

Secondhand smoke takes large physical and economic toll

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Secondhand smoke is accountable for 42,000 deaths annually to nonsmokers in the United States, including nearly 900 infants, according to a new UCSF study.

Altogether, annual deaths from secondhand smoke represent nearly 600,000 years of potential life lost – an average of 14.2 years per person – and \$6.6 billion in lost productivity, amounting to \$158,000 per death, report the researchers.

The study, which involved the first use of a biomarker to gauge the physical and [economic impacts](#) of [cigarette smoke](#), revealed that [secondhand smoke exposure](#) disproportionately affects [African Americans](#), especially black infants.

The new research reveals that despite public health efforts to reduce [tobacco use](#), secondhand smoke continues to take a grievous toll on nonsmokers.

The study will be published Thursday, September 20, 2012 in the [American Journal of Public Health](#).

"In general, fewer people are smoking and many have made [lifestyle changes](#), but our research shows that the impacts of secondhand smoke are nonetheless very large," said lead author Wendy Max, PhD, professor of [health economics](#) at the UCSF School of Nursing and co-director of the UCSF Institute for Health & Aging. "The availability of

information on biomarker-measured exposure allows us to more accurately assess the impact of secondhand smoke exposure on health and productivity. The impact is particularly great for communities of color."

Exposure to secondhand smoke is linked to a number of fatal illnesses including heart and lung disease, as well as conditions affecting newborns such as low birth weight and respiratory distress syndrome.

About a decade ago, the federal Centers for Disease Control and Prevention – using data from the California Environmental Protection Agency – reported that 49,400 adults died annually as a result of secondhand smoke exposure. Additionally, the CDC reported that 776 infants annually died as a result of maternal exposure in utero.

Those widely-cited statistics relied on self-reporting to gauge the impact of secondhand smoke.

The new study led by UCSF shows that the statistics on fatalities resulting from for ischemic heart disease are 25 percent lower than previously reported (34,000 deaths compared to 46,000), but nearly twice as high for lung cancer deaths (7,333 deaths compared to 3,400). The new study also shows higher infant mortality (863 deaths compared to 776).

The researchers used serum cotinine – a [biomarker](#) which detects the chemical consequences of exposure to tobacco smoke in the bloodstream - to measure exposure to secondhand smoke. That measurement reflects secondhand exposure in all settings, not just home or work, the authors wrote.

The scientists gauged the economic implications – years of potential life lost and the value of lost productivity – on different racial and ethnic

groups.

Mortality was measured in two conditions for adults: lung cancer and ischemic heart disease; and four conditions for infants: sudden infant death syndrome, low birth weight, respiratory distress syndrome, and other respiratory conditions of newborns.

Of the 42,000 total deaths resulting from secondhand smoke, 80 percent were white, 13 percent were black, and 4 percent were Hispanic. The vast majority of deaths were caused by ischemic heart disease. Black babies accounted for a startling high 24 percent to 36 percent of all infant deaths from secondhand smoke exposure, the researchers reported, although blacks represented only 13 percent of the total U.S. population in 2006.

The value of lost [productivity](#) per [death](#) was highest among blacks (\$238,000) and Hispanics (\$193,000).

"Black adults had significantly greater exposure rates than did whites in all age groups," the authors wrote. "The highest secondhand smoke exposure was for black men aged 45 to 64 years, followed by black men age 20 to 44 years. Black women aged 20 to 44 years had a higher exposure rate (62.3 percent) than did any other women."

"Our study probably under-estimates the true economic impact of [secondhand smoke](#) on mortality," said Max. "The toll is substantial, with communities of color having the greatest losses. Interventions need to be designed to reduce the health and economic burden of smoking on smokers and nonsmokers alike, and on particularly vulnerable groups."

Provided by University of California, San Francisco

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