



**Issue 121 November 1, 2013 | Focus on the Health Impacts of WASH
Interventions**

This issue updates the May 2013 Weekly on WASH-related diseases. Included are links to four reports, seven journal articles plus 14 Weeklies on WASH and various health issues. Studies in this issue review the health impacts of drought, WASH and nutrition, behavior change frameworks, and WASH and HIV/AIDS.

REPORTS

Considerations for Policy Development and Scaling-Up Household Water Treatment and Safe Storage with Communicable Disease Prevention Efforts, 2013. World Health Organization. ([Full text, pdf](#))

The overall consensus from a group of technical experts was that existing meta-analyses, individual research reports, and WHO guidelines provide sufficient support for scaling-up household water treatment and safe storage (HWTS). More can and should be done to integrate HWTS into HIV, child and maternal health, dengue and vector control, and other targeted efforts. Some of the report's recommendations are: link HWTS with efforts to rapidly expand HIV testing in order to reach the global HIV target of treating 15 million by 2015; increase implementation of HWTS to end preventable child deaths from pneumonia and diarrhea by 2025; and develop and implement preventive interventions that jointly address fecal contamination and vector breeding in household water storage containers.

Effects of Early-Life Exposure to Sanitation on Childhood Cognitive Skills: Evidence from India's Total Sanitation Campaign, 2013. D Spears. ([Full text, pdf](#))

This study focuses on the effects on childhood cognitive achievement of early life exposure to India's Total Sanitation Campaign (TSC), a large government program that encouraged local governments to build and promote use of inexpensive pit latrines. The researchers concluded that six-year-olds exposed to TSC in their first year of life were more likely to recognize letters and simple numbers. Results suggest that open defecation is an important threat to the human capital of the Indian labor force, and a program that is feasible to low capacity governments in developing countries could improve average cognitive skills.

Integrating Water, Sanitation, and Hygiene into Nutrition Programming, 2013. WASHplus. ([Link, pdf](#))

Diarrhea, pneumonia, and birth complications are the top three killers of children under age 5 worldwide. Diarrhea is also a leading cause of undernutrition in this age group, and one-third

to one-half of all child mortality cases are linked to undernutrition. If mothers and other caregivers used basic hygiene practices and had better access to safe water and adequate sanitation this could greatly reduce under-5 deaths and improve child nutrition.

Water and Sanitation in the Time of Cholera: Sustaining Progress on WASH in Haiti, 2013. K Bliss, Center for Strategic and International Studies. ([Full text](#))

This report provides recommendations on how the United States can enhance its support for WASH in Haiti and control cholera transmission and diarrheal disease.

JOURNAL ARTICLES

Does Clean Water Matter? An Updated Meta-Analysis of Water Supply and Sanitation Interventions and Diarrhoeal Diseases. *Lancet*, June 2013. R Engell. ([Full text](#))

This re-analysis of quasi-experimental and experimental studies suggests much smaller impacts of water and sanitation interventions than previously thought. Given the emphasis placed on these interventions in improving livelihood, continued epidemiological research to assess the full effects of such interventions remains imperative.

Extending Helminth Control beyond STH and Schistosomiasis: The Case of Human Hymenolepiasis. *PLoS Negl Trop Dis*, Oct 2013. R Soares. ([Full text](#))

Hymenolepiasis is caused by a cyclophyllidean tapeworm. Cases of hymenolepiasis are often seen as clusters within a family and in institutions where children are crowded together, suggesting a common source of exposure. The majority of infections occur as autoinfections as a result of contamination of food or water by humans, usually children, excreting viable eggs in their feces. The research results from this study highlight the need for WASH improvements to be delivered to communities concomitantly with anthelmintic therapy if resources are available. The impact of autoinfection is unlikely to change unless WASH interventions are put in place. More importantly, this study shows for the first time that *H. nana* infection is an important contributor to infection-associated morbidity, particularly in children under 5 years of age.

Health Effects of Drought: A Systematic Review of the Evidence. *PLoS Curr*, June 2013. C Stanke. ([Full text](#))

The probability of drought-related health impacts varies widely and largely depends upon drought severity, baseline population vulnerability, existing health and sanitation infrastructure, and available resources with which to mitigate impacts as they occur. The socio-economic environment in which drought occurs influences the resilience of the affected population. Forecasting can be used to provide advance warning of the increased risk of adverse climate conditions and can support the disaster risk reduction process. Despite the complexities involved in documentation, research should continue and results should be shared widely in an effort to strengthen drought preparedness and response activities.

Interventions to Improve Water Quality and Supply, Sanitation and Hygiene Practices, and Their Effects on the Nutritional Status of Children. *Cochrane Database Syst Rev*, Aug 2013. A Dangour. ([Abstract](#))

The available evidence from meta-analysis of data from cluster-randomized controlled trials with an intervention period of 9–12 months suggests a small benefit of WASH interventions (specifically solar disinfection of water, provision of soap, and improvement of water quality) on length growth in children under 5 years of age. The duration of the intervention studies

was relatively short and none of the included studies is of high methodological quality. Very few studies provided information on intervention adherence, attrition, and costs. Several ongoing trials in low-income country settings may provide robust evidence to inform these findings.

The Integrated Behavioural Model for Water, Sanitation, and Hygiene: A Systematic Review of Behavioural Models and a Framework for Designing and Evaluating Behaviour Change Interventions in Infrastructure-Restricted Settings. *BMC Public Health*, Oct 2013. R Dreibeilbis. ([Full text](#))

A number of WASH-specific models and frameworks exist, yet they have limitations. The IBM-WASH model aims to provide both a conceptual and practical tool for improving our understanding and evaluation of the multi-level multi-dimensional factors that influence WASH practices in infrastructure-constrained settings.

Integration of Water, Sanitation, and Hygiene for the Prevention and Control of Neglected Tropical Diseases: A Rationale for Inter-Sectoral Collaboration. *PLoS Neg Trop Dis*, Sept 2013. M Freeman. ([Full text](#))

Improvements in WASH infrastructure and appropriate health-seeking behavior are necessary for achieving sustained control, elimination, or eradication of many neglected tropical diseases (NTDs). Indeed, the global strategies to fight NTDs include provision of WASH, but few programs have specific WASH targets and approaches. Collaboration between disease control programs and stakeholders in WASH is a critical next step. A group of stakeholders from the NTD control, child health, and WASH sectors convened in late 2012 to discuss opportunities for, and barriers to, collaboration. The group agreed on a common vision, namely "Disease-free communities that have adequate and equitable access to water and sanitation, and that practice good hygiene." Four key areas of collaboration were identified, including advocacy, policy, and communication; capacity building and training; mapping, data collection, and monitoring; and research.

Quality of Piped and Stored Water in Households with Children Under Five Years of Age Enrolled in the Mali Site of the Global Enteric Multi-Center Study (GEMS). *Am Jnl Trop Med Hyg*, Aug 2013. K Baker. ([Full text](#))

WASH information was collected during a matched case-control study of moderate and severe diarrhea (MSD) among 4,096 children under 5 years of age in Bamako, Mali. Primary use of piped water, continuous water access, fetching water daily, and breastfeeding significantly reduced the likelihood of MSD. Fetching water in less than 30 minutes was associated with MSD. Piped tap water and courier-delivered water contained high concentrations of free residual chlorine and no detectable E.coli. However, many households stored water overnight, resulting in inadequate free residual chlorine for preventing microbial contamination. Although most of Bamako's population enjoys access to an improved water source, water quality is often compromised during household storage.

Water, Sanitation, and Hygiene Interventions to Improve Health among People Living with HIV/AIDS: A Systematic Review. *AIDS*. 2013 Oct 23; 27(16):2593-2601. R Peletz. ([Abstract](#))

People living with HIV/AIDS (PLHIV) are at increased risk of diarrheal disease and enteric infection. This review assesses the effectiveness of WASH interventions to prevent disease among PLHIV. Ten studies met the eligibility criteria and are included in the review, of which nine involved water quality interventions and one involved promotion of hand washing. Among eight studies that reported on diarrhea, water quality interventions and the hand

washing intervention were protective against diarrhea. One study reported that household water treatment combined with insecticide treated bednets slowed the progression of HIV and AIDS. The validity of most studies is potentially compromised by methodological shortcomings. No studies assessed the impact of improved water supply or sanitation, the most fundamental of WASH interventions. Despite some evidence that water quality interventions and hand washing are protective against diarrhea, substantial heterogeneity and the potential for bias raise questions about the actual level of protection.

WASHplus Weeklies on Health Issues

2013

- Sept 20 - [Focus on WASH & Nutrition](#)
- Aug 9 - [Focus on Cholera Prevention & Control](#)
- July 12: [Focus on Menstrual Hygiene Management](#)
- May 24: [Focus on WASH-Related Diseases](#)
- Feb 8: [Focus on Neglected Tropical Diseases](#)

2012

- Nov 9: [Focus on World Pneumonia Day 2012](#)
- Sept 7: [Focus on WASH & Child Survival](#)
- Aug 10: [Focus on Cholera Prevention & Control](#)
- Aug 3: [Focus on Menstrual Hygiene Management](#)
- July 20: [Focus on HIV/AIDS & WASH](#)
- July 13: [Focus on Soil-Transmitted Helminth Infections](#)
- June 1: [Focus on WASH-Related Diseases](#)
- Jan 27: [Focus on Health Impacts of WASH & IAP Interventions](#)

WASHplus Weeklies will highlight 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, supports healthy households and communities by creating and delivering interventions that lead to improvements in access, practice and health outcomes related to water, sanitation, hygiene (WASH) and indoor air pollution (IAP). WASHplus uses at-scale, targeted as well as integrated approaches 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.