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# WATER, SANITATION, AND HYGIENE PILOT CURRICULUM ASSESSMENT, KENYA



**AIDSTAR-One**  
AIDS SUPPORT AND TECHNICAL ASSISTANCE RESOURCES

**SEPTEMBER 2012**

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

## **AIDS Support and Technical Assistance Resources Project**

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Cover photo: A tippy tap constructed by a facility participating in the assessment using no-cost materials: a jerry can and a syringe plunger. (Photo credit: Maria Televantos, JSI)

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# ACRONYMS

CDC	U.S. Centers for Disease Control and Prevention
FY	fiscal year
MOPHS	Ministry of Public Health and Sanitation
NACS	nutrition assessment, counseling, and support
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
SDA	small doable action
USAID	U.S. Agency for International Development
WASH	water, sanitation, and hygiene
WHO	World Health Organization



# EXECUTIVE SUMMARY

In February 2011, AIDSTAR-One, with support from the Ministry of Public Health and Sanitation (MOPHS) piloted a training curriculum in Kenya that aims to address water, sanitation, and hygiene (WASH) at health facilities to improve the quality of life of people living with HIV and their families. To determine the impact of the training and to provide guidance on how to improve WASH knowledge and practices at the facility level, AIDSTAR-One, with support and leadership from the MOPHS, conducted a mixed-methods assessment in February 2012 examining the evidence in seven MOPHS health facilities in Kenya one year after AIDSTAR-One's WASH training. Collecting both qualitative and quantitative data, the assessment examined existing WASH approaches at the seven clinic sites focusing on overall integration into the health clinic operations while also collecting baseline data for integration into the technical area of nutrition assessment, counseling, and support services to examine if integration into a technical area produces more sustainable WASH results.

Increased availability of handwashing and drinking water at the health facilities was a key measurable impact of the AIDSTAR-One pilot. At the training, participants from each health facility were asked to select small doable actions (SDAs)—simple, easy-to-adopt WASH-related activities or practices to reduce the risk of diarrhea and other opportunistic infections in people living with HIV—to implement upon return to their facilities. Of the 25 SDAs chosen, 17 (68 percent) were fully implemented, 5 (20 percent) were partially implemented/not sustained, and 3 (12 percent) were not implemented. All of the participants reported that the knowledge gained at the training and the implementation of the SDAs assisted in improving WASH standards at their facilities. These results include four facilities that provided a dedicated drinking water tank post-training, that were previously without drinking water. These results demonstrate the effectiveness of identifying SDAs during the actual training as they hold participants accountable to implementing actions learned during the training.

Post-training, all seven facilities provided at least one new handwashing station or tippy tap to provide water for areas without running water. This includes one facility that reported improvement of kitchen facilities after staff attended the WASH training. Post-training, a handwashing facility was constructed outside of the kitchen for auxiliary staff picking up food for delivery to clients and a handwashing sink for kitchen staff only was designated.

All staff interviewed post-training from the seven facilities reported that the AIDSTAR-One training was the only WASH training that had ever been offered to the facilities. Attendance at the WASH training increased trainees' WASH knowledge compared to their colleagues one year post-training. At follow-up, trainees' average score was 71 percent compared to an average of 59 percent for their untrained colleagues. Facility management and staff who attended the WASH training repeatedly expressed the need for more WASH training for all facility staff. All trainees strongly agreed that the training improved their WASH knowledge. Moreover, the trainees all reported strong agreement that the WASH training led to changes in their personal behavior related to WASH.

Overall, integration of WASH practices within the nutrition assessment, counseling, and support program was observed to be low, although providers recognize and appreciate the crucial link between WASH and nutrition. Another key challenge at most facilities was segregation of infectious

and noninfectious waste and waste disposal. One facility reported that waste disposal has improved as a result of the WASH training, however, waste segregation remains a challenge particularly as color-coded bins, color-coded bin liners, or any type of bin liner are not always available. Waste disposal methods range from use of incinerators to open air burning of sharps with general waste in a shallow hole behind the facility. The lack of key supplies, such as gloves, bin liners, and safety boxes to dispose of sharps waste (e.g., used needles), was commonly mentioned as a need.

Although the sample size was small, these results reflect the fact that WASH is a key component of all health care. Leadership from the MOPHS was paramount at each step of the pilot, therefore, AIDSTAR-One is confident that full ownership and scale-up of the WASH pilot training by the MOPHS is feasible. It is recommended that the MOPHS select facilitators and use a training of trainers model to reach health facilities across the country. Additionally, it is recommended that a key stakeholder meeting is convened to share the promising results of this assessment and discuss next steps. This would benefit people living with HIV and keep WASH practices at the facility level at the forefront in Kenya, as WASH is integral to all health care.

# INTRODUCTION

## BACKGROUND

The World Health Organization (WHO) estimates that 5 to 30 percent of patients in the general population develop one or more infections during their hospital stay, a significant proportion of which could be avoided through safe water, basic hygiene, and good sanitation (WHO 2005). Unsafe drinking water, inadequate sanitation, and poor hygiene can lead to an increase in incidence of life-threatening opportunistic infections (U.S. Agency for International Development [USAID] and U.S. Centers for Disease Control and Prevention [CDC] 2011). Diarrheal illnesses are estimated to affect 90 percent of people living with HIV. In addition to being responsible for significant morbidity and mortality, such illnesses can compromise the absorption of life-saving antiretroviral treatment as well as contribute to the development of antiretroviral-resistant HIV strains. Diarrheal illnesses are also known to cause or aggravate malnutrition and reduce the absorption of essential nutrients. Malnutrition has been attributed to increasing progression of HIV, elevating susceptibility to opportunistic infections, and decreasing adherence and retention of antiretroviral drug regimens and treatment for opportunistic infections (U.S. President's Emergency Plan for AIDS Relief [PEPFAR] 2010).

## AIDSTAR-ONE WATER, SANITATION, AND HYGIENE CURRICULUM

Responding to this reality, in fiscal year (FY) 2011 AIDSTAR-One, in collaboration with USAID and funded by PEPFAR, developed and piloted a training resource to introduce water, sanitation, and hygiene (WASH) initiatives at health facilities. The curriculum is divided into two parts: a *Trainers Guide* and a *Participant Technical Resource Guide*.

A pilot training was conducted from February 21 to 24, 2011, in Kenya, with active participation and support from the Ministry of Public Health and Sanitation (MOPHS). The MOPHS identified nine facilities, a rural/urban mix, and selected one or two staff from each facility to attend the comprehensive three- to four-day curriculum training. During the training, the 16 participants selected two to five small doable actions (SDAs), requiring little to no financial input, to help improve WASH standards at their health facilities.

## NUTRITION ASSESSMENT, COUNSELING, AND SUPPORT

PEPFAR's *FY2011 Country Operational Plan Guidance* states that NACS, including WASH, is an important aspect of care and support for people living with HIV and orphans and vulnerable children. The document *Programming Water, Sanitation, and Hygiene (WASH) Activities in the U.S. Government Country Operational Plans (COPs): A Toolkit for FY2012 Planning* (USAID and CDC 2011) outlines a number of programming approaches to promote WASH interventions, including integrating and mainstreaming WASH across all HIV intervention areas, such as NACS.

WASH activities listed in the PEPFAR guidance for inclusion in care and treatment services include counseling on safe food preparation and storage, point-of-use water purification treatment, and

other hygiene and sanitation practices. The guidance also encourages activities at the health facility level that support the provision of and advocacy for a safe and sufficient supply of water, basic hygiene and sanitation practices, and adequate management of health care waste (PEPFAR 2010).

## **ASSESSMENT PURPOSE**

To determine the impact of the WASH pilot training and to provide guidance on how to improve WASH knowledge and practices at the facility level and to improve the training curriculum, AIDSTAR-One conducted an assessment, gathering quantitative and qualitative data from health facility stakeholders, management, and providers. With the leadership of the MOPHS, AIDSTAR-One examined the existing types of WASH approaches at seven clinic sites. The focus was on 1) overall WASH integration into health facility operations, and 2) providing baseline data on integration of WASH into the technical area of nutrition assessment, counseling, and support (NACS) services to examine if integration into a technical area produces more sustainable WASH results. Although WASH integration with NACS was outside the mandate of the pilot training, AIDSTAR-One was tasked to explore how WASH is incorporated into the technical area of NACS.

## **ASSESSMENT OBJECTIVES**

**Objective 1:** Assess knowledge and action outcomes following the WASH curriculum pilot training in Kenya and measure the impact on integration of WASH into selected health facilities that participated in the pilot.

**Objective 2:** Create a roadmap for integration of the WASH curriculum as well as possible additional WASH packages and interventions, country ownership, and sustainability.

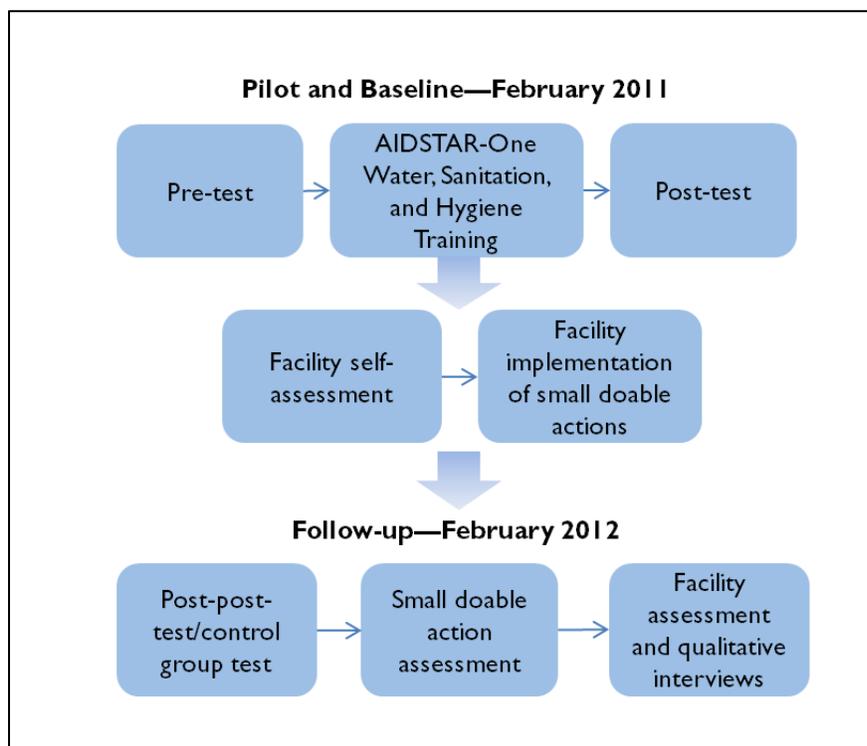
**Objective 3:** Examine the level of WASH integration into the key technical area of NACS.

# METHODOLOGY

## METHODS

AIDSTAR-One conducted a mixed-methods assessment (in conjunction with the MOPHS to more deeply analyze the outcomes of the WASH pilot training and to identify next steps to package the training materials for impact and scale-up (see Figure 1). The assessment team consisted of two AIDSTAR-One researchers, one national-level MOPHS representative, and three of the February 2011 WASH curriculum trainers: a senior public health officer and a senior nursing officer from Nairobi Province MOPHS, as well as a senior public health officer from the City Council of Nairobi.

**Figure 1. Assessment Methodology**



A WASH concept knowledge assessment was conducted using a pre-post-post design. Trainees' scores were compared to their untrained colleagues to understand overall facility WASH knowledge levels and to examine the different levels of knowledge between the two groups.

At follow-up, an assessment of the implementation status of the SDAs chosen by each facility for their action plan was conducted through interviews with trainees and facility heads to examine the feasibility of the SDAs, contributing factors for successful implementation, and challenges that were faced.

A facility assessment was also conducted at follow-up using a structured assessment tool to further identify the implementation status and the impact of the SDAs at each facility that participated in the pilot training. Additionally, the facility assessment examined the level of integration WASH practices within the existing NACS program. NACS was only assessed at the one-year post-training follow-up. The results will help provide evidence as to the level of integration of WASH, nutrition, and infection prevention at the facility level. The facility assessment addressed the following:

- Policy and supervision
- Handwashing facilities and practices
- Water treatment, safe storage, and handling at point-of-use
- Safe sanitation
- Waste management
- Cleanliness and hygiene
- Food hygiene
- Nutritional assessment and counseling services
- Human resources and training
- Reporting.

Qualitative interviews were conducted with key stakeholders, including WASH training participants, health facility supervisors and staff, and MOPHS representatives, using a standard protocol.

## **FACILITIES**

Nine facilities were initially selected in collaboration with the MOPHS to participate in the 2011 WASH pilot. This assessment required that at least one trainee was still a staff member at the facility. Due to staff turnover, only seven facilities were able to participate in the post-training follow-up assessment one year after the training. These facilities were:

1. Westlands Health Center—level 3 facility
2. Kibera Health Center—level 2 facility
3. Thika Hospital—level 5 facility
4. Juja Farm Health Center—level 3 facility
5. Mashuuru Health Center—level 3 facility
6. Namanga Health Center—level 3 facility
7. Maai Mahiu Health Center—level 3 facility.

## **ASSESSMENT LIMITATIONS**

The WASH training pilot follow-up assessment is limited by a small sample size, made smaller by staff turnover. Only one trained staff was available for participation in the assessment at seven out of the nine facilities that had sent staff to the training. Rocco Dispensary and Kangemi Health

Center could not be assessed because there were no trained participants on staff at these facilities. Staff availability at the facilities was also a challenge. Although the facilities were informed of the assessment, facility management was not available at all seven sites to provide their perspective. Due to the small sample size, the assessment cannot be interpreted as widely applicable to other settings.

The Hawthorne effect, when subjects improve or modify their behavior in response to the fact that they know they are being studied, may also have been a limitation. For example, it was observed at some facilities that handwashing signs or tippy taps appeared new, and the assessment team speculated that this was because the signs were constructed in preparation for the assessment. Additionally, when activities could not be directly observed, the assessment relied on self-reporting.

Although their presence overall was an asset to the assessment, having MOPHS staff on the data collection teams may have biased the results. For example, facility staff and management may not have felt comfortable speaking candidly.



# FINDINGS

## SMALL DOABLE ACTIONS

Small doable actions are simple, easy-to-adopt WASH-related activities or practices to reduce the risk of diarrhea and other opportunistic infections in people living with HIV. During the WASH training, there was a strong emphasis on SDAs, and the trainees were asked to select SDAs to implement when they returned to their health facilities. After being given examples of SDAs, participants from each facility created an SDA plan that was applicable to their individual facility or used the examples as guidance to create more relevant SDAs. The most common focus was on handwashing stations/tippy taps and drinking water tanks. The seven facilities assessed had a total of 25 SDAs that were selected during the training. The training’s focus on SDA action planning resulted in implemented SDAs, and 100 percent of participants reported that the implemented SDAs assisted in improving WASH standards at their facilities.

Of the 25 SDAs, 17 (68 percent) were fully implemented, 5 (20 percent) were partially implemented, and 3 (12 percent) were not implemented. A list of SDAs by facility and their implementation status is shown in Table 1. Fully implemented SDAs were defined as SDAs implemented after the training and still functioning at the time of the assessment. Partially implemented SDAs were defined as those SDAs that had been implemented post-training but were not sustained until the time of the assessment or whose implementation was not fully attained.

Three facilities achieved one SDA in addition to the SDAs on their action plan created at the training. These additional SDAs (noted in Table 1) include provision of toilet tissue, provision of outdoor litter bins, and creation of a new trash pit to replace a full pit.

**Table 1. Small Doable Actions by Facility and Implementation Status**

Facility	Small doable action (SDA)	Implementation status
Westlands	Provision of tippy taps for handwashing of clients visiting the facility	Fully
	Provision of a dispenser for client drinking water	Fully
	Obtain and post already printed information, education, and communication materials in the facility	Partially
	Provision of toilet tissue*	<i>In addition to SDA action plan</i>
Kibera	Fix the broken handwashing stations	Fully
	Place a small tank with a tap near the pharmacy area for handwashing	Fully
	Provide a small tank for drinking water	Fully
	Treat drinking water at source using chlorine tablets	Partially
Thika	Educate clients on hand hygiene during the morning health talks for clients	Fully
	Install a handwashing sink and provide soap in the hospital kitchen	Fully
	Teach clients visiting the facility on the use of tippy taps at home	Fully

Facility	Small doable action (SDA)	Implementation status
Thika	Provision of liquid soap for handwashing at the comprehensive care centers	Partially
	Obtain existing information, education, and communication materials from the Ministry of Public Health and Sanitation to be posted in the facility	Not implemented
	Provision of outdoor litter bins*	<i>In addition to SDA action plan</i>
Juja Farm	Provision of clean drinking water in smaller tanks for clients	Fully
	Small tanks with taps for handwashing	Fully
	Obtain information, education, and communication materials for the facility	Not implemented
	Provision of tissue paper for patient toilets	Partially
Namanga	Provide soap for client handwashing	Fully
	Provide small tanks with taps for the handwashing	Fully
	Provide tissue paper for patient toilets	Fully
	Obtain waste receptacles to be used at the facility	Not implemented
Mashuuru	Provision of tippy taps within the facility	Partially
	Fix the broken door of the patient toilet at the facility	Fully
	Provide soap for handwashing at the facility's water points	Fully
Maai Mahiu	Use available labor to improve the cleanliness around the facility	Fully
	Provide handwashing facilities (small tanks with taps) near the toilets	Fully
	Creation of a new trash pit to replace a full pit*	<i>In addition to SDA action plan</i>

\*SDAs completed in addition to those in the action plans created at the training.

Participants reported that the primary reasons the SDAs were implemented successfully is due to their low cost and the ability to implement them with existing resources. Additionally, cooperation from staff and support from the facility in-charge were cited as key factors for success. The primary challenges to implementing SDAs were lack of supplies and funding/resources. For example, SDAs involving procuring and posting information, education, and communication materials related to handwashing were partially or not implemented due to a lack of available supplies from the MOPHS. Other items such as chlorine were difficult to obtain through the Kenya Medical Supplies Agency. Some SDAs that were implemented could not be sustained, such as provision of soap and tissue paper, often because some were carried away by the clients and it was too expensive to continue to replace at the facility.

Six facilities (86 percent) cited reports of increased staff satisfaction as a result of implementation of the SDAs (Figure 2). Examples include:

- Cleaner bathrooms with improved odor
- Satisfaction with availability of tippy taps with soap and water for handwashing
- Staff no longer have to carry a bar of soap in their pocket; liquid soap is available at sinks.

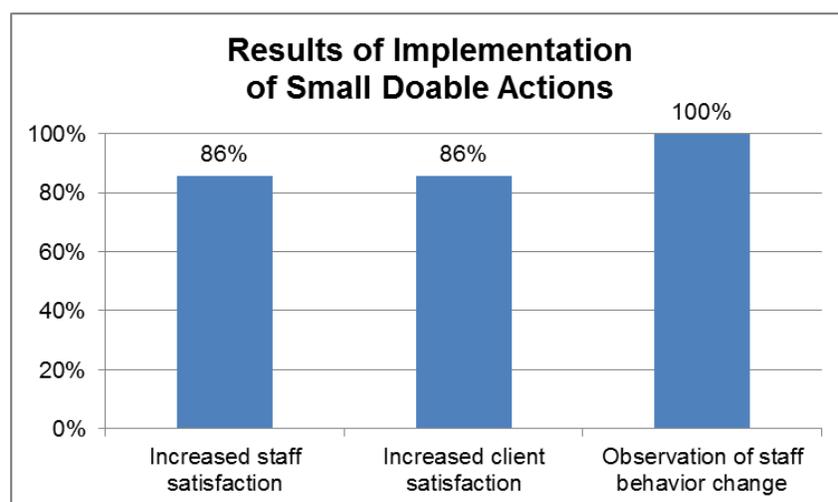
Six facilities (86 percent) cited reports of increased client satisfaction as a result of implementation of the SDAs (Figure 2). Examples include:

- Client satisfaction with availability of toilet tissue
- Satisfaction with availability of free drinking water inside the facility for taking medication and cleaning medication bottles for reuse (previously had to purchase water outside of the facility or use water that was likely not clean)
- Satisfaction with new client toilet
- Observation of and satisfaction with increased cleanliness of facility
- Satisfaction with provision of soap.

All seven facilities (100 percent) reported observed staff behavior change as a result of implementation of the SDAs (Figure 2). Examples include:

- Increase in frequency in handwashing in between procedures
- Use of correct handwashing procedure
- Use of soap for handwashing rather than just water
- Increase in use of hand sanitizer (when available)
- Increase in staff consciousness regarding washing hands after arriving at the health facility and before seeing patients (after traveling/taking the bus)
- Increase in awareness and practice of crucial times for handwashing
- Increase in personal handwashing with trainee constructed tippy taps in offices.

**Figure 2. Results of Implementation of Small Doable Actions**



## **SATISFACTION WITH TRAINING**

Facility management and staff who attended the WASH training repeatedly expressed the need for more WASH training for all facility staff. At the level five hospital, the trainee said, “I wish more of our providers could attend the AIDSTAR-One WASH training.” All seven trainees (100 percent) reported strong agreement that the training improved their WASH knowledge. All of the assessment

respondents commented on their satisfaction with the assessment follow-up as service providers generally attend trainings with no further follow-up conducted to assess how the knowledge gained is utilized and to explore the impact of the training on their current needs.

The seven trainees also all reported strong agreement that the WASH training led to changes in their personal behavior. One facility also reported fewer staff sick day requests related to diarrhea following the training. Three facilities commented on an observed decrease in diarrheal illness among staff and clients that they associated with their participation in the WASH pilot training. One reported that prior to the training, diarrhea was the number one client diagnosis for children under five at the facility, but now this diagnosis is more apt to be the third most frequent among this age group. Proving causation or correlation to the WASH training is beyond the scope of this assessment; however, the view of health providers that increased handwashing decreased diarrheal disease is indicative of their recognition of the importance of WASH and the potential impact of improved WASH practices.

## **WATER, SANITATION, AND HYGIENE KNOWLEDGE**

A pre-test and post-test was administered to trainees in February 2011 to assess their WASH knowledge before and after introduction of the curriculum. Directly after the training, the post-test showed an immediate increase in WASH knowledge, with the trainees' pre-test scores increasing from 68 percent to 80 percent at the end of the three-day training.

After one year, the post-test was re-administered to those who attended the 2011 WASH training ( $n = 7$ ) and administered to their peer colleagues at the facility ( $n = 18$ ). The results show that one year later, trainees' average score was 71 percent compared to an average of 59 percent for their untrained colleagues (Figure 3).

**Figure 3. Average WASH Knowledge Scores: Trained and Untrained Staff**

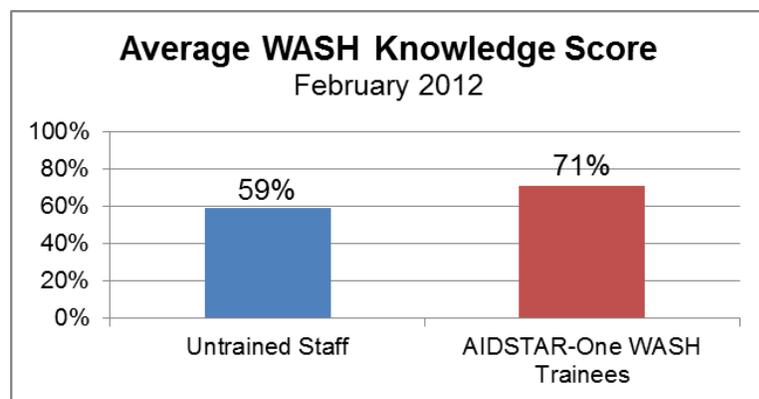
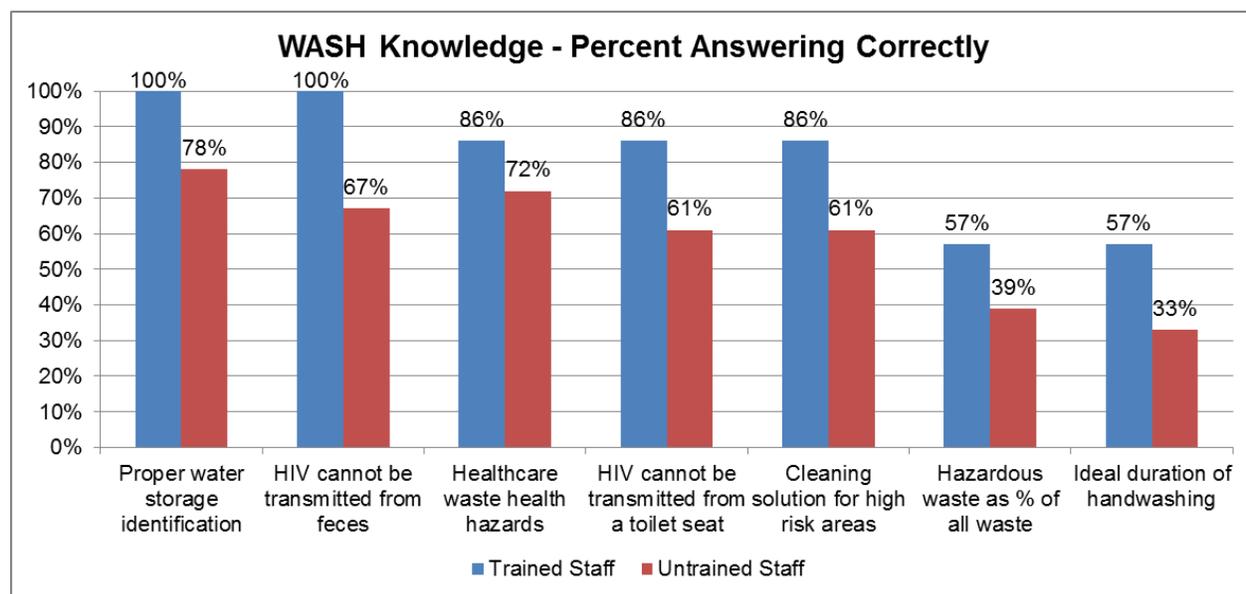


Figure 3 highlights the gap in the level of knowledge among staff who attended the AIDSTAR-One WASH pilot training and among untrained staff. Specifically, all trainees were able to identify appropriate water storage containers compared to 78 percent of nontrained facility staff. Trainees were also more likely to recognize that feces (100 percent) and toilet seats (86 percent) are not modes of HIV transmission compared to 67 percent and 61 percent of nontrained staff, respectively (Figure 4).

**Figure 4. WASH Knowledge, by Training Status**



## POLICY AND SUPERVISION

Supportive supervision was an integral part of the training with the entire fourth day focusing on facility supervisors. At the provincial level, the MOPHS provides supervision, and of the seven health facilities assessed, two facilities reported that this supervision was helpful in implementing the SDAs. Both appreciated the guidance they received from the supportive supervision, which includes observation, a focus on priorities and resolution of issues even if resources are lacking, and the creation of an action plan for next steps. Trainees felt that they could bring concerns to the supervisors who could help and provide guidance on resolutions. One facility reported that receiving instructions from outsiders was more apt to reinforce positive behaviors and to provide motivation compared to receiving supervision internally.

Four out of seven facilities reported receiving external supervision that included WASH elements during the past 12 months. It was unclear if the majority of the external supervision received was supportive supervision (Table 2).

**Table 2. Received Policy and Supervision**

	Yes	No
<b><i>Policy/guidelines for infection prevention and control</i></b>	3	4
<b><i>Committee (infection prevention and control, nutrition assessment, counseling, and support, etc.) that addresses WASH issues</i></b>	4	3

## HANDWASHING FACILITIES

The most common SDA selected by the training participants was focused on improving handwashing practices, which can significantly reduce the number of infections spread in health care

facilities and associated risks. Increased availability of handwashing facilities was a key impact of the AIDSTAR-One pilot. All seven facilities chose to implement SDAs related to handwashing, including the construction of tippy taps, which are a portable water containers that can be placed at a convenient location for handwashing or drinking.

All seven facilities provided at least one new tippy tap/handwashing station as a result of the training, allowing for water provision in areas of the facility without running water. The training provided instructions on how to construct tippy taps using no-cost materials. In two health facilities, no-cost tippy taps were constructed post-training. Other facilities purchased water dispensers for handwashing use.

All seven health facilities provided handwashing stations within five feet of the latrine/toilet facilities, and six had soap available. Three facilities added these handwashing stations as a result of the training (four existed prior to the training). Overall, three-quarters (76 percent) of sinks observed in the health facilities had liquid or bar soap available for handwashing (Table 3; some facilities had soap available in some sinks and not others). None of the facilities provided a towel for providers or clients to dry their hands.

**Table 3. Sinks**

Facility	Sinks observed with soap	Total number of sinks observed
Westlands Health Center	11	11
Kibera Health Center	7	7
Thika Level 5 Hospital	7	17
Juja Farm Health Center	4	6
Mashuuru Health Center	2	3
Namanga Health Center	8	8
Maai Mahiu Health Center	3	3
<b>Total</b>	<b>42</b>	<b>55</b>



A tippy tap constructed using no-cost materials: a jerry can and a syringe plunger.



A handwashing station with a purchased tank.

## WATER TREATMENT, SAFE STORAGE, AND HANDLING AT POINT-OF-USE

Four facilities that previously did not provide drinking water for clients, provided a dedicated drinking water tank for clients post-training. In total, of the seven facilities, six (86 percent) provided a drinking water storage container for clients. One facility does not store water for drinking as clients have access to drinking fountains as well as spigots. However, though the municipal water is believed to be treated, water testing has never been conducted by the facility and water is not treated

at point-of-use. Of the six facilities that provide a drinking water storage container, all six provide covered plastic water containers with a spigot for water access (Table 4).

Three of the seven facilities (43 percent) reported treating facility drinking water with chlorine in the previous 30 days; however, only two facilities had water treatment supplies available. Three of the seven facilities (43 percent) distinguish drinking water from nonpotable water (Table 5).

Four of the seven facilities (57 percent) struggled with water availability, relying on borehole water via storage tank. One facility with borehole water lacked plumbing connections to the storage tank, and all water was obtained via spigot at the water tank. One facility was observed with little drinking water available for medications, and an additional facility was observed without any drinking water available in the water storage container.

Figure 5 depicts water availability in the seven health facilities. Red represents facilities with the most severe water shortages, including three facilities that reported that running water was often not available in the previous three months. Facilities in green do not regularly encounter water availability challenges.

**Table 4. Water Storage and Handling**

	Yes	No
<b><i>Water storage source of drinking water for patients</i></b>	6	1
<b><i>Covered drinking water container</i></b>	6	—
<b><i>Narrow neck container (water cannot be scooped out)</i></b>	6	—
<b><i>Drinking water container has spigot for water access</i></b>	6	—

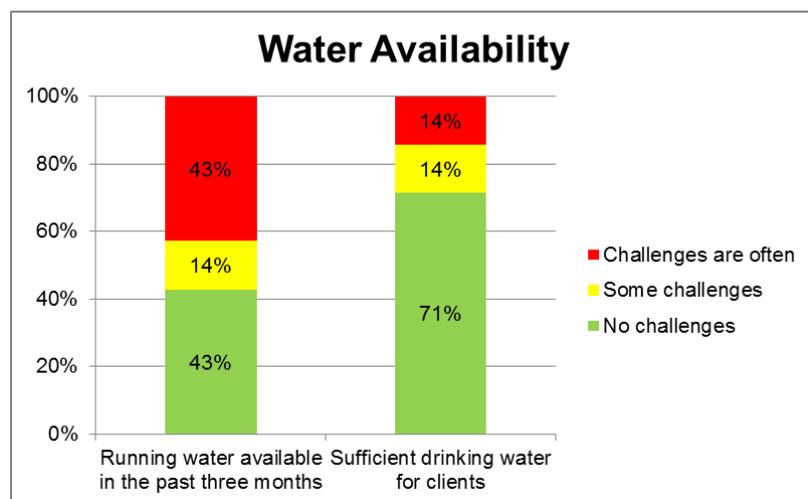
**Table 5. Water Treatment**

	Yes	No
<b><i>Drinking water for this facility treated in the past 30 days</i></b>	3	4
<b><i>Water treatment supplies currently available</i></b>	2	5
<b><i>Sign on drinking water source (to separate from nonpotable)</i></b>	3	4



Appropriate drinking water storage containers observed.

**Figure 5. Water Availability**



## SAFE SANITATION

All of the facilities provided a functional toilet/latrine for clients all with a washable platform and a superstructure with walls and a roof. However, only one facility covered the latrine pit (Table 6).

Three facilities implemented provision of toilet tissue for clients following the WASH training; however, sustainability was a challenge. Toilet tissue was purchased using facility budgets; however, the tissue roll was often carried away by the clients visiting the toilet. The two facilities that were able to sustain toilet tissue provision maintained the supply outside of the latrine/toilet area; clients must request tissue from staff, which helps to prevent them from carrying away the whole roll.

All facilities provided a handwashing station within five meters of the latrine, and three facilities constructed tippy taps post-training where sinks did not exist. Six of the seven facilities now provide soap at the latrine handwashing station (Table 7).

**Table 6. Toilet/Latrine**

	Yes	No
<b>Functional toilet/latrine available for clients</b>	7	0
<b>Clean latrine (no visible feces or urine)</b>	3	4
<b>Latrine has washable platform</b>	7	0
<b>Latrine has superstructure</b>	7	0
<b>Latrine has a covered pit</b>	1	6

**Table 7. Latrine Handwashing Station**

	Yes	No
<b>Handwashing station within five meters of latrine</b>	7	0
<b>Soap available at the handwashing station</b>	6	1



Examples of facility latrines and toilets.

## WASTE MANAGEMENT

Waste management is a key challenge for most of the facilities. Most health care waste is noninfectious waste. However, waste that carries harmful germs or dangerous chemicals requires separate disposal in order to reduce health risks for health workers, clients, and the surrounding community (for example, risk of disease due to possible needle-sticks). For these reasons, waste segregation at the point of generation is critical.

Although five facilities had color-coded waste bins or color-coded bin liners for different types of waste, appropriate segregation at the point of generation was generally poor. Some facilities struggle with stockouts of bin liners, which impacts their ability to successfully segregate and correctly dispose of waste. Because of supply issues, facilities do not always utilize color-coded bin liners to distinguish between infectious and noninfectious waste. Yellow liners are often used for all types of waste, and infectious waste bins are sometimes used for general waste.

Several of the assessment respondents remarked that more staff training is necessary to improve awareness of waste segregation and management. One respondent reported that waste segregation was a challenge particularly because of the population of student nurses training at the facility, who have not been adequately trained in waste disposal. The team



Color-coded infectious waste liners (yellow) improperly utilized for infectious and general waste.

observed infectious waste, primarily bloody gauze, to be improperly disposed of inside three facilities. Additionally, these materials were also observed as loose outside of a total of three facilities.

Although all seven facilities had at least one safety box available for disposing of sharp waste (such as used needles), six were within reach of the injection provider. Stockouts of standard safety boxes were commonly reported. Facilities created makeshift safety boxes utilizing jerry cans or medication bottles. Although sharps safety boxes were observed in all seven facilities and the team did not observe any sharps improperly disposed of in waste bins, the safety boxes were overflowing in two facilities. In three facilities, loose used sharps were observed inside the facility (on table tops or on top of safety boxes), and in two facilities, used sharps were observed on the ground outside the facility (Table 8).

Waste should be segregated and disposed of by category of waste. Whereas general waste can be burned in a hole, sharps require high temperature incineration. At one facility, all waste—sharps, infectious, and general—was observed to be burned together in a shallow hole, and three additional facilities burn infectious waste together with general waste. This can create a health risk for waste handlers, particularly if they are not using personal protective equipment.

One respondent reported that waste generation has improved as a result of the WASH training; however, waste segregation remains a challenge particularly as bin liners are sometimes unavailable. Waste disposal remains a key challenge for most facilities. Waste disposal methods range from use of a diesel-powered incinerator at one facility to open burning of sharps in a shallow hole behind the facility. See Tables 9 and 10 for more information.



Overflowing safety boxes and sharps exposed, creating a health risk.

Loose sharp in laboratory, creating a health risk.

**Table 8. Safety Boxes**

	Yes	No
<b><i>Safety box available for disposal of sharps</i></b>	7	0
<b><i>Stockout of safety boxes in last six months</i></b>	2	5
<b><i>Sharps container within provider unobstructed arm reach</i></b>	6	1
<b><i>Overflowing or pierced safety boxes</i></b>	2	5
<b><i>Used sharps in trash</i></b>	0	7
<b><i>Used sharps loose inside health center</i></b>	3	4
<b><i>Used sharps loose outside health center</i></b>	2	5

**Table 9. Waste Disposal**

	Yes	No
<i>Functional incinerator</i>	3	4
<i>Waste disposal pit</i>	3	4
<i>Placental pit</i>	5	2
<i>Waste disposal area protected from entrance</i>	2	5

**Table 10. Methods of Disposal of Sharps and Infectious Waste**

	Main method of disposal for sharps	Main method of disposal for infectious waste
<i>Open burning on the ground</i>	0	1
<i>Open burning in hole or enclosure</i>	1	3
<i>Diesel-powered incineration (two-chamber)</i>	1	1
<i>De Montfort incineration</i>	1	0
<i>Low-temperature incineration (burning chamber)</i>	1	1
<i>Transportation for off-site treatment</i>	3	1



Three facilities rely on transportation of sharps for off-site disposal. One reported daily waste pickup of sharps, noninfectious, and infectious waste. However, transportation challenges exist at the other two facilities. One facility officially relies on transportation of sharps because its incinerator has a broken chimney; however, it lacks funding for vehicle and fuel costs. Infectious and sharps waste is stored in an unlocked, fenced-in area a short distance from the facility entrance. Many months of waste, including filled safety boxes, jerry cans of sharps, and large bags of infectious waste, are visible inside. The storage has no lock and could be accessed by clients or others. The other facility with transportation challenges also relies on transport of sharps, but pickup is sporadic and sharps are stored in an unlocked storage room.

## CLEANLINESS AND HYGIENE

Disposable gloves are essential for provider and patient safety. However, five facilities (71 percent) reported stockouts of gloves during the previous six months (Table 11). Some facilities reported using money earned from client fees to purchase gloves for use during stockouts, or they would allocate money in their internal budgets to prepare for stockouts so they could purchase gloves through the allotted Health Sector Services Fund.

All facilities reported daily wet mopping with water and bleach, though some facilities noted that when bleach is not available, detergent is substituted. Of the six facilities with linens for patient beds, all reported washing between clients, and no visible blood or body fluids were observed on linens. Five out of the six facilities with linens did not transport dirty linens with a cart, instead transporting the linens by hand, without gloves or other personal protective equipment, which poses a risk to auxiliary staff (Table 11).

**Table 11. Hygiene and Cleanliness**

	<b>Yes</b>	<b>No</b>
<b><i>Stockout of disposable gloves in the last six months</i></b>	5	2
<b><i>Daily wet mopping of floors</i></b>	7	0
<b><i>Visible blood or body fluid on patient linens</i></b>	0	6
<b><i>Visible blood or body fluid on floors of patient care areas</i></b>	1	6

## FOOD HYGIENE

Five facilities reported at least occasional food preparation of tea, porridge, and rice, and two had a refrigerator for food storage. The largest kitchen observed, with extensive food preparation for clients, was at the level five hospital. At this kitchen, cooked and uncooked foods were kept separate, and a refrigerator was used for storing cooked food. The hospital reported improvement of kitchen facilities after attending the WASH training. A handwashing facility for auxiliary food delivery staff was constructed outside the kitchen, the toilets for kitchen staff were replaced, and a designated handwashing station for kitchen staff was created. With the implementation of these physical improvements, the assessment respondent reported observation of increased handwashing.

## NUTRITION ASSESSMENT, COUNSELING, SUPPORT

Although WASH integration with NACS was outside the mandate of the pilot training, AIDSTAR-One was tasked to explore how WASH is incorporated into the technical area of NACS. To accomplish this, AIDSTAR-One provided a baseline to examine the levels of WASH integration into NACS. Every facility reported provision of some form of nutrition counseling, but only three facilities had dedicated nutritionists. Only two staff at the seven facilities received nutrition training that included a component of WASH. Five out of the seven facilities reported possession of written nutrition guidelines, but only three reported that these guidelines included WASH elements.

Handwashing and safe water counseling was the primary way in which the NACS guidelines at the facilities included WASH. One facility included food safety in NACS services and another dispensed

WaterGuard for home water treatment through the NACS program, but overall, integration levels were found to be low. One respondent reported that although the counseling materials mention counseling on handwashing and safe drinking water, “they are not focused on [WASH].”

WASH trainees from two facilities noted how integral hygiene is to nutrition. They reported that the need for the integration of NACS with WASH should be a focus at both the national policy level and in practice at the facility level. An MOPHS representative commented on how essential integrating WASH is with all health activities, not solely focusing on NACS or HIV services.

## **HUMAN RESOURCES AND TRAINING**

One facility in-charge commented that, “As medical staff we are drawn to our job descriptions.” She explained that WASH is often considered to be the public health officer’s responsibility; therefore, other clinical staff may not be motivated to incorporate WASH into all services because they are not paid to do the “additional” work. This sentiment was echoed by other respondents as well. Facility in-charges struggle with the challenge of reminding already busy and overworked staff that it is the responsibility of all health providers to provide health information such as WASH, regardless of additional monetary compensation.

Staff turnover was also a challenge. Due to high levels of staff turnover, only one trained staff was available to participate in the assessment at seven out of the nine facilities that had sent staff to the training. Therefore, it became clear that if staff do not have the opportunity to transfer the knowledge learned at the training because they are transferred to another facility too quickly, this is a lost opportunity.

Some facilities reported that HIV/WASH stigma was a significant problem, while others felt it was not an issue. For example, some respondents reported that staff are afraid of using the same facilities—toilets, utensils, etc.—as clients. Three facilities reported providing HIV sessions that focused on stigma reduction. One respondent found that clients tend to go to other nongovernmental organization–run health facilities because they are in more discreet locations and would not call attention to visiting the clinic. One facility did not have a private room for NACS counseling, and it was done in the same room as the maternal and child health room, so some mothers would not go to receive maternal and child health counseling because they feared they would be perceived as HIV-positive (a common assumption for those accessing NACS services).

## **REPORTING**

While facilities report quarterly to the MOPHS on latrines available in the community and disease incidence including diarrheal disease, no additional WASH indicators were collected and reported to the MOPHS. Without indicators, facilities are unable to track improvements and may lack initiative to prioritize and integrate WASH activities into services. As commented by a MOPHS representative, “what gets done gets counted and what gets counted gets done.”

## **SELF-REPORTED WATER, SANITATION, AND HYGIENE PRIORITIES**

Assessment respondents at each facility were also asked to share their perceived priorities to improve WASH standards at the facility level. Staff at all facilities requested additional WASH training for all staff. However, most of the other identified needs go beyond SDAs, such as

resolution of plumbing issues and larger water tanks, or related to the lack of supplies that facilities do not control. The needs reported are listed in Appendix 1.

# RECOMMENDATIONS

**Training:** All seven facilities that were assessed reported that the AIDSTAR-One WASH curriculum training was the only training in WASH that had been offered to the facilities. Each of the respondent also reported that the training was beneficial, and many hoped that more training would be offered in the future for other staff members. Full ownership and scale-up of the AIDSTAR-One WASH curriculum by the MOPHS could benefit health facilities across the country.

Because staff at all seven facilities reported the need for WASH training for all clinical staff, part of the scale-up of the WASH training could include a training of trainers component. Adopting such a model would help to ensure transfer of knowledge and actions. The training of trainers could require each trainee to complete a set number of trainings and report back to the MOPHS before a certificate of completion is provided. Although staff turnover is unavoidable, requiring training and reporting of the training could guarantee that even if a trained staff member is transferred to a new facility, knowledge transfer will still occur.

Additionally, preservice training for health providers on WASH would provide an opportunity to emphasize WASH concepts as integral to all health services. At the level five teaching hospital, staff noted that waste segregation was a challenge given the large student nurse population. Full integration of WASH into the nursing and medical curricula would provide a strong base for awareness of the importance of WASH to improve provider, client, and community safety and help to eliminate the belief that WASH is the public health officer's responsibility.

**Stock Availability:** At most of the facilities, the lack of key supplies was a primary obstacle to improving WASH standards. Glove stockouts pose a safety risk to both providers and clients. Without bin liners, waste segregation is often not conducted, and the infectious waste poses a risk, particularly to waste handlers and other auxiliary staff. Facility staff recognize the importance of availability of soap for providers and clients, and staff at many facilities are working within facility budgets and management committees to purchase soap; however, funds are not always available. Determining the cause of these supply issues is a priority and can be identified through assessing and adapting the supply chain appropriately.

**Waste Management:** Final disposal of waste was a key challenge at most of the facilities, especially those that did not have an incinerator. Prioritizing final disposal is essential as it avoids the buildup of waste on facility property and reduces the need to burn hazardous waste in an open pit. In particular, sharps that require disposal in high-temperature incinerators should not be disposed of in an open pit. Without proper disposal, this waste remains hazardous. Final disposal can be addressed by prioritizing affordable and regular waste transportation to appropriate disposal locations and by organizing countrywide waste drives.

**Tippy Taps:** This assessment showed it is feasible to construct tippy taps for provision of water where running water is not available, at no cost using materials that are readily available within health facilities. Two facilities had no-cost tippy taps created. The other facilities with running water challenges used purchased taps. Inclusion of tippy taps into standard WASH practices and policies may reinforce the ease and affordability of this intervention. Tippy taps can serve the practical purpose of improving WASH standards at the facility level through increased handwashing, as well

as serving as a model for community-based use. Training of community health workers on construction can ensure further adoption at the community level and also reach those who cannot afford health services at the facility level.

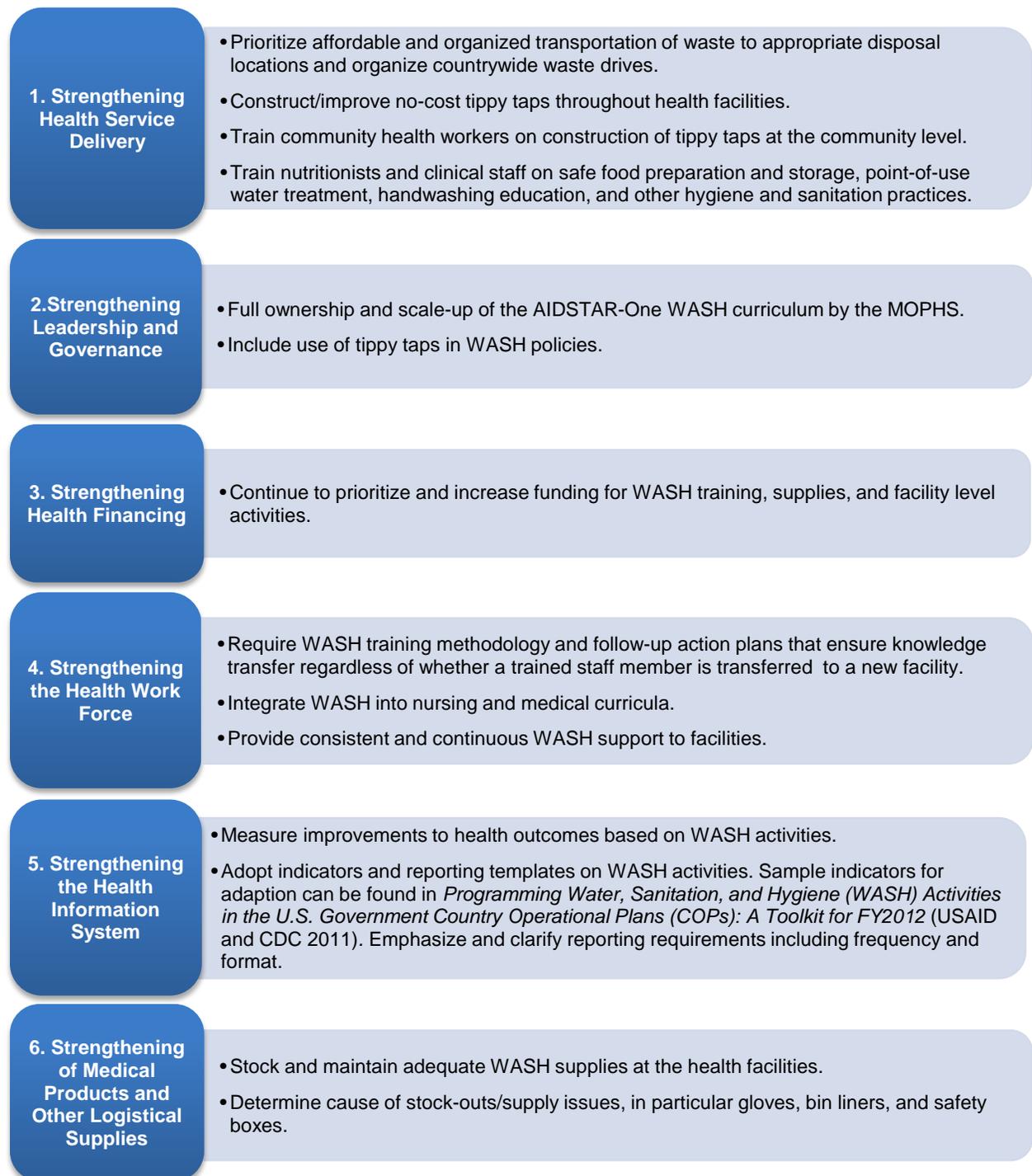
**Supportive Supervision:** A cornerstone of supportive supervision is working with health staff to establish goals, monitor performance, identify and correct problems, and proactively improve the quality of service. Together, the supervisors and health workers identify and address weaknesses on the spot, thus preventing poor practices from becoming routine. Supervisory visits are also an opportunity to recognize good practices and help health workers maintain a high level of motivation and performance. Reinforcing to supervisors that supportive supervision is more effective than routine supervision is essential. True supportive supervision provides constant support to facilities to resolve WASH issues. It could also reinforce that WASH is the responsibility of all health facility staff.

**Reporting:** Without clear indicators, facility staff are unable to systematically monitor WASH outcomes and progress. Emphasizing reporting requirements, as well as providing reporting templates, may increase prioritization of WASH at the facility level. Sample indicators for adaption can be found in *Programming Water, Sanitation, and Hygiene (WASH) Activities in the U. S. Government Country Operational Plans (COPs): A Toolkit for FY2012* (USAID and CDC 2011).

**Nutrition Assessment, Counseling, and Support:** WASH is an integral component of NACS and should not be viewed as a separate activity. Training for nutritionists and clinical staff providing nutrition counseling must include a focus on safe food preparation and storage, point-of-use water treatment, handwashing education, and other hygiene and sanitation practices.

# KENYA ROADMAP FOR WATER, SANITATION, AND HYGIENE CURRICULUM INTEGRATION

The following chart integrates WASH recommendations into the WHO's 2007 six strategic areas for health systems, providing a roadmap for policymakers and program implementers to strengthen health systems as they relate to WASH services.



Strengthening health systems requires six strategies based on the WHO's building blocks of health systems (WHO 2007):

1. **Strengthening Health Services Delivery:** Good health services are those that deliver effective, safe, quality personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources.
2. **Strengthening Leadership and Governance:** Leadership and governance involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system design, and accountability.
3. **Strengthening Health Financing:** A good health financing system raises adequate funds for health, in ways that ensure people can use needed services and are protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient.
4. **Strengthening the Health Work Force:** A well-performing health work force is one that works in ways that are responsive, fair, and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e., there are sufficient staff, fairly distributed; they are competent, responsive, and productive).
5. **Strengthening Health Information Systems:** A well-functioning health information system is one that ensures the production, analysis, dissemination, and use of reliable and timely information on health determinants, health system performance, and health status.
6. **Strengthening Management of Medical Products and Other Logistical Supplies:** A well-functioning health system ensures equitable access to essential medical products, vaccines, and technologies of assured quality, safety, efficacy, and cost-effectiveness, and their scientifically sound and cost-effective use.

# CONCLUSION

Water, sanitation, and hygiene are key components of all HIV care and support services. Additionally, the larger benefits of improving WASH standards at the facility level extend beyond people living with HIV. WASH cannot be limited to HIV services or to a specific staff member's job description.

The AIDSTAR-One WASH curriculum training led to increased staff and client satisfaction and observed changes at the individual and facility levels. The implementation of SDAs improved WASH standards at the seven health facilities assessed. Training health workers and supervisors at select health facility trainings positively impacted WASH knowledge, standards, and practice. Supportive supervision can reinforce these positive changes. It is imperative that WASH remains a priority for health facilities in Kenya. At the suggestion of the MOPHS, it is recommended that a stakeholder meeting is convened to share the positive results of this assessment and to discuss next steps to keep WASH and HIV integration at the forefront of health care.



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# APPENDIX I: SELF-REPORTED WATER, SANITATION, AND HYGIENE PRIORITIES

1. Westlands Health Center
  - Fix plumbing issues for running water at all sinks
  - More alcohol-based hand sanitizer for staff
  - Hand dryers or disposable towels
  - Cups for drinking water
  - Liquid soap dispensers
  - Sink in postnatal ward.
2. Kibera Health Center
  - Larger water tank
  - Running water in the laboratory
  - Continuous supply of chlorine for water treatment
  - Provision of soap for clients to take home.
3. Thika Level Five Hospital
  - More toilet facilities for clients
  - Toilet handrails to support weaker clients (client request)
  - Improved supply of soap and tissue paper
  - Refuse cart for transportation of waste
  - Water fountain at the comprehensive care center.
4. Juja Farm Health Center
  - More sinks
  - Improved supply of bin liners
  - Toilet tissue.
5. Namanga Health Center
  - Fence around waste pit
  - Improved supply of color-coded bin liners for waste segregation
  - Sink in the maternity ward.

6. Mashuuru Health Center

- Larger water storage tank.

7. Maai Mahiu Health Center

- Plumbing connecting water storage tank to sinks for running water
- More sinks
- Safety boxes
- Chlorine for water treatment.

For more information, please visit [aidstar-one.com](http://aidstar-one.com).

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