Infectious Diseases Institute WASH Project Handover Report for Kasese District, December 2019 to September 2023

Strengthening Partnerships for Preparedness and Response in Uganda Project

Handover Report

DEC 2019- SEPT 2023

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Acronyms

CDC	Centers for Disease Control and Prevention
FGD	Focus Group Discussion
HCWs	Health care workers
IDI	Infectious Diseases Institute
IPC	Infection Prevention and Control
KII	Key Informant interview
POE	Point of Entry
PopCAB	Population Connectivity Across borders
ABHR	Alcohol Based Hand Rub
MGHWS	Management Guidelines for Hand Washing Stations
MOH	Ministry of Health

Message from Program Manager

Practicing appropriate hand hygiene (HH) through handwashing with soap and water or using alcohol-based hand rub (ABHR) is a key prevention measure recommended to reduce the disease burden worldwide. Hand hygiene adherence (HHA) among healthcare workers (HCWs) is particularly important to reduce disease transmission in healthcare settings.

Health facilities in low and middle-income countries (LMICs) often lack the necessary funds to purchase commercial Alcohol Based Hand Rub (ABHR) and local production may be a more economical option. The WHO developed a protocol for local production of ABHR to guide the production procedure within health facilities.

The Infectious Diseases Institute (IDI) received funding from the Centres for Diseases Control and Prevention (CDC) under the Strengthening Partnerships for Preparedness and Response project to scale up handwashing and Alcohol Based Hand-Rub (ABHR) use in priority health facilities in six districts in Uganda (Kabarole, Kasese, Amuru, Tororo, Moroto and Kotido). This included setting up ABHR production units, training producers, and establishing distribution structures as well as hand hygiene mentorship and impact evaluation.

This report provides an account of project activities in Kasese district from inception in 2021 to September 2023. We extend our sincere thanks to the Ministry of Health Environmental Department (EHD) for the project above-site oversight and continuous technical support throughout the implementation. Special thanks to the Kasese District Local Government for leading the implementation through the office of the District Health Officer, all in charge of supported health facilities and community locations as well as the producers and quality assurance team for ABHR in the district.

Finally, as a project, we thank the IDI project staff who have provided technical support in the implementation of the project especially Mr. Fred Tusabe and Ms Saudha Yapswale, who successfully coordinated the district-level activities throughout the implementation period with enthusiasm and diligence.

As we hand over the project to the district, we are confident that the capacity that has been built, complimented by the structures and supportive environment, the project will continue to thrive, and IDI will continue to provide technical assistance whenever there is a need.

Thank you.

Judith Nanyondo S
Senior Project Manager
Strengthening Partnerships for Preparedness and Response in Uganda Project

Executive Summary

Background:

The CDC WASH project to locally produce Alcohol Based Handrub (ABHS) at district- scale was piloted in Kabarole district in 2019. Results from the pilot showed a great improvement in Hand hygiene compliance, from 3% at baseline to 55% at midpoint after the ABHS intervention. In light of the Ebola Virus Disease (EVD) outbreak in Democratic Republic of Congo (DRC) in late 2019, the ABHS project was expanded to Kasese district as an EVD preparedness effort to improve hand hygiene during the EVD outbreak, there has been continuous production and distribution of ABHS for routine and emergency situations in Kasese.

Methods:
With clearance of the DHO team at Kasese local government, the infectious Diseases Institute, IDI identified and upgraded sites for ABHS production and storage to ensure recommended security, ventilation, and air conditioning. District government (DHO) selected laboratory technicians for training on ABHS production and Health Inspectors for external quality control. Raw materials were sourced within Uganda by IDI. ABHS underwent internal quality control (IQC) by the production officer and external quality control (EQC) by a trained district health inspector before distribution to HCFs. We assessed ABHS production and performed a 12 months evaluation on availability and use of hand hygiene resources.

Results:
A total of about 24,000 liters of quality controlled ABHS were produced and distributed across all Health Facilities in Kasese. At a 12 months evaluation, availability of hand hygiene resources varied greatly across hospitals, with availability highest in Kilembe Mines Hospital, where all observed patient care areas (PCA) had both a handwashing station with soap and ABHS. Overall, hand hygiene adherence rates at hospitals ranged from 27–40% before patient contact and 40–50% after patient contact, and ABHS use was higher than handwashing with soap.

Conclusion:
ABHS is an essential compliment to hand washing with soap and the local production at district scale improves its availability and access across HCFs

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Introduction

1.0 Introduction

Handhygieneisacoreinfectionpreventionandcontrol(IPC)methodforpreventinghealthcare-associated infections (HAIs). Alcohol-based hand rub/Sanitizer (ABHR) and handwashing with soap accessibility and water are both effective hand hygiene methods for healthcare workers.

TheWHOpromotesABHRuseinHCFsbecauseofitsfast-actingandbroad-spectrummicrobicidalactivity with minimal risk of generating resistance to antimicrobial agents. Furthermore, ABHR is suitable for use in resource-limited or remote areas with a lack of sinks or other facilities for hand hygiene among other factors.

TheWorldHealthOrganization(WHO)andtheUnitedStatesCentersforDiseaseControlandPrevention (CDC) recommend using an ABHR at patient care points that contain at least 60% alcohol as the new standard of patient care to reduce transmission of emerging and re-emerging infectious diseases.

Whenhandsarenotvisiblysoiled,ABHRiseffectiveatreducingthenumberofviablepathogensthatcause many enteric diseases, viral haemorrhagic fevers, and respiratory illnesses, among others.

1.2 Background

The CDC WASH team together with IDI and IRC (InternationalWaterandSanitationCentre)Kabarole partnered in delivering a project, "evaluating WASH status, use of hand hygiene products with associated compliance at 30 health care facilities within Kabarole District".

The 9 months' project started in January and was completed in October 2019 with a year- long sustainability phase to Sept 2020. In light of the Ebola Virus Disease outbreak in DRC, the project has expanded to Kasese district as an EVD preparedness effort to improve hand hygiene by district led production and distribution of Alcohol Based Handrub (ABHR).

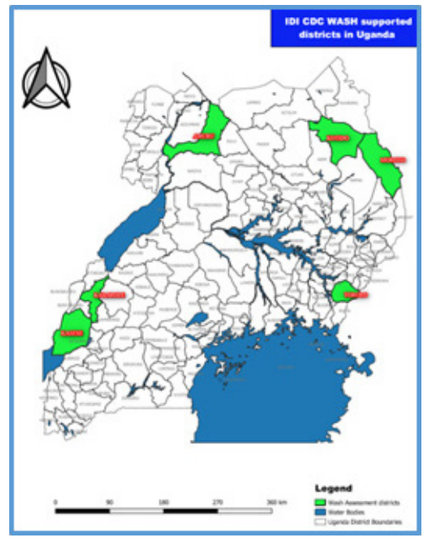
The raw materials for the production have been procured and were delivered to Kasese District stores. Production was led by 2 staff of Kasese District health office were trained to produce ABHS and with support from an IDI production officer.

After passing the external quality control, the ABHS was distributed to all the facilities in Kasese starting with those at high risk of receiving EVD suspects.

Implementation area

Kasese district covers 3,390 square kilometers with an estimated population of 702,029 and comprises127 HCF, 105 public and 22 private facilities.

Figure 1 Showing the IDI- WASH Supported Districts



1.3 Program Overview with data and performance key Results

The WASH project at IDI with the support from CDC created and supported interventions leading to improvements in WASH and explored and promoted implementation in the WASH sector, including renovation of ABHR production unit, delivery of supplies, training of ABHR producers,

guidelines for hand washing stations, water quality testing, response to epidemics, WASH (hand hygiene) baseline, mid-line ans end-line were conducted in 2020, 2021 and 2022 respectively. WASH project targeted 8 health facilities and 28 community locations.
The project goal was to strengthening preparedness and response in Uganda.
Theprojecthadthreeobjectivestoreachthisgoal:1.IncreaseaccessandusageofABHR2.Improvehygiene practices among health worker and the communities among other objectives. The project found that active community locations existed in all intervention villages/cells as did community point of contact persons, though some were not very active. There was improvement in hand hygiene compliance among healthcare workers and the community.

3.0 Renovation of ABHS production unit

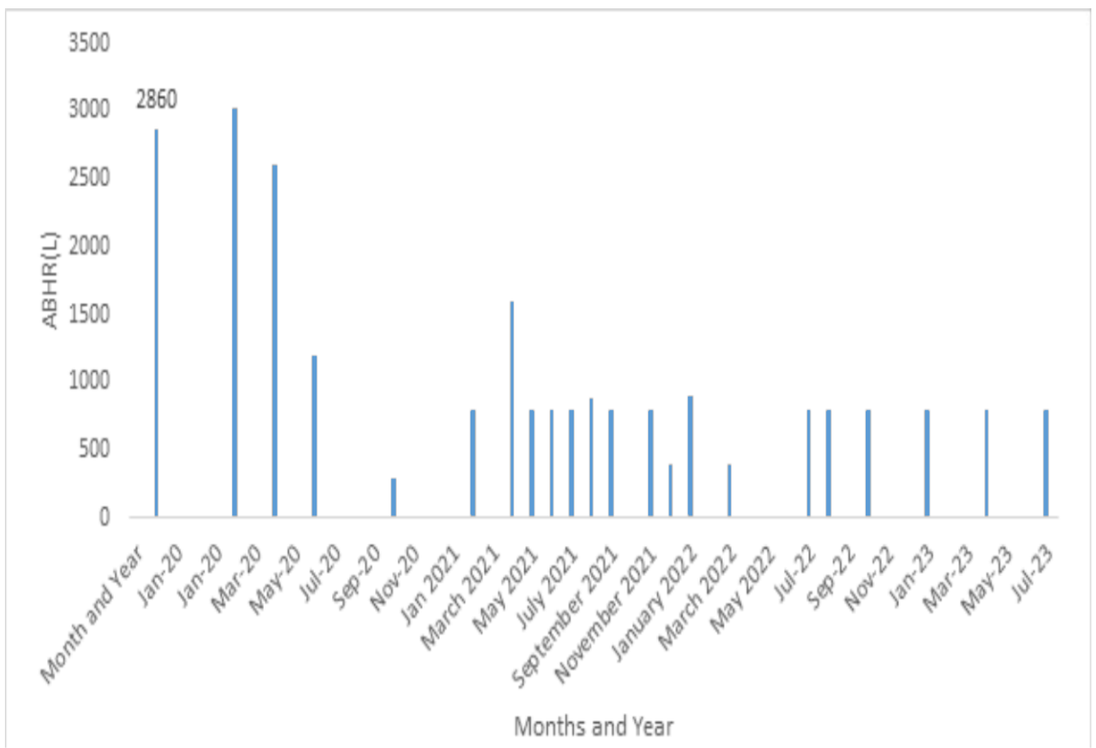
The Kasese ABHR production unit is housed at the DHO premises and it required minor renovations for it to functionalize. An air conditioning system, window glasses and door locks were fixed.

4.0 Training of ABHS producers/quality controllers

A total of 5 district staff have been trained to locally produced quality controlled ABHR. Of these an EQC officer was trained to perform external quality control of ABHR prior to last-mile delivery.

4.1 ABHS Produced and Distributed todate

Amount of ABHR produced since December 2019to August 2023 were captured in the production logs, about 24,00L of quality controlled ABHR have been produced and distributed to 124 HCF.



6.0 12 Months Project Evaluation

1.1. Specific activity objectives

- To estimate the availability of ABHS and handwashing materials at patient care areas at all hospitals andHealth Centres IV (HC IV), and a representative sample of HC IIIs and HC IIs.
- Toassesshandhygieneadherenceofhealthcareworkers,beforeandafterpatientcontact,atallhospitals and Health Centres IV (HC IV), and a representative sample of HC IIIs and HC IIs.
- To provide the District Health officials with information about hand hygiene adherence aggregated by healthcare worker type and by healthcare facility level.

Method

From December 14 to 18, a team of enumerators from IDI carried out the field work for this evaluation. Two enumerators visited healthcare facilities to observe hand hygiene practices of healthcare workers. The enumerators observed hand hygiene practices among up to one (1) healthcare workers in HC IIs, three (3) healthcare workers in HC IIIs, and four (4) healthcare workers in HC IVs and hospitals.

The hand hygiene practices of the randomly selected healthcare professionals were recorded on the Infection Control Assessment Tool (Appendix I). For each healthcare worker, hand hygiene practices were observed before and after patient contact for up to five (5) patient contacts.

Data were analyzed to calculate hand hygiene adherence rates for each hospital and HC IV in Kasese District. Given a sample was taken of HC IIIs and HC IIs in Kasese District, only aggregated estimates were calculated for these levels. We used similar methods to estimate coverage of ABHS and functioning hand washing stations (presence of water and soap) at patient care areas across different healthcare facilities and aggregate estimates by health centre level.

We also conducted Focus Group Discussions (FGD) with healthcare workers and Key Informant Interviews (KII) with DHO staff and IPC focal persons from two hospitals. We held 3 focus group discussions, one for each level of health centre: HC II, HC III, and HC IV.

The Focus Group Discussions included 4–6 healthcare workers from each health centre level. Key Informant Interviews included an interview with the District HealthOfficer,theDistrictIPCManager,theDistrictStoresManager,and2IPCfocalpersonsfromKagando Hospital and Kilembe Hospital. FGD and KII were recorded and transcribed and thematic analysis was done using NVivo software (version 12).

6.4 Results

Hand hygiene resources
Availability of hand hygiene resources varied greatly across hospitals, with availability highest in Kilembe Mines Hospital, where all observed patient care areas (PCA) had both a handwashing station with soap and ABHS.

While only 55% of the observed PCA in Bwera General Hospital (n=20) had a handwashing station withsoap,85% of thePCA hadatleastone typeof handhygieneresource available,suggestingABHSisused in this hospital to accommodate PCA that do not have handwashing resources (Table 1).
In Kagando General Hospital, 74% of observed PCA had at least one type of hand hygiene resource.

Table 1. Hand hygiene resources at patient care areas in hospitals, Kasese District, December 2020

	Kagando General Hospital n (%)	Bwera General Hospital n (%)	Kilembe Mines Hospital n (%)
Number of patient care areas assessed	n* = 31	n = 20	n = 6
Any hand hygiene resource available (hand washing station with soap OR alcohol hand sanitizer)	23 (74)	17 (85)	6 (100)
Hand washing station with soap	21 (68)	11 (55)	6 (100)
Alcohol hand sanitizer	20 (65)	16 (80)	6 (100)

* n represents the number of patient care areas that were accessible and observed the day of the assessment. At Kagando General Hospital, 31 of 37 patient care areas were observed. At Bwera General Hospital, 20 of 20 patient care areas were observed. At Kilembe Mines Hospital, 6 of 8 patient care areas were observed.

Availability of hand hygiene resources was generally low but varied greatly across HC IVs. At least one type of hand hygiene resource was available in as much as 80% of PCA in St. Paul (Kasese), the HC IV with the highest coverage, and in as few as 9% of PCA in Nyamirami, the health centre IV with the lowest coverage (Table 2). Three of the five HC IVs assessed had a hand hygiene resource available in 33% or fewer of observed PCAs.

Table 2 . Hand hygiene resources at patient care areas in Health Centres IV, Kasese District, December 2020

	Hiima UCI HC IV n (%)	Kitwswamba HC IV n (%)	Nyamirami HC IV n (%)	Rwesande HC IV n (%)	St. Paul (Kasese) HC IV n (%)
	n* = 9	n = 6	n = 11	n = 14	n = 10
Any hand hygiene resource available (hand washing station with soap OR alcohol hand sanitizer)	6 (67)	2 (33)	1 (9)	2 (14)	8 (80)
Hand washing station with soap	5 (56)	2 (33)	0 (0)	2 (14)	6 (60)
Alcohol hand sanitizer	6 (67)	1(17)	1 (9)	0 (0)	6 (60)

* n represents the number of patient care areas that were accessible and observed the day of the assessment. At St. Paul (Kasese) HCIV, 10 of 13 patient care areas were observed. For other HCIV health centres, all patient care areas were observed.

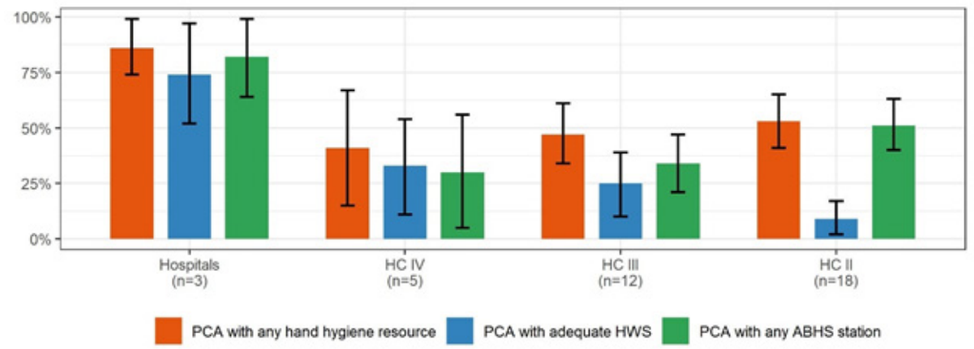
Overall, at the hospital, HC IV, and HC III levels, handwashing stations with soap and ABHS were available in observed PCA at similar percentages within each respective level (Table 3 and Figure 1). However, hospitals had a greater percentage of observed PCAs with at least one hand hygiene resource available (86%, 95% CI: 74–99) compared to HC IVs (41%, 15–67) and HC IIIs (47%, 34–61). At the HC II level, few observed PCA had a handwashing station with soap (9%, 2–17), and therefore hand hygiene resource coverage was mainly ABHS (51%, 40–63)

Table 3. Hand hygiene resources at patient care areas aggregated by health centre level, Kasese District, December 2020.

	HC II Mean (95% confidence interval)	HC III Mean (95% confidence interval)	HCIV Mean (95% confidence interval)	Hospitals Mean (95% confidence interval)
Number of health centres assessed	n* = 18	n = 12	n = 5	n = 3
Number of patient care areas assessed	4.2 (2.9, 5.5)	12.4 (9.7, 15.0)	10.0 (7.6, 12.4)	19.0 (6.9, 31.1)
Any hand hygiene resource available (hand washing station with soap OR alcohol hand sanitizer)	53% (41, 65)	47% (34, 61)	41% (15, 67)	86% (74, 99)
Hand washing station with soap	9% (2, 17)	25% (10, 39)	33% (11, 54)	74% (52, 97)
Alcohol hand sanitizer	51% (40, 63)	34% (21, 47)	30% (5, 56)	82% (64, 99)

* n represents the number of health centres assessed from each health centre level.

Figure2. Percentage patient care areas with hand hygiene resources aggregated by health centre level, Kasese District, December 2020.



3.2. Hand hygiene adherence rates

Overall, hand hygiene adherence rates at hospitals ranged from 27–40% before patient contact and 40–50% after patient contact, and ABHS use was higher than handwashing with soap (HWWS) (Table 4). Across hospitals, rates of HWWS were low, and no HWWS was observed at Kagando General Hospital.

At Bwera General Hospital, HWWS was observed before and after patient contact for only 2 of 13 patient contacts. At Kilembe Mines Hospital, while HWWS was observed 42% of the time after patient contacts, there was no HWWS observed before patient contacts.
Across hospitals, rates of ABHS use, both before and after patient contacts, ranged from 22% to 43%.

However, at two of the hospitals, there were some difference in the rates of ABHS use before and after patient contacts. At Kagando General Hospital, ABHS was used 27% of the time before patient contacts, compared to 43% of the time after patient contacts. At Kilembe Mines Hospital, ABHS was used 39% of the time before patient contacts, compared to 22% of the time after patient contacts.

Table 4. Hand hygiene adherence before and after patient contact in hospitals, Kasese District, December 2020.

	Kagando General Hospital n (%)	Bwera General Hospital n (%)	Kilembe Mines Hospital n (%)
Number of patient contacts observed, with hand hygiene materials present	n* = 30	n = 15	n = 18
Any hand hygiene (hand washing with soap OR alcohol hand sanitizer)			
Before contact	8 (27)	6 (40)	7 (39)
After contact	13 (43)	6 (40)	9 (50)
PC with water and soap present	n=25	n=15	n=12
HWWS Before contact	0 (0)	2 (13)	0 (0)
HWWS After contact	0 (0)	2 (13)	5 (42)
PC with alcohol hand sanitizer present	n=30	n=15	n=18
ABHS Before contact	8 (27)	4 (27)	7 (39)
ABHS After contact	13 (43)	4 (27)	4 (22)

* n represents the number of patient care contacts that were observed where either handwashing and soap or ABHS were present

Across HC IVs, HWWS was generally low. Among HC IVs, rates of HWWS were highest in Nyamirami HC IV, where HWWS was observed 40% of the time both before and after patient contacts (Table 5). For two of the five HC IVs assessed, there was no observed HWWS. For four of five HC IVs assessed, ABHS use after patient contacts was high, ranging from 76–100%. ABHS use after patient contact was lowest at Hiima UCI HC IV at 29%. ABHS use before patient contacts was much more variable, ranging from 4% to 80%. Overall, with the exception of Hiima UCI HC IV, most HC IVs had higher rates of any hand hygiene performed after patient contacts (either HWWS or ABHS use) compared to before patient contacts.

Table 5. Hand hygiene adherence before and after patient contact in Health Centres IV, Kasese District, December 2020.

	Hiima UCI HC IV n (%)	Nyamirami HC IV n (%)	Rukoki HC IV n (%)	Rwesande HC IV n (%)	St. Paul (Kasese) HC IV n (%)
Number of patient contacts observed, with hand hygiene materials present	n* = 7	n = 11	n = 25	n = 20	n = 25
Any hand hygiene (hand washing with soap OR alcohol hand sanitizer)					
Before contact	5 (71)	5 (45)	6 (24)	8 (40)	8 (40)
After contact	2 (29)	11 (100)	19 (76)	11 (55)	11 (55)
PC with water and soap present	n=7	n=10	n=15	n=10	n=19
HWS Before contact	0 (0)	4 (40)	2 (13)	0 (0)	0 (0)
HWS After contact	0 (0)	4 (40)	0 (0)	2 (20)	0 (0)
PC with alcohol hand sanitizer present	n=7	n=7	n=25	n=10	n=25
ABHS Before contact	5 (71)	1 (14)	4 (16)	8 (80)	1 (4)
ABHS After contact	2 (29)	7 (100)	19 (76)	9 (90)	21 (84)

* n represents the number of patient care contacts that were observed where either water and soap or ABHS were present

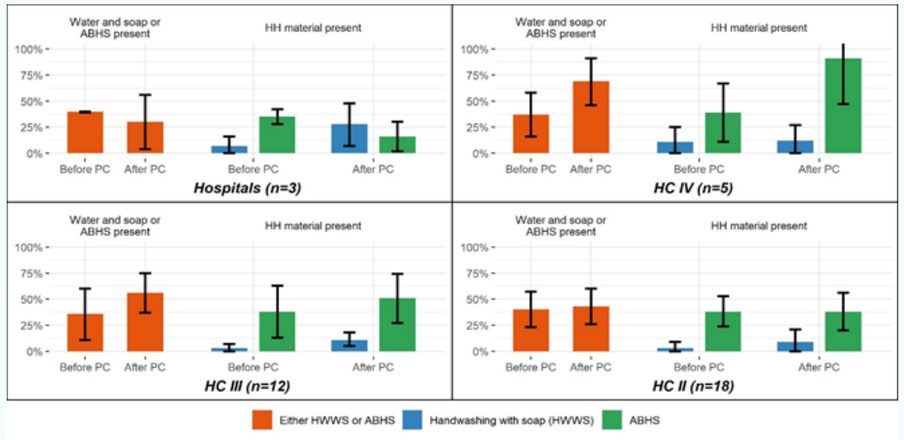
Overall, at the HC II, HC III and HC IV levels, rates of ABHS use were higher than HWWS. The highest rates of HWWS was observed in hospitals after patient contacts (28%, 95% Confidence Interval: 7–48) (Table 6). Rates of any hand hygiene performed (either HWWS or ABHS use) before patient contacts did not exceed 50% within any health centre level.

Table 6. Hand hygiene adherence before and after patient contact aggregated by health centre level, Kasese District, December 2020.

	HC II Mean (95% confidence interval)	HC III Mean (95% confidence interval)	HCIV Mean (95% confidence interval)	HCIV Mean (95% confidence interval)
Number of health centers assessed	n = 18	n = 12	n = 5	n = 3
Number of patient contacts observed with either water and soap or ABHS present	4.7 (2.8, 6.5)	8.1 (4.1, 12.0)	17.6 (10.8, 24.4)	12.7 (6.1, 19.3)
Any hand hygiene (hand washing with soap OR alcohol hand sanitizer)				
Before contact	40% (23, 57)	36% (11, 60)	37% (16, 58)	40% (39, 40)
After contact	43% (26, 60)	56% (37, 75)	69% (46, 91)	30% (4, 56)
Hand washing with soap				
Before contact	3% (0, 9)	3% (0, 7)	11% (0, 25)	7% (0, 16)
After contact	9% (0, 21)	11% (5, 18)	12% (0, 27)	28% (7, 48)
Alcohol hand sanitizer				
Before contact	38% (24, 53)	38% (20, 56)	39% (11, 67)	35% (28, 42)
Before contact	38% (20, 56)	38% (20, 56)	91% (51, 134)	16% (2, 30)

* n represents the number of health centres assessed from each health centre level

Figure 3Percentage hand hygiene adherence before and after patient contact aggregated by health centre level, Kasese District, December 2020



3.3 Focus Group Discussions

Healthcare workers reported that they had easy access to ABHS because the 1 litre bottles were placed at every patient care area and they were constantly refilled. They also reported that they liked the convenience of the 60mL personal bottles. Healthcare workers reported using ABHS when there was no soap or water for hand washing, during busy work schedules, and when they had contact with patients. Healthcare workers liked that ABHS was less time consuming to apply and that it dried much faster than water. However, some healthcare workers reported that sometimes there were insufficient supplies within their healthcare centre and that a barrier to getting more ABHS was the time and transportation cost for the in-charge to pick a replacement jerrycan from the DHO office.

Healthcare workers also said that the COIVD-19 pandemic was a motivator for practicing hand hygiene more frequently and that it is better at disinfecting because it kills micro-organisms. Healthcare workers reported washing their hands upon entering their health centre, sometimes during patient care, and when signing off from duty at the end of the day. However, they also reported that hand washing stations were sometimes limited at centre entrances, were not filled with water, or were broken and were not repaired.

Focus group discussion participants reported that leadership within HCF promoted use and monitoring of hand hygiene in the following ways: 1) encouraged the use of personal pocket bottles; 2) identified designated support staff to observe hand hygiene; 3) Identified designated focal person to monitor 1 litre bottles to know when they needed to be refilled; 4) delivered ABHS to healthcare workers; 5) ensured that ABHS was not misused; 6) educated patients and staff about hand hygiene; 7) set up policies at the HCF for each person to practice hand hygiene; 8) ensured completion of a dispensing log to monitor ABHS; 9) ensured monthly inventory and proper record keeping of ABHS received; and 10) dispensed ABHS in 60mL bottles.

HCW reported that ABHS was reserved for staff use only and that patients and their attendants were not allowed to use it because it is expensive, and they wanted to minimize the consumption. But one HCW reported that ABHS was used by breastfeeding mothers in their health centre. Healthcare workers reported that the ABHS had a strong alcohol smell that was unpleasant. They also reported two myths or misconceptions about ABHS from the community: 1) inhaling ABHS causes drunkenness, and 2) drinking ABHS will kill COVID-19.

8.0 Visit of the MoH Delegates to the ABHS production Unit

The ABHS production unit received delegates from the MoH who applauded IDI's support in the district. Their visit was preceded by the CDC site visit and major discussions were sustainability of the ABHR model.

12.0 Challenges during Implementation

- Some facilities are hard to reach and thus affecting the timely distribution of ABHS.
- Sourcing of raw materials for ABHS production without donor funds still a challenge.

13.0 Key Lessons Learnt

The key lessons learnt are

- Kasese district leadership has been supportive which led to the success of the District-wide ABHS model.
- ABHS supplies were stored alongside other drugs in the district stores that enabled easy last mile delivery through leveraging the district systems.
- There has been good stock management of the raw materials and finished product hence minimal stockouts being reported.

14.0 Sustainability and Continuity Plan

Proposed ABHS Sustainability Plan.

- Hospitals consume more ABHR compared to other levels, training ABHS production personnel at hospitals and HSD levels is encouraged given that hospitals may have resources to sustain in house ABHR production.
- Human Resources: The District allocated staff who were trained on ABHS production and production is ongoing. More have been mentored using the IDI virtual curriculum.
- Budget allocation for ABHS production sustainability at the district level is needed. This could be through soliciting support from implementing partners to procure or available PHC funds.
- Use of NMS trucks to distribute ABHS during their routine distribution cycles. Where private HCF will be picking up ABHS at the nearby healthcare facilities upon delivery by NMS trucks being cognizant of limited space on the NMS trucks.
- HCFs with transport means may continue picking ABHS from the district medicine store upon their requests being approved by the DHO office.

Conclusion

Implementation of the ABHR project in Kasese was a success as observed by high production and consumption of the product, steady hand hygiene improvement, containment and control of disease outbreaks through good hand hygiene practices.

Annex

Ministry of Health Environmental Health Department staff visit Kasese District production unit.

ABHR supplies in the Kasese District stores

Focus group discussions with health workers

CDC Global QASH team visit to the Kasese District store

CDC Global WASH team visit the district preparedness and response store where ABHR raw materials are kept

Annex

CDC, IDI and Uganda Police Force who participated in qualitative and quantitative follow up assessment on MGHWS at Amuru Central Police Station in Amuru district.

IDI and CDC team visit the Kasese District production unit

ADHO Kasese District gives remarks to the IDI and CDC teams

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