End of Project Report

Implementation and Expansion of High Quality HIV Care and Prevention in Central Kenya – TEGEMEZA Project

July 2017
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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACT</td>
<td>Accelerating Children’s Treatment and/or Accelerating Care and Treatment</td>
</tr>
<tr>
<td>ADRs</td>
<td>Adverse Drug Reactions</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>ALHIV</td>
<td>Adolescent Living with HIV</td>
</tr>
<tr>
<td>APOC</td>
<td>Adolescent Package of Care</td>
</tr>
<tr>
<td>APSC</td>
<td>Adherence, Psychosocial Support and Community</td>
</tr>
<tr>
<td>ART</td>
<td>Antiretroviral Therapy</td>
</tr>
<tr>
<td>ARV</td>
<td>Antiretroviral</td>
</tr>
<tr>
<td>BMI</td>
<td>Body Mass Index</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>CCC</td>
<td>Comprehensive (HIV) Care Clinic/Centre</td>
</tr>
<tr>
<td>CDC</td>
<td>U.S Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CLHIV</td>
<td>Child Living with HIV</td>
</tr>
<tr>
<td>CHMT</td>
<td>County Health Management Team</td>
</tr>
<tr>
<td>CHS</td>
<td>Centre for Health Solutions - Kenya</td>
</tr>
<tr>
<td>CME</td>
<td>Continuous Medical Education</td>
</tr>
<tr>
<td>CPSB</td>
<td>County Public Service Board</td>
</tr>
<tr>
<td>CQI</td>
<td>Continuous Quality Improvement</td>
</tr>
<tr>
<td>CrAg</td>
<td>Cryptococcal Antigen</td>
</tr>
<tr>
<td>C&amp;T</td>
<td>Care and Treatment</td>
</tr>
<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
</tr>
<tr>
<td>DRTB</td>
<td>Drug Resistant Tuberculosis</td>
</tr>
<tr>
<td>EID</td>
<td>Early Infant Diagnosis</td>
</tr>
<tr>
<td>EMTCT</td>
<td>Elimination of Mother to Child Transmission</td>
</tr>
<tr>
<td>ETAT</td>
<td>Emergency Triage, Assessment and Treatment</td>
</tr>
<tr>
<td>ETE</td>
<td>End Term Evaluation</td>
</tr>
<tr>
<td>FCDRR</td>
<td>Facility Commodity Drug Requisition and Reporting</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>FP</td>
<td>Family Planning</td>
</tr>
<tr>
<td>GIPA</td>
<td>Greater Involvement of People Living with HIV</td>
</tr>
<tr>
<td>HAART</td>
<td>Highly Active Antiretroviral Therapy</td>
</tr>
<tr>
<td>HBV</td>
<td>Hepatitis B Virus</td>
</tr>
<tr>
<td>HCA</td>
<td>HEI Cohort Analysis</td>
</tr>
<tr>
<td>HCW</td>
<td>Health Care Worker</td>
</tr>
<tr>
<td>HCWLHIV</td>
<td>Health Care Workers Living with HIV</td>
</tr>
<tr>
<td>HEADSS</td>
<td>Home Education/Employment Activities Drugs Sexuality Suicide</td>
</tr>
<tr>
<td>HEI</td>
<td>HIV Exposed Infant</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immune-deficiency Virus</td>
</tr>
<tr>
<td>HRH</td>
<td>Human Resources for Health</td>
</tr>
<tr>
<td>HTC</td>
<td>HIV Testing and Counseling</td>
</tr>
<tr>
<td>HTS</td>
<td>HIV Testing Services</td>
</tr>
<tr>
<td>ICC</td>
<td>Inter-Agency Coordinating Committee</td>
</tr>
<tr>
<td>IYCF</td>
<td>Infant and Young Child Feeding</td>
</tr>
<tr>
<td>JKUAT</td>
<td>Jomo Kenyatta University of Agriculture and Technology</td>
</tr>
<tr>
<td>KEMSA</td>
<td>Kenya Medical Supplies Agency</td>
</tr>
<tr>
<td>KNH</td>
<td>Kenyatta National Hospital</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
</tbody>
</table>
MCH  Maternal and Child Health Clinic
MDT  Multi-Disciplinary Team
MIPA  Meaningful Involvement of People Living with HIV
MOH  Ministry of Health
MPDSR  Maternal Perinatal Death Surveillance and Response
MUAC  Measurement of Upper Arm Circumference
NACC  National AIDS Control Council
NASCOP  National HIV and STI Control Program
NCDs  Non-Communicable Diseases
NGO  Non-Governmental Organization
NHRL  National HIV Reference Laboratory
NHTIC  National HIV Integrated Training Course
NTLD-Program  National Tuberculosis, Leprosy and Lung Disease Program
OI  Opportunistic Infection
OJT  On Job Training
PEP  Post Exposure Prophylaxis
PEPFAR  US President’s Emergency Plan for AIDS Relief
PLHIV  People/Person Living with HIV
PHPD  Positive Health, Dignity, and Prevention
PHMT  Provincial Health Management Team
PITC  Provider Initiated Testing and Counselling
PMTCT  Prevention of Mother to Child Transmission
PrEP  Pre-exposure Prophylaxis
PT  Proficiency Testing
PY  Project Year
QA  Quality Assurance
QI  Quality Improvement
RH  Reproductive Health
RMHSU  Reproductive Health and Maternal Services Unit
RRI  Rapid Results Initiative
RTK  Rapid Test Kits
SOP  Standard Operating Procedure
SPSS  Statistical Software for Social Sciences
SRH  Sexual and Reproductive Health
STI  Sexually Transmitted Infections
TA  Technical Assistance
TB  Tuberculosis
TWG  Technical Working Group
US  United States
WHO  World Health Organization
WLHIV  Women Living with HIV
Executive Summary

CHS is a local (Kenyan) non-governmental organization (NGO) registered in 2010, and that started operations in October 2010. Initially implementing a HIV service delivery project as a sub-partner of ICAP, Columbia University, CHS was awarded a five-year US President’s Emergency Plan for AIDS Relief (PEPFAR) grant to continue this work as a prime grantee. The purpose of the project was to implement and expand high quality HIV prevention, care and treatment services in Central Kenya (originally Central Province; upon devolution in 2013, activities transited into five counties namely Laikipia, Kiambu, Murang’a, Nyandarua and Nyeri).

CHS started direct support for HIV services in Central Kenya in October 2011. This was carried out under a project named Tegemeza, Swahili for ‘sustain’ as it sought to provide and strengthen innovate sustainable systems for HIV service delivery. Support was for HIV Testing Services (HTS), basic care and support, treatment, TB/HIV, Positive Health, Dignity, and Prevention (PHDP), community linkages and PMTCT services. The scope of support both geographic and programmatic expanded since inception of the project. In 2011, CHS was supporting 44 facilities for HIV Testing and Counselling (HTC), care and treatment and TB/HIV, and 194 for Prevention of Mother to Child Transmission of HIV (PMTCT). Later, support expanded to 190 facilities to offer both PMTCT and HTC services. Support for care and treatment was scaled up to an additional 23 sites to offer care and treatment and TB/HIV services. In the fourth year of the project, support for low volume facilities was transitioned to the counties. By the end of the project period, CHS was supporting 104 facilities to offer HTC and PMTCT services, with 67 of these facilities supported to offer care and treatment and TB/HIV services.

Support was also extended to the county and sub-county health management teams as well as to the national level where the project engaged various bodies among them the National AIDS and STI Control Program (NASCOP), the Reproductive Health and Maternal Services Unit, RMHSU (formerly the Department of Reproductive Health, DRH) and the National Tuberculosis, Leprosy and Lung Disease Program (NTLD-Program) as a member of various technical working groups and task-forces. (In the first two years, support was provided to the provincial and district health management teams which were later replaced by county structures including departments of health and county and sub-county health management teams).

While the project was to terminate in September 2016, the organization received a 6-month cost extension that ended March 2017.
Background

CHS was awarded the Tegemeza grant as one of two local entities funded to implement HIV services in Central Kenya. This was part of a move by the US Centers for Disease Control and Prevention (CDC) to transition work done by international entities to local organizations. Following a competitive process, CHS received a grant to implement this work in most parts of Central Kenya except Kirinyaga County and parts of Kiambu County where a different local entity was funded to support implementation.

Project Purpose

The goal of the project was to implement and expand high quality HIV prevention, care and treatment services. Specifically, the project had the following objectives:

1. Support health facilities to provide quality provider-initiated HIV testing and counselling services
2. Support health facilities to provide quality and comprehensive HIV care and support to adults and children and retain them in care.
3. Support health facilities to provide antiretroviral therapy (ART) to eligible patients and retain them on ART.
4. Support health facilities to provide TB/HIV services.
5. Support health facilities to provide PMTCT services.
6. Support Ministry of Health (MoH) structures to manage HIV services.
7. Build health care worker (HCW) capacity to provide quality HIV and related services.

Achievement Highlights

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTS</td>
<td>1,590,054 tested, 29,706 PLHIV identified</td>
</tr>
<tr>
<td>Care and Treatment</td>
<td>27,729 enrolled in care, 23,349 initiated on ART</td>
</tr>
<tr>
<td>PMTCT</td>
<td>7,981 pregnant HIV infected women provided ART; only 4% HIV exposed infants confirmed infected at project end</td>
</tr>
<tr>
<td>TB</td>
<td>30,113 PLHIV provided with Isoniazid Preventive Therapy (IPT)</td>
</tr>
</tbody>
</table>

Notable achievements include:

1. **Representation at national level:** Through the relevant technical teams, the project was represented in various technical working groups (TWGs) of NASCOP, NTLD-Program, and RHMSU; the HIV inter-agency coordinating committee (ICC) of the National AIDS Control Council (NACC); and the national ART task-force. These TWGs included: HTS, commodity security (HIV and TB commodities), pediatric HIV, adolescent HIV, core TB, TB/HIV, reproductive tract cancers, laboratory point of care, viral load testing national committee, among others.
2. **Participation in development of various tools, documents and curricula:** These include the HIV treatment guidelines 2011, 2014 and 2016; 2014 job-aids and clinical tools, the 3rd line ART toolkit and the audiovisual training material for the Kenya 2014 HIV treatment guidelines; development of the PMTCT guidelines, Elimination of Mother to Child Transmission (eMTCT) framework, post-natal care guidelines, HTS guidelines, viral load testing scale-up strategy, HTS guidelines 2015, operational guideline for HTS 2015 guidance, caregivers’ manuals, and various NASCOP monitoring and evaluation (M&E) tools, among others. CHS was also involved in development of the National HIV Integrated Training Course curriculum (NHITC).

3. **Linkage model designed by the project adapted for national use:** CHS developed a model to optimize linkage of people living with HIV (PLHIV) from testing to enrolment into care and treatment. Previously, this process was quite leaky. The model was shared with the TWG; and was useful in development of a similar linkage model for adoption and rollout nationally.

4. **Residential mentorship program:** The rapid turn-over in front-line health care workers providing HIV services necessitates a pragmatic way to provide continuous and rapid capacity building. CHS developed a residential mentorship program hosted at Murang’a County Referral Hospital. HCWs of various cadres involved in providing HIV services were twinned with MoH mentors at the hospital for a weeklong rapid skills and learning process to help them initiate HIV service provision. Further mentorship was provided by CHS at respective health facilities upon return. The project team conceptualized and developed the system along with required tools, and supported the mentors to carry it out. Through this process, over 185 HCWs of various cadres were mentored, allowing them to provide quality HIV services.

5. **E-learning framework:** The project provided e-learning support to 13 health facilities (Thika Level 5, Ruiru Sub-county and Gatundu Sub-County Hospitals in Kiambu County; Murang’a County, Kangema Sub-county and Muriranjas Sub-County Hospitals in Murang’a County; Nyeri Country Referral, Karatina County, Mukurwe-ini Sub-county and Othaya Sub-County Hospitals in Nyeri County; Ol Kalou and Engineer Hospitals in Nyandarua County; and Nyahururu County Hospital in Laikipia County). This support comprised of equipment (computers, speakers, projectors, printers, internet modems), data, as well as linkage to various learning opportunities such as University of Washington Courses and TB ECHO sessions. In addition, for some courses such as the University of Washington’s Leadership and Management course, CHS paid site fees on behalf of the health facility staff. Through this, over 170 HCWs were trained.

6. **Health care worker absorption.** One recurring challenge facing donor-funded projects is lack of ownership and sustainability. As Tegemeza is highly dependent on HCWs supported by the project through sub-grants to the counties, there was need to mitigate against potential disruption of services by ensuring retention of the HCWs by counties upon cessation of the project. In this regard, negotiations were held with various county entities including county departments of health (County Executive Committee Members for Health, Chief
Officers), the County Public Service Boards, and in Murang’a, the Health and Finance Committees of the County Assembly. These efforts resulted in the absorption of 60 HCWs in Laikipia and Nyeri counties. Nyandarua and Murang’a committed to have more absorbed within three months following the end of the project.

7. **Cancer prevention and treatment:** in the first half of the project, CHS implemented two cancer programs - cervical cancer screening, and Kaposi’s sarcoma screening and treatment. The cervical cancer screening program was rolled out across all HIV clinics with HCWs trained on the VIA/VILLI method. Tools were provided, HCWs trained and equipment provided. In the 2012-2013 period, 3,442 PLHIV were screened. Some 83 women (both HIV+ and HIV-) received cryotherapy for pre-cancerous lesions.

8. The project received recognition for successful transition of HIV service delivery from ICAP to a local NGO.
HIV Testing Services (HTS)

HIV testing is a critical component in HIV programming as it provides an entry into HIV care or prevention services, depending on the testing outcome. At the start of the project, focus was on providing testing services to increase knowledge of HIV status in the served population, with targets focusing on numbers tested. As testing coverage improved, and in line with UNAIDS 90-90-90 targets, focus moved to identification of PLHIV as a major target. This has necessitated tweaking of strategies to ensure that PLHIV who do not know their HIV status are not left untested.

HTS performance over the period of project implementation was as follows:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Achievement</th>
<th>Yield</th>
<th>% Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number tested, received results</td>
<td>1,289,825</td>
<td>1,590,054</td>
<td>N/A</td>
<td>128%</td>
</tr>
<tr>
<td>Number positive</td>
<td>33,342</td>
<td>29,706</td>
<td>1.9%*</td>
<td>89%</td>
</tr>
<tr>
<td>Number tested, received results aged 0-14</td>
<td>178,419</td>
<td>249,909</td>
<td>N/A</td>
<td>140%</td>
</tr>
<tr>
<td>Number positive, 0-14</td>
<td>2,517</td>
<td></td>
<td>1%*</td>
<td></td>
</tr>
</tbody>
</table>

* This was higher in the first years and gradually came down, see graph below on yield

Significant increases in performance in 2014/15 reflect injection of Accelerating Children’s Treatment (ACT) support, and in 2015/16 the introduction of HTS Program Officers. The last period is a 6-month period, so performance was sustained though it erroneously looks like a dip

While testing targets were generally surpassed, identification targets were not always met due to much lower yield (positivity) than anticipated. The yield fell steadily over the life of the project (see graph on next page). This necessitated development of innovative strategies such as family and partner testing, hotspot mapping followed by targeted community testing, targeting of high risk departments for saturation (e.g. in-patient department, malnutrition clinics, etc.).
To increase capacity of HTS Providers, the project trained 146 HCWs in HTS using the national curriculum, 778 on the new testing algorithm, and 48 on couple HTS. In addition, the project sensitized 228 HCWs on the new HTS guidelines, 114 on HTS reporting and 119 on quality assurance (QA) and proficiency testing.

Quality assurance is critical in HTS - false positive or false negative results, or poor delivery of results, can have catastrophic consequences. For this reason, there was sustained focus on quality of services. Providers were mentored on providing the services, and received counselor supervision, an activity that was scaled up in the last half of the project. Further, providers underwent observed practice whereby experts observed them counsel and conduct the test as a means of quality assurance. In addition, 549 providers were enrolled into an external QA program provided by the National HIV Reference Laboratory (NHRL). Those enrolled received panels and were required to conduct the test and send the results back to the NHRL. Those failing the test received focused remedial training.

In the fourth year of the project, implementation of the Accelerating Children’s Treatment (ACT) initiative funded by CIFF and PEPFAR was initiated. This initiative increased funding for identification and treatment of children. The focus was on identification, treatment, and ensuring good clinical outcomes. Additional HTS Providers and Linkage Officers at health facilities were engaged and assigned to pediatric service delivery points leading to improved follow-up of identified children and adolescents LHIV to improve linkage. This support continued until the end of the fifth year of the project.

Support for HTS was also provided in other forums: the project supported Beyond Zero activities in the later part of the project by staffing outreaches with HTS Providers. The project also supported HTS Providers during various health action days such as the World TB and AIDS days, among others. During Year Five and over the project extension period, CHS supported the NACC, Council of Governors and Ministry of Sports led *Maisha* Football League that used sports to reach adolescents and young people. This provided a good opportunity to reach this demographic with HIV awareness and prevention services. Our support included HTS services as well as logistical support for the exercise.
In other instances, the project supported provision of testing services at universities and colleges and in children’s homes. All these activities also included linkage of identified PLHIV to care and ART. While positivity in these outreaches was low (<1% positivity in general), a few PLHIV who might never have been tested learnt of their positive status and most of them were enrolled in care.

One critical intervention that was carried out in Year Five was to engage HTS Program Officers into the project implementation team. These Program Officers were tasked with ensuring HTS services were provided as per guidelines and to ensure targets were met. This function was previously supported by other program teams with competing responsibilities, thus limiting the attention they could give to HTS. Staffing HTS specifically resulted in an increased identification of PLHIV; in PY05 and in the extension period, identification targets were met.

The project implemented the following strategies to ensure it met its targets:

**Scale up of HTS**

At the beginning of the project, HIV testing services were available and supported in 44 facilities (i.e. only those providing ART services). In the first year, services were scaled up to all 191 supported health facilities, thus increasing coverage. Further, services were scaled up in the first and subsequent years to cover more service delivery points, with a focus to saturate all delivery points within health facilities. The project mapped all existing service delivery points and tried to ensure HIV testing services were offered to all patients seeking care to avoid missed opportunities. In Year Two for instance, facility pediatric entry points were mapped, HCWs were mentored on pediatric testing and HTC counselors were deployed to the identified pediatric testing points.

**Support for HTS Providers**

The ambitious testing targets required a significant workforce to provide HTS services. Efforts were made to get more health care workers (especially nurses) involved in testing. This was however not sufficient to meet the set targets, leading to the engagement of HTS providers (contract staff and volunteers). In Year One, 41 providers were supported. This number increased over the life of the project; by the end of the project, 240 counsellors were supporting HTS.

**Family and Partner Testing (FPTC)**

As part of comprehensive and family-focused care, sexual partners and family members of index clients (PLHIV) were offered testing. Due to the higher yield using this strategy (about 5% vs 1% in the general population in the last half of the project), this strategy became a major focus towards the end of the project. FPTC registers were developed, patient family members and partners line-listed, and HTS providers allocated to provide this service at HIV clinics and in PMTCT settings. Linkage of patients identified using this strategy has also been more successful than in the general population. FPTC has in some cases necessitated home based testing whereby family members of index clients who could not come to the facility for testing were targeted for home testing as part of the FPTC effort. Those found HIV positive were enrolled in care.
CHS Linkage Model

To strengthen HTS systems, CHS developed a referral and linkages system. The minimum package for this system involved escort of all HIV positive clients to the CCC, a standardized referral register located in the CCC, use of national referral forms and a referral directory to enhance linkages.

**CHS Linkage Model**

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**CHS LINKAGE MODEL**

1. **Clients testing HIV+ at OPD**
   - Facilities without a CCC
     - HIV retesting by another HTS provider
     - Document on referral register
     - Refer to facilities with a CCC
     - Phone follow-up to ensure enrollment

2. **Clients testing HIV+ at IPD**
   - Facilities without a CCC
   - HIV retesting by another HTS provider
   - Document on referral register
   - Refer to facilities with a CCC
   - Phone follow-up to ensure enrollment

3. **Clients testing HIV+ at the community**
   - Facilities without a CCC
   - HIV retesting by another HTS provider
   - Document on referral register
   - Refer to facilities with a CCC
   - Phone follow-up to ensure enrollment

**Facilities with a CCC**

- Provide referral note/form
- Physical escort to CCC by HTS Provider, CHV or Peer Educator

- HTS Provider at the CCC
  - HIV retesting/confirmation

- Linkage Officer at the CCC
  - Ready for same day enrollment at same facility?
    - YES
      - HRIO
      - Opening of CCC file
      - CCC
      - Review by CCC Clinician or Nurse
The system was first piloted in a few facilities and later rolled out to all CHS supported facilities including those with no HIV clinics on-site. The model helped improve referrals of HIV positive clients to more than 80% i.e. the number of new clients enrolled in care was 80% of the number newly testing HIV positive. CHS supported printing and distribution of referral registers to all facilities which were placed in the CCCs.

In 2015, the project assigned Linkage Officers to oversee this facet of the cascade of care. The focus was on same-day, same-facility enrolment. If the client was not ready, commitment on a day and/or preferred facility of enrolment was sought, with follow up by the clinical staff to ensure linkage. If linkage did not happen, phone or physical tracing was initiated. Successes of the model were shared at a meeting of the national HTC TWG.

NASCOP has since developed a linkage system and register that borrows heavily from this model.
Targeted Health Facility Testing

Due to inadequate testing resources (human, rapid test kit (RTK) commodities), and the low yield in testing, in Year Five of the project, CHS implemented targeted testing to ensure those at risk do not miss out. This included FPTC, testing in high-yield departments (e.g. in-patient departments, sick child clinics, malnutrition clinics, TB clinics, Sexual Reproductive Health (SRH)/Sexually Transmitted Infection (STI) clinics), among others. It also included ‘eligibility screening’ whereby screening was carried out in out-patient settings to identify patients who should be prioritized for testing e.g. adults not tested for over a year, vulnerable populations e.g. key populations, individuals who had never been tested, those in discordant relationships, among others in line with national retesting guidelines. This effort goes towards ensuring PLHIV do not miss identification, as per the first 90 of the UNAIDS targets.

Challenges

Challenges faced during the life of the project included HCW strikes in Year One, Three, Five and during the project extension period which affected testing; delayed supply and frequent stock-outs of RTK; supply of RTKs with short expiry in Year Two and Year Five/extension period; a recall of SD Bioline rapid test kit in Year One/Two, and space/infrastructural inadequacies, among others. Infrastructural inadequacies in some facilities were addressed through repairs e.g. Nyeri County Referral Hospital, Ruiru Sub County Hospital, and others. In some facilities, tents were provided for HTS, and in others, screens were availed to partition rooms creating more space for HTS and improving privacy.
Palliative Health Care: Basic Health Care and Support

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Performance</th>
<th>% Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>New in care</td>
<td>27,729</td>
<td>2,065</td>
<td></td>
</tr>
<tr>
<td>New in care (0-14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active in care at project end</td>
<td>36,649</td>
<td>34,146</td>
<td>93%</td>
</tr>
<tr>
<td>Active in care (0-14) at project end</td>
<td>3,739</td>
<td>2,679</td>
<td>72%</td>
</tr>
</tbody>
</table>

*In some years, there was no specific target given for indicators left blank.

Adult Care Services

The project provided technical support to ensure continued provision of quality HIV care for adults. Every quarter, one-on-one and one-on-group mentorship to Clinicians was conducted across all supported facilities over the five-year period on the essential package for HIV care and treatment. The CHS package of care consists of: timely linkage and enrolment of newly diagnosed HIV infected patients; triage and monitoring of patients’ BMI and blood pressure at every visit; clinical evaluation at initial and every visit thereafter; co-trimoxazole preventive therapy for all infected persons; WHO staging at enrolment and at each visit, CD4 testing at enrolment; prompt placement of all adults on ART regardless of CD4 counts (this was following the 2016 national guidelines; before that, this was dependent on CD4 and WHO staging); viral load testing at months 6 and 12 after ART initiation then annually thereafter for those virally suppressed; diagnosis and management of treatment failure as per national guidelines; management of opportunistic infections (with CD4 testing considered for patients with opportunistic infections (OIs) despite being on ART); management of adverse drug reactions (ADRs); cervical cancer screening; delivery of PHDP services and interventions (including adherence support, disclosure, condoms, partner testing, and STI screening and management); nutritional assessment, counselling and support; psychosocial support including pre ART counseling, peer education, and psychosocial support groups; and retention strategies including defaulter tracing and return to care support. In addition, patients were screened for TB at enrolment and at each visit and those found to have TB treated while those without TB were placed on Isoniazid Preventive Therapy (IPT).

Patients with baseline CD4 count less than 100 cells/mm³ received a serum CrAg test. HIV positive clients received management as per national guidelines. Hepatitis B Virus (HBV) screening was done where available and management of patients with a positive HBsAg provided as per national guidelines. All patients were invited to bring their partners and family members for HIV testing and thereafter HIV care and treatment provided using a family centered model. Patients in discordant sexual relationships were enrolled in the discordant couples’ program where reproductive health interventions, psychosocial and prevention support, as well as transmission monitoring were provided. Lastly, systems to support post exposure prophylaxis (PEP) were established as part of a combination prevention package to provide further prevention support to patients meeting eligibility criteria whereas pre-exposure prophylaxis (PrEP) systems are being set up in line with current national guideline recommendations. Other methodologies employed to ensure the essential package was provided included structured on-job training (OJT) on the above, chart reviews, case
discussions, microteachings and data driven mentorship.

In project Year Four and Five, emphasis was placed on achieving the region’s 90-90-90 targets through the Accelerating Care and Treatment (ACT) and national Rapid Results Initiatives (RRI). The five supported counties received technical support to disseminate their 90-90-90, ACT and national RRI targets to sub-counties and health facilities. Facilities further received microteachings on the targets and charts with these targets were provided. This was followed by support to develop and implement targeted work plans, track monthly performance, send monthly reports, and identify, plan for and implement remedial action for poorly performing indicators. Facility level support was provided through data driven mentorship, one-on-one mentorship and line listing to ensure that all adults (including discordant couples) eligible for ART are initiated after adequate pre-ART education and counseling. Patients who were not ready for initiation to treatment were targeted for interventions to address the reason(s) for their refusal.

During the five-year period, CHS invested resources directly into other health care worker capacity building activities, employing diverse methodologies either in isolation or as blended approaches. The methodologies included:

- Trainer of Trainers (ToT) courses to build capacity of county and sub-county mentors who would in turn train and mentor facility level health care workers and support clinical decision making at facility level. Sixty (60) ToTs were trained on innovative teaching methodologies in 2012 based on the national curriculum. In the subsequent year, an additional 30 TOTs were trained on innovative teaching methodologies. Over the five-year period, 15 mentors were trained as adolescent package of care (APOC) ToTs, 30 as ART guideline ToTs, and another 30 as NHITC ToTs. These ToTs have been a great resource to their counties as they can conduct clinical trainings independently. This has demonstrated the sustainability of the model as the counties do not rely entirely on implementing partner technical staff to conduct training.

- Enrolling 150 Clinicians into the NHITC course to ensure adequate, in-depth knowledge of HIV through scale-up of the National HIV Integrated Training Course and subsequent provision of comprehensive, quality HIV care services. The NHITC was organized by CHS in collaboration with NHITC ToTs trained earlier. The model was as per national recommendations for blended self-learning and clinical placement. The venues for placement were on-site at high and medium volume facilities with the ToTs facilitating all sessions. Logistical support and any requisite technical support was provided by CHS. Over an eighteen-week period, 150 Clinicians including of Medical Officers, Clinical Officers and Nurses went through the training. The project provided training material, mentorship, support supervision and managed the training logistics, whereas the counties and facilities provided the infrastructure/space, training coordination and supervision and gave written progress training reports. The project also initiated discussions with the counties to set up a regional HIV clinical support center with core staffing composed of alumni of the National Advanced HIV Clinical Course (NAHCC) as well as mentors and ToTs from the NHITC course.

- Guideline dissemination at county and sub county level using case-based learning, continuous Medical Education (CME) sessions and sensitizations were carried out to
support provision of quality HIV services. The national ART guidelines disseminated during the five-year period included guidelines for the prevention and treatment of HIV infections 2011/2012, guidelines for the prevention and treatment of HIV infections 2014 and guidelines for the prevention and treatment of HIV infections 2016. Prior to each dissemination, 30 county ToTs were refreshed on teaching methodologies and trained on guideline content. The model used for dissemination of the three guidelines was similar, using the standard national dissemination plan and training packets. The trainings were conducted for three days each. A total of 584, 800, 678 health care workers were trained in 2012, 2014 and 2016 respectively. The project supported provision of training materials and related logistics whereas the counties provided TOTs to facilitate the trainings. In addition, the project conducted sub-county CMEs to disseminate the 2008 treatment guidelines culminating in the training of 500 health care workers from 57 facilities in Year One. The process of guideline dissemination was further supported through provision of national guidelines for the treatment and prevention of HIV booklets, job aid flip charts, and clinical algorithms to the facilities.

- The project conducted additional sub county Continuous Medical Education (CME) sessions in 2012, 2013 and 2014. The topics covered included the ART continuum (consisting ART failure, treatment monitoring, adverse drug reactions), opportunistic infections e.g. cryptococcal meningitis and other CNS infections, sexually transmitted infections, and dermatological manifestations of HIV to 200, 440 and 440 clinicians respectively in 2012, 2013, 2014. In addition, a CME on the management of HIV sero-discordant couples was conducted to 225 Clinicians.

- The project further conducted facility level CMEs, each targeting approximately 30 health care workers at high and mid-volume facilities reaching over 300 health care workers each year. The focus of the CMEs was on-site, single day, ART guideline disseminations; onsite CMEs on the management of co-morbidities in PLHIV and onsite CMEs on adverse drug reactions.

- Quarterly data reviews as well as chart reviews were conducted on-site to ascertain that patients received the standard package of care. Patient level data to identify poorly performing indicators such as patients eligible but not on ART, CrAg screening, and consistency of treatment monitoring. Patient files found to have missed these services were flagged and patients recalled for necessary management. This was followed by implementation of program-wide strategies conducted every quarter during the five-year period. This allowed the project to provide targeted technical support to all care and treatment facilities with an electronic patient level database. Furthermore, clinical decision making support for the management of antiretroviral adverse drug reactions, provision of post-exposure prophylaxis, management of CNS, respiratory tract, gastrointestinal tract, and dermatological opportunistic infections as well as the management of patients with HIV and non-communicable diseases was provided through preceptorship, booking of patients in structured clinics attended by the project’s mentors and phone consultation with clinicians at site level. In addition, quality of care assessment was conducted twice annually at all facilities and interventions targeted at poorly performing indicators developed and discussed with the intra - facility multidisciplinary teams for implementation.
The project further supported improved clinical decision making by supplying clinical equipment such as BP machines, weighing scales, height meters, and thermometers. In addition to the above, four centers of excellence were supplied with ECG machines, glucometers and pulse oximeters.

**Mortality Review**

During the five-year period, mortality among PLHIV remained stable at approximately 2%. Majority of the patients dying were found to have TB, cryptococcal meningitis and wasting. The analysis of mortality data is displayed in the graphs below:

Patients aged > 20 years dying while on ART (n=708)

![Percentage of all mortality cases with OI before death](chart)

To reduce mortality, opportunistic infection screening, diagnosis and management systems were established and strengthened.

**Isoniazid Preventive Therapy (IPT)**

The project also supported roll out of Isoniazid Preventive Therapy (IPT) at all care and treatment facilities. This is discussed further in the section on TB below.

**Cervical Cancer**

In keeping with the national HIV treatment guidelines, CHS factored in support for the introduction of routine cervical cancer screening and management of cervical dysplasia into the care package through training of health care workers and procurement of cervical cancer
screening commodities and equipment. The first lot of 56 health care workers including 10 from CHS and 46 drawn from 10 high volume facilities namely Thika Level 5, Nyeri County Referral, Murang’a, Kangema, Nyahururu, Ol Kalou, Othaya, Mukurweini, Gatundu and Karatina Hospitals went through training on cervical cancer screening and management in 2012. The screening program has been sustained over the five-year period, largely with facility/county support. Sensitization of HCWs at different levels through facility or district level continuous medical education sessions as well as community awareness through screening camps was also conducted. Cervical cancer management has thus been integrated in the CCC for eligible women resulting in the screening of HIV-infected women at all facilities using the VIA/VILLI method. All women diagnosed with suspicious lesions have so far benefited from cryotherapy at the Centers of Excellence while those requiring referrals for overt malignancy were referred to the Kenyatta National Hospital. Though PEPFAR support for cervical cancer programs was stopped mid-project, sufficient momentum and ownership of the services by counties ensured continued service delivery.

**Kaposi’s sarcoma**

Diagnosis and management of *Kaposi’s sarcoma* was initiated at 15 diagnostic and treatment sites, while supporting the satellite facilities to refer to these treatment sites. Capacity building was conducted through targeted didactic and practical training of 90 HCWs, one-on-one mentorship, continuous medical education for 60 health care workers, structured on job training of 55 health care workers, provision of Kaposi’s sarcoma job aids, registers and clinical assessment forms as well as supportive supervision to monitor implementation progress. The project provided punch biopsy equipment and consumables at facility level and established laboratory sample referral networks for Kaposi’s sarcoma histology to a leading laboratory in Nairobi, and provided triple chemotherapy (Adriamycin/Bleomycin/Vincristine, ABV) for treatment of confirmed Kaposi’s sarcoma. Thus far, 65 patients have benefited from the program over the five-year period (see figure on outcomes below).

**Cryptococcal Meningitis**

Screening for cryptococcal antigen among patients with CD4 counts < 100 cells /mm3 was initiated at all facilities with support from CHS. The strategy included the use of patient level
data to identify eligible patients, quantification for antifungal drugs, provision of CrAg test kits, CrAg screening with provision of results within one week, capacity building of all health care workers from in-patient departments, CCC, TB and PMTCT clinics on the management and monitoring of cryptococcal meningitis. This was done through sensitization and continuous medical education, provision of screening and management algorithms as well as patient logs for program monitoring. Supportive supervision was also conducted quarterly to monitor progress. To date, approximately 3,000 patients have been screened with a CrAg positivity rate of 6 to 8.8% during the five-year period.

Non-Communicable Diseases

The Central region of Kenya has a high prevalence of non-communicable diseases (NCDs) that when coupled with HIV results, in a high ‘double burden’ of disease.

To improve outcomes for patients with multi-morbidity, a baseline assessment was conducted to ascertain risk factors and common NCD types in 2014. This was followed by the provision of medical equipment e.g. weighing scales, height meters, BP machines, measuring tapes, glucometers, and pulse oximeters. ECH machines were also provided to centers of excellence. In 2015, 440 health care providers were trained on NCD screening, monitoring and treatment based on content from the National Integrated HIV Training Curriculum. This was followed by sub-county CMEs and onsite mentorship on the same. Service co-location for HIV and NCDs, coordination of appointments or establishment of referral systems to medical out-patient clinic for patients with co-morbidities was done. Support groups for patients with risk factors for NCDs - mainly alcoholics - were established and counselors trained to give both HIV education and lifestyle modification messages (NCD prevention education), in addition to conducting adherence counseling and assessment for both ART and NCD medications.

Provision of co-morbidity services
Other areas that the project supported included technical support for the management of adverse drug reactions; provision of post-exposure prophylaxis; provision of PrEP; management of CNS, respiratory tract, gastro-intestinal tract, and dermatological opportunistic infections. This was done through NHITC training, county and facility level CMEs, on-site mentorship, phone consultations and OJT.

National Level Support and Engagement

The project provided technical support to NASCOP by participation in ART task force meetings and TWGs, and development of the Kenya 2011/2012 guidelines, 2014 ART rapid advice document, and guidelines for preventing and treating HIV infections 2016; 2014 job-aids and clinical tools, the 3rd line ART toolkit and the audiovisual training material for the Kenya 2014
guidelines. Other support included conducting master TOT trainings for the NHITC and guideline 2014 and 2016, conducting reviews of treatment experienced patients as members of the NASCOP clinical TWG throughout the five-year period, supporting the development of the National HIV Clinical Support Center through mentorship to its staff. In addition, CHS was a member of the guideline review committee and secretariat that met to strategize on the guideline review process and conduct evidence review prior to the guideline revision process. The project also participated in the 9th, 10th and 11th NASCOP Consultative Forum through abstract and best practice sharing as well as participation as session discussants and chairs.

**Pediatric and Adolescent Care**

The project aimed to identify all children and adolescents living with HIV, provide ART to 90% of these children and adolescents while achieving 90% viral suppression for all children and adolescents on ART for at least 6 months. During the five-year period, 2,065 children were identified as living with HIV and 2,175\(^1\) were initiated on ART.

2,065 children identified as HIV+

2,175 children initiated on ART

The CHS package of care for all HIV-infected children comprised linkage of newly diagnosed children to the HIV clinic, baseline CD4 testing for those newly diagnosed, treatment readiness assessment/counseling for caregivers of children on ART initiation, ART initiation for all children who are deemed ready, stigma and disclosure counseling support, growth and neuro-developmental monitoring using z-score and milestone assessment tools, ART dose adjustment by weight, treatment monitoring using viral load test at 6 and 12 months from ART initiation and thereafter annually for virally suppressed children, follow-up to ensure immunization is up to date, deworming, vitamin A supplementation and IPT for all children living with HIV older than one year who screen negative for TB. Children on ART were reviewed periodically depending on their stability at child-friendly clinics.

In addition to the standard package of care provided for children living with HIV (CLHIV), CHS described a package for neonatal and child survival services that aimed to describe support for general MNCH activities. In this package, management of common childhood illnesses that impact on HIV related mortality was emphasized. In the five-year period, support for the package was provided through training of 40 health care workers on Emergency Triage, Assessment and Treatment (ETAT). The content covered included the management of severe diarrhea and shock, management of severe malnutrition, neonatal resuscitation, and management of severe pneumonia and of common childhood emergencies. In addition, 40 health care workers from the five counties were trained on the Integrated Management of Childhood Illnesses (IMCI). The staff targeted for these trainings work in the in-patient and

\(^1\) This is higher than number identified as it may include children previously in care who were initiated on ART during the project period
out-patient departments where acutely ill children < 5 years of age are commonly seen and managed. In addition to the two trainings, the project conducted mentorship to the 67 facilities on child survival strategies such as the use of milestone assessment tool to assess development, and provision of nutritional assessment, counseling and support services for CLHIV.

In Year Five, emphasis was put on achieving the 90-90-90 targets through the ACT and the national RRI initiatives. The five counties received technical support to disseminate their 90-90-90, RRI and ACT targets to the sub-counties and facilities through sensitizations and microteachings, to develop and implement work plans geared to the targets, track monthly performance against targets, send monthly reports to NASCOP, as well as to the implementing and development partner, and identify and plan for remedial action for poorly performing indicators. Facility level support was provided by ensuring that all sites line-listed all children not initiated on ART. Charts of these children were tagged and their caregivers called to schedule appointments for pre-ART support and subsequent ART initiation.

During the five-year period, focus was on implementation of the Kenya guidelines for preventing and treating of HIV 2011, 2014 and 2016, which over time, significantly expanded eligibility criteria for ART among children and adolescents. Following the dissemination, data driven mentorship and chart reviews were conducted at facilities to identify and manage all children under the age of 10 years of age not on ART and all adolescents between the ages of 10 and 19 not yet on ART. Patient charts were reviewed to identify and trace children who were lost to follow-up. Mentorship also focused on ensuring children and adolescents received the comprehensive package listed above. All facilities were supplied with the requisite job aids, tools and Kenya treatment guidelines 2011, 2014 and 2016.

In addition to guideline dissemination, the project supported the scale-up of the National HIV Integrated Training Course by training 50 TOTs on the clinical track for a duration of three days followed by a cascading of the same through an eighteen-week training to approximately 150 Clinicians on the clinical track.

Further support for quality pediatric care was provided by implementing the use of pediatric technical support tools at facility level in the later part of the project. This involved sensitizing health care workers on the tools, providing the tools to all pediatric clinics and mentoring the clinicians on their use. Data derived from these tools was shared with both the facilities, project staff and CDC for quality improvement (QI) purposes. Clinical case reviews were conducted periodically throughout the five reporting years. This was achieved through scheduled clinic appointments for affected children, attended by the project’s mentors and through phone consultation for children with complicated disease conditions such as Adverse Drug Reactions (ADRs), opportunistic infections as well as non-communicable diseases.

In addition to the guideline disseminations, CMEs were conducted at facility level across high volume facilities and at county level targeting low volume facilities that focused on pediatric care and treatment services during the five-year period. County level CMEs were also conducted on neonatal resuscitation and management of shock and severe dehydration. Health care workers at all facilities were provided with requisite job aids, national treatment guidelines and clinical equipment e.g. pediatric BP cuffs, weighing scales, height meters and

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length boards. Patient level data was used to guide and target mentorship and intervention for specific patients and facilities with a focus on poorly performing indicators at all supported facilities with electronic medical records. In addition, quality of care assessments were conducted bi-annually at all facilities and interventions targeted at poorly performing indicators developed and discussed with the facility multidisciplinary teams. The aggregate database was similarly used every quarter to identify facility level gaps to guide development and implementation of interventions.

The project further provided support for growth and development monitoring, and on weight-based ART dose adjustment. This was done through various methodologies such as on-site mentorship of health care workers at least once every quarter at all supported facilities, chart reviews every two months at all facilities to strengthen documentation and clinical case discussions based on need. Healthcare workers were trained on important aspects of growth monitoring: weight taking, height and length, head circumference and use of MUAC tapes and Z-score charts to screen for malnutrition. Growth monitoring and Z score charts were also provided.

**Adolescents**

For adolescents, additional services in the package of care included growth and development assessment using tanner staging and/or BMI, HEADSS\(^2\) assessments for newly enrolled adolescents, sexual development assessment, risk reduction counseling, partner testing, reproductive health services including pregnancy intention screening, family planning, STI screening and management, gender based violence counseling, management of opportunistic infections, adherence and psychosocial support provided by adolescent and youth peers, life skills training, stigma and disclosure counseling and support, mental health services including for substance abuse, and depression screening and management, with all the services provided using an integrated model of care. Follow-up was conducted at adolescent-specific clinics with provision of adolescent tailored services by trained staff and peers.

In 2014, the APOC package was developed by NASCOP and the project supported the dissemination of this package to all 67 facilities to include the training of over 300 health care workers, establishment of adolescent dedicated clinics, ensuring that a minimum set of services was offered to adolescents, and using aggregate data to monitor progress in providing the package of services and develop QI processes.

CHS carried out focused group discussions with adolescents during psychosocial meetings to have gather insight and better understand the needs of the adolescents from their perspective and better package interventions for them.

**Mortality**

Among children and adolescents aged between 0 and 19 years of age, TB was found to be a common OI in children dying while on ART. As a way of improving quality of care especially on management of opportunistic infections, CMEs at the sub-county level and facility level were conducted on the new guidelines of pediatric TB and HCWs mentored on the new dosing of pediatric TB drugs.

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\(^2\) Home, Education/Employment, Activities, Drugs, Sexuality, Suicide/Depression assessment
On a case-by-case basis, technical assistance was provided for management of children with specific non-communicable diseases such as cor pulmonale, etc. Additionally, the CHS Pediatrician set up senior review clinics at specific sites, gave technical assistance in specific ward rounds and technical assistance for mortality and morbidity reviews.

**National Level Support**

The project provided technical support to NASCOP by participating in pediatric and adolescent technical working group meetings, training APOC TOTs, reviewing the “guide to caring for children and adolescents living with HIV 2015 toolkit”, conducting clinical case reviews at national level and participating in forums to discuss the development of the school health program.

**Treatment**

Anti-retroviral therapy has become the mainstay of HIV care, covering both traditional prevention and treatment. Guidelines have changes several times during the project from using immunological and clinical criteria for ART initiation to ART for all in Year Five, among other changes. This has necessitated updating of HCWs to ensure rapid uptake of guidelines and improved patient outcomes. Over 99% of patients are now on treatment as per guidelines.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Performance</th>
<th>% Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>New on ART</td>
<td>26,202</td>
<td>23,349</td>
<td>89%</td>
</tr>
<tr>
<td>New on ART (0-14)</td>
<td>2,330</td>
<td>2,175</td>
<td>93%</td>
</tr>
<tr>
<td>Proportion of active patients on ART at project end</td>
<td>34,146</td>
<td>34,087</td>
<td>100%</td>
</tr>
<tr>
<td>Proportion of active patients on ART at project end (0-14)</td>
<td>2,679</td>
<td>2,673</td>
<td>100%</td>
</tr>
</tbody>
</table>

23,349 adults and children initiated on ART

On ART
Adult HIV Treatment

The project had a target to place 26,202 patients on ART in the five-year period. The project achieved 89% (23,349 were initiated on ART) by ensuring that health care providers had the capacity to provide quality HIV treatment services. The failure to fully meet the target is largely due to low identification of PLHIV as described in the HTS section above (largely due to low yield). Close to 100% of all patients in care are on ART. Of the 23,349 patients initiated on ART, 21,174 were adults.

By project end, against a target of 35,756, there were 34,087 persons active on ART (95% achievement), with the shortfall attributable largely to low identification of PLHIV. Of all 34,146 patients in care, close to 100% (34,087) are on ART, of whom 31,491 are adults. Some 1,321 of these adults are currently on second line ART.

During the five-year period, support was provided to ensure quality HIV care and treatment of patients on ART and other prophylactic medications based on the essential package of services. The support included one-on-one mentorship on triage (weight, height, BMI and Blood Pressure monitoring), clinical evaluation, baseline and routine clinical and laboratory treatment monitoring, cryptococcal antigen screening and management, ensuring initiation...
of standard regimens, TB screening and management, ART adverse drug reaction monitoring and management, PEP, PrEP, OI prophylaxis and treatment and non-communicable disease management.

The project supported the rapid implementation of the Kenya 2011/2012, 2014 and 2016 guidelines as described in the section on basic care and support above. Data driven mentorship was conducted to identify and appropriately manage eligible patients not on ART and patients due for routine viral load testing who had not received the test. This focus on guideline disseminations resulted in >90% of adults with CD4 <350 in 2012, > 99% of adults with CD4 <500 were on ART by end of 2015 while >95% of all adults with known HIV status were on ART by end of 2016.

The capacity of health care workers was enhanced as described in the section on care and support above for the provision of HIV services. All supported facilities received the requisite job aids, clinical data tools and ART clinical guidelines. Other methodologies employed included on-site one-on-one mentorship, structured OJT on clinical tools and job aids, chart reviews, case discussions and data driven mentorship.

To institutionalize data use for clinical decision making for HIV care, the electronic patient level database was used at facility level to identify sub-optimally performing indicators such as ART failure, adverse drug reactions, consistency of treatment monitoring with bi-annual CD4 tests, use of nonstandard ART regimens, mortality, poor adherence, overweight and obesity amongst others. Files of patients who were found to have missed these services were flagged and patients recalled for the necessary management.

**ART use ever among 26,000 patients seen from 2011-2014**

<table>
<thead>
<tr>
<th>Regimen</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stavudine Based</td>
<td>36.4</td>
</tr>
<tr>
<td>Zidovudine Based</td>
<td>20.3</td>
</tr>
<tr>
<td>Tenofovir Based</td>
<td>31.4</td>
</tr>
<tr>
<td>Abacavir Based</td>
<td>5.7</td>
</tr>
<tr>
<td>Non Std Regimen</td>
<td>6.2</td>
</tr>
</tbody>
</table>
To strengthen the identification and management of antiretroviral treatment failure, CHS supported health facilities to use patient level data for the identification of patients suspected of failing first line ART and flag these charts. The files were also flagged for repeat viral load tests and follow up of delayed results as needed. These patients were thereafter notified to return to the facility for viral load testing and adherence counseling with a second viral load test repeated after three months to confirm failure for those with levels above 1,000 copies/mL. In addition, CME sessions were conducted for health care workers, and one-on-one mentorship at all facilities at least every quarter during the five-year period. All facilities received treatment failure job aids and patient registers to use for documentation. Plans were made for further decentralization of the viral load collection and transport system and to increase the frequency of transportation as patients had previously failed to keep appointment for the current viral load collection dates. The facilities were supported to expand systems for identification and management of ART failure to include TB and PMTCT clinics.

Patients who were not virally suppressed were also line listed as ‘suspected treatment failure patients’, their charts were tagged and patients booked for monthly dedicated clinics, enhanced adherence counseling sessions with similarly non-suppressed patients, enrolment into dedicated psychosocial support groups and provision of other support systems such as home visits and case managers as needed. A line list was also generated for patients eligible for repeat viral load tests. Tools for documentation of enhanced adherence counseling sessions were provided. Health care providers were oriented on provision of both clinical care and counseling support for patients suspected to have ART failure.

Once ART failure was confirmed, the project supported prompt switching to second line ART as per the guidelines. Currently, 1,321 adults are on second line ART. Once switched, patients continued to receive treatment monitoring just as for those on first line ART, and continued
support for adherence.

The project further focused on ensuring that patients on ART achieved viral suppression. The 67 sites were supported to retrieve viral load results from the NHRL and document the same in the patient’s charts. All patients who did not have a viral load result, or whose results were delayed, were line listed, their charts tagged and patients called to visit the clinic for the test.

Viral Load Coverage

National and County Level Leadership Support

The project supported the national program, NASCOP by actively participating in various TWGs such as HIVQUAL, training, ART task force, ART third line committee and training implementation sub-committee. The support provided included participation in the following areas: review of the National Integrated HIV Training Curriculum, development of the national Trainer of Trainers self-learning material, review and editing of the national 2011/2012 guidelines, 2014 treatment guidelines, 2016 ART guidelines, development of the national guideline dissemination material such as participants’ workbook, facilitators workbook and job aids. CHS also presented several abstracts at the 9th NASCOP HIV Conference held in November 2014, and participated in the 10th and 11th NASCOP Consultative Forums through abstract and best practice sharing and as discussants and co-chairs for care and treatment sessions. The project provided technical support to NASCOP by being part of the team that developed the Kenya 2014 ART job aids, the 3rd line ART toolkit and the audiovisual training material for the Kenya 2014 guidelines. In addition, CHS was part of the trainers of ToTs for the NIHTC, and part of National clinical TWG that continually reviews treatment experienced patients requiring 3rd line in the country.

The project provided support to the five counties and to NASCOP by conducting clinical reviews for patients suspected to be failing second line ART. The project also participated in a viral load service quality assessment organized by CDC.

Pediatric Treatment

The CHS target for the project period was to place 2,330 children on ART; 2,175 (93%) were initiated on ART. The project also sought 5,064 children active on ART and achieved 2,596 (51%). While this target was not achieved, every effort was put in place to identify, initiate and retain children on ART. The shortfall can mostly be attributed to identification of less than targeted CLHIV, despite regularly surpassing testing targets as seen in the HTS section above. It may also be partly attributable to successful PMTCT programs, thus reducing the number of new pediatric infections. ART uptake for children in the program was good as shown in the graph above. Of all 2,679 active children in care, 2,673 (100%) were on ART at project end.
During the five-year period, the project focused on improving knowledge on pediatric HIV through guideline dissemination, CMEs, residential mentorship that emphasized rotation in the pediatric ward and clinic, chart reviews, case discussions, clinical systems mentorship (CSM), use of patient level data to improve quality of services, and distribution of pediatric job aids and clinical equipment. The project also provided support in the establishment of pediatric and adolescent specific clinics, on growth monitoring and neuro-developmental assessment, identification and management of first and second line ART failure in children, identification, management, documentation and reporting of adverse drug reactions, prescription practices for adolescents such as use of non-standard regimens and single drug switch for older adolescents, as well as retention of children and adolescents on ART. Support in these areas was provided through data driven mentorship activities at all facilities and one-on-one mentorship. Patient records that showed a gap in service delivery were reviewed and flagged for follow up.

Over the five years, emphasis was placed on strengthening the initiation of ART for all children in a timely manner, adjusting ART doses as per weight of the child, and ensuring that all children were on safer, friendlier fixed-dose regimens. Phase-out of Stavudine and Didanosine based regimens was prioritized to reduce incidence of adverse drug reactions. The proportion of children on these regimens reduced from 12% to 7% between September 2011 and September 2012 and to none by end of 2016.

Similarly, over the project period, improved linkages between the MCH/PMTCT and CCC departments were put in place by ensuring collaboration and participation of the MCH and CCC teams in the multi-disciplinary teams (MDTs). This was done with the objective to strengthen the follow-up of all the HIV exposed infants (HEIs), ensure early initiation of ART for all infants confirmed to have HIV, continue with growth and development monitoring of under 5 year olds and ensure completion of all immunizations as per KEPI schedule to enhance child survival.

**Treatment Failure**

The identification and management of treatment failure in children was a major focus strengthened by data driven mentorship every quarter to identify patients meeting the criteria, development and distribution of viral load registers to track and document outcomes of children with suspected treatment failure. Children who were not virally suppressed were also line listed as having suspected treatment failure, their charts were tagged and patients booked for monthly dedicated clinics, enhanced adherence counselling sessions with similarly non-suppressed children, enrolment into dedicated psychosocial support groups and provision of other support systems such as home visits and case managers as needed. A line list was also generated for children eligible for a repeat viral load tests. Tools for documentation of enhanced adherence counseling sessions were provided. Health care
providers were oriented on provision of both clinical care and counselling support for patients suspected to have ART failure.

Through this support, children with confirmed ART failure were placed on second line treatment.

Further, case-by-case identification of children failing on second-line ART was conducted and summaries sent to the third-line committee at NASCOP with drug resistance test results. Consequently, two children were initiated on third line regimen at Thika Level 5 Hospital with the support of CHS. CHS procured initial doses of ART while awaiting the provision of the commodities from the national pipeline.

The project conducted an analysis on children switched to second line, and found that most were on first line ART for about 3.5 years before switching. It is hoped that with improved regimens, the median duration before second line ART will be longer.

Table: n=5274 children aged 0-19 years enrolled between 2011-2014, on ART on follow-up for 48 months after ART initiation

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switched to Second line</td>
<td>4.7%</td>
</tr>
<tr>
<td>Male</td>
<td>47.9%</td>
</tr>
<tr>
<td>Female</td>
<td>52.1%</td>
</tr>
</tbody>
</table>
**Adherence and Retention Support (A&R)**

Strict adherence to ART is key to sustained HIV viral suppression, reduced risk of drug resistance, decreased risk of HIV transmission, improved overall health and quality of life and survival. Achieving adherence to ART is a critical determinant of long term positive health outcomes of HIV infected clients. To mitigate viral non-suppression that happens because of non-adherence to ART, leading to emergence of drug resistance and loss of future treatment options, strong adherence and retention support systems are needed. Adherence optimization has become even more important in the ‘test-and-treat- era as even ‘well’ patients are placed on ART. It is therefore paramount that care and treatment programs put in place systems that support clients to optimize their adherence to care and treatment.

The project achieved high retention rates, at 12 and 24 months. This is critical for viral suppression, good patient outcomes and reduced onward transmission of HIV.

*Kaplan Meyer survival charts up to 60 months*

The focus of this program area was to ensure that all supported health facilities provide a minimum package of Adherence, Psychosocial Support and Community (APSC) linkages according to the national guidelines across all supported health facilities to maximize retention, adherence and viral suppression. The graph on the next page brings out the retention trends from 2012 to end of September 2016. (The slight decline in the 6-month extension period may be attributed to the change in strategy to same-day ART initiation even for the newly diagnosed. Various retention measures were put in place to address the dip).
Retention Support Systems

Adherence Support Systems

To curb different barriers (cognitive, behavioral, structural and psychological) to adherence, CHS put in place adherence support systems that had several components as described below.
Adherence Assessment

This was done at every clinic visit targeting all clients across all age groups. CHS started off the project using pill counts as a strategy for adherence monitoring and in 2013, the project adopted the use of appointment keeping and pharmacy records to monitor adherence. By end of 2016, in addition to the above strategies, CHS also adopted the use Morisky Medication Adherence Scale - 4 (MMAS-4) for clients with no challenges to adherence and the MMAS-8 for clients with suspected treatment failure and/or adherence challenges. The assessments were done by the Clinician, Nurse Counselors or Social Workers. The scores were documented in the client files for future reference.

Adherence Counseling

This service was given emphasis because it held the key to averting treatment failure. The project developed structured counseling sessions targeting different categories of clients. The categories included:

- Adherence counseling sessions for newly enrolled clients and those transferred-in. These were three sessions within one month of enrollment (the first session done on the day of enrollment, the second two weeks later and the third after another two weeks). The documentation was done on MOH 257B (Continuous Education Card). The project also developed an adherence counseling guide with specific messages that were delivered to clients at each session. The project adopted the use of the HIV education and adherence counseling content guide found in the in new guidelines

- Continuous counseling sessions: Adherence assessment was done every time the client came to the clinic. Any client identified with adherence challenges was taken through monthly individual counseling sessions by either a Nurse Counselor, Clinician, Social Worker or trained Peer Educator. Those with no adherence challenges received either group or individual counseling sessions on a quarterly basis. From 2013, individual targeted counseling sessions were adopted for clients with special challenges such as disclosure, and partner or family testing, stigma and discrimination, mental health problems, marital conflicts, etc. CHS also emphasized referral to specialists for further support when needed

- Enhanced adherence counseling (HCWs and trained peer educators with counseling training): The counseling was done to clients with suspected treatment failure and those with adherence issues. This was a service introduced in Year Four, adopting the use of the enhanced adherence counseling card as the primary documentation tool. In Year Five, CHS adopted the use of NASCOP’s Enhanced Adherence Counseling Content Guide for the sessions and emphasized identification of barriers and setting an adherence counseling plan with the clients strictly monitored by the HCWs

- Return to care counseling: This was offered to all clients who come back to treatment after defaulting. The counseling was done by the peer educators and social workers with an emphasis on supporting the clients to adherence to clinic attendance and to treatment. A return to care counseling form was used and filed in the client’s file.
Treatment Literacy

CHS developed a structured treatment literacy program as one of the retention and adherence support strategies for newly enrolled clients and those with high viral loads. This strategy provided health education that helped clients adhere to treatment leading to improved quality of life. There were monthly sessions offered over eight months, with clients graduating in the ninth month. After graduation, the client was either linked to community based systems or joined facility based support groups for continued support.

Since 2013, 756 treatment literacy classes with approximately 7,012 members were formed. A total of 6,631 patients finished the classes, 2,536 of whom were linked to community based psychosocial support groups.

756 Treatment Literacy Classes

7,012 Members

Within the treatment literacy classes, there was formation of treatment buddies whose roles were to offer adherence support at community level, to monitor each other’s clinic appointments and support the health facility in tracing defaulters within their cohorts.

CHS APSC Advisor, Dinah Mamai during a treatment session with clients from Warazo Health Centre
Winfred Njugi, CHS APSC Officer leading the energizer session, during one of the classes at Warazo Health Centre.

Nursing Officer in charge of Endarasha Health Center awarding a certificate to one of the treatment literacy graduates.
Psychosocial Support Systems

Psychosocial support address the ongoing psychological and social problems of HIV infected individuals, their partners, families and caregivers. This serves as a mitigation measure to the physical, psychological, social and spiritual challenges that come with HIV infection.

Every client enrolled into HIV care went through a baseline psychosocial assessment using age-specific baseline psychosocial assessment forms (pediatric, adolescent and adult forms). The form was placed in the client’s file for reference. Based on the outcome of the
assessment, a plan of action was developed to address the identified potential barriers to adherence. There was a review after six months with the aim of assessing developments or improvements and support provided as needed.

At the start of the project, CHS provided snacks and meals during support group meetings, but did away with these due to budgetary constraints. This did not significantly affect retention.

**Adults**

After completing treatment literacy classes, adults were enrolled in different groups based on their specific needs. By the end of the project period, the following groups were running across supported health facilities:

- Sixty-six (66) PMTCT groups
- Two (2) men-only groups
- Four (4) couples’ groups
- Fifteen (15) TB/HIV co-infected groups (transitional groups, dismantled upon TB treatment completion)
- Thirty-one (31) groups for patients with high viral loads (to support enhanced adherence)
- Thirteen (13) for patients in second line
- Eleven (11) for recovering alcoholics (transitional)
- Nineteen (19) community based groups
- One group for HCWs living with HIV with 67 members

Other than the community based groups at community level, the rest met at health facilities. Support given for these meetings included technical support for their running and tents for health facilities with space constraints.

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**Adolescents**

Adolescent support groups were based on age categorized in three age groups (10-13 years, 14-15 years and 16-19 years). Most meetings were scheduled to take place during school
holidays as this was convenient for most adolescents, more so those in boarding schools. By project end, there were 70 adolescent support groups with 896 members.

The project engaged 12 adolescent peer mentors to provide much-needed support during various psychosocial activities. CHS further supported Gatundu, Ruiru and Thika Level 5 hospitals to hold adolescent retreats with the aim of improving the relationship between health care workers and the adolescents, ultimately leading to improved adherence. In these meetings, adolescents also get to meet their peers and share their experiences in a fun-filled environment. Close to 450 adolescents benefited from these activities.

70 Adolescent Groups Supported

896 Members

The project actively participated in the process of developing the Kiambu County School Health Program. This brought together County Departments of Health, Education and Children’s Services to develop a program suiting the needs of the county to help improve clinical care for adolescents, children and youth living with HIV. To mitigate the high levels of stigma and discrimination within the school set-up, Gatundu sub-County Hospital engaged project-supported adolescent mentors to visit secondary Schools and sensitize students on HIV.

Further, the project held focus group discussions with the adolescents to identify key issues that are likely to affect their adherence. This was informed by sub-optimal viral suppression in this age group. Stigma and discrimination, non-disclosure and inadequate support from some caregivers/guardians as well as teachers in boarding schools were identified as the main barriers to adherence and that have eventually affected the adolescents’ viral suppression.

Working with the supported facilities, CHS put in place measures such as enhanced adherence counseling to both the adolescents and their caregivers, linkage to community based social support systems, de-stigmatization activities within schools, psychosocial support, assignment of case managers, treatment buddies and home visits to address the issues. Some of these activities such as home visits were done on a case-by-case basis. CHS implemented this support system for all adolescents with high viral loads. The project strengthened systems to optimize disclosure of adolescents’ HIV status to them, with the large majority aware of their status, which was helpful for adherence to treatment and prevention of onward transmission. These rates are as shown below with the older adolescents having higher disclosure rates as expected. When not ready for disclosure, service-providers worked with caregivers/parents to develop a Disclosure Plan.
Over 400 HCWs were trained in the adolescent package of care (APOC) thus strengthening their capacity to provide adequate and appropriate services to this population.

All this support helped improve retention and viral suppression among adolescents, though, as in the rest of the country and beyond, it is lower than adult and pediatric suppression rates, as seen in the graph on the next page.
Children

CHS has been striving towards ensuring optimal adherence and viral suppression among children. Children’s support groups are divided into two age groups (2-5 years and 6-9 years). The clinics are also structured in the same way. In addition, we have caregiver support groups where parents and guardians of the children receive required education and support to provide optimal care for the children. We have empowered health care workers with knowledge and skills to handle the varied psychosocial support challenges affecting CLHIV. We focus on disclosure preparation, grief and stigma and discrimination. In addition, we have provided play items and, where needed, tents to facilitate running of these groups. Children’s groups do not transition to the community; they graduate to the next age category.

By end of project Year Five, 93 pediatric support groups had been formed.

93% Adult Viral Suppression

73 – 78% Adolescent Viral Suppression
Defaulter Identification and Follow up System

Timely defaulter identification and follow up was been a key focus of the project. CHS revised the defaulter tracking register and appointment diary, and adopted the NASCOP defaulter tracing algorithm. One significant milestone of the system was the exit of physical tracing for adult populations; physical tracing was reserved for prioritized populations (PMTCT clients and children under the age of 15 years) only if phone tracing was unsuccessful. Defaulting adults were traced by phone. This transition was conducted in the second year of the project informed by budgetary constraints without significant effect on retention (see retention graph below). Through various interventions including those described above, the project surpassed the 80% annual 12-month retention target for patients on ART. This target was revised upwards to 90% towards the end of the project, and the project came close to realizing this.

With the exit of physical tracing of adult defaulters, CHS developed innovative strategies to prevent defaulting. In addition to the ones discussed above, the project developed
Appointment reminders, treatment buddy system and strengthened partnerships with existing community-based systems.

Return to care counselling and enrolment of chronic defaulters in treatment literacy classes was also strengthened to prevent clients from defaulting further. Close mentorship of service providers by the CHS team and monthly and quarterly monitoring of the appointments and return to care using priority indicators was adopted.

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Peer Education and Support Systems

To uphold the Meaningful Involvement of People Living with HIV (MIPA) and Greater Involvement of People living with HIV/AIDS (GIPA) principles, CHS provided support to 123 peer educators, 42 mentor mothers, 30 adolescent peer educators and 20 Health Care Workers Living with HIV (HCWLHIV) to provide peer support to clients. CHS provided technical support to adolescent mentors and HCWLHIV peer educators while providing both technical assistance and a stipend to the peer educators and mentor mothers. All categories of peer educators were trained in peer education and were meaningfully engaged. In addition, CHS trained 115 peer educators and mentor mothers as service providers in Community Prevention with Positives and 58 in basic counseling skills. This, coupled with regular mentorship, equipped them with necessary skills to provide peer support. They were motivated in providing peer support to other patients, including those newly identified as HIV infected.

KAMAU’S STORY

Nelson Kamau is one very committed peer educator at Thika Level 5 Hospital who has provided exemplary dedication and support to his fellow patients.

“I received significant support when I discovered my HIV status and I wanted to pass on this service to others going through challenging times like I did,” said Kamau in 2014.

Kamau’s HIV status aroused a high level of curiosity in him and he got interested in studying matters related to HIV. In addition to knowledge on peer counselling, he has become acquainted with clinical HIV literature through taking various courses including treatment literacy and integrated HIV management; attending conferences and trainings; and interacting with medical staff. Kamau has dedicated his life to supporting people living with HIV in different capacities.

“This has played a significant role in my vocation and this knowledge is adequate to address any problem that my clients and other groups may have... Working as a peer educator with CHS has opened many opportunities for me besides accomplishing my moral obligation of changing peoples’ lives. I have made a name for myself and gained recognition from other partners who often involve me in facilitating various HIV-related activities.”

Because of his dedication to his peers and his commitment to learning and improving, Kamau was engaged as a Linkage Officer at the same facility, where he continues to help newly identified PLHIV cope with their diagnosis, get enrolled in care and navigate the early days of knowing their status3.

The project meaningfully involved the Peers Educators in tasks such as:

- Treatment literacy
- Defaulter identification and follow up
- Counseling
- Health education
- Client escort and
- Community linkage

CHS held bi-annual meetings with the peer educators and carried out regular mentorship.

**PETER’S STORY**

Peter, a 54-year-old peer educator from Ol Kalau tested positive in 1999 and is still on first line ART and virally suppressed. He is grateful to CHS for the empowerment he has received in the past five years. He says he has well been empowered and has become a beacon of hope to the rest of the PLHIV in Nyandarua County and its environs.

Peter is also a Lay Counselor who counsels a minimum of 13 clients in a day in addition to other activities that he performs such as client escorts, community referrals, health talks, etc.

The project was keen to ensure sustainability not only of the support to the health system, but also to the patients and volunteers. While in the early stages, care and treatment programs focused on the emergency that was AIDS and getting patients just to live, over time, HIV has become a chronic condition with good prognosis if proper treatment is provided and adhered to. This has necessitated support to help PLHIV regain economic independence and to help them provide for their families. While the project funds could not be used to start income generating activities, CHS leveraged partnerships to ensure PLHIV received some financial literacy and could start some income generating activities. For instance, through a partnership with Equity Bank, the project trained 165 peers on savings and on how to start income generating activities. Most of them started with saving as little as Kshs. 500 (US$ 5) per month. Below are three cases of peer educators who started successful small income generating and farming activities that have complimented the volunteer stipend that CHS paid them at the end of every month. This contributes to financial and food security.
ROSEMARY’S STORY

Rosemary, a mentor mother from Ngorongo Health Centre in Kiambu is currently practicing potato and vegetable farming and she also has a successful saloon business.

Mary, a peer educator from Engineer Sub-County Hospital in Nyandarua started her savings with Kshs. 500 that has helped her to start poultry and rabbit farming. She currently has 100 chicken and eight rabbits. She also grows vegetables and passion fruits for sale.
JULIA’S STORY

Julia, a peer educator from Ruiru has been volunteering at Ruiru Sub County Hospital since 2012. The empowerment she received from CHS enabled her to become a mentor to other PLHIV.

Julia has started a salon that she supports on her days off. The income she gets from the business has complimented her monthly stipend, which has enabled her to educate her three children. Her first born is currently in Form Four and she has a school fees savings account for her two younger children.

Community Support Systems

CHS put in place systems to strengthen linkages between the health facilities and the community. This included developing a referral directory, referrals tools and registers to support and track linkages to the community.

CHS engaged Vision Garden community-based organization (CBO) in Nyeri, to carry out several community based activities. By the end of the project period, the CBO had reached 36,196 people during community mobilization activities. Some 1,010 clients in the community were referred for various health services, out of whom 979 were confirmed to have reached various health facilities and received the services they were referred for. The CBO played a vital role in strengthening linkages between health facilities and the community in Mukurweini Sub-County.

This was done through various linkage meetings at community and health facility levels reaching 6,911 people in Year Five after introduction of the activity in the same year. For instance, the CBO identified 123 defaulters in the past two years, followed up on all, of whom 96 returned to care, eight were confirmed to have died, 14 were out of control, while five were confirmed to have self-transferred out. A total of 79,458 condoms were distributed by the CBO in three years. The CBO also supported a children’s psychosocial support group of 19 members, a youth group of 45 members, an adolescents’ group of 36 members, a recovering alcoholics’ group of 40 members and a young mothers’ group of 42 members. Some 283 adult clients are active in community based support groups, out of whom 144 have income generating activities and 60 have joined the Voluntary Savings and Loaning program aimed at empowering them to be self-dependent.
Community mobilization activity with focus on good hand washing practices

Table banking by the CBO members as a sustainability strategy

**Capacity Building of Health Care Workers**

The project continuously built the capacity of HCWs to provide adherence, retention and psychosocial support services through mentorship, on-job and formal training. By the end of the project, 404 HCWs had been trained in adolescent psychosocial support, 30 as NHITC TOTs in the social worker track, and 120 as NHITC service providers in the social worker track. In addition, 64 had been trained in treatment adherence including that of children and adolescents. CMEs and sensitizations covering various topics such as adherence support,

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counseling skills, adherence support, adolescent support, workplace HIV policy, stigma and discrimination, IPT adherence and Positive Health Dignity and Prevention, reached over 2,500 health care workers.

Nyeri County Referral, Karatina Sub County and Murang’a Country Referral Hospitals were among the facilities identified nationwide to pilot PHDP documentation and reporting tools. Karatina Sub County Hospital was honored by NASCOP to host a team from Botswana that came to learn PHDP systems. The table below shows PHDP service coverage in HIV clinics as at December 2016.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total number receiving the services</th>
<th>% Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active patients above 15 years</td>
<td>32,453</td>
<td></td>
</tr>
<tr>
<td>#PLHIV receives adherence counseling</td>
<td>23,690</td>
<td>73%</td>
</tr>
<tr>
<td>#PLHIV disclosed to sexual partner</td>
<td>25,637</td>
<td>79%</td>
</tr>
<tr>
<td>#sexual partners tested for HIV</td>
<td>22,068</td>
<td>68%</td>
</tr>
<tr>
<td>#PLHIV screened for STI</td>
<td>25,313</td>
<td>78%</td>
</tr>
<tr>
<td>Female PLHIV on modern contraceptive</td>
<td>14,499</td>
<td>68%</td>
</tr>
<tr>
<td>#PLHIVs provided with condoms</td>
<td>23,366</td>
<td>72%</td>
</tr>
<tr>
<td>#PLHIVs meeting minimum package (adherence + any 2 above)</td>
<td>23,690</td>
<td>73%</td>
</tr>
</tbody>
</table>

**National Level Support**

The project was represented in several TWGs including those on PwP, community HIV, and adolescent services. Through this, CHS participated in the development of several national materials to support adherence and retention activities among them the support group standard operating procedures, defaulter tracing SOPs, adolescent and pediatric tool kit, home based care materials, caregivers’ treatment literacy materials and teacher’s guide to support learners living with HIV in schools. CHS also participated in the PEPFAR gender meeting and in the fast track planning for Laikipia and Murang’a Counties.
Prevention of Mother to Child Transmission of HIV (PMTCT)

The focus of the project in this area was to provide requisite care to HIV infected pregnant women and reduce mother to child transmission of HIV (MTCT), coupled with early diagnosis of infant infection and linkage to ART. The project also supported prevention of unintended pregnancies among women living with HIV (WLHIV) and the provision of care to the woman’s family, the second, third and fourth prongs of prevention of mother to child transmission of HIV (PMTCT).

The project goal for PMTCT was to provide a comprehensive package of care to all supported facilities to ensure that all pregnant and breastfeeding HIV-infected women received lifelong antiretroviral for their own health and for prevention of transmission of HIV infection to the infant (in the first two years of the project, guidelines provided for lifelong ART or ARV prophylaxis based on immunological and clinical criteria; later the guidelines were revised to provide for lifelong ART for HIV infected pregnant and/or lactating women). In addition, this project aimed to ensure that all HIV exposed infants received infant prophylaxis, received early infant diagnosis services and were retained in care for up to two years to assess HIV transmission rates.

CHS had a target to provide counseling and testing services to 291,522 pregnant and postnatal women and provide ARV prophylaxis and treatment to 13,922 HIV-infected pregnant and breastfeeding women, and issue 12,411 of them with infant prophylaxis. In addition, the project sought to ensure that HEI received early infant diagnosis services.

The project tested 260,310 pregnant women, identified 9,521 as HIV infected, provided ARVs to 7,981 of them and to 7,077 of their infants. Using various strategies, the project saw a significant decline in MTCT, from almost 12% at baseline to 4% at project-end.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Achievement</th>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mothers receiving HIV testing and counseling in ANC</td>
<td>291,522</td>
<td>260,310</td>
<td>89%</td>
</tr>
<tr>
<td>Number HIV positive mothers</td>
<td>14,194</td>
<td>9,521 (3.7% yield)</td>
<td>67%</td>
</tr>
</tbody>
</table>
### Indicator Table

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
<th>Achievement</th>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number issued maternal ARVs</td>
<td>13,992</td>
<td>7,981</td>
<td>57%</td>
</tr>
<tr>
<td>Proportion of identified mothers issued maternal prophylaxis</td>
<td>90%</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>Number issued infant ARVs</td>
<td>12,411</td>
<td>7,077</td>
<td>57%</td>
</tr>
<tr>
<td>Proportion of identified mothers issued infant prophylaxis</td>
<td>90%</td>
<td>74%</td>
<td></td>
</tr>
</tbody>
</table>

While the project tested almost 100% of women attending ANC, the set targets were not met partly due to lower numbers attending than targeted. Further, the project saw a lower yield (positivity) than anticipated, hence fewer women testing positive. Though performance in maternal and infant prophylaxis coverage was poor in the first two years, it improved significantly in the last three years of the project as seen in the graph below, achieving close to universal coverage. Over the years, CHS worked with facilities to increase coverage of HIV testing services to improve identification of HIV infected women and provision of highly active antiretroviral therapy (HAART) to women identified as HIV infected.

While the absolute numbers of women identified and issued with maternal and infant prophylaxis fell, the quality of services increased with prophylaxis rates averaging 98% in the last three years of the project as seen below.
Through the Tegemeza project, CHS initially worked with 191 facilities which were later scaled down\(^4\) to 104 facilities in five counties of Central Kenya and has contributed to reducing illness and death associated with pregnancy and child birth and towards reduction of MTCT. This has been through scale-up of PMTCT services across supported facilities, support for human resources for service delivery in facilities, HCW training, strengthening community linkages and psychosocial support aimed at eliminating MTCT.

In the first year of the project, CHS introduced the PMTCT package of care at 191 health facilities in Murang’a North and South, Nyeri North and south, Nyandarua North and South Districts and Kiambu East and west Districts. This process was initiated through the support of roving Clinical Officers, district wide sensitization meetings to introduce the package of care, provision of equipment and other tools as needed. Roving Clinical Officers helped set up PMTCT services including by prescribing ART and mentoring nurses in MCH settings. This was then followed by setting up of systems for transporting samples for CD4 testing from peripheral facilities to central processing labs, ensuring that all facilities provide ARV prophylaxis and treatment/prophylaxis for HIV infected mothers and their infants, establishing systems for early infant diagnosis and for retention of mother-baby pairs in care. As part of its retention system and in line with greater/meaningful involvement of PLHIV, by the end of the project, CHS was supporting 42 mentor mothers to provide peer education and contribute to psychosocial support to HIV infected pregnant women, their infants and family members.

**HIV Testing in MCH and Maternity Settings**

The project supported testing of pregnant women at ante-natal care (ANC) clinics, as well as those accessing labor, delivery and post-natal services, including in the breastfeeding period as they brought infants to child welfare clinics. This support included technical (mentorship, and quality improvement services as described in the HTS section above), infrastructural and

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\(^4\) At the beginning of PY03, PEPFAR provided guidance to transition support of low volume health facilities to counties. These were largely facilities that had identified less than 5 HIV infected patients in a year.
human resource support. Job aids and tools were provided. Providers participated in EQA and those needing remedial action received it. Further, data and chart reviews were conducted to improve service uptake.

As guidelines changed to emphasize repeat testing in post-natal settings, CHS implemented this; some clients were identified in the lactating period and placed on ART. Below is a snapshot showing numbers identified in PNC vs other settings in the second half of Year Five (April-September 2016).

### HCW Capacity Building

To increase skills and knowledge of HCWs to provide quality PMTCT and ART services including monitoring of HIV infected women and members of their families who could be HIV infected, CHS invested in building capacity of health care workers in the following areas:

- **Over the years,** 60 HCWs were trained in PMTCT, over 150 trained using the harmonized national HIV training curriculum, 55 in HEI cohort analysis, 86 sensitized in maternal perinatal death surveillance and response (MPDSR), and hundreds in PMTCT and in the new guidelines. All trainings were conducted through national, county and sub county level TOTs to ensure ownership, sustainability and quality of service
- **Continuous dissemination of national guidelines, policies, strategies, standard operating procedures and recommendations as they were released,** through facility-, sub county- and county-based CMEs
- **On the job training for health care workers especially in skills based training such EID procedures and HIV exposed infant (HEI) cohort analysis (HCA)**
- **Mentorship and coaching of health care workers during regular facility supervisory and mentorship visits**
- **In addition to the above,** CHS also supported residential mentorship for 26 nurses and 16 clinical officers at the Murang’a County Referral Hospital. This mentorship covered PMTCT among other clinical areas

### Male Engagement in ANC/PMTCT Services

In collaboration with ICAP, CHS trained 15 nurses and three social workers in high volume facilities on male involvement. This male engagement model aimed at equipping health care
workers with knowledge and skills to engage and train men on fatherhood and their roles and responsibilities to their wives/partners and children during and after pregnancy. These targeted men whose partners were attending ANC services at selected services regardless of their HIV status. Men were encouraged to accompany their wives to ante-natal and post-natal clinics, to get tested for HIV with their partners, to ensure consistent use of condoms to prevent sexually transmitted infections (STIs) and plan to ensure safe hospital delivery. They were also encouraged to promote a healthy diet for their partners during pregnancy and lactation, advocate for six months of exclusive breastfeeding for their babies, plan their families through available methods of contraception and ensure that their partners and babies took their medication if they are HIV positive. HIV testing was offered during the training.

The training modules were delivered every two weeks. This program was informed by the low level of engagement of men in pregnancy and related health services in the country and in Central Kenya. Some 51 men successfully went through this training at six facilities with impressive outcomes. Quite a few became more engaged in the care of their partners, with some calling HCWs whenever their partners experienced symptoms. One of them, Peter Ndirangu from Nyahururu, had previously engaged relatives to take care of his wife upon delivery. After going through the training, he took it upon himself to do this; he also supported her during pregnancy, accompanying her for ANC appointments and ensuring she had a balanced diet. He said:

“Since my wife gave birth, I do everything in the house including cleaning, taking care of the children and taking them to school…. I like it that my wife and family are happy. Coming for this training has been a great gain for me unlike for others who may consider it as a waste of time.”

Peter Ndirangu, Male Involvement Graduate, Nyahururu Hospital

Male partners at Nyahururu Hospital undergoing a training session
Mentorship

CHS supported the provision of quality services through on-site training and mentorship across all supported health facilities. The focus of mentorship throughout the project period was to build the capacity of HCWs to provide ART, counseling on infant nutrition in the context of HIV, monitor pregnant women and perform timely infant testing. There was continued support for documentation and reporting of PMTCT services leading to significant improvements in reporting of maternal and infant prophylaxis. This was done through data review, CQI, mentorship and CMEs. In addition, CHS conducted several CMEs in facilities and counties on elimination of mother to child transmission (eMTCT) service goals focusing on facility-based implementation services where over 600 HCWs were reached. Improving early infant diagnosis services was an area of focus for the project. This involved introduction of the new EID algorithm, improving follow-up of HEI and linkage of the HIV DNA PCR positive infants to HIV care and treatment for prompt ART initiation. In addition, facilities were supported to access PCR results through email and the NASCOP EID web based system.
Quality Improvement

To enhance quality of PMTCT services, standards of care were defined and measurements conducted in PMTCT sites. Results and plans for improvement of poorly performing indicators were discussed with HCWs and plans implemented. CHS collaborated with county health management teams to improve MNCH services within the counties through the formation of MNCH/eMTCT taskforces which oversaw the quality of MNCH service delivery and quality of MNCH/eMTCT reporting.

Over the years, CHS supported joint supportive supervision activities with the county and sub county health management teams.

Continuous quality improvement was embedded in technical assistance and service provision. CQI indicators were developed based on the standard package of care and reviewed as guidelines changed. This helped ensure quality of services improved and missed opportunities minimized, as seen in the service delivery chart above. The graph below on the uptake of HEI services in October-December 2016 is evidence of quality services. This is followed by a graph showing steadily improved retention of HEI.
### Trends in HEI retention at 18 months 2013-2016

- **2013 (Net cohort 157)**
  - Active: 79%
  - LTIFU: 4%
  - Dead: 17%

- **2014 (Net cohort 1054)**
  - Active: 64%
  - LTIFU: 13%
  - Dead: 13%

- **2015 (Net cohort 364)**
  - Active: 88%
  - LTIFU: 9%
  - Dead: 9%

- **2016 (Net cohort 975)**
  - Active: 90%
  - LTIFU: 7%
  - Dead: 2%

90% HEI Retention
Treatment Monitoring

As part of treatment monitoring and ensuring pregnant women achieve viral suppression the project rolled out viral load registers in MCH departments at all supported high volume facilities. These registers assisted HCWs to track samples collected and assess viral suppression. While some system challenges were experienced such as long turnaround times, loss of samples, loss of results, viral load equipment down-time and sample transportation challenges, CHS put in place measures to address these, with significant improvements reported. Data has shown over the years that viral load coverage and suppression rates among pregnant and post-natal clients have been improving.

The graph below shows a snap-shot of the viral load coverage and viral suppression among PMTCT clients during Q4 of Year Five (July-September 2016). Viral load coverage was like that of other adult patients, with a comparable suppression rate. Whenever non-suppression was identified, the patients received similar support to that described in the treatment and adherence sections above.
Integration of Family Planning Services

To strengthen prong two of the PMTCT comprehensive package which aims to reduce unintended pregnancies among HIV infected women who have a desire to either delay a pregnancy or not get pregnant access contraceptive services, the project promoted the uptake of family planning among HIV infected women. This was done by integrating FP services into HIV treatment and care services with a focus on ensuring both short and long acting methods were available at the comprehensive HIV care centers. By the end of the project period, 51 out of the 67-supported care and treatment centers were providing both short and long term FP services, while the remaining provided short term methods. FP rates among HIV infected women attending services in supported facilities was at 78% by March 2017. The project also integrated HIV testing services in all FP clinics across 105 facilities.

Through the Tegemeza project, CHS built the capacity of health care workers to provide FP services more so the long acting and reversible contraceptives through training and mentorship to increase uptake of FP among HIV infected women. This was specially aimed at minimizing unplanned pregnancies among known PLHIV, who made up majority of all PMTCT clients in the early part of the project (compared to those newly diagnosed in ANC). Some 153 HCWs were trained in long acting and reversible contraceptive methods. In addition, the project supported this process through: infrastructure improvements such as renovations and provision of equipment (such as examination lights, insertion kits, examination couches), and mentorship, among others. The use of implants among PLHIV more than doubled over the years while IUCD insertion rates steadily increased.
Retention of HIV Infected Pregnant and Lactating Women

Strategies were put in place to retain both newly diagnosed HIV infected pregnant women and women living with HIV who become pregnant. Data showed a higher retention rate among women who were known positive compared to those newly diagnosed; therefore, efforts were redoubled to this end.

Kenya Mentor Mother Program Implementation: The Tegemeza project partnered with Mothers2Mothers Kenya to roll out the Kenya Mentor Mother Program in 25 high volume facilities beginning in Year Two. During the year, 28 mentor mothers were trained on the Kenya Mentor Mother Program using the new mentor mother training curriculum. Mentor mothers worked alongside HCWs in MCH to provide peer education and psychosocial support to other HIV infected women to improve PMTCT outcomes particularly adherence and
Retention. By the end of the project period, 42 mentor mothers were providing much needed peer support to other patients.

**HIV Exposed Infants Cohort Analysis and Early Infant Diagnosis**

Through the support of CDC, the project rolled out HIV exposed infants cohort analysis to all supported facilities. Training was county based and targeted Nurses, Clinical Officers and Health Records Information Officers from the facilities, sub counties and counties. This training enabled facilities to analyze, improve services and report outcomes related to HIV exposed infants under their care.

By the end of the project, all facilities had systems to identify, diagnose and follow up HIV exposed infants though some went for long periods with no HIV infected mothers identified due to the low HIV prevalence in the region despite excellent HIV screening of expectant and postpartum mothers. CHS continued to strengthen systems to ensure improved turn-around time for PCR results through SMS printers, web-based systems, email and telephone. Cumulative outcomes for infants assessed over the years are shown below: those in the first two years were not part of the analysis.

At the end of the project, HEI outcomes for the latest cohort analyzed (infants born Oct-Dec 2014) show a decline in MTCT and loss to follow up (see graph below).
Trends in HEI positivity (confirmed MTCT) remained steady at <4%. The graph below shows this trend by time of confirmation of infant infection. HEI confirmed infection rates have remained below the 5% target MTCT rate for breastfeeding populations such as that served by the program.

National Level Support

CHS participated in PMTCT, FP, MNH and nutrition technical working group meetings including participation in reviewing the national family planning guidelines to align them to emerging needs and to the revised medical eligibility criteria for FP released by WHO. CHS participated in the review of the RH/HIV integration toolkit, the development of the first and
second edition Kenya Mentor Mother program guidelines, the second edition eMTCT framework, the fifth edition family planning guidelines, the yet to be launched PMTCT guidelines as well as the first post-natal care guidelines.

CHS also participated in the national eMTCT stock taking meeting which focused on identification of gaps in PMTCT service delivery and data reporting, coming up with county specific strategies to ensure that the Kenya targets of elimination of mother to child transmission of HIV were achieved by end of 2015. As a follow-up to the eMTCT stock taking meeting, CHS alongside other implementing partners supported eMTCT strategy meetings for Kiambu and Laikipia counties whose objectives were to review PMTCT performance in the county, identify both implementation and data gaps and chart a way forward to ensure that the counties achieve their eMTCT targets. CHS conducted joint site support supervisory visits with the County and sub-County Health Management Teams.

CHS also participated in the national orientation for the ‘Bring Back Our Women’ campaign and subsequent county orientation meetings in supported counties. This aimed at addressing missed opportunities for prophylaxis and treatment of mothers and their infants.

**Broader Maternal and Neonatal Health Support**

In support of PMTCT and broader MNCH services, CHS also participated in the launch of the Beyond Zero campaigns across the five supported counties.

*Implementing partners including CHS Chief Executive Officer, Dr Paul Wekesa) and CHS Director of Programs, Dr Frida Njogu-Ndongwe pose with the First Lady during a Beyond Zero mobile clinic launch*
The CHS team briefs the First Lady on CHS support for eMTCT and keeping mothers alive

Group Photo with the First Lady of the Republic of Kenya

End of Project Report - TEGEMEZA Project
**Tuberculosis (TB)**

TB is the leading cause of mortality among PLHIV. In the region, about a third of TB patients are HIV co-infected, a lower co-infection rate than the national average. The project had a task to reduce TB mortality and morbidity among PLHIV, which also necessitated action on all cases of TB, with or without HIV. The project therefore supported TB/HIV collaborative activities as well as other broad TB activities to this end.

The project had a target to ensure 95% of PLHIV receive TB screening at each visit, 95% of TB patients receive HIV testing, and of those infected, 95% are placed on ART, and that PLHIV without TB are placed on IPT. IPT was rolled out Year Four.

- **100%** Co-infected Clients on ART
- **87%** IPT Coverage

Over the project period, there was improvement in all these services. By the end of the project, for instance, 100% of co-infected patients were on ART. Performance is shown in the graph below. In addition, IPT services were provided with 87% coverage at the project end.

The project employed varied strategies to reduce the burden of TB among PLHIV and by extension in the community. The project supported the implementation of the 5Is (Intensified case finding, IPT, immediate HAART for the TB/HIV co-infected, infection prevention and control and TB/HIV integration) across supported facilities. It also strengthened management of childhood TB and drug resistance TB surveillance and management.
At the beginning of the project, CHS supported TB services at 44 facilities. This was scaled up alongside ART services to 23 extra treatment sites. In addition, some components were supported including the ICF, IPT and ART for the co-infected in PMTCT settings.

Support was provided through intensive mentorship, chart reviews, training, provision of job aids, exchange visits, quality assessments and improvement, and support for MoH leadership, among others. During the project period, 444 HCWs received training in TB-related courses including programmatic management of drug resistant TB, pediatric TB, and AAFB testing, while 1,789 were sensitized on various TB material/ CMEs. We also procured/printed and distributed job aids, copies of guidelines and tools, buffer M&E tools, and waste disposal bins, among others.

**ART for TB Patients**

One of the key TB/HIV collaborative activities supported by the project was the provision of ART for co-infected patients. The project supported this activity through mentorship, microteachings, CMEs, training and others, coupled with data and performance review. This sustained support saw the performance of this indicator rise and remain high, with ART coverage at 100% by project end (see graph above) for both adults and children.

**Case Finding**

Case finding was supported among PLHIV throughout the life of the project. Mentorship and chart reviews were conducted alongside quality improvement exercises. This was focused on ensuring all PLHIV receive proper TB screening at each visit, leading to timely diagnosis. The project provided buffer ICF tools when needed and TB screening algorithms, among other job aids and trained and mentored HCWs on TB investigation including interpretation of X-rays and clinical assessment of children. Through this support, the project met TB ICF targets through most of the project period.

To strengthen TB case finding and improve general management of chest conditions, 30 HCWs were trained in practical approaches to lung health (PAL). Further, mentorship and tools were provided to supported facilities to aid HCWs with TB screening among HIV patients in the CCCs, wards and MCH clinics, and 2,000 x-ray films provided to boost diagnosis of TB, with facilities that have no machines linked to central sites. In addition, contact tracing registers were developed and availed at all TB clinics and mentorship done on their use to ensure that contacts of smear positive TB patients were screened for TB.

CHS developed, printed and distributed presumptive TB registers to track patients with presumptive TB until a definitive diagnosis was made. Once the NTLD-Program developed registers, CHS adopted these minimizing leaks along the diagnostic cascade.

Through the project, HCWs serving in diabetes clinics were sensitized to screen patients for TB as they too are at higher risk of developing TB.

In Year Five/extension period, two facilities (Thika Level 5 Hospital and Nyeri County Referral) were chosen by the NTLD-Program for a pilot of active case finding targeting all patients seeking care. Active case finding was informed by findings of the just-concluded TB prevalence survey showing that 40% of TB cases in Kenya go undiagnosed; most of these asymptomatic and among HIV uninfected persons. CHS supported this through sensitization, availing of presumptive TB registers to all departments and continued mentorship of HCWs.
In addition, to support active case finding, during the six-month extension period, the project sensitized HTS providers to screen people accessing HTS services for TB, providing job aids to guide this. This helped reach many more patients than previously screened, and hopefully contribute to earlier diagnosis.

**GeneXpert Diagnosis**

The project also supported the roll-out of the GeneXpert diagnostic infrastructure through sensitization of users, specifically Clinicians to improve demand for Xpert; provision of job aids; and setting up and operationalizing of sample referral networks and results feedback systems. Facilities transported samples daily to minimize diagnostic delays. By project-end, seven supported facilities were Xpert diagnostic sites, and all 104 facilities were linked through referral networks with the project supporting same day email and SMS transmission of results.

In Year Five, 10,842 Xpert tests were done, with 600 MTB positive and 24 Rifampicin Resistant.

**Isoniazid Preventive Therapy**

Isoniazid is useful in the prevention of TB, and is recommended among various groups at risk of developing TB disease including PLHIV, children exposed to smear positive PTB and inmates. While this had been recommended in the guidelines by the beginning of the project, official launch of the IPT program for PLHIV (and accompanying availability of commodities) took place in early 2015 (mid-Year Four). However, Tegemeza had started low-scale IPT use in some facilities before this. Upon launch in Year Four, CHS disseminated guidance rapidly resulting in a peak in IPT uptake a few months later. However, this effort was soon hampered by commodity stock-outs, especially pediatric commodities. In response, the project procured Isoniazid and resumed provision. Later in Year Five, the national program addressed the shortage. The Tegemeza project supported provision of IPT for children below the age of five years exposed to smear positive TB.

Provision of IPT was also supported through guideline dissemination, sub-county level CMEs, provision of job aids and engagement with the NTLD-Program to ensure commodity availability. By the end of the project, IPT coverage was at 87%.
This process has not been without challenges, with some cases of severe hepatotoxicity and at least one confirmed fatality arising from this in Murang’a. The project however continued to sensitize HCWs on early identification, management and reporting of toxicities.

**TB/HIV Integration**

One of the 5 Is of TB/HIV collaboration, integration ensures patients receive services centered on them. The Tegemeza project supported integration by ensuring patients accessed HIV and TB services in a one-stop shop. While the HIV and TB clinics are co-located in many low volume health facilities (with services scheduled at different times/different days), this is not always so in large facilities. In these large facilities, ARVs were availed in TB clinics and TB clinic staff trained to ensure co-infected patients received all services there until completing TB treatment, at which time they returned to the HIV Clinic. Services were integrated in all CCC sites. This helped improve treatment adherence and retention.

**Infection Prevention and Control (IPC)**

The project invested significantly in TB IPC through sensitization of health managers and HCWs on IPC, identification of IPC focal persons, setting up of IPC committees and/or integration of TB IPC activities into facility general IPC committees, development and monitoring of the implementation of facility IPC work plans, and procurement of some IPC materials.

Recently, Nyeri County Referral Hospital conducted HCW TB surveillance where two HCWs were found to have TB and initiated on treatment.

Some infection prevention and control measures required renovations and repairs. The project supported some repair work in facilities such as Kirwara Sub County Hospital in Murang’a, Engineer Sub County Hospital in Nyandarua and Ruiru and Gatundu Sub County Hospitals in Kiambu to expand TB/HIV clinics and improve ventilation and air circulation.
The importance of TB IPC cannot be over-emphasized. The story of Naomi Wanjiru, a Tegemeza-supported HCW at Engineer Sub County Hospital is one of courage. She worked at the TB Clinic, and was diagnosed with spinal TB, with significant complications that necessitated surgery. Upon recuperation, she did not shun care for TB patients but returned to offer services to those same patients\(^5\). CHS nominated her for the prestigious Kochon Prize for her contribution to the fight against TB. She was one of the winners of the 2015 Kochon Prize.

\(^5\) Naomi’s story of her courageous battle against TB of the spine can be found at https://www.chskenya.org/media_centre/my-battle-against-tb-nurse-naomi-wanjiru-story/
Prize, which was awarded in Cape Town, South Africa\(^6\). She has now become a goodwill ambassador, using her newly acquired position to help fight TB in other parts of Kenya as well\(^7\).

![Naomi Wanjiru (Far Right) with other awardees of the 2015 Kochon Award receive their awards in Cape Town, SA](image)

**DR TB Support**

By the beginning of the project, there were fears that many cases of DR TB including MDR TB in Kenya were undiagnosed. Around this time, GeneXpert diagnostic infrastructure was being rolled out nationally. The main method of diagnosis of DR TB was through culture, done at the National TB Reference Laboratory (NTRL). Capacity of HCWs to diagnose and manage DR TB was very limited.

The project supported the training of 200 HCWs in programmatic management of DR TB, and sensitizing a further 60 on the new short term DR TB regimens. Further, the project supported counties set up county clinical DR TB review teams, and provided technical and logistical support to conduct monthly clinical reviews of all patients with DR TB. This contributed to improved capacity to manage DR TB, and provided a holistic and multi-disciplinary system for the same. This model was commended by the WHO’s Green Light Committee and has seen very high treatment success rates, at about 89%. The Green Light Committee team had this to say\(^8\) after their visit of Murang’a CRH where they found this practice:

\(^6\) More details about her Kochon Prize award can be found at [https://www.chskenya.org/media_centre/chs-supported-nurse-naomi-wanjiru-wins-2015-kochon-prize/](https://www.chskenya.org/media_centre/chs-supported-nurse-naomi-wanjiru-wins-2015-kochon-prize/)

\(^7\) See how she supported a child with debilitating TB of the spine in Kwale at [https://www.chskenya.org/media_centre/good-turns-that-change-lives-nurse-naomi-wanjiru-gives-back/](https://www.chskenya.org/media_centre/good-turns-that-change-lives-nurse-naomi-wanjiru-gives-back/)

\(^8\) More on the Green-Light Committee visit of Muranga CRH and their findings can be found here [https://www.chskenya.org/media_centre/green-light-committee-applauds-chs-supported-facility/](https://www.chskenya.org/media_centre/green-light-committee-applauds-chs-supported-facility/)
“Kenya is the only country among the 47 we have visited in Africa that has this outstanding practice of bringing together Drug-Resistant TB (DR TB) patients and their health care workers.”

A Lab Technician at Murang’a County Hospital takes GLC Head of mission Dr Wilfred Nkhoma, Dr Saidi Ewagga also from GLC and Titus Kiamba of CHS through the Lab records.

From right: GLC Head of mission Dr Wilfred Nkhoma, TB ARC Deputy Chief of Party Dr Lorraine Mugambi, Dr Saidi Ewagga also from GLC and Dr Kahura of Murang’a County Hospital during the clinical review meeting at Murang’a County Hospital

End of Project Report - TEGEMEZA Project
Childhood TB

TB in children is often a hidden epidemic, with many presenting asymptomatically and therefore receiving a late diagnosis, if at all. Further, treatment has meant poly-pharmacy, until recently when child-friendly formulations were launched in Kenya.

To support diagnosis and management of childhood TB, the project sensitized 472 HCWs on the revised pediatric TB guidelines, trained 120 on childhood TB, and sensitized 678 on the new child-friendly formulations. Further, the project has supported tracing of household (and recently, schools and a children’s home) contacts of smear positive PTB, and provision of IPT to those contacts under the age of five screening negative for TB.

The project provided job aids, guidelines and tools to support this, and aggressively sensitized health care workers on the use of Xpert for pediatric TB diagnosis, including holding sessions on pediatric sputum sample collection.

National and County Level Support

The project was actively engaged at national level through membership of various TWGs of the NTLD-Program and NASCOP including TB/HIV, pediatric TB, core DOTS, TB M&E, PMDT and IPT technical working groups. CHS also participated in development of an implementation framework for IPT, in the review and finalization of Drug Resistant TB and Pediatric TB guidelines, development of a harmonized TB curriculum and in the development of the presumptive TB registers.

CHS helped establish and provided continued support for the county TB/HIV taskforces that met on quarterly basis. These task forces focused on improving TB/HIV collaborative activities and have helped increase ownership and promote sustainability of TB/HIV activities. The TWGs introduced TB/diabetes task forces to monitor and integrate TB screening in diabetic clinics.

Further, CHS supported World TB day in the five counties with a theme in the last two years of Mulika TB Maliza TB (Find, Treat and Cure TB). The aim was to intensify TB case finding in health facilities.
Laboratory Support

CHS supported laboratory systems to ensure availability of quality HIV, TB and related diagnostic and monitoring services. These tests included HIV tests, GeneXpert for TB diagnosis, CD4 testing, viral load testing, DNA PCR for early infant HIV diagnosis, and cryptococcal antigen, among others. Early in the project, this support included biochemistry and hematology monitoring tests as well as Kaposi’s sarcoma biopsy and histology. The aim was to make sure that patients received timely testing and that their results are received promptly. Support led to improvement of viral load uptake and minimized missed opportunities. CCC satellite laboratories/phlebotomy departments at Thika Level 5 and Murang’a County Hospitals were/are model sites.

Capacity Building

Over the project period, CHS provided targeted capacity building of facility laboratory staff in different technical areas including AFB microscopy, HIV proficiency testing, and biosafety and biosecurity helping ensure compliance to national standards as well as improved service delivery. Mentorship of staff in 67 laboratory sites on preparation and implementation of standard operating procedures led to 100% availability of the SOPs in Year Five.

CHS mentored and supported 25 Sub County Medical Laboratory Coordinators (SCMLCs) and five County Medical Laboratory Coordinators (CMLCs) on RTK commodity management including proper reporting which led to improvement of reporting rates from 50% to over 98%, and thus improved commodity management. Kiambu, Murang’a, Nyeri, Laikipia and Nyandarua counties adopted quarterly county RTK commodity data review meetings, providing a learning platform.
Infrastructure Support
To enhance delivery of quality HIV services, CHS supported the renovation of the Nyahururu CCC laboratory. This was aimed at decongesting the main laboratory and supporting more facilities within the larger Nyandarua and Laikipia regions to access HIV laboratory services from Nyahururu County Referral Hospital.

Commodity Management
To ensure uninterrupted provision of HIV related diagnostic and monitoring services, the project supported health facilities with buffer stocks for laboratory consumables including, EDTA tubes, CrAg kits, cryovials, yellow tips and cryovial markers to supplement the national supplies thus ensuring uninterrupted service provision. In the first two years of the project, support was also provided for biochemistry and hematology reagents; this function was transitioned to counties as PEPFAR funds became focused on HIV-specific tests. CHS has been providing monthly internet bundles to CMLCs and SCMLCs to support online uploading of laboratory reports for RTK, CD4, GeneXpert commodities and workload reports. In the final year of the project, CHS supported county-level RTK quantification meetings to improve the capacity and quality of reporting and quantification, with the aim of improving RTK commodity security. This was informed by frequent stock outs and some instances of inaccurate reporting and/or quantification of needs.

Sample Referral Networks
CHS set up and supported sample referrals networks within Kiambu, Murang’a, Nyeri, Nyandarua and Laikipia counties for delivery of quality HIV care services. The referral system supported CD4 testing, HIV viral load testing, Kaposi’s sarcoma testing, and cryptococcal antigen testing at all HIV care and treatment as well as PMTCT facilities. Facilitation of human couriers to deliver samples to hub/testing sites ensured prompt access of labs services, and improved turnaround time. This support included provision of SOPs to guide sample referral; provision of cooler boxes, freezers and centrifuges; and funds for the couriers.

National Level Engagement
Representation of CHS at the national level in the HIV commodity security, viral load testing, and point-of-care national TWGs ensured that staff were well updated on new operational strategies and that the organization receives visibility. Through this membership, the project contributed to the development of documents such as The National HIV Viral Load Testing Scale-Up Strategic Implementation Plan and A Guide to Implementing Point of Care for HIV Programs.

Equipment Support
Service Contracts
Early in the project, CHS supported 17 hematology and biochemistry machines with annual service contracts that ensured minimal equipment downtime. The Tegemeza project also supported the improvement of public health facilities towards ISO 15189 accreditation. Thika Level 5, Murang’a, Karatina, Nyeri, Nyahururu and Ol Kalou Hospital laboratories are currently enrolled in the Strengthening Laboratory Management Towards and Accreditation (SLMTA)
and have demonstrated different levels of improvement\(^9\). After streamlining of PEPFAR’s support, the counties were requested to take up maintenance service contracts.

**Equipment Supply**

The project supported health facilities with various equipment including chest freezers, refrigerators, and centrifuges, among others. This improved laboratory services and particularly viral load sample management and ensured sample rejection rates of less than 0.5%. The project also procured and installed two room air conditioners at Thika Level 5 Hospital and Nyeri County Referral laboratories in preparation for installation of viral load testing machines; this is expected to further streamline patient treatment monitoring in the region and improve result turn-around-times. In addition, CHS procured cooler boxes to aid sample referral and computers to strengthen lab management information systems in high volume facilities.

**Laboratory Documentation**

In collaboration with the counties, CHS supported the development and implementation of different laboratory tools that improved documentation. The tools include: VL sample tracking logs, VL sample manifests, kits/reagents quality control templates and personnel training matrix templates. The tools were adopted by the counties for continued use.

**Quality of Services**

To ensure quality of laboratory services, the project trained 15 laboratory staff as TOTs in the National HIV Integrated Training Curriculum. Another 30 HCWs were trained in AAFB testing. Further, the project supported health facilities to develop various laboratory SOPs to guide various operations.

\(^9\) A different partner now supports this
Pharmacy and Supply Chain

The project’s focus in this area was ensuring the availability of ART and related commodities, good dispensing practices, and support for clinical care. Support for commodity management included HCW training (with 27 HCWs trained in commodity management), roll out of the ADT and later the Web ADT (alongside requisite training of HCWs and provision of computers), expansion of central sites to improve ART commodity management and continued mentorship of HCWs on pharmacy best practices with a focus on good documentation practices, effective management and rational use of ART commodities. CHS played an important role in decentralization of pharmaceutical management services in a role executed jointly with then DHMT members. Decentralization was achieved in Thika, Gatundu, Nyeri North, Nyeri South and Nyandarua districts and later Murang’a County. A Google-group system used for stock rotation between facilities ensured that there were minimal stock outs, expiries and wastage. The project also procured and distributed expiry tracking tools and where needed, LMIS tools. Some 15-pharmacy staff were trained as ToTs in the pharmacy track of the NHITC. IPT pilot programs in Year Two (long before the national roll-out in Year Four) at Gatundu, Othaya, Nyeri Provincial General and Mukurweini hospitals were supported through strengthening of commodity flow systems, provision of job aids and on-site mentorship on commodity reporting. This helped the project scale up successfully once the country rolled out IPT in Year Four.

In its initial years, the project supported a Kaposi’s sarcoma management program including procurement and training of HCWs on safe administration of triple chemotherapy. CHS supported Kaposi’s sarcoma treatment programs in six district hospitals through the supply of chemotherapy commodities and capacity building of health care workers on chemotherapy procedures. This was achieved through on-site mentorship, facility CMEs and on-job training. A one-day sensitization meeting on KS chemotherapy was conducted for 24 HCWs from five district hospitals. Continued mentorship with focus on safe handling of the commodities was carried out. Outcomes are covered in the care and treatment section above.

The project also strengthened pharmacovigilance systems. Over 120 HCWs were sensitized on pharmacovigilance. Mentorship was provided to HCWs in HIV, TB and PMTCT clinics to identify, manage and report adverse or other events related to medications. Initially done on paper, facilities were mentored to report on the electronic system, the pharmacovigilance reporting system. The new pharmacovigilance electronic reporting system (PVER) was rolled out in 18 high volume sites.

To support pediatric clinical services, dosing charts, pill cutters, calculators and fridge thermometers were provided to 104 facilities.

CHS continued to actively participate in NASCOP and NTLD-Program commodity security technical meetings for ARVs and TB commodities. CHS contributed to the implementation strategy of the IPT roll-out plan during the TB technical meetings. In addition, sharing of best practices through participating in conferences ensured that CHS achievements were recognized. CHS took part in the Pharmaceutical Society of Kenya and Hospital Association of Pharmacists in Kenya conferences.
Strategic Information

The project supported the MOH by training HCWs in the service outlets to use MOH tools, providing continuous mentorship to service providers and ensuring availability of tools in the facilities. At the start of the project, only 44 sites had an EMR. As the project scaled up ART services to 23 additional sites, all were provided with computers and their patient records digitized; now all 67 sites have EMRs. These are CPAD (in most facilities) and Kenya EMR and necessitated partnership with ICAP and I-TECH, the developers. The project supported availability of MOH tools by often printing buffer stocks and distributing them to facilities as needed. Continuous mentorship to ensure proper use of the tools was provided. Systems for data management at CHS were put in place including training staff on use of KePMS for donor reporting in the early years of the project.

At the district level, CHS came up with an initiative of holding data review meetings with DASCOs, DHRIOs and facility data point persons. These review meetings aimed to address documentation, data collection, reporting and data use challenges. These meetings continued after devolution at the sub-county level, and have contributed significantly to increased data demand and use at facility and sub-county levels, and to the quality of reports on DHIS.

On data quality, CHS ensured quality of data through semi-annual DQAs conducted across all facilities.

In a bid to promote data utilization, the project team worked closely with facility staff to come up with a standard data feedback tool to be used by facility staff during site multi-disciplinary team (MDT) meetings. Data feedback was provided to facilities and counties to guide programming and joint supervision. Facilities were provided with HTC coverage charts which the project team designed to help track HTS service coverage. Monthly linkage review meetings were held at health facilities to review and identify challenges in linkage of newly tested clients to care. Quarterly data feedback was also done at county level. The project continued capacity building activities on HEI cohort analysis to ensure timely and quality reporting.

Electronic data capture systems were enhanced during the life of the project. The HEI database was developed and rolled out in several facilities. CHS also integrated facility equipment and HR support database with the aggregate service delivery database; this enabled CHS get facility or county profiles at the click of a button. A training database was developed to capture all capacity building activities implemented including CMEs, sensitizations and trainings.

Mid-way through the project, a midterm review was conducted for purposes of assessing and documenting lessons learned, good practices and challenges experienced since inception of the project. All 191 supported sites were evaluated with a focus on systems strengthening, an exercise that lasted two weeks. Data were collected using Magpi, an online data collection tool for health programs that allows real time submission and aggregation of data.

The use of MOH 711 as a monthly reporting tool was dropped in Year Five posing a challenge in reporting PEPFAR indicators especially HTS. Supplementary data was collected using the ACT and HTS optimization tools.
To support documentation and reporting, some 972 HCWs were trained on ART HMIS, 42 on M&E, 200 on HEI cohort analysis.

**County and National Support**

During the HTS RRI conducted in Year Five, the project team gave support to counties through mentorship on reporting procedures and ensured all data was captured appropriately. Further technical support was given during meetings of the regional EMR TWG held on a quarterly basis and coordinated by ITECH. Furthermore, collaboration with other implementing partners was realized in formation of county M&E TWGs spearheaded by UCSF.

At the national level, CHS provided technical support in the review of NASCOP DQA tools and subsequently took part in sensitization of county staff on the same. CHS participated in the PMTCT stock taking and the ‘Bring Back Our Women’ data validation exercise. CHS also participated in revision of M&E tools for HIV in line with revised treatment guidelines. The project was represented in the M&E TWG and participated in the third annual M&E best practice conference where three abstracts were presented.

**Challenges**

Some challenges included: lack of ownership of MOH 731 reporting tool early in the project as it was viewed a partner-tool; this changed over time. Another challenge faced was poor completion of registers at facilities, specifically high volume sites, with high workload being cited as a key reason across high volume sites. Effort was made towards strengthening documentation and streamlining of filling systems at these sites. We supported recruitment of data clerks at health facilities to help address this issue. A standard mentorship checklist was used to assess areas of weakness in M&E systems leading to targeted mentorship to facility staff. Another challenge was shortage of the CCC patient card, MOH257 which necessitated facilities to use photocopied forms to document patient records as we procured buffer stocks or obtained copies from NASCOP.

**Other Health Systems Strengthening Support**

Over the past five years, the Tegemeza project has worked to strengthen health systems in Kiambu, Murang’a, Nyeri, Nyandarua and Laikipia counties (previously Central Province) in various ways.

**Service Delivery**

Support for service delivery has largely been described above. In addition, the project supported quality improvement through implementation of bi-annual multi-disciplinary quality of care (QOC) assessments and requisite quality improvement projects/exercises. Efforts have been made to integrate QOC assessments into the Kenya HIV Quality Improvement Framework (KHQIF), within the broader Kenya Quality Model for Health (KQMH) framework.

The project also implemented an enhanced package of support to establish four centers of excellence in HIV care and treatment at Thika Level 5, Murang’a and Nyeri County Referral.
Hospitals and Nyahururu Hospital. These were to act as centers of best practice in comprehensive and innovative HIV programs. These included programs such as Kaposi’s sarcoma, screening for latent cryptococcal infections and management of affected patients, IPT provision, cervical cancer screening and management, infection prevention and control, MNCH support, adolescent HIV care and treatment, patient fast track system, and discordant couples care. In addition, the four facilities were supported to be teaching/learning and referral centers for other facilities and health care workers in the region. To achieve these objectives, packages were developed for the various programs, health care workers trained, champions selected, and clinical equipment including four ECG machines, four suction machines, 20 pulse oximeters, 16 digital thermometers, 8 digital blood pressure machines, eight diagnostic sets, four lactate meters, 12 glucometers, four pediatric weighing scales, and eight adult weighing scales provided. E-learning equipment was also supplied; facilities have been able to host various facility-based trainings using the equipment including a distant learning HIV management course in addition to the residential mentorship program and piloting of the integrated training curriculum. The e-learning resources allowed health care workers at the facility to successfully undertake a ten-week online course ‘clinical management of HIV’ offered by the Department of Global Health at the University of Washington.

To improve patient flows, reduce patient waiting times and increase patient satisfaction, a fast track system was introduced at high volume facilities targeting stable patients; a lot of the features of this model were included in the differentiated care model described by NASCOP later.

Human Resources for Health

Through sub-grants to counties, the project supported salaries for over about 300 HCWs annually as front-line service providers as part of its commitment to delivery of quality HIV prevention, care and treatment services. These HCWs engaged by counties using sub-granted funds, included Clinical Officers, Health Records/Data personnel, Nurses, Social Workers, Nutritionists, Laboratory and Pharmaceutical Technicians/Technologists, HR Assistants and Accountants. They have greatly assisted the expansion of HIV services in the counties. In addition, the project supported about 300 volunteers (peer educators, mentor mothers and HTS counselors) with a stipend to support provision of peer support and testing services.

300 Health Care Workers Employed

4,500 Health Care Workers Trained

Project staff routinely mentored these and other staff to provide HIV and related services. This mentorship took various forms: preceptorship, case studies, micro-teachings, chart-reviews, data-driven mentorship, and others.

The project supported the pilot of the NASCOP facility-based training model at three CHS supported facilities. This was done through performing a site capacity assessment at three
facilities to determine their suitability and readiness to host mentees, technical and financial support to NASCOP during the orientation of mentors and site coordinators, selection of mentors and mentees in conjunction with the facilities, printing and provision of the training packets for both mentors and mentees, facilitation fees for mentors, transport/accommodation support for mentees and support for meals to both mentors and mentees. Technical and program staff further provided support by attending the face-to-face interactions held by the mentees and mentors. Twenty health care workers from various facilities completed the training in four clusters namely clinical, laboratory, social work and pharmacy.

The project successfully trained and/or sensitized over 4,500 HCWs in various trainings across the program areas.

**Infrastructure and Equipment**

Support for service delivery often necessitated renovations and repairs in various health facilities to create a conducive environment for service provision. While this was curtailed significantly with the right-sizing in PEPFAR financing mid-way through the project, significant works were carried out. The list of major renovations and the costs are listed in the appendix. Equipment and furniture was also provided to aid this.

![Furniture delivered to Ruiru sub-County Hospital, September 2015](image)

CHS supplied assorted clinical equipment and furniture items such as stethoscopes, BP machines, pediatric and adult weighing scales, notice boards, drug and filing cabinets to
various health facilities over the course of the project. The asset verification exercises conducted annually show that majority of the equipment supplied to health facilities remains in use.

Handover of equipment to Nyeri County CEC

Nyahururu HIV clinic: major works done to expand facilities for HIV service delivery

Sub Granting

An average of 40-45% of the project’s annual budget went to sub-grantees, primarily MOH structures. In the first two years of the project before devolution, this was largely to the Provincial Medical Office that mostly supported salaries, and the DHMTs as well as large
hospitals. Upon devolution, funding was largely to counties.

These funds primarily support salaries of service providers. Other budget lines included volunteer stipends, joint supervision, regular meetings e.g. TB/HIV TWGs, lab sample referral, communication, patient tracking and stationery.

To build the capacity of sub-grantees to manage USG funds, managers were trained in USAID rules and regulations, program management and use of Navision software. The project procured Navision Software (and ERP) to help in management of the funds.

In Laikipia County, CHS staff participated in the joint verification team (JVT) visits in Laikipia West sub-county. The county-led JVT visits facilities that receive funds under the national results-based financing for health program, reviews RBF invoices/activities that are then compiled into a county consolidated RBF invoice.

**Governance and Leadership**

CHS supported the MOH structures at various levels: national and sub-national (initially province and districts, later county and sub-county) as well as facility levels to carry out their leadership role in HIV service management. This was through:

**National:** membership in various TWGs of NASCOP, the NTLD-Program and the Reproductive and Maternal Health Services Unit: ART taskforce, third line ART, pediatric, adolescent, evidence based behavioral interventions, PMTCT, HTS, HIVQUAL, commodity security, core TB, TB/HIV, MDR TB, pediatric TB, M&E, KePMS to DHIS (K2D), FP, reproductive tract cancers, among others. Through these, the project has contributed to the development of various guidelines, tools, curricula, strategies and other documents as described in the various sections. The project has also supplied ToTs of various courses and guideline dissemination activities at this level, as well as helped organize and co-chair conference sessions organized at this level.

In addition, CHS was represented in the NACC and PEPFAR led team reviewing and validating the country HIV sustainability index dashboard where the readiness of the country to take on various PEPFAR supported activities was estimated. The project participated in the quarterly Human Resources for Health - donor and partner coordination meeting chaired by the Ministry of Health under its Division of Human Resource Management and Development. During this meeting, an official MOH advisory, developed in a consultative manner and directed at the national and 47 county governments, was shared as a guide on the HR aspects of the HTS provider cadre such as service provider qualifications, key responsibilities and reporting structure as well as a proposed mechanism of transition of contracted HTS providers to national/county payrolls using schemes of service already provided for within the civil service. CHS recognizes the critical role played by HTS providers and lobbied counties to provide funds for the cadre.

**Counties:** The project has helped counties set up and operationalize eMTCT task-forces, TB/HIV TWGs as well as RTK quantification forums. In addition, the project supported P/D/s/CHMTs conduct supervision of supported services every quarter. This support was
technical and logistical, and resulted in improvement of services over time as seem in the CDC-led SIMS supervisory exercises.

SIMS exercise at Karatina sub-County Hospital

The project supported health managers to undergo training in leadership and governance, initially as a didactic training and later through e-learning. Various county health managers were linked to courses offered by the University of Washington.

The project also supported cross-learning through annual stakeholders’ forums. These brought together participants from various facilities and counties to share best practices. The forums had different themes such as devolution, health policy and the workforce, health information systems, and quality of HIV services, among others.

Dr Nduku Kilonzo, NACC Director, speaks as chief guest at the Annual Stakeholders’ meeting, 2015 held in Machakos
In Year Three, the implementation of the Constitution of Kenya 2010 required a change of tack to consider the devolution process and new administrative units (counties). CHS engaged the County Health Departments, whose technical units were the County Health Management Teams (CHMTs), in the supported counties.

In Year Four Memoranda of Understanding (MoUs) were signed between CHS and the counties of Kiambu, Nyeri, Laikipia and Nyandarua to forge stronger links and enhance the partnership between these counties and CHS while forming a basis of ensuring continuity of HIV/AIDS related activities beyond the life of the Tegemeza project.

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*Participants of the 2015 Annual Stakeholders’ Meeting Pose for a photo during the meeting in Maanzoni, Machakos*

*CHS CEO Dr Paul Wekesa signs MoU with the Kiambu County Secretary*
CHS engaged county leadership at executive (County Executive Committee Members – Health, Health Committee Members of the County Assembly, County Public Service Boards) and technical (County Health Management Teams) levels to ensure sustainability of prevention, care and treatment activities beyond the life of the project.

CHS supported a two-day forum where the Kiambu County Health Department led by the County Executive Member-Health met with members of the Health Committee of the Kiambu County Assembly in a sensitization meeting aimed at building the capacity of MCAs to vet hospital boards (Level 5 and 4 facilities) and facility committees (Level 3 and 2 facilities) prior to their publication in the Kenya Gazette. The boards and committees provide oversight of facility management structures. CHS took advantage of the forum to highlight county-specific HIV/AIDS data trends and as a result the Health Committee tasked members of the Health Services team to expedite formation of the County HIV Committee as well as recruitment of additional health workers.

The project also provided funding support towards a four-day meeting of a team drawn from the Nyeri CHMT and led by the County Director - Health aimed at development of a final draft copy of the Nyeri County AIDS Strategic Plan. CHS also supported a two-day advocacy training for the Nyeri County Health Management Team to build the capacity of the CHMT in identifying health advocacy issues, planning health advocacy actions and exploiting opportunities for health advocacy.

The project supported a one-day forum that brought together the Health Committee of the Murang’a County Assembly and the County Health Department led by the CEC-Health that among other issues discussed the need for support for the HIV/AIDS program especially towards human resources for health and re-introduction of Facility Improvement Funds with hospitals allowed to run their own bank accounts. A presentation of the zero draft County Health Bill was made.

CHS held discussions with County Public Service Boards of the five supported counties as part of ongoing efforts at ensuring continuity of HIV service provision, especially with regards to Human Resources for Health, beyond the life of the project. So far, about 60 HCWs have been absorbed.

**Challenges/Unexpected Events**

Devolution: led to a change in the sub-granting structure with new entities such as the County Public Service Boards and presented a challenge as CHS had to quickly understand the changes and work with them. CHS engaged these entities aggressively and fostered good working relationships.

New grants CHS at the tail-end of the Tegemeza project saw the project lose several staff to the new grants. To address this, CHS recruited and replaced many staff in the last six months of the project.

MOH pay increases: A few times during the life of the project, the overall pay of MOH HCWs increased, creating a significant difference between what MOH staff and the project-supported HCWs carrying out similar work earn. The project did not have funds to match this, resulting in a pay gradient that affected morale. Efforts were made over the life of the project to increase pay, though the gap was not closed.
Recurrent MOH industrial action hampered various aspects of service delivery.

**Lessons Learnt and Recommendations**

The project was successful in implementing and expanding HIV prevention, care and treatment services that were of high quality. Further, the project was prominently represented at national level/policy. This is testament that even an implementing partner on a modest budget can leverage available opportunities to contribute at various levels. Further, it shows that local organizations can implement quality work, a feat that has in the past been regarded a preserve of large international organizations. Furthermore, the project achieved some other unplanned milestones including staff absorption by counties, among others.

CHS recommends the following for similar projects:

- There is need for early and in-depth engagement of counties to enhance ownership of donor-funded project work. This engagement should include signing of MoUs to guide the work, and where possible, defining what happens at project end, e.g. staff absorption, support for previously funded project activities. Entities to be engaged include the County Department of Health including the CHMT; the County Public Service Board, and where needed, the County Assembly

- Health care workers are critical for success of similar projects (in HRH constrained settings). It is recommended that significant resources go into supporting HCWs who will be responsible for service delivery, based on specific and unique needs of the facility and county

- To improve efficiency, cost-effective training methodologies should be adopted. These include, where possible, non-residential didactic training and e-learning

- It is good to optimize the Program Officer: health facility ratio. Too many facilities per Program Officer compromise the attention given and the overall quality of support provided to health facilities. In this project, 10-12 ART sites per Officer were found to be optimal

- All critical departments/deliverables should be adequately staffed. In the early years of the project, there were no HTS Program Officers, which affected performance. Upon engagement of HTS Program Officers in Year Five, there was a significant improvement in performance

- Involvement of staff in various roles improves ownership and engagement; therefore, wherever possible, staff should be involved and given responsibilities in program design, work planning, budgeting, and county and national level engagement. This has helped motivate and grow staff, improving performance.