

OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

HELPING OREGONIANS CATCH THEIR BREATH: IMPROVING ASTHMA MANAGEMENT

"Asthma doesn't seem to bother me any more unless I'm around cigars or dogs. The thing that would bother me most would be a dog smoking a cigar."-Steve Allen

NO SHORTAGE OF SHORTNESS OF BREATH

Steve Allen isn't alone. In the U.S., 8.4% of adults and 8.6% of children reported current asthma in 2009.¹ All told, asthma affects more than 20 million Americans and has more than doubled in prevalence since 1980.² Oregon is no exception, with 10.2% of adults, and 9.5% of children reporting current asthma, and prevalence continuing to rise between 2001 and 2009 (Figure 1).³ Adult asthma rates in Oregon are higher still among those who have not graduated high school or whose annual household income is <\$25,000 (see Table). These disparities are likely due, in part, to more frequent exposure to common asthma triggers, such as dust mites, cockroaches, mice and rats, mold, and secondhand smoke in the home environment. We don't currently have data on dogs smoking cigars, but we never say never.

The increasing prevalence of asthma carries with it substantial costs. During 2007–2009, 19% of Oregon adults who reported current asthma missed one or more days of work or other daily activities because of their asthma. Similarly, 37.8% of Oregon children who reported current asthma during that time missed one or more days of school because of asthma. Annual financial costs due to asthma in Oregon are about \$93 million in direct costs (hospitalizations, doctor visits, and medications) and \$71 million in indirect costs (lost time from school and work) after adjustment for inflation to 2009 dollars.³

HOW CAN WE BREATHE EASIER?

Home-based environmental interventions. A recent systematic review by the Task Force on Community Preventive Services found that children

and adolescents with asthma benefit from home-based, multi-trigger, and multicomponent interventions with an environmental component.⁴ What does this mean? In this approach to asthma management, trained personnel make at least one home visit to assess the home environment for multiple possible asthma triggers and provide environmental and other interventions to address them.

For dust mites, asthma triggers can be addressed by using allergen-impermeable pillow and mattress covers, washing bedding in hot water >130° F, removing old carpet, reducing home humidity to <60%, and washing stuffed animals weekly. Removing pets from the home is the most effective method to reduce exposure to pet dander, but even just keeping pets out of bedrooms can reduce

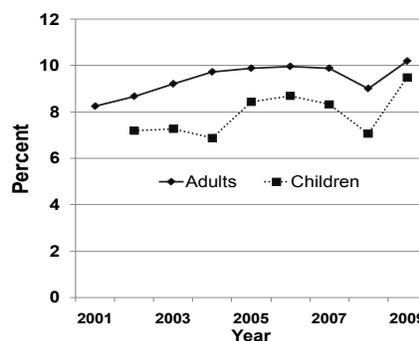
of children with asthma have shown some success in reducing parental smoking and reducing the number of cigarettes smoked in the home.⁴

In the Task Force's evaluation, environmental interventions were categorized as minor, moderate, or major. Minor remediation involved providing a low-cost item, such as an allergen-impermeable cover to reduce asthma triggers. Provision of multiple low- or moderate-cost items, with active involvement of a home visitor in activities such as integrated pest management, constituted moderate remediation. Any substantial structural changes to the home were considered major remediation.

After these interventions, children and adolescents with asthma averaged 21 fewer days with asthma symptoms and 12.3 fewer school days missed per year. These interventions were studied in low-income urban minority populations, which may explain the magnitude of their effect in these high-risk populations. However, the Task Force concluded that they should be effective in any setting. There were too few studies involving adults to draw similar conclusions.

So how much does this cost when it's time to pay the piper? Well, it depends on what tune the piper plays. For minor and moderate remediation, costs ranged from \$231–\$1,720; for major remediation, costs were \$3,796–\$14,858. While these up-front costs may be a barrier to initiating this type of intervention, it's no-

Figure 1. Current asthma, Oregon, 2001–2009



airborne pet dander allergen levels fivefold. "Integrated pest management" strategies are effective for cockroaches, mice, and rats; these include teaching residents to remove food and water sources, clean surfaces and floors, seal trash containers, store food carefully, use gel baits or traps, and seal cracks and small holes in the residence. Mold-sensitive people can be protected by removing mold from hard, nonporous surfaces, discarding mold-contaminated materials (e.g., carpet, ceiling tiles), and addressing the source(s) of moisture responsible for mold growth. Smoking-cessation interventions directed toward parents

Table. Oregon adults with current asthma, by education and income, 2009.

Education	Asthma Prevalence (95% CI)	Income	Asthma Prevalence (95% CI)
No HS diploma	17.1% (11.4–24.9)	<\$15k	17.3% (12.6–23.3)
HS Diploma Only	10.5% (8.6–12.9)	\$15k–\$25k	13.7% (10.9–17.2)
Some College	9.0% (7.3–11.1)	\$25k–\$35k	8.8% (6.0–12.7)
College Graduate	9.0% (7.3–11.4)	\$35k–\$50k	9.4% (6.8–12.7)
		>\$50k	8.8% (7.4–10.6%)

*All Oregon data are from the Behavioral Risk Factor Surveillance System or Oregon Healthy Teens, unless otherwise noted.



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table that three studies that included cost-benefit analyses showed a benefit of \$5.30–\$14.00 in averted medical costs or productivity losses for every dollar invested. In addition, no distinct advantage was seen based on the cost of the intervention, so low-cost interventions may offer a lot of bang for the buck.⁴ Environmental intervention programs like these are currently available in Multnomah and Klamath counties. Contact the Healthy Homes Program:

- Klamath County: 541-882-8846
- Multnomah County: 503-988-3663 x 24571

Flu Vaccination. Winter is a difficult time of year for people with asthma (Figure 2). The kids are back in school, the weather is getting cold, and the flu virus is starting to get down to business. We can't say exactly how many annual asthma hospital admissions in Oregon are flu-related, but they definitely peak during flu season, and we know that people with asthma are at high risk of developing complications after contracting the influenza virus. The CDC recommends influenza vaccination for anyone over the age of 6 months, especially those with chronic respiratory conditions like asthma and those who live with or care for them.⁵ However, in Oregon, only about 45% of adults with current asthma got vaccinated for influenza during 2009.

Asthma Action Plans. All people with asthma should have a written asthma action plan that includes their daily treatment, how to control asthma long-term, and how to handle worsening asthma, or attacks. In Oregon, only 24% of adults and 34% of children with asthma have ever received

a written asthma action plan. The plan should explain when to call the doctor or go to the emergency room (see the Oregon Asthma Resource Bank link for a sample asthma action plan).

Oregon school districts are required by law to adopt policies and procedures that provide for self-administration of medication during school activities by students in kindergarten through 12th grade with asthma or severe allergies (see: www.leg.state.or.us/07reg/measpdf/sb1000.dir/sb1040.en.pdf).

Living Well. As reported in CD Summary Vol 60, No 17, Living Well is available for your patients with chronic disease, including asthma. For more information, call 1-888-576-7414 or go to www.healthoregon.org/livingwell.

Avoid Tobacco Smoke. Help is available for smokers who want to quit through the Oregon Tobacco Quitline at 1-800-QUIT-NOW (1-800-784-8669) or online at www.quitnow.net/oregon/. In addition, the Oregon Asthma Program, Tobacco Prevention and Education Program, and local communities are working together to reduce smoking and secondhand smoke exposure in hous-

ing authorities, on college campuses, in schools, and other environments.

FOR MORE INFORMATION

The Oregon Asthma Resource Bank has provider tools and patient resources: <http://public.health.oregon.gov/DiseasesConditions/ChronicDisease/Asthma/resourcebank/Pages/index.aspx>

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Figure 2. Asthma hospital admissions, Oregon, 2010

