



## Research Article

# Relevance and Experiences of HIV Testing Models towards Three 95 Targets in Tanzania

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### Abstract

**Background:** The government of Tanzania adopted the United Nation AIDS “95-95-95” strategy as a step to fast tracking HIV/AIDS free generation by 2030. The adoption was followed by expansion of HIV services to all health facility levels. The focus of the nation was to strengthen HIV testing services that is central to achieve the first 95- of UNAIDS fast-track target as adopted by Tanzania for which the second and third 95s are heavily dependent on. Achievement of first 95 was expected to drive the achievement of second 95 and third 95s. The study aimed to assess implementation of HIV testing model in increasing coverage of HIV testing at Pangani district council.

**Methods:** Descriptive exploratory study was conducted at Pangani District Council. Purposive sampling technique was used to select health care providers from health facilities providing HIV testing services. Interview and focus group discussion used to collect primary data from facility in charge, CTC in charge and staffs working in CTC unit. Data from CTC 2 data base and DHIS 2 for monitoring HIV services were used. Descriptive analysis, phenomenological analysis and ethnographic analysis were used to summarize, organize and interpret data through Atlas ti software version 7.

**Results:** Pangani district council tested 106,232 people between 2016 and 2020. Out of tested people, 69, 460 (65.39%) were tested at five health facility through Amref supported program and 36,772 (34.61%) tested from 17 facilities that did not get support from Amref. Among the people tested for HIV 2,843 people (2.68%) were positive where: PITC contributed 73.40%, index contributed (18.15%), PMTCT contributed (4.22%) and VCT contributed (2.78%). Training on new HIV testing strategies, motivation of staff and availability of HIV testing kits were the factors associated to achievement.

**Conclusion:** The council has to establish regular on job training need assessment on provision of HIT at all levels. The council should prepare plan and allocate resources to the 18 facilities that did not get support from Amref. This plan and resources will help synthesize efforts to implementation of HIV testing models. The council should find another implementation partner in HIV services to cover the facilities that do not get support from Amref. Motivation supposed to be clear in terms of process, motivational factors, time interval and criteria for being motivated.

**Keywords:** HIV; Testing Models; PMTCT; PITC; VCT; Index.

## Introduction

In 2016, the Government of Tanzania adopted the UNAIDS “90-90-90” by 2020 and then “95-95-95” strategy as a step to fast tracking HIV/AIDS free generation by 2030. The adoption was followed by expansion of HIV services to all health facility levels (UNAIDS, 2014). The focus of the nation was to strengthen HIV testing services that is central to achieve the first 95- of UNAIDS fast-track target as adopted by Tanzania and Amref, for which the second and third 95s are heavily dependent on. Achievement of first 95 was expected to drive the achievement of second 95 and third 95s. Different HIV testing models and strategies were adopted to expand HIV testing services. These models include PITC, VCT, PMTCT, and index and partner notification [1-2].

The implementation of these models aimed at increasing coverage of testing to all population groups. Each model is designed for specific population group with a target. The overall target population tested was cumulative target scored by all models in HIV testing. The national HIV data shows that, up December 2020 Tanzania had significant improvement in HIV services. The national statistics shows that, Tanzania has an estimate of 1.6 million people living with HIV up to December 2019. A total of 1,252,205 people out of 1,600,000 living with HIV have tested and known their status. This is estimated to 78.3% of the total number of people living with HIV. The male prevalence is 413,985 (33%) and that of female is 838,220 (77%).

Therefore 1,221,799 people out of 1,252,205 who are living with HIV that is 97.6% have been linked to CTC and started ART in Tanzania. Among those in ART 72% of them are adults on antiretroviral treatment and 65% are children attending the antiretroviral treatment services. It estimated that around 93% of the people attending antiretroviral treatment have managed to suppress the viral load. This justify that the effort to meet the three 90s on HIV services by 2020 is going to be achieved [2].

It is not clear how each of the existing models work and what has been their contribution to HIV testing in the country. This study evaluated the contribution of PMTCT, VCT, PITC, index and partner notification in increasing the coverage of HIV testing. The purpose is to inform on the effectiveness of these models and generate evidence for improvements. The evidence is critical for enhancing effectiveness of these models to facilitate the attainment of the first 95 ie 95% of the population have been tested and know their HIV status.

## Methodology

Cross section exploratory study design was conducted at Pangani District Council to evaluation HIV Testing Models

implemented through Afya Kamilifu project. Pangani District Council was rated as one of best performing councils in HIV testing services compared to other councils in Tanga Region. The choice of cross sectional design was useful in assessing implementation procedures of the HIV Testing Models and its effect to explore critical factors necessary for policy improvement and planning. The study conducted in 23 health facilities comprising 1 council hospital; 2 health centers and 20 dispensaries providing HIV Testing Services using a variety of models technically supported by the project. The approach of the study was policy evaluation and was guided by country’s HIV set targets of: 95% of the population being tested and understand their HIV status; 95% of those tested enrolled to HIV and AIDS treatment and; 95% of those in HIV treatment are virally suppressed. The targets are the millstone towards AIDS free generation by 2030 [3].

The study used both secondary and primary data. Secondary data was accessed through DHIS 2 and CTC 2 data base. These are databases that collect routine data of the patients among others on provision of HIV and AIDS services of which HIV Testing is part. Data from these systems was accessed /on June 2021. Primary data was collected from key informants purposively and conveniently selected from health facilities and project. The selected key informants were facility in charges, care and treatment center (CTC) in charges, CTC staffs, District AIDS Control Coordinator, Program staffs and program manager. The selection criteria were involvement in supporting and implementation of the HIV Testing Models. Data was collected using interview guide through individual interviews and Focus Group Discussions. FGD was conducted for 45 minutes to CTC staffs and comprised between 6 to 10 participants. Individuals’ interviews were conducted to facility in charges, DACC, project staffs and CTC in charges and took between 25 to 30 minutes per participants. Participants to the study were more fluent in Kiswahili and thus all interviews were conducted in Kiswahili and later translated into English

Data was collected in note books/using tape recorder after participants having agreed to participate in the study through signing of the consent form and transcribed in the same day to enable participants remember on what actually transpired during the data collection process with a fresh memory. Data was collected in Kiswahili using tape recorder and transcribe in the same date then translated into English. Atlas ti software version 7 was used to analyze qualitative data. Coding and memoing were made on the basis of predetermined and merging patterns. The output from Atlas to Software was used to summarize and interpret the study findings. Ethical approval was obtained from Mzumbe University and participants were given informed consent to assign after they have agreed to participate in the study.

## Results

Pangani district council had a total of 106,232 people tested

for HIV between 2016 and 2020, among them 69,460 clients (65.39%) were tested at five project supported health facilities. These facilities were Pangani district hospital, Mkalamo and Mwera health centers, Madanga, Kipumbwi, Kimang'a dispensaries. A total of 36,772 (34.61%) of the total people tested for HIV were tested from 17 facilities that did not get support from Amref. These facilities (dispensaries) were Boza, Masaika, Mbulizaga, Kikokwe, Stahabu, Lngoni, Meka, Kwakibuyu, Mkwaja, Sange, Mgereza, St Marry, Kandita, Mwera and Sakura Estate. The status of each facility is shown in tables below.

Organisation	2016	2017	2018	2019	2020	Total
Kipumbwi Dis	579	647	3518	663	1073	6480
Kwakibuyu Dis	394	633	887	1340	783	4037
Mkalamo HC	341	1325	2844	1482	692	6684
Mwera HC	936	1562	6034	2611	3313	14456
Pangani DH	6624	8323	10066	7722	4705	37440
<b>TOTAL</b>	<b>8874</b>	<b>12490</b>	<b>23349</b>	<b>13818</b>	<b>10566</b>	<b>69097</b>

**Table :** The status HIV testing in five health facilities supported by AMREF at Pangani district council from 2016 to 2020.

### Contribution of HIV testing models in increasing HIV case detection

A total 106,232 people tested for HIV by using different models from 2016 to 2020 at Pangani district council 2,843 people (2.68%) were tested positive. From those tested positive 2371 that is 83.40% of the total cases were contributed by PITC model. The second model to contribute the many positive cases was index model that contributed 516 (18.15%) of the total positive followed by PMTCT that contributed 120 cases that 4.22% while VCT model contributed about 86 of the total cases that made 2.78%.

HIV TESTING MODEL	2016	2017	2018	2019	2020	TOTAL
<b>PITC</b>	229	426	288	448	980	2371
<b>PMTCT</b>	20	32	34	19	15	120
<b>VCT</b>	46	28	08	04	0	86
<b>INDEX</b>	0	0	0	157	359	516
<b>TOTAL</b>	<b>295</b>	<b>486</b>	<b>330</b>	<b>628</b>	<b>1354</b>	<b>3093</b>

**Table 2:** Contribution of HIV testing models in increasing HIV case detection.

The study reported an increase of the number of people in HIV testing and case detection was associated with the following factors.

### Creation of HIV testing demand

The study discovered that, there is variation in creation of demand for HIV testing to client attending the health facilities. The variation seems in all three levels of health facilities which are dispensaries, health centers and district hospital. At dispensary the creation of demand for HIV testing was the role of all staff members who are available at that day. All staffs at all points like laboratory, OPD and RCH are responsible for initiating the need for HIV testing to eligible customers. As said by one of the respondents:

*.....is a collective responsibility to all staff, it can be either in RCH, Lab or OPD. Everyone in our facility is responsible to ensure all clients attending this facility are tested for HIV. There is no specific person to take that responsibility..... (IDI, facility)*

At health centers and district hospital, the need for testing for HIV was initiated by clinicians and lay counselor who were assigned that task. These lay counselors were hired for the purpose of screening all clients attended the facilities to get eligible persons for testing. They were using the HTS screening tool which was assisting them to get individual who supposed to test. As reported by one respondent

*...here we have lay counselors who are responsible for screening our clients to identify those who are eligible for HIV test. Those who eligible are counseled by lay counselor or our trained counselor because we have trained counselors who got full counseling training..... (FGD, facility)*

### **Provision of pre-post testing information**

The study findings showed that, among the 23 facilities providing health care services at Pangani district council only two facilities (2) which made 8.6% have trained counselors. Pangani district hospital reported with two (2) trained counselors and Mwera health center with one (1) counselor. These trained counselors were trained more than past five years under the AIDS relief program which was supported by CDC. These trained counselors seemed to have other duties rather than counseling. Two counselors at district hospital were located in RCH and CTC dispensing point. As reported by one of the respondents that,

*....we had four trained counselors; three were at our district hospital and one at Mwera Health Center. During form four certificates verification one was fired. Now we have only three trained counselor two are at district hospital and one counselor at Mwera health center... (IDI, facility)*

The respondents of the study reported lack of counseling training prepared and delivered to health care providers for more than three years. The five facilities involved in the study reported poor environment for conducting pre-test counseling. In charges reported shortage of rooms that led to multi-functional room. Also most of health care providers reported the absence of HTS guideline. Only 3 facilities reported to have HTS guideline that used to guide and direct service providers on good and safe services provision.

### **Performing testing**

Interviews with health facility in charges discovered Pangani district hospital was the only facility with special room for HIV testing and more than 10 testing points. These points included OPD clinician rooms, lab, dental unit, VCT room, labour ward, pediatric ward, male and female medical and surgical wards, private ward male and female, minor theatre and clinic room. For the case of health centers and dispensaries three testing points was reported. Clinician rooms, lab and RCH were used as HIV testing points. Also the findings show that, five facilities supported by AMREF under Afya Kamilifu Project have trained HIV testers. This includes those who attended special training on HIV testing and those who got on job training given during the supportive supervision. There was no training prepared for non supported facilities. They use their skills and competences of their professionals in provision of health services. One respondent said that:

*"here we have VCT room which is used for counseling and testing but, we have more than ten (10) testing points which include OPD clinician rooms, lab, dental unit, VCT room, labour ward, pediatric ward, male and female medical and surgical wards, private ward male and female, minor theatre and clinic room ..... yes, we have got training on HIV testing. The team from regional and district level came to give us some on job training on how to collect sample from client and how to test as well result reading (FGD, facility).*

These trained personnel faced the challenge of being assigned other duties and responsibilities out of HIV testing. Shortage of staff reported as one among the factors led to assign duties out of testing to those who got training on HIV testing. The number of staff reported to deny the allocation of trained personnel to only in testing.

### **Availability of testing kits**

Study respondents reported that, availability of HTS kits was of 100%. They make order to MSD and they get on time. Also they can get kits from the nearby facility when MSD is delayed to bring the requested order. The HTS kits never missed in the facility at all times from 2015 to 2020. Also the study observed that, sometimes unigold for confirmatory test sometimes miss in a short period of time.

## **Discussion**

Pangani district council tested 106,232 people between 2016 and 2020. Out of tested people, 69, 460 (65.39%) were tested at five health facility through Amref supported program. A total of 36,772 (34.61%) of the total people tested for HIV were tested from 18 facilities that did not get support from Amref. Program supported facilities seems to perform higher than non supported facilities. This is likely to have been caused by regular training on HIV testing, regular supportive supervision, data quality assessment conducted by program officers and motivation. HIV testing models can do nothing without good plans, monitoring and evaluation, allocation of adequate resources, training of key implementers as well regular supportive supervision [4].

Implementation of HIV testing models involved 106,232 clients tested for HIV at Pangani district council between 2016 and 2020. PITC contributed a total of 77,617 people who made (73.06%). The model became more effective in increasing the number of people in testing compared to other models due to its feature that required all symptomatic and non symptomatic inpatient and outpatient clients have to be tested for HIV. This model seems to be more contributing to increased number of people in testing as reported by (Ogbo et al., 2017).

PMTCT contributed 13.72% of the total people tested for HIV, which is higher than VCT and index. This contribution is likely to be caused by mandatory HIV testing of pregnant mothers and their sexual partners during the ANC services. The mandatory testing increased the number of people tested for HIV through PMTCT model. The same effect of PMTCT seems in the study done by (Pope et al., 2008). The study discovered that, mandatory HIV testing increased the number of people in HIV testing. VCT and Index seem to perform low due to their uniqueness and that they are specific. VCT is now discouraged by PITC since all clients attending the facility have to test for HIV before seeing a doctor.

Pangani district council tested positive 2,843 (2.7) people by different models from 2016 to 2020. Among them, 73.40% of the total cases were contributed by PITC model; index model contributed up to 18.15%, PMTCT contributed 4.22% while VCT model contributed about 2.78%. The contribution of case detection is directly proportion to the number of people tested for HIV per model. This concurs with UNAIDS fast tracking strategy. The number of people in testing will increase the number of case detection. This led to first 95 of the UNAIDS strategy Girum et al. (2018) and Ogbo et al. (2017)

The study observed that, creation of demand for HIV testing is initiated by health care providers. In health center and district hospital was the role of lay counselor and OPD doctor and nurse. At the dispensary, this was the duty of all providers at a particular facility. This practice is directed by national HTS guideline and UNAIDS fast tracking strategy. The findings of this study is supported by the study of Shahira Ahmed et al. (2016). Most pre counseling were done before a client attended to the clinician for consultation. This helped to increase the number of people to test.

The shortage of physical space and lack of privacy may discourage some people to be counseled and tested. Availability of physical facilities for counseling and testing is reported in the study of (Ahmed et al. 2016). The study reported shortage of physical space as a factor impinging the effort to increase the number of people in HIV testing. Also it is against the HTS guideline and protocol, the guideline requires setting of room with fool privacy that facilitates counseling process.

Pangani district hospital was a facility with special room for HIV testing, but the hospital had more than 10 testing points. These points included OPD clinician rooms, lab, dental unit, VCT room, labour ward, pediatric ward, male and female medical and surgical wards, private ward male and female, RCH, minor theatre and clinic room. This made Pangani hospital to perform more in testing compared to other facilities with low number of testing points. Health centers and dispensaries had only two to three testing points which were clinician rooms; lab and RCH were used as HIV testing points. Health centers and dispensaries had

low testing points due to shortage of physical space, multifunction rooms as well shortage of staff.

The findings show among the five facilities supported by AMREF that, all have trained HIV testers. This involved those who attended special training on HIV testing and those who got on job training given during the supportive supervision. This can be among the factors which led to high performance. The performance of facilities supported by Amref program was higher than those with no support. There was no training prepared for none program supported facilities. This led to lower morale of work among the health workers, low awareness of new strategies introduced in testing as proposed by UNAIDS fast track strategies on HIV free generation by 2030 ( Ahmed et al. 2016) [5].

The study discovered 100% availability of HTS kits at all facility levels. This is like to be caused by the fact that HIV services are under the vertical program. They make order to MSD and they get on time. Availability of HIV testing kits facilitate the implementation of UNAIDS fast track strategy. This is supported by the study of (Bolu et al. 2007). Availability of HIV testing kits facilitated the implementation of UNAIDS fast track strategy. The study findings health care workers were not satisfied with motivation and rewards given to them and some were totally not motivated. Motivation of key implementers and actors of strategy is a catalyst to effective implementation (Dalal et al., 2011)

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## Author Contributions

Henry Mollel critically reviewed the study design and tools and significantly contributed to the development of the manuscript. Selemani Joho conceptualized the study design, developed tools, conducted data collections and analysis, drafted and finalized the manuscript. Both authors read, revised and approved the final manuscript.

## Ethics Approval And Consent To Participate

Ethical approval for this study was obtained from Mzumbe University (MU) on behalf of the Commission for Science and Technology (COSTECH) and the National Institute for Medical Research (NIMR) is mandated to issue Ethical Clearance to students and members of academic staff to conduct various studies. Respondent were given and signed written consent form to express their will to participate in the study.

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