Health Aspects of Traditional Cooking Practices

Prof. Theo C.E. Mosha

THE PROBLEM

• More than half of the world’s populations rely on dung, wood, crop waste or coal to meet their most basic energy needs.
• Cooking and heating with such solid fuels on open fires or stoves without chimneys leads to indoor air pollution.
• The use of polluting fuels poses a major burden on the health of poor families in developing countries.
• Reliance on simple household fuels and appliances can compromise health and thus hold back economic development, creating a vicious cycle of poverty.

THE PROBLEM

• Assessment by the International Energy Agency (2006), the number of people relying on biomass fuels continue to rise.
• In Sub-Saharan Africa, the reliance on biomass fuels appears to be growing as a result of population growth and the unavailability of, or increases in the price of, cleaner alternatives such as kerosene and liquid petroleum gas.
• In poorly ventilated dwellings, indoor smoke from fuelwood, agricultural residues and animal dung produce high emissions of carbon monoxide, hydrocarbons and particulate matter.
• Hydrocarbons are highest from the burning of dung for fuel, while particulate emissions are highest from the agricultural residues.

THE PROBLEM

• Although the exact mechanisms of how exposure causes disease is not clear, it is theorized that:
  i) Small particulates in smoke cause inflammation of the airways and lungs causing elevation of acute phase proteins and impairing the immune response.
  ii) CO saturates the O₂ binding sites in the RBC, thus reducing the O₂ carrying capacity of the blood

SCOPE OF THE PROBLEM

• Despite the magnitude of this growing problem, the health impacts of exposure to indoor air pollution have yet to become a central focus of research, development aid and policy-making.
• The WHO (2006) estimates that 1.5 m premature deaths/year are directly attributable to indoor air pollution from the use of solid fuels.
• This translates to 4,000 deaths per day and half of these are children under the age of five year.

SCOPE OF THE PROBLEM

• This means that indoor air pollution associated with the use of biomass causes:
  - More deaths than malaria
  - Almost as many deaths as TB
  - Almost half as many as HIV/AIDS
• The number of pre-mature deaths is highest in S-E Asia and Sub-Saharan Africa
Harmful Effects of Current Cooking Fuels and Technologies

- WHO (2004) classified risk factors for burden of diseases. Indoor air pollution is the 8th most important risk factor for disease responsible for 2.7% of the global burden of diseases.
- Disease burden from indoor air pollution exceeds the burden from the indoor air pollution 5 fold.
- In developing countries, indoor SMOKE is responsible for 3.7% of the overall disease burden, making it the most lethal killer after malnutrition, STDs and water-borne/washed diseases.

Acute Lower Respiratory Tract Infections

- Pneumonia and other LRTI are the most important killer of children U-5 years
- Exposure to indoor air pollution doubles the risk for pneumonia.
- Research evidence:
  - Gambia: children riding on the mother’s back while cooking in smoky stoves were 6-fold more likely to develop ARI than unexposed children.

Harmful Effects of Current Cooking Fuels and Technologies

- Indoor air pollution has been associated with a wide range of health outcomes. These include:
  - respiratory illness,
  - asthma,
  - pregnancy and perinatal complications,
  - lung cancer,
  - TB
  - eye problems, cataracts, blindness.

Acute Lower Respiratory Tract Infections

- Nepal: Incidences of ARI among 2 year olds increased proportionately to the no. of hours they stay near fire.
- Tanzania: U-5 children who died of ARI were 3-times more likely to be sleeping in a room with an open stove.
- South Africa and India: Exposure to indoor air pollution severely reduced lung function in children.
Acute Lower Respiratory Tract Infections

- Globally, out of 2 million deaths of pneumonia, 900,000 deaths are directly associated with indoor air pollution.

Chronic Obstructive Pulmonary Disease

- Example: Chronic bronchitis, asthma
- Women exposed to indoor air pollution have a 3-fold higher risk for chronic bronchitis than women who cook using cleaner fuels.
- Globally, out of 2.7 million deaths of chronic obstructive pulmonary disease, 700,000 deaths are directly associated with indoor air pollution.

Lung cancer

- Indoor air pollution increases the risk for lung cancer
- Exposure to smoke from coal doubles the risk
- Globally, out of 1.0 million deaths of lung cancer, 15,000 deaths are directly associated with indoor air pollution.

Pregnancy-related problems

- Low birth weights
- Stillbirths
- Perinatal complications
- Infant mortality

Other health effects

- Having to walk and carry heavy loads of firewood over long distances affects health of women
  - uterine prolapse due to carrying heavy loads soon after delivery
  - reproductive problems due to extreme physical drudgery involved
  - mental disorders
- Many hours spent on energy issues affects the care of children and other family members.
Millennium Development Goals

- WHO has put in the MDG the agenda for minimizing the use of solid fuels due to the health risks involved
- WHO reports as part of the national development “the proportion of the population using solid fuels for cooking”
- Such reports are used to predict health risks in countries e.g. ARI

Conclusion

- There is strong evidence to suggest that indoor air pollution associated with the use of solid fuels has serious negative health impacts
- Measures to reduce indoor air pollution and associated health effects include:
  - promoting improved and more efficient methods for use of traditional biomass and
  - encouraging people to switch to cleaner cooking fuels and technologies such as solar energy, gas or electricity

Conclusion

- There is however a need to investigate which interventions will work and how they can be implemented in a successful, sustainable and cost effective manner.

Thanks for Listening