Health Effects of Outdoor SHS

LOS ANGELES COUNTY DEPT. OF HEALTH SERVICES
TOBACCO CONTROL AND PREVENTION PROGRAM

Secondhand smoke (SHS) is a complex mixture of chemicals uniquely generated from burning tobacco products. The World Health Organization and U.S. Department of Health and Human Services affirm that SHS causes cancer in humans, and that there is no safe level of exposure to SHS. In fact, nonsmokers are exposed to the same hazardous substances as active smokers, and sometimes at even higher concentrations.

Toxicity of SHS

The combustion of tobacco releases over 4,000 constituents into the ambient air, including reproductive toxicants, potent human carcinogens, and mutagenic compounds such as:

- Benzene
- Formaldehyde
- Hydrogen cyanide
- Chromium VI
- Ammonia
- DDT
- Acetone
- Nickel
- Arsenic
- Lead
- Toluene
- Nicotine
- Nitrosamines

In California, emissions from tobacco smoke include 1900 tons of carbon monoxide and 365 tons of respirable suspendable particulates (RSPs) each year. RSPs infiltrate deep into the lung, causing damage and triggering respiratory problems.

SHS contains polynuclear aromatic hydrocarbons and volatile organic compounds, substances identified as toxic air contaminants by the Air Resources Board of the California Environmental Protection Agency.

Outdoor SHS

Outdoor SHS can expose nonsmokers to toxic particulate concentrations similar to those found in diesel bus exhaust or in a room with unrestricted smoking. The mixture of chemicals can react with existing substances in the air, yielding new hazardous compounds.

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SHS emitted from a burning cigarette does not immediately disperse in outdoor air, but first rises, then settles. As it descends, the cloud of smoke saturates the local area and spreads downwind to nonsmokers. With cigarette smoking in groups, multiple plumes of smoke will intersect and can spread in various directions. Nonsmokers then breathe in the carcinogens and toxicants contained in the smoke.

Adverse Health Effects

SHS exposure affects young children while they are still developing, and can initiate disease or aggravate existing illnesses in adults, including:

- Sudden Infant Death Syndrome (SIDS)
- Low birth weight in infants
- Ear infection
- Miscarriage in pregnant women
- Increased severity of asthma attacks
- Stroke
- Lung cancer
- Cervical cancer
- Nasal sinus cancer
- Coronary heart disease
- Pneumonia
- Bronchitis

It only takes five minutes of SHS exposure to stiffen the aorta to the same extent as smoking one cigarette. Twenty minutes of exposure make blood platelets as sticky as those of pack-a-day smokers. After half an hour, SHS exposure hinders coronary arteries' ability to dilate and boost blood flow, and can also lead to buildup of LDL cholesterol. Two hours of exposure can cause heart rate variability, increasing the chances of heart attack or arrhythmia (irregular heartbeat).

Protect Against SHS

Exposure to SHS is a serious, yet preventable, health threat to both smokers and nonsmokers. For nonsmokers, outdoor SHS can account for 100% of their exposure to hazardous tobacco by-products. Public health and well-being can be protected, however, by adopting smoke-free outdoor policies. Such policies also effect change in social norms regarding tobacco use, thereby fostering an environment that helps current smokers cut down or quit and encourages former smokers to remain smoke-free. In addition, having smoke-free outdoor areas decreases the risk that young people will smoke, as they are not exposed to modeling of smoking behavior.

Resources

- BREATH, The California Smoke-Free Bars, Workplaces and Communities Program. http://www.breath-ala.org
- California Air Resources Board. http://www.arb.ca.gov

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