WASH & HIV/AIDS INTEGRATION: THE EVIDENCE BASE PRIORITY WASH ACTIONS

The following information on priority WASH actions was taken from the publication: ***How to Integrate Water, Sanitation and Hygiene into HIV Programs; USAID/HIP – WHO joint document - in publication (2010),*** which was jointly funded and produced by the United States Agency for International Development and the World Health Organization. The document was written by Renuka Bery and Julia Rosenbaum, from the USAID/Hygiene Improvement Project (HIP), funded from 2004-2010, by the USAID Bureau for Global Health, Office of Health, Infectious Diseases and Nutrition and led by the Academy for Educational Development partnering with ARD, Inc., the Manoff Group, and the IRC International Water and Sanitation Centre. HIP aims to reduce diarrheal disease prevalence in children under five through the promotion of key hygiene practices: hand washing, safe disposal of feces, and safe storage and treatment of drinking water. This document supports a key HIP task: to promote the integration of hygiene considerations into health and non-health programs, such as HIV/AIDS, education, and nutrition.

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

FOREWORD

Water, sanitation, and hygiene (WASH) practices are essential to maintaining healthy lives, yet most countries and donors have not included WASH when developing national HIV policies and programs.

The World Health Organization and the United States Agency for International Development began to explore how to integrate WASH into HIV programming and the U.S. Centers for Disease Control and Prevention, in particular, developed and studied approaches to providing safe drinking water for people living with HIV.

Since 2006, WHO and USAID have supported three pioneering country applications that integrated WASH into HIV programs: in Ethiopia, Malawi, and Uganda. In addition, USAID has promoted WASH-HIV integration within different US Government programs through various working groups of the President's Emergency Plan for AIDS Response. Many different donors, organizations, and programs are now considering WASH when developing HIV programs and are seeking more guidance for how to do it.

This practical document is a response to requests from countries and programs for concrete guidance on how to integrate water, sanitation, and hygiene practices into HIV policies and programs. Our colleagues around the world who have reviewed this document think this is a valuable publication and we hope that you will find it useful in your work to improve the health and lives of people living with HIV.

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PRIORITY WASH PRACTICES to INTEGRATE into NATIONAL HIV/AIDS PROGRAMS

WASH Actions that Support Different HIV Programs	
Prevention of Mother-to-Child-Transmission of HIV (PMTCT)	• Use safe water, sanitation, and hygiene practices during delivery. • Ensure safe infant feeding: use treated water for replacement feeding and complementary feeding; wash hands with soap before preparing food or feeding.
Adult Care and Treatment	• Treat and safely store water for drinking. • Wash hands with soap. • Promote hygienic latrines and labor saving water and sanitation technologies or modifications for the mobility impaired.
Pediatric Care and Treatment	• Use treated water for drinking, feeding, and safe reconstitution of medicines. • Wash hands with soap. • Safely handle and dispose of children's nappies/feces; promote a hygienic potty or latrine, etc.).
Nutritional Care and Support	• Use treated water for drinking, food preparation, and taking medicines. • Wash hands with soap. • Prepare food safely.
Orphans and Vulnerable Children (OVC)	• Treat and safely store drinking water for children in household. • Wash hands with soap. • Promote hygienic latrine use. • Prepare food safely.
Counseling and Testing	Counsel clients to— • Wash hands with soap. • Treat and safely store drinking water. • Use a latrine and safely dispose of feces. • Wash surfaces used to prepare and eat foods.

PRIORITY AREAS OF ACTION:

1. Treat drinking water
2. Safely store treated water
3. Promote handwashing
4. Safe handling and disposal of feces
5. Menstrual management
6. Safe food storage
7. Personal and environmental cleanliness

1. Treat Drinking Water

Water programs should provide potable water (chlorinated piped water, covered well) and help ensure that transport and storage practices are safe. However, even where a reliable source of safe water is available, it is often difficult to assure safe transport and storage practices. Thus, HIV programs should support treating drinking water at the point of use for HIV-infected persons and promote safe storage practices listed in the next section.

While use of household bleach can be effective in treating drinking water, it is very difficult to recommend effective dosage because the bleach concentration varies both within and across brands. Adding to this difficulty is lack of a commonly available standard measure to use as the dosage measurement. Instead, one of the following four strategies could be considered for treating water. The ideal treatment is the first below because the chlorine residual lasts for several days.

1.1. Use a chlorine product to treat water and an appropriate vessel for storing treated water safely. Chlorination is the most widely-practiced means of water treatment at community level, apart from boiling. Chlorine treats water for up to one week (7 days) if stored in a tightly closed container; if drinking water is not in an enclosed storage container, it should be retreated after 24 hours. The chlorine source can be sodium hypochlorite, chlorinated lime, or chlorine tablets that are usually available and affordable. Three options with a proven health impact:

1.1.1 *Safe Water System (SWS):* The Safe Water System has three steps: chlorine treatment, a safe storage container with a spigot, and behavior change techniques. Available in 30 countries, this sodium hypochlorite disinfectant is easy to use and disseminate. It may have residual taste/smell. Turbid water can be treated with a double dose of chlorine solution. To increase user acceptability, turbid water can be filtered through a cloth first. This approach includes an improved storage vessel/container with a narrow mouth, lid, and a tap to prevent recontamination. If improved storage vessels are not available locally, two alternatives are jerry cans with a lid or tightly covered buckets. The most important barrier to infection is the chlorine residual.

1.1.2 *Flocculant/disinfectant powder (PuR)*: This powder is especially effective in removing the vast majority of bacteria, viruses and protozoa in turbid waters, e.g., water drawn from a muddy stream. Using PuR involves a multi-step process in which the powder is added to an open bucket containing10 liters of water. After stirring for 5 minutes, the solid particles settle to the bottom of the bucket. The water is then strained through a cotton cloth into a second container and after 20 minutes is safe for drinking. Available in 10 countries, this product is more expensive and requires more steps (and training and supervision) to treat water but also effectively clarifies murky water and removes heavy contaminants. The Red Cross recommends using this product only when water is muddy and other methods are not available. Treated water should be properly stored as described below.

1.1.3 *NaDCC tablets (Aquatabs*). NaDCC (sodium dichloroisocyanurate) is an alternate chlorine source that is used in the Safe Water System and has benefits such as a longer shelf life, resistance to degradation from sunlight, single use packaging, and low weight in distribution although it is higher than in chlorine solution. Initially used primarily in emergencies, NaDCC is increasingly being used for routine drinking water treatment in urban areas, although it may be more expensive than some chlorine solutions. Treated water should be properly stored as described below.

1.2. Use the sun to treat water (SODIS) and store in an appropriate vessel. SODIS is practiced in 20 countries and uses UV-A radiation from the sun to treat water. This method does not affect the water color, taste, or odor. Water must be clear to use this method. SODIS requires transparent, one-to-two-liter plastic bottles, and a longer period of time for effective treatment (6 hours bright sun or 2 cloudy days). Treated water should be properly stored as described below. Treating large quantities of water is difficult, acquiring a sufficient number of plastic bottles is challenging in some locations, treatment is not effective in turbid water, and the warm temperature of the water can be a deterrent to consumers.

1.3. Boil water and store in an appropriate vessel. The World Health Organization and the U.S. Centers for Disease Control recommend bringing water to a rolling boil (the point where large bubbles begin to come to the top) to kill pathogens. Boiling is costly; typically requires biomass fuels that can contribute to climate change and deforestation; can put small children at risk of burns; and boiled water is subject to recontamination. Boiled water should be properly stored as described below.

1.4. Filter water and store in an appropriate vessel. Several different filtration methods exist to treat water for drinking. The ceramic filter is a proven method that improves microbiological content and decreases diarrhea. Most ceramic filter household water treatment and storage systems are based on a filter/receptacle model. To use the ceramic filters, families fill the top receptacle or the ceramic

filter itself with water, which flows through the ceramic filter or filters into a storage receptacle. The BioSand filter is widely used and has been shown to reduce the risk of diarrhea even though it does not disinfect water as thoroughly as some other technologies. The BioSand filter is a slow-sand filter adapted for use in the home. Treated water should be properly stored as described below.

2. Safely Store Treated Drinking Water

Storing water is critical and requires a vessel/container with a narrow mouth and lid to prevent re-contaminating treated water. A tap is ideal, but often not feasible. If such a vessel is not available, alternatives such as dippers can be substituted for the tap.

Ideal Option: **Store treated water in a closed container with a tap or spigot**

Acceptable options:

2.1. **Store water in a narrow neck container or jerry can with a lid**

2.2. **Store water in a bucket with tightly fitting lid and either pour water from container or use a clean ladle to serve water**

Whatever type of container is used, it is important to keep hands away from the mouth of the container and to store the container on a shelf away from babies and animals.

Programs should encourage proper water treatment and storage practices by considering affordability and ease of use, and ensure timely replenishment of water treatment products to avoid stock-outs and opportunities for contamination. HIV programs should consider linking with the water sector to improve the number of safe water supply points that are accessible and in close proximity to where they are needed.

Reducing stigma must always be a consideration when promoting new WASH actions. Lessons learned indicate that locally available materials and products should be used wherever possible so PLHIV are not immediately recognized because they are using a particular technology or apparatus that is not common in the area.

3. Promote Hand Washing

Given the overwhelming evidence in support of hand washing behaviors, HIV programs should promote hand washing with soap at critical times and with proper technique. If soap is not available, ash is an acceptable substitute. Program strategies can include:

3.1. Provide guidance and training on washing hands at critical times and with proper technique across all HIV programs (e.g. home, community, school, and facility-based programs).

3.1.1 *Programs should prioritize washing hands with soap (or ash) at five critical times*: (1) after defecation, (2) before preparing food, (3) before eating food, breastfeeding, or feeding children or PLHIV, (4) after cleaning a child's or PLHIV feces, and (5) before and after caring for clients.

3.1.2 *Programs should encourage proper hand washing technique*, using the following steps: (1) wet hands under running water, (2) rub hands together for at least 20 seconds with soap (or soap-substitute, such as ash), (3) rinse hands under running (poured) water, (4) dry hands thoroughly by shaking them in the air. Towels are not recommended because they are too often contaminated, but under certain conditions programs could add an alternative suggestion to dry "with a clean, dry towel, preferably a paper towel."

3.2. Place hand washing stations with needed supplies (soap or ash and water) in program sites in facilities, community care points, schools, and in the household to improve hand washing practice. When possible, place hand washing station in convenient proximity to where the washing needs to take place, by the bedside, at the cooking site, near latrines. These facilitate hand washing and serve as a reminder to wash hands. Programs in water scarce situations or without running water should consider using a "tippy-tap", a simple plastic jug, gourd, or local receptacle with a tap or opening that provides a slow, steady stream of water for washing hands with very little water. (See Appendix 3: Making a Tippy-tap.) A bucket with a tap or a bucket and pitcher can also be used to wash hands when no running water is available.

4. *Safely Handle and Dispose of Feces*

Typically HIV/AIDS programs have not included constructing simple, on-site waste disposal systems like latrines, nor supported simple methods to handle and dispose of feces safely in clinical settings and in households that will benefit PLHIV and their families. Programs can introduce the following important interventions to keep clients clean and to reduce feces in the environment.

Studies show that HIV is not transmitted through blood in feces, however, many other pathogens are present and it is a good precaution to use gloves or plastic bags to avoid direct contact with feces and to prevent spreading illnesses. While this might be an ideal precaution, it is very rarely feasible in a resource-poor setting. The guidance below mentions using gloves or plastic bags recognizing that this may not be possible.

4.1 For the client who has control of bowel function and is mobile

4.1.1 *Upgrade existing pit latrines to meet minimum standards, including a washable sanitation platform and a cover to the pit.* (See Annex 3: Minimum Standards Ladder Diagram)

4.1.2 *Clear the path to the latrine; remove obstacles like stones and branches and fill holes in path.*

4.1.3 *Sensitize and train on how to maintain existing latrines hygienically.* Priority strategies include promoting latrine cleanliness, use, maintenance, and deodorization. A latrine must always be kept free of feces on the platform, seat, or other surfaces; however, no special cleaning is needed after PLHIV use the latrine. A scoop of ash or lime after defecation helps with odor and to deter flies.

4.1.4 *If a latrine is not available, consider options for sharing a latrine or toilet* with others in the community. Leverage support from donors, NGOs, and local government to build a latrine or ensure adequate access to latrines. In the interim, collect and bury or dispose of feces away from the facility, clinic, or home and away from where animals can dig it up.

4.2 For the client who has control of bowel function with mobility problems

4.2.1 *If a client is too weak to walk unassisted to an existing latrine, install assistive devices* (poles, ropes, or stools) inside and/or outside the latrine to support a person to get to and use the latrine. (See Annex 3: Latrine Designs)

4.2.2 E*nsure access to locally available, simple bedside commodes and/or bedpans* that PLHIV can use to defecate in the bed or house and that caregivers can empty. Where supplies are not accessible, programs can use locally available materials to create commodes and bedpans that include buckets, plastic bowls or jerry cans cut-in-half, gourds, ceramic pots, modified chairs and stools, or other secure collection materials.

4.2.3 *Encourage proper cleaning of bedside commodes/bedpans* as follows. 1. Put a handful of ash in the commode/bedpan before use to prevent solids from sticking and a handful of ash on top of the solids to prevent odors. 2. Dispose of feces in a latrine or toilet or bury it. 3. Wipe away any feces from the client's bottom with a disposable cloth or paper wiping front to back. 4. Pour water and bleach solution (9 parts water to 1 part bleach) into the bedpan and let sit for about 20 minutes. 5. Dump bleach solution into a hole (not the latrine) and let bedpan air dry. Wash hands with soap and water. (See Annex 3: Bedpan/Commode Designs.)

4.2.4 *Protect the skin, clothing, sheets, and mattress of PLHIV and children from becoming soiled with feces* to reduce the risk of spreading

diarrhea causing pathogens to other household members and to prevent skin rashes, bed sores, and infection. Strategies such as placing a plastic sheet covered by paper or a cloth under the client's buttocks are very simple and cost-effective measures that can ease the care giving burden. (See Annex 3: Turning Bedbound Client in Bed.)

4.2.5 *Wash soiled clothes and bed linens*. First soak the soiled clothes and bed linens for 20 minutes in soapy water. Then wash them with soap and water. Dry in the sun. (See Annex 3: Washing Clothes and Bed Linens)

4.2.6 *If PLHIV are treated differently* from other community or household members and are barred from using a latrine or flush toilet, conduct anti-stigma and educational opportunities for people to understand that feces itself does not spread HIV. (See Annex 4 for anti-stigma activities and references.)

4.2.7 *Wash hands after defecation*, as specified in the hand washing section above. (See Annex 3: Hand Washing Instructions.)

4.3 For clients who are bedbound

4.3.1 *Place a bedpan under the client's buttocks*. If a bedpan is unavailable, create a bedpan by cutting a smooth opening in the side of a plastic 20-liter container or find local clay or plastic bowls to use instead. Cover the edges with padding such as newspaper. 1. Put a handful of ash in the bedpan before use to prevent solids from sticking and to prevent odors. 2. Immediately dispose of feces in a latrine or toilet or bury it. 3. Wipe away any solids with a disposable cloth or paper. 4. Pour water and dilute bleach solution (9 parts water to 1 part bleach) into potty and let sit for about 20 minutes. 5. Dump bleach solution into a hole (not the latrine) and let bedpan air dry. 6. Wash hands with soap and water. (See Annex 3: Feces Disposal Diagram; Using a Bedpan.)

4.3.2 *Use available materials* (linen, nappies, leaves) *to assist in hygienic handling of feces* or items soiled with feces. This may include gloves or using polythene (plastic) bags to hold soiled linen and feces if gloves are not available.

4.3.3 *Safely dispose of non-reusable materials* used for cleansing feces (burn, bury, or discard into a pit latrine).

4.3.4 *Wash hands after handling feces or soiled linen*, as specified in section 3.1.2 and 4.2.5.

4.4 For clients and children who cannot control bowel function

4.4.1 *Use and safely dispose of diapers (nappies) or properly clean rags* used to contain feces of those who have no bowel control function. Follow steps in 4.3.1 for safely disposing feces and steps in 4.2.5 to safely wash soiled clothes/linens.

4.4.2 *Provide small children with potties or partially cover the latrine hole* with a small board so children will not fall in.

5. Menstrual Management

Sanitary pads, towels, rags, banana fibers, or cloth soaked with menstrual blood cannot be thrown or discarded just anywhere. Soiled materials that will be reused must be cleaned using a specific process. Blood-soaked materials that cannot be reused must be completely burned or discarded in a pit latrine. Necessary steps for menstrual management include:

5.1 **Soak up blood** with sanitary pads, rags, or other local materials used.

5.2 **Do not store soiled rags for more than a couple of hours.** Bloody rags will start to smell and will attract insects and flies.

5.3 **Keep clean rags, washing water, and a container for soiled rags near the woman** if she is bed bound.

5.4 **Caregivers should always protect the hands with gloves** or plastic bags when touching someone else's blood and a*lways wash hands with soap or ash after handling or disposing of materials with menstrual blood* to prevent virus transmission. This is critical even after gloves or bags are used.

5.5 **Throw away blood-soaked materials that cannot be reused** (sanitary pads, banana fibers, etc) in a pit latrine or in an urban setting with shared latrines, burn these materials completely.

5.6 **Wash soiled rags** using the following process—

5.6.1 *Make a dilute bleach solution* (9 parts cold water (to prevent stains), 1 part bleach). Leave blood-soaked rags in this solution for 20 minutes.

5.6.2 *If no bleach solution is available, soak the rags in soapy water for 20 minutes*.

5.6.3 *Rinse with soap and water* and again with water only.

5.6.4 *Hang rags in the sun to dry*.
5.6.5 *Keep in a dry place* for future use.

6. Safely Prepare, Handle, and Store Food

Preventing diarrhea requires sanitary food preparation, handling, and storage. Below are listed ideal recommendations adapted from World Health Organization and U.S. Centers for Disease Control guidance (WHO 2006a). While these recommendations describe optimal practices, they may not be feasible in resource poor contexts. Local adaptations that consider local context and feasibility should be developed and incorporated into national guidance.

6.1 **Keep Food Areas and Utensils Clean:** Clean all surfaces and equipment used for food preparation. If possible wash surfaces with a dilute bleach solution (9 parts water, 1 part bleach) to eliminate germs. Wash utensils with soap (or ash) and water. Protect kitchen areas and food from insects, pests, and other animals. Use closed containers to keep food protected.

6.2 **Wash Hands:** Wash hands with soap or ash before preparing or handling food.

6.3 **Separate Raw and Cooked Food** (to avoid cross-contamination): Separate equipment and utensils used for handling raw foods from those used for cooked foods; store foods in proper containers to prevent contact with raw foods; and use separate plates for raw and for cooked foods.

6.4 **Cook Food Thoroughly:** Bring foods like soups and stews to a boil to prevent worm infestation.

6.5 **Keep Food at Safe Temperatures:** Do not eat food that has been sitting for more than 2 hours. Thaw food in the refrigerator. Do not thaw food at room temperature. Keep food "piping" hot (with visible steam rising from it) until served.

6.6 **Use Safe Water:** Use treated, safe water to wash raw food, to mix with food, to make drinks, and to prepare ice.

6.7 **Practice Special Food Hygiene Behaviors for Infants and Young Children:** If a mother or caregiver is unable to practice exclusive breastfeeding for infants under six months, she must follow WHO's *safe* infant feeding criteria:[1] use a reliable supply of treated water that is stored properly to prepare replacement foods, wash hands and utensils thoroughly with soap, boil water to prepare foods, store unprepared foods in clean, covered containers, and treat or boil utensils regularly to

[1] AFASS is the WHO guideline that means acceptable, feasible, affordable, sustainable, and safe.

sterilize them, or if boiling is not feasible, use detergent with water treated with chlorine, which has been shown to safely disinfect containers and utensils (Ma 2009). This includes feeding bottles, teats, cups, spoons, etc. Keeping bottles and teats clean may be especially difficult in developing country settings and their use is discouraged. Using a cup and spoon for feeding infants is recommended. Discard prepared feeds, including infant formula, within one hour if the child does not finish the entire portion. Following these precautions is very difficult for most families but critical in preventing diarrhea in young children.

At six months of age, mothers should combine breastfeeding or safe replacement feeding with additional complementary foods requiring the same critical hygiene strategies as stated above (safe water, safe food preparation, and safe storage), while the mother and baby continue to be regularly monitored for adequate nutrition. HIV-infected mothers should receive specific counseling and support for at least the first year of the child's life to ensure adequate infant feeding.

For resource poor households, adaptations of the recommendations may include:

- Dedicate a small, cleanable surface to food preparation. This area should be out of reach of small children.
- Create another place to store cleaned dishware. Basic dish racks or tables off the ground will help keep utensils from contact with soil or animals. If possible, cover this place with a washable surface like plastic, if possible, or a sheet of paper that is changed regularly.
- Clean food preparation surfaces before use with soap and water or dilute bleach solution (9 parts water, 1 part bleach).
- Cover all raw and cooked foods with clean cover (bowl, plate, plastic, newspaper) to keep flies off.
- Heat all food until steam is seen rising from food.
- Serve food hot.
- Do not eat food that has been sitting more than 2 hours.
- Treat or boil water to wash food, to mix with food that will not be boiled, to make drinks, etc.

7. Ensure Personal Cleanliness of PLHIV and the Surrounding Environment

The cleanliness of PLHIV, health care workers, their families, and the environment is an important component in preventing the spread of infection, boosting client morale, and achieving a positive health impact for HIV-affected communities. Priority recommendations include:

7.1 Bathe daily with soap: Pay special attention to cleaning client's hands, face, genital area, and anus. Females should always cleanse their genital and anal region from "front-to-back" to avoid contamination. Uncircumcised males should gently pull back the foreskin and clean from the tip of the penis to the shaft. If clients are immobile, they may

have a bath in the bed or chair. Note that some skin conditions may worsen with daily baths and adjust accordingly.

7.2 Clean equipment and dressings used to provide care and safely dispose of other bodily fluids and secretions while giving care such as the client's urine, vomit, or sputum. Caregivers should wear gloves if possible or use plastic bags to cover their hands. Use a dilute bleach solution (9 parts water, 1 part bleach) to decontaminate spills of blood. A significantly stronger solution is needed when large quantities of blood are present such as in childbirth. Use gloves to protect from blood-borne pathogens.

7.3 Wash clothing and bed linens regularly. See section on safe feces handling.

7.4 Remove dirt by sweeping and dusting and reduce pathogens by washing with hot soapy water, rinsing, air drying (preferably in the sun), or cleaning with household bleach or other household disinfectant products.

7.5 Safely dispose of garbage *and non-reusable materials* into a waste receptacle, protected pit, or latrine.

7.6 Disinfect key surfaces: Clean latrines, toilets, baths, basins, and kitchen/site of food preparation using a dilute bleach solution (9 parts water, 1 part bleach) if available or with soap and water.

7.7 Keep animals away from the household, clinic, and food or water sources as they may expose household members to diarrheal disease and worm infestation. Control vectors such as flies, mosquitoes, cockroaches, and rats by reducing the presence of uncovered food, improperly disposed feces, standing water, garbage, etc. by plugging holes in walls, and trap and bait if necessary.

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List of Acronyms

AFASS	Acceptable, feasible, affordable, sustainable and safe
ART	Antiretroviral therapy
ARV	Antiretroviral
BCP	Basic Preventive Care Package
CBO	Community-based organization
CDC	Centers for Disease Control and Prevention
COP	Community of Practice
CT	Counseling and testing
DALY	Disability-adjusted Life Years
EPI	Expanded program on immunization
HBC	Home-based care
HIP	Hygiene Improvement Project
HIV/AIDS	Human Immunodeficiency Virus/Acquired ImmunoDeficiency Syndrome
NaDCC	Sodium dichloroisocyanurate
NGO	Non-governmental organization
OI	Opportunistic infections
OSSA	Organization for Social Services for AIDS
OVC	Orphans and vulnerable children
PEPFAR	President’s Emergency Plan for AIDS Relief
PLHIV	Persons living with HIV
PMTCT	Prevention of mother to child transmission of HIV
PSI	Population Services International
SODIS	Solar disinfection
SWS	Safe water system
UN	United Nations
UNICEF	United Nations Children’s Fund
US	United States
USAID	United States Agency for International Development
UV	Ultraviolet
WASH	Water, sanitation, and Hygiene
WHO	World Health Organization
WSP	Water and Sanitation Program, World Bank