DOH 910-907

Environmental Health

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Environmental health focuses on protecting against chemical, physical and biological hazards in our communities that people can be exposed to and which have potential adverse health effects. Environmental health issues facing adolescents are similar to environmental health issues facing people of all ages. Adolescents may be exposed to contaminants in the environment through breathing the air, ingesting food or water, or direct contact with the skin. The extent of exposure to any environmental hazard is highly variable and depends on a number of factors including the concentration of the contaminant in the environment, individual behaviors, and how the contaminant is taken into the body.

Pesticide-related illness

- In Washington, children are permitted to work in agriculture, but there are restrictions including the minimum age, hazardous prohibited work activities, and the number of allowable work hours. The minimum age for most work by adolescents is 14; however, children ages 12-13 can work during non-school months (June 1-Labor Day) hand harvesting berries, bulbs, cucumbers, and spinach). Children ages 16-17 can work 50 hours a week during all school vacations, and 28 hours a week during the school year. Children ages 14-15 are permitted to work 40 hours a week June 1- Labor Day and 21 hours a week the rest of the year. No one under age 18 is permitted to mix, load or apply pesticides. Fourteen- and 15-year-olds have additional restricted work activities.[1]
- Washington is one of twelve states which actively track and investigate pesticide-related illnesses. Washington does not track all pesticide exposures, just acute illnesses for which medical care is sought. Not all cases are reported so the actual numbers of Washington cases is higher than what we are able to identify.
- During the years 2007 -2008, an average of 228 people of all ages a year had acute symptoms that were attributed to pesticide poisoning and of those, 39 percent occurred among agricultural workers.
- For Washington youth ages 11-19, in 2007-2008, there were 39 confirmed pesticide-related acute illnesses, of which 16 were related to drift or direct exposure from farm spraying. [2]
- Agricultural pesticides move from the workplace to workers' homes. "Take-home" exposures can be limited if farm workers change out of work clothes when they come home and if work clothes are washed separately from the family laundry. Vacuuming personal vehicles significantly reduces pesticide residues found in workers' homes.[3]

Home Exposure to Methamphetamine labs[4]

- In 2008, there were 184 illegal Washington State methamphetamine labs responded to and cleaned out by the state patrol compared to 237 in the prior year and down from a high of 1,890 in 2001. It is unknown how many of these sites had children residing in them.

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[1] Washington State Department of Labor and Industries. What Hours are Minors in Agricultural Jobs Permitted to Work. Available: http://198.187.3.11/WorkplaceRights/TeenWorkers/default.asp For more information go to www.TeenWorkers.Lni.wa.gov

[2] Data provided October 2009 by Joanne Prado, Pesticide Illness Monitoring and Prevention Program, Washington State Department of Health.

[3] Pacific Northwest Agricultural Safety and Health (PNASH) Center: data found on-line at : http://depts.washington.edu/pnash/pesticides.php

[4] Washington State Department of Ecology illegal drug labs data. Accessed September 2009: http://www.ecy.wa.gov/programs/spills/response/drug_labs/County_Table_1990_to_2008.pdf

Sun Exposure

- Ultraviolet (UV) radiation from sun exposure is known to be the leading cause of skin cancer. Skin cancer is the most common cancer in the US and incidence rates are rising in Washington. The most serious form of skin cancer, melanoma, is the fifth leading cancer in Washington State. [5]
- Skin cancer is largely preventable when sun protection measures (e.g., sunscreen, protective clothing) are used consistently. In addition, most skin cancers are curable if detected in the earliest stages.
- Nationwide in 2007, 10 percent of high school students most of the time or always wore sunscreen with an SPF of 15 or higher when outside for more than 1 hour on a sunny day (i.e., routine sunscreen use). Females (14 percent) were more likely than males (7 percent) to report routine sunscreen use. About 17 percent (19 percent males, 15 percent females) reported routine practice of sun safe behaviors (stayed in the shade, wore long pants, wore a long-sleeved shirt, or wore a hat that shaded their face, ears, and neck). There are no comparable Washington data on youth.[6]

Air Quality

Outdoor Air Quality

- Poor outdoor air quality can contribute to heart and lung (including asthma) disease and lung cancer. Outdoor air pollutants that may trigger or lead to development of asthma include ozone, fine particulate matter, and nitrogen oxides.[7]
- Cars and trucks are the largest source of air pollution in Washington State, accounting for 59 percent of the pollution. Other major sources of these pollutants include non-road vehicles (20 percent), wood stoves and fireplaces (13 percent), industrial sources (4 percent), and open burning (2 percent)[8]
- Air quality in Washington is often good but it can worsen at certain times of the year. During the winter months warm air can act as a lid and trap cold air and pollutants such as wood smoke near the ground. In the summertime, several days of hot sunny weather can lead to increased ozone and smoke from wildfires can cause fine particle pollution.
- For more information on Outdoor Air Quality, see the Health of Washington State Chapter at: http://www.doh.wa.gov/HWS/doc/EH/EH-AQ2007.pdf

Indoor Air Quality

- Indoor air quality can impact asthma. Indoor air agents known to cause or aggravate asthma include allergens from dust mites, cockroaches, dogs and cats, secondhand tobacco smoke, and indoor chemical exposures.[7]

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[5] Comprehensive Cancer Report, Washington State Department of Health, 2004-2008. Report available at: http://www.doh.wa.gov/ccc/pdf/WSCCC_plan.pdf

[6] Youth Risk Behavior Surveillance—United States, 2007. MMWR 57(SS-4) June 6, 2008. Accessed July 17, 2009 from: http://www.cdc.gov/HealthyYouth/yrbs/pdf/yrbss07_mmwr.pdf

[7] The Burden of Asthma in Washington State. Washington State Department of Health, 2008 update. Accessed September 2009 at: http://www.doh.wa.gov/cfh/asthma/publications/burden/2008-Burden-Rpt.pdf

[8] Washington State Department of Health. Health of Washington State : Outdoor Air Quality. Accessed September 2009: http://www.doh.wa.gov/HWS/doc/EH/EH-AQ2007.pdf

- Children spend between most of their time indoors and about seven hours per day in school. Poor indoor air quality in schools is associated with increased student absenteeism and reduced student academic performance.[9]
- A 2001 survey of selected classrooms in Washington and Idaho public schools found problems with poor air quality or risk factors for poor air quality. About 26 percent of the portable buildings had turned off their ventilation systems and 10 percent of portable buildings had no mechanical ventilation system. Two thirds of the schools had faulty exhaust fans. About half reported water stained ceiling tiles, which could be evidence of dampness, a risk factor for asthma and mold. The survey also asked about preventive measures: less than 10 percent of the schools ventilated copiers to the outdoors and only about 5 percent had a carbon monoxide alarm located around combustion equipment. About 43 percent of the classrooms in the survey had poor air quality as measured by carbon dioxide concentration. Poor air quality (elevated carbon dioxide concentrations) was associated with a 10 percent-20 percent increase in student absences.[10]
- For more information on Indoor Air Quality, see the Health of Washington State Chapter http://www.doh.wa.gov/HWS/doc/EH/EH-INAQ2007.pdf

[9] Washington State Department of Health. Responding to Indoor Air Quality Concerns in our Schools. June 2005. Accessed December 2009 at: http://www.doh.wa.gov/ehp/ts/School/respond-iaq-schools.pdf

[10] Prill R, Blake D, Hales D. School Indoor Air Quality Assessment and Program Implementation. Washington State University and Northwest Air Pollution Authority. Accessed September 2009 at: http://www.energy.wsu.edu/documents/building/iaq/schools/NW_School_IAQ_pgm.pdf

Asthma

Lifetime Asthma (Ever Been Told By Doctor or Nurse Have Asthma)	
	WA% (± margin of error)
Grade	
Grade 6	**15%** (± 0.8)
Grade 8	**18%** (± 1)
Grade 10	**21%** (± 2)
Grade 12	**21%** (± 2)
Gender (10th grade)	
Male	**20%** (± 3)
Female	**21%** (± 2)
Race/ Ethnicity (10th grade)	
White, Non-Hispanic	**22%** (± 3)
Black, Non-Hispanic	**20%** (± 7)
American Indian , Non-Hispanic	**16%** (± 7)
Asian, Non-Hispanic	**21%** (± 5)
Hawaiian/ Pacific Islander, Non-Hispanic	**22%** (± 9)
Hispanic**	**16%** (± 4)
Disability Status – Data not provided here since having a chronic condition like asthma is part of the screener for determining a youth with a disability	
Rural- Urban Residence (10th grade)*	
Urban	**21%** (± 2)
Rural	**16%** (± 4)
Socioeconomic Status (10th grade)*	
Higher	**19%** (± 2)
Lower	**24%** (± 3)

***** Significant difference based on chi-square at p<0 .05 S*ource: Washington Healthy Youth Survey 2008*

**Significant difference compared to non-Hispanic Whites based on significance testing with p< 0.05

Disparities:
In Washington in 2008, 10th graders living in rural areas of the state and those with higher socioeconomic status were **less** likely to have ever been told by a health professional that they have asthma. Hispanic 10th graders were **less** likely to have ever been told they had asthma compared to Non-Hispanic White students.

Additional Data:

- Asthma is a chronic inflammatory respiratory disease associated with both individual risk factors such as obesity, allergies, and early inhaled intoxicant use, as well as environmental risk factors such as outdoor and indoor air quality.
- **Healthy People 2010 objectives** are to reduce deaths from asthma for children ages <5 and 5-14 to no more than 0.1 per 100,000, and for ages 15-34 to no more than 0.2 per 100,000

and to reduce asthma hospitalizations for ages <5 to no more than 250 per 100,000 and for ages 5-64 to no more than 77 per 100,000.[11]

- Lifetime asthma includes anyone who has ever been told by a doctor or nurse that they have asthma. Current asthma includes anyone who those who had ever been told they have asthma by a doctor or a nurse and also reports that they still have asthma.
- **Current asthma:** In 2008, about 8-10 percent of 6th, 8th, 10th, and 12th graders who had ever been told by a doctor or nurse that they had asthma reported having current asthma.
- In 2007, there were 296 asthma-related hospitalizations for Washington youth ages 10-19 for a rate of 33 per 100,000. In 2007 there were a total of 2 asthma-related deaths among Washington youth ages 10-19 for a rate of 0.07 per 100,000.[12]

Related Asthma Questions				
	Grade 6 (± margin of error)	**Grade 8 (± margin of error)**	**Grade 10 (± margin of error)**	**Grade 12 (± margin of error)**
Current asthma	**8%** (± 0.6)	**8%** (± 1)	**10%** (± 1)	**10%** (± 1)
During past 12 months, had asthma attack	*	**8%** (± 1)	**9%** (± 1)	**8%** (± 1)
During the past 12 months, took asthma medication	*	**8%** (± 2)	**8%** (± 2)	**8%** (± 2)
During past 12 months, visited emergency room or urgent care center because of asthma	*	**4%** (± 1)	**5%** (± 1)	**4%** (± 1)
Missed at least one school day in past 12 months because of asthma	*	**4%** (± 1)	**5%** (± 1)	**5%** (± 1)

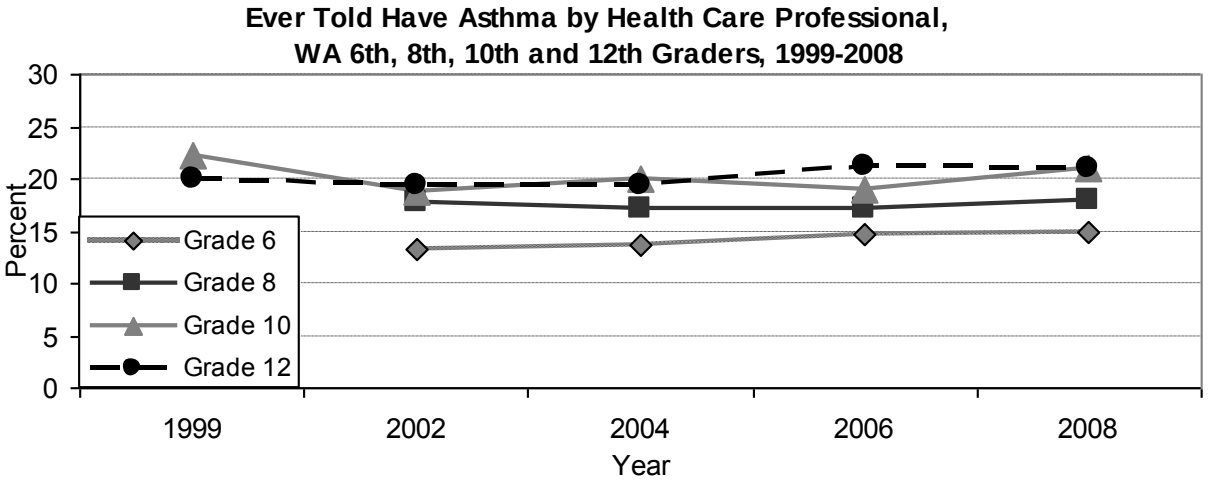
*Data not available for 6th graders. *Source: Healthy Youth Survey 2008*

Washington Prevalence:
Lifetime: In 2008, an estimated 20 percent of Washington high school students had ever been told by a doctor or other health care professional that they had asthma.[13]
Current Asthma: In 2008, an estimated 9 percent of Washington high school students had current asthma.[13]

United States Prevalence:[14]
Lifetime: In 2007, about 20 percent of high school students nationally had ever been told they had asthma by a doctor or nurse.
Current Asthma: In 2007, nationally about 11 percent of high school students who had ever been told by a doctor or nurse that they had asthma had current asthma.

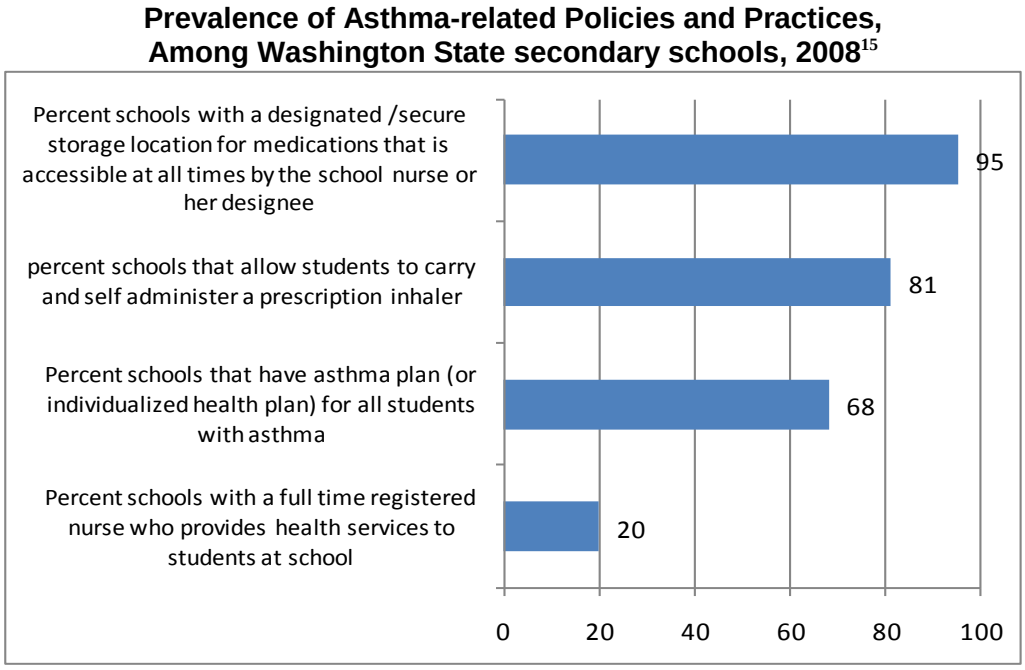
[11] Department of Health and Human Services (US). Healthy People 2010: Understanding and Improving Health. 2nd edition. Washington, DC: US Government Printing Office; November 2000.
[12] Death Certificate and Hospitalization Data, Washington State Department of Health, generated by VISTAphW 7.4.0.1 September 2009
[13] Washington Healthy Youth Survey 2008, Synthetic High School Estimate generated from grades 8,10,12.
[14] Youth Risk Behavior Surveillance—United States, 2007. MMWR 57(SS-4) June 6, 2008. Accessed July 17, 2009 from: http://www.cdc.gov/HealthyYouth/yrbs/pdf/yrbss07_mmwr.pdf

Trend Data:



Source: Washington State Youth Surveys

Trends: There were no significant trends in the percentage of Washington 10th, and 12th grade students reporting they had ever been told they had asthma from 1999 to 2008.



Source: 2008 Washington State School Health Education Profile Report. [Note: Percentages are of schools, not students.]

[15]Centers for Disease Control and Prevention. Washington State 2008 School Health Profiles Report. August 2009

Secondhand Smoke

Exposure to Secondhand Smoke in Same Room in Past 7 Days	
	WA% (± margin of error)
Grade	
Grade 6	**27%** (± 2)
Grade 8	**40%** (± 3)
Grade 10	**47%** (± 3)
Grade 12	**49%** (± 3)
Gender (10th grade)	
Male	**47%** (± 2)
Female	**48%** (± 4)
Race/ Ethnicity (10th grade)	
White, Non-Hispanic	**47%** (± 3)
Black, Non-Hispanic	**49%** (± 8)
American Indian, Non-Hispanic**	**70%** (± 9)
Asian, Non-Hispanic	**43%** (± 9)
Hawaiian/ Pacific Islander,, Non-Hispanic	**50%** (± 10)
Hispanic**	**40%** (± 5)
Disability Status (10th grade)*	
Disability	**60%** (± 3)
No disability	**43%** (± 3)
Rural- Urban Residence (10th grade)	
Urban	**47%** (± 3)
Rural	**51%** (± 7)
Socioeconomic Status (10th grade)*	
Higher	**42%** (± 3)
Lower	**54%** (± 4)

***** Significant difference based on chi-square at p<0 .05 *Source: Washington Healthy Youth Survey 2008*

**Significant difference compared to non-Hispanic Whites based on significance testing with p< 0.05

Disparities:

In 2008 in Washington, 10th graders with a disability and of lower socioeconomic status were **more** likely to have been exposed to secondhand smoke in the same room in the past 7 days. Among 10th graders, Non-Hispanic American Indian youth were **more** likely to have been exposed compared to Non-Hispanic White students, and Hispanic students were **less** likely to have been exposed to secondhand smoke in the same room compared to Non-Hispanic Whites.

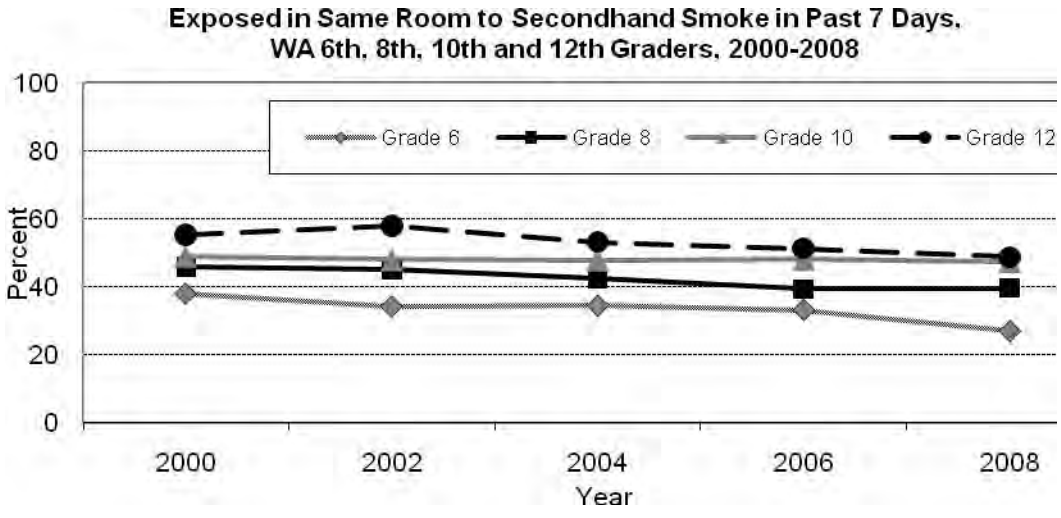
Additional Data:

- **The Healthy People 2010 objective** is to reduce the proportion of nonsmokers exposed to environmental tobacco smoke to 45 percent.[16]
- **Live with Smoker:** In 2008, about one third of students in the 8th, 10th, and 12th grade said they lived with someone who smoked cigarettes. About 10 percent of 10th graders who did not live with a smoker reported they had smoked in the past 30 days compared to 25 percent of 10th graders who lived with a smoker, and about 5 percent of 10th graders who did not live with a smoker reported they had smoked a cigarette every day in the past 30 days compared to 17 percent who lived with a smoker.
- In 2008, for 10th graders who were nonsmokers, about 41 percent were exposed to secondhand smoke in the past 7 days.
- **Perception of Harm from Secondhand Smoke**: About two thirds of 6th, 8th, 10th, and 12th graders said they thought second hand smoke was definitely harmful. Girls in grades 6,10 and 12 were significantly more likely than boys to report that secondhand smoke was definitely harmful.

Related Smoking Indicators				
	Grade 6	**Grade 8**	**Grade 10**	**Grade 12**
Live with Smoker	*	**33%** (± 3.3)	**35%** (± 3.1)	**35%** (± 3.4)
Perception of Harm from Secondhand Smoke (believe it is definitely harmful)	**61%** (± 1.9)	**63%** (± 2.4)	**67%** (± 2.4)	**67%** (± 2.5)

*Data not available for 6th graders *Source: Healthy Youth Survey 2008*

Comparing 2008 to 2006: Among Grade 6 students, there was a significant decrease in exposure to secondhand smoke in a room.



Source; Washington Healthy Youth Surveys

Trends: Among Grade 6, 8 and 12 students, there was a significant decrease in being exposed to secondhand smoke in a room from 2000 to 2008.

[16] Department of Health and Human Services (US). Healthy People 2010: Understanding and Improving Health. 2nd edition. Washington, DC: US Government Printing Office; November 2000