

Issue 97 | April 19, 2013 | A Hand Washing Update

The Global Public-Private Partnership for Handwashing with Soap (PPPHW) gave WASHplus permission to share this summary of recent hand washing literature that was recently prepared for the partnership. It includes 13 studies published in 2012 and one published in 2013. In one such study the authors suggest that hand washing promotion could improve child well-being and societal productivity. According to the literature review, very little has been published in peer-reviewed journals on motivators and barriers to hand washing behavior and the impact of hand washing promotion in humanitarian emergency settings. Links are provided to the abstracts or full text of articles in the citations section.

Periodic Overview of Hand Washing Literature: Summary of Selected Peer-Reviewed and Grey Literature Published July–December 2012.

Prepared for the PPPHW by: Jelena Vujcic (University at Buffalo), Pavani K. Ram (University at Buffalo), Dan Campbell (CARE), and Katie Carroll (FHI 360).

RISK FACTORS AND DIARRHEAL DISEASE PREVALENCE

- A systematic review of cohort studies that reported diarrhea incidence in low- and middle-income countries showed that diarrhea incidence rates are declining slightly (1.9 billion episodes of childhood diarrhea in 1990 compared to almost 1.7 billion episodes in 2010), but the total burden on child health is still large (Fischer Walker et al. 2012).
- One study in Tanzania found that hands and water are important sources of both viral and bacterial pathogens that cause diarrhea, underscoring the importance of efforts to promote hand washing (Mattioli et al. 2012).

Takeaway for implementers:

- The burden of diarrheal disease among children is still unacceptably high in low- and middle-income countries.

- Hands are an important vector of diarrheal pathogens.

HAND WASHING AND HEALTH OUTCOMES

- A randomized controlled trial in informal settlements in Karachi, Pakistan, found children whose families received hand washing promotion during their first 30 months had global development quotients of 0.4 SDs greater than those in the control group. These gains are comparable to “at risk children enrolled in publicly funded preschools in the U.S.” Child growth was not different between groups that did and did not receive hand washing promotion. The authors suggest that hand washing promotion could improve child well-being and societal productivity (Bowen et al. 2012).
- In a subset of participants in the Nyando Integrate Child Health and Education Project researchers found that students in primary schools (Kenya) that received a school-based hygiene and water treatment program sustained improvement in hygiene knowledge (although still around 50 percent) and had a decreased risk of respiratory infections compared to students who had not yet received the program. There were no differences in diarrhea prevalence; however, overall illness was low (Patel et al. 2012).
- Researchers in South Africa evaluated a comprehensive family hygiene promotion program in peri-urban Cape Town. Neighborhoods (and thus all households in that area) were purposely selected into three groups: a control group, an education-only group, and an education plus hygiene product group (bar soap, surface disinfectant, and skin antiseptic). They found children (under five years old) in the control group were more likely to have gastrointestinal illnesses and respiratory illnesses compared to children that received either intervention. Children living in households that received hygiene education only were 2.5 times more likely to have gastrointestinal illness and 4.6 times more likely to have respiratory illness compared to children who received hygiene education and products. These estimates were adjusted for age, gender, and socio-economic indicators (Cole et al. 2012).
- In Colombia where water supply is limited, researchers found that children (one to five years old) who attended child care centers that received education about alcohol-based hand rub, dispensers, and replenishment of the hand rubs were less likely to have acute diarrhea and acute respiratory illness compared to children who attended control child care centers (Correa et al. 2012).
- In Thailand, researchers found that children in kindergarten classrooms who were taught to apply hand sanitizer hourly had less influenza-like illness compared to those who were taught to apply it every two hours or only at lunch time (Pandejpong et al. 2012).

Takeaway for implementers:

- Hand washing promotion to mothers of young children may improve child

development, and thereby increase a child's well-being and societal productivity. Hygiene promotion alone can result in significant reductions in gastrointestinal and respiratory illness among young children, but provision of hygiene products in addition to hygiene education can yield greater reductions. Promotion of hand washing in primary schools improves knowledge about hand washing among students and can reduce the risk of respiratory illness among these students. In child care centers, promotion of hand sanitizer use and the provision of these products can reduce acute diarrhea and respiratory illness in children one to five years old that attend these facilities. In kindergarten classrooms, hourly use of hand sanitizer was a more optimal time interval for preventing respiratory illness in children attending these facilities.

FACTORS THAT AFFECT HAND WASHING BEHAVIOR

- The Alive & Thrive (www.aliveandthrive.org) program in Bangladesh, which aims to improve infant and young child nutrition through hand washing and complementary feeding initiatives, identified three common barriers to hand washing through formative research: (1) a lack of convenience of materials where food is prepared and children are fed, (2) mothers of young children are not convinced that hand washing and complementary feeding are beneficial for the child's health, and (3) a lack of social norms for hand washing before feeding a child or preparing food (Alive & Thrive 2012). The authors also describe Trials of Improved Practices and design of the communication strategy and campaign activities used in Bangladesh.
- A qualitative study of clean delivery practices among mothers, community members, and health care providers in rural Ghana, found that hand washing during and/or after delivery by family/community members was not frequently reported. Grandmothers play a crucial role in delivery practices. There is a disconnect between health care providers and community members regarding clean practices during delivery (Moyer et al. 2012).

Takeaway for implementers:

- Understanding barriers to hand washing with soap that are *specific* to critical times of interest (such as feeding, food preparation, or clean/safe delivery) can help the implementer design a more relevant behavior change approach. Family or community members who have influence on birthing practices could be important barriers to behavior change and therefore important to consider when designing such a program.

HAND WASHING PROMOTION NESTED IN OTHER PROGRAMS

- Two different studies evaluated the use of the Hazard Analysis, Critical Control Point (HACCP) approach (commonly used in industrialized countries for food hygiene) to reduce fecal contamination that can occur during the food preparation or feeding process at home. Using this approach, the researchers identified "critical control points" for food contamination then identified corrective measures to address those

critical control points, including hand washing with soap. In Bamako, Mali, researchers tested this approach with mothers of children six to 18 months and reported a significant reduction in weaning food contamination after the intervention and some sustained reductions three months after the intervention (Toure et al. 2013).

- In Bangladesh, researchers used the same approach and found significant decreases in weaning food contamination after the HACCP intervention as well as three months later (Islam et al.2012). However, the authors did note some reactivity to observer presence.
- In long-term refugee camps in Thailand, Ethiopia, and Kenya, researchers found that 30 percent of key hand washing opportunities were accompanied by soap use, and 20 percent of times when latrines were used were followed by hand washing with soap. Availability of soap was variable and reflected the extent of free soap distribution. Lack of free soap and prioritization of soap for laundry were barriers to safe hand washing practice. Authors suggest that differences in education and place of origin may need to be taken into account when designing a program (Biran et al. 2012).
- Proper hand hygiene is one component of the WHO safe birth checklist for health facilities ([Link to checklist](#)). This list contains 29 items that address major causes of maternal and neonatal mortality (including infection). Researchers in India evaluated one such program comparing pre-/post-intervention practices of health facility workers who perform or are involved with deliveries. At follow-up, authors report improvement in safe delivery practices, including hand hygiene, among those who were taught to use the checklist (Spector et al. 2012).

Takeaway for implementers:

- The HACCP approach, which includes hand washing with soap at critical junctions, seems effective in decreasing fecal contamination of foods fed to children at risk for diarrhea. Long-term behavior change and health outcomes of this approach have not been researched in low- and middle-income settings. The extent to which this method is feasible at larger scale is also not clear. In three different refugee camps, the practice of hand washing was low, and resource constraints (and therefore decisions about prioritization of such resources) were reported as a barrier to ensuring good hand washing practice. Overall, very little has been published in peer-reviewed journals on motivators and barriers to hand washing behavior and the impact of hand washing promotion in humanitarian emergency settings.

HAND WASHING MEASUREMENT

- This World Bank Water and Sanitation Program technical paper outlines one approach to measure determinants of hand washing behavior using the FOAM framework and Likert scale questions. The authors discuss several of lessons learned from implementing this strategy in their programs in Vietnam and Peru and provide

examples of their scales and how they were developed (Hernandez et al. 2012).

Takeaway for implementers:

- Understanding determinants of good hand washing behavior is important to identify triggers of that behavior that could be incorporated into hand washing promotion programs. If implementers or their evaluation partners seek to understand components/determinants of good hand washing behavior, this is one approach to meet such goals. Measuring determinants/components of good hand washing behavior requires sufficient resources to support the process, which means at a minimum, resources to support piloting, adequate sample size, and appropriate statistical skills for analysis of the data.

Citations

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