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## PERCEPTIONS ABOUT REPEAT HIV TESTING IN AN INCIDENCE STUDY: A QUALITATIVE STUDY AMONG A POTENTIAL COHORT FOR HIV VACCINE TRIALS IN DAR ES SALAAM, TANZANIA

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### ABSTRACT

**Background:** Information regarding repeat HIV testing is useful in the conduct of HIV vaccine trials as potential trial participants are required to undergo repeat HIV testing. In an incidence study conducted in 2008 among 1042 Police Officers 30% of them did not participate in a repeat HIV test. This study was therefore conducted to explore perceptions on repeat HIV testing among members of the incidence study cohort that also served as a source of volunteers for subsequent HIV vaccine trials.

**Methods:** This qualitative cross-sectional study was conducted in Dar es Salaam. The study included male and female Police Officers who were eligible to participate in the HIV incidence study. Participants were selected purposefully from eight Police stations out of the 32 stations. Data was collected using in-depth interviews and analysed qualitatively using the content analysis approach. **Results:** A majority of participants were willing to undergo a repeat HIV test and stated that it was important to repeat an HIV test to confirm their health status, and hence continue protecting themselves. Participants who participated in a repeat HIV test as a part of incidence study reported that the repeat HIV testing process was acceptable because counselling was provided, testing was voluntary, there was trust in the health care providers and a freedom to choose where to test. Participants who did not repeat the HIV test held that repeat a HIV test was not necessary since they believed that the initial test was adequate. Others said that communication breakdown was the main cause as they weren't aware of the importance of a repeat HIV test. Fear of the test results was also mentioned as one of the reasons. The participants were eager to gain more knowledge about the importance of a repeat HIV test.

**Conclusion:** In order to facilitate repeat HIV testing in potential cohorts for HIV vaccine trials, more information and education regarding the repeat HIV test is needed. It is also important to make sure that researchers are well informed on what study participants are supposed to know.

**KEYWORDS:** Retest, Police Officers, HIV/AIDS, Tanzania

### INTRODUCTION

For more than twenty years Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS) have remained the uppermost threats to health, especially in the low income countries of sub-Saharan Africa. Based on the UNAIDS report on the global AIDS epidemic, an estimated 34 million people were living with HIV globally and Tanzania was estimated to have 1.6 million people living with HIV/AIDS [1]. Efforts to halt the impact of the epidemic are numerous, including an increased access to anti-retroviral treatment (ART) in Tanzania [2], and have started to bear fruits [3,4].

It is generally believed that the best long-term hope for controlling the HIV/AIDS pandemic is the availability of a

safe, effective and affordable preventive vaccine [5]. However, prior to undergoing HIV vaccine trials, incidence studies are important to assess, through regular HIV testing, the rate of new infections in the population. This helps to identify settings that are suitable for clinical trials where such trials could be conducted cost-effectively. Thus, studies on willingness to repeat HIV test in trial settings is an important aspect of such trials.

In Tanzania, the Muhimbili University of Health and Allied Sciences (MUHAS) in collaboration with the Health Unit of the Police Force in Dar es Salaam conducted a study to establish HIV prevalence and incidence among Police Officers (POs) who had earlier (1994/1996) been studied and noted to be a potential cohort for HIV vaccine studies [6]. This paved the way for the first HIV vaccine safety and immunogenicity study (HIVIS-03) in Dar es Salaam that drew volunteers from the cohort. The HIV prevalence data was further envisaged to provide important information to promote prevention efforts within the Police force. In preparation for future HIV vaccine trials it was also deemed necessary to determine the current HIV magnitude among the Police Officers. Therefore in 2005, 1240 police were prospectively enrolled to determine the HIV prevalence and they were prospectively followed up over 3 years to determine the HIV incidence [7]. During the exercise it was noted that the rate of re-testing for HIV among POs in the incidence study was lower than what was expected [30% of 1240 did not re-test].

This prompted a question "why some members of Police Force who participated in the HIV prevalence study did not re-test for their HIV status in the incidence study? To answer this question, there was a need to do a follow-up study so as to understand the reasons for not re-testing, but also to assess the experiences of repeat testing among those who tested. The present study, therefore, sought to assess the overall motives and barriers for the repeat HIV test among study participants. The findings are expected to be of relevance to the HIV prevention trials. Also the results will contribute to the available literature about experiences of people who repeat HIV test after knowing their HIV status,

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as well as the reasons that people offer for not repeating HIV testing.

## METHODS

### Settings of the study

This was a cross-sectional study carried out in Dar es Salaam, Tanzania. Eight out of 32 police stations were involved. The selection of the stations was based on the availability of the potential study participants. Notably, age and sex distributions in all the stations were homogenous.

### The target population

The target population for the proposed study was both male and female POs who participated in an HIV prevalence/incidence study in 2004 in Dar es Salaam, Tanzania.

### Design

This was an explorative qualitative study design. Qualitative research was employed to understand a phenomenon in context-specific settings [8, 9].

### Sampling procedures

The sampling strategy was purposeful to seek for POs who were in a core group of HIV vaccine trial research as they were regarded as information-rich cases to be studied in depth [8].

Accordingly, core group members who did not participate in a repeat HIV test and those who participated in a repeat HIV test were eligible for the study. POs who did not repeat HIV test were expected to provide first hand information for reasons of not participating in a repeat HIV test. In addition, POs who participated in a repeat HIV test were interviewed to complement this primary information.

### Recruitment

The fourth author (PM) sorted the names of the potential study participants from the database. The database for this cohort is safely kept at the MUHAS study site. Two field assistants (a Doctor and a Nurse from the police force who were collaborators in the project) were asked to assist in tracing the potential study participants from their respective work stations. The Nurses who were trained in conducting qualitative interviews contacted the potential participants, set appointments, introduced the objectives of the study and asked for their consent. Of the 32 contacted, 20 agreed to be contacted further for this study, but only 15 were accessible, consented and participated in the study.

### Data collection

The research team coordinated data collection. The research assistants (trained nurses) collected data through in-depth interviews (IDIs). The first author, DK reviewed the interview guide with the research assistants who had extensive experience on conducting interviews for research

purposes. A semi-structured interview guide was used to allow probing and exploration of different aspects of the study [9-11].

A favourable place for interviewing was secured according to the participants' preferences provided that privacy was assured and interviews could be done and recorded without any interruptions. Interviews were recorded with the consent of the participants. Data collection occurred between July, and August 2011.

### Data analysis

Data analysis was informed by principles of content analysis. Analysis began during data collection and interesting topics were further explored. Interviews were transcribed verbatim (in Kiswahili), and translated to English. To increase trustworthiness two authors, DK and EAMT repeatedly read all transcripts to familiarize with the content.

Analysis of textual data consisted of several steps. First, DK and EAMT coded all transcripts independently. Differences were shared and negotiated for consensus. The emerging patterns were noted. Manual analysis followed after the text coding, and categories were formed.

### Ethical considerations

Ethical clearance was obtained from the Institutional Review Board (IRB) of the Muhimbili University of Health and Allied Sciences (MUHAS), [Ref. No. MU/DRP/AEC/Vol. XIII/158]. The authors sought and obtained permission from authorities of each police station prior to the data collection. Moreover, a written informed consent was obtained from each study participant.

## RESULTS

### Study participants

A total of 15 participants with a mean (SD) age of 39 (8.3) years were interviewed. Eleven were males. The youngest participant was 27 years and the oldest was 52 years. Seven of them had not re-tested for HIV. The detailed socio-demographic characteristics of the participants are shown in table 1.

### Main findings

The main findings are presented according to pre-determined categories from the research objectives. These are: the perceived importance of testing for HIV; reasons for repeating to test for HIV; acceptability of a repeat HIV testing; the reasons that may hinder people from repeating to test for HIV; and steps that may be taken to enhance repeating to test for HIV. As a norm of qualitative research, the researchers started by asking a general question regarding testing for HIV. The question was also deemed necessary to ascertain perceptions of the study participants regarding the importance of testing for HIV.

**Table 1:** Demographic characteristics of study participants

Characteristic	Variable	Retested	Non-retested	Total
Sex	Males	5	6	11
	Females	3	1	4
Religion	Christians	6	4	10
	Muslims	2	3	5
Marital status	Unmarried	3	0	3
	Married	5	7	12
Educational level	Primary	4	0	4
	Secondary	4	7	11

### Perceived importance of testing for HIV

Participants gave their views on the importance of testing for HIV. The common view was that testing for HIV serves as an entry point to know "HIV status". Most of the participants explained that people learn that they are HIV infected or not by undergoing an HIV test. Besides, participants went further and provided varied views on the importance of knowing one's HIV status. The shared view was that of prevention where the three kinds of prevention emerged: First, there were those who perceived that awareness of HIV status is important to avoid transmitting HIV to others.

*If you test and find that you are HIV infected you should make sure that you don't transmit HIV to others, so you don't infect your community (female, 38 years, retested).*

Second, there were those who held that awareness of HIV status is important in preventing one-self from HIV infection, meaning not to get the infection. This was specifically so when one is not infected.

*If I find that I am not infected I can say that I am supposed to protect myself first before educating others on the importance of testing HIV (female, 34 years, retested)*

Third, there were those who considered that in advent of treatment of AIDS related illnesses awareness of HIV status (if test results are positive) would be an entry point to seeking of medical care.

*It is important because, for the today's world, you are supposed to know your health status, and if you will be found HIV positive, there is some treatment, you should start using medicines (male, 52 years, retested).*

One of the participants provided a description that links awareness of HIV status and HIV prevention at all three

levels. Besides, this was a participant who had not retested. He said:

*Well...it is important because, first of all it helps to know your health status. When you test for HIV you may realize that you are HIV infected or not infected. So after knowing your health status; when there is a problem, if for instance the results are positive you may know what to do. When I also know about my health, I can't transmit to others because I am aware. When I am making love (**having sex**) it becomes easier to protect myself (male, 32 years, non-retested).*

There was also a notion that awareness of HIV status is an entry point to educating others. A good example is a study participant who held that educating others is regardless the positive or negative HIV test results. She said:

*First of all it helps to know my health status, and if you are found HIV negative or positive you can be in good position to educate others (female, 42 years, retested).*

### Perceived importance of repeating to test for HIV

Based on their views on the importance of testing for HIV, participants were asked about the reasons of repeating to test for HIV. The common view was that repeating to test for HIV is a means to confirm HIV status. They described that it was not adequate to test once as results of the single test are not authentic. One of participants who had retested for HIV alleged:

*The importance of re-testing HIV is that when you test for the first time you can find that you are not infected, but in the second time you can find that you are HIV infected (male, 52 years, retested).*

Another participant who had not re-tested provided similar views, however, her opinion was reported to be based on information from experts:

*You must test again, because experts told us that if you get HIV infection today, they [viruses] can't be seen in*

*the blood tomorrow [immediately] (female, 28 years, non-retested).*

There was another point of view in that re-testing is a way to confirm HIV test results, however, with the possibility of disapproving initial results.

*I think one should retest to prove if the testing results were initially correct, it's possible to have different test results from different test stations, if your test results were positive, you should retest, and if your results are again positive you will know what to do, for example taking drugs after checking for CD4 counts (male, 47 years, retested)*

There are also participants who considered that being re-tested is a way of getting re-informed of one's health status. One respondent who had re-tested for HIV contemplated that it is important to retest after a long period one may have been infected. He said:

*If you test regularly it's very important because you will know what is going on. That is why after testing once and realize that you are not infected, when you stay for three to four years, it's a long time you never know within those years anything may have happened, so when you come to test again, it means that you want to know your health status again (male, 28 years, retested).*

One participant who said that the virus is likely to be invisible during the first test was probed on what makes HIV invisible in the first time and visible next time and he said:

*According to my understanding, it means that you can test and find that you are not infected may be you had sexual intercourse today, in that sense when you go to test the same day or the day after, HIV will not be visible in your blood, they may be visible after one to two months (male, 52 years, retested).*

### Acceptability of a repeat HIV testing

The study sought to establish acceptability of a repeat HIV testing among study participants. Acceptability was largely associated with readiness to get any test results as well as perceived importance for test results. In relation to that, one of the participants shared this:

*In fact I was ready for anything, even if its HIV positive, I could be educated and get some advice, but I was lucky that when I tested for the first time and for the second time, I can't know for this time but I feel that I am still okay (female, 34 years, retested).*

Moreover, participants expressed their feelings, opinions, or views about a repeat HIV test

*I think it's a good thing, because we know our health status, I suggest that every body of us who wants to test HIV should do so, because it's very important. One will know his/her future, so if we don't do that we will never know, that's when you find that one is in search for partner and gets her/ him and when he is told to test HIV runs away, but if you could have been testing HIV you can't fear that ... because its voluntary, even if*

*it's a government program to test HIV to know the rate of HIV transmission, or to know the percentage of the affected ... its ones decision which depends on ones understanding (male, 47 years, retested)*

On the contrary, the participants realized that other people may be influenced not to repeat testing for HIV by their colleagues as one of them said:

*There are others who are influenced by others, when you go to test you will die of pressure, if you are found HIV positive, we normally advice them to go to test HIV to know their health status but won't come again to retest. They are being corrupted by others that if you go to test you will die (female, 28 years, non-retested).*

However, other participants stated that the voluntary nature of HIV testing services motivates them to test as well as to retest.

*Right, because when they [researchers] came, they told us it is voluntary testing, one is not forced to test, one may decide to check or not to check his/her health status, before they test you, they give counselling and make sure that you understand, and after they are satisfied that you have understood, they check you, so you can not fear, because nobody forced you, you are the one who decided, so there will be no any fear because you are ready of receiving any findings, you are the one who decided after being advised and find that it's important to go so as to know how to live in your community (male, 39 years, retested).*

When the participants were asked anonymously about where they would prefer to go for a re-test, most of them responded that their choice would be Muhimbili [Muhimbili study site]. One of them reasoned what influences his choice:

*Right, because I have experience with Muhimbili, I think it's the right station because they know me already, and I can't go to different places to start afresh, so I would go back to Muhimbili because they will retest me and tell me the findings (male, 28 years, retested).*

Another who held similar views considered research experience as an important avenue to retest at Muhimbili.

*I will go to the place which is easier for me to test HIV, but the first choice will be at Muhimbili, because there are many researchers and they are experienced with this exercise (female, 42 years, non-retested).*

In addition, they elaborated that "getting accurate results" was a reason that would make one participate or not participate in a repeat HIV test with Muhimbili study team:

*Well, on the part of Muhimbili I believe, I think that it's a place where, off course it's the best, it's a national hospital, it's the main research centre in Tanzania, and it's the place where, where the findings are accurate*

*than any other station, I think if you go there, I think you get more accurate results more than any other station (male, 44 years, retested)*

Although most participants expressed positive views towards repeat test, they stated that other people may give discouraging views to a person who has undergone a repeat HIV test.

*Well, they can say a lot and everyone has got own view, but this cannot make one to stop doing the right thing, because for example on my side I test for my personal benefits, I don't test for the benefit of that who use much time talking about me... it's like when you go to church, you can't go to church because you are afraid of the Pastor, Father or Sheikh, you should understand that it's because you respect God, because you believe in God and not human being, so if we say that we are fearing of somebody, seeing what you are doing, we can't succeed (male, 47 years, retested).*

They emphasised that they would trust themselves and the health care providers than non-health care providers when it comes to their health status:

*I think one who can know my health status is one who tests me, helps me to know my health, that is the one who can say something and not others, they can't know what I am doing, so one can think that I am going to test HIV but instead I went to check malaria or typhoid, so you find that the one who is testing can decide what to (female, 34 years, retested)*

### **The reasons for not repeating to test for HIV**

Participants were of the opinion that some of POs did not participate in a repeat test for HIV because they perceived that a single test for HIV was adequate.

*For those who don't like to retest, naturally one says that I can't go, or maybe I have tested for the first time and I was found negative, there is no need of re-testing, you find that one don't know that if you are found HIV negative for the first time, you may be found positive for the second time you test (male, 52 years, retested).*

Lack of confidence was attributed to be one of the reasons for not re-testing. This may be coupled with ones perceptions about his behaviours.

*So the main issue is that they lack confidence, but if you are confident and within two months you were not involved in risk behaviour you can't fear of HIV testing (male, 28 years, non-retested).*

The problem of communication was cited as the main reason for not re-testing. Some of the participants reported that they were just told to repeat an HIV test after three months and no reasons were given by service providers regarding their need to repeat testing for HIV. The participants felt that it was important to be informed about the reasons of re-testing for HIV and in particular the source of such information.

*I think this has been caused by poor communication; from those who offer such services, in other words, between you and us, your clients (male, 32 years, non-retested).*

### **Suggestions on scaling-up willingness to re-test in HIV prevention clinical trials**

For people to participate in HIV prevention trials, study participants suggested that there should be more seminars, discussions, and education among potential cohorts for HIV vaccine trials. This would enhance their knowledge on the importance of repeating to test for HIV and hence reduce fear of testing:

*I think there should be more seminars and discussion, more education is needed to make them [people] know, many of them fear, because for instance when we first attended your research, we were told that its good so if this is not well elaborated or explained, people will continue fearing of testing, one comes to test for the first time, but for the second time says that now I am safe, these people want to transmit HIV to me, which is wrong, because if we could have been infected with HIV from your research, since 2007 up to this year 2011 it's about four years, I haven't seen any sign of HIV infection, so people are supposed to be educated well so that many people can join the program (male, 35 years, retested).*

Another participant provided similar views by saying that:

*We should be given more seminars, and give more education, until when satisfied, and one goes after seeing the importance (female, 28 years, non-retested).*

In order to also enhance confidence among potential cohorts for HIV vaccine trials, it was suggested that counselling and advice are strongly needed. He said:

*You can tell them to do this and this to protect their bodies, you should use various strategies, convincing him/her to go to test because there is no problem with testing, 'after testing you will get your results and know your health status', and may be you are found positive, you will get treated and hence live longer (male, 52 years, re-tested).*

### **DISCUSSION**

Testing for HIV in an incidence study serves as an entry point to know the HIV status. As reported in the present study, knowledge of HIV status may play a pivotal role in all forms of prevention namely primary prevention (not to get HIV infection), secondary prevention (not to transmit HIV to others) and tertiary prevention (access to medical care and support if infected) and in the context of HIV vaccine trials. Apart from re-testing in an incidence study, a repeat HIV test should be conducted to people with ongoing risk of HIV infection and to those who recall an incident of risk in the previous three months (WHO, 2010). As such, studies indicate that the mean time from infection to development of antibodies is about one month and most people (95%) will develop detectable antibodies by 3-4 months [12, 13].

In the present study, the participants embraced the importance of HIV testing as an entry point to know their HIV status, and they seem to accept both positive and negative test results. This implies that people may seek an HIV test by all means to know their health status. The readiness to accept positive and negative HIV test results suggests that the study participants had access to effective pre-test counseling. Among clinic attendees in London, Leaity and colleagues concluded that HIV test counseling provides the opportunity both to address high-risk behavior and reinforce personal risk-reduction strategies [14].

The eagerness to test for HIV in the present study may have been contributed by extensive sensitization meetings and workshops conducted within the police stations some years back [15, 16].

In Tanzania, the national strategy has been on increasing community awareness on HIV/AIDS including voluntary HIV testing. Thus, the eagerness to test for HIV may have been also contributed by the national strategy. In addition, as reasoned by some of the study participants, repeat HIV test is a kind of seeking assurance of initial HIV test results, implying that participants are cautious about the importance of repeat test given that they may acquire infection after initial test. A study among men who have sex with men (MSM) shows that many young MSM acquire HIV after repeated use of counseling and testing services [17], implying that repeat test is crucial.

In the present study, the striking perception among participants that one test is adequate need further investigation. Participants may become less careful to protect themselves from HIV infection and not repeating the test believing that they may not become infected. A previous study within the similar cohort indicated that participants were engaging in multiple sexual relationships and condom use was not often practiced due to individual sexual desires [18].

Under uncertainty of condom use, HIV infection may silently be transmitted within and outside the cohort. To avoid such circumstances, people may be required to repeat HIV test. However, lacking confidence to repeat an HIV test in the present study may suggest persistency of risky sexual practices in the cohort. This is contrary to a previous study in San Francisco that indicated that users of HIV repeat testing services were those who were practicing the highest risk behavior; and these had the highest incidence of HIV [19].

In our study population, repeat HIV test may be important regardless of the risky sexual behaviours because police officers have been reported to come in contact with blood from handling casualties without proper protection [18]. In the conduct of HIV vaccine trials, participants have to be educated on the importance of repeat HIV test. In that way, a variety of educational strategies are needed to ensure understanding of key concepts prior to giving consent for participation in HIV vaccine trials. Failure to adequately address the concerns that surround repeat testing will jeopardize the success of these trials and future HIV and AIDS research. Thus, scientists conducting preventive HIV

vaccine trials need to address community perceptions on HIV test and provide information about the repeat test if trial enrollment is to be successful.

In the present study, lack of effective communication was attributed to being not informed the exact purpose and time of repeating the test for HIV. Although communication between health care workers accounts for the major part of the information flow in health care [20] some of the health service providers sometimes don't bother to give detailed and accurate information to clients. This is likely to give rise to a substantial number of persons not returning for health services even if they are required to do so. However, the issue of stigma may contribute to not returning for repeat test. In South Africa, people who were not tested for HIV demonstrated significantly greater AIDS related stigma [21].

### **Limitation of the study**

This was an exploratory study based on an incidence study conducted previously. Given that MUHAS site is the one that conducted incidence study there is the possibility of socially desirable responses.

### **Implications**

Repeated HIV testing is a main component in HIV prevention trials, including HIV vaccine trials. Understanding willingness and perception of potential participants of HIV vaccine trials to undergo repeat HIV testing is of a significant importance as it is planned to continue conducting HIV vaccine trials in the present settings. The study's findings, inform on key considerations to promote awareness and acceptability of HIV repeated testing.

### **CONCLUSIONS**

The study participants related HIV testing with important aspects of their health. However, extra efforts may be needed to sensitize people to repeat HIV test and the importance of repeat test particularly in incidence studies. Given that it appears that communication breakdown may hamper repeat HIV test, it is high time for researchers to make sure that adequate communication is emphasised to promote the process of re-testing in the contexts of HIV vaccine trials. Equally important, health education that targets potential cohorts of HIV vaccine trials plays fundamental role in promoting awareness and willingness to re-testing.

### **Recommendations for further studies**

The present study was based on a sample of Police Officers who were a potential cohort for HIV vaccine trials. In that way, there is a need to replicate the study with another group and in different contexts. A quantitative study with a large sample is needed so as to establish associations between some variables of interest. It may also be important to conduct another study that will involve health personnel who participated in the HIV vaccine safety and immunogenicity study so as to determine whether they provided adequate information and guidance to the prospective HIV vaccine trial cohort of Police Officers.

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