Issue 140 April 4, 2014 | Focus on Child Feces Disposal

A recent blog post by the SHARE project states that the feces of children may be particularly important in fecal-oral transmission since children are more susceptible to diseases such as diarrhea and often defecate in areas where other children could be exposed—the ground of a compound or in the house. This issue contains recent studies on child feces disposal practices in India and articles on child-friendly toilets. Also included are studies and reports on how infants and children are affected by fecal contamination caused by domestic animals.

WEBSITES

WASH Benefits Study/Bangladesh & Kenya - (Website)
The WASH Benefits Study, funded by the Bill and Melinda Gates Foundation, will provide rigorous evidence on the health and developmental benefits of water quality, sanitation, hand washing, and nutritional interventions during the first years of life. The study includes two cluster-randomized controlled trials to measure the impact of the intervention among newborn infants in rural Bangladesh and Kenya. Both will be large in scope and measure primary outcomes after two years of intervention.

2014 STUDIES/PROTOCOLS

Interventions to Improve Disposal of Child Faeces for Preventing Diarrhoea and Soil-Transmitted Helminth Infection. (Protocol). *Cochrane Database of Systematic Reviews*, Apr 2014. F Majorin. (Order info)
The objectives of this study are to assess the effectiveness of interventions to improve the disposal of child feces for preventing diarrhea and soil-transmitted helminth infections. The interventions can include the provision of hardware (for example, nappies [diapers], potties, fecal collection devices, cleaning products to hygienically remove feces, child-friendly squatting slabs or latrines used by children), software (for example, promotion of safe disposal practices), or both. It will include interventions that combine the safe disposal of child feces with other interventions, such as hygiene promotion interventions, and employ subgroup analysis to investigate the impact of these additional interventions.

Child Feces Disposal Practices in Rural Orissa: A Cross Sectional Study. *PLoS One*, Feb 2014. F Majorin. (Link)
This study conducted surveys with heads of 136 households in 20 villages. It describes defecation and feces disposal practices and explores associations between safe disposal and

risk factors. Respondents reported that children commonly defecated on the ground, either inside the household for pre-ambulatory children or around the compound for ambulatory children. Twenty percent of pre-ambulatory children used potties and nappies; the same percentage of ambulatory children defecated in a latrine. The study concludes that in the area surveyed, India's Total Sanitation Campaign has not led to high levels of safe disposal of child feces.

Why is Child Faeces Disposal Important? 2014. SHARE. (Link)
Fiona Majorin of the SHARE project is currently conducting formative research in urban and rural settings in Orissa, India. The findings from this work will lead to the design of an intervention that will aim to improve safe child feces disposal.

Child Feces Disposal. A Presentation at the Handwashing Behavior Change Think Tank, 2014. (Link)
This brief presentation, given by the Water and Sanitation Program (WSP) of The World Bank, explores how to safely manage child feces. WSP and UNICEF are collaborating on 25 country profiles focusing on child feces disposal. The presenter appealed to colleagues at the Think Tank and to the WASH community to share any research, programs, or policies they know of that address child feces disposal by emailing them to erand@worldbank.org.

Toys and Toilets: Cross-Sectional Study Using Children's Toys to Evaluate Environmental Faecal Contamination in Rural Bangladeshi Households with Different Sanitation Facilities and Practices. *Trop Med Intl Health*, Mar 2014. J Vujcic. (Abstract)
This study examined fecal contamination in 100 rural households with and without access to toilets/latrines using toys to measure the level of contamination. In rural Bangladesh, improved sanitation facilities and practices were associated with less environmental contamination. Whether this association is independent of household wealth and whether the difference in contamination improves child health merit further study. The variation found was typical for measures of environmental contamination, and requires large sample sizes to ascertain differences between groups with statistical significance.

"Cleaner, Healthier, Happier" Campaign Unveils New Muppet in Bangladesh, India, and Nigeria. *Sesame Workshop India*, Mar 2014. (Link)
Sesame Workshop, the nonprofit educational organization behind Sesame Street, unveils the world's newest Muppet friend, Raya, who will engage children with important messages surrounding proper latrine use and sanitation throughout Bangladesh, India, and Nigeria as part of its Cleaner, Healthier, Happier campaign.

2013 STUDIES/REPORTS

Continued Household Faecal Contamination Following a Sanitation Intervention in Rural Bangladesh. *Health and Science Bulletin*, Mar 2013. ICDDRB. (Link)
Researchers provided potties and a customized hoe-like tool (sani-scoop) to dispose of child and animal feces to 104 rural households with children under 3 years of age. Despite the reported use of the potties (67 percent) and sani-scoops (89 percent), minimal differences were observed at a three-month follow-up visit with regards to the presence of human feces near households (20 percent or 19/96) compared to baseline (16 percent or 16/104). Similarly, minimal differences in the presence of animal feces were observed in the househol compounds at the three-month follow-up visit (84 percent or 87/104) compared to baseline

(96 percent or 92/96). Barriers to the effective use of the distributed hardware included insufficient potty training, inconsistent use of the hardware, and the perception that animal feces are harmless. Practical strategies need to be developed for safe disposal of feces around the household to reduce the fecal contamination of a child's household environment.

An Improved Tool for Household Faeces Management in Rural Bangladeshi Communities. *Trop Med Intl Health*, Apr 2013. R Sultana. (Abstract)
The purpose of this study was to explore child defecation and feces management practices in rural Bangladesh with the aim to redesign and pilot a tool to facilitate removal and disposal of feces. Until 3 years of age, a child commonly defecates in the courtyard and occasionally inside the house. A heavy digging hoe was commonly used to remove child feces. Mothers preferred a redesigned "mini-hoe" and found it easier to use for removal and disposal of liquid feces. Promoting modified local tools may contribute to improving environmental sanitation and health.

Q+A – Child-Friendly Toilets Key in Fight to Improve Global Sanitation. *Thomas Reuters Foundation*, Feb 2013. J Mollins. (Link)
Many unimproved pit toilets in developing countries do not have a stable base, creating unsafe conditions in which a child may actually fall into the pit. Simply providing an improved floor—cement instead of wood, for example—often reduces the fear that children may have. Child-friendly latrines must also provide easy accessibility for children. This means understanding that toilets at different heights allow children of different ages to comfortably use them; in the case of squat toilets, smaller holes reduce the risk of a child slipping into the toilet. Girls have particular needs especially as they reach puberty and require safe and private spaces to manage their sanitary needs.

Baby WASH: Sanitation and Hygiene Interventions to Prevent Environmental Enteropathy, Stunting, and Anemia in Infants, 2013. M Mbuya. (Presentation)
The new paradigm of WASH in the first 1,000 days includes the following recommendations: dispose of all feces in a latrine, including children's feces; wash hands with soap after fecal contact and before preparing, eating, or feeding food and also wash baby's hands; put baby in clean protected area where he cannot access dirt/feces when playing or eating; and treat drinking water with WaterGuard and give treated water to children over 6 months.

Opportunities to Improve Domestic Hygiene Practices through New Enabling Products: A Study of Handwashing Practices and Equipment in Rural Cambodia. *Int Health*, Nov 2013. M Jenkins. (Link)
Lack of a dedicated place and equipment for hand washing has been associated with poor practice of hand washing with soap in the home in developing communities where the practice is needed to reduce diarrheal diseases and respiratory infections. The study results point to considerable need for and potential benefits and value to routine hand washing practice observed in this setting and support increased rates of hand washing with soap at key times, not just by mothers, but for other household members, including enabling young children to wash hands on their own.

Formative Research on Hygiene Behaviors and Geophagy Among Infants and Young Children and Implications of Exposure to Fecal Bacteria. *Am Jnl Trop Med Hyg*, Oct 2013 F Ngure. (Link)
The authors conducted direct observation of 23 caregiver–infant pairs for 130 hours and recorded WASH-related behaviors to identify pathways of fecal–oral transmission of bacteria

among infants. In addition to testing fingers, food, and drinking water of infants, three infants were observed actively ingesting handfuls of soil and two ingested chicken feces. Hand washing with soap was not common and drinking water was contaminated with Escherichia coli. A 1-year-old infant ingesting 1 gram of chicken feces in a day and 20 grams of soil from a laundry area of the kitchen yard would consume 4,700,000 to 23,000,000 and 440–4,240 E. coli, respectively, from these sources. Besides standard WASH and nutrition interventions, infants in low-income communities should be protected from exploratory ingestion of chicken feces, soil, and geophagia for optimal child health and growth.

The Epidemiology and Public Health Importance of Toxocariasis: A Zoonosis of Global Importance. *Int J Parasitol*, Nov 2013. C Macpherson. (Abstract)
Toxocariasis, caused by infection with larvae of Toxocara canis, and to a lesser extent by Toxocara cati and other ascaridoid species, manifests in humans in a range of clinical syndromes. Toxocara canis is one of the most widespread public health and economically important zoonotic parasitic infections humans share with dogs, cats, and wild canids, particularly foxes. This neglected disease has been shown to be especially prevalent among children from socio-economically disadvantaged populations both in the tropics and sub-tropics and in industrialized nations. Human infection occurs by the accidental ingestion of embryonated eggs or larvae from a range of wild and domestic hosts.

Improved Sanitation and Its Impact on Children: An Exploration of Sanergy, 2013. H Esper, William Davidson Institute. (Link)
The study found that Sanergy mainly has positive health impacts on its target population. In fact, all children living near Fresh Life Toilets (FLTs)—children of franchisees, customers, and noncustomers alike—benefit from reduced exposure to poor sanitation-related diseases due to improved cleanliness of the surrounding area. Furthermore, human waste from FLTs (separated automatically by the latrine system) is collected daily in a safe manner, treated and disposed correctly, resulting in a slow but steady improvement in land and water quality. Younger children, those age 5 and under, are likely to benefit the most from the improved environment as they have the most vulnerable immune systems and are more likely to be exposed to contaminants from crawling and playing on the ground.

Free-Ranging Chickens in Households in a Periurban Shantytown in Peru: Attitudes and Practices 10 Years after a Community-Based Intervention Project. *Am Jnl Trop Med Hyg*, Aug 2013. L Martinez. (Abstract)
Free-ranging chickens are often found in peri-urban communities in developing countries, and their feces can pose a significant public health sanitation problem. Corralling chickens raised in these peri-urban areas in chicken coops has been proposed previously as an intervention to address this problem. Aims of this study were to revisit households in a corralling intervention study conducted in 2000-2001 to investigate current attitudes regarding the impact of raising chickens. Socio-behavioral questionnaires were given sequentially to all study participants; 58 percent of families ceased raising poultry of any kind, whereas 81 percent do not raise chickens in their home. This finding indicates a significant reduction in poultry-raising in our study population since 2000-2001, possibly because of acculturation and/or change in socio-economic status. However, attitudes about corral use for raising poultry were overwhelmingly positive, and the most common reason cited was cleanliness of the home.

Under Five Diarrhea Among Model Household and Non-Model Households in Hawassa, South Ethiopia: A Comparative Cross-Sectional Community Based Survey. *BMC Public Health*, Feb 2014. B Fekadeselassie. (Link)

This study shows that there is a significantly higher prevalence of diarrhea among children residing in non-model households compared to those residing in model households. According to a study conducted in Keffa Sheka, southwest Ethiopia, fewer number of rooms was a risk factor associated with under-5 diarrhea. This may be due to the fact that when there is overcrowding in the household, the chances for contamination of water and food are high. Other important improvements in household conditions are having a separate sleeping place for domestic animals and having a separate kitchen.

Global Causes of Diarrheal Disease Mortality in Children <5 Years of Age: A Systematic Review. *PLoS One*, Sept 2013. C Lanata. (Link)
This is the first systematic review attempting to estimate the cause of deaths for 13 enteric pathogens. Rotavirus, calicivirus, enteropathogenic, and enterotoxigenic E. coli cause more than half of all diarrheal deaths in children under age 5 in the world.

2004 REPORTS

Children's Feces Disposal Practices in Developing Countries and Interventions to Prevent Diarrheal Diseases: A Literature Review, 2004. A Gil, USAID Environmental Health Project. (Link)
Thirty-seven publications covering 33 studies conducted in 16 countries were selected for this review. Few studies have been done describing the excretal disposal practices of young children at the household level and very few have investigated the relationship of those practices with diarrhea.

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.

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