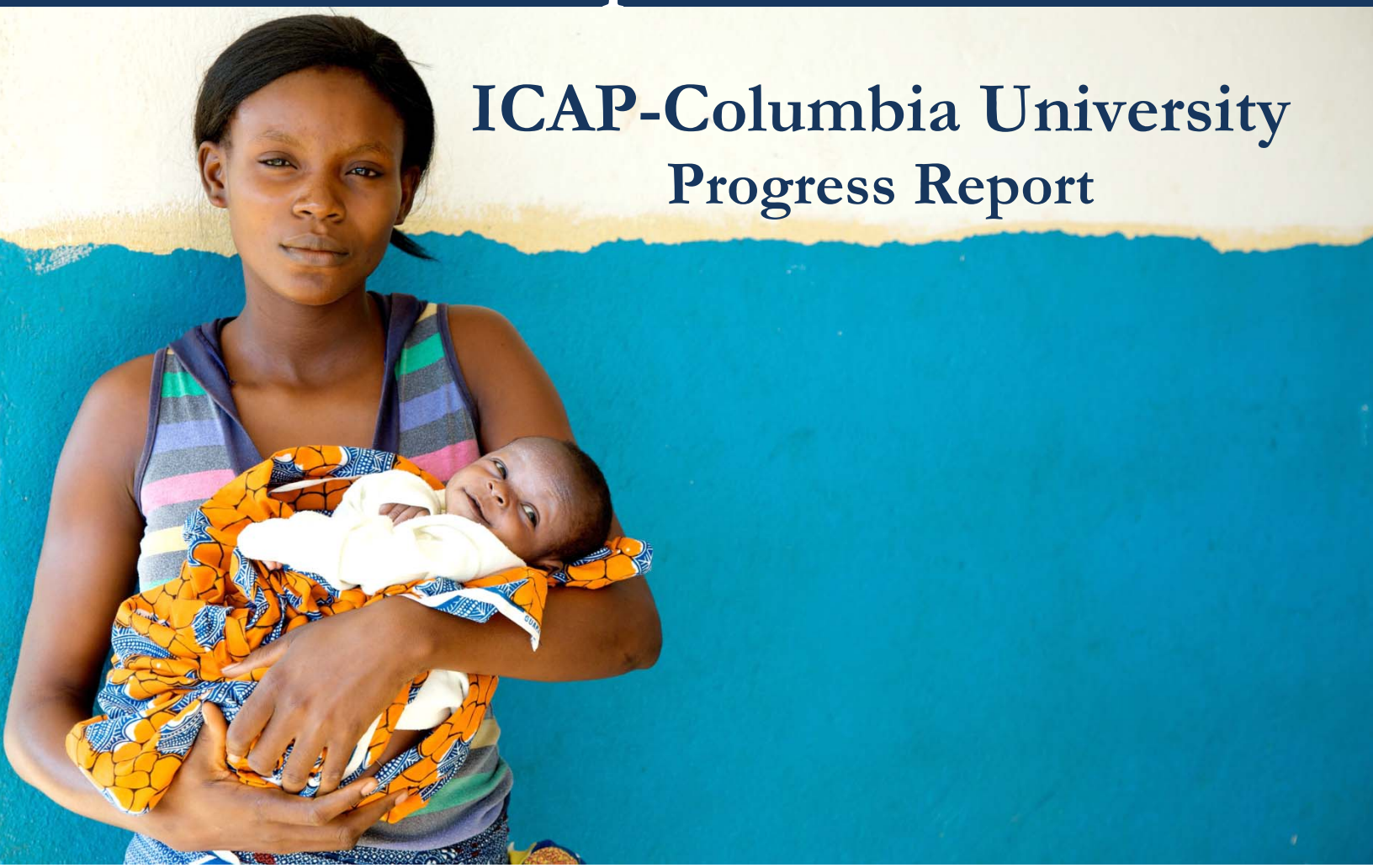
Scale-up of HIV-Related Programs in the United Republic of Tanzania



ICAP-Columbia University
Progress Report

October 2013

ICAP
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COLUMBIA UNIVERSITY
Mailman School of Public Health

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Acronyms

ANC	Antenatal Care
APSC	Adhere, Psychosocial Support and Community Partnership
ART	Antiretroviral Therapy
ARV	Antiretroviral Drug
C&T	Care and Treatment
CBO	Community Based Organization
CCS	Cervical Cancer Screening
CDC	United States Centers for Disease Control and Prevention
CDW	Class Deviation Waiver
CHMT	Council Health Management Team
CME	Continuing Medical Education
CTC	Care and Treatment Clinic
DACC	District AIDS Control Coordinator
DBS	Dried Blood Spot
DQA	Data Quality Assurance
EID	Early Infant Diagnosis
eMTCT	Elimination of Mother to Child Transmission
HBC	Home-Based Care
HCW	Health Care Worker
HEI	HIV-Exposed Infant
HTC	HIV Testing and Counseling
IEC	Information, Education, Communication
IP	Implementing Partner
IPD	In-Patient Department
IPT	Isoniazid Preventive Therapy
KP	Key Populations
LD	Labor and Delivery
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MDT	Multidisciplinary Teams
MOHSW	Ministry of Health and Social Welfare
MSM	Men Who Have Sex With Men
NACP	National AIDS Control Program
NACS	Nutritional Assessment and Counseling Service
NTLP	National Tuberculosis and Leprosy Program
OPD	Out-patient Department
ORCI	Ocean Road Cancer Institute
PCR	Polymerase Chain Reaction
PE	Peer Educators
PEPFAR	President's Emergency Plan for AIDS Relief
PFaCTS	Program and Facilities Characteristics Tracking System
PHDP	Positive Health Dignity Prevention
PITC	Provider-Initiated Testing and Counseling
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-Child Transmission
PSG	Psychosocial Support Group
PWID	People Who Inject Drugs
RCH	Reproductive and Child Health
R/DTLC	Regional/District TB Leprosy Coordinator
RHMT	Regional Health Management Team
SCMS	Supply Chain Management Team
SOC	Standard of Care
SOP	Standard Operating Procedure
TAT	Turn Around Time
TB	Tuberculosis
THMIS	Tanzania HIV Malaria Information Survey
TWG	Technical Working Group
URRAP	United for Risk Reduction and HIV/AIDS Prevention Program
USG	United States Government
VCT	Voluntary Counseling and HIV Testing
VIA	Visual Inspection with Acetic Acid
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization
ZACP	Zanzibar National AIDS Control Program

Executive Summary

Based on the findings from the 2003-04 Tanzania HIV and Malaria Information Survey which provided regional estimates of HIV prevalence, it became evident that HIV service delivery coverage and quality was not sufficient to meet the enormous needs. In response, the Government of Tanzania with support from the President's Emergency Plan for HIV/AIDS Relief and the Global Fund for AIDS, Tuberculosis and Malaria initiated a massive effort to expand HIV services.

Consistent with this framework ICAP at Columbia University in 2004, with funding from the US Centers for Disease Control and Prevention, committed to partnering with the Government of Tanzania to support sustainable health systems strengthening and ensure progress towards achievement of the national health development priorities for the mainland and Zanzibar.

ICAP has worked at multiple levels within the Tanzanian health system to effectively integrate sustainable HIV services at regional and district hospitals, as well as at primary health facilities, in Kagera, Kigoma, Pwani, Mtwara and Lindi regions, and in Zanzibar. In most regions ICAP supports implementation of HIV testing and counseling, comprehensive adult and pediatric HIV care and treatment, PMTCT, TB/HIV integration and laboratory services. In addition, ICAP provides services and expertise regarding work with key populations, male circumcision, cervical cancer screening and palliative care. ICAP also is deeply engaged in the design and implementation of a robust research agenda to provide evidence-based programming and planning while building in-country research capacity.

ICAP's implementation success results from its expertise in HIV-related program management, with technical leadership from ICAP headquarters and in-country teams.

Worked in Partnership at National, Regional, and District Levels

Since the very beginning of its work in Tanzania, ICAP has implemented a new model of mutual accountability with the Regional and District Health Management Teams. Within this framework, ICAP has consistently worked towards enhancing strong political leadership and country ownership, which has contributed to strengthened health systems at the regional and district level. ICAP has strengthened the policy-making and planning skills of Regional and District Health Management Teams through improving technical skills, enhancing data analysis and application and developing supportive supervision and mentoring skills.

At the national level, ICAP has been an active partner participating in key technical working groups and serving as a primary technical lead in the development of a number of guidelines, standard operating procedures and data quality assurance tools.

Trained 15,000 Health Care Workers to Strengthen Health Systems

ICAP has provided training to over 15,000 health care workers; enhanced the program management and financial capacity of the Regional and Council Health Management teams to oversee HIV services to networks of referral and primary health facilities; and has provided a broad range of innovative technical support. ICAP capacity building has included a wide range of approaches such as formal training courses, joint supervision followed by onsite mentorship, delivery of Continuing Medical Education and facilitation of health facility-based Multidisciplinary Teams.

Tested Nearly Two Million Individuals for HIV

Through promoting a family-focused approach and having integrated health systems offering HIV testing and counseling services, ICAP facilitated HIV testing of 1.7 million individuals over eight years of program support. Under a rapid expansion plan, ICAP has increased the number of testing facilities to the current 538, which test over 350,000 individuals each year. Furthermore, ICAP has successfully been shifting towards provider-initiated testing and counseling compared to voluntary counseling and testing.

Enrolled More Than 130,000 HIV Positive Persons into Care with 70,000 Initiated on Treatment

Between 2004 and 2013, ICAP expanded HIV care and treatment clinic coverage from one Regional Hospital in Kagera to 209 health facilities in four regions in the mainland and in Zanzibar. More than 130,000 individuals have been enrolled in HIV care and over 70,000 accessed life-saving antiretroviral treatment. Annually ICAP enrolls 16,000 HIV positive persons into care; on average 900 HIV positive children are enrolled and 500 children are initiated on ART per year. Following the national adoption of the revised WHO ART guidelines for children, ICAP witnessed a dramatic increase in ART uptake by enrolled children from 39% to 60%.

ICAP has also successfully integrated TB screening into all its care and treatment facilities and has achieved near universal TB screening for HIV care patients.

Tested Almost One Million Pregnant Women for HIV

Almost one million pregnant women have received HIV testing and 30,000 HIV positive women started antiretroviral prophylaxis or treatment. ICAP successfully supported the MOHSW to phase out use of single dose nevirapine for prevention of mother to child transmission and introduced more complex regimens. Through the Early Infant Diagnosis program, and as part of the promotion of the continuum of care between antenatal, postnatal, newborn and child care, cumulatively over 11,000 HIV exposed infants were tested at 722 health facilities. As a result of six years of support to the PMTCT program, it is estimated that up to 80% of the expected infant HIV infections have been averted.

ICAP's technical assistance has dramatically improved early infant diagnosis at the PCR laboratory of Bugando Medical Center in Mwanza. The PCR laboratory serves the early infant diagnosis program in 7 regions and about 1,000 health facilities in the Lake Zone. The PCR laboratory has steadily received an increased number of samples per quarter, from about 1,500 in FY11 to 3,000 in FY13. This increase reflects early infant diagnosis coverage expansion, improved health facility-based dry blood sample collection and better overall PCR laboratory management and processes.

Confronted Social Factors That Affect Engagement in Care and Adherence

As an innovative response to address social factors, such as stigma, discrimination, and failure to and fear of disclosure, which can influence access to treatment, ICAP established the Adherence, Psychosocial Support and Community Care Program with the goals of promoting a continuum of care and improve retention in care and treatment. Since 2010, 640 Peer Educators traced cumulatively 34,044 HIV positive patients who had defaulted from the program. Furthermore, ICAP has assisted in the development of Psychosocial Support Groups for pregnant women living with HIV, as well as children and adolescent clubs.

Integrated New Services into HIV Care and Treatment

Substantial progress has been made in integration of other critical services, such as voluntary medical male circumcision, cervical cancer screening, and outreach services targeting key populations in HIV care and treatment. As an outcome approximately 56,000 men were circumcised, over 20,000 women were screened for cervical cancer with 81% of those with cervical abnormalities treated with cryotherapy, and over 36,000 individuals from key populations were reached through community sensitization.

Improved Service Delivery

At the health facility level, ICAP has assisted in improving infrastructure through the management of a large number of renovations targeting units within the 120 facilities (e.g., HIV care and treatment clinics, out-patient and in-patient departments, reproductive and child health clinics, labor wards, and laboratories). ICAP significantly improved laboratory support through improving work flow and safety conditions and through the provision of equipment and essential commodities. Furthermore, ICAP is currently assisting seven laboratories in achieving WHO accreditation, with three laboratories reaching WHO Star 1 and one laboratory reaching WHO Star 4. ICAP has also participated in improving the national supply chain management system by enhancing health care workers' skills on HIV-related commodities consumption, forecasting and distribution.

Implemented Innovations

As a global leader in applying research and technology to interventions, ICAP has implemented a number of innovations in Tanzania. Recognizing the gaps in the PMTCT cascade, especially around identification and enrollment of treatment eligible pregnant women in HIV testing and counseling services, ICAP was instrumental in supporting the pilot of the incorporation of a reproductive and child health platform. ICAP is currently conducting an analysis of the impact of the reproductive and child health service delivery model on treatment initiation.

ICAP also contributed to the development of palliative care standards and implementation guidance in Tanzania, including successful technical assistance that led to a revised drug policy permitting oral morphine dissemination at health centers and dispensaries. ICAP was able to address problems with poor quality of chest X-rays by harnessing the ever expanding access to electronic networks and digital technology for chest radiography and using it as an effective diagnostic tool for TB in low-resource, high-burden settings. ICAP, in agreement and in collaboration with MOHSW, procured, installed and maintained six computerized digital equipment for selected high volume sites with existing and functioning standard X-ray machines. Twenty Lake Victoria Islands have been reached using mobile clinics to provide HIV care and treatment amongst high risk fishermen populations.

Supported Diverse Research Efforts

Globally, ICAP has a robust research portfolio and has been at the forefront of designing and conducting diverse research studies focused on epidemiologic, behavioral, biomedical and implementation research. The research portfolio for ICAP Tanzania includes a number of studies that span HIV prevention, clinical care needs, behavioral factors, HIV care, and health systems strengthening. Studies are implemented in collaboration with local investigators from the Ministry of Health and Social Welfare or the Tanzanian Commission for AIDS, and are reviewed and approved by the National Institute for Medical Research Institutional Review Board. These endeavors offer many opportunities for building capacity through the design, implementation and analysis of research studies.

Way Forward

Factors such as the human resource crisis, limited infrastructure, suboptimal HIV service delivery and community based coverage, challenges in integration of services, Health Information Management System changes, an inadequate supply chain management system, stigma and discrimination, and trajectory of transition to local entities support the need for continued commitment to assist the Government of Tanzania in its efforts to achieve its health-related goals and objectives. All programs face new challenges, particularly the need to enhance quality of programs and facilitate service integration.

Finally, there is a global commitment to achieving the Millennium Development Goals and Tanzania will continue its efforts towards this goal, which has been driven by economic growth, better policies, and global commitment. ICAP is deeply committed to supporting the Government of Tanzania in its mission and to contributing to the scale-up of HIV care and treatment programs. ICAP supports the broader health and development agenda and stronger government leadership and ownership.

Quick Facts

Population 45 million [1]

Pediatric Population under 15 44% [1]

< 5 Malaria prevalence 9% [2]

Life expectancy 56 years [1]

Infant Mortality (per 1,000 live births) 50 [2]

Maternal Mortality (per 100,000 live births) 460 [2]

Tuberculosis Prevalence 177 per 100,000 people [3]

Tuberculosis Incidence 169 per 100,000 [4]

Measles immunization coverage (2010) 92% [2]

HIV Prevalence 5.1% [5]

Number of new HIV infections 150,000 [6]

Total number people living with HIV 2.4 million [7]

Access to Care

- 40% of HIV-positive individuals in need are receiving ART [8]
- 59% of HIV-positive pregnant women are receiving ART for PMTCT [8]

Doctor-to-population ratio

- 1 physician per 100,000 population [9]

Total # of health facilities: 6,663 [10]

Nurse/Midwife-to-Population

- 2.4 nurses per 10,000 population [2]

1 2012 Tanzania Population and Housing Census 2012
2 World Health Statistics 2012
3 2011 WHO Tuberculosis Profile
4 2011 WHO
5 2011/2012 THIMS
6 2011 UNAIDS
7 2011/2012 THIMS
8 2011 UNAIDS Country Overview
9 2010 WHO Country Health profile
10 Ministry of Health and Social Welfare (2012)

Background

Consistent with the Millennium Development Goals (MDGs), Tanzania's national development priorities address public health and health care challenges. Gaps are seen in maternal, newborn, and child health (MNCH), and Tanzania faces a generalized HIV epidemic on the mainland, a concentrated HIV epidemic in the Zanzibar archipelago, and high prevalence of other communicable diseases such as tuberculosis (TB), malaria, respiratory infections and diarrheal diseases. Malaria is the leading cause of death for children in Tanzania and is a major cause of maternal mortality. The impact of the HIV epidemic is enormous in Tanzania: an estimated 2.4 million people are already infected with HIV, each year an estimated 150,000 are newly infected and 86,000 people die. This results in disrupted family structures resulting in an estimated 1.3 million children orphaned. Tanzania ranks 15 out of 22 for countries with the highest TB burden, a disease which remains the leading cause of morbidity and mortality among people living with HIV (PLHIV).

The Tanzania HIV/Malaria Information Survey (THMIS) provided regional estimates of HIV prevalence from 2003. From this information it became more evident that the capacity within the health system to provide HIV services was not adequate to meet the enormous needs. The Government of Tanzania with support from the President's Emergency Plan for HIV/AIDS Relief (PEPFAR) and the Global Fund for AIDS, Tuberculosis and Malaria mobilized to respond to this challenge.

ICAP at Columbia University is committed to partnering with the Government of Tanzania in the design and implementation of service, education and training, as well as operational research that strengthen and support health systems and ensure progress towards national health development priorities for the mainland and Zanzibar.

In 2004, ICAP began its work in Tanzania with funding from the United States Centers for Disease Control and Prevention (CDC). Since then, working in partnership with the Ministry of Health and Social Welfare (MOHSW), ICAP provides technical assistance to support implementation of the national HIV/AIDS control

program. Through this work, ICAP supports activities to strengthen, link, and scale-up comprehensive, family focused HIV prevention, care and treatment services.

ICAP works at multiple levels within the Tanzanian health system to effectively integrate sustainable HIV prevention, care and treatment services at regional and district hospitals and laboratories, as well as at primary health facilities in Kagera, Kigoma, Pwani, Mtwara and Lindi regions, and in Zanzibar. In most regions, ICAP supports implementation of comprehensive adult and pediatric HIV care and treatment, including prevention of mother-to-child transmission (PMTCT), TB/HIV integration and HIV testing and counseling.

Current Programmatic Funding

Implementation of Programs for Prevention, Care & Treatment of HIV in the Republic of Tanzania under PEPFAR

ICAP is working in partnership with the MOHSW through the National AIDS Control Program (NACP) and the Zanzibar National AIDS Control Program (ZACP) to build capacity at the national, regional, district, health facility and community level to support Tanzania's national HIV prevention, care and treatment program. ICAP works in Kagera, Kigoma, Pwani, Mtwara, Lindi regions, and in Zanzibar to integrate and implement sustainable, comprehensive adult and pediatric HIV prevention, care and treatment services including counseling and testing, PMTCT and EID, integrated TB/HIV care, cervical cancer screening, and services for most at-risk populations. ICAP provides technical support to a network of regional/district hospitals, laboratories, primary health facilities, and dispensaries with a focus on:

- Human resource capacity building through health care worker training and intensive clinical system mentorship
- Service delivery strengthening, including facility-level support, to provide the standard of care as defined by the MOHSW
- Health Information Systems strengthening, including support in data collection and analysis, as well as referral and patient file systems
- Access to essential medical and laboratory supplies
- Health care infrastructure support, including facility renovation of key service delivery points
- Expanding prevention programs to include medical male circumcision, services for key populations and increased services to screen women for cervical cancer
- Evidence-based support to policy and programming through operational research

Improving Care and Treatment for TB/HIV Co-infected Children through the Establishment of Comprehensive Pediatric TB/HIV Activities in Tanzania under PEPFAR

ICAP is working with the MOHSW to strengthen national policy and institutional capacity to develop, manage and evaluate health system elements to accelerate and expand access to high-quality TB and HIV services for children. To ensure a sustainable response, ICAP established a pediatric TB/HIV Center of Excellence (COE) at Mwananyamala Hospital in Dar es Salaam and at four satellite health facilities, with funding provided by a specific CDC cooperative agreement. ICAP's technical support focuses on strengthening integrated TB and HIV diagnosis, treatment, case finding, patient retention, and laboratory systems.

Technical Assistance in Support of HIV Prevention, Care and Treatment and Other Infectious Diseases that Impact HIV-Infected Patients in Tanzania

ICAP is working with the CDC and key partners to expand access to voluntary medical male circumcision (VMMC), improve quality, and provide direct support to advance HIV prevention. ICAP support focuses on training of health care workers; developing materials for information, education and communication (IEC); effective community outreach and sensitization; and integrating HIV care and treatment services with VMMC. Through this cooperative agreement, ICAP developed and implemented pilot VMMC services at Kagera Regional Hospital that have now expanded to Rubya Designated District Hospital. ICAP is also collaborating with the MOHSW to conduct a feasibility assessment of neonatal male circumcision.

ICAP as a Global Leader

Since its establishment in 2003, ICAP has emerged as a global leader in the field of design, implementation and support of HIV-related programming and research, capacity development, and health systems strengthening. ICAP supports the implementation of comprehensive and quality HIV programs at more than **2,000 health facilities across 21 countries**. Globally, as one of the largest PEPFAR implementing partners, ICAP's technical assistance has resulted in **10 million people being tested for HIV**, including more than **2.8 million pregnant women tested** in antenatal care; **1.6 million individuals accessing HIV care; and 850,000 people – including 79,000 children – initiating antiretroviral treatment (ART)**. *Approximately one patient in 10 receiving PEPFAR-funded ART in sub-Saharan Africa is obtaining it at an ICAP-supported health facility*. ICAP is committed to reaching key populations and expert in the provision of services to vulnerable and marginalized groups. ICAP also supports the integration of TB/HIV programs, enabling HIV testing of **hundreds of thousands** of TB patients and high rates of TB screening for HIV-infected patients, and has contributed substantially to prevention and treatment of malaria by supporting provision of malaria prophylaxis to pregnant women, distribution of insecticide impregnated bed nets and conducting research studies to identify efficacious antimalarial regimens.

ICAP is recognized for its collaborative approach to strengthening health systems at the national, regional, district and facility levels, including assistance with strategic planning, development of

ICAP Clinical & Training Unit Webinars, 2011-2013

July 25th, 2013 **Update on 2013 WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection** with Elaine Abrams, MD

June 20th, 2013 **Palliative Care & HIV** with Meera Pahuja, MD, MSc

May 23rd, 2013 **Global HIV Epidemic among MSM and HIV Prevention Strategies** with Chris Beyrer, MD, MPH

February 21, 2013 **Preventive HIV Vaccine** with Magda Sobieszczyk, MD, MPH

February 7, 2013 **Gaps in Pediatric Treatment** with Stephen Arpadi, MD, MS

December 13, 2012 **Sexual Reproductive Health and HIV** with Lynn Collins, MD

November 15, 2012: **Update on Malaria and the Management of HIV-Malaria Co-infections** with Johanna Daily, MD MS

September 20, 2012: **HIV and Health Systems** with Miriam Rabkin, MD, MPH

June 21, 2012: **Isoniazid Preventive Therapy** with Andrea Howard, MD, MS

May 17, 2012: **HIV and Infant Feeding** with Louise Kuhn, PhD

April 19, 2012: **Nurse Initiated and Managed ART (NIMART)** with Jennifer Dohrn, DrNP, CNM

March 15, 2012: **Averting Maternal Mortality** with Helen DePinho, MD

February 16, 2012: **Sexual and Gender Based Violence** with Fran Cournos, MD

January 26, 2012: **Male Circumcision and HIV** with Jason Reed, MD, MPH

December 15, 2011: **HIV and bone loss** with Michael Yin, MD

November 17, 2011: **Injection Drug Use, Syringe Access, Methadone and Overdose Prevention** with Sharon Stancliff, MD

October 19, 2011: **Improving effectiveness of adherence in HIV treatment settings** with Robert Remien, PhD

September 15, 2011: **Rapid initiation of ART/ARV during pregnancy** with Elaine Abrams, MD

August 18, 2011: **Enhancing adolescent HIV care** with Ruby Fayorsey, MD, MPH; Stephen Arpadi, MD, MS, Bea Thome, MD, MPH

policies and guidelines, workforce development, training and mentorship, and monitoring and evaluation. Building on the resources, platforms and partnerships developed for HIV scale-up, ICAP works to enhance integrated services for maternal and child health (MCH), reproductive health and family planning, women's health and chronic non-communicable diseases. ICAP also has extensive experience supporting decentralized and integrated HIV services, and in supporting community systems strengthening.

In addition to this programmatic experience, ICAP has extensive research and policy experience at the intersection of HIV and health systems. ICAP faculty and staff expertise encompasses: the optimization of HIV prevention, care and treatment programs; the integration of HIV and TB services; the impact of HIV scale-up on broader health systems; the effective design of laboratory and health information systems; leveraging HIV programs to enhance services for maternal and child health and chronic non-communicable diseases; and task-shifting, task-sharing and the use of lay health workers.

ICAP is situated at the Mailman School of Public Health at Columbia University, bringing expertise from its own staff and the resources of the School and University to all its work. The five core principles of ICAP are: Access, Acceptability, Quality, Coverage, and Effectiveness through service, training/education, and research. To achieve these core principles, ICAP works with Ministries of Health, local organizations, and people living with HIV to develop sustainable, locally appropriate HIV prevention, care, and treatment programs that are integrated within national AIDS control programs. Furthermore, ICAP has developed and implemented a comprehensive HIV service delivery model which consists of:

- A family-focused approach to HIV prevention, care, and treatment services
- Support for Multidisciplinary Teams (MDT)of health care providers
- A continuum of clinical and supportive services to meet patient and family needs at every stage of HIV disease
- Programs to promote retention and adherence to HIV care and treatment
- Empowerment of patients and their families
- Linkages to community resources
- High-quality services, with carefully set standards of care and methodologies for program evaluation, operations research, and program improvement

At the core of ICAP's work is a commitment to sustainable health systems strengthening (HSS) that ensures programs are rooted within and managed by local organizations and that they contribute to the strengthening of broader health systems, with all of their diverse components. ICAP works with Ministries of Health, governmental and non-governmental academic and research institutions, health facilities, collaborating non-governmental partners and affected communities to build their capacity to establish and sustain health services beyond the life of time-limited projects or initiatives.

ICAP People and Processes

ICAP's management capacity is built on **people** and **processes**. It is informed by the standards and methods set by the institution where it is situated - the Mailman School of Public Health and Columbia University, donor procurement and project requirements, and ICAP's knowledge of the local operating context in the United Republic of Tanzania. It is designed to operate fluidly and seamlessly between headquarters and the Tanzania field office and across programs and projects.

People: ICAP is directed by Wafaa El-Sadr MD, MPH, MPA, an internationally recognized HIV physician, educator, and researcher. ICAP's global network of dedicated and highly qualified staff and consultants supports projects and activities across 21 countries and includes leading international experts in the areas of clinical care (i.e. HIV prevention, care and treatment, TB, malaria, MCH, etc.); health systems strengthening; research and research capacity; laboratory systems; strategic information/monitoring and evaluation; training, education and mentorship; operations; financial management; and compliance.

ICAP's headquarters staff provides technical assistance and support to its large and decentralized network of country offices, with experienced staff situated strategically in the countries most affected by the HIV epidemic. This support is provided via structured webinars, conference calls and country visits to design, implement, monitor and review key aspects of the projects. ICAP's headquarters staff is made up of active investigators in the field of global health who frequently publish studies on topics such as maternal-infant HIV transmission and integrated TB/HIV care and treatment programs.

ICAP's team in Tanzania is composed of highly skilled technical and management personnel with both local and international experience. The ICAP team in Tanzania is comprised of 131 staff members with technical and operational support provided by ICAP's global network. The team manages the implementation of multiple projects focused on capacity building, system strengthening and service strengthening in the ICAP supported six mainland regions and the islands of Zanzibar.

ICAP Global Leadership

Wafaa El-Sadr MD, MPH, MPA: Dr. El-Sadr leads and supports the capacity of health systems through the many programs that ICAP has established. Her work has also advanced the concepts of health systems strengthening globally for the purpose of confronting major health threats faced by communities around the world. Dr. El-Sadr has led the design and implementation of numerous innovations in HIV programming as well as for studies that have furthered the understanding of the prevention and treatment of HIV/AIDS, tuberculosis, and other infectious diseases. She leads the NIH HIV Prevention Trials Network and serves on multiple advisory groups at the national and international levels including serving on the Scientific Advisory Board for PEPFAR.

Mark Fussell, MPA: Mr. Fussell serves as a member of the core leadership team and oversees the activities of finance, human resources, and operations. His areas of expertise include operations management, organizational development, finance, human resources, and strategic planning.

Jessica Justman, MD: Dr. Jessica Justman oversees ICAP's TA programs in the areas of clinical, laboratory, and strategic information activities needed for HIV programs and health systems strengthening. Her areas of expertise include adults care and treatment as well as HIV prevention. She has led major research studies of the epidemiology of HIV among PLHIV, research in pre-exposure prophylaxis and in combination prevention strategies.

David Hoos, MD, MPH: Dr. Hoos is a as a technical expert in a number of areas related to HIV policy and programming. He has served on numerous global health forums, including the Service Delivery Panel for the WHO 2013 Integrated HIV Guidelines, the Global Fund's Procurement and Supply Management Advisory Group, and as a Treatment Advocacy Advisor for the Joint United Nations Programme on HIV/AIDS (UNAIDS).

Elaine Abrams, MD: Dr. Abrams has led several of the most innovative initiatives in PMTCT and pediatrics at ICAP, such as the development of centers of excellence in multiple countries for PMTCT and pediatrics, product development, and several major initiatives including the introduction of routine HIV testing of hospitalized pediatric patients. Dr. Abrams has also been an active investigator in the field of maternal-infant HIV transmission and has been deeply involved in the development of international, national, and local guidelines and policies for HIV prevention, care, and treatment.

Andrea A. Howard, MD, MS: Dr. Howard oversees the clinical and laboratory aspects of ICAP's activities for prevention, care and treatment of HIV, tuberculosis and related conditions, as well as the design and implementation of training programs for a variety of learners. Dr. Howard is also involved in the design and implementation of integrated TB/HIV care and treatment programs as well as leading implementation research studies in TB/HIV integration at ICAP-supported sites in sub-Saharan Africa.

Batya Elul, PhD, MSc: Dr. Elul leads efforts to provide technical assistance to and build the capacity of ministries of health to plan and implement surveillance, monitoring and evaluation, and research activities that generate relevant and timely data for evidence-based decision making. She is a demographer by training with expertise in design of population-based studies.

Alisa Alano, MPH, MS: Ms. Alano brings more than 11 years of experience managing, implementing, and monitoring international public health and humanitarian assistance programs, with a focus on HIV/AIDS programs. She has provides technical assistance in the design and implementation of HIV prevention, care, treatment, and support initiatives.

ICAP Tanzania Senior Management Expertise

Karen Doll, MPA, Country Director: Ms. Doll has fifteen years professional work experience in the public and civil society sector at national and international levels in program management, capacity development, service delivery, advocacy, policy and legislative development, capacity building to national and regional governments. She has experience working on HIV/AIDS, Orphaned and Vulnerable Children, and Child Protection in five African countries and Indonesia. She has strong knowledge of HIV/AIDS and development issues, strategies, programming policies and procedures in international development cooperation, as well as strong management experience and capacity for financial and human resource management.

Ayele Zewde Woldehana, MD, Deputy Country Director Programs: Dr. Zewde Woldehana is a medical doctor specialized in internal medicine with 25 years of experience in clinical medicine and public health in Ethiopia and Tanzania. He was engaged in the Ethiopian HIV/AIDS program since the onset of the epidemic by managing patients, providing pre-service and in-service trainings for medical students and health care workers and by serving in different national technical working groups and committees. He has experience developing complex programs from the onset through maturation. He is skilled leading a team of experts in strategic and annual planning, implementation and monitoring, handling a complex administration and multi-million dollar budgets. He was involved in the development of a number of HIV/AIDS related national training materials, guidelines and job aids.

Caterina Casalini, MD, Director, Central Technical Team: Dr. Casalini is a medical doctor specialized in Infectious and Tropical Diseases with 14 years medical and public health experience in Italy, Burkina Faso, Ethiopia, Myanmar and Tanzania, managing complex budgets and supervising large teams. She has strong technical capacity in policy guidance, strategic planning, work plan development, monitoring and evaluation. Her solid expertise in HIV/AIDS, TB, Reproductive and Child Health programs is matched by in depth understanding of Health Management Information Systems.

Annette Almeida, MD, MPH, Director, M&E: Dr. Almeida has three years of clinical experience working at the pediatric ward at the national hospital in Tanzania and ten years of public health experience working on various donor funded projects, including research. She has designed and supervised the implementation of complex M&E frameworks for HIV/AIDS care and treatment services within facilities. She has extensive experience designing and implementing national Data Quality Assurance tools. She has served in an advisory capacity for all M&E related issues with donors, national and local government, as well as, other stakeholders. She has strong technical capacity in strategic planning and management of diverse teams.

Gretchen Antelman, ScD MPH, Director of Research and Evaluation: Dr. Antelman has twenty years of international experience in epidemiology, maternal and child health, HIV/AIDS, operations/clinical trials research, program monitoring and evaluation, data management and analysis, and is experienced in training and local capacity building. She has worked with academic institutions, national governments, multi-lateral and bilateral agencies. Dr. Antelman has led field operations for longitudinal clinical trials, observational and operations research in Uganda, Tanzania, and Bangladesh; designed and managed large study datasets; conceptualized, and led independent quantitative data analysis for peer-reviewed publication of study findings. She has also been involved as lead or co-author on several funded grant proposals and research protocols.

Phedson Mwambete, CPA, Director, Administration and Finance: Mr. Mwambete has nearly 25 years of experience managing multi -million dollar complex portfolios with multiple donors. He has managed procurement systems to ensure consistent supply of critical supplies during emergency and non-emergency situations. He has experience in Sierra Leon, Tanzania and Zambia.

Process: From individual staff work plans to those of the organization as a whole, all ICAP management plans are generated in close collaboration with donors, project partners, and key stakeholders. The planning process includes reviewing the project objectives; conducting a situational analysis; setting goals and strategies; defining objectives to achieve and measure progress on goals; assigning responsibility and timeframes; finalizing, disseminating, and communicating plan documents; and plan monitoring and analysis. These detailed work plans not only guide the day-to-day aspects of each project, but are designed with built-in quality checkpoints to allow necessary course corrections and improvements to ensure continued responsiveness to project goals. Each work plan identifies detailed project tasks, their duration, and implementation requirements so that managers can accurately assess the actions required and quickly and efficiently assign specific resources and staff to complete all of the tasks.

Strengthening the Health System in Tanzania

Since the very beginning of its mandate in Tanzania ICAP has implemented a new model of mutual accountability with the Regional and District Health Management teams. Within this framework, ICAP has always worked towards enhancing strong political leadership and country ownership.

By building the financial and program management capacity of regional and council (district) health management teams (R/CHMT) and of national NGOs, ICAP has enabled health care workers to acquire essential skills through technology transfer; supported communities to claim their rights and participate in governance of the health system through facilitating the establishment of PLHIV support groups and engaging PLHIV in decision making and program design; established government community programs at district level; and ensured investments contribute to health system strengthening through diverse inputs including renovation of health facilities and laboratories.

Perhaps ICAP's largest contribution towards strengthening health systems has been in the area of building the capacity of healthcare workers through training and clinical mentorship. ICAP has trained cadres of health care workers (HCW) across the HIV continuum of care to improve practitioner and facility capacity for prevention of HIV transmission and clinical management of HIV using national training guidelines and following WHO guidelines. ICAP began maintaining training data in 2007 and since that time period, has cumulatively trained **15,048 HCWs and Peer Educators (PEs)**. The training was designed to narrow gaps in knowledge and skills, establishing competencies and thus affecting the quality of HIV service delivery.

Recognizing that didactic training is insufficient to ensure high quality clinical management, ICAP compliments the training with robust **on-site clinical mentoring** of HCW. ICAP staff provides continuous, structured mentorship on regularly scheduled technical visits to improve HCW skills and abilities. The ICAP staff use a variety of approaches for mentoring, which include: one to one preceptorship, case discussion, chart reviews and discussion of key topics in the form of continuous medical education.

At the facility level, the Multidisciplinary Team (MDT) approach is emphasized to further communication across diverse disciplines and to ensure linkages across the HIV continuum with other health services. MDT meetings are held monthly at the facility level and integrated into the existing clinical staff meetings.

ICAP has helped to ameliorate the shortage of HCWs through sub-grants to RHMTs and CHMTs. A total of 330 staff at district and facility level are supported through ICAP. The majority of these staff are data clerks

assigned to the health facilities, and laboratory assistants. In addition, funds provided through sub-grants have supported recruitment of additional nurses and clinical officers, particularly in remote areas with critical staff shortages.

ICAP's Approach to Building Capacity

To ensure high-quality delivery of HIV and related clinical care, clinical staff must be equipped with up-to-date knowledge of treatment guidelines and management practices; have ongoing clinical mentorship to improve clinical diagnosis, treatment, and referral skills; and have the ability to review clinical data related to volume and quality of services.

To build the skills needed for successful patient and program outcomes, ICAP implements a comprehensive capacity building model. This focuses on building competencies and capabilities in individuals, institutions and systems. ICAP's capacity building approach utilizes a combination of methods that address core competencies, including competency-based training, clinical mentoring, joint supported supervision with R/CHMT, delivery of Continuous Medical Education (CME), and introduction of telemedicine.

Rapid Expansion of HIV-Related Services

ICAP began its work in Tanzanian 2004, at a time when the overall national response to HIV was extremely limited and with the vast majority of PLHIV still in need of services.

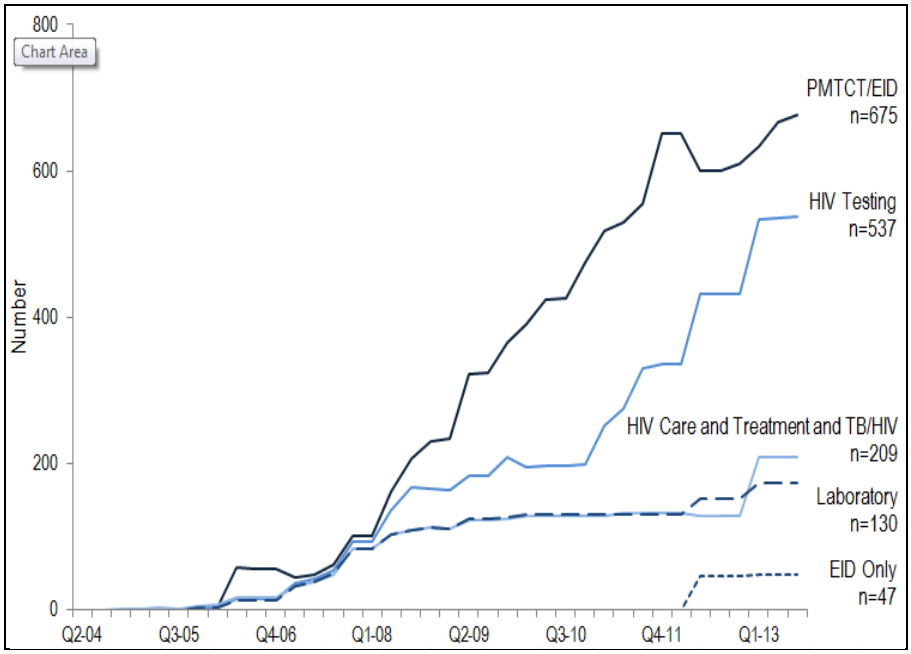
The rapid scale-up of HIV prevention, care and treatment services in Tanzania was accomplished by implementing a comprehensive model of care. ICAP worked closely with the Tanzanian government at national, regional, and district levels. ICAP ensured that all services provided were consistent with the national HIV and TB/HIV guidelines while supporting the government to strengthen these guidelines consistent with the current evidence and experience.

In collaboration with regional and council health management team (R/CHMT), ICAP supports the startup of HIV services starting with a joint baseline assessment with the relevant CHMT. This assessment is followed by a feedback and planning meeting with CHMT and facility staff. ICAP then initiates site start-up activities, including introduction of the comprehensive model of care, procurement of equipment and reagents, establishment of sample transport systems, and provision of training and mentorship. The CHMT is responsible for the provision of antiretroviral drugs and drugs for treating opportunistic infection are supplied. Facility staff provides services, after which there is follow-up of regular assessments of standards of care, activities are documented and data is reported following national recommendations. ICAP staff conducts continuous joint mentorship and supervision with CHMT.

ICAP has been integral to the process of skill building at the care and treatment clinics across Tanzania. In addition to standardized approaches, programs have embraced innovation to meet needs that have arisen during the course of implementation. The resources and support provided by PEPFAR have allowed ICAP, in partnership with the MOHSW, to expand to a larger number of facilities, including primary health facilities, in order to offer a full range of comprehensive services and to empower local governments to take greater responsibility and ownership of achievements.

ICAP supported the rapid expansion of HIV services at facilities in 4 regions in Tanzania and Zanzibar. Figure 1 shows the progressive increase in the number of supported health facilities over time. ICAP supports HIV testing and counseling (HTC) and care and treatment (C&T) services at care and treatment clinics (CTC), inclusive of TB/HIV at 537 HTC and 209 CTC sites, respectively. The HTC sites facilitated wide-scale HIV testing with engagement of those found to be HIV positive in HIV care and treatment programs.

Figure 1. Number of Health Facilities Supported by Program Area, 2004-2013



ICAP supports the provision of comprehensive services in the following programmatic areas:

- HIV Testing and Counseling (HTC)
- Care and Treatment (C&T) inclusive of TB/HIV
- Prevention of Mother to Child Transmission (PMTCT)
- Early Infant Diagnosis (EID)
- Voluntary Medical Male Circumcision (VMMC)
- Laboratory services
- Adherence and Psychosocial Support and Community Care (APSC) inclusive of Peer Educator programs and Psychosocial Support Groups (PSG)
- Cervical Cancer Screening (CCS)
- Palliative Care
- Nutrition Assessment and Counseling Service (NACS)

ICAP Approach to Integrated Health Systems

Integrated health services are considered part of the response to the challenge of developing effective health related programs and are widely considered to facilitate the delivery of superior quality services as a result of effective communication and standardized protocols. Integrated health services are posited to be: cost-effective, client-oriented, equitable and locally owned. It is considered to be more cost-effective to share resources (particularly human resources) than to devote these resources to one particular disease. It is also more effective to focus on the whole person (plus his or her family, sexual partners etc.), rather than focusing separately on just one health problem in an individual. In resource limited settings, both aspects are vital to the sustainability of the health service; ICAP principles support this concept.

"Integrated" is used to refer to a package of "*preventive and curative health interventions"* for a particular population group. The aim of this form of integration is for individuals in the target group to receive all appropriate interventions, ideally (from the client's perspective) at a *"one-stop shop"*. This approach has been supported by ICAP through the establishment of TB screening; family planning and STI screening; nutritional assessment; counseling at CTC; ART provision at TB clinics; and PMTCT and EID services at reproductive and child health (RCH) clinics.

"Integrated health services" refers to the provision of multi-purpose services for a population at one location. Examples are the "*multi-purpose outreach visits"* that ICAP supported to the people living on Lake Victoria Islands, to the general population at the occasion of immunization campaigns and to the key populations in Zanzibar where HTC, ART, STI screening and treatment, TB screening and FP services were offered; HEI were traced; and HIV-related education messages were delivered. From the clients' perspective, this integration is an opportunity to receive coordinated care, rather than having separate visits for separate interventions.

Furthermore, "integrated services" also implies achieving "*continuity of care"* over time. With ICAP support, this has entailed aiming for life-long care HIV care throughout the full continuum, through establishment of palliative care (PC) services and coordination between health facility-based Peer Educators and home-based care (HBC) community volunteers, and as well a continuum of care between antenatal, postnatal, newborn and child care through the development of community-based support groups.

Integration refers also to the "*vertical integration*" of different levels of service, where ICAP built the capacity of the Regional and Council Health Management Teams (R/CHMT) on the overall management and network of regional and district hospitals, health centers and dispensaries, and facilitated the establishment of health facility-based Multidisciplinary Teams (MDT) across various services areas such as HIV, RCH, tuberculosis, laboratory, radiology, out-patient and in-patient care, and home-based care.

Integration also refers to integrated policy-making which brings together decision-making across different programs of the health service. For example, ICAP actively assisted the MOHSW in the integration of the

National AIDS Control Program (NACP) and the National Tuberculosis and Leprosy Program (NTLP) through the establishment of a joint TWG, establishment of stakeholders meetings, identification of TB/HIV focal persons within both programs, and joint supportive supervision to the health facilities.

Scale-up of Adult and Pediatric Integrated HIV Services

Over the past 9 years ICAP support for HIV care and treatment has expanded to cover 209 clinics in four regions (Kagera, Kigoma, Pwani, Mtwara) and Zanzibar. HTC coverage also expanded rapidly. This massive scale-up in coverage represents the outcome of an enormous financial and programmatic effort generated by joint collaboration between the ICAP team and the Regional and District AIDS Control Coordinators (R/DACC) as part of the broader partnership with the Regional and Council Health Management Teams (R/CHMT) under MOHSW.

HIV Testing and Counseling (HTC)

HIV testing is the entry point into HIV prevention, care and treatment. ICAP supports sites to provide a full range of HTC including voluntary counseling and testing (VCT) and provider-initiated testing and counseling (PITC) at OPD, in-patient wards and reproductive child health facilities (as part of the PMTCT/EID program).

As shown in Figure 2, the number of clients receiving HTC increased dramatically from FY06 to FY09 following service expansion. **In 2013, almost 400,000 people received HIV testing**.

Figure 2. Number of clients receiving HTC at ICAP supported sites, October 2005 – June 2013

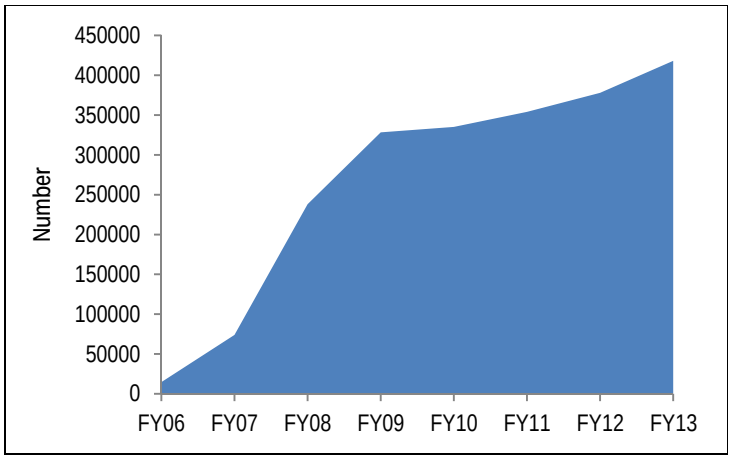
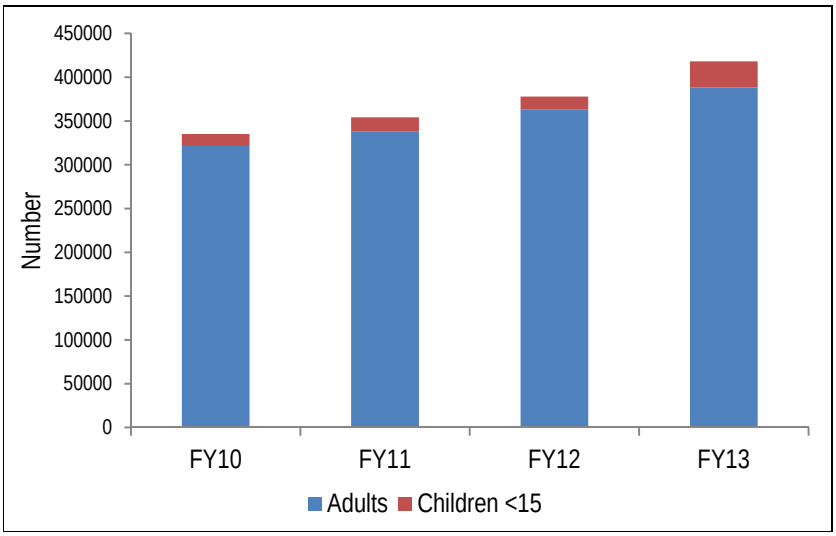


Figure 3 includes adults and children tested through VCT, PITC, PMTCT/EID, VMMC and key populations (KP) services. From 2010 to 2012 the number of adults receiving HTC progressively increased. The number of children tested for HIV was stable at **15,000 children for a number of years, but more recently has**

doubled as a result of intensified advocacy efforts by ICAP to prioritize testing of children and pregnant women.

Figure 3. Number of Adults and Children Receiving HTC at ICAP Supported Sites, October 2009 – June 2013

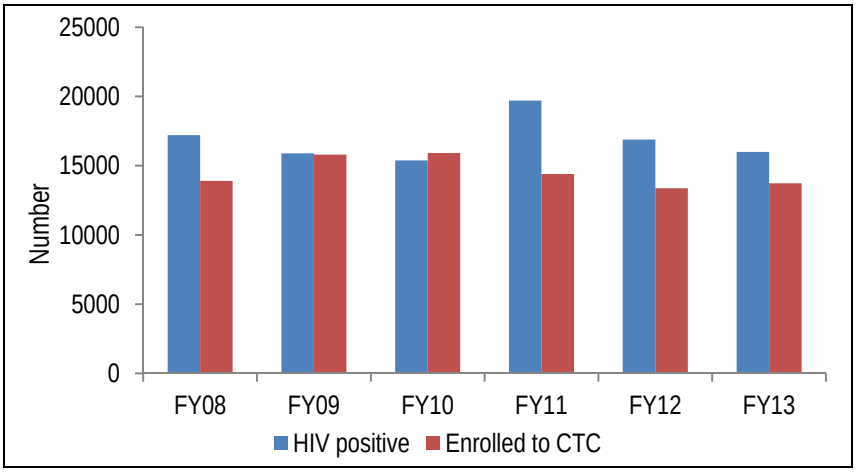


Consistent with global recommendations, ICAP worked with regional and district governments to increase testing sites to expand beyond VCT and include other entry points. Currently, **VCT accounts for 51% of identified HIV positive patients. Another 30% of HIV patients are identified through PITC at OPD/IPD and RCH**.

Over the past 6 years, ICAP has been able to **enroll 86% of those who tested HIV positive** into care and treatment programs (Figure 4). ICAP's efforts to ensure HIV-infected patients are enrolled into care include the following:

- Sensitization of community by Peer Educators regarding HTC and importance of HIV care and treatment
- Establishment of a client escorting system from all HTC entry points by PE, a cadre of HIV positive lay workers engaged in the support of the HIV program
- Deployment of PE at RCH to conduct counseling and escort to care and treatment clinics (CTC) and psychosocial support groups (PSG)
- Establishment of PSG for pregnant and postpartum HIV-infected women to facilitate the linkage of HIV-infected infants and their mothers to CTC (refer to section on PMTCT for more information)
- Establishment of a partnership with home-based care (HBC) organizations to strengthen the linkage of HIV positive clients to CTC by streamlining community level efforts among lay workers from the PE and HBC programs

Figure 4. Linkage from HIV Testing to HIV Care at ICAP Supported Sites, October 2007 – June 2013*



* Report from FY08 includes only clients received HTC from VCT, PITC and PMTCT services, while data from FY09 to FY13 includes also clients who were tested through EID, VMMC and KP services; data from FY13 include also Mtwara region. Data source for HIV testing is the HTC M&E system, while data source for CTC enrollment is the CTC M&E system; therefore the linkage has to be considered as a proxy.

HIV Care and Treatment (C&T)

In response to the urgent need and the large number of PLHIV who required care and treatment, ICAP supported the scale-up of these services from **7 sites in 2004 to 127 by 2010. By 2012 the total number of care and treatment sites reached 209**. In order to rapidly scale up quality HIV care and treatment services, ICAP conducted the following activities:

- Intensive clinical mentoring and supportive supervision at high volume health facilities where the majority of patients receive services
- Frequent supportive supervision visits to assess and improve quality of care
- Focused mentoring to tackle specific gaps identified during assessments
- Delivery of continuing medical education (CME) to HCW based on identified gaps in knowledge covering a wide range of topics from clinical to programmatic issues
- Regular data reviews to identify and follow up on areas/sites with challenges in enrollment and to intensify HIV testing efforts
- Monthly use of monitoring and evaluation (M&E) tracking tools to identify eligible patients yet to initiate ART in order to discuss with HCW and to utilize PE to seek such patients for return to health facilities
- Linkage of patient in care (pre-ART) with PE in order to enhance their retention in the program
- Establishment and continuous strengthening of the defaulter tracing efforts by PE through the APSC program (refer to section "Continuum of Care")

ICAP Model of Site Support

"Site Presence", characterized by spending frequently and staying for a prolonged time at the supported sites with the aim of developing a site from start-up to independence/maturation, is the hallmark of the ICAP Site Support Model.

The technical assistance to HCW includes clinical mentoring and supported supervision, the establishment of the Multidisciplinary Teams at facility level, and delivering of Continuing Medical Education (CME), introduction of telemedicine - which are all elements of ICAP's approach to capacity building.

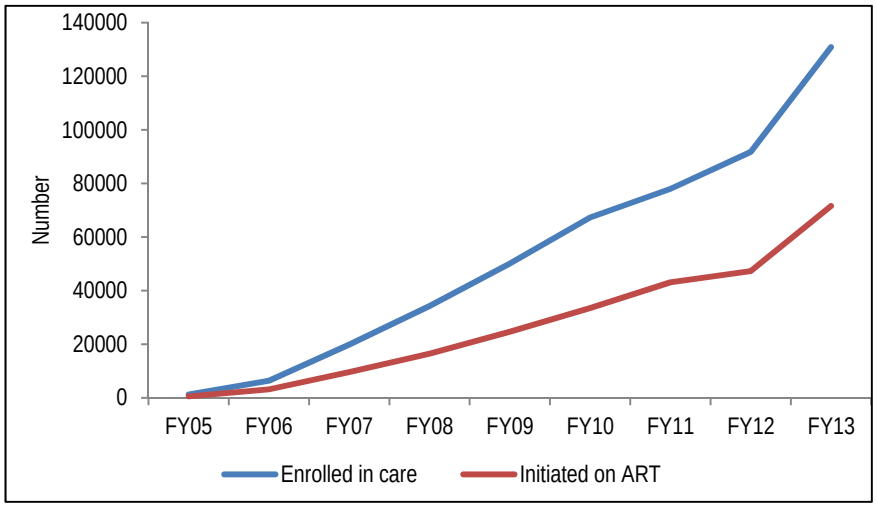
The ICAP team developed a "prioritization scheme" to categorize sites into "high/medium/low priority" health facilities based on client load. Currently there are 60 high priority CTC sites and 56 high priority PMTCT sites, inclusive of Regional Hospitals and HFs with CD4 equipment. The high priority sites represent 70% of the clients receiving services overall.

The ICAP approach ensures:

- Efficient use of limited numbers of personnel by expanding roles and responsibilities
- Assignment of specific geographic areas and health facilities to the ICAP team members
- Supervision and mentoring of high, medium and low volume sites on bi-monthly, monthly and quarterly basis respectively
- Regular use of ICAP quality based checklists to guide mentoring and supervision staff
- Regular use of quality indicators to assess performance and identify site maturation, resulting in less frequent visits
- Dissemination of technical guidelines to enhance overall facility services
- Services integration

As noted in Figure 5, during nine years of support (2004-2013) ICAP facilitated the cumulative enrollment of **130, 892 PLHIV** into HIV care, and cumulative initiation of ART to **71,565 PLHIV** (55%) at 209 clinics.

Figure 5. Cumulative number of Adults and Children < 15 years in Care/ART at ICAP Supported CTC, September 2005 – June 2013*



* Annual cumulative in care and ART were including Transfer In (TI) this group only until FY11 Q1 (Oct-Dec 2010); afterwards TI were removed from cumulative in care, but reported under cumulative on ART until FY12 Q3, when TI were removed from both cumulative in care and ART.

Figure 6 shows a rapid increase in new enrollments in care among the adult population from 2005 to 2010, from approximately 5,000 to almost **16,000 per year**. The enrollment of children in HIV care and treatment has remained stable with around **900 children enrolled in care annually and 500 initiated on ART**. As noted in Figure 6 below, while the number of new adults and children enrolled in care has reached a plateau, Figure 7 shows the number of new patients on ART continues to increase.

Figure 6. New Adults and Children < 15 years Enrolled in Care at ICAP Supported CTC, September 2005 – June 2013

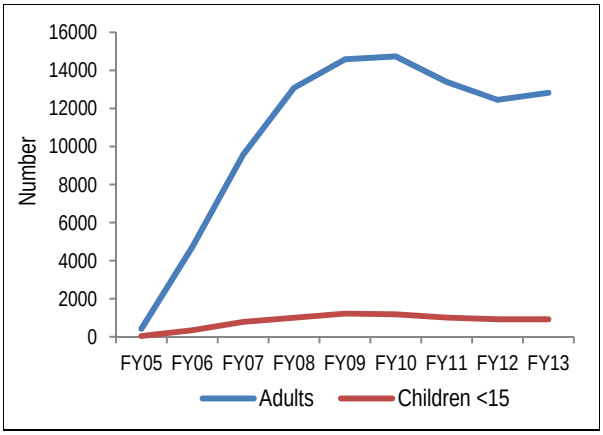
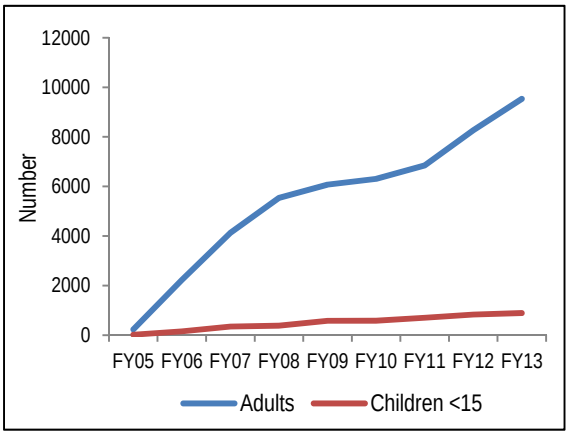


Figure 7. New Adults and Children < 15 years on ART at ICAP Supported CTC, September 2005 – June 2013



Through its nine years of experience engaging with partners in other geographic regions in the country and based on discussions at the national level, the following factors were identified as possible reasons that may have contributed to the low pediatric enrollment into care. These include the following:

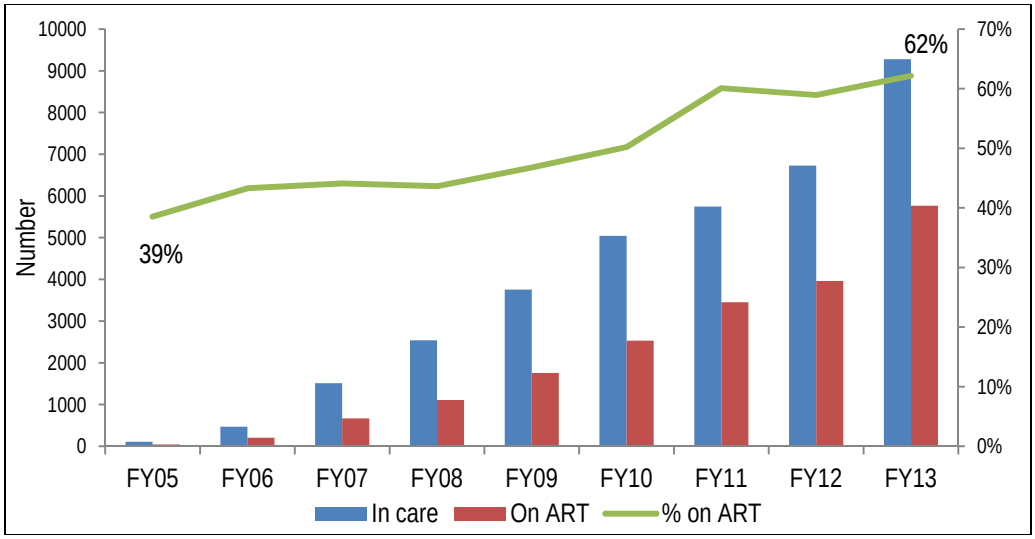
- High percentage (51%) of home deliveries in Tanzania (WHO World Health Statistics 2012)
- Reluctance of caregivers to get children tested for HIV
- Limited HCW capacity to promptly initiate ART to the pediatric population
- Poor linkage between health facility and community based organizations (CBO)
- Limited coverage of CBO in the geographic catchment areas

To address these factors and increase pediatric enrollment, ICAP has focused its efforts on the following:

- Support and expansion of outreach services by Community Health Management Teams (CHMTs) for pediatric HIV testing
- Promotion of PLHIV family testing
- Support for health facility based deliveries through advocacy and awareness efforts
- Establishment of an appointment system with a reminder card for HIV-infected mothers to ensure that they bring their newborns for testing after 4 weeks
- Targeting immunization clinics to provide improved HIV test kits stocks, availability of M&E tools, providing on-site mentoring and placement of peer educators to identify HIV exposed infants who were not tested
- Collaboration with civil society to facilitate linkage into care and treatment

Figure 8 demonstrates HIV care enrollment and ART initiation among children over a period of nine years. The number of HIV-infected children enrolled in HIV care increased following the CTC expansion. Furthermore, pediatric **ART coverage rose from 39% in 2005 to 62% in 2011** following the national adoption of WHO ART guidelines for children under 2 years, regardless of CD4 count, and the ICAP roll out of pediatric friendly clinics as an innovative approach to improve children's access to treatment.

Figure 8. Children < 15 years receiving ART at ICAP Supported CTC, October 2004 – June 2013*



*Reports from FY05 to FY12 include Kagera, Kigoma, Pwani and Zanzibar, while FY13 includes also Mtwara region

Enhancing Adherence and Retention in HIV Care and Treatment

As innovative response to address social factors, such as stigma, discrimination, failure to and fear of disclosure, which can influence access to treatment, **ICAP established the Adherence, Psychosocial Support and Community Care (APSC) Program,** with the goals of promoting a continuum of care and improving retention in care and treatment.

The strategy was based on (1) building the capacity of HCW to strengthen patients adherence; (2) establishment of a cadre of Peer Educators (PE); and Lay Counselors (LCs) to enhance counseling, ensure linkage between HF and community level and conduct defaulter tracing; and (3) establishment of pediatric and adolescent clubs to discuss and learn about all elements related to HIV infection across the prevention to continuum of care.

Since 2010, 640 PE traced **cumulatively 34,044 PLHIV**, who defaulted from 122 CTC, and **re-engaged 63% in care and treatment.** Based on the barriers analyses showing that 39% of patients defaulted because of social reasons—stigma, discrimination, failure to disclose and fear—and 23% because of distance and lack of transport, ICAP strengthened its partnership with home-based care (HBC) partners and promoted outreach services.

This successful model is based on high PE commitment, strong community based M&E system and quarterly assessment of ICAP adherence quality indicators (psychosocial support assessment, adherence to treatment, disclosure, linkage to peer support groups) to measure progress against targets and take appropriate corrective action.

Table 1 describes ART retention of seven cohorts from 71 sites with electronic medical records. Cohorts were defined as all patients initiating ART in each calendar year from 2005 to 2011. Across all cohorts between 64% and 71% of the clients were retained at 12 months; retention at 24 months was slightly lower from 57% to 64%; and at 36 months retention ranged from 51% to 60%. These data are consistent with what has been reported in the literature and provide new information on longer term retention data beyond what is usually reported.

In order to enhance retention, ICAP is focused on intensive efforts including development of robust systems to track missed visits, rapid initiation of tracking, intensive education of patients regarding importance of retention, use of PE to trace defaulters, and plans to conduct exercises focused on the HIV care continuum (cascade).

Table 1. Cohort analysis on ART retention, at 71 ICAP supported sites with electronic medical records

Cohort (year of ART initiation)	Number in cohort	12 months	24 months	36 months
2005	1,240	68%	61%	55%
2006	3,502	64%	57%	51%
2007	4,845	64%	57%	52%
2008	6,182	66%	59%	56%
2009	6,626	68%	63%	60%
2010	6,815	70%	64%	n/a
2011	6,971	71%	n/a	n/a

Note: n/a = Not Available

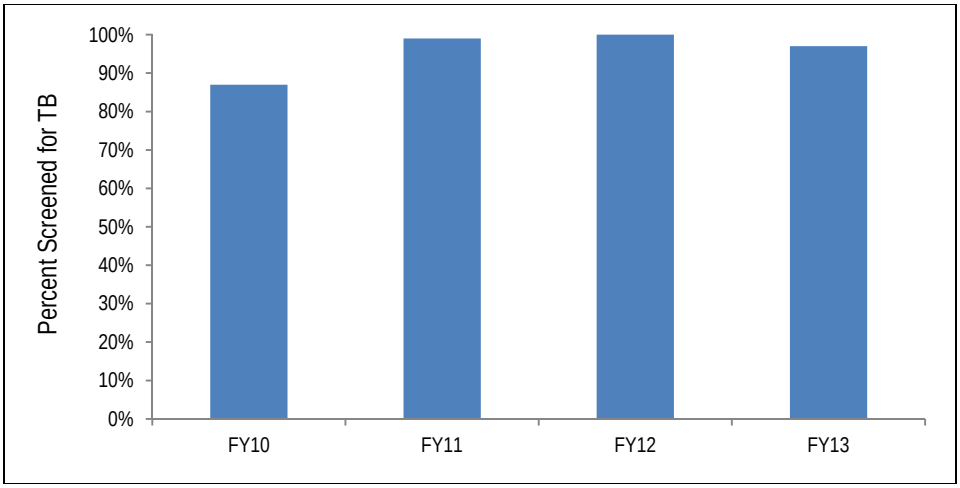
Integration of Tuberculosis and HIV (TB/HIV)

In 2008, ICAP began supporting the piloting of the integration of TB screening at CTC as part of a comprehensive package of HIV service delivery. To ensure increased TB/HIV case detection and ART coverage, ICAP focused on the following activities:

- The establishment of a close collaboration with the National Tuberculosis and Leprosy Control Program (NTLP) at the central level of MOHSW and with the Regional and District TB and Leprosy Coordinators (R/DTLC)
- Continuous ICAP support to ensure data triangulation between HIV C&T and TB M&E systems which assist to identify TB/HIV patients
- Mentorship of HCW on adherence to the national diagnostic algorithm and ART guidelines
- Training of R/DTLC and clinicians on chest X-ray interpretation
- Supply of X-ray digital equipment and Light Emitting Diodide microscopes and related reagents to enhance TB case detection
- Collaboration with a local NGO of former TB patients to conduct intensified TB case finding in all waiting areas at health facilities and at community level (refer to section "Creating TB/HIV Linkages between the Health Facility and Community")
- Technical assistance to MOHSW in adapting the national policy and guidelines to the international recommendation regarding initiation of ART in TB/HIV patients regardless of CD4 cell count

Data on these activities became available in 2009 following ICAP's intensive preparation, where HCW were trained and mentored on the use of the national TB screening questionnaire tool. By 2010, TB screening had become **nearly universal** for HIV care patients at ICAP-supported sites as noted in Figure 9.

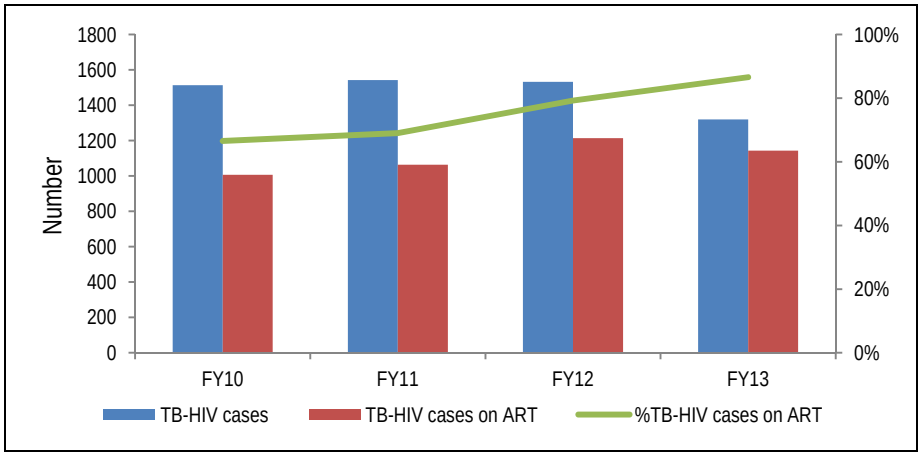
Figure 9. Annual TB Screening of PLHIV at ICAP supported CTC, October 2009 – June 2013*



*Reports from FY10 to FY12 include Kagera, Kigoma, Pwani and Zanzibar, while FY13 includes Mtwara region

Figure 10 below shows the number of PLHIV with TB from FY10-FY13 and ART uptake in these patients at 71 sites with electronic medical records in 3 regions and Zanzibar. As of June 2013, **87% of the TB/HIV patients were on ART**, compared to 67% in the previous year.

Figure 10. Annual TB/HIV Cases and ART Coverage at 71 ICAP Supported CTC with Electronic Medical Records, October 2006 – June 2013



Creating TB/HIV Linkages between the Health Facility and Community

As part of ICAP multisectoral and integrated approach, Mkuta a national NGO of *Former TB patients* was sub-granted to conduct community tuberculosis (TB) awareness and education, intensified TB case finding (ICF), TB contact and defaulters tracing.

Starting on 2009, Mkuta established 11 TB clubs in 9 districts in 3 regions (Kagera, Kigoma, Pwani) in mainland and in Zanzibar. Over a period of 33 months, 275 former TB patients reached over **1.5 million** individuals with TB education, identified **250,000 TB suspects** and **detected 3,678 TB patients**. Through this effort, Mkuta's contribution to the national TB case detection increased dramatically from 17% on FY10 to 53% on FY12.

This successful model was based on strong selection criteria to identify the former TB patients to be engaged in the program, solid training on community TB and TB/HIV care, a robust monitoring and evaluation system designed to be user friendly, well-structured organizational management of the work within the district and the TB clubs, and close supervision by the NGO.

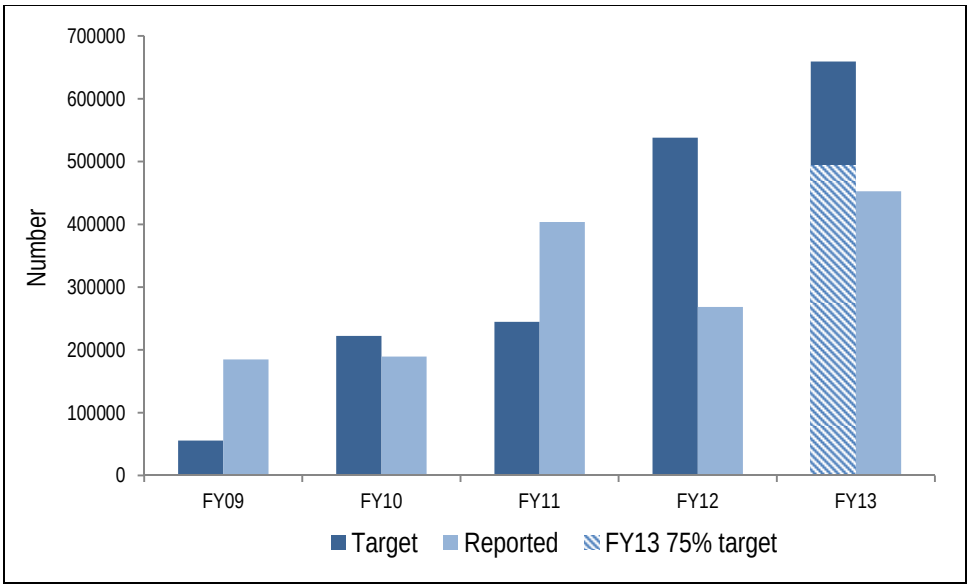
ICAP Progress towards Care and Treatment, TB/HIV and other HIV-related PEPFAR Targets

ICAP has consistently performed well as measured by PEPFAR performance targets for all past project years. It is important to note that for FY13, the data represent three quarters only and therefore the target to be achieved is 75% of the yearly target.

HIV Testing and Counseling

The number of individuals who received HTC has been significantly affected by the **country-wide chronic shortage and unequal distribution of HIV test kits.** This has resulted in episodic stock-outs during 2011 and 2012, followed by a more stable supply in 2013. Despite the fact that the current fiscal year began with chronic test kit shortage, **ICAP has achieved 92%** of the 2013 three quarters target thanks to its work to ensure uninterrupted supply of HIV test kits in a more stable environment (Figure 11). Furthermore, this is particularly impressive as the HTC target was doubled from FY 11 to FY12 while the coverage for CTC clinics remained the same.

Figure 11. PEPFAR Target: Number of individuals who received HTC and received their test results, October 2008 - June 2013



In terms of enrollment in HIV care and initiation of ART, targets for HIV-infected adults and children with advanced HIV infection newly enrolled/currently/cumulatively on ART have been reasonably achieved across the past five years, even as the targets for new and cumulative ART were almost doubled in FY12 despite no increase in the number of CTC supported by ICAP. For FY13, **in the third quarter 78% of the 2013 year target has been met** for enrollment (Figure 12). The target for FY13 for the number of **current and cumulative patients on ART has been exceeded** (Figure 13).

Figure 12: PEPFAR target Number of HIV positive adults and children with advanced HIV infection newly enrolled on ART, October 2008-June 2013

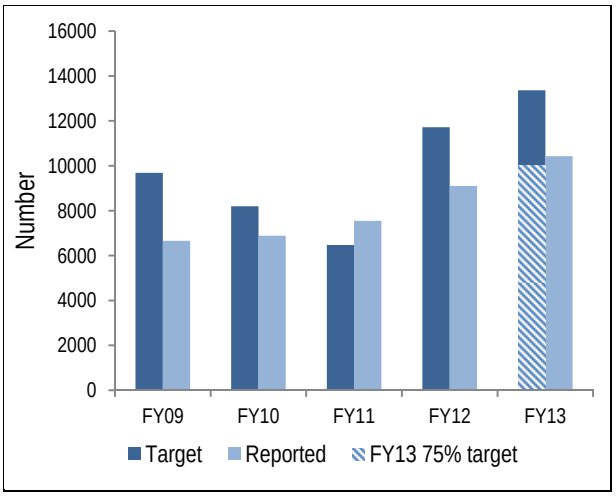
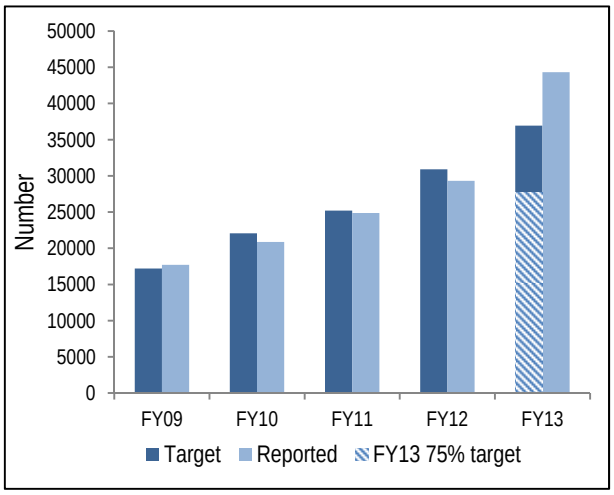


Figure 13: PEPFAR target: Number of adults and children with advanced HIV infection currently receiving ART, October 2008- June 2013



In terms of TB/HIV integration activities, ICAP supported sites have made great progress to ensure that HIV-infected adults and children are screened for TB. In the current fiscal year, the target has been fully achieved and exceeded by the third quarter as noted in Figure 15 below.

Figure 14: PEPFAR target: Cumulative Number of adults and children with advanced HIV infection who ever started ART, October 2008-June 2013

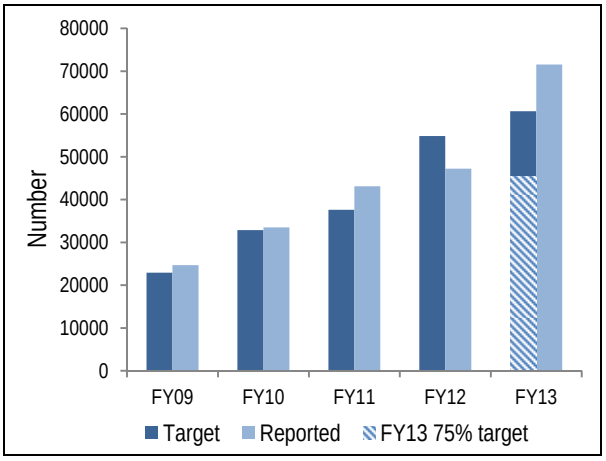
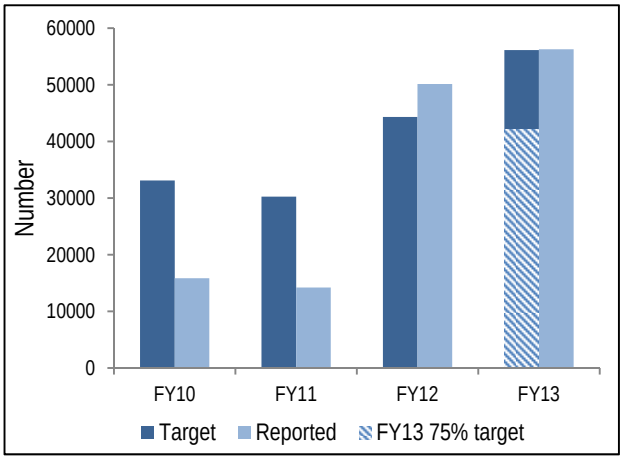


Figure 15: PEPFAR Target: Number of HIV positive adults and children screened for TB at CTC, October 2008- June 2013



Promotion of Maternal and Child Health through PMTCT and Early Infant Diagnosis

Since 2004, ICAP initiated support for prevention of mother to child transmission (PMTCT) of HIV in Tanzania. The overall objective was to expand coverage of PMTCT and EID services to all of the RCH clinics in Kigoma, Kagera and Pwani, as well as expand EID coverage to Zanzibar.

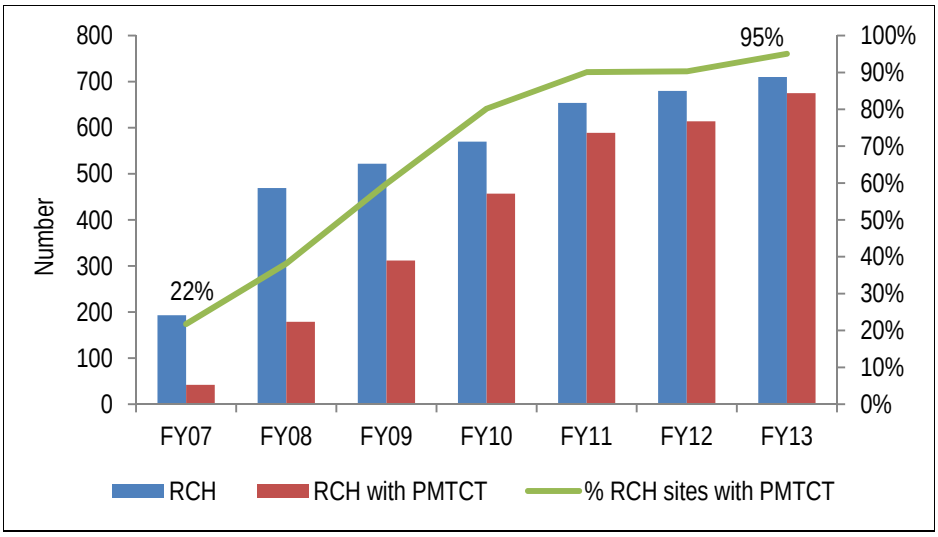
In 2010, Tanzania adopted Option A under the 2010 WHO PMTCT recommendations. Option A involves early initiation of zidovudine (at 14 weeks gestation) with provision of nevirapine syrup to the HIV exposed infant (HEI) throughout the duration of breastfeeding. In addition, pregnant women are screened for treatment eligibility upon HIV diagnosis through clinical staging and CD4 testing and are referred to CTC if treatment eligible. However, with the 2012 WHO Rapid Guidance, a third PMTCT option was set forth, Option B+, which involves the initiation of lifelong ART for all HIV-infected pregnant and breastfeeding women. Tanzania is moving towards adoption of Option B+, whereby treatment services will be made readily available at a larger number of PMTCT/RCH sites.

In response to the needs on the ground and in line with the national PMTCT/EID bottleneck analysis (Tanzania Elimination of Mother to Child Transmission of HIV Plan, 2012-15), ICAP is focusing its efforts on the following:

- Prioritization of the use of antenatal care services as an entry point for PMTCT and EID
- Support to CHMT to scale up and utilize outreach approaches (e.g., mobile HTC, provision of ART) to make the services more broadly available in the region
- Use of lay workers such as the cadre of PE to advise and encourage pregnant women to increase their ANC attendance
- Ensuring HIV counseling and testing availability to all pregnant mothers reached and strengthening the quality of HIV counseling through use of peer support groups
- Assistance in post-test counseling to focus not only on HIV positive pregnant mothers but also HIV negative ones so that they can remain negative and are retested within 3 months
- Prioritization of male involvement through a multi-pronged approach - enhancing their participation to pregnant and post natal mother psychosocial support groups and by actively involving village and religious leaders
- Offering couple HIV counseling and testing services and establishing youth friendly services
- Facilitation of ARV forecasting, pregnant women uptake and adherence

By June 2013, rapid and remarkable expansion of PMTCT/EID activities had been accomplished as result of a close collaboration with the Regional and District Reproductive and Child Health Coordinators (R/DRCHCo), as part of the broader partnership with the Regional and Council Health Management Teams (R/CHMT) under MOHSW. In ICAP supported regions, there are 710 RCH of which ICAP is supporting PMTCT/EID services at **675 RCH, representing 95% of the RCH in the regions** (Figure 16).

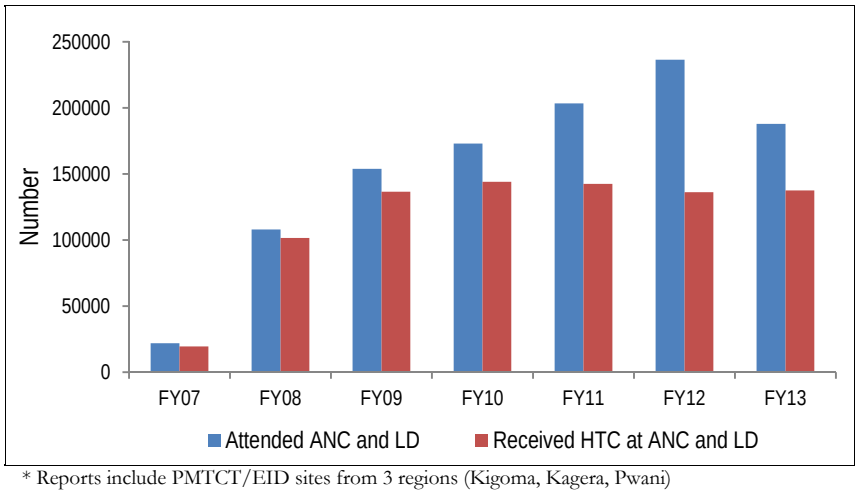
Figure 16. ICAP PMTCT/EID program coverage at RCH sites, October 2006 – June 2013



Furthermore, by participating in national technical working group (TWG) discussions, ICAP contributed to the development of the national Elimination of Mother To Child Transmission (eMTCT) Plan, which was based on the PMTCT/EID bottleneck analysis and is in line with the Health Sector Strategic Plan III 2009-2015 and the Health Sector HIV and AIDS Strategic Plan II 2008-2012.

Figure 17 shows the magnitude of the PMTCT services supported by ICAP from FY07 to FY13, where cumulatively ICAP has supported **675 PMTCT clinics, attended by over one 1 million pregnant women, 75% of whom received HTC services.**

Figure 17. HTC coverage at ICAP supported PMTCT clinics, October 2006 – June 2013*



* Reports include PMTCT/EID sites from 3 regions (Kigoma, Kagera, Pwani)

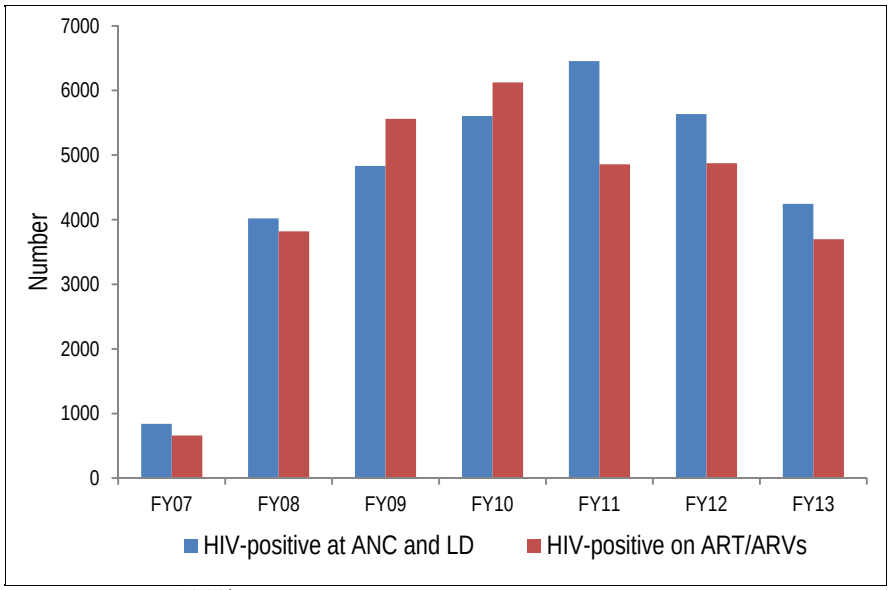
There has been a chronic shortage in HIV test kits in Tanzania particularly in 2011 and 2012. Enormous efforts undertaken by USG to improve the test kit supply have resulted in a more steady supply of test kits in 2013. In order to increase testing of pregnant women at ANC, ICAP has endeavored to:

- Effectively advocate with CHMT on prioritization of pregnant women for HIV testing
- Assist with redistribution of HIV test kits according to HF needs
- Provide a back-stock of HIV test kits through emergency procurement
- Ensure routine testing of pregnant women during follow-up ANC and HEI visits

HIV prevalence among pregnant women in the three supported regions was relatively stable at 4% during the period from FY07 to FY13. Of those who tested positive, **94% received antiretroviral medication** for PMTCT representing approximately **30,000 women** as of June 2013 (Figure 18).

In order to increase access to CD4 testing at RCH, ICAP facilitated blood sample collection for CD4 testing at RCH and introduced CD4 point-of-care equipment. ICAP also modeled the "RCH Platform" at a select number of facilities with the goal of eliminating referral within the PMTCT cascade by providing HIV treatment services in RCH clinic. More detailed description of this model is presented in the section on "Promoting Innovations."

Figure 18. Number HIV infected women identified at ANC and LD who received ARV at ICAP supported PMTCT clinics, October 2006 – June 2013*



* Reports include PMTCT/EID sites from 3 regions (Kigoma, Kagera, Pwani)

ICAP successfully supported the MOHSW in Tanzania to phase out single-dose nevirapine use for PMTCT and introduce more complex regimens including AZT prophylaxis, combination ARV, and ART for eligible women. This successful transition is demonstrated in Figure 19.

Figure 19. Proportion of HIV positive pregnant women in ANC receiving PMTCT regimen at ICAP supported sites, January 2009 – June 2013

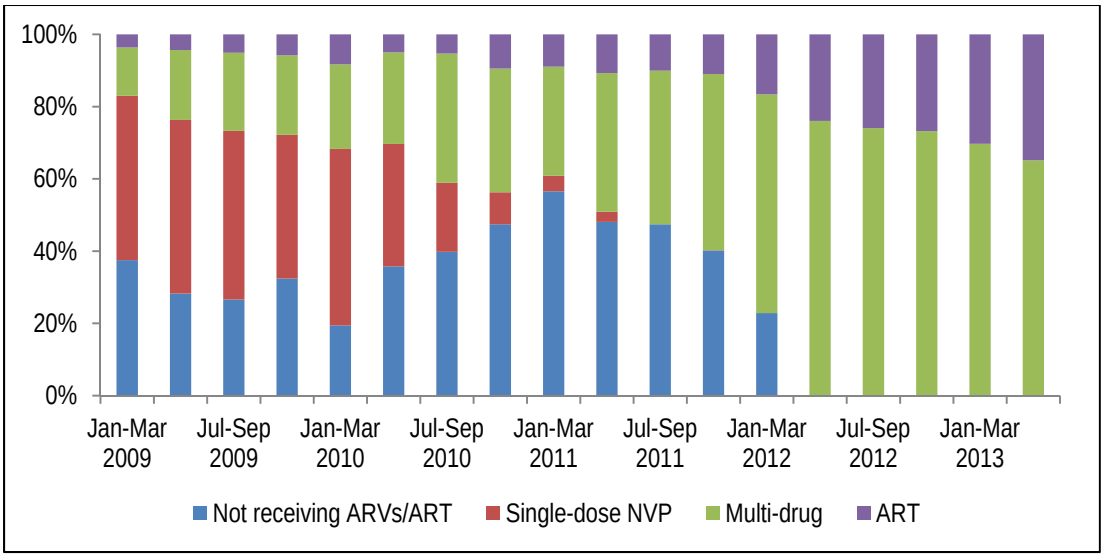
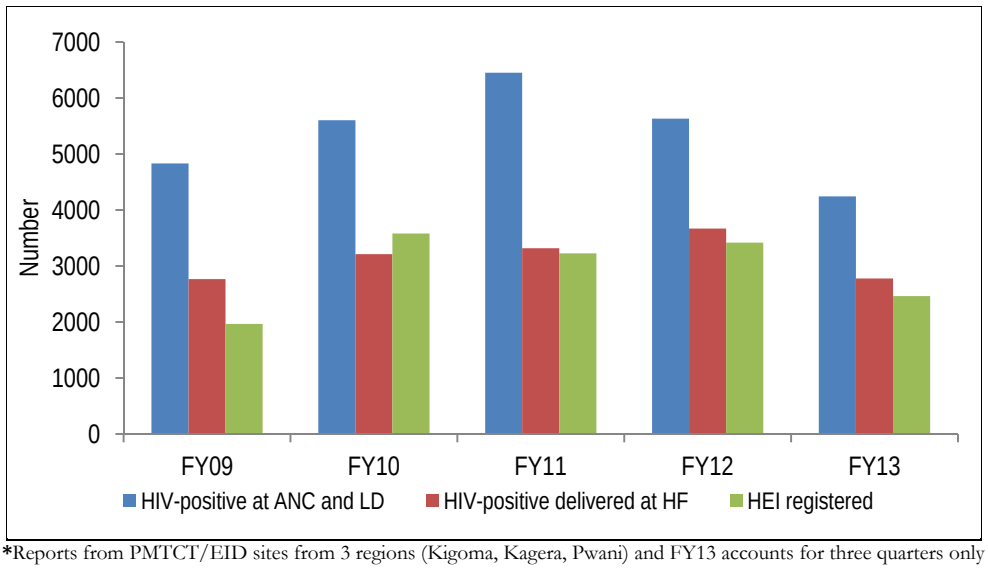


Figure 20 describes the HIV exposed infants (HEI) cascade based upon HIV exposed infant registration. A gap can be noted between the number of HIV positive pregnant women identified at ANC and LD and those delivering at health facilities. This is due to the large proportion of women in Tanzania who deliver at home rather than at facilities. While the number of HEI registered closely matches the women who deliver at health facilities, it remains lower than expected based on number from of HIV positive pregnant women identified in ANC, again due to women delivering at home and not bringing their infants in for facility-based follow-up.

Figure 20. PMTCT-HEI Follow-Up at ICAP supported PMTCT/EID sites, October 2008 – June 2013*



*Reports from PMTCT/EID sites from 3 regions (Kigoma, Kagera, Pwani) and FY13 accounts for three quarters only

HIV Infections Averted in Infants

Since 2007, under ICAP support, 747,803 ANC attendees were tested for HIV, representing 79% of those who attended RCH. If instead all the ANC attendees would have been tested, 3% would have been HIV positive (based on average HIV prevalence in ICAP regions) and 85% would have delivered (based on average HIV-related deliveries rate in ICAP regions), and 22,780 HIV exposed infants would have been born.

By applying 30% HIV transmission rate to this group in the absence of any PMTCT interventions, 6,834 infants would have been born HIV positive. However, since ICAP reported 1,495 HIV positive infants and the program missed 213, only 1,708 infants would have been born with HIV infection; i.e., **5,126 newborn infections were averted through ICAP supported PMTCT program in 3 regions and 675 RCH clinics.**

The challenges in HEI registration and testing services include the likelihood of loss-to-follow up of mother-baby pairs because of the four weeks window period required before offering PCR testing and the large number of home deliveries, estimated in Tanzania at 49% (WHO Health Statistics 2012). In response to this challenge, ICAP has focused its efforts to recruit and test infants at immunization clinics at health facilities where 80-90% of the infants (< 1 year old) receive immunization coverage (WHO Health Statistics 2012). This effort resulted in a progressively higher proportion of **HEI tested for HIV (64% in FY09 to 94% in FY13)**. Identification of HEI at immunization clinics remains a challenge given the high work load of HCW at those clinics.

The percentage of HEI tested within 18 months through dry blood sample (DBS) has also increased from **65% in FY10 to 94% in FY13**. Among those HEI tested HIV positive, all were enrolled at ICAP supported CTC and at a progressively higher rate over time were initiated on ART, with **41% in FY09 to 78% in FY13** (Figure 21).

ICAP's efforts to improve the quality of services for infants, counting ART initiation, include the following:

- Training of HCW on infant ART initiation and its clinical management
- Onsite discussion of complex clinical cases through the involvement of MDT

The percentage of HEI testing HIV positive was 20% until FY11 and dramatically decreased to 9% in FY12, with a similar number of HEI tested in FY11 as in FY12 (Figure 22). The PMTCT coverage has expanded in the three ICAP supported regions, and the number of mothers and HEI benefiting from PMTCT interventions can be evidenced by the decline in positivity rate. This finding is also in line with the 2012 UNAIDS report showing Tanzania as being among the countries where the number of children (0-14 years old) acquiring HIV infection has declined by 1-19%. There are still many challenges highlighted by data from the PMTCT cascade, especially around infant follow-up and support as noted by the drop in HEI enrolling in follow-up services compared to HIV pregnant women. To address this, ICAP has supported the establishment of Psychosocial Support Groups (PSG) for HIV-positive pregnant women. Peer Educators and HCW recruit women and their partners into support groups and facilitate monthly meetings to discuss PMTCT-related health issues, family planning, acceptance of test results, disclosure, coping mechanisms, methods for developing confidence and taking care of the infant during the postpartum period. It is reassuring to note in Figure 22 over time there has been an increase in number of registered HEI tested within 18 months of birth while there has been a substantial decrease in the percentage of HIV seropositivity in these infants.

Figure 21. PMTCT-HEI Cascade at ICAP supported PMTCT/EID sites, October 2008 – June 2013*

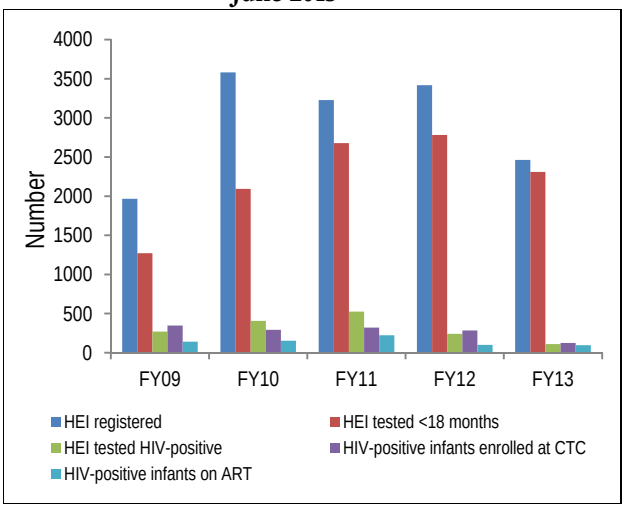
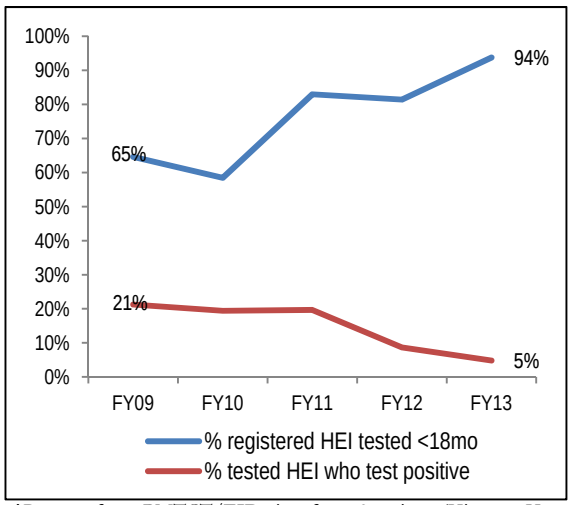


Figure 22. HEI testing coverage and positivity October 2008-June 2013*



*Reports from PMTCT/EID sites from 3 regions (Kigoma, Kagera, Pwani) and FY13 accounts for three quarters only

At RCH clinics ICAP has supported establishing Psychosocial Support Groups (PSG) for HIV-positive pregnant women. Peer Educators and HCW recruit women and their partners into support groups and facilitate monthly meetings to discuss PMTCT-related health issues, family planning, addressing acceptance of test results, disclosure, coping mechanisms, developing confidence and taking care of the infant during the postpartum period. The following has been accomplished:

- Since FY10, **3,500 HIV-positive mothers have been enrolled in PSGs at 94 RCH/PMTCT** sites in Kagera, Kigoma and Pwani.
- Almost all of eligible mothers and 15% of male partners have enrolled in these support groups.

ICAP Progress Towards PMTCT/EID PEPFAR Targets

When analyzing progress against PMTCT/EID targets, it is important to appreciate that the targets have been developed using estimates of number of pregnant women in the population from the National Bureau of Statistics (NBS). There has been a consistent and significant gap between actual ANC attendees and the estimated pregnant population by NBS. On average, ANC attendees have represented about 80% of the estimates of pregnant women by the NBS.

The PEPFAR target includes the total number of pregnant women who know their HIV status: those women attending ANC and L&D who were tested for HIV and received their results and the number of women with known positive HIV infection attending ANC for a new pregnancy over the last reporting period (Figure 23).

At ICAP supported sites, the number of pregnant women accessing the ANC and LD with a known HIV positive status **increased three fold** from FY09 to FY12 (600 to 1,700), while the number of pregnant women receiving HTC at ANC and LD remained stable at about 140,000 per year. Although the number of women accessing RCH with a known HIV positive status increased over time, they represent a very small

proportion; the larger number is represented by those who access RCH with unknown HIV status, who were unable to access HTC due to the shortage of HIV test kits (ICAP reports 75% HTC coverage among PMTCT clients). These shortages have affected the ability to reach targets as noted below in Figures 23 and 24.

Figure 23. PEPFAR PMTCT target: Number of pregnant women with known HIV status (including those received HTC)

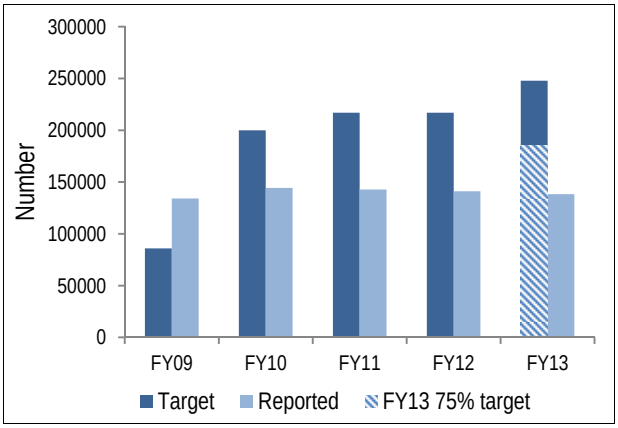
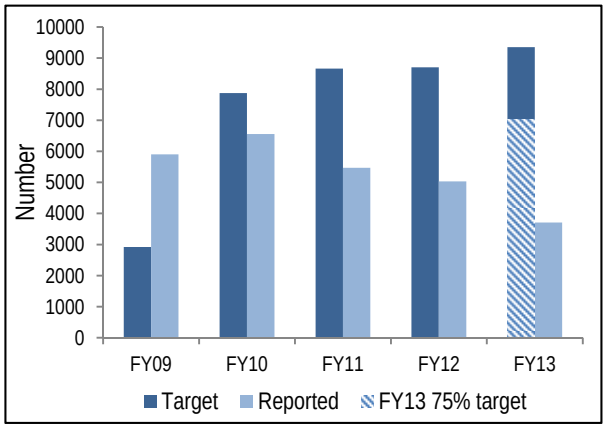


Figure 24. PEPFAR PMTCT target: Number of HIV positive pregnant women who received antiretroviral drugs for PMTCT



Positive Health, Dignity and Prevention

ICAP has had longstanding interest in HIV prevention efforts. ICAP participated in the multi-country CDC-supported randomized trial to evaluate an intervention for HIV prevention in PLHIV that included the evaluation of an Intervention Toolkit for HIV Care and Treatment Settings (PiCTS). The evaluation, also conducted in Kenya and Namibia, examined patient-level (n=3547) outcomes associated with a HIV clinic-based prevention intervention. In Tanzania, at nine intervention sites health care providers delivered HIV prevention messages, assessed the presence of STI, and provided basic contraceptives and safer pregnancy counseling. In addition, trained lay counselors provided counseling and services to HIV-positive patients and their families in the clinics. Outcome measures included risky sexual behavior, disclosure of HIV status, partner HIV testing, alcohol use, ART adherence, STI treatment, pregnancy, and contraceptive use.

During and after this trial, ICAP provided technical assistance to the MOHSW in integrating Positive Health, Dignity and Prevention (PHDP) programming and job aids into the national HIV clinical guidelines and curricula. In addition, ICAP has scaled up the integration of PHDP into HIV care and treatment services in ICAP-supported regions.

Voluntary Medical Male Circumcision (VMMC)

Based upon evidence that male circumcision is associated with decrease in HIV acquisition by HIV uninfected men, the Government of Tanzania identified 11 regions and one district as priority areas for expansion of VMMC – this includes the ICAP-supported Kagera Region where 38.9% of men were estimated to be circumcised at baseline in 2012 (THMIS). Currently ICAP covers **7 stationary sites** where VMMC service is offered. ICAP also supports regular VMMC campaigns for a migrant population of

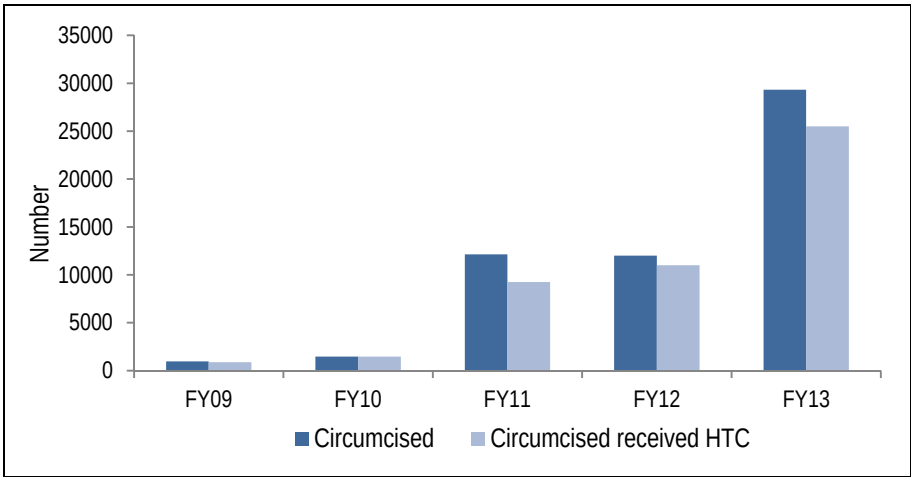
fishermen accessing **20 Lake Victoria Islands and the general population from peri-urban areas in the Kagera Region**.

ICAP's approach to VMMC includes the following:

- Service Delivery Level:
  - Established *ad hoc* VMMC teams trained on the surgical procedures
  - Integrated *PITC* to clients and their families
  - Promoted an expedite "*Peer Escorting System*" to enroll HIV positive clients to CTC
- Continuum of Care:
  - Monitored retention of circumcised HIV positive clients into C&T program and their linkage to Community Support Groups
  - Oriented satellite HFs staff on the *Post Circumcision Side Effects management and Wound Clinical Follow up* for those circumcised clients living far away from the VMMC clinic
- Demand Creation:
  - Conducted *Community Sensitization Drama Performances* to enhance access to VMMC service
  - Disseminated *VMMC demand creation messages* through JHPIEGO Partnership and Radio air system
- Expand Coverage:
  - Conducted Lake Victoria Islands and mainland campaigns
  - Targeted Work Places for mass VMMC

As of June 2013, cumulatively **55,900 men were circumcised** through ICAP-supported services in the region at static sites and campaign sites. Over the four years, **86% of the men accessing VMMC received counseling and testing** services as noted below in Figure 25.

Figure 25: Males circumcised and who received HTC at ICAP-supported programs October 2008-June 2013



ICAP's efforts in the scaling-up of VMMC were accomplished through the following:

- Establishment of a dedicated VMMC team within the district
- Increased number of clinic days at static sites
- Increased campaigns on Lake Victoria Islands and in mainland.

- Establishment of highly qualified HCW trained through ICAP when providing quality VMMC service
- High enrollment rate into HIV care for those found to be HIV positive due to efficient escorting system between VMMC and CTC
- Greater demand for services being achieved through partnership with JHU, who facilitated access to the demand creation materials

At national level, ICAP is an active member of the National VMMC Technical Working Group (TWG) and has participated in the national VMMC situational assessment and in the development of VMMC manual, M&E tools and IEC materials; of note is also ICAP's partnership with JHPIEGO on VMMC demand creation and ICAP's technical assistance in the review of the USAID funded Global VMMC Demand Creation Tool Kit.

The integration of VMMC into routine health service delivery remains a challenge. At the national level ICAP has been engaged in advocating for VMMC, and at the regional level ICAP has been working with the R/CHMTs and Health Facility Management Teams to expand coverage within the existing health system.

Key Populations (KP) Program in Zanzibar

Zanzibar is composed of numerous small islands and two large islands: Pemba and Unguja. The estimated total population of Zanzibar is 1.2 million and according to the 2011-12 THMIS, the HIV prevalence in the general population is estimated to be 0.3% in Pemba and 1.2% in Unguja. HIV prevalence among key populations (KP) was estimated to be much higher with prevalence reaching 16% among people who inject drugs (PWID), 12% among men who have sex with men (MSM) and 11% among female sex workers (FSW) *(Respondent Driven Sampling Survey by the Zanzibar AIDS Control Program, 2008)*.

ICAP has been implementing the United for Risk Reduction and HIV/AIDS Prevention Program (URRAP) since 2008. The URRAP program provides direct services to KP and has the following goals:

- Provide comprehensive risk and harm reduction services through health education, HIV counseling and testing, STI screening, distribution of harm reduction materials including male and female condoms, lubricants and bleach kits
- Strengthen linkages to HIV and related health services for KP, their partners and families
- Advocate for important policy changes to improve health and reduce risk among PWID including promoting access to needle and syringe exchange (NSE), naloxone (used to prevent overdose), and medically assisted treatment (MAT)

Since 2008, ICAP has played a pivotal role in initiating and implementing this program with the following accomplishments (also highlighted in Table 2 below):

- Capacity building of local NGOs to implement the KP programs through training, resource sharing and mentorship
- Roll out of educational interventions, including awareness campaigns, the development of leaflets, radio and TV spots on harm reduction and dissemination of informational leaflets to KP
- Supporting establishment of a toll free helpline for KP and other community members through which HIV prevention and harm reduction inquiries are addressed
- Using recovered PWID as Peer Educators to provide outreach services to KP including education, HIV testing, linkages to HIV services and 12 step programs at sober houses, and distribution of harm reduction materials
- Successful advocacy efforts which led to the approval of distribution of bleach kits by the Zanzibar MOHSW. This achievement has bolstered the harm reduction strategy for PWID and represents a programmatic break-through in support of the health of KP
- Training and sensitization of HCW and pharmacists to address stigma and transform attitudes in order to promote fair, ethical, quality HIV and harm reduction services
- Advocacy for the legal rights of KP and provision of trainings for law enforcement on the needs of KP and importance of harm reduction services

Table 2. Outreach activities provided for KP since the initiation of the URRAP Program

Outreach service provided	Quantity
Reached through one-to-one or small group sessions	28,935
Reached through community sensitization	36,561
Male condom distributed	187,932
Female condom distributed	32,419
Lubricants distributed (Tubes)	1,201
Bleach distributed (Litres)	7,106
IEC materials/leaflets distributed	110,342
Received toll free help line service	6,842
TV and Radio programs aired with HIV education	48
VCT Services to KP	8,740

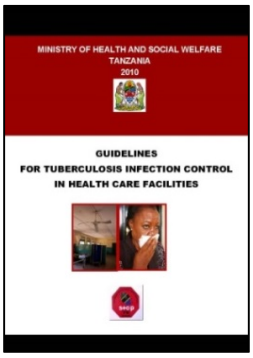
The URRAP Program has supported important services to promote health, protect rights and reduce risk among KP. URRAP is addressing the challenge of low retention of HIV positive KP in HIV care through increased mentoring of HCW to provide this high defaulting risk group with more frequent and focused adherence counselling sessions and providing PE support. Another challenge faced involves sober houses, places where PWID can overcome addiction through the 12 steps approach, where demand far outweighs the supply. Furthermore, in a weak economic environment there are few alternatives for livelihoods for recently sober members, which can increase their likelihood of resuming drug use once they return to the community.

ICAP Contribution to Strengthening of Health Service Delivery

ICAP has supported health service delivery at the national, regional, district and facility level. Since 2004, under a Memorandum of Understanding (MoU) with the National AIDS Control Program (NACP) of the Ministry of Health and Social Welfare (MOHSW) of Tanzania, ICAP has provided technical assistance in the roll out and implementation of the national HIV/AIDS program. At the national level, ICAP provides high

level technical assistance to all units under NACP by participating in national stakeholders' forums, technical working groups and program-specific meetings. ICAP also invites government officials and other implementing partners (IP) to participate in webinars, as well as lectures delivered by senior experts visiting the country.

Contributions to the National Policy Agenda



ICAP has been an active member of a number of HIV related TWGs, such as Adult and Pediatric ART, PMTCT, HIV Testing and Counseling, TB/HIV, Palliative Care, Laboratory, Pharmacy, CCS, VMMC and Key Populations. Furthermore, ICAP has assisted the Ministry of Health and Social Welfare to develop a number of SOPs, SOCs, National Guidelines and Information Education Communication (IEC) materials. The following list includes national documents where ICAP was a principle Implementing Partner supporting the Government:

- National HIV SOP and Guidelines
- TB Infection Control Guidelines
- Multi-Drug Resistant TB National Guidelines
- Pediatric TB Guidelines
- National Quality Improvement Strategic Framework and Training Curriculum
- Positive Health Dignity Prevention (PHDP) Training package and Job Aides
- National Peer Educator M&E Tools
- Tanzania Service Delivery Guidelines for Cervical Cancer Prevention and Control
- MOHSW Strategic Plan for National Cervical Cancer Prevention and Control

The complete list of national documents that ICAP has supported can be found in **Annex 1.**

Contributions to Regional and District Management and Service Delivery

ICAP has supported district level service delivery in key areas:

- *Data analysis and application*: ICAP developed the Regional and District Health Management Teams expertise on planning, data analysis and interpretation, which are applicable skills for a variety of other program areas within the health system. Frequent meetings to review data, discuss challenges and identify actions to address short-comings have been improving local Government capacity and ownership of the program.
- *Improved Planning Skills*: At the regional and district level, ICAP actively supports the Regional and Council Health Management Teams (R/CHMT) by participating in development of their annual work plan, providing input on activities and budget allocation, facilitating regional and district level quarterly meetings to review progress against targets, and discussing challenges to reach consensus on possible solutions.
- *Supportive Supervision*: ICAP has improved the Council Health Management Teams' ability to carry out supportive supervision to facilities by building their technical knowledge and supervision skills and ensuring delivery of focused supportive supervision visits and their integration into the National Quality Improvement Strategy.

- *Comprehensive Council Health Plan (CCHP):* ICAP actively participated in the annual development of the CCHP, where ICAP-supported activities and funding were included in the plan and, through a joint collaborative analysis of the plan, various partners' efforts were streamlined.

Contributions to Facility Level Service Delivery

In addition to the training discussed earlier, at the facility level ICAP has actively engaged in the improvement of facility level service delivery in all five regions where ICAP has been providing services. Notable achievements include:

- ***Renovations:*** Tanzania, as many other resource constrained countries, has faced the challenge to maintain its infrastructure at nearly 6,500 health facilities. ICAP has carried out **120 renovations of CTC, OPD, RCH clinics, IPD, labor wards, and laboratories.**
- ***Basic Medical Supplies:*** ICAP carried out facility baseline assessments in order to procure the basic medical supplies, such as blood pressure apparatuses, weighing scales, stethoscopes, measuring boards, examination beds and other supplies, including reagents for HIV and CD4 testing.
- ***Supply Chain Management System:*** By providing regular reports on supply consumption and forecasted needs to MOHSW and to the Partnership for Supply Chain Management Systems (SCMS), and by engaging in a close collaboration with the zonal Medical Store Department (MSD) teams, ICAP has also contributed to the USG's efforts to improve the national supply chain management system which has resulted in significant improvements over the years.
- ***Pharmacy Capacity:*** ICAP has been working to build the pharmacy capacity for commodity management and to enhance the ability to monitor supplies, check expiration dates, forecast and order supplies and manage the overall organization of the pharmacy. This form of capacity building, while specific to HIV, provides an example of the benefits of commodity management across the health care services.

BEFORE

AFTER

Improving Service Delivery - Enhanced Laboratory Support

ICAP's contribution to laboratory support has been one of the most significant contributions towards improving service delivery. ICAP has been instrumental in strengthening laboratory services, systems and human resource capacity across the tier.

- ***Laboratory Services Strengthening*** includes improved work flow and safety conditions through major and minor renovation of the laboratory physical infrastructure, and provision of major and ancillary laboratory equipment, laboratory furniture, and essential commodities including reagents and test and biosafety consumables.
- ***WHO Accreditation*** process was facilitated by ICAP at seven laboratories in 3 regions (Kigoma, Pwani, Mtwara) and Zanzibar, and ISO-15189 accreditation at Mnazi Moja Referral Hospital in Zanzibar. As of June 2013, three laboratories reached WHO Star 1 and one laboratory reached WHO Star 4 respectively.
- ***Human Resources Capacity Building*** through off-site and onsite trainings, intensive laboratory system mentorships, and through conducting joint supportive supervisions and program review and planning meetings with national laboratory program managers.
- ***Laboratory System Strengthening*** activities conducted by ICAP include: technical assistance in the development of national laboratory policies, strategic plans, guidelines and manuals, and operationalization of related national initiatives; establishment and or strengthening of quality assurance programs at the facility level; expansion of EQA programs; strengthening of external quality assessment programs; strengthening laboratory data collection and reporting, laboratory networking and referral testing; strengthening the interface between clinical and laboratory services; and the laboratory accreditation program.
- ***Support for the Sample Transport Network*** was provided by ICAP to ensure high CD4 coverage.

Health Information Systems

In 2005, the MOHSW established a TWG to develop and revise the national M&E tools, with ICAP as one of the key members, to actively engage in the development and revision of such tools. These tools are both electronic and paper-based and have been revised throughout the years as government and partners gained experience in their implementation. Currently, all program areas follow the standardized national M&E data tools.

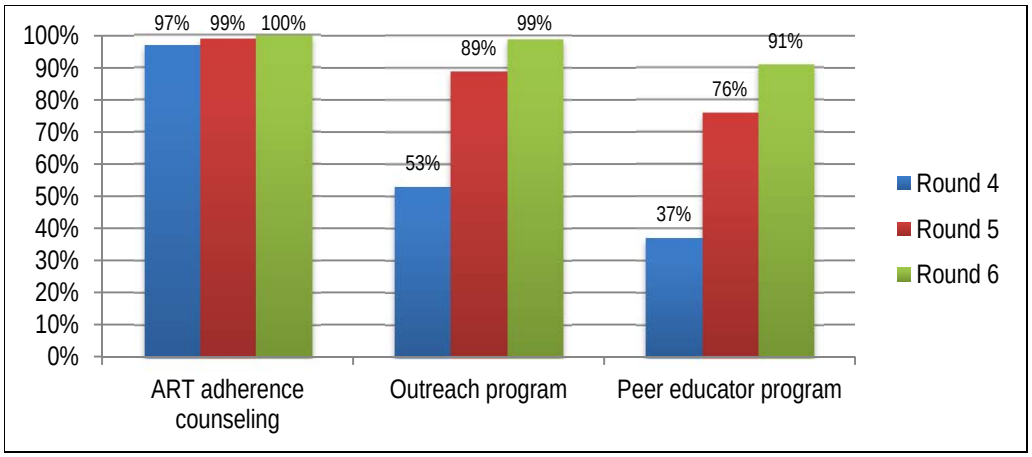
In mid-2010, MOHSW convened the TWG to develop national data quality assessment (DQA) tools with ICAP staff as active participants, utilizing the experience and knowledge gained from the tools developed by ICAP headquarters. Currently, DQA is conducted hand in hand with CHMT and facility staff on a semi-annual basis using the National DQA Tools at priority care and treatment sites.

ICAP holds annual data sharing meetings with RHMT, CHMT and selected facilities in order to improve quality of data generated and collected, as well as to improve the programming. These meetings are designed to improve the skills of government staff in applying data to their service delivery.

ICAP is committed to improving client record keeping and reporting systems in all supported health facilities. After establishing a robust paper based M&E system at all supported facilities, ICAP supported computerization of selected sites based on the client load. As of June 2013, **81 CTC out of the 209 supported sites have electronic medical records.**

As a critical part of program implementation, planning, monitoring, and evaluation, a standardized site assessment – known as the ICAP Program and Facilities Characteristics Tracking System (PFaCTS) – collects information on ICAP-supported care and treatment programs and laboratories as well as the facilities and contexts in which they operate. Data are gathered by ICAP M&E teams, clinical advisors, and program officers. This information is critical to understanding the infrastructure and services available at these health facilities and also serves to inform program implementation planning. ICAP has completed six rounds of the care and treatment assessment in Tanzania, providing an opportunity to describe the scope and progress of ICAP-supported care and treatment programs over time. Figure 26 shows the trend of selected key program characteristics that were measured at 79 participating clinics from Round 4 in 2009 to Round 6 in 2011.

Figure 26. Trend of selected key program characteristics measured by PFaCTS



A concern remains regarding the sustainability of the facility data systems as these costs and activities have not been incorporated into the governmental structures. For this reason there are ongoing efforts to advocate for absorption of the data clerks as well as for maintenance of the necessary equipment. An additional challenge has been that the MOHSW currently does not have a robust national repository for HIV data. Therefore, the flow of data upwards to inform national policy and planning requires further strengthening.

Promoting Innovations

ICAP is committed to innovation, building on the creativity of the HCW situated at the health facilities and other levels of the health system and of its own staff. In Tanzania, ICAP has initiated a number of innovations, and examples are presented below.

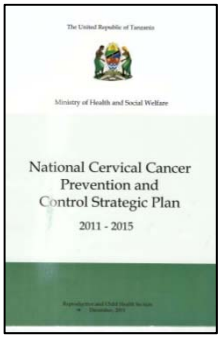
Cervical Cancer Screening

Cervical cancer is a major cause of morbidity and mortality for women globally. Cervical cancer is the leading cause of cancer related morbidity and mortality in women in Tanzania. In a study conducted at Ocean Road Cancer Institute (ORCI) in Dar es Salaam, it was found that HIV-infected women were twice as likely to have cervical cancer as compared to HIV negative women and develop cervical cancer 10 years earlier (Kahesa 2008).

Cervical Cancer Screening Training

Most cervical cancers can be prevented by early detection and treatment of precancerous lesions. Experience in developed countries has demonstrated that organized screening programs can reduce the number of new cervical cancer cases and the mortality rate associated with it. In low resource settings, visual inspection using acetic acid (VIA) and cryotherapy is an evidence-based alternative approach for cervical cancer screening program.

In 2002, cervical cancer prevention services were initiated with ORCI, and six years later, in 2008, the Ministry of Health and Social Welfare (MOHSW) of Tanzania, under the Reproductive Child Health (RCH) Section, established a Reproductive Health Cancer Unit to address cervical cancer.



At the national level, ICAP provided technical assistance in the development of the *Tanzanian Service Delivery Guidelines for Cervical Cancer Prevention and Control*, the standardized training materials, and job aids. The M&E system was also developed and the *National Cervical Cancer Prevention and Control Strategic Plan 2011-2015* was signed by the MOHSW. At the regional, district and health facility level ICAP supported the establishment of VIA and cryotherapy at all levels of health care starting in June 2010 in five health facilities in Kigoma region and thereafter expanded to 33 sites in Kigoma and Pwani regions. Intensive training of HCW to carryout screening has been essential to ensure provision of quality services and successful implementation.

Through ICAP support, **a total of 20,590 women have been screened for cervical cancer, and 9% of those women screened VIA positive and 81% were treated with cryotherapy** (Figure 27). ICAP has focused efforts for integration of CCS activities within CTC sites, and this has led to an increasing proportion of HIV-positive women among those screened. As noted in Figure 28, in FY13, **25% of screened women were HIV positive.** It is important to note that the proportion of women with unknown HIV status has decreased over time.

Figure 27. Cervical Cancer Screening Cascade, July 2010 - June 2013 (FY 13 includes 3 quarters)

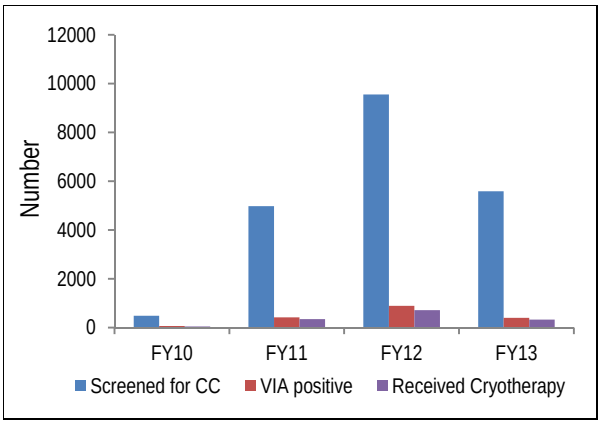
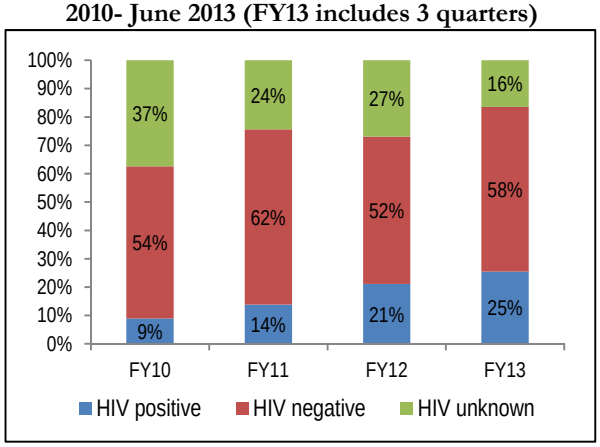


Figure 28. HIV status of women receiving cervical cancer screening at ICAP supported sites, July 2010- June 2013 (FY13 includes 3 quarters)



Palliative Care

It is estimated that in Tanzania only 10% of patients with cancer receive appropriate cancer treatment and among those who reach the hospital, 80% report with late stage disease and require palliative care (AMMP 1997, THMIS 2007). Furthermore, the NACP recognizes the importance of palliative care as critical element of comprehensive HIV care and support and included it within the 2010 National Guidelines for Home-Based Care (HBC).

Therefore ICAP provided technical assistance to the Non-Communicable Disease (NDC) Unit of the MOHSW through:

- development of the National Palliative Care Policy, Operational Guidelines, Training Curriculum and the Monitoring and Evaluation System;
- establishment and co-chairing a national Technical Working Group (TWG);
- facilitating data analysis and interpreting to address programmatic issues;
- participating in site supportive supervision and mentorship; and
- providing TA to MOHSW in reviewing of its drug policy to allow health centers and dispensaries with trained palliative care providers to store and dispense oral morphine.

ICAP facilitated the scaling up of palliative care services in four zones (Dar es Salaam, Kilimanjaro, Mbeya and Lake Zone); assisted in the decentralization of palliative care and pain management service; and built the capacity of Zonal, Regional and District Palliative Care teams. As of June 2013, 18 out of 25 regions in the Tanzania mainland provide palliative care services. Among those regions 100% of the regional hospitals have palliative care teams. Countrywide there are 81 HFs that provide palliative care service, of which 55% are supported by ICAP. At ICAP supported sites, as of June 2013, **95% of the clients accessing the health facility received clinical assessment on palliative care and 25% of them were offered oral morphine**.

Reproductive and Child Health Platform

Since 2011, ICAP has been supporting the "RCH platform" at 21 sites. This model, developed in collaboration with MOHSW, aims to integrate comprehensive HIV care and treatment services within the RCH. Recognizing the gaps in the PMTCT cascade, especially around identification and enrollment of treatment eligible pregnant women in HTC services, this "one stop model" for delivery of comprehensive PMTCT services was developed to support early treatment initiation and retention in care for eligible pregnant women. ICAP was instrumental in supporting the pilot of the RCH platform and is currently conducting an analysis of the impact of RCH service delivery model on treatment initiation. Findings from this evaluation will inform and guide MOHSW in the operational plans for rollout of revised PMTCT guidelines supporting Option B+. Option B+ rollout will be predicated on the RCH platform so findings from this initial pilot will be critical in designing strategies to support long term retention of pregnant women newly initiating lifelong treatment.

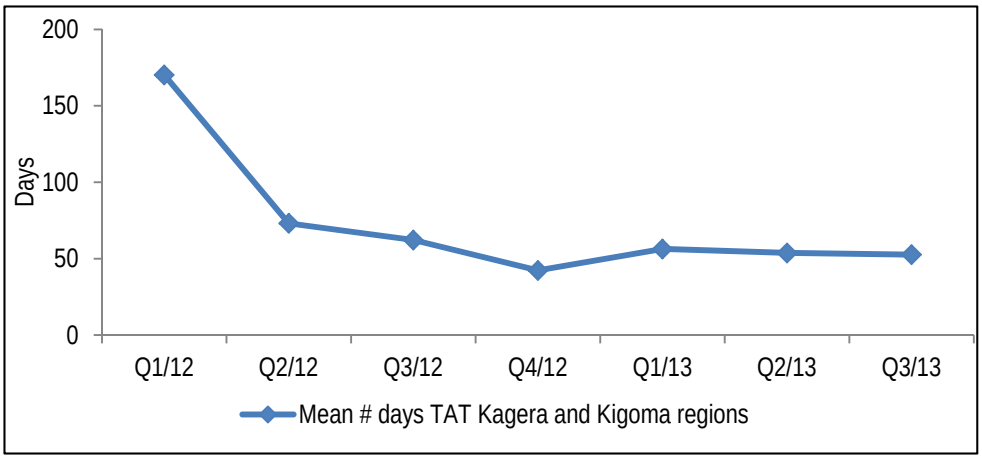
Laboratory Support for Early Infant Diagnosis

ICAP played a key role in establishing the national PCR laboratory for early infant diagnosis (EID) at Bugando Medical Center (BMC) in Mwanza, which became fully operational in 2006. ICAP has provided training to laboratory staff, implemented referral linkage with facilities and improved its management system.

ICAP also assisted in establishing a dry blood samples (DBS) transportation system for EID from the health facility to the district and then to the national PCR laboratory. EID sites from the Lake Zone (Kigoma and Kagera regions) were given referrals to the PCR laboratory at BMC. The sample transportation is managed by the R/CHMT as part of the sub agreement with ICAP and the results are sent by the PCR laboratory to district level through ICAP supported SMS printers. From 2010 to 2013, cumulatively almost **31,000 DBS from seven regions** were processed at the national PCR laboratory at BMC.

Through intensive TA from ICAP, BMC reduced the turn-around-time (TAT), or mean number of days from DBS collection to when the PCR laboratory sends the result, **from nearly 180 days to 57 days** (Figure 29). This decline is a result of an ICAP effort to maximize sample transportation efficiency and PCR laboratory management, particularly over the past 12 months, where high level management meetings were held at BMC and with R/CHMT. ICAP is working with BMC to attain a TAT of less than one month.

Figure 29. Regional TAT of DBS at ICAP supported Kigoma and Kagera regions, October 2011 – June 2013



Establishment of Local NGO in Tanzania

ICAP, since its inception in Tanzania, addressed the issue of transition to local entities through continuous efforts to build the management, technical and financial capacity of government entities, such as, RHMTs, CHMTs and facilities.

The Track 1.0 care and treatment cooperative agreement mechanism was awarded a Class Deviation Waiver (CDW) in 2009 to facilitate the transition process to local ownership over the next several years. ICAP developed a more structured and systematic transition plan to transition various elements of program implementation and management to indigenous organizations over a 3 – 4 year period. The plan had three pronged approach: 1) build the capacity of local government authorities; 2) build the capacity of existing local NGO(s); and 3) establish a new local NGO and transition the activities over time.

In 2011, ICAP supported the establishment of the local NGO, Tanzanian Health Promotion Support (THPS). ICAP has provided financial and technical support in the development of the organization by-law and facilitated the registration of the NGO in the country. Following the official launch of THPS in December 2011, ICAP transitioned Pwani, with all the necessary technical and supportive staff to THPS through sub-agreement in January 2012, in line with the target of February 2012, set in the CDW. In October 2012, THPS began implementation of care and treatment in Mtwara Region as well. ICAP has continued efforts to build the institutional capacity of THPS, including focusing on its growth as a capable organization with good governance. In May 2012 a baseline Organizational Development Assessment was done by a team of ICAP headquarters and regional staff. Findings were shared with THPS for integration into their governance, policies and practices. In 2013, with support from ICAP, THPS applied for and was awarded a direct funding agreement by CDC.

Adolescent and Pediatric Friendly CTC

Since 2010, ICAP has been promoting adolescent and pediatric friendly C&T services. Based on the family-focused approach, ICAP assisted health facilities in establishing pediatric and adolescent friendly clinics where C&T service was offered on a dedicated clinic day and to the entire family. Key objectives of this intervention were:

- Improving wellbeing, survival and quality of life for HIV-infected children
- Maximizing retention of HIV-infected children and their caregivers
- Creating individual and community demand for pediatric C&T services

The clinic was also an opportunity for HIV counseling and testing for all family members/caregivers/relatives/friends, including those who missed PMTCT services.

The service was established at high volume clinics, where HCW were specifically trained on Basic and Pediatric ART as well as Advanced Adherence and Psychosocial support. Basic pediatric clinical equipment was procured (pediatric stethoscopes, weighing scales, length measuring devices such as tapes and boards) and ICAP also supported the infrastructure renovation in order to create a child friendly environment.

Adolescents were involved in the design of the clinics, taking into consideration convenient visiting hours and ensuring integrated services, including STI and Family Planning (FP), HIV testing for partners, health talks on

disclosure, adherence, loss and bereavement, and sexual and reproductive health. Both clinics are entry points to link clients to the respective clubs.

Pediatric and Adolescents Clubs

In order to respond to the needs of children with HIV, ICAP established pediatric clubs targeting children living with HIV who are enrolled into the care and treatment programs at several facilities.

The clubs provide psychosocial support to children. The clubs are composed of children, their siblings and their parents/guardians and, as of June 2013, the pediatric clubs have been rolled out to **21 health facilities** where pediatric friendly clinics are in operation. Club meetings are held on the weekend and children are organized by age categories to offer developmentally appropriate education on the following: HIV disclosure, stigma and discrimination, adherence and ART treatment plan, TB and other opportunistic infections, personal hygiene, nutritional education and counseling to parents/caregivers. The clubs also provide an opportunity for interaction among club members and provision of HIV counseling and testing for all family members /caregivers /relatives /friends /brothers and sisters, including those who missed PMTCT services. The child registered within a pediatric club is graduated from the club at age 13 years to begin the transition to an adolescent club which is carefully and closely handled by the health facility and ICAP team.

The adolescents clubs include a group of adolescents living with HIV who are enrolled in the care and treatment program at the facility. The clubs provide psychosocial support to adolescents and youth on a regular basis through peer support. As of June 2013, the adolescent clubs have been rolled out to **16 health facilities** where adolescent CTC/corners are co-existing. The adolescent clinics are held on a monthly basis and during these sessions HIV related health talks are provided. The adolescent clubs focus particularly on sexual and reproductive health, STI, FP, condom use, partner testing, puberty, sexuality, positive living, and establishment of support regarding, loss, grief and bereavement and life skills. The adolescents are transitioned to adult care and treatment at age 19. The clubs also link to peer support groups for income generating or community-educational activities.

Care &Treatment Outreach Services to Lake Victoria Islands

Care and treatment outreach services were designed to respond to the high HIV risk among the fishermen population from Lake Victoria Islands and the lack of static CTC on the islands. Through a sub agreement with a district in Kagera Region, **20 islands** have been reached with these critical services.

Comprehensive HIV prevention, care and treatment services inclusive of HTC, PMTCT/EID, VMMC, and TB screening were provided during the monthly outreach visits. All necessary laboratory supplies for HIV, CD4 testing and TB screening were taken along, including ARV and OI medications as well as M&E tools to record client uptake. Community sensitization with local government leaders, community leaders and religious leaders has been included in the outreach intervention.

During the roll out of the services, major challenges were encountered such as the lack of a reliable transport system with associated possible unsafe travel; difficulty in providing CD4 testing for those clients met at the beginning of the outreach service; the scattered distribution of the islands which made them logistically complex to reach; the high risk behaviors of the specific population such a multiple sexual partnerships and excessive alcohol use; the high cost related to transport; the mobile power supply; and maintaining the cold chain for certain commodities.

The continuous advocacy by ICAP to R/CHMT and MOHSW on the need to reach this high risk population through a more sustainable C&T service eventually led to the establishment of health facilities in some key islands where C&T service will be soon introduced.

ART Provision at TB Clinics

TB is a leading cause of death, accounting for nearly a quarter of HIV-related deaths worldwide. Early initiation of ART during TB treatment significantly increases AIDS-free survival by 35-68% (Karim 2011; Havlir 2011; Blanc 2011).

With the objective of enhancing access to ART for TB/HIV patients, ICAP promoted provision of ART at TB clinics to those co-infected TB/HIV patients. HCW from TB clinics were trained on ART initiation and monitoring, a system for regular supply of ARVs to TB clinics was established, and the data flow was organized to avoid double counting. Once the TB treatment is completed at the clinic, PLHIV are carefully reintroduced to CTC and exit counseling is provided to ensure continuum of care. As of June 2013, **13 TB clinics were providing ART** and data analysis to assess the outcome in terms of ART coverage has been planned and will be conducted shortly.

Telemedicine through Digital X-Radiography

Chest radiography is part of the algorithm for the diagnosis of sputum smear-negative pulmonary TB (PTB), internationally and in Tanzania, as recommended by MOHSW. Two large multinational clinical trials undertaken by The Union against Tuberculosis and Lung Diseases (UATLD) offered an opportunity to evaluate the quality of X-ray films taken for patients who participated in the trials and to test concordance of X-ray recording by two independent readers. The results of this research showed that a substantial proportion of the chest X-ray films were of poor quality and could not be read. Furthermore, because of complex supply,

development and storage requirements, traditional film-based radiography is no longer applicable in low resource settings.

Therefore, the development and increasingly widespread introduction of electronic networks and digital technology for chest radiography presented ICAP with an opportunity to address problems associated with poor quality of chest X-rays, for more effective TB diagnosis. ICAP, in collaboration with MOHSW, procured, installed and maintained six computerized digital equipment for selected high volume sites with existing and functioning standard X-ray machine. This equipment became the platform for telemedicine and a second expert radiologist opinion at health facilities where there were only clinicians and nurses. In addition, ICAP assisted the NTLP and the Radiology Department of MOHSW to develop Radiology Quality Assurance guidelines to be piloted at those sites.

Research Agenda

Globally, ICAP has a robust research portfolio and has been at the forefront of designing and conducting diverse research studies focused on epidemiologic, behavioral, biomedical and implementation research. ICAP in Tanzania has a team of 11 full time research staff and is engaged in 10 protocol-driven studies or program evaluations. The research portfolio spans HIV prevention, clinical care needs, behavioral factors, HIV care, and health systems strengthening. Most are observational studies involving cohorts of people living with HIV and entering or attending care and treatment services. Studies are implemented in collaboration with local investigators from the Ministry of Health and Social Welfare or the Tanzanian Commission for AIDS, and are reviewed and approved by the National Institute for Medical Research Institutional Review Board. These endeavors offer many opportunities for building capacity in through the design, implementation and analysis of research studies.

ICAP is currently engaged in the following studies:

- ***Identifying optimal models of HIV care approaches in Sub-Saharan Africa*:** Analysis of routinely collected service delivery data from computerized ICAP HIV care and treatment sites to assess the variation in outcomes among patients enrolled in the HIV programs. These secondary analyses examine patient and site level factors associated with key patient outcomes.
- ***Integration of sexually transmitted infection diagnosis, treatment and prevention in HIV clinical care: A prevalence and etiologic survey:*** The primary objectives are to estimate the point prevalence and etiology of genital infections among adults accessing HIV care and treatment clinics in Tanzania. This is cross-sectional study of 600 sexually active adults not currently on ART at Kagera Regional Hospital, Tanzania. Laboratory investigations (*T. vaginalis*, *C. trachomatis*, *N. gonorrhoeae*, Syphilis or *T. pallidum*, and HSV-2) and syndromes (Genital Ulcer Disease, Urethral/Vaginal Discharge, Pelvic Inflammatory Disease) are conducted and information on sexual behavior and other characteristics is collected.

- ***Geographically concentrated multi-level HIV prevention in Bukoba urban district: Outcome evaluation of a combination prevention program:*** Combination prevention is defined as the implementation of an integrated set of evidence-based biomedical, structural, and behavioral interventions at a scale (coverage) and quality expected to reduce HIV incidence within a defined geographic area. The program's aim is to substantially increase uptake of these interventions over a two-year period. These interventions include individual and couples HIV testing and counseling, adult voluntary medical male circumcision, and ART for treatment and to prevent mother-to-child HIV transmission and HIV transmission within discordant couples. Structural and behavioral interventions include community mobilization and advocacy; program expansion and strengthening policies; increased responsibilities of lay people living with HIV trained as *Peer Educators* to provide linkage, retention, and adherence services; and strengthened M&E systems and data uses. The evaluation protocol is a single-group, pretest-posttest program evaluation design in which outcomes are assessed before and two years after program implementation. Methods used to assess program outcomes include (1) two population-based cross-sectional surveys; (2) two prospective 6-month observational cohorts of HIV diagnosed and not-in-care persons; and (3) existing and enhanced monitoring and evaluation (M&E) systems that provide both individual and aggregate data on persons who use HTC, VMMC, HIV care and treatment, and PMTCT services.
- ***Overcoming barriers to occupational bloodborne pathogen (BBP) exposure reporting and case management***: Exposure to bloodborne pathogens (BBP) poses a serious risk to health care workers in developing countries, where more than 90% of all occupational infections occur. In these nations, the need for health workforce safety – with effective management for cases of BBP exposure and prompt post-exposure prophylaxis (PEP) is of increasing importance. ICAP will collaborate with partners in Tanzania, Botswana and Zambia to develop, implement, and evaluate a multi-component intervention to improve reporting and case management services for occupational blood borne pathogen (BBP) exposures in nine health facilities in Botswana, Tanzania, and Zambia (3 in each country).
- ***Evaluation of An Enhanced HIV Prevention Services Program in Tanzanian TB Clinic Settings:*** This evaluation is designed to examine the feasibility of providing health care workers in TB clinical settings with enhanced HIV prevention training and tools that expands upon the standard national Provider-Initiated Testing and Counseling (PITC) training, to emphasize partner- and couples-focused HIV testing and counseling (CHTC), and to examine potential effects on partner HIV testing and linkage to care. It is also designed to examine the feasibility of increasing capacity of ex-TB patient volunteers to provide HIV-related health protection messages to patients and community members through group education.
- ***TB Pediatric Center of Excellence program evaluation***: The program evaluation of the Pediatric Center of Excellence (COE) project will utilize routinely collected aggregate and patient level data from COE facilities (Mwananyamala and Mikocheni Hospitals, Sinza and Tandale Health Centers pre- and post-implementation of the TB COE at Mwananymala and satellite sites. The design will also incorporate a subset of indicators that can be monitored at comparison sites during the same evaluation period. Evaluation program areas include PITC coverage; TB screening, diagnosis and treatment outcomes; TB/HIV integration; Laboratory; TB prevention (IPT); capacity building; health systems (infection control, logistics); and community linkages.
- ***A pilot study describing the utilization of laboratory services by the general (non-HIV) population in a subset of PEPFAR-supported laboratories in Tanzania***: PEPFAR's substantial investment in partner country laboratory systems may have contributed to broader health system

strengthening by providing laboratory services to the general population, such as those individuals without a diagnosis of HIV; however, the type, amount, and variability of services provided to the general population have never been documented. The proposed descriptive study will focus on a purposive sample of PEPFAR-supported laboratories located at health facilities providing HIV care and treatment services in Tanzania, and will describe the number and proportion of selected laboratory tests done for the HIV-infected versus general populations at these laboratories during 2011.

- ***Pre-ART retention and engagement in care (PARC):*** A cohort study funded by a NIH/PEPFAR Administrative Supplement grant examines the barriers and enablers to retention and engagement in HIV care among adult patients enrolled in HIV care who are not yet eligible for ART. Key outcomes include loss to follow-up and non-engagement of care among those who are lost to follow-up.
- ***Protocol for Evaluation of HIV Rapid Tests in Dar es Salaam*:** The objective is to conduct an evaluation of rapid HIV assays using a panel of whole blood samples from VCT, PMTCT and CTC attendees. Each sample will be tested using all rapid HIV assays (8) by a trained lab technologist. The data obtained from the current evaluation will be used to formulate the two rapid HIV testing algorithms for use as alternative HIV testing strategies in Tanzania.
- ***HIV prevention for people living with HIV/AIDS: Evaluation of an intervention toolkit for HIV care and treatment settings (PiCTS)*:** A multi-country, multi-site quasi-experimental study to evaluate a package of HIV Prevention Interventions for HIV-positive individuals including management of sexually transmitted infections; family planning; use of lay counselors to deliver positive living messages; and use of health workers to delivery HIV prevention messages. The evaluation will take place at 18 sites in 3 countries to recruit a total of 3,600 patients

Annex 2 contains a list of ICAP published articles, presentations and posters at international and national conferences.

Conclusion

In summary, Tanzania has made remarkable advances in a challenging HIV epidemic as a result of the strong commitment by the Government of Tanzania and collaborations with non-governmental organizations and with support from PEPFAR, the Global Fund, ICAP and other international and local partners. Evidence indicates that the number of new infections has stabilized, a greater number of HIV-infected individuals have received access to HIV care and ART and the rate of clients starting ART is increasing with a decrease in AIDS-related deaths.

In the past nine years, ICAP has worked closely with the Tanzania Ministry of Health and Social Welfare, the Zanzibar Ministry of Health, the PEPFAR-Tanzania team and multiple organizations in Tanzania to improve access to HIV treatment and comprehensive services. Through the Rapid Scale-Up Cooperative Agreement, ICAP has increased the number of supported ART sites between 2004 and 2013 from one Regional Hospital in Kagera to 209 health facilities. At these care and treatment sites over 130,000 individuals have been enrolled in HIV care and over 70,000 are accessing life-saving treatment. Almost 1.7 million individuals have received HIV testing; more than 830,000 pregnant women have received HIV testing and, among those found to be HIV infected, 30,000 have received ARV.

Critical advances have also been achieved in integration of TB/HIV services, expansion of cervical cancer screening, innovative services for children and adolescents with HIV, and provision of services to key populations among many other innovations. In addition, ICAP has focused on health system strengthening through renovation of health facilities and laboratories with establishment of laboratory procedures to facilitate access to various diagnostic assays. ICAP has provided training to over 15,000 health care workers, enhanced the capacity of the four regional health management teams to oversee HIV services and provided a wide range of innovative technical support at site, regional, and national levels. ICAP has also contributed and collaborated on research and implementation science designed to inform HIV care and treatment policy and practice in Tanzania. ICAP has also enabled the strengthening of community groups, non-governmental organizations and organizations for PLHIV.

Despite the numerous achievements in Tanzania, many challenges remain in confronting the HIV epidemic and other health threats in the country. These include a human resource crisis coupled with HIV service coverage that remains low, with 1,000 CTC providing services compared to the almost 6,500 health facilities nationwide. Infrastructure at the facility level remains limited with weak supply chain management systems to ensure adequate test kits supplies and reagents. Continued efforts are also needed to advance the quality of the services. Lastly, there is also the continued need to confront social issues that adversely affect the response to the HIV epidemic including stigma, discrimination, poor education and poverty. However, past success in confronting the HIV epidemic offers a great opportunity for Tanzania to build on that platform and take the lessons learned and apply them to addressing other health threats faced by the health system and population.

Annex 1: ICAP Support to National Documents

Adult Care and Treatment

- National Care and Treatment SOP (2009)
- Implementation of HIV/AIDS Care and Treatment Services in Tanzania (2011)

Pediatric Care and Treatment

- Revision of training curriculum (2011)

Early Infant Diagnosis

- EID training curriculum
- National EID guideline
- EID testing logarithm
- Monitoring system
- EID database

PMTC

- PMCTC &Paediatric Scale Up Plan 2009-2013 (2008)
- New PMTCT Guideline (2011)
- Refresher training package (2011)
- M&E tools (2011)
- e-MTCT National Plan (2011)

TB/HIV

- Program Review and Strategic Plan/Proposal Development
  - Joint External Monitoring Mission for National TB and Leprosy Programme review (2008)
  - Zanzibar TB and leprosy program (ZTLP) activities and budget review and development of five years strategic plan and Global Fund proposal round 10 (2008)

- Policy/Guidelines/Job Aides Development
  - National TB/HIV operation manual. (2008)
  - National Isoniazid Preventive Treatment (IPT) operational guidelines (2008 & 2010)
  - National TB Infection Control guidelines (2008)
  - TB/HIV and TBIC job aides (2008)
  - National MDR TB guidelines (2009)
  - PMTCT TB/HIV job aide (2009)
  - National Community TB Care guideline (2010)
  - National Paediatric TB/HIV training manual (2012)
  - Paediatric TB/HIV job aids (2012)

- Training Curriculum Development
  - National Isoniazid Preventive Treatment (IPT) training curriculum (2008 & 2010)
  - National MDR TB training curriculum (2009)
  - National TB Infection Control training curriculum (2009)
  - National 3Is training package (2009)
  - National HIV Paediatric training curriculum (2009)
  - National CXR Interpretation training curriculum (2008)
  - National Community TB care training curriculum (2010)

HIV Testing and Counselling

- National HTC guideline review (2011)
- Messages for National PITC IEC materials targeting HCW's, patients and community to enhance PITC uptake (2010)

Pharmacy

- Training curriculum for PMTCT commodity (2010)
- Review of training curriculum for ordering, storage and reporting of the ARV and HIV Test kits (2010)
- SOP for proper dispensing of ARV drugs (2011)
- SOP for ARV drugs bulk storage (2011)

Cervical Cancer Screening

- Tanzania Service Delivery Guidelines (2011)
- M&E tools (2011)
  - CCS Register
  - Monthly Summary Forms
- Client CCS card (2011)
- National Training Materials for CCS (2011)
- IEC materials (2011)
- MOHSW Strategic Plan for National Cervical Cancer Prevention and Control (2011)

Male Circumcision

- Situation Analysis of Male Circumcision in Tanzania (2009)
- Development of the Country Operational Plan for VMMC (2013)

Mentorship and quality service

- Manual for Comprehensive Supportive Supervision and Mentoring on HIV/AIDS Health Services (2010)

Monitoring and Evaluation

- Contributed in the development of M&E tools for all HIV/AIDS program areas
  - Adult care and treatment
  - Paediatric care and treatment
  - PMTCT
  - HIV Testing and Counselling
  - TB/HIV
  - VMMC
  - CCS
  - Palliative care

Annex 2: Publications and International Presentations

Publications – Cumulative List

Bachanas, P, Medley A, Pals S, Kidder D, Antelman, G Benech I, DeLuca N, Nuwagaba-Biribonwoha, H, Muhenje O, Cherutich P, Kariuki P, Katuta F, Bukuku M for the PwP Study Group. *Disclosure, Knowledge of Partner Status and Condom Use among HIV-Positive Patients Attending Clinical Care in Tanzania, Kenya, and Namibia. AIDS Patient Care and STDs, 2013:* 425-435.

Kidder D, Bachanas P, Medley A, Pals S, Nuwagaba-Biribonwoha H, Ackers M, Howard A, DeLuca N, Sheriff M, Antelman G, Moore J for the PwP Evaluation Study team. *HIV Prevention with People Living with HIV/AIDS: Baseline Sample of an Intervention Evaluation for HIV Care and Treatment Settings.* Plos One (2013) 8(2): e57215. doi:10.1371/journal.pone.0057215.

International Presentations and Publications – Cumulative List

IAS Conference, Kuala Lumpur, July 2013

- *(Poster) Routine outreach services improve access to HIV care and treatment services among remote and mobile fishing communities on the islands of Lake Victoria.* Zelothe J, Songora B, Simbeye D, Antelman G, Mukimara L, Mfaume M, Masaliwa D, Almeida A, Nuwagaba-Biribonwoha, Zewde A

IAS Conference, Wash DC, July 2012

- *(Poster) The identification of high levels of loss to follow up (LTFU) among pre-ART patients with unknown ART eligibility in five regions of Tanzania.* Stephanie Kovacs, Mohammed Mfaume, Jennifer Sabatier, Harriet Nuwagaba-Biribonwoha, Mathew Lamb, Ahmed Khatib, Geoffrey Somi, Gilly Arthur, Gretchen Antelman, Elaine J. Abrams
- *(Poster) Data sharing and critical data review meetings: Measures towards improving data use and program quality.* Almeida A, Henjewele C, Zewde A, Chintowa J, Sanga I, Zelothe J, Malanguka, D, Casalini C, Mbatia RJ
- *(Poster) Factors associated with depressive symptoms among people living with HIV receiving care and treatment in Kenya, Namibia and Tanzania.* P Seth, D Kidder, S Pals, J Parent, R Mbatia, K Chesang, D Mbilinyi, E Koech, M Nkingwa, F Katuta, A Ng'ang'a, P Bachanas
- (*Poster, pediatric pre-meeting*) *Reviewing progress: Trends in characteristics of pediatric patients attending HIV care and treatment clinics in Tanzania and Zanzibar over 7 years.* Nuwagaba-Biribonwoha H, Kilama B, Antelman G, Khatib, A, Panya M, Woldehana AZ, Reidy W, Ramadhani G, Mbatia R and Abrams EJ.

IAPAC (Intl. Assoc. of Physicians in AIDS Care) Conference, June 2012

- *(Oral) Factors Associated with Non-adherence to Antiretroviral Therapy among Patients Attending HIV Care and Treatment Clinics in Kenya, Namibia, and Tanzania.* Nuwagaba-Biribonwoha H, Pals S, Kidder D, Carpenter D, Katuta F, DeLuca N, Bupamba M, Maokola W, Bachanas P

- *(Oral accepted, but not presented) Barriers and enablers to retention in HIV care among patients not yet eligible for ART: A qualitative assessment in rural Tanzania.* Gorrell Kulkarni S, Lugalla J, Antelman G, Reidy W, Nash D, Elul B.

ICASA Conference, Ethiopia, Dec 2011

- *(Oral poster) Mobile Male Circumcision Services in the Lake Victoria Islands of Kagera, Tanzania: Program Description and Achievements* Mwinyi A, Mbatia R, Zegeli B, Kazaura K, Almeida A, Zelothe J, Mmasi J, Antelman G, Bukuku M, Fimbo B
- *(Poster) A continuous quality improvement model for clinical mentoring is linked to measurable improvement in HIV care* Bwogi D, Chintowa J, Simbamwaka J, Flam R, Casalini C, Antelman G, Mbatia R
- *(Poster) Prevention of cervical cancer in Tanzania: Laying the foundation for scaling out to primary level facilities* Yuma S, Giattas M, Kihinga C, Andrews L, Kamala R, LaCoste M, Mbatia RJ, Rusibamayila N

IAS Conference, Rome, July 2011

- *(Poster) Level and correlates of fertility desire among HIV-infected clients attending comprehensive care and treatment services in Kenya, Namibia and Tanzania* (Antelman G, Mbatia RJ, Pals S, Bachanas P, Arthur G, DeLuca N, Sheriff M, Muhenje O, Elul B and the PiCTS Study Team)
- *(Oral poster) Unmet need for family planning and low rates of dual method protection among men and women attending HIV care and treatment services in Kenya, Namibia and Tanzania* (Antelman G, Mbatia RJ, Pals S, Bachanas P, Carpenter D, DeLuca N, Muhenje O, Sheriff M, Arthur G, Elul B and the PiCTS Study Team)

OGAC, Washington DC, March 2011

- *(Oral) Unmet need for family planning and low rates of dual method protection among men and women attending HIV care and treatment services in Kenya, Namibia and Tanzania* Mbatia RJ, Antelman G, Pals S, Bachanas P, Carpenter D, DeLuca N, Muhenje O, Sheriff M, Arthur G, Elul B and the PiCTS Study Team

CROI, Boston, March 2011

- *(Oral poster) Knowledge of Partner HIV Status and Consistent Condom Use among HIV-Positive Individuals Attending Clinical Care in Tanzania, Kenya, and Namibia.* Bachanas P, Medley A, Kidder D, Flores S, Pals S, Zhang J, Sheriff M, DeLuca N, Antelman G, Muhenje O, Wadud A, Moore J, PwP Study Team

IUATLD Conference, Berlin, November 2010

- *(Oral) Does Using a Standardized TB Screening Tool Improve TB Control among PLHIV?* Casalini C, Kisyeri N, Antelman G, Strachan M, Chintowa J, Mbatia RJM, Cunningham A

Local (Tanzania) Conference Dissemination Participation (cumulative)

Tanzanian Quality Improvement Forum, 16-18 Nov, 2011

- *(Oral and poster) The District Mentorship Initiative to improve HIV care and treatment services: Report from health facilities on successes and challenges* Bwogi D, Makomera S, Mwamafupa J, Ngaluma F, Simbamwaka J, Mbatia R, Chintowa J (in collaboration with district and facility partners)
- *(Oral and poster) Laboratory services for HIV care and treatment: Quality improvement initiatives* Rugimbanya P, Ikandilo S, Nkya N, Nyoni Sabayi G, Hassan M, Mango C, Zelothe J, Sanga I, Casalini C, Mbatia R
- *(Oral and poster) Data sharing and critical data review meetings: Measures towards improving data use and program quality* Henjewele C, Almeida A, Strachan M, Chintowa J, Sanga I, Zelothe J, Malanguka, D, Casalini C, Mbatia R

Tanzanian Commission for HIV/AIDS (TACAIDS) Research Forum, Dar es Salaam, Sep 2011

- *(Oral) Unmet need for family planning and low rates of dual method protection among men and women attending HIV care and treatment services in Kenya, Namibia and Tanzania* (Antelman G, Mbatia RJ, Pals S, Bachanas P, Carpenter D, DeLuca N, Muhenje O, Sheriff M, Arthur G,Elul B and the PiCTS Study Team)
- *(Oral) Mobile Male Circumcision Services in the Lake Victoria Islands of Kagera, Tanzania: Program Description and Achievements* Mwinyi A, Mbatia R, Zegeli B, Kazaura K, Almeida A, Zelothe J, Mmasi J, Antelman G, Bukuku M, Fimbo B
- *(Oral) A continuous quality improvement model for clinical mentoring is linked to measurable improvement in HIV care* Bwogi D, Chintowa J, Simbamwaka J, Flam R, Casalini C, Antelman G,Mbatia R

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