THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH AND SOCIAL WELFARE - TANZANIA MAINLAND

National AIDS Control Programme

National HIV and AIDS Health Sector Research and Evaluation Agenda (2011-2015)

January 2012

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH AND SOCIAL WELFARE
TANZANIA MAINLAND

National AIDS Control Programme

NATIONAL HIV AND AIDS HEALTH SECTROR RESEARCH AND EVALUATION AGENDA (2011 - 2015)

NATIONAL HIV AND AIDS HEALTH SECTOR RESEARCH
AND EVALUATION AGENDA (2011 - 2015)

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ISBN 978 9987 650 69 9

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
BCC	Behavioural Change Communication
CDC	Centers for Disease Control and Prevention
CHMT	Council Health Management Team
COSTECH	Commission for Science and Technology
CSW	Commercial Sex Worker
CT	Counselling and Testing
DMO	District Medical Officer
FDC	Fixed Dose Combination
HAART	Highly Active Anti-retroviral Therapy
HBC	Home-based Care
HIV	Human Immunodeficiency Virus
HMT	Hospital Management Team
HSHSP	Health Sector HIV Strategic Plan
HTC	HIV Testing and Counselling
IDU	Injecting Drug Users
IEC	Information Education Communication
KCMC	Kilimanjaro Christian Medical Centre
MARP	Most at Risk Population
MCP	Multiple Concurrent Partnership
MMRP	Mbeya Medical Research Programme
MOHSW	Ministry of Health and Social Welfare
MUHAS	Muhimbili University of Health and Allied Sciences
MSM	Men Who Have Sex with Men
MTP	Median-term Plan
NACP	National AIDS Control Programme
NIMR	National Institute for Medical Research
NHAREA	National HIV and AIDS Health Sector Research and Evaluation Agenda
PEP	Post Exposure Prophylaxis
PEPFAR U.S.	President's Emergency Plan for AIDS Relief
PITC	Provider-initiated Testing and Counselling
PLHIV	People Living with HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
PMORALG	Prime Minister Office Regional Administration and Local Government
STI	Sexually Transmitted Infection
STP	Short-term Plan
TACAIDS	Tanzania Commission for AIDS
THIS	Tanzania HIV/AIDS Indicator Survey
THMIS	Tanzania HIV and Malaria Indicator Survey
TDHS	Tanzania Demographic and Health Survey

TABLE OF CONTENTS

The Ministry of Health and Social Welfare (MoHSW) through the National AIDS Control Programme (NACP) has developed a National HIV and AIDS Health Sector Research and Evaluation Agenda (NHAREA) that outlines HIV and AIDS health research and evaluation priorities for the next 5 years (2011-2015). The Agenda replaces the HIV/AIDS/STIs Research Priorities of the Health Sector HIV Strategic Plan I 2004-2008. For the first time, this Agenda includes evaluation priorities aimed at objectively reviewing the different HIV interventions that are currently in place to establish those that are both efficacious and cost effective. This Agenda, apart from informing individual researchers, institutions, programmers, policy makers, and other stakeholders for key national HIV research and evaluation priorities, will assist NACP in its coordination mandate of HIV and AIDS health research and evaluation activities in the country. The aim is to ensure a coordinated and effective effort in response to the HIV epidemic.

The process to develop the Agenda took several months. Gaps in HIV and AIDS health research and evaluation activities were identified through interviews with key stakeholders (e.g., research institutes, universities, the private sector, faith-based and civil society organizations, and a wide range of development partners) as well as review of key national, regional, and international HIV and AIDS research and evaluation documents. Data from this process was incorporated into a background document that was used in the Agenda Setting Workshop. This workshop included participants from the MoHSW, referral hospitals, research and academic institutions, and development partners. During the 3-day workshop, participants identified research and evaluation priorities in one of six key thematic areas:

- prevention;
- care and treatment;
- laboratory;
- counselling and social support services;
- information, education, communication (IEC)/behavior change communication (BCC); and
- health systems strengthening.

This final Agenda was vetted and approved during the final plenary session of the workshop. This activity was overseen by the National HIV Health Research Subcommittee. The small team who implemented the process leading to the Agenda included members from NACP, Muhimbili University of Health and Allied Sciences (MUHAS), RTI International, Macro International, and the Centers for Disease Control and Prevention (CDC), all of whom are recognized for their immense contribution. The full research and evaluation Agenda and detailed information on the iterative process used to develop, validate, and prioritize the research priorities is available online at www.nacp.org.

FOREWORD

The Ministry of Health and Social Welfare (MoHSW) is responsible for setting the Health Policy, the Primary Health Development Program, and Health Sector Strategic Plan 3. These documents elaborate issues pertaining to research and monitoring and evaluation using its programs and institutions, such as the National AIDS Control Programme (NACP) and the National Institute for Medical Research (NIMR).

Research coordination and activity evaluation for HIV and AIDS at the national level are both done by the MoHSW and are implemented through the NACP by the regions and council service providers. These are executed at all levels to ensure that research and evaluation findings are used to inform and guide the intervention development programs.

NACP has developed this National HIV and AIDS Health Sector Research and Evaluation Agenda (NHAREA) to facilitate that implementation. One of the key issues is to ensure the continuity of research until a cure or vaccine for the HIV virus is found. Countries, therefore, are obliged to focus on areas that need to be further investigated to enhance the HIV and AIDS knowledge, skill, and understanding in support of the national response.

The Agenda that outlines research and evaluation priorities for the next 5 years (2011– 2015) is important and has come at the right time. The purpose of the Agenda is to guide NACP; individual researchers; research institutions at local, regional, and international levels; and other stakeholders, including policy/decision makers to prioritize and harmonize research and evaluation on HIV and AIDS in the country. The agenda seeks to promote research in prevention, treatment, care and support, and impact mitigation to ensure that research findings are utilized effectively for programme development. Specifically, implementation of the research and evaluation agenda will help the country through the NACP to inform individual researchers and institutions of key priorities. It will ensure that research activities that are undertaken contribute to the national response.

All stakeholders are expected to formulate innovative plans that are aligned to the national agenda, and are urged to collaborate and keep the national agenda in mind. The MoHSW is determined to support all stakeholders and to facilitate the synergy of the various efforts from all players in the fight against HIV and AIDS.

It is my sincere hope that all stakeholders shall join the fight against this epidemic using this NHAREA as a platform. I wish to assure you on the government's commitment to implementing this new NHAREA, 2011-2015. The government will continue to work with the development partners and other stakeholders in response to the HIV epidemic.

Dr. Deo M. Mtasiwa
CHIEF MEDICAL OFFICER

PREFACE

This National HIV and AIDS Health Sector Research and Evaluation Agenda (NHAREA) provides the national research and evaluation priorities for 2011–2015. The Agenda aims to identify the knowledge gaps for current HIV/AIDS health programmes and replaces the HIV/AIDS/STIs Research Priorities of the Health Sector HIV Strategic Plan I 2004–2008. This Agenda is part of larger agenda-setting activities for research and evaluation in health and in the multisectoral HIV/AIDS strategy.

High-quality evidence drawn from research and evaluation is a prerequisite for implementing an effective national response to HIV/AIDS and enhancing HIV/AIDS health services delivery. The Agenda aims to inform all stakeholders of key research and evaluation priority areas and to assist the National AIDS Control Programme (NACP) in its mandate to coordinate health sector HIV research.

The process of developing the Agenda took several months. Interviews with key stakeholders and the identification and review of key HIV/AIDS research and evaluation documents provided the background for the agenda-setting workshop.

The 3-day workshop brought together participants from the Ministry of Health and Social Welfare (MoHSW), referral hospitals, research and academic institutions, and development partners. Participants identified research and evaluation priorities in one of six key thematic areas:

- prevention;
- care and treatment;
- laboratory;
- counselling and social support services;
- information education communication (IEC)/behavioural change communication (BCC); and
- health systems strengthening.

This final agenda was vetted and approved by the workshop plenary group.

ACKNOWLEDGEMENTS

The National HIV and AIDS Health Sector Research and Evaluation Agenda (NHAREA), 2011–2015 was developed through the collaborative efforts of a wide range of individuals and organizations. A broad based consultative approach was taken to ensure the new agenda is based on lessons learned and knowledge gaps and reflects the vision of all stakeholders. The contributors were drawn from a number of government ministries, nongovernmental organizations, civil society organizations, academic and research institutions, development partners, as well as selected individuals. A list of their names can be found in Appendix 4, at the end of this document. The Ministry of Health and Social Welfare (MoHSW) wishes to acknowledge with gratitude their valuable contributions, which led to the development of this agenda that outlines HIV and AIDS health research and evaluation priorities for the next 5 years (2011–2015).

MoHSW would also like to register its appreciation to the Health Sector HIV Research Subcommittee, which is composed of representatives from government and nongovernmental institutes, including MoHSW, the Prime Minister Office Regional Administration and Local Government (PMORALG), the Commission for Science and Technology (COSTECH), the National Institute for Medical Research (NIMR), the Kilimanjaro Christian Medical Centre (KCMC), Muhimbili University of Health Allied Sciences (MUHAS), and the Centers for Disease Control and Prevention (CDC). This subcommittee recognized the need of having a new HIV and AIDS health research agenda with an evaluation component that provides the information needed for identifying best practices and determining lessons learned. The subcommittee also guided the process that led to the development of NHAREA.

The MoHSW also recognized the highly significant technical support provided by staff at NACP, RTI International, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), and CDC in the development of the agenda. The development process was guided by two consultants Donna Podems and Professor Mecky Matee, to whom we are very thankful.

Finally, but not least, the development process of this agenda was well supervised by the NACP, who developed the Terms of Reference and coordinated all activities related to its development.

Dr. Donan W. Mmbando
Director of Preventive Services

1 INTRODUCTION

This National HIV and AIDS Health Sector Research and Evaluation Agenda (NHAREA) outlines research and evaluation priorities for the next 5 years (2011–2015). The Agenda is intended to guide the National AIDS Control Programme (NACP); individual researchers; local, regional, and international research institutions; and other stakeholders, including policy and decision makers, to prioritise and harmonise research on HIV/AIDS in Tanzania. The Agenda seeks to promote research and evaluation to inform HIV/AIDS prevention, treatment, and care; support and impact mitigation; and ensure that research findings are used effectively. Implementation of the Agenda will inform individual researchers and institutions of key priorities and will assist NACP in its coordination mandate of the health sector HIV/AIDS research. The Agenda is also intended to ensure that the research activities that are undertaken contribute to the national response.

The Agenda is an adjunct to the Health Sector HIV/AIDS Strategy Plan II (HSHSP II) for 2008–2012, and replaces the research priorities on HIV/AIDS/STIs of the Health Sector HIV Strategic Plan I, which was concluded at the end of 2006. The current research and evaluation agenda also complements the National HIV/AIDS Research Agenda published by the Tanzania Commission for AIDS (TACAIDS) in 2005.

1.1 Overview of HIV/AIDS in Tanzania

According to the 2007–2008 Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS), about 5.7% of Tanzanian adults aged 15–49 years were infected with HIV. The prevalence of HIV is higher among women than men: 7% and 5%, respectively (Tanzania Commission for AIDS, 2008). For both sexes, urban residents have higher levels of HIV infection than rural residents: 9% and 5%, respectively. HIV prevalence among youth (women and men aged 15–24) is 2%: 3% for Tanzania Mainland and less than 1% for Zanzibar.

There are large variations in HIV prevalence by region. The highest HIV prevalence rate is found in Iringa (15.76%), followed by Dar es Salaam (9.3%) and Mbeya (9.2%). The regions on Tanzania Mainland with the lowest HIV prevalence are Manyara (2%), Arusha (2%), and Kigoma (2%). The lowest prevalence, however, is found in Zanzibar on the islands of Pemba and Unguja (both of which have an adult infection rate of less than 1%).

1.2 Awareness of AIDS

Almost all Tanzanians aged 15–49 years have heard of HIV/AIDS (Tanzania Commission for AIDS, 2008). Awareness of AIDS is very high in both Tanzania Mainland and Zanzibar, with at least 90% of people having heard of AIDS among men and women in all age groups and across background characteristics. However, an in-depth understanding of AIDS is less widespread. Only 40% of women and 44% of men have comprehensive knowledge about AIDS (i.e., knowing that consistent use of condoms and having just one faithful partner can reduce the chances of being infected, knowing that a healthy-looking person can have HIV, and rejecting the misconceptions about HIV transmission and prevention) (Tanzania Commission for AIDS, 2008).

1.3 HIV Testing and Counselling (HTC)

In Tanzania Mainland, 37% of women and 27% of men have been tested for HIV infection and have received the results (Tanzania Commission for AIDS, 2008). Overall, the proportion of women and men aged 15–49 years who have been tested for HIV and have received results in the past 12 months has increased from 5% among women and 7% among men reported in the 2003–2004 THMIS to

19% of women and men in the 2007–2008 THMIS (Tanzania Commission for AIDS, 2005; Tanzania Commission for AIDS, 2008).

1.4 HIV-related Behaviour

Among women aged 20–49 years, 14% first had sexual intercourse before the age of 15, and 59% first had intercourse before the age of 18. Men initiate sexual activity somewhat later than women. Among men aged 20–49 years, only 8% first had sexual intercourse before the age of 15, 41% before the age of 18, and 68% before the age of 20. The median age at first sexual intercourse is 17.3 years for women and 18.5 years for men (Tanzania Commission for AIDS, 2008).

Women and men in Tanzania Mainland are much more likely than those in Zanzibar to have had sex by age 15. Women are far less likely than men to report having had two or more sexual partners in the past 12 months: 3% of women compared with 18% of men. Sixteen percent of women and 29% of men reported having higher risk sex, which was defined as sex in the 12 months before the survey with someone who was not a husband/wife or cohabiting partner. Eight percent of men aged 15–49 had paid for sex in the past 12 months, and 60% of these men reported that they used a condom during their most recent paid sexual intercourse.

1.5 National Response

The national response to HIV in Tanzania has evolved since 1985. Under the responsibility of the Ministry of Health and Social Welfare (MoHSW) and its NACP supported by the World Health Organization's (WHO) Global Programme on AIDS, several short-term plans (STPs) and medium-term plans (MTPs) have been developed and implemented between 1985 and 1991.

During the implementation of the STPs and MTPs, a number of achievements were realized, including strengthening the health sector services to ensure safe blood transfusions, managing sexually transmitted infections (STIs), and caring for the infected and affected, as well as raising public awareness about the disease to over 95%. Despite these efforts, HIV infection rates have continued to increase in the country.

Starting with the MTP II (1992–1996), efforts were undertaken to work toward a broader national response involving sectors like education, labour, and agriculture for the first time, as well as collaborating more intensively with nongovernmental organization (NGOs) and bilateral and international agencies. Created by a statute of the Parliament in 2001, TACAIDS, under the Prime Minister's Office, began coordinating the national response. TACAIDS is mandated to provide strategic leadership and coordination of the multisectoral response as well as monitoring and evaluation, including research, resource mobilization, and advocacy. The National Policy on HIV/AIDS and the National Multisectoral Strategic Framework (NMSF) are approaches, interventions, and activities undertaken by stakeholders in the country. The NMSF 2003–2007 has been implemented, and the current NMSF, which covers 2008–2012, builds on the achievements and strengths of the national response during those earlier years.

HIV/AIDS is also an important part of the development agenda within the National Strategy for Poverty Eradication (MKUKUTA) and the National Development Vision of 2025. The policy emphasizes mainstreaming the education about HIV/AIDS in all sectors. The development of the National Guideline on Prevention and Control of HIV/AIDS in the public sector is an achievement

that shows the government's commitment to fighting the epidemic and to improving the well-being of the Tanzanian people. The 2007–2008 THMIS is a potential source of information for evaluating HIV/AIDS programmes in the country.

1.6 Critical Issues and Major Challenges in HIV Services

The scale-up of HIV/AIDS care and treatment services has been constrained by insufficient access to entry points (including services for voluntary counselling and testing [VCT], preventing mother-to-child transmission [PMTCT], tuberculosis, and STIs) because of various reasons (see http://www.who.int/hiv/HIVCP_TZA.pdf). Treatment literacy among health workers and the general population is low and stigma and discrimination remain high. In addition to stigma and discrimination, the implementation of the national response also has been constrained by a lack of trained personnel to deliver HIV/AIDS care and treatment services (United Republic of Tanzania, 2010), poor incentives for health workers (WHO, 2006), inadequately equipped facilities, and insufficient referral mechanisms and communication (Somi et al., 2009). Reinforcement is also needed for institutional capacity at the national and regional levels around the procurement of the necessary drugs, reagents, and commodities, including supply chain management, forecasting, and quantification (Somi et al., 2009). Laboratory infrastructure needs to be strengthened (Birx, de Souza, & Nkengasong, 2009) as do monitoring and evaluation systems. In addition, reporting requirements need to be harmonized among partners to avoid overburdening the implementing partners (Somi et al., 2009).

1.7 The Challenges in HIV Research and Evaluation

One of the main challenges related to HIV research in Tanzania has been the lack of a research and evaluation priority framework to guide the research and evaluation activities, which are undertaken by a variety of national and international stakeholders (Somi et al., 2009). Consequently, some areas have been oversubscribed and others have been undersubscribed, with the risk that important priority areas for policies and programming are being neglected. Thus, there is inadequate data for decision making. For example, there seems to be a fair amount of work around vaccines, but very limited work around how to make people change their sexual behaviour or how to get people into services and how best to make these services accessible and available (RTI International, 2010). Furthermore, although there have been a lot of HIV interventions, such as antiretroviral prophylaxis for PMTCT and use of co-trimoxazole (septrin) for prevention of opportunistic infections, evaluation of these programmes has not been conducted or may not have been reported adequately (RTI International, 2010). As a result, there is limited evidence indicating which interventions are most effective in Tanzania.

2.1 Prevention

To combat the HIV/AIDS epidemic, the key issue is finding scientifically proven HIV prevention strategies and methods that are acceptable for use by different patient populations around the country. Accelerating the identification and evaluation of new concepts, strategies, and products requires involving a number of stakeholders, such as community advisory groups, scientific investigators, and other organizations.

Research-based prevention strategies have already contributed to the maintenance of low infection rates in a number of settings and to declining HIV epidemics in specific populations around the world (UNAIDS, 2010). In resource-constrained countries, in particular, nonvaccine prevention strategies are important for reducing new infections where there is limited access to health care and antiretroviral drugs.

Research Questions

1. What are the factors influencing uptake of HIV and AIDS priority preventive measures, such as condoms, PMTCT, and male circumcision, among different target populations, particularly youth and in high-prevalence and rural areas?

2. What are the social-cultural factors that encourage behavioural drivers of the HIV epidemic (e.g., multiple concurrent partnerships [MCPs] and transgenerational sex)?

3. What are the effective behavioural change interventions to reduce risk behaviours (especially MCPs and transgenerational sex)?

4. What is the contribution of gender-based violence and child sexual abuse to the HIV epidemic in Tanzania?

5. What are the effective approaches for increasing partner notification and status disclosure for HIV and STIs?

6. What are the most effective strategies for reaching most at-risk populations (MARPs) (e.g., injecting drug users [IDUs], men who have sex with men [MSM], commercial sex workers [CSWs]) with prevention measures?

7. How prevalent is the practice of anal sex, and what are the social norms around it (for men and women)?

8. How do the different sexual networks in Tanzania contribute to HIV transmission?

Evaluation Questions

1. To what extent has the medical male circumcision programme in Tanzania reduced new HIV infections?

2. How effective are behavioural change communication (BCC) interventions in changing risky behaviours?

3. Which constellation of HIV services provides the most benefit to the community in terms of prevention outcomes?

4. How effective are the different condom distribution approaches in terms of cost effectiveness, condom availability, access, and usage?

5. How effective are the HIV preventive interventions at targeting MARPs (e.g., IDUs, CSWs, MSM)?

6. What is the cost effectiveness of combination prevention on HIV transmission?

7. How effective is the syndromic management of STIs approach in controlling the spread of HIV infection?

2.2 Care and Treatment

The government, with the assistance of development partners, is scaling up access to antiretroviral therapy (ART). Decentralizing implementation to include primary health facilities and the community to reach underserved populations is important. It is also critical to address the challenges that will be faced in ensuring quality and equitable access and overcoming stigmatization and discrimination.

Research Questions

1. What are HIV drug–resistance patterns in different populations of People Living with HIV/AIDS (PLHIV) in Tanzania (infants, children, adolescents, adults, elderly, pregnant women, and others)?

2. What are optimal management strategies (prevention, screening, diagnosis, treatment) for co-infections/comorbidities among PLHIV?

3. What are the sexual and reproductive health needs of different HIV-infected populations (MARPs, pregnant women, children, adolescents, elderly), and what are the barriers they face in accessing these services?

4. What are the barriers to identifying and enrolling infants and children with HIV into care and treatment?

5. What are the barriers to and strategies for implementation and uptake of appropriate infant feeding and nutrition practices to promote HIV-free survival for all children?

6. What is the HIV infection rate among HIV-exposed children receiving and not receiving the various PMTCT regimens available in Tanzania?

7. Which HIV care and treatment service delivery models would be most cost effective and sustainable and assure quality of life in the Tanzanian context? 8. What are the factors affecting long-term adherence and retention to ART?
9. How can provision and uptake of comprehensive PMTCT services be optimized for women who deliver at home?

10. What are the HIV prevention needs and priorities among PLHIV (infants, children, adolescents, adults, elderly, pregnant women, and others)?

11. What are the perceptions and attitudes related to HIV care and treatment services in Tanzania and what is the level of ART literacy?

Evaluation Questions

1. How effective are HIV care and treatment interventions at improving survival and quality of life of PLHIV in Tanzania?

2. How effective are the efforts aimed at combating HIV drug resistance in different PLHIV populations (infants, children, adolescents, adults, elderly, pregnant women, and others) in Tanzania?

3. What is the quality of routinely collected HIV-related care and treatment data and what are the factors affecting data quality?

4. How effective are the PMTCT interventions implemented in Tanzania in preventing pediatric infection?

5. What are the best strategies for monitoring HIV care and treatment services at different levels of care for various populations?

2.3 Laboratory

To support the comprehensive HIV/AIDS interventions, it is important to have highquality laboratory services. Over the past decade, the role of clinical laboratory strengthening has been increasingly recognized as a critical component of the global response to the HIV epidemic (Birx, de Souza, & Nkengasong, 2009). Accurate and timely clinical laboratory services permit earlier HIV diagnosis, staging, and identification of adverse drug events and opportunistic infections and help to monitor response to therapy. The rapid scale-up of HIV care and treatment in many resource-limited settings, however, has been overwhelmed by a number of challenges, including

- lack of adequately trained personnel providing quality laboratory services and clinical services;
- inadequate space, lack of shelving and files, aging equipment, unreliable water and electrical supply, and frequent stock outs of laboratory commodities;
- challenges in collecting and analyzing programme data on specific features or indicators that allow countries to monitor progress, assess laboratory systems strengthening, coordinate efforts, and plan future HIV/AIDS activities;
- consistent quality assurance, which is generally lacking in lower-tier laboratories; and
- too large a variety of laboratory equipment and reagents in a region, which complicates procurement and equipment maintenance.

Research Questions

1. What is the trend of HIV and co-infectious agents, including STIs, with respect to drug resistance and adverse drug reactions?

2. How can safety in blood transfusion practices be optimized?
3. How can the laboratory data be used best to improve health services?

4. What is the status of HIV-related laboratory services in the care and treatment of both children and adults?

5. What are the best strategies for implementing preventive maintenance of laboratory equipment?

6. What are the possible alternative laboratory strategies for HIV disease staging for the purposes of care, treatment, and prevention?

Evaluation Questions

1. How effective is the supply chain of laboratory commodities?

2. How effective and reliable are the current blood transfusion services?

3. To what extent are the laboratory data being used for planning laboratory services?

4. What is the extent of collaboration between laboratory and other services (clinical, pharmacy, preventive, and other related services)?

5. To what extent have the recommended HIV testing menus/algorithms been implemented at different facility levels in the provision of care, treatment, and surveillance services?

6. What gaps exist in the provision of laboratory services for HIV and AIDS interventions?

7. What is the quality of available laboratory technologies and strategies for diagnosis and monitoring of HIV, STIs, and other opportunistic infections in different populations, including children?

8. How cost effective are the new laboratory technologies for diagnosis and monitoring of HIV, STIs, and other opportunistic infections?

2.4 Counseling and Social Support Services

The National Guidelines for Voluntary Counselling and Testing (2005) clearly state that HTC provides an opportunity to access accurate and comprehensive information on HIV, AIDS, and STIs. It serves as an entry point to prevention, care, support, and treatment programs, and enables individuals to confidently understand their HIV status and learn about supportive behaviours for protecting and preventing further spread of HIV. It has been noted that the demand for counselling is high, suggesting a need to provide a wide variety of models of HTC, including provider-initiated testing and counselling (PITC) (Evans & Ndirangu, 2008). The existing public system cannot handle the high demand for this service; however, opportunities exist for a number of partners to support HTC service provision.

The number of PLHIV-related diseases continues to increase steadily. Between 50%–60% of adult patients who are admitted to medical wards in major urban areas are believed to have HIV-related diseases (Accorsi et al., 2003). This places a significant burden on health professionals caring for the terminally ill; it is becoming difficult to give quality care in many of the already overburdened public health care facilities. In addition, results from studies conducted among patients with advanced HIV showed that many preferred to be cared for at home (see http://www.tacaids.go.tz/thematic-areas/care-and-treatment/home-based-carehbc.html).

One challenge related to introducing ART services in Tanzania has been establishing effective linkages with successful home-based care (HBC) programs to increase patient identification, adherence to treatment, and patient follow-up.

Research Questions

1. Which factors influence referrals to care and treatment services for HIV-infected clients identified during counselling and testing?

2. To what extent do HIV-tested clients return for a repeat test, and what are the optimal strategies for repeating the HIV test?

3. How can improvements be made to community participation in provision of HIV and AIDS services (especially HBC) to ensure quality and sustainability?

4. What are the strategies for addressing access to HIV health–related services for people with special needs?

5. What counselling and testing strategies would be the most effective to reach various population groups, including MARPs?

6. What are the effects of counselling and testing services on clients' behaviour change?

Evaluation Questions

1. How effective are the different HCT models?

2. What is the quality of counselling and testing services in different settings?

3. To what extent is PITC effective in reducing the number of "missed opportunities" for identifying HIV-infected patients and increasing the number of those linked into care and treatment?

4. What are the most cost-effective models and strategies for improving couple counselling and testing services?

2.5 Information Education and Communication (IEC)/Behavioural Change Communication (BCC)

Information and knowledge are necessary, but not sufficient, conditions for behavioural change. Behavioural change as a process involves knowledge and attitudes and a favorable social, cultural, and physical environment for the expected change to take place (Cole, Holtgrave, & Ríos, n.d.). Although the primary education net enrolment rate has improved to 90.5% in 2004 compared to 58.8% in 1990, illiteracy is a challenge, especially among women (United Republic of Tanzania, 2010). Overall, 25% of females and 20% of males have never been to school. Consequently, the use of print media for sending HIV/AIDS messages to the general public will have a limited impact. Therefore, there is need to explore other innovative approaches to improve the impact of these messages on the target audiences, including those who are unable to read and write. IEC materials are extremely important in transmitting messages that are crucial for creating awareness on HIV/AIDS/STI prevention, care, and treatment in the general population. These materials are some of the strategies used to promote behavioural change.

Research Questions

1. What are the optimal IEC/BCC strategies for HIV prevention, care, and support focusing on children?

2. What is the optimal mix of HIV-related communication channels for different audiences?

3. What are the IEC/BCC activities/strategies that can be used to promote and support the rollout of the male circumcision programme?

4. What are the appropriate and effective communication strategies on key drivers of the HIV epidemic (e.g., MCP, IDU, MSM, alcohol and substance abuse)?

Evaluation Questions

1. What are the effective IEC/BCC activities/interventions for lowering HIV/AIDS risk behaviours?

2. Which HIV campaigns are effective in bringing about change in different populations and why?

3. What are the effective IEC/BCC approaches/interventions to improve the use of condoms?

4. What are the most effective/appropriate messages to improved access and adherence to HIV care and treatment?

5. What are the appropriate and effective communication strategies for positive living for PLHIV?

2.6 Health System Strengthening

Successful scale-up and utilization of a broad range of HIV/AIDS services and products requires a functioning health system. The system should be able to respond not only to current demands but also to future emerging and reemerging HIV/AIDS problems and other routine activities.

For the system to produce the expected outcomes (outputs, effects, or impacts), it is necessary to have a mechanism that will ensure that appropriate inputs and processes are in place and are based on a strong foundation. The system is expected to have a strong leadership base, strong programme management system, adequate human resource mix, and an efficient procurement and supply system. In addition, the system requires strategic information and a good financial base to sustain it.

Research Questions

1. What are the cost-effective surveillance models for tracking the HIV epidemic, especially in children?

2. To what extent is the existing health system user friendly to adolescents?

3. What are the health system causes for the delay or low utilization of HIV and STI services?

4. What is the current competence status for the health personnel providing lab services?

Evaluation Questions

1. What are the most effective management strategies currently in place that lead to improving health system performance?

2. To what extent is the Integrated Logistic System effective and efficient in supporting HIV and AIDS programmes?

3. What proportion of HIV interventions have an evaluation/assessment plan, and to what extent are research and evaluation findings being used to guide programme and policy decision making?

4. To what extent does health worker training influence the quality of HIV and AIDS services?

5. What is the influence of using non-laboratory personnel on the quality of HIV testing services?

6. To what extent and how has implementation of PMTCT affected delivery and uptake of other reproductive and child health services in Tanzania?

3 COMPLILING THE RESEARCH AND EVALUATION AGENDA

The process for compiling the Agenda involved stakeholder consultations, document review, and a research and evaluation prioritization workshop, each of which is detailed below.

3.1 Stakeholder Consultations

The Health Sector HIV Research Subcommittee, composed of representatives from MoHSW, the Prime Minister Office Regional Administration and Local Government (PMORALG), the Commission for Science and Technology (COSTECH), the National Institute for Medical Research (NIMR), the Kilimanjaro Christian Medical Centre (KCMC), and Muhimbili University of Health Allied Sciences (MUHAS), initiated and led the process of developing the research and evaluation agenda. This subcommittee (1) identified the duration of the Agenda; (2) added a component of evaluation, which was not part of the previous agenda; (3) identified both local and external consultants to guide support; and (4) set the terms of reference for the consultants. The Health Sector HIV Research Subcommittee also set up a steering committee, which was composed of members from NACP, NIMR, COSTECH, the Centers for Disease Control and Prevention (CDC), and RTI, who provided technical and logistic support. The steering committee met several times to provide input during the development of the research agenda.

To enhance national ownership of this document, a number of local stakeholders were consulted through interviews or questionnaires (Appendix 4). These included a number of government authorities, research and academic institutions, development partners, and key stakeholders such as TACAIDS and COSTECH, to discuss research and evaluation issues.

3.2 Document Review

In addition to the interviews, consultants also reviewed the following relevant documents:

- (1) the Research Priorities on HIV/AIDS/STIs of the Health Sector HIV Strategic Plan I, (2) the Health Sector HIV/AIDS Strategy Plan II (HSHSP II) for the period 2008–2012, and (3) the Tanzania AIDS Act 2008; and
- Global Fund round four proposals and feedback.

In addition, the consultants reviewed important national, regional, and international documents and identified other key reference materials.

At the end of the interviews and document review a background document was compiled that contains information on research and evaluation activities since 2004; studies completed, ongoing, or planned for the upcoming 5 years in Tanzania; and gaps in HIV research and evaluation perceived by various institutions, organizations, and researchers.

3.3 Gaps in HIV Research

These gaps were identified through review of the existing literature on HIV/AIDS and intensive consultations with a variety of stakeholders.

Care and Treatment

- Unequal access to HIV care and treatment services
- Lost to follow-up and adherence issues
- Late enrollment into HIV care and treatment
- Weak documentation and utilization of data at the health facility level
- HIV drug resistance and treatment failure
- Limited information on the impact of PMTCT and ART interventions
- Optimal antiretroviral treatment of adults, children, and PMTCT

- Diagnosis and management of HIV-associated tuberculosis and other co-infections
- Monitoring of patients on HIV care and treatment
- Optimal approaches to infant feeding and nutrition among HIV-exposed infants
- High mortality of patients (adults and children) initiating ART
- Lack of accurate data on number of patients currently on ART
- Limited Fixed Dose Combination (FDC) pediatric formulations
- Limited pharmacovigilence data
- Inappropriate selection criteria for trainees at the district and facility level
- High frequency of changing treatment guidelines and protocols
- High staff rotation
- Inadequate coordination of stakeholders
- Poor infrastructure of health facilities providing counselling and testing services
- Forecasting and procurement of ART based on the number of patients currently on pre-ART
- Limited information on the magnitude (prevalence and incidence) of the different opportunistic infections in Tanzania

Laboratory

- Lack of adequately trained personnel
- Inadequate space, lack of shelving and files, aging equipment, unreliable water and electrical supply, and frequent stock outs of laboratory commodities
- Poor quality of laboratory data
- General lack of consistent quality assurance, especially in lower-tier laboratories
- Large variety of laboratory equipment and reagents in the country, which complicates procurement and equipment maintenance
- Limited availability of simple and rapid lab technologies for diagnosis and monitoring HIV and co-infections, especially in infants
- Limited lab capacity in evaluating HIV vaccines and other interventions Prevention
- Limited information on behavioural change after Highly Active Anti-retroviral Therapy (HAART) initiation
- Limited information on the role of PLHIV (peer educators, lay counselors) in HIV care
- Lack of in-depth knowledge of the sociocultural factors that encourage drivers of the epidemic, especially MCPs and transgenerational sex
- Lack of analytical (rather than descriptive) triangulation comparative studies linking risk factors and biological markers between and within regions
- Inadequate information on the efficacy of behavioural interventions in reducing HIV incidence among high-risk HIV negative clients attending counselling and testing sites
- Lack of information on the effects of interventions such as ART, male circumcision, and BCC on incidence in serodiscordant couples
- Limited information on the impact of widespread ART utilization on the prevalence/incidence of HIV infection in the population
- Availability, accessibility, and appropriate utilization of condoms distributed to the community
- Inadequate data on the characteristics, risk behaviours, magnitude, and socioeconomic situation to limit transmission of HIV among MARPs
- Lack of policy guidelines for the vulnerable populations IEC/BCC
- Limited assessment studies on the impact of implemented IEC interventions
- Limited strategies on how to translate HIV knowledge into behaviour change
- Limited individual and mass BCC models to reduce concurrent partnerships Health Systems Strengthening

- Task shifting in the provision of HIV prevention, care, and treatment services (e.g., quality, outcomes, cost effectiveness)
- Limited capacity of leaders in facilitating supportive supervision
- Limited information on the impact of providing HIV-related services on other services in a facility (how does impact differ by models of service delivery?)
- Limited information on the impact of providing HIV-related services on the broader health system in a country (e.g., on health care personnel, services in non-HIV facilities, health care infrastructure, national health funding)
- Lack of clear strategy for engaging and leveraging key partners to support the strategic evaluation and research agenda on HIV/AIDS in the country
- Lack of awareness among stakeholders as to who is doing what or at which level of capacity
- Expanding services and establishing a monitoring system for male circumcision
- Referral of patients from HIV testing sites to care and treatment services
- Hospital Management Team (HMT) and Council Health Management Team (CHMT) not strong enough in supportive supervision Community HBC/HTC
- Limited quality of HTC services
- Limited evaluation of community and home-based HTC strategies
- Limited information regarding coverage of PITC and its impact
- Limited use of National Guidelines and Curriculum for HBC by stakeholders
- Poor retention of trained/skilled staff
- Inadequate information on the distribution of HBC kits countrywide
- Limited information on retention of trained counselors
- VCT services only partially included in the Council Comprehensive Health Plan
- Limited information regarding the impact of couples HTC on sexual behaviour
- Inadequacy of human resources in VCT sites and in health facilities
- Irregular supply of HIV test kits at all levels
- Lack of rooms conducive to VCT and PITC counselling sessions

3.4 Research and Evaluation Prioritization Workshop

This workshop brought together participants from MoHSW, referral hospitals, research and academic institutions, and development partners (see Appendix 4). The workshop was preceded by selection and training of group facilitators, who guided discussions in various thematic groups. The workshop began with plenary presentations that outlined (1) the workshop objectives and expectations, (2) differences between research and evaluation, and (3) the prioritization process to be used during the workshop.

Participants were then divided into six thematic groups: care and treatment; prevention; laboratory; counselling, testing, and community care; IEC/BCC; and health systems strengthening. Each of the groups received the background document and an initial set of proposed research and evaluation questions relevant to their thematic area. These questions were prepared by the local and international consultants in collaboration with NACP, CDC, and RTI based on the information gathered during consultations with stakeholders and responses given during the situational analysis.

In the thematic groups, the first activity was a presentation on key issues in the thematic areas by a member of NACP. The group was then oriented to the synthesized list of research and evaluations currently conducted in Tanzania. Following this, the questions proposed by the organizers were placed on the wall. Various groups proposed additional questions while reviewing the questions provided by the organizers. The group sorted the questions that were “nice to know” from those that were “need to know.” The questions with less value were discarded. The group then placed similar questions together and combined them where possible.

Following this process, the smaller and more manageable group of questions was left on the wall. Each question was numbered, and the criteria sheet (see Appendix 2) was used to assign a score to each question. Questions with a minimum score of 32 remained on the wall, while those with a score of less than 32 were removed. The group was given three stickers representing their vote. The group members placed stickers on the questions that they thought should be part of the Agenda. The questions with the most stickers were displayed on the wall of the plenary room, and these questions were presented and discussed at the plenary. A consensus was reached on these questions, and this priority agenda is the output of this prioritization process.

3.5 Prioritization Procedure

Next, individuals rated each selected question from 1 to 5 using the provided criteria (see Appendix 2). Questions receiving a score of 32 or higher were then ranked by the group according to their perceived relevance and importance. The top 10 research questions were then presented at a plenary session. During the plenary session, individuals identified questions for which they had comments, using red stickers to identify these during the viewing. Any question with a red sticker was discussed, and the thematic group incorporated the suggested changes/modifications according to comments from the plenary discussion. A maximum of 10 research questions were allowed per thematic area. However, this was later changed to allow for additional care and treatment questions.

A similar prioritization process was adopted for the evaluation questions. However, the maximum number of questions per thematic group was limited to five.

3.6 Limitations in the Development of the National HIV and AIDS Health Sector Research and Evaluation Agenda

The following could be perceived as limitations in the process of developing the National HIV and AIDS Health Sector Research and Evaluation Agenda.

- There was a lack of database/inventory on accomplished and ongoing HIV/AIDS research and evaluation activities, which is essential for mapping existing research and evaluation gaps. Identification of ongoing HIV/AIDS research activities depended on information provided by a few research and academic institutions and some prominent researchers as well as development partners. This limited the information regarding the following important issues: (1) what research/data exists already; (2) what are the key questions that remain to be answered; (3) what research can be built into existing studies; (4) what can be repeated; and (5) what new research is needed.
- The previous National HIV/AIDS Research Agenda was not formally disseminated and therefore could not be used effectively for fostering linkages among national and international stakeholders (i.e., mobilizing, disbursing, and monitoring resources and information sharing on the HIV/AIDS epidemic and its consequences in Tanzania).
- Participation in the prioritization workshop was not representative of all the various stakeholders involved in HIV research and evaluation activities and may have undermined some quarters, especially those at the grass-root level.

4 THE WAY FORWARD FOR THE NATIONAL HIV AND AIDS HEALTH SECTOR RESEARCH AND EVALUATION AGENDA

A process of implementing the Agenda should be developed. This should include

- wide dissemination of the Agenda, using print and electronic media to reach the widest possible audience;
- identification of "champions" to help implement the Agenda (including champions at NACP and other relevant national organizations as well as champions from other various stakeholders); and
- the development of a monitoring and evaluation system to guide and assess progress on the Agenda implementation.

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APPENDIX 1: SUPPLEMENTARY PERCEIVED GAPS, RESEARCH QUESTIONS, AND EVALUATION QUESTIONS

Following the prioritization workshop, additional gaps, research, and evaluation questions were conceived by some stakeholders, mainly CDC, who further reviewed the prioritized gaps and research and evaluation questions. The gaps and the research and evaluation questions are listed here as supplementary material.

Perceived Gaps

Care and Treatment

- Lack of number of patients/people currently in need of ART
  - Using WHO Clinical Staging of AIDS
  - Using cut off point of CD4 count < 200/cc
  - Using cut off point of CD4 count < 350/cc (new WHO recommendation) HBC/HCT
- Limited linkage between VCT or HBC to other activities at the community level Care and Treatment

Research Questions

- How much will it cost if everyone in need of ART is treated using enrollment criteria of cutoff point of CD4 count < 200/cc, < 350/cc, or WHO HIV/AIDS staging?

Evaluation Questions

- How does scaling up ART/PMTCT services reduce the HIV/AIDS disease burden?
- What is the cost of preventing one new HIV infection using care and treatment (ART/PMTCT) interventions/ strategies?

Prevention

Research Questions

- Where, when, why, and to whom are new HIV infection occurring?

Evaluation Questions

- What is the cost of preventing one new HIV infection using prevention interventions/strategies?
- What is the quality and effectiveness of syndromic management of STIs?

Counselling and Testing

Research Questions

- Does linkage of VCT/PITC to other activities happening in the communities minimize the costs for VCT/PITC standalone activities?

Evaluation Questions

- What are the costs of preventing one HIV infection using PITC/VCT/HTC approaches?

IEC/BCC

Research Questions

- Do different IEC materials/approaches have different impacts on HIV/AIDS new infections, transmission, prevention, and care and treatment services?

Evaluation Questions

- Do different IEC materials/approaches have different impacts on HIV/AIDS new infections, transmission, prevention, and care and treatment services?
- Which IEC approaches have great impact on HIV/AIDS new infections/transmission, prevention, and care and treatment services?

Health System Strengthening

Evaluation Questions

- Do multiple frequent countrywide surveys of HIV/AIDS produce enough needed information to fill in the gaps for improving programming and policy and decision making?

APPENDIX 2: TOOL USED FOR RANKING OF RESEARCH AND EVALUATING ISSUES

RELEVANCE
1 = Not relevant
2 = Of little Relevance
3 = Relevant but not important
4 = Relevant
5 = Highly relevant

AVOIDANCE OF DUPLICATION
1 = Several studies exist and information is available
2 = Some studies exist
3 = Some studies have been carried out but information is not available
4 = Very few studies have been carried out in this area
5 = No studies have been carried out in this area

FEASIBILITY
1 = Extremely difficult
2 = Difficult
3 = Moderate feasibility
4 = Feasible
5 = Highly feasible

POLITICAL ACCEPTABILITY
1 = Politically unacceptable
2 = Low level of political acceptability
3 = Moderate level of political acceptability
4 = Reasonable level of political acceptability
5 = High level of political acceptability

APPLICABILITY
1 = Not applicable
2 = Low applicability
3 = Moderate applicability
4 = Reasonable applicability
5 = Highly applicable

ETHICAL ACCEPTABILITY
1 = Ethically unacceptable
2 = Low ethical acceptability
3 = Moderate ethical acceptability
4 = Ethically acceptable
5 = Highly ethical acceptability

GENDER ISSUES
1 = No consideration to gender
2 = Little consideration to gender
3 = Moderate consideration to gender
4 = Reasonable consideration to gender
5 = High consideration to gender

NEED FOR NEW KNOWLEDGE IN THIS AREA
1 = No need for new knowledge in this area
2 = Little need for new knowledge in this area
3 = Moderate need for new knowledge in this area
4 = Reasonable need for new knowledge in this area
5 = High need for new knowledge in this area

APPENDIX 3: RESEARCH AND EVALUATION ACTIVITIES ASSESSMENT TOOL

Questions in this tool are useful for understanding the research/evaluation studies conducted by the organization and how they utilize the findings. This valuable information will form a background to develop the National HIV and AIDS Health Sector Research and Evaluation Agenda during the workshop.

Name of the institution/organization: _____

Year of establishment: _____

Key person involved with research at the institute: _____

Key person involved with evaluation at the institute: _____

Date when the HIV/AIDS Studies/Program began at the institute: _____

Year (start-complete)	Study title	Objective	Status of the study (complted/ongoing/ to be conducted in next 5 years)	Findings/expected information to be received at the end of the study	How findings were utilized/are expected to be utilized	Regions/areas in Tanzania where the study was conducted	Partners involved

- Please list any studies since 2004 that you or your institution/organization was involved with.
- Please list any programs/interventions since 2004 that your institution/organization was involved with.

Year (start-complete)	Program/ intervention	Objective	Evaluation title and objective (if evaluation was conducted)	What important information was acquired/expected to be acquired as a result of evaluation (if conducted)	How evaluation findings were utilized/are expected to be utilized	What important information does the organization need to make management decisions about	Regions/areas in Tanzania where the intervention is implemented	Partners involved

- Please state how your organization prioritized and selected the study topics.
- What do you think are the perceived gaps in the HIV-related knowledge?
  (Please fill in the table below.)

Perceived Gaps	Reason for Considering it as a Gap

- Please provide website/references/copy of the document for the study your institutiion/organization is/was involved with.
- Please provide any other comments/recoemmendations.

APPENDIX 4: LIST OF WORKSHOP PARTICIPANTS

No	Name of Participants	Organization	Workshop Group
1.	Adeline Lyaruu	COSTECH	Health Systems Strenghtening
2.	Agricola Joachim	MNH	Laboratory
3.	Ahmed M Khatibu	ZACP	Care and Treatment
4.	Aisa P. Mhalu	PEPFAR-HARVARD	Care and Treatment
5.	Alick Kayange	PASADA	Care and Treatment
6.	Amanda Wadud	CDC	Care and Treatment
7.	Annath Rwebembera	NACP	Care and Treatment
8.	Annie Buchanan	KCMC –DUKE	Prevention
9.	Atn Mwangomale	EGPAF	IEC/BCC
10.	Beati Mboya	MSH	Care and Treatment
11.	Benedicto Luvanda	TAYOA	IEC/BCC
12.	Bennett Fimbo	NACP	IEC/BCC
13.	Bernard Rafael	NACP	Care and Treatment
14.	Bonita Kilama	NACP	Care and Treatment
15.	Charles Masambu	MOHSW	Laboratory
16.	Christen Mullen	CDC	Care and Treatment
17.	Donna Podems	MACROINTERNATIONAL	Facilitator
18.	Dr. G.J.B. Mtey	RMO –Dodoma	Health Systems Strenghtening
19.	Edwin Swai	TACAIDS	Care and Treatment
20.	Emma L Msuya	NACP	Care and Treatment
21.	Ernest Chenya	JSI-MMIS	Health Systems Strenghtening
22.	Eveline Geubbels	IHI	Prevention
23.	Ezra Mwijarubi	USAID	IEC/BCC
24.	Franklin Fredrick	MOHSW	Health Systems Strenghtening
25.	Fred Mhalu	MUHAS	Laboratory
26.	Fredrick Macha	UNAIDS	Health Systems Strenghtening

No	Name of Participants	Organization	Workshop Group
27.	Geoffrey Somi	NACP	Prevention
28.	Geoffrey Tibamanya	RTI	Support Staff
29.	Gilly Arthur	PERFAR	Prevention
30.	Gina Kagina	DMO-Mwanga	IEC/BCC
31.	Gissenge Lija	MOHSW/NACP	IEC/BCC
32.	Godfrey Woelk	RTI International	IEC/BCC
33.	Gongo Ramadhan	CDC	IEC/BCC
34.	Jerome Kamuli	TACAIDS	Health Systems Strenghtening
35.	John Simbawanga	ICAP	Health Systems Strenghtening
36.	Joseph Nondi	NACP	Care and Treatment
37.	Joyce Ikingura	NIMR	Health Systems Strenghtening
38.	Judica Mbwana	WHO/NACP	Laboratory
39.	Julie O Donnell	CDC	Care and Treatment
40.	Julius Massaga	NIMR	IEC/BCC
41.	Justine Nankinga	UNICEF	Care and Treatment
42.	Khalid Hassan	NACP	Laboratory
43.	Leonard Maboko	NIMR-MMRP Mbeya	Care and Treatment
44.	Levina Lema	PMTCT RCH	IEC/BCC
45.	Mangi Ezekiel	MUHAS	IEC/BCC
46.	Mary Bukuku	NACP	IEC/BCC
47.	Mary Kibona	CDC	Health Systems Strenghtening
48.	Marykiel Ntiro	NACP	Care and Treatment
49.	Mecky Matee	MUHAS	Facilitator/Laboratory
50.	Moshi Ntabaye	KCMC	Health Systems Strenghtening
51.	Muze N	NACP	Health Systems Strenghtening
52.	Paul Erasto	MUHAS	Laboratory

No	Name of Participants	Organization	Workshop Group
53.	Peris Urassa	NACP	Health Systems Strenghtening
54.	Peter Masika	TAYOA	Prevention
55.	Pinky Asher	RTI	Facilitator
56.	Prof. John Shayo	Tumaini University	Laboratory
57.	Rowland Swai	NACP	IEC/BCC
58.	Samuel Kalluvya	BMC	Care and Treatment
59.	Stella Kasindi	WHO/NACP	Care and Treatment
60.	Timothy Dawo	URC –Dar	Laboratory
61.	Veryeh Sayebu	NACP	Care and Treatment
62.	Victoria Michael	NACP	Laboratory
63.	Werner Schemana	EGPAF	Care and Treatment

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