

Routine Supportive Supervision and Management of Medicines and Other Health Products and Technologies in Vihiga County, Kenya

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Abstract

Health Products and Technologies (HPTs) are pivotal for an efficient health system. Availability and accessibility to affordable health products are critical indicators towards achieving universal health coverage. Routine supportive supervision, performance monitoring, recognition of efforts and client feedback are vital activities toward health supply chain system strengthening. This is a descriptive paper that describes a model of integrated commodity supportive supervision, and mentorship and its impact on various outcomes of health commodity management. Data were abstracted from the standardized scored checklists used during integrated commodity supportive supervision and supply chain audit in public health facilities in Vihiga County. Scores for the period 2020 to 2022 were analyzed on the eight key areas of interest. The analysis was done using Statistical Package for Social Sciences (SPSS version 26). Results are interpreted at 95% Confidence interval. This paper also shares findings from both quantitative and qualitative data from client exit and facility managers' interviews. Six complete rounds of supervisions, three clients and service providers' interviews, and three annual award events have been conducted. We observed trends across six data collections points and compared the results at first point or baseline (January-June 2020) to the results at the last point or end line (April-June 2022). Findings show significant improvements on the eight parameters in terms of mean scores as follows: resolution of issues from previous visits by 35.06% (46.75% - 81.81%); storage of

HPTs by 17.41% (68.72% - 86.13%); inventory management by 28.16% (42.67% - 70.83%); availability and use of commodity data management information systems (MIS) tools by 22.39% (74.40% - 96.79%); verification of commodity data by 25.61% (65.56% - 91.17%); availability of guidelines and job aids for commodity management by 46.28% (36.65% - 82.93%). There was an improvement on the mean score on accountability by 20.22% (58.58% - 83.51%). The composite (final) score improved by 28.33% (56.19% - 84.52%). There was progressive narrowing of the standard deviations on all the indicators across the study period. This demonstrates that there is standardization of practices and positive competition among all the public health facilities. There were significant improvements on all the eight indicators. Routine integrated commodity supportive supervision has proven to be an effective high impact intervention in improving management of health products and technologies in Vihiga County, Kenya.

Keywords

Medicines, Health Products and Technologies, Health Commodities, Supportive Supervision, Staff Motivation, Customer Feedback

1. Introduction

Availability of and accessibility to affordable Health Products and Technologies (HPTs) are critical indicators towards achieving universal health coverage [1] [2]. In this paper, HPTs refer to medical products and supplies both pharmaceutical (drugs such as antibiotics, vaccines) and non-pharmaceuticals (syringes, mosquito nets, condoms and gloves), nutraceuticals and diagnostics. The World Health Organization classifies HPTs as one of the six key pillars of a health system. Limited access to HPTs denies individuals their right to access promotive, preventive, curative, rehabilitative and palliative health care services [3] [4] [5].

To achieve the Sustainable Development Goal 3 “Ensure healthy lives and promote well-being for all at all ages”, countries have to be committed to ensuring there is access to safe, effective, quality and affordable essential medicines and vaccines for all [6] [7]. The Doha Declaration on the TRIPS Agreement and Public Health also mandates World Trade Organization (WTO) member countries to enable access to HPTs [2]. Many low- and middle-income countries face a myriad of obstacles towards ensuring that safe and affordable HPTs are available. Some of the challenges include high prices of HPTs, over-reliance on importation of HPTs with absent or limited local manufacturing, poor supply chain management including lack of storage equipment, poor supply chain management skills and myths and misconceptions related to utilization of some HPTs [8].

In accordance with the Constitution of Kenya (2010) and in line with Kenya’s Vision 2030, the Kenya Health Policy (2014-2030) aims at attaining the highest

possible health standards in a manner, responsive to the population needs [9] [10] [11]. The devolved system of Government in Kenya mandates the national Government with the responsibility of developing health policy, health regulations, managing national referral health facilities, capacity building and technical assistance to counties. The county Governments are responsible for actual health service delivery.

Inadequate information on performance monitoring could lead to poor decision making and poor HPT management practices [12]. This could result in unexplained losses, unavailability and inaccessibility to HPTs thus poor health service delivery. In 2021, with support from USAID, Afya Ugavi, the department of health in Vihiga County established a Health Products and Technologies Unit. The unit is mandated, among other roles, to conduct routine supportive supervision. The results are used to make key decisions aimed at improving services in the County. As part of the supportive supervision that assesses the efficiency and quality of various components of the commodity management cycle, user feedback is equally key in assessing these components, more so, the use of commodities by both service providers and clients. Exit interviews have been applicable for such evaluations. Supportive supervision has been found to be a key strategy in improving performance compared to the top-down supervision [13]-[18].

When compared to direct observation, exit interviews exhibited similarities in overall usefulness and effectiveness in assessing the provision of quality health services by healthcare workers. When combined with direct observation, exit interviews are reported to have even higher accuracy. The HPTU also conducts quarterly client exit interviews and health facility managers' interviews. The feedback provided through the use of exit interviews, is used to inform improvements in the provision of quality of service. The objective of this article is to characterize the best practices and strategies that have been adopted and implemented in Vihiga county, and their impact on management of health products. Specifically, the article aims at:

- 1) Demonstrating the evolution of performance on the key indicators of HPTs management in public health facilities in Vihiga county (January 2020-June 2022) as a result of routine supportive supervision.
- 2) Sharing findings from other strategies such as client exit and service provider interviews, awards ceremony and managers' meetings to improve management of health commodities in Vihiga county.

2. Methods and Materials

2.1. Study Design

This study employed a mixed method study design incorporating both qualitative and quantitative designs. Quantitative data was abstracted from the scored checklists. The participants in the qualitative components of the study were clients and healthcare workers involved in the commodity management cycle in Vihiga County, Kenya. The healthcare workers included managers and service

providers.

2.2. Data Collection Procedures

Quantitative data was abstracted from the Integrated Commodity Supportive Supervision and Supply Chain Audit checklists. Each checklist has a preliminary section on basic facility information and staff establishment, human resources and capacity for commodity management and the supportive supervision team. The section collects data on the following eight priority areas:

Resolution of previous action points: This area examines when the health facility received their last commodity supportive supervision visit by checking in the visitors' book and the supervision register. The supervision team reviews the action points agreed upon at the last commodity supportive supervision visit and indicates the status as "done" or "not done".

Storage of health products: This is based on visual inspection of the storage area and all the records and registers. Parameters such as cleanliness of the store, temperature tracking, arrangement of health products, evidence of sunlight, moisture, vermin and insects are assessed to assign a score. Additional storage areas for health products are inspected using the assessment checklist for additional storage areas.

Inventory management: This section is filled using stock control cards in the store. This focuses on selected tracer commodities for malaria, family planning, HIV/AIDS and Essential Medicines and Medical Supplies programs. The section looks at the following parameters namely availability of stock card for each item, number of stock counts done in the last three months, number of days out of stock in the last three months, stock card balance, average monthly consumption, drugs that expired in the last six months and actual physical count on the day of the visit.

Availability and use of commodity data Management Information System (MIS) tools: This section provides a matrix for scoring on the use of commodity data collection tools such as the Daily Activity Register (DAR) and the various monthly summaries.

Verification of commodity data: The section focuses on the most recent complete reporting month. The quantities dispensed or used in the DAR are tallied and the sum total is entered in the "DAR" column for the same month. The "total quantity dispensed" in the monthly summary form (MSF) or Consumption Data Reporting and Request (CDRR) and in KHIS are entered in the corresponding columns.

Availability of guidelines and job aids for commodity management: The section checks whether the job aids are available and displayed on the wall (or other suitable place) for easy reference. Some of the key job aids that are checked are injection artesunate administration guidelines, Tiahrt chart, expiry tracking chart, good dispensing practices, good inventory management practices, good record keeping practices and good storage practices. The section also checks on

the availability of the latest versions of the following guidelines: Kenya Malaria Treatment Guidelines, National FP Guidelines, Guideline on Use of ARVs for Treating & Preventing HIV Infection in Kenya.

Accountability of commodities: This section requires issues data (either from KEMSA or other suppliers or from the county pharmacist), delivery notes (or other relevant document e.g. Counter Requisition and Issue Voucher (S11) and stock cards at the health facility. Key data sets entered include date of delivery, and availability of the delivery note.

Long Lasting Insecticidal Nets (LLINs) management and accountability: The stock cards in the store are used to fill out this section. The section establishes whether the stock card for LLINs is available, the number of stock counts done in the three months, number of days out of stock in the last three months, stock card balance, average monthly consumption from service data, any nets expired in the last six months, total expired nets at the facility and the actual physical count on the day of the visit. To assess accountability and missed opportunities for LLINs, the team reviews the relevant records *i.e.* MOH 711 (ANC 1st visits issued with nets); MOH 405 (LLINs issued); MOH 710 (Penta-1 visits) compared to LLINs issued to children under one year in MOH 711 compared to those issued in MOH 510/511. Data on this indicator is not shared in this paper as the indicator was added on the check list much later.

There is an addenda section that comprises of additional items that are assessed on inventory management and supply chain audit. Summary scores for each of the areas assessed are auto-generated and accounts for maximum scores as indicated in the brackets: Resolution of previous Action Points (10); Storage of Health Products (20); Inventory Management (20); Availability & Use of Commodity MIS Tools (10); Verification of Commodity Data (10); Guidelines & Job Aids (5); LLINs Management & Accountability (10) and Accountability for Commodities (15). This totals to 100%. This article shares data collected from all public facilities in Vihiga County without sampling. The period of study is from January 2020 to March 2022.

2.3. Data Analysis

Quantitative data were analyzed using SPSS version 26 and are presented using tables. Analysis of qualitative data was through content analysis and findings are shared using narratives in verbatim.

3. Results

Results are discussed and presented per objective.

3.1. Objective One

To demonstrate the evolution of performance on the key indicators of HPTs management in public health facilities in Vihiga county (January 2020-June 2022) as a result of routine supportive supervision.

There was significant improvement across all indicators assessed over the period of study as shown in **Table 1**. Specific results per indicator are discussed below.

As regards resolution of previous action points, the number of health facilities whose data was available on this indicator increased from 39 to 68 during the study period. There was a steady increase in the mean score on implementation of the previous action points from 46.75% to 81.88% across public health facilities. There was an increase in the median statistic from 50% to 100%. The mode statistic indicates that for the period between January and December 2020, majority of the health facilities were scoring 0% on implementation of previous action plans. This increased to, and was maintained at 100% as from January 2021 to June 2022. The drop of the standard deviation from 40.75 to 26.31 indicates that whereas scores were widely spread at the beginning of the study period, these narrowed towards June 2022. The lowest score was 0% while the highest score was 100%.

On storage of health products and technologies, the number of health facilities whose data was available increased from 68 to 72 during the period of this study. There was a steady increase in the mean score on storage from 68.72% to 86.13% across all the public health facilities assessed. There was an increase in the median statistic from 68.88% to 87.00%. The mode statistic indicates that in the year 2020, majority of the health facilities were scoring 68.66% on storage. This increased to 98.00% by June 2022. There was moderate spread of the scores on storage based on the standard deviations which reduced from 14.21 in 2020 to 10.97 by June 2022. The lowest score was 33% while the highest score was 100%.

Results on inventory management show that the number of health facilities whose data was available on this indicator increased from 64 to 72 during the period of this study. There was a steady increase in the mean score on inventory management from 42.67% to 70.83%. There was an increase in the median statistic from 44.91% to 73.00%. The mode statistic indicates that whereas in 2020, majority of the health facilities scored 23.53%, this increased to 68.00% by June 2022. There was moderate spread of the scores on inventory management based on the standard deviations which reduced from 14.14 to 10.41. The lowest score on inventory management was 2.35% while the highest score was 89%.

On availability and use of commodity data management information systems tools, the number of health facilities whose data was available on this indicator ranged from 64 to 72 during the period of this study. Results show an increase in the mean score on availability of HPTs from 74.40% to 96.79%. A steady increase in the median statistic was observed from 75.00% to 100%. The mode statistic indicates that at the beginning, majority of the health facilities scored 75% on availability and use of commodity data MIS tools. This increased and was maintained at 100% from July 2020 to June 2022. The scores on availability and use of commodity data MIS tools were initially moderately spread with $SD = 23.13$. However, this narrowed to $SD = 6.32$. The lowest score on availability and use of commodity data MIS tools was 0% while the highest score was 100%.

Table 1. Summary table of mean scores on the key performance indicators.

| Key indicators | Jan-June 2020 | July-Dec 2020 | Jan-June 2021 | July-Dec 2021 | Jan-Mar 2022 | April-Jun e 2022 |
|--|------------------|------------------|------------------|------------------|-----------------|---------------------|
| Resolution of previous action points | 46.75% | 49.70% | 53.81% | 62.05% | 77.92% | 81.81% |
| Storage of health products | 68.72% | 73.55% | 77.36% | 82.55% | 85.65% | 86.13 |
| Inventory management | 42.67% | 54.89% | 53.54% | 57.74% | 72.12% | 70.83% |
| Availability and use of commodity data MIS tools | 74.40% | 83.66% | 87.68% | 95.30% | 98.40% | 96.79% |
| Verification of commodity data | 65.56% | 68.00% | 84.06% | 84.06% | 91.25% | 91.17% |
| Availability of guidelines and job aids for commodity management | 36.65% | 60.69% | 57.89% | 65.92% | 77.3% | 82.93% |
| Accountability of HPTs | 58.58% | 64.38% | 64.34% | 77.56% | 78.80% | 83.51% |
| Composite (final) score | 56.19% | 65.51% | 68.70% | 75.10% | 79.62% | 84.52% |

The number of health facilities whose data was available on verification of commodity data varied from 64 to 72 during the period of this study. There was an increase in the mean score on availability of HPTs from 65.55% to 91.17%. A steady increase in the median statistic was observed from 75% to 93%. The mode statistic indicates that majority of the health facilities scored 83.33% at the beginning but increased to and was maintained at 100% from July 2021 to June 2022. There was moderate spread of the scores on verification of commodity data with a reduction in the SD from 26.63 in January 2020 to 13.48 June 2022. The lowest score on verification was 7% while the highest score was 100%.

As regards availability of guidelines and job aids for commodity management, the number of health facilities whose data was available on this indicator varied from 64 to 72 during the period of this study. Results show an increase in the mean score on this indicator from 36.56% to 82.93%. The median score increased from 34.31% to 94.00%. The mode statistic indicates in January 2020, majority of the health facilities scored 0%. This improved to 100% by June 2022. In January 2020, the SD was 30.16 whereas in June 2022, the SD dropped to 21.63. Scores on availability of guidelines and job aids on commodity management ranged from 0% to 100%.

The number of health facilities whose data was available on accountability of health commodities varied from 64 to 72. The mean score on this indicator increased from 58.58% to 83.51%. This was also reflected in the median score which increased from 58.58% to 85.75%. The mode increased from 0% to 67%. The SD decreased from 26.69 to 18.98. The minimum score was 0% in January 2020 while the highest was 100% June 2022.

The final score or the composite score across the indicators is the overall performance of the facilities in terms of managing HPTs. The number of health facilities whose data was available on this indicator varied from 64 to 72. The mean score on this indicator increased from 56.19% to 84.52%. This was also reflected in the median score which increased from 55.22% to 78.50%. The mode increased from 17.41% to 81.00%. The SD reduced from 12.69 to 7.22. The minimum score was 17.41% while the highest was 94.30%. **Table 2** presents the final score.

Table 2. Final score.

| | | Statistics | | | | | |
|---|----------------|------------------|---------------------|---------------------|---------------------|---------------------|------------|
| | | Jan-June 2020 | July-Dec 2020 | Jan-June 2021 | July-Dec 2021 | Jan-Mar 2022 | April-June |
| N | Valid | 64 | 56 | 70 | 72 | 72 | 72 |
| | Mean | 56.19% | 65.51% | 68.70% | 75.10% | 79.62% | 84.52% |
| | Median | 55.22% | 67.19% | 69.37% | 76.67% | 80.65% | 78.50% |
| | Mode | 17.41% | 40.37% ^a | 31.21% ^a | 51.50% ^a | 72.60% ^a | 81.00% |
| | Std. Deviation | 12.69 | 9.73 | 9.93 | 7.96 | 7.44 | 7.22 |

a. Multiple modes exist. The smallest value is shown.

3.2. Objective Two

To share findings from other strategies such as client exit and service provider interviews, awards ceremony and managers' meetings to improve management of health commodities in Vihiga county.

The HPTU in Vihiga conducts quarterly client exit surveys and provider interviews. These are key tools in measuring customer satisfaction levels as well as the provider's perception of how health services are being provided. The client exit interviews are administered in both Kiswahili and English. The questions are described in simple forms of the languages so as to ensure the clients understand and interpret them easily. The questions are almost similar on both tools for triangulation and reliability. Upon analysis, the results are shared during County Health Management Teams' Meetings, Subcounty Health Management Teams' Meetings, and Facility In charges Meetings.

Table 3 presents results from the most previous interviews conducted in the Month of February 2022 among clients and service providers (facility in charges). The interview reached a total of 1118 clients across 41 health facilities. Majority of the clients (92%) reported to have received all the medicines they needed during their visit. On how long it had taken them to receive all the needed services, 72% of the clients reported that it had taken them less than two hours. Asked to compare when they received enough medicines between the last time they visited and the current visit, 24% said it was their first time, 18% said they had received enough medicines during their last visit, 40% said it was the same during the last and current visit while 17% said they had received enough medicines during the current visit. On generally rating the services received at the facility, 36% scored very good, 56% scored good, 2% scored "I do not know" while 5% scored poor. Whether they would recommend the services to their friends and or relatives 6% said they would not while 94% said they would.

On the other hand, the facility in charges interviews was conducted among 73 participants. These were the managers of all the public health facilities in the county. Asked whether they always provide the needed medicines by patients in their respective health facilities, 66% said yes while 34% said they did not. On the average time taken to provide patients with the needed services, 77% of the participants said it takes them less than 1 hours, 21% said it takes them 1 - 2

hours while 3% said it takes them 2 - 4 hours. In establishing when the health facilities had enough medicines, 60% of the participants reported that they had enough medicines during the last quarter, 5% percent said that they never had enough medicines during either quarter. However, 34% confirmed that they had enough medicines during the current quarter. Asked to rate the service, they were offering to patients in their health facilities, 4% said they did not know, 7% said the services were good while 89% reported that the services were very good. Whether they would recommend the services to their friends and or relatives 4% said they would not while 96% said they would.

Table 3. Results from interviews among clients and service providers.

| Client Exit interview | | | Facility In charges' interview | | |
|---|-------------|-------------|---|----|------|
| Did you receive all the services you needed today? | | | Do you always provide the needed services by patients in your facility? | | |
| Response | n | % | Response | n | % |
| Yes | 1029 | 92% | Yes | 48 | 66% |
| No | 89 | 8% | No | 25 | 34% |
| Total | 1118 | 100% | Grand Total | 73 | 100% |
| On average how long have you take in the facility? | | | On average how long does it take for patients/clients to access the needed services at the outpatient department in your facility? | | |
| 2 - 4 hours | 218 | 20% | Less than 1 hour | 56 | 77% |
| 4 - 6 hours | 40 | 4% | 1 - 2 hour | 15 | 21% |
| Less than 2 hours | 802 | 72% | 2 - 4 hours | 2 | 3% |
| More than 6 hours | 50 | 5% | Total | 73 | 100% |
| Total | 1110 | 100% | | | |
| Compared to the last time you visited when did you receive enough medicines? | | | Comparing this quarter and last quarter when can you say you had enough commodities needed by the patients/clients in your facility? | | |
| It is my first time | 270 | 24% | Last quarter | 44 | 60% |
| Last time | 204 | 18% | None | 4 | 5% |
| Same | 450 | 40% | This Quarter | 25 | 34% |
| Today | 194 | 17% | Grand Total | 73 | 100% |
| Total | 1118 | 100% | | | |
| Rate the services on a scale of 1 - 5 (1-Very poor, 2-Poor, 3-I do not know, 4-Good, 5-Very Good)? | | | On a scale of 1 - 5, rate the services you provide in your facility (1-Very Poor, 2-Poor, 3-I do not Know, 4-Good, 5-Very Good) | | |
| Very good | 408 | 36% | I do not know | 3 | 4% |
| Good | 628 | 56% | Good | 5 | 7% |
| I do not know | 22 | 2% | very Good | 65 | 89% |
| Poor | 60 | 5% | Grand Total | 73 | 100% |
| Total | 1118 | 100% | | | |
| Would you recommend to your friend or relative? | | | Would you recommend to your friend or relative to come for health services in your facility? | | |
| No | 70 | 6% | No | 3 | 4% |
| Yes | 1048 | 94% | Yes | 70 | 96% |
| Total | 1118 | 100% | Grand Total | 73 | 100% |

The open-ended questionnaires allow participants to share opinions and perceptions about the services at the health facilities. The majority of service providers who reported to be providing the needed services by their clients said that it was because they always have the essential commodities for the services provided.

“Yes because of availability of medicines for the services provided.” Facility manager ID-028

“Yes, issuance of available drugs and giving health education to the clients.” Facility manager ID-014

Those who reported not to be providing the needed services cited stockouts of essential health products and lack of some specialized services as the reason.

“No, Because of some stock-outs in commodities.” Facility Manager ID-04

“We lack specialized services such as laboratory and x-ray which are on demand.” Facility manager ID-072

Asked to state some of the commonly demanded health products, the facility managers reported antimalarials, antibiotics, analgesics, and contraceptives. These drugs are therefore needed on a regular for effective health service delivery.

As regards the turnaround time for services offered at the facilities, the facility managers who reported to provide services within one hour indicated that this was attributable to enough staff, punctuality and team work among the health workers.

“Shorter time-because the few staff we have are able to work smart.” Facility Manager ID-08

“Team work and punctuality of staff hence shorter time.” Facility Manager ID-046

Those who reported long turnaround time (more than 4 hours) indicated that this was a result of high work load vis-a-vis staff shortage.

“Long time due to staff shortage compared to high workload.” Facility manager ID-03

Majority of the facility managers rated their services as good and very good based on the following reasons:

“Good because we have team work and there is availability of majority of commodities.” Facility Manager ID-069

“Very good because of the positive feedback from the clients through exit survey.” Facility Manager ID-058

“Good services, majority of the services are offered according to the demand of clients.” Facility manager ID-023

“We give patients required services promptly and at the right time.” Facility Manager ID-026

As to whether they would recommend or refer their relatives and friends to come for services in the facilities, the majority of them said that team work, availability of commodities, quality of services, comprehensiveness of services offered were the key reasons.

“Yes, less waiting time and availability of commodities.” Facility Manager ID-033

“Yes, because we provide comprehensive services.” Facility Manager ID-063

Lack of provision of some specialized and needed services as well as stockouts of health products were cited as the two main reasons as to why the facility managers would not recommend their relatives or friends to come for services in the health facilities.

“No because not all services are offered.” Facility Manager ID-10

“No there are frequent stock-out of commodities.” Facility Manager ID-50

4. Discussion

There is need for active HPTUs in Counties to improve management of HPTs. This has been possible with support from USAID through Afya Ugavi, the Ministry of Health at the National Government and the leadership in Vihiga County Government. In essence, the pooled support from partners and stakeholders is critical for both technical and logistical needs in establishing a strong team and system for operationalization of the HPTUs. This is in line with the identification of challenges, specific aspects around HPTs and key roles of stakeholders as outlined in the national supply chain strategy for HPTs (2020-2025) [19].

Strong HPTUs pool together the required human technical capacity to conceptualize and advocate for availability of critical pillars that can sustain improved management of HPTs [20]. The Vihiga County HPTU has conceptualized eight pillars that have been found to be essential in managing HPTs. These are Leadership, Availability of financial resources, Technical Capacity for Management and Accountability, Partnerships, Legal framework, Technology, Infrastructure, Integrated approach especially during emergencies. The pillars are adopted from key strategic pillars in the HPTs strategy (2020-2025) [19]. These pillars could change from one setting to another. The HPTU in Vihiga county has operationalized four strategies namely the integrated commodities supportive supervision, quarterly customer voice (exit interviews) and provider interviews, annual awards ceremony and regular managers' engagement forums. Evidence shows that the strategies are important tools that provide evidence on various process indicators of managing HPTs. The four strategies are focused on working together with service providers at health facilities to identify areas where they need support and thinking through the possible action points together. Previous studies have shown that when supervisions lack the supportive aspect, then they do not achieve the desired outcomes [8] [15] [21].

The findings in this paper demonstrate that all the indicators that are monitored during integrated supportive supervision have been on an increasing

trend. This is an indication that regular supportive supervisions provide an opportunity to coach, mentor and provide on job training of the service provide on the best practices. It is important for the team conducting supportive supervisions to review previous action points and resolutions with the service providers before proceeding with the next supportive supervision [8] [15].

Fundamentally, the interviews conducted with clients and providers are on the second month of every quarter provide a platform where patients can confidently air their views and point out the gaps, weaknesses, and areas of improvement; a way to build patient confidence and trust in the health service delivery system and a means to provide a broader perspective on the status of service delivery in multiple health facilities across all sub-counties. The feedback is used to make evidence-based decisions in various areas such as human resources for health management, health supply chain processes, infrastructure, and the quality-of-service provision. From this tool we are able for example to rationalize staff, make resupply decisions, map out high-volume areas for new infrastructure and identify facilities where the quality of care falls short. The annual recognition and awards ceremonies have proven to be an integral part of the commodities' management strategies that leads to positive competition, ownership and accountability among health facilities. Over time health facilities that were performing poorly have shown tremendous improvement.

The limitations of this article are that the results for supportive supervision were based on data that had been collected earlier. Initially the data used to be collected manually, later entered into an excel tool sheet. This explains why some facilities did not have data on some indicators. It was also difficulty to identify and correct biases and errors which might have been captured in the primary source documents that were used to collect the supportive supervision data. To address these challenges, during the January to March 2022 supportive supervision, a digital platform was introduced with support from USAID funded - Afya Ugavi to enable electronic collection of data and display on a live dashboard. This enables the team to pick and correct errors immediately. Evidence shows that technology provides solutions that are cost effective in managing data in health programs [22] [23].

5. Conclusions and Recommendations

It is critical for strong HPTUs to be established in all counties. The unit provides important structures for management of health products and technologies. Once the unit is put in place, members should identify key pillars and strategies that can be employed to tackle challenges related to management of HPTs. Continuous measurement of the progress achieved using strategies such as the regular supportive supervision, client exit interviews and provider interviews provides essential information for decision making. Whereas service providers who contribute to poor performance need to be encouraged and supported to improve, those whose performance is above board need to be acknowledged and motivated. This article identifies four key recommendations considered as generaliz-

able measures that can enhance management of HPTs in the counties and beyond:

1) Digitization of the supply chain for real-time or near real-time end to end stock visibility. This would enable timely and informed decision making thus improving availability and accountability of health products and technologies.

2) Allocation of more resources (material, monetary, technical) by the Governments (both National and local or County) towards health systems strengthening including supply chain management.

3) Leveraging on partnerships for resource mobilization to optimize performance of the health system.

4) Use of an integrated approach in implementation of health system strengthening activities for efficiency.

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Contribution

MMC, OJ and SE conceptualized the paper, abstracted data, analyzed, drafted and reviewed the article both independently and as a team. MIJ, ASM, AM, RJ, SV and OW reviewed the paper. All the authors approved the paper before submission for publication.

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Ethical Considerations

The programmatic data collection or abstraction, analysis and dissemination are guided by the Vihiga County, department of health's umbrella protocol titled "Umbrella Protocol for Operational Research and Utilization of Health Services

Programs Data for Decision Making and Dissemination in the Department of Health, Vihiga County, Kenya (ERC 31/6/22-07)". Ethical approval was sought from Jaramogi Oginga Odinga University of Science and Technology.

Consent

All participants provided verbal consent to be part of the activities that generated data used in this paper. These were usual programmatic service delivery activities as covered in the approved protocol.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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