptible to the harmful effects of smoking than men's.

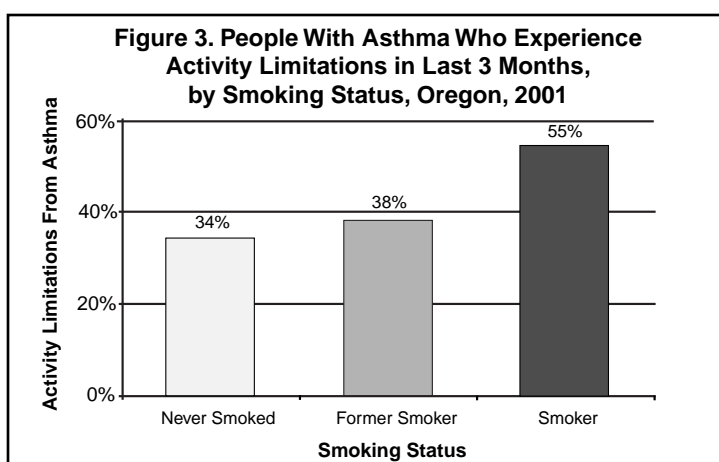
Could the relationship between smoking and asthma really be due to other differences between smokers and nonsmokers, such as income? To answer this question, multiple logistic regression was used to analyze the independent relationships of gender, income, smoking status, and body mass index (wt/ht²) to having current asthma. Risk factors that had independent and significant relationships to current asthma were heavy smoking (OR 2.0; 1.3, 3.2), female gender (OR 2.2; 1.6, 3.0) and obesity (OR 2.7; 1.9, 3.7). Income appeared to have no independent relationship to asthma. While smoking is known as a potent asth-

ma trigger, obesity appears to be even more strongly related to asthma. Stay tuned for an upcoming *View of Asthma in Oregon* on this topic.



Increased Symptoms

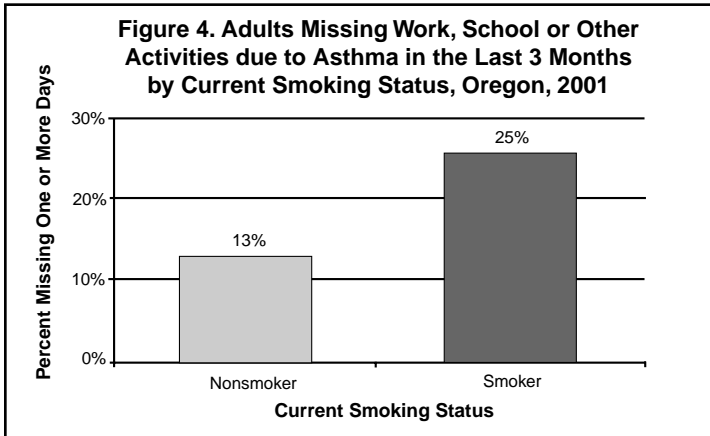
Oregonians who smoke and have asthma report that their symptoms are far worse than those of asthmatics who do not smoke. Figure 2 illustrates that while 18% of nonsmokers with asthma experience symptoms every day, 38% of smokers with asthma experience daily symptoms ($p < .05$). Symptoms seem to translate into activity reductions, as shown in Figure 3. Smokers with asthma suffer activity limitations at one and a half times the frequency as those with asthma who have never smoked (55 vs. 34%, $p < .05$), or former smokers (55 vs. 38%, $p < .05$). Our findings echo those of another cross-sectional study in which asthmatic smokers experienced more daily activity interference. Because smokers who experience worse respiratory symptoms may be more



likely to quit smoking, these analyses probably underestimate the true effects of smoking on lung function for people with asthma.

Other studies of adults with asthma have also found smoking to be antithetical to asthma control. A case-control study concluded that asthmatic

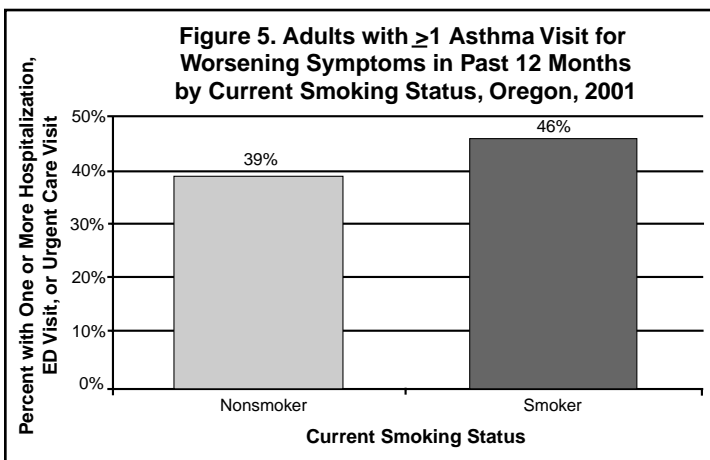
to see in Figure 5 that current smokers sought care for their worsening asthma symptoms in the past twelve months with greater regularity than nonsmoking asthmatics (46 vs. 39%, not sig).



ics who were current smokers experienced more symptoms, more exacerbations and more severe asthma. Additionally, a prospective longitudinal study found much greater degradation of lung function over a 22-year period among asthmatics who were current heavy smokers than among either current heavy smokers without asthma, or asthmatics who did not smoke.

Activity Reductions

Symptoms and activity reductions also translate into missed activities (Figure 4). Oregon smokers with asthma missed out on activities nearly two times more often than their nonsmoking asthma counterparts (25 vs. 13%, $p < .05$). This fact has real costs to society when the activity missed is work or school



and, at a minimum, has emotional costs to the individual when the activities missed are social or familial. Finally, most healthcare providers will not be surprised

Conclusions

Oregon's 2001 BRFSS clearly demonstrates that Oregonians with asthma who smoke have worse outcomes than Oregonians with asthma who don't smoke. Among adults with asthma, those who smoke experience more symptoms than those who do not smoke. Smoking asthmatics must also endure a higher level of activity limitation, miss out on more events, and seek urgent care more often.

Curiously, the literature on active smoking and asthma in adults is sparse. Studies that have been done often raise as many questions as they answer. Research on the etiology of asthma often does not focus on adults and smoking, but among the few articles on this topic, the conclusion is relatively consistent: there is no evidence that smoking causes adult onset asthma. Yet this report indicates that Oregonians with asthma smoke more than people without asthma. If smoking doesn't cause asthma, does this mean that having asthma predisposes one to smoking? Or does this mean that people with asthma who smoke experience more symptoms and are therefore diagnosed more often? Either way, efforts should be redoubled to help those with asthma to quit smoking.

How You Can Help

As a first step, if you care for or about someone with asthma who smokes, encourage them to quit smoking. If you are a smoker who lives with someone with asthma, think twice before lighting up. Secondhand smoke can be a potent asthma trigger. Practicing good smoking hygiene around people with asthma may help diminish their exacerbations, and helps them in their efforts to quit if they smoke too.

Research shows that people can quit smoking, and they are more likely to be successful if they get help. Advice from a health care provider, behavioral counseling either through classes or the telephone, web-based support groups, nicotine replacement therapy and bupropion all increase success. Unfortunately Oregon's Tobacco Quit Line, which helps people quit

Oregon Asthma Program

Department of Human Services
800 NE Oregon Street, Suite 730
Portland, OR 97232
Website: www.oshd.org/asthma
E-mail: asthma.ohd@state.or.us

If you need this material in an alternate format, please call 503-872-6841.



How You Can Help cont.

and connects them to further services, is suspended (at least until July 1) due to the state budget crisis. In the meantime, information about help is available on the web at www.OregonQuitLine.org.

If you are a health care provider, try to think of tobacco dependence as a chronic condition. As with other chronic diseases like diabetes, hypertension, and asthma, clinicians treating a tobacco-dependent patient must provide simple counseling advice, support, and appropriate pharmacotherapy where appropriate. Research indicates the best way to help patients quit smoking is consistency in the message delivered by health care providers. Moreover, clinicians need to recognize that relapse is common and that it is a sign of the chronic nature of dependence.

Given the difficulties that so many tobacco users have in stopping smoking, it is important that clinicians be prepared to intervene. The five major steps to intervention in the primary care setting are: (1) *ask* the patient if he or she uses tobacco; (2) *advise* him or her to quit; (3) *assess* willingness to make a quit attempt;

(4) *assist* those who are willing to make a quit attempt; and (5) *arrange* for follow-up contact to prevent relapse. These strategies are designed to require three minutes or less of direct clinician time. Health care systems that incorporate tobacco use assessment and intervention as part of routine medical care will foster the adoption of these strategies.

These strategies are consistent with the recommendations of the American Medical Women's Association, American Academy of Pediatrics, the National Cancer Institute, and the American Medical Association. A physician's advice to quit was an important motivator mentioned by smokers attempting to stop smoking. Health care providers interact with a considerable number of people with asthma who may also smoke every day. Thus it is imperative that every encounter is used to assess the need for tobacco cessation, and offer the necessary guidance and support to achieve it.

References for this publication are available upon request.