



Supportive Environments for Healthy Communities

Issue 18 July 29, 2011 | Focus on Prevention and Treatment of Diarrhea

This *WASH Weekly* focuses on 2010 and 2011 studies and reports on the prevention and treatment of diarrhea. These interventions include breastfeeding/nutrition, water, sanitation, hygiene (WASH) and vaccines. We will continue to build on this list and add it to our website, so please send along additional studies and reports on this topic to add to the bibliography.

OVERVIEW ARTICLES

- **Diarrheal Diseases in Low- and Middle-Income Countries: Incidence, Prevention and Management**, IN: *The Open Infectious Diseases Journal*, 2010. W. Jill, Karolinska Institutet. ([Full-text](#))
Interventions to prevent diarrhea include provision of safe water, hand washing, the use of sanitation facilities, exclusive breastfeeding of infants and rotavirus vaccination. Diagnosis is guided by symptoms into one of three categories: acute watery diarrhea, dysentery or bloody diarrhea, or persistent diarrhea of longer than 2 weeks in duration.
- **Infection: Preventing 5 Million Child Deaths from Diarrhea in the Next 5 Years**, IN: *Nature Reviews Gastroenterology and Hepatology*, July 2011. S. Moore. University of Cincinnati. ([Full-text](#))
Despite major advances in understanding its prevention and treatment, diarrhea remains a leading cause of global child deaths and a potentially important cause of lifelong morbidity. A new study asks the question: how many lives would be saved by universal scaling up of best practices for diarrhea prevention and control?
- **Interactions of Diarrhea, Pneumonia, and Malnutrition in Childhood: Recent Evidence from Developing Countries**, IN: *Current Opinion in Infectious Diseases*, July 2011. E. Schlaudecker. ([Abstract](#))
This review highlights recent progress toward understanding complex interactions between diarrhea, pneumonia, and under nutrition among children in low-income and middle-income countries. New studies parallel earlier reports that diarrhea and

pneumonia impair children's growth and that underlying malnutrition is a major risk factor for these conditions.

BREASTFEEDING/NUTRITION

- **Breastfeeding and the Risk for Diarrhea Morbidity and Mortality**, IN: *BMC Public Health* 11(3), 2011. L. Lamberti, Johns Hopkins Bloomberg School of Public Health. ([Full-text](#))

Findings from this study support the current WHO recommendation for exclusive breastfeeding during the first 6 months of life as a key child survival intervention.

- **National Scale-up of Zinc Promotion in Nepal: Results from a Post-project Population-based Survey**, IN: *Journal of Health, Population and Nutrition*, June 2011. W. Wang, ICF MACRO. ([Abstract/Full-text](#))

The World Health Organization and the United Nations Children's Fund recommend using a new oral rehydration solution (ORS) plus zinc supplementation for 10-14 days for the treatment of diarrhea in children aged less than five years. The Social Marketing Plus for Diarrhoeal Disease Control: Point of Use Water Disinfection and Zinc Treatment (POUZN) project in Nepal was one of the first zinc-promotion projects to move beyond pilot efforts into a scaled-up program with national-level reach. A study conducted by POUZN used data from a survey conducted in 26 districts in Nepal in 2008 to examine zinc-use behaviour, knowledge, and beliefs of caregivers of children aged less than six years, other diarrhoea-treatment practices, and recollection of project communication messages. These findings are being used for informing the design and implementation of zinc programmes in other developing countries with a high prevalence of diarrhea.

- **Role of Probiotic in Preventing Acute Diarrhoea in Children: A Community-based, Randomized, Double-blind Placebo-controlled Field Trial in an Urban Slum**, IN: *Epidemiol Infect*, June 2011. D. Sur, National Institute of Cholera and Enteric Diseases. ([Full-text](#))

This study examined the role of a probiotic in the prevention of acute diarrhea to discover if there was an effect directed towards a specific aetiology. The study suggests that daily intake of a probiotic drink can play a role in prevention of acute diarrhea in young children in a community setting of a developing country.

- **Zinc Treatment for 5 to 10 Days is Equally Efficacious in Preventing Diarrhea in the Subsequent 3 Months Among Bangladeshi Children**, IN: *Journal of Nutrition*, February 2011. D. Alam, ICDDR. ([Abstract](#))

The International Centre for Diarrheal Disease Research conducted a randomized, double-blind placebo controlled, community trial in rural Bangladesh in children 4-59 mo of age to compare the efficacy of a 5- and 10-d course of zinc therapy on the incidence and duration of diarrhea over the subsequent 90-d follow-up after initial treatment for an acute childhood diarrheal (ACD) episode.

WATER, SANITATION AND HYGIENE (WASH)

- **Does Improved Sanitation Reduce Diarrhea in Children in Rural India?** 2011. S. Kumar, Harvard School of Public Health. ([Full-text](#))

This study used the newly available data set DLHS-3 to quantify the impact of access to improved sanitation on diarrheal morbidity for children under five years of age in India. Access to improved sanitation decreases child diarrhea incidence by 2.2 percentage points.
- **The Effect of Handwashing at Recommended Times with Water Alone and With Soap on Child Diarrhea in Rural Bangladesh: An Observational Study,** IN: *PLoS Medicine*, June 2011. S. Luby, ICDDR. ([Full-text](#))

This study concludes that handwashing before preparing food is a particularly important opportunity to prevent childhood diarrhea, and that handwashing with water alone can significantly reduce childhood diarrhea.
- **Providing Safe Water: Evidence from Randomized Evaluations,** 2010. A. Ahuja, Harvard University. ([Full-text](#))

This paper uses a public economics framework to review evidence from randomized trials on domestic water access and quality in developing countries and to assess the case for subsidies. Water treatment can cost-effectively reduce reported diarrhea. However, many consumers have low willingness to pay for cleaner water; few households purchase household water treatment under retail models.
- **Water, Sanitation and Hygiene for the Prevention of Diarrhoea,** IN: *Int. J. Epidemiol.* 39(1), 2010. S. Cairncross, London School of Hygiene & Tropical Medicine. ([Full-text](#))

This study drew on three systematic reviews, two of them for the Cochrane Collaboration, focussed on the effect of handwashing with soap on diarrhoea, of water quality improvement and of excreta disposal, respectively. It found that the striking effect of handwashing with soap is consistent across various study designs and pathogens, though it depends on access to water. The effect of water treatment appears similarly large, but is not found in few blinded studies, suggesting that it may be partly due to the placebo effect. There is very little rigorous evidence for the health benefit of sanitation; four intervention studies were eventually identified, though they were all quasi-randomized, had morbidity as the outcome, and were in Chinese. The researchers propose diarrhea risk reductions of 48, 17 and 36%, associated respectively, with handwashing with soap, improved water quality and excreta disposal as the estimates of effect for the LiST model. Most of the evidence is of poor quality. More trials are needed, but the evidence is nonetheless strong enough to support the provision of water supply, sanitation and hygiene for all.

VACCINES

- **Vaccines for Preventing Rotavirus Diarrhoea: Vaccines in Use,** IN: *Evidence-*

Based Child Health: A Cochrane Review Journal, March 2011. K. Soares-Weiser, Enhance Reviews Ltd. ([Abstract](#))

Rotavirus results in higher diarrhea-related death in children less than five years of age than any other single agent, particularly in low- and middle-income countries. The purpose of this study was to evaluate rotavirus vaccines approved for use (Rotarix, RotaTeq, and Lanzhou Lamb Rotavirus (LLR)) for preventing rotavirus diarrhea.

Each *WASHplus Weekly* will highlight topics such as Urban WASH, Indoor Air Quality, Innovation, Household Water Treatment and Storage, Handwashing, 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@aed.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 quality (IAQ). 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 contact: washplus@aed.org.

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