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The Effect of Multi- Months Scripting on Health Care Workers' Performance at HIV/AIDS Outpatient Clinics in Nairobi County, Kenya

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Abstract

Healthcare workers (HCWs) shortage is a challenge facing health systems managers worldwide. The World Health Organization (WHO) projects a shortfall of 10 million HCWs by 2030, mostly in low-income countries. The shortage leads to high workload, poor HCW performance and undesirable patient outcomes. Implementation of Multi-Months Scripting (MMS) WHO guidelines reduces patient load in HIV/AIDS outpatient clinics. The study aims to demonstrate to policymakers, Health Systems Managers (HSMs), HCWs, and stakeholders that implementation of MMS results in improved HCWs performance. The study established the effects of MMS implementation on HCW's performance. This was a descriptive cross-sectional study through self-administered questionnaire applied to 128 HCWs sampled through Multi-stage sampling, in 20 clinics. Descriptive, bivariate, and ordinal logistic regression analysis was done. The findings indicated that 56% of respondents were females, 89% had served for 6-15 years, 99% were aware of MMS guidelines, 98% received supportive supervision and 90% received training on MMS. Majority, 94 % agreed MMS clients were compliant and had high retention. However, 48 % sited HIV commodities stock-out 6 months prior to the study, 98% observed reduction in HIV clients due to MMS, reduced waiting time, and improved performance; while 93% had more time with clients. Bivariate analysis revealed significant correlation between HCW performance and MMS guidelines awareness (0.334), client compliance (0.225); and a weak correlation (-0.599) with capacity development. There was no significant correlation (0.041) between MMS commodities flow and HCW performance. Ordinal logistic regression revealed the most significant influencer of HCW performance was client compliance, MMS guidelines awareness, and HCWs capacity development in that order (Sig.002, .011, and .014 respectively). The study concluded that implementation of MMS guidelines resulted in improved HCWs performance. It recommends policymakers, HSMs, HCW and stakeholders to revise service delivery guidelines to accommodate MMS implementation for improved HCW performance and patient outcomes.

Keywords: *Multi- Months Scripting, Healthcare Workers, Performance, HIV/AIDS Outpatient Clinics, Nairobi County, Kenya*

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1.0 Introduction

Kenya has a low density of doctors, nurses, and clinical officers of 30.1/10000 against the Sustainable Development Goals (SDG) threshold index of 44.5 /10000 (Okaroafor et al., 2022). The shortage varies from county to county and in urban vs rural facilities (Masibo et al., 2018; Nyawira et al.,2022). Portoghese et al., (2014) documents that the HCWs shortage is associated with burn out. High workload especially in public health facilities leads to poor performance and undesired patient outcomes (Deussom, et al., 2022; Campbell, et al., 2013). The limitation of resources to hire more HCWs calls for innovative options that would reduce the HCWs' workload and effectively improve their performance and health service outcomes (Gatome & Olalere, 2020).

The World Health Organization (2021) developed the differentiated care models (DCM) for stable HIV clients to enhance the quality of care among various population groups. Kenya's Ministry of Health (MoH, 2017) adopted the DCM model for implementation in care for HIV clients. The DCM model specified the need to have stable patients given longer return dates for both medical refills (3 months) and Clinical reviews (6 months), contrary to the monthly return dates that were in practice. This approach is called Multi- Months Scripting (MMS) as documented by the United Nations Program on HIV/AIDS (UNAIDS, 2022). While MMS was meant to motivate HIV clients due to the reduced clinic visits per year, it had a secondary effect of reduction of workload for the HCWs in the HIV client's outpatient clinics (Atta et al., 2018). The aspect of reduction in the workload for HCWs in the HIV outpatient clinics and its effect on the HCW's performance has not been adequately studied or documented.

The critical shortage of HCW leads to high workload that is associated with poor performance and service delivery outcomes. It is therefore necessary to establish whether MMS improves HCW performance. The purpose of this study was to establish the effect of MMS on HCW's performance at HIV outpatient clinics in Nairobi County. The study's objective was to establish the effects of MMS implementation on HCW's performance. The specific objectives included to establish: the effect of MMS implementation; HCWs awareness and adaptation of MMS guidelines; HCWs capacity development on MMS; client compliance on MMS and commodities flow in line with MMS model on HCWs performance at HIV/AIDS outpatient clinics. The findings of this study will be useful in informing policy, standards, and guidelines on options available to health systems managers on optimization of HCWs performance.

2.0Materials and Methods

This was a descriptive cross-sectional study, carried out in HIV outpatient clinics within public facilities in Nairobi County. The health facilities with more than 1,000 HIV clients on 3-6 MMS listed from DHIS 2 resulted in 20 outpatients' clinics across the county, and these were included in the study. The target population was 718 respondents

from the 20 facilities, comprising of doctors, clinical officers, nurses, laboratory personnel, and pharmacy staff who are the main caregivers for HIV clients at the outpatient clinics. The HCW sample size was determined using Fishers formula: $n=Z^2P(1-P)/ I^2$; which was then adjusted with the formulae [nf=n/ [1+(n/N)] which is recommended for a population that is less than 10,000. The calculated study sample size was 182.

However, after data cleaning, the analyzed responses were 128. All the HWC on duty during the time of data collection, and who gave consent to participate, were included in the study. HCWs who less than 6 months serving at the HIV outpatient clinics were excluded from the study. A self-administered questionnaire was hand-delivered to HCWs and collected after they were filled. All the HCW, irrespective of the cadre, received the same questionnaire since the focus was on implementation of the MMS guidelines at the clinics rather than individual cadres' contribution. Approvals to undertake the study was obtained from the Kenya Methodist University's Science Ethics and Research Committee (permit number KeMu/SERC/HSM/8/2022), research permits from the National Commission of Science and Technology and Innovation (NACOSTI), the Nairobi County Government and facility leadership, as well as voluntary consent from the respondents.

The study tool was pretested on 30 respondents in facilities similar to those included in the study, and their responses were used to make relevant adjustments of the study tool. The 30 respondents were not part of the study. The internal consistency of the tool was determined using Cronbach's alpha methods. Based on the five items that were being studied, the tool had an alpha coefficient of 0.768, which explains that the items had a high internal consistency. The questionnaire had questions on a Likert scale that had 5 responses on a scale of 1-5 (where 1 represented strongly disagree; and 5 strongly agree. The study tool responses for purposes of data analysis were reduced to two, with responses on a 1-3 scale categorized as disagree and 4-5 as agree. The scale-down was informed by the need to do effective analysis given that cells with responses in 1-3 have very low scores. The study tool had 36 questions. The data was entered in SPSS and results were presented in tables and graphs with bivariate and Multi variate analysis applied to reflect the relationships between the study variables.

"The study concludes that there was a positive correlation between HCW's awareness of MMS guidelines and clients' compliance with HCW's

3.0Results and Discussion

A total of 128 Health care workers responded to the questionnaire. The findings showed 74 (56 %) were females, 118 (92%) were between the age of 30-49 years and 116

(91%) were diploma holders. By cadre, the nurses were the majority at 45 (35%), Laboratory personnel at 37 (29%), Clinical officers at 28 (22%), Pharmacists 17 (13%), and doctors at 1% (1). About 114 (89%) of the respondents had served as health workers for between 6 and 15 years and 69 (54 %) had served in HIV Comprehensive Care Centers (CCC) for 6-5 years. The socio-demographic findings revealed an experienced and mature workforce. The findings in terms of gender proportions, age, and years of experience are consistent with findings on health workforce market analysis by Okoroafor et al. (2022).

Multi-Months Scripting Guidelines awareness and adaptation

The study sort to find out if the healthcare workers were aware and applying MMS guideline in their day to day service delivery. The findings are illustrated in Table 1.

Table 1.

Multi-Months Scripting Guidelines awareness and adaptation

Questionnaire Statement	Disagree	Agree
	n (%)	n(%)
HCW was aware of the Government of Kenya guidelines on Multiple Months Scripting	1(1)	127(99)
HCW used the most recent Viral load is < 1,000 copies/ml to determine if a client is stable	1(1)	127(99)
Stable persons living with HIV are sensitized about ART refills and requested to come back in 3 months for a refill	2(2)	126(98)
HCW checked if a client has been on an ART regimen for more than 12 months to determine if they are stable	2(2)	126(98)
Stable persons living with HIV are given 6-month appointments for a full clinical review appointment	2(2)	126(98)
HCW often refers to the Multiple Months Scripting guidelines in delivering services to clients	2(2)	126(98)
HCW establishes if a client has not had active Opportunistic Infections (including T.B.) in the previous six months to determine if they are stable	2(2)	126(98)
HCW does find out the client's Body Mass Index (BMI is above 18) to determine if they are stable	8(6)	120(94)

Table 1 illustrates the findings on HCWs' awareness and adaptation of MMS guidelines. The results indicate that out of 128 respondents, 99% agreed they were aware of the Ministry of Health guidelines (2017) on MMS and applied them in practice. Further 98% agreed they gave clients on MMS return dates of 3 months for medication refills and 6 months for clinical review. The respondents stated they applied the criteria of identifying stable clients for inclusion to

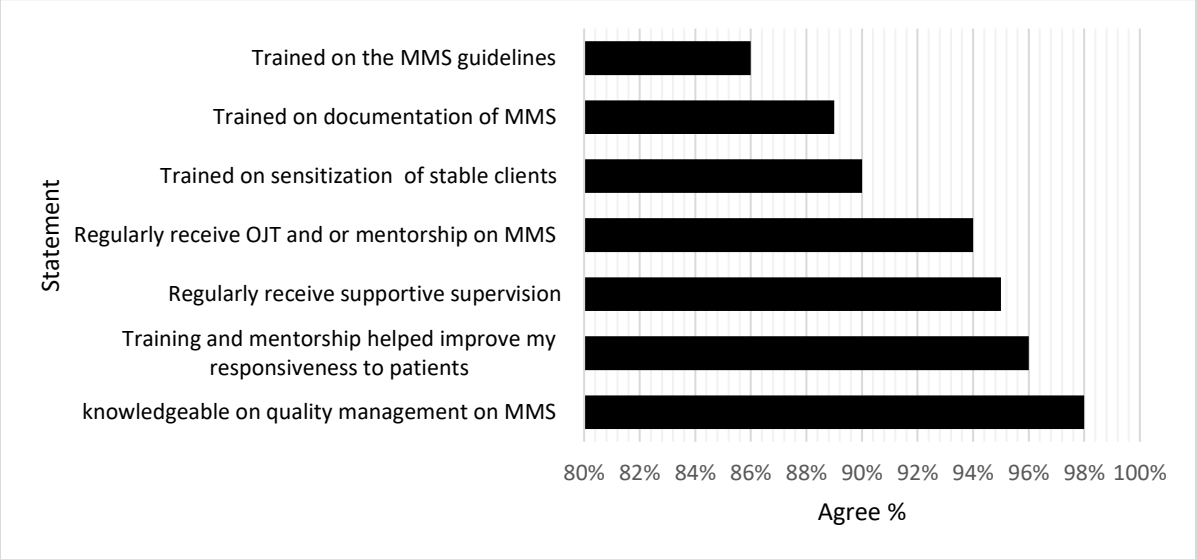
MMS in that 98% agreed a client has to be on 12 months ART regimens, 99% indicated a client's viral load should be less than 1,000 copies/ml, and 98% agreed that the client had to be with no infections in the previous 6 months. The majority, 94% agreed they applied the criteria on Body Mass Index (BMI of 18) to identify stable clients. Nearly all the respondents indicated that they were aware of and had adopted the MMS guidelines in their daily practice. These findings are consistent with findings by Global Health ICAP (2019) on HCW's application of the criteria for identification of stable clients, in Ethiopia and Prust et al. (2017) in Malawi.

Health Care Workers Capacity Building on Multi-Months Scripting

The study sought to find out HCWs' capacity development on MMS based on the Ministry of Health guidelines of 2017. The results are shown in Figure 1.

Figure 1

Health Care Workers Capacity Building on Muliti- Months Scripting n=128



The findings as illustrated in Figure 1, reveal that a majority (98%) of the HCWs stated they were knowledgeable on quality management on MMS; 96% stated that a combination of both training and mentorship helped improve their responsiveness to needs of patients on MMS; 95 % stated they regularly received supportive supervision; and 94 %indicated they regularly received On-job-training and Mentorship on MMS. A majority 86% and 89% agree they received training on MMS guidelines and relevant data and documentation respectively, as stipulated by the World Health Organization (2021), and the Ministry of Health guidelines of 2017. The respondents who indicated they received training on MSS guidelines were 84%. These findings compare with findings

in Uganda in which training alone without combination with other approaches was identified as a barrier to MMS implementation (Zakumumpa et al., 2020). Regular in-service training and supportive supervision are required to maintain HCWs' competence (Nicol et al., 2019). Additionally, it is documented that multiple training techniques that allow for interactions with learners and the application of learned skills are effective in improving HCWs' performance (Bluestone et al., 2013).

Clients' Compliance with Requirements for MMS Program

The study sort to find out if HIV clients were compliant with the requirement for the MMS program once they were recruited. Table 2 illustrates the findings.

Table 2

Clients' Compliance with Requirements for MMS Program n=128

Statement	Agree n (%)	Disagree n (%)
Clients were sensitized for MMS based on GOK guidelines	126(98%)	2 (2%)
Clients on MMS often comply with non-medication instructions such as nutrition, hygiene, and self-care	126 (98%)	2 (2%)
Clients on MMS often adhere to their medications	124 (97%)	4 (3%)
Clients on MMS are more likely to be retained on care than those not no MMS	124 (97%)	4 (3%)
The proportion of stable patients among those on MMS is higher than those not on MMS	122(95%)	6(5%)
Clients on MMS often comply with their recommended 6-month appointment dates for clinical review	121(94%)	2(2%)
Clients on MMS often comply with the recommended 3 months return dates for medication refills	118(92%)	10(8%)

Table two on the client's compliance with MMS, indicates that nearly all, 98% of respondents agreed they sensitized the clients on MMS guidelines and that clients were complying with non-medication instructions. About 97 % of HCWs agreed clients adhered to medication and were more likely to be retained on care than those not on MMS, while 95% agreed the proportion of stable patients among those on MMS was higher than those not on MMS. Majority, 94 % of HCWs agreed that clients complied with 6 months clinical review return dates and majority, 92% agreed clients complied with 3 months medication refill return dates. These results revealed that stable patients on MMS are likely to adhere to care and treatment with an improved standard of care. Similar finding was documented by Hoffman et al. (2017) in Zambia, noting potential benefits of MMS including improved adherence to ART, improved retention in care, and decongestion

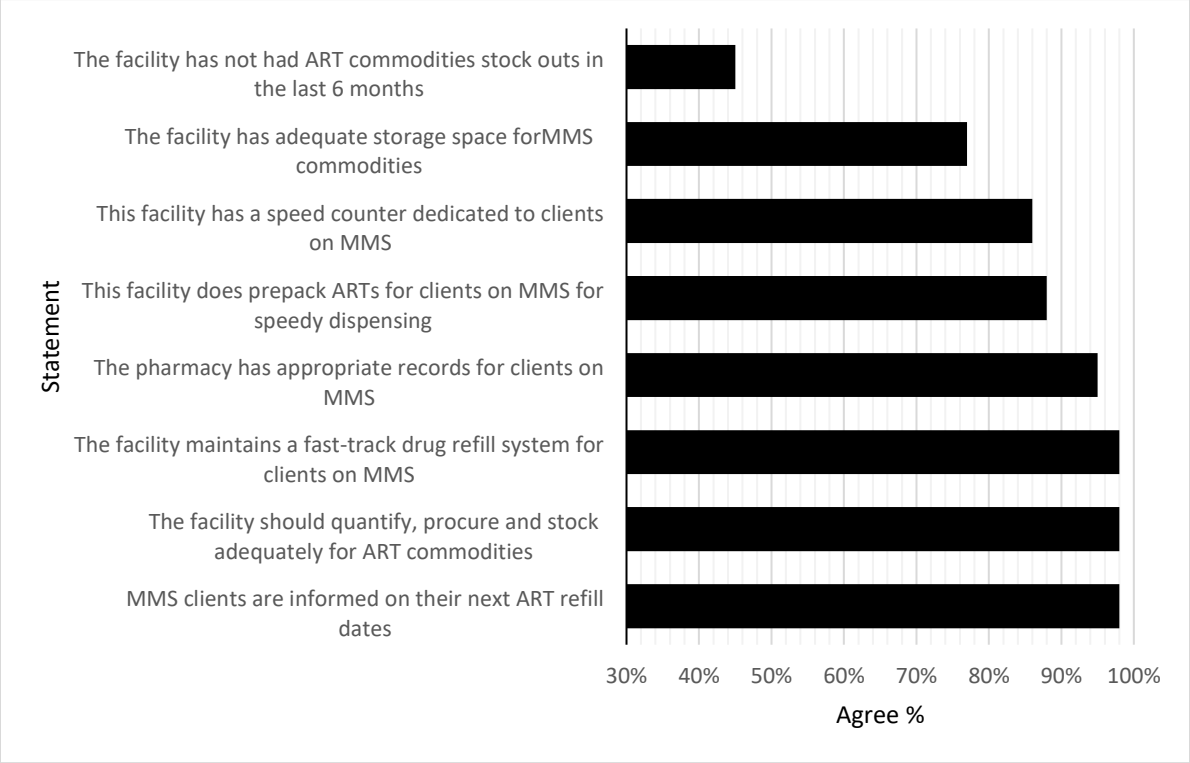
of clinics. In addition, it has been established that MMS improves adherence and viral suppression among PLWHIV, leading to a strengthened immune system (Traub et al., 2020).

Multi-Month Scripting Commodities

The study further sought to find out if the HIV MMS related commodities flow was in line with the MMS guidelines. Figure 2 illustrates the findings;

Figure 2

Multi-Month Scripting Commodities Flow n=128



The finding on MMS commodities flow at the health facility are illustrated in Figure 2. 98% of the respondents agreed that the MMS clients were adequately informed on medication refill dates, that the facility should quantify, procure, and stock ART stock to cater to MMS, and that the facility should maintain and fast-track refill system for clients on MMS. The majority, 95% of the HCWs agreed that the pharmacy had adequate records to ensure preparation for MMS clients and 94% agreed that clients always received ART when they come for refill. A majority of HCWs (88%) agreed that the pharmacy does pre-pack ARTs for MMS Clients, 86% agreed the pharmacy had a speedy counter for MMS clients, and 77% agreed that the pharmacy had adequate storage space for commodities used by clients on MMS. Half (55%) of HCWs agreed that there was ART commodities stock out within 6 months prior to the study. It should be noted that at the time of data collection, there was a country-wide stock of ARTs. Similar study in South Africa showed that there are supply chain challenges in low-income countries that affect the MMS medication refill standards (Peabody 2020).

HCWs Performance in HIV/AIDs Public Outpatient

The study then sought to find out the HCW performance levels at the HIV outpatient clinics based on a set of questions to the respondents. Table 3 presents the findings.

Table 3

HCWs Performance in HIV/AIDs Public Outpatient Clinics n=128

Statement	Agree n(%)	Disagree n(%)
HCW Spaced return dates for clinical review have reduced the staff workload at this facility	127 (99%)	1 (1%)
HCW performance has improved since the introduction of MMS	127 (99%)	1 (1%)
HCWs implementation of MMS has significantly reduced the number of HIV clients turning up at the clinic daily	126 (98%)	2 (2%)
HCWs implementation of MMS has significantly reduced client waiting time for clinical review	126 (98%)	2 (2%)
HCWs implementation of MMS has significantly reduced client waiting time when they come for ART refill	126 (98%)	2 (2%)
HCWs implementation of MMS has improved the standard of client care	126 (98%)	2 (2%)
HCWs implementation of MMS has made staff more responsive to clients' needs	126 (98%)	2 (2%)
HCW have more time with clients now than before we started implementing MMS	119 (93%)	9 (7%)

The findings on the HCW's responses on HCW performance following the implementation of the MMS model are illustrated in Table 3. The findings reveal that nearly all respondents agreed that the implementation of MMS had improved performance among healthcare workers.

Results indicate that majority, 99% of HCWs agreed that the spaced return dates had indeed reduced the workload, and they had noted improvement of their own performance.

These findings are consistent with other studies that show MMS implementation improves the quality of care (Bekker et al., 2018), increases contact time between HCWs and clients (Kumasi, 2019; Deussom, 2022), reduces waiting time (Olowookere et al., 2012; Pillay et al., 2011) and increased retention in care (Long et al., 2020). Generally, the HCWs were unanimously in agreement that their performance had improved since the introduction of MMS.

Study Variabe's Bivariate Analysis

To determine the relationship between the study variables, bivariate analysis was done using Spearman's correlations as indicated in Table 4.

Table 4

Correlation between independent variables and healthcare workers' performance (n=128)

	Correlation Coefficient	Sig. (2-tailed)
MMS Guidelines Awareness and Adaptation	.334**	**.000**
HCWs Capacity Development on MMS	-0.559	**.049**
Client Compliance with MMS	.255**	**0.004**
Commodities Flow in line with MMS	0.041	0.648

***Correlation is significant at the 0.01 level (2-tailed)*
**Correlation is significant at the 0.05 level (2-tailed)*

The findings show that HCWs' awareness and adaptation, as well as Client Compliance to MMS had a significant and positive correlation with HCW's performance (P<.05, r=.334 and P<.05 r=.255) respectively. On health worker capacity development, there was a negative correlation with HCWs performance (P<.05, r= -.559). It was observed that although there was a high "agreement" on responses on HCW's capacity development, training alone as a way to develop HCW capacity would not influence their performance. A combination of approaches would.

Modeling the predictive power of the independent variables on dependent variable

Table 5

Multivariable analysis

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
MMS guidelines adaptation	1.011	.395	6.545	1	.011	.236	1.786
Staff capacity development on MMS	-.890	.364	5.988	1	.014	-1.604	-.177
Client compliance with MMS practices	1.579	.498	10.034	1	.002	.602	2.556
Commodities flow	.062	.478	.017	1	.896	-.875	.999

The regression model was;

$$\mathrm{logit}\,\mathbf{(P\,(Y \le J)) = \beta\,J\,0 + \beta\,1\,X\,1 + \beta\,2\,X\,2 + \beta\,3\,X\,3 + \beta\,4\,X\,4}\ \text{became}$$
$$\mathrm{logit}\,(P\,(Y \le J)) = 448.127 + 1.011X_1 + (-.890)\,X_2 + 1.579X_3 + .062X_4$$

In modeling the predictive power of the independent factors influencing the performance of HCW workers, an ordinal logistical regression was adopted. The findings are presented in table 5. The model fitting information shows that the model was statistically significant (P<.05). The Nagelkerke R-squared revealed that this study's independent variable explained

15.7% of the variance of the dependent variable. The study employed the parameter estimates that are essential for understanding the relationships between the independent and dependent variables.

The results imply that client compliance to MMS practices was the most significant influencer of HCWs' performance at public HIV/AIDS outpatient clinics, followed by Multi- Months Scripting guidelines adaptation, and finally staff capacity development on Multi- Months Scripting; with significance values of .002, .011 and .014 respectively. Results indicate independent variables had a significant relationship with HCW performance ($p<0.05$). The variable on client compliance with MMS requirements had the highest Odds ratio of 4.85, meaning where client compliance took place, it resulted in a 4.85-fold increase in health worker performance. An increase in HCW guidelines awareness and adaptation led to a 2.75-fold increase in The health systems managers, policy makers, and decision-makers should ensure all health workers are not only trained, but also capacity-built using a combination of approaches, including mentorship, on-job-training and regular supportive supervision per laid down standards and guidelines on MMS, to enable provision of quality MMS services at the outpatient clinics. There is also a need for health systems managers at national and county health management teams to revise the current service delivery guidelines in favor of MMS approach for stable outpatient clients. The facility level managers should enforce implementation of the MMS guidelines, while the health care workers should effectively rollout established guidelines.

HCW's performance. An increase in capacity building (based on training) led to a decrease in HCW performance by 0.41 fold. An increase in Commodities flow in line with MMS resulted in a 1.06-fold increase in HCWs Performance, but this was not statistically significant.

4.0Conclusion

The study concludes that there was a positive correlation between HCW's awareness of MMS guidelines and clients' compliance with HCW's performance. Further analysis revealed that client compliance with MMS was the most significant influencer of HCWs' performance, followed by MMS guidelines adaptation, and finally, staff capacity development on MMS. The study concludes that the implementation of MMS guidelines resulted in improved HCWs performance.

5.0Recommendations

The health systems managers and healthcare workers should provide relevant information to patients and clients to enhance compliance with MMS requirements to ensure success of this approach. The health systems managers at national and county levels should also ensure an efficient commodity supply chain system, commodity storage, and efficient client flow at the pharmacy, as per laid down standards and guidelines on MMS among other guidelines. Health systems managers and policymakers should support adequate pharmacies' commodity storage to reduce stockouts. The study further recommends health systems managers and policymakers to apply the findings of this study to enhance HCW performance toward desired patient outcomes. Further studies should be conducted in more counties and should cover a wider range of outpatient clinics.

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