

Smoking and solid fuel use in homes in China projected to cause millions of deaths

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If current levels of smoking and biomass and coal fuel use in homes continues, between 2003 and 2033 there will be an estimated 65 million deaths from chronic obstructive pulmonary disease (COPD) and 18 million deaths from lung cancer in China, accounting for 19% and 5% of all deaths in that country during this period.

Researchers at the Harvard School of Public Health (HSPH) predict that the combined effects of these two major factors alone will be responsible for more than 80% of COPD deaths and 75% of lung cancer deaths in China over a 30-year period. But interventions to reduce smoking and household use of biomass fuels and coal for cooking and heating could significantly reduce the number of deaths.

The findings are from a study that will appear online on October 4, 2008 and in the October 25, 2008 print issue of *The Lancet*. It is the first quantitative analysis to look at the combined effects of smoking and household fuel use on COPD, lung cancer and tuberculosis (TB).

Respiratory diseases are among the 10 leading causes of deaths in China. About half of Chinese men smoke and in more than 70% of homes in China residents cook and heat their homes with wood, coal and crop residues. Smoking and pollution from indoor burning of these fuels are major risk factors for COPD and lung cancer and have been linked with tuberculosis (TB). Globally, more than 900 million of the world's 1.1 billion smokers currently live in low-income and middle-income countries and about one half of the world's population uses biomass fuels

and coal for household energy.

Using data on smoking, fuel use and current as well as projected levels of COPD, lung cancer and TB, the authors set out to estimate the effects of modifying smoking and fuel use on future COPD and lung cancer deaths and TB incidence. They grouped the results into scenarios based on whether interventions involved moderate control of smoking and fuel use, aggressive control or a complete cessation of exposures to the pollutants.

They found that reducing those two risk factors would significantly decrease deaths from COPD and lung cancer. If smoking and biomass and coal use were to be eliminated gradually over the next 30 years, an estimated 26 million COPD deaths (40% of projected COPD deaths) and 6 million lung cancer deaths (34% of projected lung cancer deaths) would be avoided. For moderate and aggressive control scenarios, deaths from these diseases could be reduced by an estimated 17% to 34% among men and 18% to 29% among women. There will also be major benefits for TB, above and beyond those that can be achieved through treatment.

Hsien-Ho Lin, a graduate student in the department of epidemiology at HSPH and the lead author of the study, said "this analysis shows that smoking and fuel use, which affects hundreds of millions of people in China, will be a defining feature of future health in that country."

Policy responses and specific interventions could help reduce the enormous disease burden from smoking and household fuel use. In the article, the authors suggest that at the national level, for example, authorities could create regulatory and economic policies that reduce smoking and promote clean household fuels. At the individual level, TB patients could be offered tobacco cessation programs.

"There are proven ways to reduce tobacco smoking and to provide homes with clean-burning energy alternatives. China can save millions of premature deaths from respiratory diseases in the next few decades if it leverages its effective policy system to implement these interventions," said Majid Ezzati, associate professor of international health at HSPH and senior author of the study.

"Effects of smoking and solid-fuel use on COPD, lung cancer, and tuberculosis in China: a time-based, multiple risk factor, modelling study," Hsien-Ho Lin, Megan M Murray, Ted Cohen, Caroline Colijn, Majid Ezzati, *The Lancet*, online October 4, 2008.

Source: Harvard School of Public Health

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