AN ASSESSMENT OF AVAILABILITY AND USAGE OF HAND HYGIENE MATERIALS IN HEALTHCARE FACILITIES IN RURAL WESTERN KENYA

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92 patient care rooms were assessed and 91% of them had access to hand hygiene materials. 48 health care workers observed and found very low adherence to hand hygiene (8%) before and after patient care hence predisposes the patients and health care workers to risks of health care associated infections . This study will help inform IPC procedures in health care facilities.

BACKGROUND

- Hand hygiene is the primary measure of infection prevention and control.
- Availability and appropriate use of hand hygiene (HH) materials – hand washing stations and alcohol-based hand rubs (ABHR) — in healthcare facilities (HCFs) are critical to preventing healthcare-associated infections
- We assessed the availability and use of HH among healthcare workers (HCWs) in public HCFs in Kisumu County, Western Kenya during the COVID-19 pandemic

Fig 1: Hand washing station in a patient care room

Fig 2: ABHR station in a patient care room

METHODS

- In August 2021, enumerators visited 10 randomly selected health facilities from Nyando and Nyakach subcounties in Kisumu county (Table 1)

Table 1: Distribution of hand hygiene assessment sites in Nyando and Nyakach sub counties, Kisumu County. n=20

	Nyando Subcounty		Nyakach Subcounty	
Level of Care	Number, n	%	Number, n	%
Level II (Dispensary)	5	50.0	6	60.0
Level III (Health Centers)	3	30.0	2	20.0
Level IV (Subcounty Hospitals)	1	10.0	1	10.0
Level V (County Hospitals)	1	10.0	1	10.0
TOTAL	10	100.0	10	100.0

- We observed the availability of HH in patient care areas (PCAs) and HH practices before and after patient contact and recorded their observations in a standard observation tool.
- Appropriate HH practice by HCWs included use of ABHR or washed hands with soap and water.
- HH adherence was defined as practice of HH both before and after patient contact.
- Key informant interviews (KIIs) were conducted with HCF managers at two HCFs per sub county.
- Proportions and odds ratios with 95% confidence intervals were computed to compare HH rates between clinical (nurses, clinical officers, laboratory and pharmaceutical technicians) and non-clinical staff (counsellors, volunteers and records clerks) and between lower-level (dispensaries, health centers) and higher-level HCFs (referral hospitals).

RESULTS

- A total of 92 PCAs in 20 healthcare facilities were assessed among 48 health care workers (Table 2)

Table 2: Distribution of healthcare workers assessed in Nyando and Nyakach sub counties, Kisumu County. n=48

	Number observed		# of patient contacts	
Cadre of staff	**n**	**%**	**n**	**%**
Nurse	20	41.7	57	43.2
Lay workers *(CHV, Peer educators, Mentor Mothers, Casual Staff)*	9	18.7	26	19.7
Clinical Officer	8	16.7	19	14.4
Lab Technician	7	14.6	18	13.6
HTS Counsellor	2	4.2	6	4.5
Data Clerk	1	2.1	3	2.3
Pharmaceutical Technician	1	2.1	3	2.3
Grand Total	**48**	**100.0**	**132**	**100.0**

- **Availability of hand hygiene materials(Table 3)**
- HH facilities were available in 91% of PCAs, the majority stocked with ABHR (80%) and approximately half with soap and water (53%).
- 132 patient contacts were observed, most among nurses (43%).

Table 3: Availability of hand hygiene materials across patient care rooms in Nyando and Nyakach

Type of HH material	Present in rooms, n=58	%
ABHR	55	94.8
Soap and Water	18	31.0
Other materials present	37	63.8
None	2	3.4

Hand Hygiene before patient contact (table 4)

- HH practice before patient contact was 19% and 25% after patient contact. HH adherence was 8%.
- ABHR use was the most common HH practice both before and after patient contact (19% and 22%, respectively).
- HH before contact was more commonly practiced in the lower-level health facilities compared to hospitals (OR: 7.06, 95% CI: 1.0-30.2).

Table 4: hand hygiene adherence before patient contact by healthcare workers in Nyando and Nyakach

		HH before patient contact, n(%)				P
Variable		**Yes**	**No**	**Total**	**OR (95% CI)**	**value**
Type of Procedure	Invasive/injection	11 (24.4)	34 (75.6)	45 (33.3)	1.76 (0.72-4.27)	0.21
	Non-invasive/Not injection	14 (15.6)	76 (84.4)	90 (66.7)		
Staff Cadre	Clinical staff	23 (23.0)	77 (77.0)	100 (74.1)	4.93 (1.10-45.16)	**0.02[a]**
	Non-clinical staff	2 (5.7)	33 (94.3)	35 (25.9)		
Order of patient contact	1st contact observed	10 (20.8)	38 (79.2)	48 (36.4)	1.26 (0.05-3.08)	0.61
	Subsequent contacts	15 (17.2)	72(82.8)	87 (64.4)		
Subcounty	Nyakach	12 (17.9)	55 (82.1)	67 (49.6)	0.92 (0.39-2.20)	0.86
	Nyando	13 (19.1)	55 (80.9)	68 (50.4)		
Level of care	Level 2 and 3	24 (22.0)	85 (78.0)	109 (80.7)	7.06 (1.03-301.71)	**0.03[b]**
	Level 4 and 5	1 (3.8)	25 (96.2)	26 (19.3)		

a, b- Sparse data. Fishers Exact Test confidence limits reported

Hand Hygiene after patient contact

- Clinical staff were more likely than non-clinical staff to practice HH before patient contact (Odds Ratio (OR): 4.93, 95% Confidence Interval (CI): 1.1-45.2) and after patient contact (OR: 16.75, 95% CI: 2.5-70.9) (Table 4)

Table 5: hand hygiene adherence after patient contact in patient care areas in Nyando and Nyakach

		HH after patient contact, n(%)				P
Variable		**Yes**	**No**	**Total**	**OR (95% CI)**	**value**
Type of Procedure	Invasive/injection	13 (28.9)	32 (71.1)	45 (33.3)	1.42 (0.63-3.21)	0.40
	Non-invasive/Not injection	20 (22.2)	70 (77.3)	90 (66.7)		
Staff Cadre	Clinical staff	33 (33.0)	67 (67.0)	100 (74.1)	16.75 (2.53-700.90)	**<0.001[c]**
	Non-clinical staff	0 (0.0)	35 (100.0)	35 (25.9)		
Order of patient contact	1st contact observed	10 (20.8)	38 (79.2)	48 (35.6)	0.73 (0.31-1.70)	0.47
	Subsequent contacts	23 (26.4)	64 (73.6)	87 (64.4)		
Subcounty	Nyakach	17 (25.4)	50 (74.6)	67 (49.6)	1.11 (0.50-2.42)	0.80
	Nyando	16 (23.5)	52 (76.5)	68 (50.5)		
Level of care	Level 2 and 3	28 (25.7)	81 (74.3)	109 (80.7)	1.45 (0.47-5.38)	0.49[d]
	Level 4 and 5	5 (19.2)	21 (80.8)	26 (19.3)		

c- sparse data, Fishers confidence limits reported

Findings of the qualitative interviews

- In the KIIs, HCF managers indicated a preference for automated ABHR dispensers for use by HCWs in PCAs while handwashing stations were preferred at entrances/exits and latrines
- Shortage of soap and water, breakages, and lack of monitoring of usage were cited as challenges with use of HH facilities.

CONCLUSIONS

- Despite high access to HH materials, appropriate HH practice accompanying patient contact was infrequent; HCWs should be targeted to reinforce their HH practice.
- HCF-based systems to monitor staff HH practices may be effective in the future, though further work is needed to address barriers and drivers of HH compliance.

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MORE INFORMATION / REFERENCES

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