



Supportive Environments for Healthy Communities

Issue 32 November 11, 2011 | Focus on the Prevention of Pneumonia

November 12th is World Pneumonia Day and this issue of the *WASHplus Weekly* includes some of the most recent studies on hand washing and eliminating indoor air pollution (IAP) as key environmental interventions to prevent pneumonia. Included are recent fact sheets from the World Health Organization on pneumonia and IAP, a review of childhood pneumonia in India, links to websites and other studies. Please contact WASHplus if you have additional resources to add to this or other topics, or to suggest a topic for future issues of the *Weekly*.

FEATURED PUBLICATION

- **Pneumonia Fact Sheet**, 2011. World Health Organization. ([Full-text](#))
Pneumonia is the leading cause of death in children worldwide. Pneumonia kills an estimated 1.4 million children under the age of five every year – more than AIDS, malaria and tuberculosis combined. Pneumonia can be prevented by immunization, adequate nutrition and by addressing environmental factors such as personal and community hygiene and the prevention of indoor air pollution.

HAND WASHING/HYGIENE STUDIES

- **Acute Respiratory Infection and Pneumonia in India: A Systematic Review of Literature for Advocacy and Action**, 2011. J. Mathew, Advanced Pediatrics Center. ([Full-text](#))
Scaling up of evidence-based management of childhood acute respiratory infection (ARI)/pneumonia is a public health priority in India, and necessitates a thorough literature review, for advocacy and action. Childhood ARI/pneumonia is a significant public health problem in India, although robust epidemiological data is not available on its incidence. Mortality due to pneumonia accounts for approximately one-fourth of the total deaths in children under age five in India.
- **Childhood Pneumonia in Low and Middle Income Countries: Burden, Prevention and Management**, *The Open Infectious Diseases Journal*, 4 2010. D. Gray, University of Cape Town, South Africa. ([Full-text](#))
Improved access to preventive and management strategies is urgently needed to

reduce the burden of childhood pneumonia in resource limited settings. Hand washing with soap reduces the risk of acute respiratory infections and diarrhea. In a randomized controlled trial in Pakistan, neighborhoods received hand washing education and then were randomly provided with plain or antibacterial soap. Children under age five from the households who received soap had a 50% reduction in pneumonia episodes.

- **Pneumonia and Poverty: A Prospective Population-based Study among Children in Brazil**, *BMC Infectious Diseases* June 2011. L. Thörn, Secretariat of Health of the Municipality of Goiânia, Brazil. ([Full-text](#))

Children in developing countries suffer the highest burden of pneumonia. However, few studies have evaluated associations between poverty and pneumonia. In infants, the risk of developing pneumonia is inversely associated with household income and with the mother's education level. Areas with deprived socioeconomic conditions had higher incidence of pneumonia.

- **Prevalent High-risk Respiratory Hygiene Practices in Urban and Rural Bangladesh**, *Trop Med Int Health*, June 2010. S Nasreen, ICDDR. ([Full-text](#))

This study identified existing respiratory hygiene risk practices to guide the development of interventions for improving respiratory hygiene. It concludes that there is an urgent need to develop culturally appropriate, cost-effective and scalable interventions to improve respiratory hygiene practices and to assess their effectiveness in reducing respiratory pathogen transmission.

- **Physical Interventions to Interrupt or Reduce the Spread of Respiratory Viruses (Review)**, 2010. T Jefferson, Cochrane Collaboration. ([Full-text](#))

This study systematically reviewed the effectiveness of physical interventions to interrupt or reduce the spread of respiratory viruses. The highest quality trials suggest respiratory virus spread can be prevented by hygienic measures, such as hand washing, especially around younger children. The additional benefit from reduced transmission from children to other household members is broadly supported in results of other study designs. Six case-control studies suggested that implementing barriers to transmission, isolation, and hygienic measures are effective at containing respiratory virus epidemics. Many simple and probably low-cost interventions would be useful for reducing the transmission of epidemic respiratory viruses.

- **Using Child Health Outcomes to Identify Effective Measures of Handwashing**, *Am J Trop Med Hyg.* November 2011. S. Luby, ICDDR. ([Abstract](#))

This study assessed which practical hand washing indicators were independently associated with reduced child diarrhea or respiratory disease. Two indicators were independently associated with fewer respiratory infections—mothers allowing their hands to air dry after the hand washing demonstration and the presence of water where the respondents usually wash hands after defecation. These rapid hand washing

indicators should be considered for inclusion in hand washing assessments.

INDOOR AIR POLLUTION

- **Burning Issues: Tackling Indoor Air Pollution**, *The Lancet*, May 2011. T Burki.

[\(Full-text\)](#)

Indoor air pollution is gradually gaining more global attention as an important public health issue. "The best vaccine for pneumonia is ensuring kids don't breathe dirty air at home," asserts Maria Neira, director of WHO's Public Health and the Environment Department, referring to just one of the many health problems arising from indoor air pollution.

- **Cooking Fuel Type, Household Ventilation, and the Risk of Acute Lower Respiratory Illness in Urban Bangladeshi Children: A Longitudinal Study**, *Indoor Air*, 2011. E Murray, Centers for Disease Control and Prevention. [\(Abstract\)](#)

Acute lower respiratory illnesses (ALRI) are the leading cause of death among children under age five. Studies have found that biomass cooking fuels are an important risk factor for ALRI. However, few studies have evaluated the influence of natural household ventilation indicators on ALRI. The purpose of this study was to assess the association between cooking fuel, natural household ventilation and ALRI. Structural factors that might improve household air circulation and exchange were associated with decreased ALRI risk. Improved natural ventilation might reduce ALRI among children in low-income families.

- **Economic Costs of Indoor Air Pollution: New Results for Indonesia, the Philippines, and Timor-Leste**, *Journal of Natural Resources Policy Research*, 2(1) 2010. A Arcenas. [\(Full-text\)](#)

Indoor air pollution from biomass fuels is clearly linked to acute respiratory infections and chronic obstructive pulmonary disease, and there is evidence of links to tuberculosis and lung cancer. Children under age five and adult women are particularly affected. The resulting morbidity and premature mortality can be calculated and assessed in monetary terms through the use of the Cost of Illness, the Human Capital Approach and Value of Statistical Life analysis. This article presents new results of the economic cost of health impacts for Indonesia, the Philippines, and Timor-Leste and discusses policy implications of these findings.

- **Indoor Air Pollution: A Major Environmental Cause of Death**, *Science*, October 2011. W. Martin, National Institutes of Health. [\(Abstract\)](#)

Although problems of IAP are well established, it remains unclear just how much emissions must be reduced by cleaner cookstoves and fuels to provide substantial health benefits. To date, the only completed randomized controlled trial using improved stoves with chimneys to study the impact of reduced IAP on child pneumonia is the RESPIRE study in Guatemala. Preliminary exposure-response data from RESPIRE suggest that exposure reductions of as much as 90% are needed to achieve

substantial reductions in pneumonia risk; even modest risk reduction requires exposures to be lowered by at least 50%.

- **Indoor Air Pollution and Health Fact Sheet**, 2011. World Health Organization. ([Full-text](#))

Around three billion people cook and heat their homes using open fires and leaky stoves burning biomass (wood, animal dung and crop waste) and coal. Nearly 50% of pneumonia deaths among children under age five are due to particulate matter inhaled from indoor air pollution.

WEBSITES

- Global Public-Private Partnership for Handwashing with Soap, ([Website](#))
- Hygiene Centre-London School of Hygiene and Tropical Medicine, ([Website](#))
- WASHplus Indoor Air Pollution Updates, ([Website](#))
- World Health Organization, Pneumonia – ([Website](#))
- World Pneumonia Day. ([Website](#))

Each *WASHplus Weekly* highlights topics such as Urban WASH, Indoor Air Pollution, Innovation, Household Water Treatment and Storage, Hand Washing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Dan Campbell, WASHplus knowledge resources specialist, at dacampbell@fhi360.org.



About WASHplus - WASHplus, a five-year project funded through USAID's Bureau for Global Health, creates supportive environments for healthy households and communities by delivering high-impact interventions in water, sanitation, hygiene (WASH) and indoor air pollution (IAP). WASHplus uses proven, at-scale interventions to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.

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