Assessment Of The Impact Of Jazia Prime Vendor System On Availability Of Health Commodities In Shinyanga Region, Tanzania

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ASSESSMENT OF THE IMPACT OF JAZIA PRIME VENDOR SYSTEM ON AVAILABILITY OF HEALTH COMMODITIES IN SHINYANGA REGION, TANZANIA

By

Shijo Beneth

A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Science (Pharmaceutical Management) of

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CERTIFICATION

The undersigned certify that she has read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation titled; **"Assessment of impact of Jazia Prime Vendor System on availability of health commodities in Shinyanga Region, Tanzania",** in (partial) fulfillment of the requirements for the degree of Master of Science (Pharmaceutical Management) of Muhimbili University of Health and Allied Sciences.

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Prof. Godeliver A.B. Kagashe

Supervisor

_____

Date

DECLARATION AND COPY RIGHT

I, **Shijo Beneth**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature…… **Date**……

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DEDICATION

This work is dedicated to my husband David and our children Gerald, Geovanni and Genoviva. Their love, support and prayers was encouraging me toward the accomplishment of this work.

ABSTRACT

Background: In 2014, Tanzania introduced a system in which all orders of missing health commodities from Medical Store Department in public health facilities of a particular district are pooled together, and purchased from one contracted supplier per region, the prime vendor (PV). The approach is called Jazia Prime Vendor System (PVS). To date however, no study has been done to assess the impact of Jazia PVS on improving the availability of health commodities to public health facilities in Shinyanga region.

Objectives: The main objective of this study was to assess the impact of Jazia PVS in facilitating the availability of health commodities in public health facilities in selected councils of Shinyanga region.

Materials and Methods: A cross – sectional study was conducted in Shinyanga Region within 2 councils namely Kahama municipal council and Ushetu district council from April 2021 to May 2021. A total of 30 public healthcare facilities and 105 healthcare professionals (HCPs) were involved. Data was collected using tool for health commodities availability, a structured checklist and questionnaire. Analysis was done using Statistical Package for Social Sciences (SPSS) version 23. Categorical variables were summarized using frequency and percentage while mean (standard deviation) was used for continuous variables. Chi square test was used to check for association between variables. The association was considered statistical significance when p value <0.05.

Results: The overall average availability of essential health commodities between the two council was 78.4% i.e Kahama municipal council (80.5%) and Ushetu district council (76.7%.) on the day of survey. Three- months prior to the survey, facilities had stock out of essential health commodities and the most common items out of stock were mebendazole tabs, metronidazole tabs, dextrose injection 5%, and gloves. Dispensaries had more stock outs compared to health centers and hospitals.

Standard operating procedures (SOPs) of Jazia PVS and minutes from Health Facility Governing Committee to approve the order to PV were available by 100%. Ten (10) facilities at Ushetu received health commodities late than the specified days.

Overall order fulfillment rate by PV was 83.9% within the two councils i.e. 85.2% at Ushetu and 82.3% at Kahama.

About, 72% of HCPs were moderately satisfied with Jazia PVS.

Conclusions: There is little Impact of Jazia PVS on improving the availability of health commodities to public health facilities in the period assessed as shown by the low order fulfillment rate by PV and delays in delivering health commodities to facilities. In addition, health workers were dissatisfied with the Jazia PVS.

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LIST OF ABBREVIATIONS

DHIS2	District Health Information System
HCPs	Health Care Professionals
HFGC	Health Facility Governing Committee
HSBF	Health Sector Basket Funds
iCHF	Improved Community Health Funds
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MoF	Ministry of Finance
MSD	Medical Store Department
MUHAS	Muhimbili University of Health and Allied Sciences
NHIF	National Health Insurance Fund
PPP	Public- Private Partnership
PPS	Probability Proportional to size Sampling
PV	Prime Vendor
PVE	Prime Vendor Europe
PVS	Prime Vendor System
SOPs	Standard operating procedures
SPSS	Statistical Package for Social Sciences
UF	User fee
UHC	Universal Health Coverage
US	United States
WHO	World Health Organization

DEFINITION OF TERMS

Prime vendor:	is a contracting service that provides commercial products at a contracted price to customers who are grouped into a region. Prime Vendor = Primary supplier (or vendor) = Sole supplier (or vendor) = One supplier (or one vendor)
Jazia Prime Vendor System:	is a unique public-private partnership (PPP) program in which all the public health facilities order missing medicines from Medical Store Department (MSD) at the district level and then purchased from one contracted prime vendor per region. As opposed to multiple suppliers (vendors) where public health facilities usually purchase their requirements when there are out of stock or insufficiently supplied by the MSD.
Public-Private-Partnership (PPP):	Broadly the private sector includes all non-state actors, some explicitly seeking profits (for profit) and others operating on a non-profit basis when this two sectors collaboratively work together to provide services to the public in a defined scope of work, this is referred to as public-private partnership.
Complementary funds:	are funds from regular sources such as improved Community Health Fund (iCHF), National Health Insurance Fund (NHIF), User fees (UF) and, Health Sector Basket Fund (HSBF) that are managed by health facilities
Essential Medicines:	Are those that satisfy the priority health care needs of the population. They are selected with due regard to public health relevance, evidence on efficacy and safety and comparative cost-effectiveness. Essential medicines are intended to be available within the context of functioning health systems at all times in

	adequate amounts, in the appropriate dosage forms with assured quality and adequate information and at price that individual and community can afford (WHO,2003).
Tracer medicine:	A list of medicines identified as potential and representative sample of the rest of medicines. The presence of tracer medicines indicates the availability of essential medicine. The concept of tracer medicines of essential medicines was pioneered by the World Health Organization in 1977.
Health commodities:	Health commodities include health products and medical supplies and other items that may be needed for the provision of health services including medicines, vaccines, medical supplies and laboratory/diagnostic consumables.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Access to safe, effective, quality and, affordable essential medicines for all is a central component of Universal Health Coverage (UHC). Yet the availability of quality medicines in low income and middle-income countries is often limited especially in peripheral health facilities (1) The availability of medicines and medical equipment is a major indicator of quality in health care for most people living in the country (2). However, shortages and/or stock-outs of medicines are a persistent problem in the delivery of health services in Tanzania.

According to The National Health Policy of 2017 its main objective is to reach all households with essential services attaining the needs of the population, adhering to objective quality standards, and applying evidence-informed interventions through resilient systems for health specifically adequate and accessible quality medicines and health commodities which necessitate proper system supply of medicines and health commodities to health facilities (3).

The Medical Store Department (MSD) was established by Act of parliament no. 13 of 1993 as an autonomous department under the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) responsible for developing, maintaining and managing an efficient and cost-effective system of procurement, storage and distribution of approved medicines and medical supplies required for use by all public health facilities.

MSD as the sole supplier of medicines and medical supplies to all public health facilities has been facing difficulties that hinder its efficiency in supplying all facilities. Challenges are delays in accessing funds from the Ministry of Finance (MoF), inaccurate forecasting of medicines needs at facility levels, as well as ineffective systems for fulfilling back-ordered items, so alternative strategies were needed to fill the gap (4).

Health Sector Strategic Plan IV 2015-2020 states that essential medicines and health products will be quality assured, right-priced, efficiently delivered by MSD, and complemented by decentralized procurement engaging the private sector (5).

Public healthcare facilities have complementary funds earmarked for purchasing health commodities from private pharmaceutical suppliers (retailers or wholesalers) when MSD is out-of-stock. Still, the purchase of complementary health commodities has been reported to be poorly managed (4).

Previously healthcare facilities filled the gap by purchases using complementary funds through quotations from multiple private sources within and outside the region. This resulted in health facilities incurring high opportunity costs (travel and fuel, per diems, high prices of medicines they purchase) in the process and making the whole task of filling this gap cost-inefficient.

The procedure was uneconomical, bureaucratic, non-transparent, and lengthy while supplies were of questionable quality (6,7).

While MSD remains the backbone for medicines supply to the Public sector, the Government of the United Republic of Tanzania decided to tackle the problem of medicines stock-outs through a Public-Private Partnership (PPP) known as Jazia Prime Vendor System (PVS) (6). Orders for missing health commodities at MSD are pooled at the district level and then purchased from one contracted supplier per region, the prime vendor (PV) (1).

PVS was intended to alleviate opportunity costs previously incurred by health facilities when searching for alternative sources of supplies that they could not obtain from MSD. Complementary funds formerly used to purchase from multiple private sources were now to be used for purchase from only one appointed PV (8).

A PV buys health commodities from a variety of suppliers and the health commodities are stored in warehouses. Public health facilities they place the order of health commodities to the council then purchases from one contracted PV per region. The PV ship health

commodities to the council offices then public health facilities collect/receive from the council office.

BEFORE PV

Supply from private Pharmacies

AFTER PV

Supply through PV

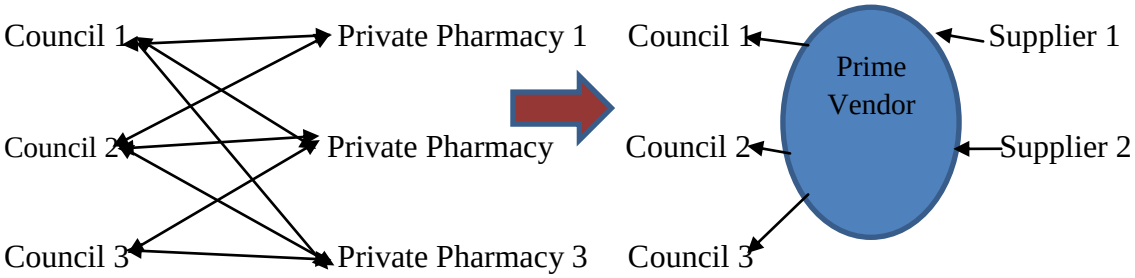

Figure 1: Before and after Prime Vendor

Source: **Kiologwe J. Establishment of prime vendor system to complement a public sector supply as public-private partnership in Tanzania:2016** (8).

Having the system does not guarantee good results, therefore assessing the system helps either to abandon or improve it. No published data of impact of Jazia PVS on the availability of health commodities. Therefore, this research aims at analyzing and evaluating the system's effectiveness in improving the availability of health commodities at health facilities.

1.2 Problem Statement

Healthcare facilities depend on MSD for their medicine supply. Due to performance challenges at the MSD, the availability of medicines in health facilities is insufficient with a supply gap of approximately 40% (1,7). The Government of the United Republic of Tanzania decided to tackle the problem through a Public-Private Partnership known as Jazia PVS (6). Previously health facilities filled the gap with purchases by quotation from multiple private sources; incurring high opportunity cost (6,7), hence PVS was introduced as one of the measures to alleviate opportunity costs (8). However, since the introduction of Jazia PVS, Studies have been conducted in other aspects but on impact of the system on improving availability of essential health commodities have no published data.

Therefore, this study aims to assess the impact of Jazia PVS on improving availability of health commodities in public health facilities in Shinyanga Region. Its implication in supply chains have the potential to improve service delivery to general community.

1.3 Conceptual Framework

MSD is the main supplier of health commodities to public health facilities in Tanzania. However, due to the challenges in filling orders of health facilities, there is a supply gap of more than 40% resulting from the out-of-stock situation and low order fulfillment rates for supplies by MSD. Therefore, health commodities need to be complemented from other sources so that available to meet the needs of the people.

Likewise, there two main sources of funding which are: direct funding deposited at MSD by the MoF through the MoHCDGEC and complementary funds from health facility level i.e. improved Community Health Funds (iCHF), National Health Insurance Funds(NHIF), User fee(UF) and Health Sector Basket Funds(HSBF).

The availability of health commodities at the health facilities is influenced by the availability of funds, order fulfillment rate from both MSD and Jazia PVS, compliance with standard operating procedures (SOPs) to Jazia PVS and satisfaction of Health Care Professionals (HCPs) with Jazia PVS. Availability of health commodities is the dependent variable to be considered in this study in order to establish the effect created on it by independent variables such as compliance with SOPs to Jazia PVS, Satisfaction with Jazia PVS and order fulfillment rate by Jazia PVS to facilities.

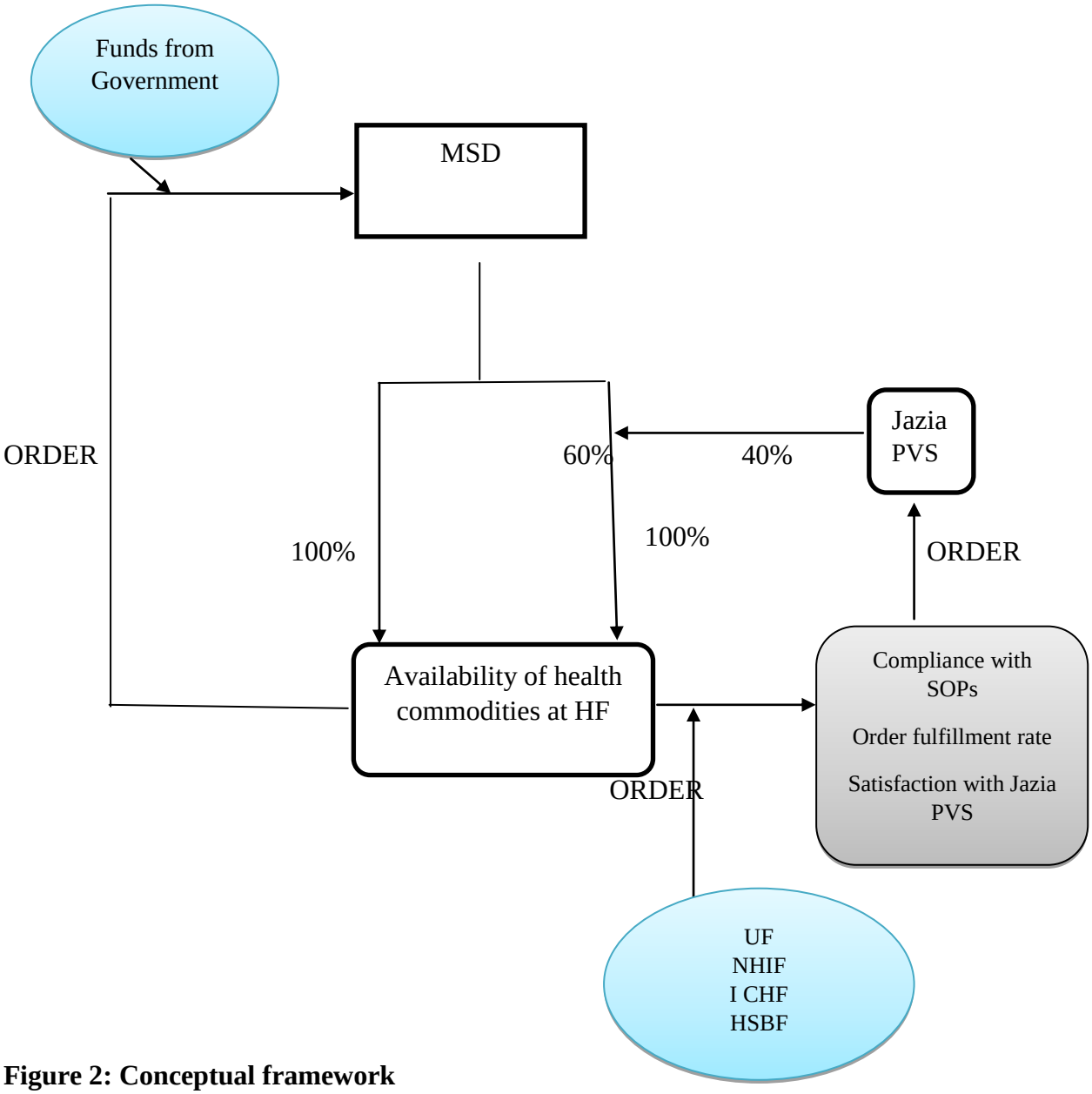

Figure 2: Conceptual framework

Source: Conceptual Framework developed for this study

1.4 Rationale

The study was conducted to contributes understanding the impact of established Jazia PVS as complementary alternative to MSD in increasing availability of health commodities in public health facilities.

To the government, this study has a lot of meaningful implications as findings provide valuable information to health policy makers and other decision makers to realize the effectiveness and efficiency of Jazia PVS concerning improved availability of health commodities.

Also, to realize if there are challenges faced by HCPs at facilities when implementing Jazia PVS.

Similarly, the study provides an objective documentary source for the evaluation of the system efficiency across the country.

As an individual, the researcher stands a better chance to gain wider knowledge from findings of the study and extension of personal achievement.

1.5 Research Questions

1.5.1 Main research question

To what extent is the Jazia PVS facilitating the availability of health commodities in public health facilities?

1.5.2 Sub questions

1. To what extent health commodities in public health facilities are available?
2. To what extent are public health facilities and councils complying with the SOPs for ordering health commodities from Jazia PVS?
3. What is the order fill rate for health commodities from Jazia PVS?
4. To what extent are HCPs at the facilities are satisfied with the Jazia PVS?

1.6 Objectives

1.6.1 Broad Objective

Assessment of impact of Jazia PVS in facilitating the availability of health commodities in public health facilities in Shinyanga Region.

1.6.2 Specific Objectives

1. To determine the availability of essential health commodities in public health facilities in Kahama Municipal Council and Ushetu District Council.
2. To determine the compliance of health facilities to SOPs for Jazia PVS and councils at Kahama and Ushetu.
3. To determine order fulfillment rates by Jazia PVS to facilities at Kahama and Ushetu.
4. To explore the level of satisfaction among HCPs at health facilities with Jazia PVS in Kahama and Ushetu.

CHAPTER TWO

2.0 LITERATURE REVIEW

Shortage of medicines may harm patients by depriving them of treatment or forcing them to use different products. This problem is common globally as seen in examples like Australian face critical shortage of 56 medicines, around 5% of licensed medicinal formulations are unavailable in Belgium and in 2018 there were 769 shortages in Netherland. In US, 213 medicines are currently in short supply while UK over 900 formulations have been in short supply at some point since 2014, for periods of weeks to months (9).

African governments have worked to provide medicines to populations with growing health needs (10). Despite these efforts, World Health Organization (WHO) estimates that roughly 270 million people in Africa nearly half the population lack regular access to even the essential medicines (11). Public sector supply systems are plagued by inadequate financing, weak management systems, lack of accountability and a devastating reduction in the healthcare workforce (12). In this case policy makers, health officials and others concerned with improving health in Africa must find new solutions including realignment of responsibilities between public and private sectors to help implementing the supply of medicines (10).

In Tanzania, MSD is the only single facility that supplies medicines to public health facilities which shows availability of 59.09% (13) due to funding constraints or inadequate release of financial resources which increases the stock-outs even more (14). Innovative public-private partnership is good approach to solve the problem.

2.1 Availability of essential health commodities at public health facilities

Medicines are essential for health care delivery (15), clinicians depend on effective, safe, and good quality medicines to provide adequate healthcare, and patients equate care with the availability of medicines.

The availability of medicines affects patients' trust in the healthcare providers (16).

WHO defines essential medicines that satisfy the needs of the majority of the population and therefore should be available at all times, in adequate amounts, inappropriate dosage forms, and at a price the individual and community can afford (17). To ensure equitable access and the rational use of medicines and medical technologies, the WHO has set a number of targets in its medium-term strategic plan (2008-2013) one of which is 80% availability of medicines in all sectors (18). Recent essential medicine surveys by WHO in 39 countries mainly low and low to medium income countries including Kenya, found that while there was wide variation average was 20% in the public sector (WHO,2010) and the majority of essential medicines that include common antibiotics, common analgesics, antihypertensive, emergency drugs and pediatric formulations were found to be out of stock (19).

In Zambia, contracting agreements between the government and the PV have also been found to decrease stock-outs of medicines (20).

In Tanzania, a list of tracer medicine was developed which consists of 30 items. Public facilities required to maintain more than 90% availability of tracer medicines at the facilities all the time (DHIS2) so that the population can access healthcare services. Access to safe, effective, quality and affordable essential medicines and vaccines for all as stated in UHC (15).

2.2 Compliance of SOPs to Jazia PVS

On implementation of Jazia PVS, SOPs were elaborated to manage and drive operations of the system (7). A comprehensive but user-friendly handbook with SOPs for healthcare facilities and councils was developed that covers six key operational areas which are: determination of quarterly order quantities to be purchased from PV at facility level, health facilities orders consolidation and forwarding to PV at council head quarter, receiving and inspection of consignments from PV at council head quarter, inspection of supplies from PV at facility level, funds transfer and payment to PV at facility level and lines of communication within PV system from facility, council, regional and PV (7,21).

These SOPs guides the process for purchase of medicines from the PV when these are out of stock, short supplied, or not stocked by the MSD (21).

Facility specific policies and procedures with SOPs should be developed and adhered to for better compliance with existing standards (22).

In India, study conducted in government health facilities assessing drug availability and stock outs stated that strict implementation of SOPs for all key activities are recommended in order to strengthen the existing system of procurement and supply chain management (23).

The low availability of SOPs at health facility stings eg clinics and departments could have contributed to out of stock situations as they are used as guidelines for the management of medicines (24).

Lack or failure to use existing SOPs may lead to procurement of substandard products so, using it is crucial for quality products (25).

In Tanzania Mid-term review of Health Sector Strategic Plan 1V, 2015-2020 states that in relation to health commodities SOPs must be in place to guide stages in the logistics cycle such as procurement and insists the use of it (5).

2.3 Order fulfillment rates from the PV

Supplier performance in the pharmaceutical prime vendor (PPV) contract is measured by fulfillment metrics. According to defense agency logistic (DLA), fulfillment rates for PPV contract typically range from 95-98% (Defense Logistics 2019) (26). Fill rate used as a factor in the cost-benefit analysis methodology to calculate remedied shortage amount.

In The United States (US), PV implementation leads faster turnaround, higher-order fulfillment rates cost reduction, and increased satisfaction among program users. Due to the maturity of US health systems and supply chain, the PV benefits from strong governance and accountability mechanisms (27). The Contract of the Jazia PVS must state the constant fill rate e.g. 98% for all orders (Defense Logistics Agency 2013).

Advantages of centralized procurement structures include large scale aggregation of requirements, reduction in effort duplication and more effective supply strategies (26).
In Europe, terms and conditions of Prime Vendor Europe (PVE) include a minimum of 95% fill rate for everyday use items and non –emergent items (28). Study conducted in Tanzania shows that Jazia PVS has a fulfillment rate above 90% (7).

2.4 Satisfaction of Health Care Professionals with Jazia PVS

In developed countries to make the PV concept work, provide the prime vendor wholesaler with realistic use estimates for each item under contract to avoid unnecessary and costly shortages and overstocks during the start-up period (29).

In US, the benefits of implementation of PVS of pharmaceuticals was higher order fil rates and increased satisfaction of system among users (27).

In Tanzania, all facilities in the region are required to order medicines and medical supplies from Jazia PVS when these are out of stock, short supplied, or not stocked by the MSD by using complementary funds as stated in the contract.

If facilities do not order medicines from the PV there might be reasons why since a supply gap from the out of the stock situation and low order fulfillment rates of supplies by MSD needs to be complemented through other sources (7).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

This was a cross-sectional study design assessing the impact of Jazia PVS in public health facilities using the quantitative method on improving availability of health commodities.
In this research, data were collected to help answer research questions of interest. It is called cross-sectional because the information about availability of essential health commodities, compliance with SOPs, order fulfillment rate and satisfaction with the system gathered represents what is going on at only one point in time (30).

3.2 Study area

The study was conducted in Shinyanga region within two councils namely Kahama municipal council and Ushetu district council from April to May 2021. Shinyanga was choosen because it was among the three regions that started as a pilot on Jazia PVS in 2014. The first contract to the PV of the Region was started in 2016 while scale-up of PVS to the whole country was 2018 (31). The choice of the area; Kahama and Ushetu is influenced by the fact that these two councils serve a large population within and outside Shinyanga Region, Kahama is under township authority while Ushetu is under rural district council authority. It was convenience sampling of councils as for Kahama there were a large number of facilities while Ushetu was for easy accessibility of facilities at the time of data collection since it was rain season. A total of 30 public health facilities (2 hospitals, 5 health centers, and 23 dispensaries). From Kahama municipal council; a total of 14 health facilities (1 hospital, 2 health centers, and 11 dispensaries) were selected. From Ushetu district council; a total of 16 health facilities (1 hospital, 3 health Centers, and 12 dispensaries) were selected.

3.3 Study population

The study was seeking to explore information on Jazia PVS among HCPs working on selected public health facilities. Respondents were HCPs such as pharmacist, pharmaceutical technician, pharmaceutical assistants, pharmaceutical dispensers, clinicians, laboratory technologist, assistant laboratory technologist, nurses and other in –

charges of department at facility. These HCPs were responsible for ordering, storage, dispensing and payment for health commodities.

3.4 Sample size and selection

Thirty public health facilities (2 hospitals, 5 health centers and 23 dispensaries) were selected based on WHO recommendation on gathering information about the availability of essential health commodities, use of these medicines, presence of guidelines and HCPs' adherence to standards (32). A total number (N) of 144 HCPs from 30 public health facilities using Jazia PVS were sampled by epi info version 3 formula as stated:

$$n = deff \times \frac{N\hat{p}\hat{q}}{\frac{d^2}{1.96^2}(N-1)+\hat{p}\hat{q}}$$

where

n = sample size
$deff$ = design effect
N = population size
$\hat{p}$ = the estimated proportion
$\hat{q} = 1 - \hat{p}$
d = desired absolute precision or absolute level of precision

A total of 105 HCPs were recruited for the study (33).

A probability proportional to size (PPS) sampling design was utilized, whereby the number of health facilities selected was adjusted based on the number of facilities in the council.

Prob = (a x d)/b

Where

a-cluster population

b-total population

d-number of cluster

For Kahama Municipal Council

(22 x30)/48 = 14

For Ushetu District Council

(26 x 30)/48 = 16

PPS most useful when sampling units vary considerably in size because it assures that those in larger sites have the same probability of getting into the samples as those in smaller sites and vice versa (34). In 30 public health facilities involved; all 2 hospitals and 5 health centers were included while 23 dispensaries were randomly selected by simple random sampling.

3.5 Data collection methods

3.5.1 Data collection tools

Data were collected through tool on health commodity availability, checklist and Questionnaire with closed and open-ended questions. Tool on health commodity availability, the availability of health commodities at public health facilities as a dependent variable was collected.

On checklist, compliance of SOPs to Jazia PVS and order fulfillment rate as independent variables were determined. Satisfaction of Jazia PVS by HCPs as independent variable was collected using questionnaire.

3.5.2 Data collection procedures

Data were collected within two councils of the region namely Kahama municipal council and Ushetu district council. In each council, data was collected from public health facilities (hospitals, health centers and dispensaries)

105 HCPs were respondents to questions who are responsible for ordering, storage, dispensing and payment of health commodities at facilities.

For assessing health commodities availability data collection tool was used (Appendix 1). The tool was used to collect data on the day of the visit and the previous three months from the date of the survey. On the day of survey, data was collected by visiting a store or dispensing unit at facility with a survey tool. Data of previous 3 - months was extracted from stock registers available in each facility. Data on availability of essential health commodities availability before Jazia PVS (December 2016) and 2019 was obtained from District Health Information System (DHIS-2) to assess the impact on the availability of health commodities and if there was any effect during the pandemic of covid-19.

Data was collected on 15 tracer health commodities artemether/lumefantrine tabs, amoxicillin capsules/tablets, co-trimoxazole tablets/suspension, benzyl penicillin injection, antiallergic eg. chlorpheniramine tablets, mebendazole tablets, clotrimazole cream, metronidazole tablets, ORS sachet/zinc co-pack, paracetamol tablets, oxytocin injection, dextrose injection 5%, gloves (examination/surgical), syringe disposable and catgut sutures. These 15 health commodities were adopted from 30 items of Tanzania tracer medicine list based on recommendation of the WHO level II standard methodology for measuring medicines availability at the facility level. As stated by WHO in 2006, requires the identification of 15 health commodities for measuring its availability at the facility level The discussion was to increase up to 30 but concluded that 15 were adequate as stated by WHO in 2006 (35).

These health commodities represent a cross section of medicines types used for most common illness and representation of pediatric dosage forms in Shinyanga Region to make data collection and analysis manageable, it is an international good practice (35). 10% of health commodities available as per records was randomly cross-checked in the store. Only available health commodity was recorded as available if seen and out of stock health commodities are unavailable even they were in stock just before arrival at the facility.

A structured checklist was used to collect data on compliance of SOPs to Jazia PVS and order fulfillment rate by PV to facilities. Compliance of SOPs to Jazia PVS was measured by checking the availability at the facility and council and minutes from Health Facility Governing Committee (HFGC) to approve orders. Followed by counting the number of days it took for facilities receiving missed items from MSD, order from facility reached to council and from council to PV until health commodities received at facility store. Also the number of days it took for facility to pay PV after receiving health commodities and the percentage of health commodities ordered to PV compared to missed items. The standard number of days from receiving MSD missed items to receive health commodities from PV to facility store is 39 days.

Data were collected at council offices, at hospital pharmacist offices or health facility in-charge for health center and dispensaries which were involved by reviewing of documents and observation then recorded on a checklist.

3.5.3 Record review

Records of the orders sent to PV maximum of 4 were reviewed from 2019 to previous years. These records were from copy of invoice from MSD, minutes from HFGC, payment voucher, delivery note and invoice from PV. From these documents number of issues were addressed such as compliance of SOPs when ordering health commodities after receiving out of stock from MSD, order from facilities to council, order from council to PV, health commodities from PV to council until it reaches to facilities and payments.

Data on the satisfaction of Jazia PVS was collected from HCPs at all levels of facilities by filling out a questionnaire.

3.5.4 Pre-testing of instruments

Pre-testing of the instrument was conducted at Kahama municipal council on two health facilities to check if the instrument captures all data required to answer research questions and if any error can occur during data collection. The purpose of pre-testing was to explore if tools were collecting data of interest, to obtain comments from the pre-testing group to see if questions are not clear so that were refined before data collection and to ensure validity of data collection tools. No problem regarding the data collection tools were raised during pre-testing therefore no adjustments were made. Data obtained from pre-testing of the instruments were carried for analysis.

3.6 Validity and Reliability issues

3.6.1 Validity

Validity of data refers to the extent to which a concept is accurately measured in quantitative study i.e. the instrument adequately covers all the content that it should with respect to variables (36).

In order to make sure that data collected were valid in this study; the following aspects were strictly adhered: rapport, a relationship between researcher and respondents were well figured out and maintained during data collection, that is friendly and informal.

Questionnaire were well administered that is it will not be varied all over the study also the researcher was the same throughout the research. Questionnaire ambiguous, simple, clear, well phrased and planned in advance.

3.6.2 Reliability

Reliability relates to the consistency of a measure in other words the extent to which a research instrument consistently has the same results if it used in the same situation on repeated occasions (36). To ensure reliability in this study several measures and techniques were taken into consideration; pre-testing the questionnaire, checklist and health commodity availability collection tool whether they capture the needed information before the field visit. To avoid errors from the researcher, before the handing out questionnaire an introduction of the research title and objectives were made aware to all respondents including giving the correspondents time to think and relax before corresponding. Also respondent were free to choose language which they were confident either Swahili or English to respond questionnaire. Furthermore, the data was collected in a population that Jazia PVS is in place and therefore the collected data were consistent.

3.7 Data analysis plan

3.7.1 Data Management

During study the control of data quality was done by reviewing of data collected in the field by checking health commodity availability data collection tool, checklist and questionnaire at the end of each day. All incomplete and missing data was identified and corrected accordingly.

3.7.2 Data entry

During the facility survey, data was recorded on a hard copy of medicine availability data collection tool, checklist and questionnaire per facility.

At the end of fieldwork, all completed data collection tool, checklist and questionnaire were reviewed for clarity and completeness then entered into the Statistical Package for Social Sciences (SPSS) version 23 for analysis.

3.7.3 Data analysis

Data was entered in SPSS to be analyzed using SPSS. Descriptive statistics including frequency, percentage, mean and standard deviation were used to describe data. To determine if there is a relationship between two nominal variables or whether they are independent of each other, non-parametric Chi-square test was used to compare categorical

variables. Statistical significance level used was p-value <0.05 with a confidence interval of 95%. A scoring system was used to describe satisfaction by HCPs on Jazia PVS at facilities either highly satisfied, moderate satisfied or low satisfied. 105 HCPs responded to questions regarding satisfaction with Jazia PVS. A five-point Likert scale was used, the value for each point was given from 1 with a description of being very dissatisfied to 5 with a description of being very satisfied. Then total score was calculated (minimum -5 and maximum-25).

From that total scores, classification is done, and rank obtained as follows;

Total score	Rank	Satisfaction
5-10	1	Low
11-20	2	Moderate
21-25	3	High

For availability of health commodities at health facilities, the percentage of each health facility was being analyzed and average on each council for comparison. In terms of compliance of SOPs, percentage of compliance was analyzed at facility level and council and average number of days were calculated from time taken to order health commodities to PV, receiving health commodities from PV and payment to PV. Also percentage of order fulfillment rate by PV to health facilities were analyzed to check how PV fulfill health commodities. HCPs' responses on satisfaction of Jazia PVS was analyzed to check how they are satisfied with the system.

3.8 Study limitations

The study was limited by time and resources therefore, only two councils were assessed: out of 6 councils in Shinyanga region. However, since most councils may tend to experience almost similar challenges, the results of this study might serve as a useful resource for higher authority decisions.

Also, the study was limited by some participants who were unwilling to give information on the grounds that they were occupied with other personal responsibilities. This hindered the study as some relevant information were either delayed or not provided. To overcome this extra efforts and time in waiting for the participants to participate in order to acquire information.

Also, facilities with shortage HCPs especially rural areas, once arrived at facility found high proportion of clients receiving services and only one staff available had to wait until staff was free to participate so a lot time wasted.

3.9 Ethical issues

Prior to data collection, ethical clearance was obtained from the MUHAS Directorate of Research and Publication (Annex 2) and permission to conduct the study was obtained from the municipal director of Kahama municipal council and district executive director of Ushetu district council (Annex 3 and 4 respectively) after receiving request letter to conduct study. Furthermore, confidentiality of the information gathered from health facilities and HCPs was highly maintained. Written informed consent were signed by health facility in-charge or acting health facility in-charge at each facility as all the documents used to collect and HCPs participated explained.

CHAPTER FOUR

4.0 RESULTS

The results are presented here according to the four specific objectives: Availability of essential health commodities from public health facilities, compliance of health facilities and councils with SOPs to Jazia PVS, order fulfillment rates by Jazia PVS to facilities and the satisfaction of HCPs with Jazia PVS.

Table 1: Demographic information of surveyed health facilities

Demographic category	Frequency	Percent
Health facilities		
Dispensaries	23	76.7
Health Centers	5	16.7
Hospitals	2	6.6
Total	**30**	**100**
Professions of HCPs		
Nurse	40	38.1
Nurse Assistant	19	18.1
Clinical Officer	16	15.2
Pharmaceutical Technician	6	5.7
Lab Technologist	5	4.7
Pharmacist	3	2.9
Pharmaceutical Assistant	2	1.9
Pharmaceutical dispenser	1	1.0
Others	13	12.4
Total	**105**	**100**
Designation of HCPs		
Dispenser	34	32.4
Health facility in charge	15	14.3
Store in charge	14	13.3
Pharmacy in charge	6	5.7
Account	3	2.9
Hospital Pharmacist	2	1.9
Other	31	29.5
Total	**105**	**100**

4.1 Availability of essential health commodities at public health facilities

4.1.1 Availability of health commodities at public health facilities on the day of visit

Availability of health commodities assessed by verifying the stock of 15 tracer items listed in appendix 1

List of tracer medicines surveyed involved health commodities which are supposed to be stocked at all levels of healthcare facilities from dispensary to district hospital.

The overall average availability of health commodities on the day of visit for surveyed public facilities was 78.4% within two councils i.e. and 80.5% for Kahama municipal council and 76.7% for Ushetu district council on the day of survey observed.

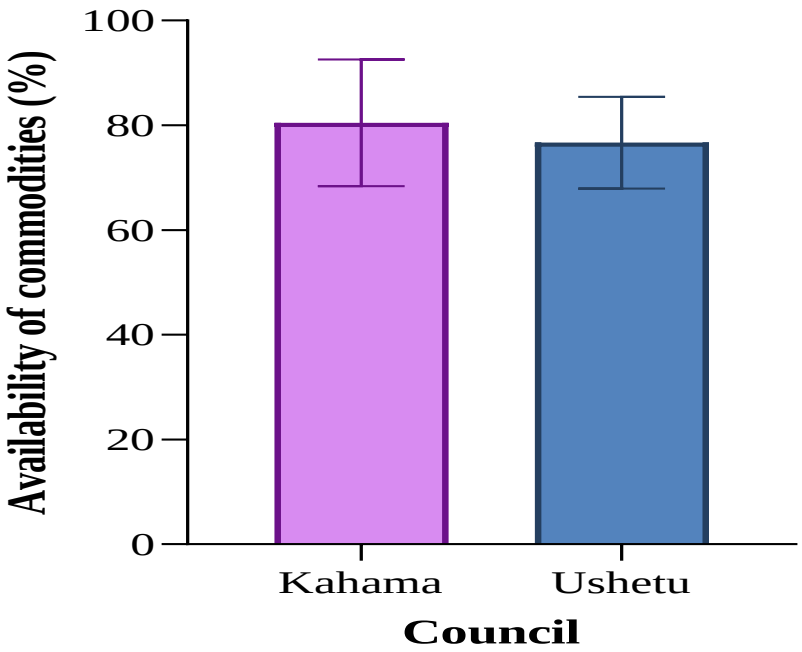

Figure 3: Availability of health commodities on the day of survey at Kahama and Ushetu

Figure 3 presents results on the availability of tracer health commodities on the day of the survey in sampled facilities within two councils.

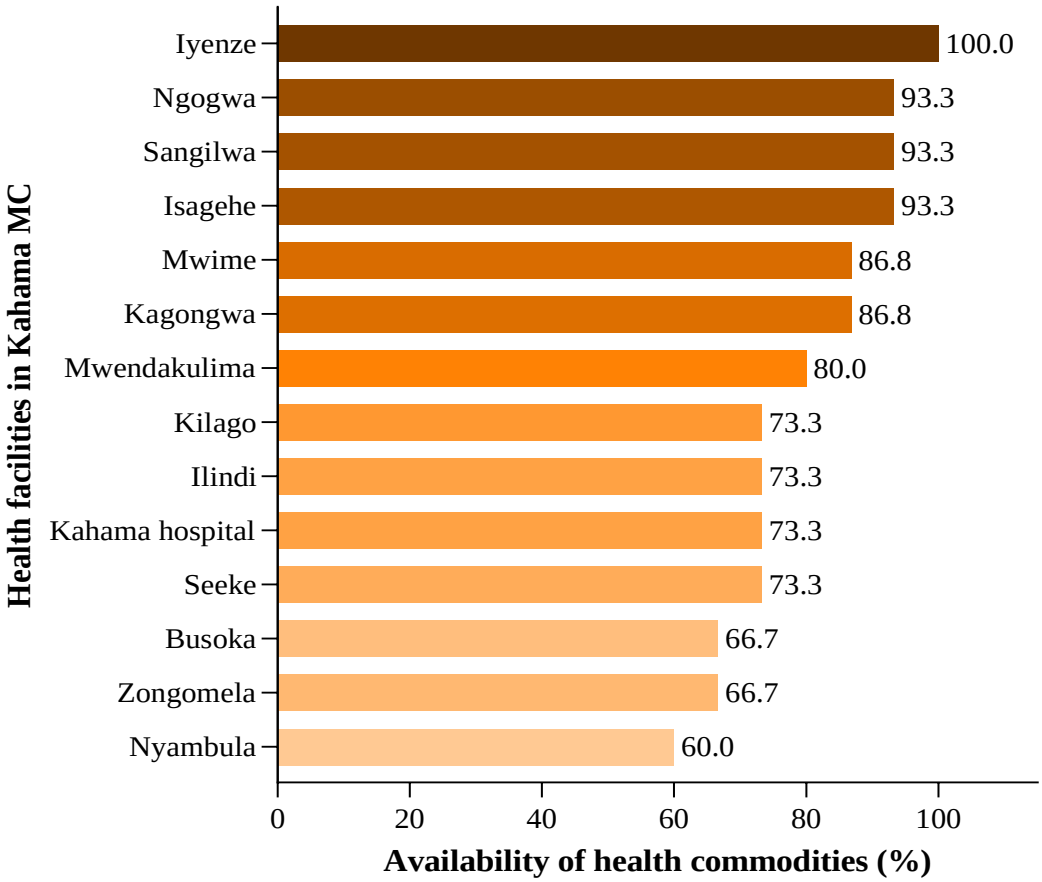

Figure 4: Availability of essential health commodities on the day of survey within Kahama

The study found that the minimum availability of essential health commodities at Kahama was 60% reported in one facility (Nyambula Dispensary) and the maximum availability of health commodities was 100% reported in one facility (Iyenze Health Center) on the day of the survey (figure 4)

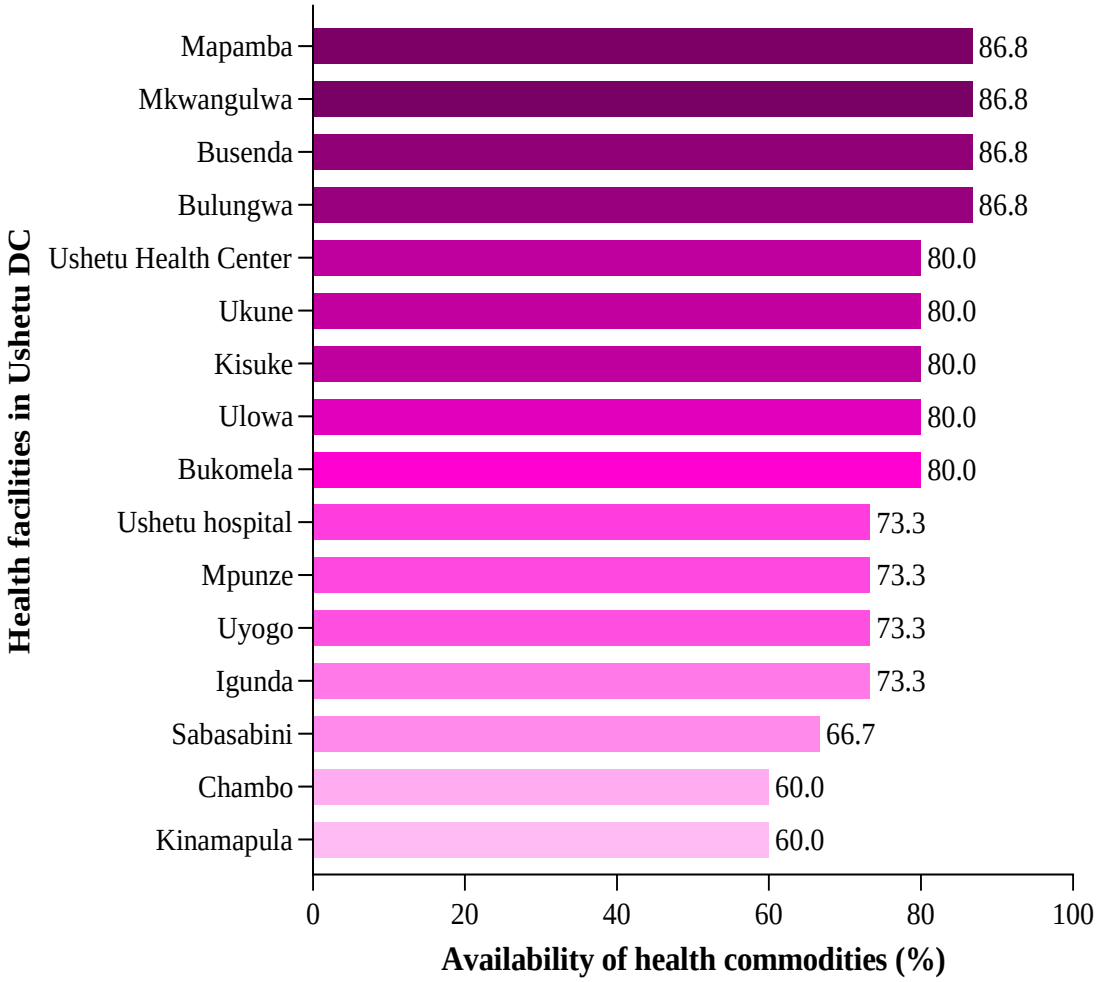

Figure 5: Availability of essential health commodities on the day of the survey within Ushetu

Minimum availability of essential health commodities within Ushetu was 60% reported in two facilities (Chambo Dispensary and Kinamapula Dispensary) and maximum availability of essential health commodities was 86.8% reported in four facilities i.e Bulungwa Health Center, Busenda Dispensary, Mapamba Dispensary and Mkwangulwa Dispensary (figure 5).

Table 2: Availability of essential health commodities by facility type in 2 councils on the day of survey

Type of Health facilities	Availability of health commodities (%)		Total
	<80	>80	
Dispensaries	15 (65%)	8(35%)	23(100%)
Health centers	3 (60%)	2(40%)	5(100%)
Hospitals	2 (100%)	0 (00%)	2 (100%)
Total	**20 (66.7%)**	**10 (33.3%)**	**30 (100%)**

Table 2 shows availability of essential health commodities by facility type in 2 councils on the day of survey the results show that hospitals (100%) and dispensaries (65%) experience low percentage of availability i.e. < 80% on the day of the survey than health centers.

4.1.2 Facilities experienced stock out of health commodities during the past 3- months before the survey

This measure number of facilities that experienced stock out of health commodities expected to be provided by that facility at any time during the past 3-months shown in the table below;

Table 3: Facilities that experienced stock out at any point during 3 months prior to the survey

Type of health commodity	Type of facility			
	Dispensaries	Health centers	Hospitals	Total (30)
Oxytocin injection	2	0	0	2(6.7%)
Catgut sutures	3	0	0	3(10%)
ORS	4	0	0	4(13.3%)
Artemether/lumefantrine tablets	5	0	0	5(16.7%)
Paracetamol tablets	3	1	1	5(16.7%)
Syringe disposable	3	1	1	5(16.7%)
Amoxicillin capsules/tablets	6	1	0	7(23.3%)
Co-trimoxazole tablets	4	1	2	7(23.3%)
Gloves (examination/surgical)	9	2	0	11(36.7%)
Antiallergic.i.e.chlorpheniramine	11	1	0	12(40%)
Benzyl penicillin injection	9	2	1	12(40%)
Clotrimazole cream	10	2	1	13(43.3%)
Dextrose injection 5%	13	1	0	14(46.7)
Metronidazole tablets	14	0	1	15(50%)
Mebendazole tablets	17	2	1	20(66.7%)

3-months before the survey; about 66.7% of facilities had stock out of mebendazole tabs, metronidazole tablets (50%), dextrose injection 5% (46.7%), clotrimazole cream (43.3%), antiallergic (40%), benzylpenicillin injection (40%), and gloves (36.7%)

Dispensaries experienced stock out of essential health commodities 3-months before the survey than health centers and hospitals shown in table 3.

4.1.3 Availability of essential health commodities before Jazia PVS, 2019 and day of survey

Table 4: Availability of essential health commodities before Jazia PVS, 2019 and day of survey

Period	Availability of essential health commodities (%)		
	Kahama	Ushetu	Overall
Before Jazia PVS	82	81	81.5
2019	93	90	91.5
Day of survey	80.5	76.7	78.4

The overall percentage of availability of health commodities before implementation of Jazia PVS (December 2016) was 81.5%, within implementation of Jazia PVS (2019) was 91.5% and day of survey was 78.4%.

The availability of health commodities in 2019 was high compared to the availability of health commodities on the day of visit.

Table 5: The differences of availability before Jazia PVS, 2019 and day of survey

Council	Availability of health commodities (%)	P-Value
Kahama	82 vs 80.5	0.982
	82 vs 93	0.999
	93 vs 80.5	0.992
Ushetu	81 vs 76.7	0.998
	81 vs 90	1.000
	90 vs 76.7	0.958
Between two councils from before Jazia PVS and day of visit P-value was 1.000		

Source: District Health Information System-2 (DHIS-2) –tracer medicines

4.2 Compliance of health facility to sops for Jazia PVS

From this objective, the study assessed the compliance to SOPs of Jazia PVS on availability and minutes from HFGC to approve orders to PV. Also, number of days it took for facilities to receive missed items from MSD, orders from facility reached councils and from council to PV until health commodities received at facility store compare with the standard number of days on each category. Also the number of days it took for facility to pay PV after receiving health commodities and the percentage of health commodities ordered to PV compared to missed items and the findings are as follows:

a) Availability of SOPS at councils and health facilities and minutes from HFGC to approve order to PV was 100%

Table 6: Availability of SOPs and minutes from HFGC to approve order to PV at facilities in 2 councils

Type of SOP	Kahama Number of facilities, (%)	Ushetu number of facilities, (%)
Order consolidation	14 (100)	16 (100)
Order determination	14 (100)	16 (100)
Receiving and Inspection	14 (100)	16 (100)
Minutes from HFGC	14 (100)	16 (100)

b) Average percent of items ordered from PV from a list of missed items from MSD Was 64.1% i.e. 61.0% at Kahama and 67.1% Ushetu

Table 7: Average percent of items ordered from PV

Council	Average percent of items ordered to PV (%)
Kahama	61.0
Ushetu	67.1
Overall average	**64.1**

Table 8: Reason for not ordering all the missed items from MSD

Reason	Kahama number of facilities	Ushetu number of facilities	Total
Insufficient of funds	6	3	9
Order only essential	5	3	8
No reason	3	10	13
Total	**14**	**16**	**30**

c) Number of days from receiving missed items from MSD, order to PV, receive and pay PV summarized as follows

Table 9: Compliance by councils and health facilities with SOPs on order time and delivery time

Average number of days	Health facilities in 2 councils		P- value
	Kahama number of health facilities (%)	Ushetu number of health facilities (%)	
Orders to reach council			
Within standard days (≤ 5)	7 (50.0)	13 (81.2)	0.122
Delay (>5 days)	7 (50.0)	3 (18.8)	
Order to reach Prime vendor			
Within standard days (≤5)	12 (85.7)	12 (75.0)	0.657
Delay(>5 days)	2 (14.3)	4 (25.0)	
Council receive commodities from PV			
Within standard days (≤22)	10 (71.4)	15 (93.8)	0.157
Delay(>22 days)	4 (28.6)	1 (6.2)	
Health commodities received at the facility			
Within standard days (≤7)	14 (100.0)	6 (37.5)	< 0.001*
Delay(>7 days)	0 (0.0)	10 (62.5)	
To pay Prime Vendor			
Within standard days (22)	2 (14.3)	0 (0.0)	0.209
Delay(>22 days)	12 (85.7)	16 (100.0)	

*****significant p-value

The number of days for health commodities to reach the facility store shows a difference between Kahama and Ushetu which is statistically significant ($p<0.001$). At Ushetu district council, 10 health facilities received their health commodities late.

4.3 Order fulfillment rates from the PV

The study went further assessing the capacity to fulfill orders to check if the supply gap by MSD is complemented or leads to stock-outs to facilities.

Order fulfillment rate within two councils

The overall mean of order fulfillment rate for surveyed public facilities was 83.9% within two councils

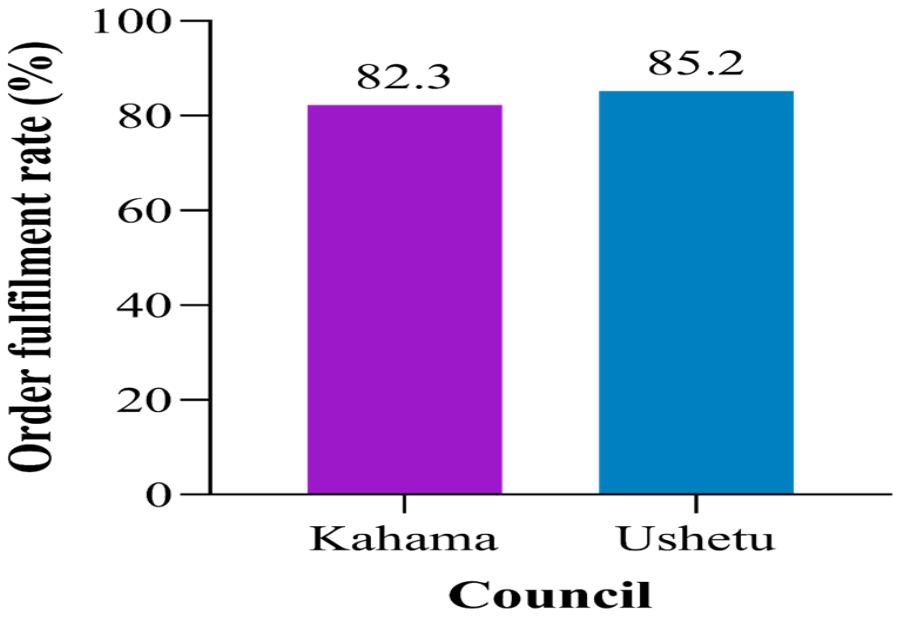

Figure 6: Order fulfillment rate at Kahama and Ushetu

Figure 6 presents results on order fulfillment rate in sampled facilities within two councils.

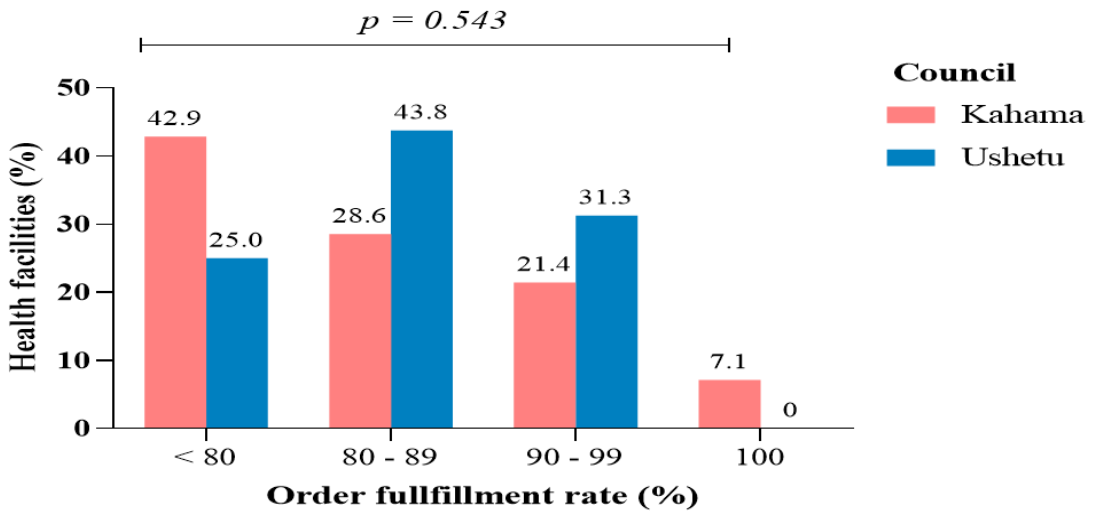

Figure 7: Order fulfillment rate by PV to facilities within two councils

The study found most facilities at Kahama (42.9%) had their orders fulfilled less than 80% while facilities at Ushetu 43.8%) were fulfilled more than 80%

There is difference in fulfillment of orders among the individual council but the different was not statistically significant as p-value was 0.543

Order fulfillment rates by Jazia PVS to facilities Kahama

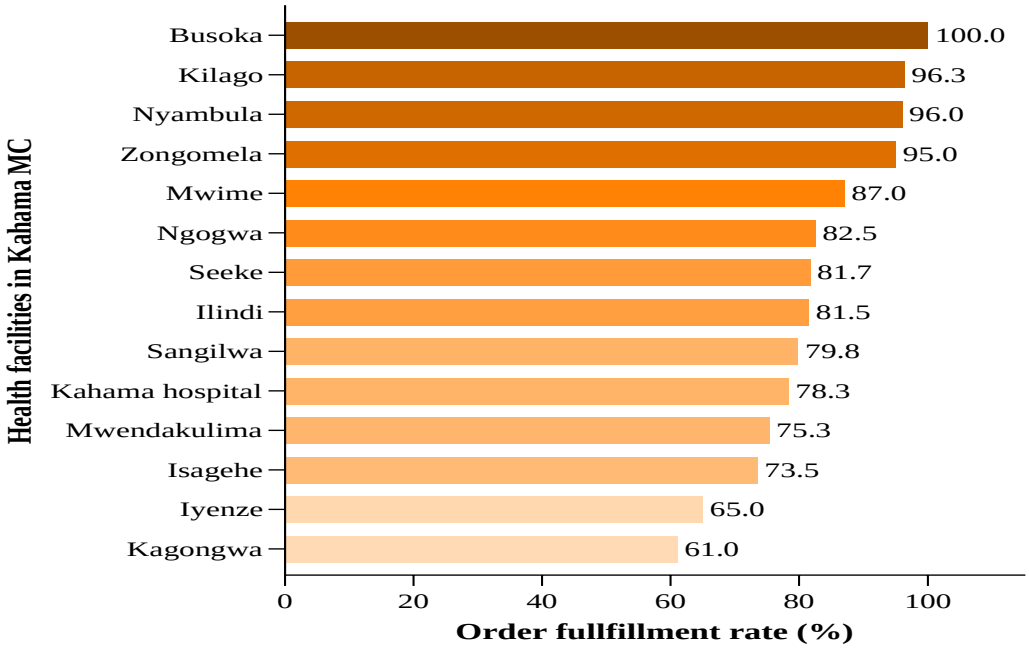

Figure 8: Order fulfillment rate by facilities within Kahama

From the figure above, about 6 of health facilities had their orders fulfilled by less than 80% and only one facility had orders fulfilled by 100% by PV.

Ushetu

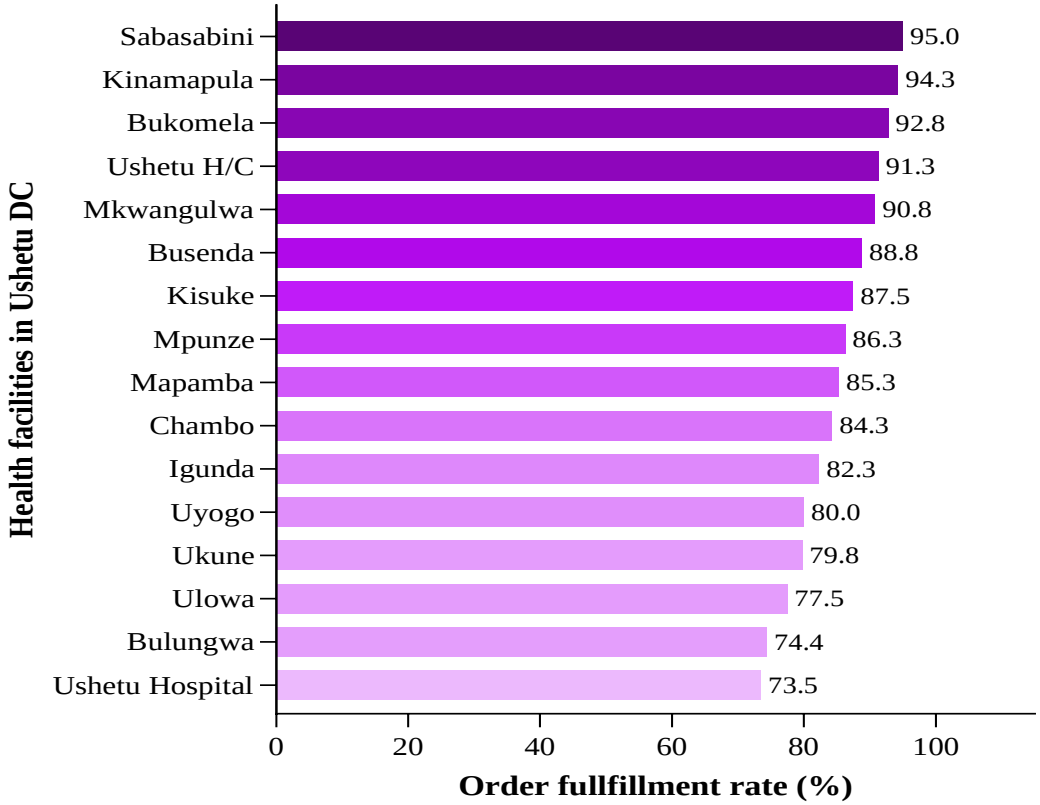

Figure 9: Order fulfillment rate by facilities within Ushetu

From the figure above, about 4 health facilities had their orders fulfilled less than 80% and no health facility had orders fulfilled by 100% of health commodities.

Table 10: Order fulfillment rate by PV by facility type

Health facility type	< 80% number of facilities	>80% number of facilities	**Total**
Dispensary	4 (17%)	19 (83%)	23 (100%)
Health Center	4 (80%)	1 (20%)	5 (100%)
Hospital	2 (100%)	0 (0%)	2 (100%)
Total	10 (33.3%)	20 (66.7%)	30 (100%)

Table 10. shows that capacity of PV to fulfill orders from facilities is more than 80% at dispensary level and less than 80% at the health centers and hospitals. The study found that orders from 19 dispensaries were fulfilled by more than 80% while all hospitals and 4 health centers were fulfilled by less than 80%.

Reasons for poor order fulfillment rate by PV to facilities as shown in the table below

Table 11: Reasons for poor order fulfillment rate to facilities by PV

Reason	**Frequency**	**Percent (%)**
Some missed items at MSD also are missed to PV	4	13.4
PV delay to complete order delivery	1	3.3
Delay to deliver commodities	1	3.3
No reasons	24	80.0
Total	**30**	**100**

Common items missed from PV reported by facilities on the day of survey

Table 12: Common items missed from PV on the day of survey

Items	Number of facilities reported missed from PV	Percent
Mebendazole tabs	23	76.7
Gloves	6	20

4.4 Satisfaction of HCPs with Jazia PVS

This information is useful to highlight how HCPs using Jazia PVS are satisfied with services provided by PV and procedures. Also satisfaction is the indication of how well functioning the system is at providing services. HCPs respondents were 105 from 30 public health facilities who are responsible for ordering, storage, dispensing and payment for health commodities.

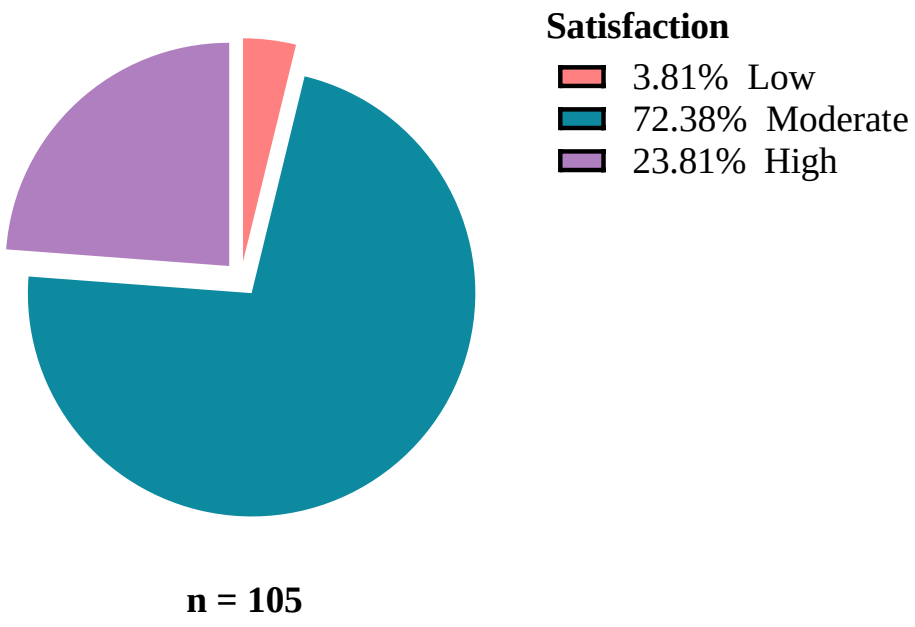

Figure 10: Satisfaction of HCPs with Jazia PVS

As the figure shows, 76 HCPs (72.4%) were moderately satisfied and only 4 HCPs (3.8%) had low satisfaction with Jazia PVS.

Table 13: Satisfaction by professions with Jazia PVS

Profession	Overall Satisfaction with Jazia		
	Low n (%)	Moderate n (%)	High n (%)
Nurses	2 (5.0)	31 (77.5)	7 (17.5)
Pharmacist	0 (0.0)	3 (100)	0 (0.0)
Pharmaceutical Technician	0 (0.0)	3 (50.0)	3 (50.0)
Lab technologist	0 (0.0)	4 (80.0)	1 (20.0)
Clinical officer	1 (6.3)	13 (81.3)	2 (12.5)
Nurse Assistant	1 (5.3)	8 (42.1)	10 (52.6)
Pharmaceutical dispenser	0 (0.0)	1 (100)	0 (0.0)
Pharmaceutical assistant	0 (0.0)	2 (100)	0 (0.0)
Other	0 (0.0)	11 (84.6)	2 (15.4)
Total	**4 (3.8)**	**76 (72.4)**	**25 (23.8)**

Out of 25 HCPs (23.8%) who responded were highly satisfied, most were nurse assistants (52.6%).

Reasons for HCPs not being satisfied with Jazia PVS

Table 14: Reasons for HCPs not being satisfied with Jazia PVS

Reason	Frequency	Percent (%)
Some missed items at MSD also are missed from PV	21	26.3
PV delay to deliver the consignment	20	25
PV does not deliver directly to facilities	8	10
PV found far from Shinyanga,	6	7.5
The long process from order to receiving health commodities	6	7.5
The long payment process unnecessarily	2	2.5
No reasons	17	21.3
Total	**80**	**100**

From the table, 21 (26.3%) respondents reported that they were not satisfied because some missed items at MSD are also missed from PV. 17 (21.3%) of respondents did not have any reason but they are dissatisfied.

CHAPTER FIVE

5.0 DISCUSSION

The study aimed to assess the impact of Jazia PVS on availability of health commodities at public health facilities in Shinyanga region in Tanzania.

5.1 Availability of essential health commodities at public health facilities

The findings show that the overall average availability of essential health commodities was 78.4% on the day of the survey. The availability is relatively low compared to 80% settled by WHO (18) and 90% of tracer medicines by MOHCDGE to be maintained by public health facilities.

This study found the difference in availability of essential health commodities between two councils as shown on figure 2, this might be contributed by poor infrastructure which affects distribution of medicines to facilities. The difference however was not significant this is similar to a study conducted in Sudan which showed that as far as developing countries are concerning availability of health commodities at rural and urban areas are not different (37).

From the findings, availability of essential health commodities on the day of survey shows that dispensaries and hospitals had low availability of essential health commodities i.e. <80% than health centers as shown on table 2 and during three months prior to the date of survey, dispensaries had stock out of essential health commodities than health centers and hospitals (table 3). The items that were most often out of stock were mebendazole tablets, metronidazole tablets, dextrose injection 5%, clotrimazole cream, antiallergic tablets, benzylpenicillin injection and gloves. Medicine stock-outs in facilities foster distrust in health care providers and users and contributes to the low utilization of the health care system this is consistent with the study conducted in Tanzania (38).

On day of survey, the findings of this study vary with the study conducted in India on rapid assessment of drugs availability and stock-outs at government facilities and study conducted in Ghana, Kenya and Uganda on pharmaceutical availability across levels of care which reported that availability of drugs varied across levels of health care facilities;

where hospitals and health centers had better availability than dispensaries (39). The results of availability of essential health commodities three months prior to the date of survey, are consistent with study conducted in Rwanda which reported that at dispensaries health commodities are managed by non-pharmaceutical personnel. Non-pharmaceutical personnel have limited pharmaceutical technical and supply chain management capacity which are associated with the inability to quantify health commodities resulting in inaccurate forecasting of health commodities which affect the availability at facilities (40). From the findings, there were high proportion of nurses and nurse assistants (table 1) Out of 23 dispensaries surveyed, only one dispensary at Kahama had a pharmaceutical assistant and that dispensary had availability of more than 80% on the day of survey. According to staffing level of MoHCDGEC revised 2014 -2019 it requires a dispensary pharmacy to be managed by pharmaceutical assistant (41), but this study found that only 4.3% of pharmaceutical personnel were available at dispensary level.

Out of 30 facilities surveyed, the most commonly reported reasons for the medicines stock out were that missed items from MSD that were ordered from PV were also missed. This was experienced especially for those items with high market prices as observed for gloves. Despite of its importance in the provision of services to clients, gloves (examination /surgical) were out of stock in 10 (33%) facilities on day of survey and 11(37%) facilities 3 months' prior the date of survey. In addition, PV delayed to complete order from facilities because once he received orders from facilities immediately he delivered items available at his store then the remaining items from the same order take long time to be completed. The availability of essential health commodities before Jazia PVS was high than the availability of health commodities on the day of visit. The results suggest that Jazia PVS implementation contributed in facilitating the availability of essential health commodities to public facilities but the difference was not statistically significant. Furthermore, the study found that the availability of essential health commodities in 2019 was high compared to the availability on the day of survey 2021. The results suggest that the low availability of essential health commodities on the day of survey might be contributed by the pandemic of covid-19 but the difference is not statistically significant ($p>0.05$) at a confidence interval of 95%.

5.2 Compliance of health facilities and councils to SOPs for Jazia PVS

It was revealed that all surveyed health facilities within the two councils have SOPs in place and minutes to approve orders from HFGC. The study found orders of health commodities to be procured approved by HFGC as is required by of the council authority. This is consistent with mid-term review health strategic plan IV,2015-2020 which insist the use of SOPs on health commodities logistic cycle especially on procurement to ensure availability at health facilities (5).

The study revealed that on average 64.1% of items missed from MSD were ordered from PV items from thus, not all missed items were ordered from PV. This means that the supply gap from MSD is not complemented fully which finally contributes to the stock out of essential health commodities at facilities. The most common reason for not ordering from PV all missed items from MSD was insufficient funds at facilities.

The number of days from receiving missed items from MSD, then order to PV, and receive health commodities from PV, and making payment of those health commodities received, were more compared to the set standard number of days. The study revealed that some facilities delay submitting the order to the council compared to the standard number of days this might contribute to out of stock at facilities.

There was no significant difference between the two councils. It was revealed that the council submits the order to PV on time and PV deliver health commodities to council stores within the expected number of days. The study found that, facilities at Kahama receive/collect health commodities from council to their store within recommended number of days, but, 10 (62.5%) facilities in Ushetu delayed to receive/collect health commodities from council this might be among the reason of stock-out as reflected on availability of health commodities at facilities. For example, Kinamapula dispensary, Bukomela dispensary and Sabasabini dispensary number of days to receive/collect their health commodities was 24 while at Busenda dispensary 23. This comparison highlight operational differences from one council to another. Furthermore, this delay at Ushetu might be contributed by poor infrastructure and facilities are so scattered which may interfere with the distribution process of health commodities and make them unavailable at the required time. Almost all facilities in both councils delayed payments.

The main reasons for the delay of payment was that PV did not fulfill the orders by 100% so facilities had to wait for all items to be received before payment. The delay in disbursement of funds from MOHCDGE directly to health facility accounts managed at the facility i.e. HSBF was also another reason for delayed payment.

5.3 Order fulfillment rates from the PV

The PV was able to fulfill the order by 83.9% with differences between Kahama and Ushetu. The PV fulfillment capacity of orders from facilities being more than 80 % at dispensary level and less than 80% at the health center and hospital as table 10 shows. This may be contributed by differences of requirements at facility level based on their services provided. This finding vary with the study conducted in Dodoma-Tanzania shows that Jazia PVS has a fulfillment rate above 90% (7). In Tanzania some studies reported order fulfillment rate was above 90% (1) but based on this study, PV order fulfillment rate was about 80% which led to HCPs not being satisfied with the system since stock out problem at facilities is not solved.

The main reason why PV did not fulfill orders as requested by facilities is that the PV contract does not state the minimum order fill rate and the time of delivery. Therefore, PV just supplies the available health commodities immediately once the order from facilities was received but the remaining items are supplied later resulting in delay to complete that order. All these led to stock out of those items at facilities but also facilities could not pay incomplete order so payment of received health commodities was also delayed.

5.4 Satisfaction of Health Care Professionals at public health facilities with Jazia PVS

This objective measured how products and services provided by the PV system meet or surpass public health facilities ' expectations and satisfaction.

Overall satisfaction by HCPs at public health facilities with Jazia PVS was moderate. Nurse assistants however were the Most of the highly satisfied. This could be due to the fact that nurse assistants have limited pharmaceutical technical capacity hence satisfaction with Jazia PVS.

Reasons for HCPs for not being satisfied with Jazia PVS were that some missed items at MSD also are missed at PV (26.3%) and PV delay to deliver consignment to facilities (25%), these affect the availability of health commodities at facilities. The aim of this Jazia PVS was to complement MSD to fill the supply gap but this was not fulfilled (11) This was discouraging to HCPs because health care service delivery highly depends on the availability of health commodities. The other reason was PV did not deliver directly to facilities. Location of PV is far from Shinyanga as currently it is in Arusha and the previous one was from Dar es Salaam this is difficult to act immediately if emergency situation occurs. Moreover, when few facilities sent orders to PV, the PV did not deliver immediately because he has to wait for other orders from other facilities this prolongs the process.

The findings vary with the study conducted In US, which reported that benefits of PVS for pharmaceuticals include higher order fill rates which in-turn increased satisfaction of system users (27).

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

In conclusion, Jazia PVS has little impact on availability of health commodities to public health facilities. This was shown by the low order fulfillment rate from PV to health facilities and delays in delivering health commodities from council to health facilities. In addition, HCPs are dissatisfied with Jazia PVS.

6.2 Recommendations

From the findings and implication of the study, the following are recommended so that the system could perform as expected.

1. Jazia PVS contract be revised to state the minimum order fulfillment rate for example from 95% to 100%
2. Minimum delivery time at least two weeks after first delivery from the same order should be stated in the contact.
3. Have at least two PVs in the region when it happens health commodities are missed from one PV; facilities can purchase from the other PV.
4. The location of the PV should be within the region or nearby regions at least where facilities could reach easily especially in an emergency situation.

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APPENDICES

Appendix 1: Data collection tool on health commodity availability

Date_____ **Region:**		**Facility _____** **Type of facility_____** **Council_____**

Availability of medicines

Name		**Availability on the day of visit** **Y/N**	**Number of days of OS in most recent 3 months**			**Total Number of days of OS**
1	Artemether/Lumefantrine (ALU) tabs					
2	Amoxicillin 250mg caps or Amoxicillin dispersible tabs					
3	Co-trimoxazole tabs or Co-trimoxazole susp					
4	Benzyl Penicillin 5MU inj					
5	Antiallergic e.g. Chlorpheniramine tabs					
6	Mebendazole tabs					
7	Clotrimazole cream					
8	Metronidazole tabs					
9	ORS sachet and Zinc tabs / Co-pack					

10	Paracetamol 500mg tabs					
11	Oxytocin					
12	Dextrose 5%					
13	Gloves (Examination/surgical)					
14	Syringe and needle disposable 5mls					
15	Catgut sutures					
Total number of Yes Answers						

Result:

Availability in % = Total number of yes answers divided by 15 x100

Availability in % = _____

Comments

Source: Logistics indicators assessment tool(LIAT), 2005 (42).

Appendix 2: Checklist

REGION:
NAME OF COUNCIL:
NAME FACILITY:
TYPE OF FACILITY:
DATE

With Council and Facility

1. To what extent are SOPs used

   a. Availability of SOPS at Council

   Do you have copies of these SOPs? Yes/No. If yes, please to be shown.

1	Order consolidation	
2	Receiving and inspection SOP	

Comments:

b. Availability of SOPS at Facility

Do you have copies of these SOPs? Yes/No If yes, please to be shown.

1	Order determination	
2	Receiving and inspection SOP	

Comments:

Invoice from MSD, HFGC minutes and order to PV will be reviewed to check the number of days it took for health facility to place order to PV after receiving out of stock from MSD.

Invoice from PV and inspection form will be reviewed to check number of days it took for health commodities to be collected/received at health facility.

2. Compliance of SOPs at facility

a. Order time from facility to council

S#	Date received from MSD(invoice)	Date submitted to council(order)	# of days it took to reach council(standard 5 working days)
1			
2			
3			
4			
5			

b. Percentage of health commodities ordered to PV with regard to missed items from MSD

S#	Number of items ordered vs Missed items from MSD	Percentage (%)	Comments
1			
2			
3			
4			
5			

c. Missed health commodities from MSD, HFGC should approve to be purchased to PV

S#	missed health commodities from MSD approved by HFGC to be purchased to PV	Yes (Verify)	No
1			
2			
3			
4			
5			

3. Compliance of SOPs at Council

a. order submitted to PV

S#	Date received from facilities	Date submitted to PV	# of days it took to PV (standard 5 working days)
1			
2			
3			
4			
5			

b. Average number of days it took to deliver to individual HFs consignments/ordered commodities received at district headquarters (delivered or collected)

SN	Date of Order to PV	Date received @ District Store	# of days it took for PV to deliver @ District store	Date received @ Health Facility Store	# of days it stayed at District Store
1					
2					
3					
4					

Note: 7 Standard work days to reach HF

***Reasons for any delays – should be documented.**

With PV

1. Order fulfillment rate

order 1:		Order 2:		order 3:		Order 4:		Order 5:	
%	# Items ordered	%	# Items ordered	%	# Items ordered	%	# Items ordered	%	# Items ordered
	# Items received		# Items Received		# Items Received		# Items Received		# Items Received

Notes/Comments, if any:

2. Average number of days it took to pay the PV calculated from the date consignment was received at district HDQ to the date payment/cheque was ready for collection by PV

S#	Consignment #	Date consignment received @ Council	Date Cheque was available for collection by or sent/deposited to PV	# of days it took to pay PV	Comments, if any

Note: Standard 22 working days

Notes/Comments, if any:

Appendix 3: **Questionnaire English Version**

This questionnaire consists of two sections, section one comprises the information of facility on general use of Jazia Prime Vendor System and section two satisfaction of the system.

Questions to be answered by health care providers who are responsible for ordering, storage, dispensing and payment for health commodities.

SECTION ONE

Council _____

Facility _____

Type of facility_____

Qualification of respondent_____

Designation of respondent_____

Date _____

SECTION TWO

Health facility satisfaction is a measure of how products and services provided by the Prime Vendor System meet or surpass health facility expectations, this means how well functioning the system is at providing products and/or services

1. (a) Overall satisfaction of Jazia Prime Vendor System. ***(Put tick against the correct answer)***
    - Very satisfied _____
    - Somewhat satisfied _____
    - Neither satisfied nor dissatisfied _____
    - Somewhat dissatisfied _____
    - Very dissatisfied _____

(b) If dissatisfied with Jazia Prime Vendor System, give reasons

i. _____
ii. _____
iii. _____
iv. _____

2. (a) How user friendly are the procedures for using Jazia PVS as alternative source for filling the Medical Store Department supply gap. ***(Put tick against the correct answer)***
   - Extremely friendly _____
   - Very friendly _____
   - Somewhat friendly_____
   - Not so friendly _____
   - Not at all friendly _____

   (b) If the answer is not friendly give comment (s) on what could be changed

   i. _____
   ii. _____
   iii. _____
   iv. _____

3. How likely is it that you would recommend the Jazia Prime Vendor System to be continued as an alternative source for filling the supply gap ***(Put tick against the correct answer)***
   - Extremely likely _____
   - Very likely _____
   - Somewhat likely _____
   - Not so likely _____
   - Not at all likely _____

4. How helpful was the Jazia Prime Vendor System as the alternative source for filling the Medical Store Department supply gap? ***(Put tick against the correct answer)***
    - Extremely helpful_____
    - Very helpful_____
    - Somewhat helpful _____
    - Not so helpful _____
    - Not at all helpful _____
5. Overall, how would you rate the Jazia Prime Vendor System on filling the Medical Store Department supply gap. ***(Put tick against the correct answer)***
    - Excellent _____
    - Very good _____
    - Good _____
    - Fair _____
    - Poor _____

Kiambatanisho 4: Dodoso

Dodoso hii ina sehemu mbili, sehemu ya kwanza inajumuisha taarifa ya kituo juu ya matumizi ya jumla ya Mfumo wa Mzabuni Teule wa Jazia na sehemu ya pilli ni kuridhika na utendaji wa mfumo.

Maswali ya kujibiwa na watoa huduma wanaohusika na uagizaji, utunzaji, utoaji dawa na malipo ya bidhaa za afya

SEHEMU YA KWANZA

Halmashauri _____

Jina la Kituo _____

Aina ya Kituo_____

Taaluma ya mhojiwa _____

Cheo cha mhojiwa_____

Tarehe _____

SEHEMU YA PILI

Kuridhika kwa kituo cha kutolea huduma za afya ni kipimo cha jinsi bidhaa na huduma zinazotolewa na Mfumo wa Mzabuni Teule wa Jazia zinakidhi au kupitisha matarajio, hii inamaanisha jinsi mfumo unavyofanya kazi vizuri katika kutoa bidhaa na / au huduma.

1. (a) Je kwa jumla Mfumo wa Mzabuni Teule wa Jazia unaridhizisha . ***(Weka alama ya vema dhidi ya jibu sahihi)***
    - Wakuridhisha sana_____
    - Wakuridhisha kiasi_____
    - Si wakuridhisha wala kutoridhisha _____
    - Kutoridhisha kwa kiasi fulani _____
    - Hauridhishi kabisa_____

(b) Ikiwa hauridhiki na huduma kutoka kwa Mzabuni Teule wa Jazia, toa sababu

i. _____

ii. _____

iii. _____

iv. _____

2. (a) Taratibu za manunuzi ya bidhaa za afya kutoka kwa Mzabuni Teule wa Jazia kama chanzo mbadala cha kujaza pengo la Bohari ya dawa ni rafiki kwako. ***(Weka alama ya vema dhidi ya jibu sahihi)***

   - Rafiki sana sana _____
   - Rafiki sana _____
   - Rafiki kiasi_____
   - Sio rafiki sana _____
   - Sio rafiki kabisa _____

(c) Kama jibu lako ni sio rafiki toa maoni ya nini kibadilike ili kuboresha

v. _____

vi. _____

vii. _____

viii. _____

3. Je kuna uwezekano wa kuupendekeza mfumo wa Mzabuni Teule wa Jazia katika kujaza pengo la Bohari ya dawa ili uendelee? ***(Weka alama ya vema dhidi ya jibu sahihi)***

   - Uwezekano mkubwa sana_____
   - Uwezekano mkubwa _____
   - Uwezekano kiasi _____
   - Haiwezekani _____
   - Haiwezekani hata kidogo _____

4. Mfumo wa Mzabuni Teule wa Jazia unasaidia vipi kununua bidhaa za afya kama chanzo mbadala cha kujaza pengo la Bohari ya dawa. ***(Weka alama ya vema dhidi ya jibu sahihi)***
    - Unasaidia kwa kiasi kikubwa_____
    - Unasaidia sana_____
    - Unasaidia kidogo_____
    - Hausaidii sana _____
    - Hausaidii kabisa _____

5. Kwa ujumla, unaweza kuupima vipi mfumo wa Mzabuni Teule wa Jazia katika kujaza pengo la Bohari ya dawa. ***(Weka alama ya vema dhidi ya jibu sahihi)***
    - Bora kabisa_____
    - Mzuri sana _____
    - Mzuri _____
    - Kawaida_____
    - Mbaya_____

Appendix 5: Informed Consent Form (English)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

DIRECTOR OF RESEARCH AND PUBLICATION

Consent to participate in the study: ENTITLED: **Assessment of impact of Jazia Prime Vendor System on availability of health commodities in Shinyanga Region.**

My name is Shijo Beneth a postgraduate student in Department of Pharmaceutics and Pharmacy Practice at Muhimbili University of Health and Allied Sciences (MUHAS). I am conducting a research study on assessment of impact of Jazia Prime Vendor System on availability of health commodities in Shinyanga Region. I hereby request you for participation.

Purpose of the study: The purpose of this study is assess the impact of Jazia Prime Vendor System on improving the availability of health commodities in Shinyanga Region.

What participation involves: If you agree to join the study, you will meet the researcher for assessment at the facility store of health commodities. Data will be collected and filled in data collection tools through observation, document review and filling out the questionnaire.

Confidentiality: The information from the study will be kept confidential and kept in a safe place with access to authorized personnel and will be used for research purposes only. No names will be used instead designation will be used to maintain anonymity of participants.

Duration: Participation will take about 40 minutes

Risks: For this study, we don't expect any risk prior because no any invasive procedure will be employed only information will be provided regarding Jazia Prime Vendor System.

Rights to withdrawal: Taking part in this study is completely your choice. You are free to choose either to participate in this study or not. You can decide to stop participating in this study at any time you wish even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits: If you agree to take part in this study, there are no direct benefits that you will get but information obtained from this study will be used by policy makers and other decision makers of the Government realize whether there are effectiveness and efficiency of Jazia Prime Vendor System concerning improved availability of health commodities with their challenges.

Compensation: There will be no compensation/or payment of any kind for participating in this study.

Whom to contact: In case of any questions from this study, don't hesitate to contact the principal investigator Shijo Beneth, P. O. Box 65001, MUHAS, Department of Pharmaceutics, Phone +255 753 781 999, email bshijo45@yahoo.com

Or

The Chairperson of Research and Publication Committee, P.O. Box 65001, MUHAS, Telephone 022-2152489

Consent: I am willing to participate in the study to assess the impact of Jazia Prime Vendor System on improving the availability of health commodities in the Shinyanga Region. I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason, all of which have been explained to me by Shijo Beneth.

Signature of participant …….

Signature of Principal Investigator …….

The Date signed consent ……

Kiambatanisho 6: Fomu Ya Ridhaa

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

KURUGENZI YA TAFITI NA UCHAPISHAJI

Fomu ya ridhaa ya kushiriki katika utafiti wenye kichwa kinachosema: **Tathmini ya matokeo ya Mfumo wa Mzabuni Teule wa Jazia katika kuboresha upatikanaji wa bidhaa za afya katika Mkoa wa Shinyanga.**

Jina langu ni Shijo Beneth mwanafunzi wa shahada ya uzamili katika idara ya dawa katika Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (MUHAS). Ninafanya utafiti wa tathmnini ya matokeo ya Mfumo wa Mzabuni Teule wa Jazia. Nakuomba ushiriki.

Umuhimu wa utafiti huu: Lengo kuu la utafiti huu ni kutathmini matokeo ya Mfumo wa Mzabuni Teule wa Jazia katika kuboresha upatikanaji wa bidhaa za afya katika Mkoa wa Shinyanga.

Jinsi ya kushiriki: Ukikubali kushiriki katika utafiti huu, utakutana na mtafiti ili kutathmini katika stoo ya bidhaa za afya iliyopo kwenye kituo cha kutolea huduma za afya. Takwimu zitakusanywa na kujazwa katika fomu za kukusanyia taarifa kwa kuangalia, kuhakiki nyaraka pamoja na kujaza dodoso

Usiri: Taarifa zote zitakazopatikana kwenye utafiti huu zitahifadhiwa sehemu maalumu ambapo wahusika tu ndio wataruhusiwa kuzipata taarifa hizo na zitatumika kwa ajili ya utafiti tu. Pia majina hayatumika badala yake tutatumia vyeo tuu ili kuwezesha washiriki kutokujulikana.

Muda: Muda wa kushiriki katika utafiti ni wastani wa dakika 40

Madhara: Hatutegemei madhara yoyote kukutokea ukiwa /ama baada ya kushiriki katika utafiti huu kwa sababu hakuna utaratibu wowote vamizi (kuingia mwilini kwa kukata au kutoboa ngozi au kwa kuingiza vyombo) utakaotumika isipokuwa taarifa zitatolewa kuhusu Mfumo wa Mzabuni Teule wa Jazia.

Haki ya kushiriki au kusitisha kushiriki: Kushiriki katika utafiti huu ni chaguo lako, na una uhuru wa kukubali au kukataa kushiriki katika utafiti huu. Pia unaweza kusitisha ushiriki wako katika utafiti huu muda wowote utakapojisikia hivyo hata kama umeshakubali kushiriki. Kukataa kushirirki au kusitisha kushiriki katika utafiti huu haitakufanya upoteze haki zako za msingi au kupata adhabu yoyote.

Faida: Ukikubali kushiriki katika utafiti huu hakuna faida ya moja kwa moja utakayoipata lakini tunaamini taarifa utakazotoa zitasaidia watunga sera na watoa maamuzi wengine wa serikali kutambua ikiwa kuna ufanisi na utendaji bora wa Mfumo Mzabuni Teule wa Jazia katika kuboresha upatikanaji wa bidhaa za afya na changamoto za mfumo ili kuuboresha.

Fidia: Hakutakuwa na fidia yoyote au malipo yatakayotolewa katika utafiti

Mawasiliano: Kama utakuwa na swali lolote kuhusu utafiti huu usisite kuwasiliana na mtafiti mkuu Shijo Beneth, S. L. P 65001, MUHAS, Idara ya Dawa, Simu +255 753 781 999, barua pepe bshijo45@yahoo.com
Au kama kuna shida yoyote imejitokeza na huwezi kujadiliana na mtafiti, tafadhari wasiliana na Mwenyekiti wa kamati ya utafiti na uchapishaji, S.L. P 65001, MUHAS, Dar es Salaam Simu +255 022-2152489, barua pepe drp@muhsa.ac.tz
Ridhaa: Nipo tayari kushiriki katika utafiti huu wa kutathmini matokeo ya Mfumo wa Mzabuni Teule wa Jazia katika kuboresha upatikanaji wa bidhaa za afya Mkoani Shinyanga. Nimeelewa kwamba ushiriki wangu ni wa hiari hivyo niko huru kujitoa wakati wowote bila kutoa sababu kama ambavyo nimefafanuliwa na Shijo Beneth.

Saini ya mshiriki …….

Saini ya mtafiti mkuu …….

Tarehe ……

Appendix 7: Health Facilities

SN	FACILITY NAME	COUNCIL	
		KAHAMA	USHETU
1	Busoka Dispensary	1	0
2	Ilindi Dispensary	1	0
3	Isagehe Dispensary	1	0
4	Iyenze Health Center	1	0
5	Kagongwa Dispensary	1	0
6	Kahama Hospital	1	0
7	Kilago Dispensary	1	0
8	Mwendakulima Health Center	1	0
9	Mwime Dispensary	1	0
10	Ngogwa Dispensary	1	0
11	Nyambula Dispensary	1	0
12	Sangilwa Dispensary	1	0
13	Seeke Dispensary	1	0
14	Zongomela Dispensary	1	0
15	Bukomela Dispensary	0	1
16	Bulungwa Health Center	0	1
17	Busenda Dispensary	0	1
18	Chambo Dispensary	0	1
19	Igunda Dispensary	0	1

20	Kinamapula Dispensary	0	1
21	Kisuke Dispensary	0	1
22	Mapamba Dispensary	0	1
23	Mkwangulwa Dispensary	0	1
24	Mpunze Dispensary	0	1
25	Sabasabini Dispensary	0	1
26	Ukune Dispensary	0	1
27	Ulowa Dispensary	0	1
28	Ushetu Health Center	0	1
29	Ushetu District Hospital	0	1
30	Uyogo Dispensary	0	1
	Total	**14**	**16**

Appendix 8: Approval for ethical clearance

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR - RESEARCH AND PUBLICATIONS

Ref. No.DA.282/298/01.C/ Date: 09/04/2021

MUHAS-REC-04-2021-550
SHIJO BENETH
MSc in Pharmaceutical Management, School of Pharmacy
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: ASSESSMENT OF IMPACT OF JAZIA PRIME VENDOR SYSTEM ON AVAILABILITY OF HEALTH COMMODITIES IN SHINYANGA REGION

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 09/04/2021

EXPIRATION DATE OF APPROVAL: 08/04/2022

STUDY DESCRIPTION:

Purpose:

The purpose of this cross sectional study is to assess the impact of Jazia Prime Vendor System in facilitating the availability of health commodities in public health facilities.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%20552.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain data transfer agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain material transfer agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country,
8. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
9. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
10. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

Dr. Bruno Sunguya
Chairman, MUHAS Research and Ethics Committee

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research & Publications
Box 65001

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1038;
Direct Line:+255-22-2152489;Telefax:+255-22-2152489;E-mail:drp@muhas.ac.tz;Web:https://www.muhas.ac.tz

Annexes 9: Permission Letter Kahama MC

THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE, REGIONAL ADMINSTRATION AND LOCAL GOVERNMENT

KAHAMA MUNICIPAL COUNCIL

In reply please quote:

Ref.No. KTC/S.20/51/ **20th April, 2021.**

RE: DATA COLLECTION REQUEST FOR SHIJO BENETH.

Reference is made to the above caption, please refer to your letter with reference number HD/MUH/T.467/2019 dated on 14th April, 2021 and captured the above heading.

I am grateful to inform you that **Shijo Beneth** has been accepted by the Kahama Municipal Council to Collect Data as part of her learning the Title is **"The Assesment of Impact of Jazia Prime Vendor System on Availability of Health Commodities in Shinyanga Region".**

The Municipal Council has no budget for students who undertake practice in Research and Data Collection; therefore she will have to meet all costs relating to his Research Practical.

Yours sincerely,

Balhaki Mdee

For; MUNICIPAL DIRECTOR

KAHAMA

K.m.g. MKURUGENZI WA MJI

KAHAMA

Kahama Municipal Council, Boma Road,P.O. BOX 472, KAHAMA, SHINYANGA

Email :info@kahamatc Website www.kahamatc.go.tz

Appendix 10: Permission Letter Ushetu DC

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS, TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA WILAYA YA USHETU

Unapojibu tafadhali taja:

Kumb. Na. /PF/ M·10/7 **05 /5 / 2021.**

Mganga Mfawidhi
Kituo cha Afya /Zahanati.....
S.L.P 50,
USHETU-KAHAMA.

YAH: KUMTAMBULISHA NDG SHIJO BENETH.

Tafadhali husika na kichwa cha habari hapo juu.

Ninamtambulisha kwako ndugu Shijo Beneth Mwanafunzi kutoka chuo cha Muhimbili University of Health and Allied Sciences (MUHAS),ambaye anasomea MSc. Pharmaceutical Management.

Kwa barua hii namtambulisha kwako kwa ajili ya kufanya Utafiti "The **Assesment of impact of Jazia Prime Vendor System on Availability of Health Commodities in Shinyanga Region"** hivyo naomba umpokee na kumpatia ushirikiano ili kukamilisha utafiti wake.

Nakutakia kazi njema

Nicodemus Senguo
MGANGA MKUU (W).

MGANGA MKUU (W) HALMASHAURI YA WILAYA YA USHETU
05 MAY 2021

Nakala: Mkurugenzi Mtendaji – Aisome kwenye jalada.
Shijo Beneth – Ripoti kwa Mganga Mfawidhi.