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*Applying Science to Strengthen
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GUIDANCE DOCUMENT

Improving Pediatric Antiretroviral Therapy in Tanzania

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JUNE 2019

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DISCLAIMER

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For more information on the work of the USAID ASSIST Project, please visit www.usaidassist.org or write assist-info@urc-chs.com.

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Acronyms

ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
ASSIST	Applying Science to Strengthen and Improve Systems Project
CBO	Community Based Organization
CHBC	Community Home Based Care Coordinator
CHMT	Council Health Management Team
CLWHIV	Children Living with HIV
CTC	Care and Treatment Clinic
CQI	Community Quality Improvement
DACC	District AIDS Control Coordinator
DRCHCO	District Reproductive and Child Health Coordinator
EPI	expanded Program Of Immunization
HBC	Home-Based Care
HCI	USAID Health Care Improvement Project
HEI	HIV Exposed Infants
HEID	HIV exposed infant diagnosis
HMIS	Health Information Management Systems
HIV	Human Immunodeficiency Virus
HTC	HIV testing and counseling
HR	Human resources
IMCI	Integrated Management of Childhood Illnesses
IP	Implementing Partner
IPD	In-Patient Department
LTFU	Lost to follow up
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
M&E	Monitoring and evaluation
MUAC	Mid Upper Arm Circumference
NACS	Nutritional Assessment Counseling and Support
PDSA	Plan, Do, Study, Act
PEPFAR	President's Emergency Plan for AIDS Relief
PLHIV	People Living with HIV
PQI	Partnership for Quality Improvement
QI	Quality Improvement

QIT	Quality Improvement Teams
RHMT	Regional Health Management Team
SES	Standard Evaluation System I
TA	Technical Assistance
URC	University Research Co., LLC
USAID	United States Agency for International Development
WHO	World Health Organization

I. Introduction

The USAID Applying Science to Strengthen and Improve Systems (ASSIST) project worked with the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC), implementing partners (IPs), Regional Health Management Teams (RHMT), Council Health Management Teams (CHMT) and Health Care Workers (HCW) in applying improvement methods to improve the quality of HIV care services. ASSIST aimed to strengthen access, retention, and effectiveness of antiretroviral treatment (ART); prevention of mother to child transmission of HIV (PMTCT) care; protection of most vulnerable children (MVC); and community-based services including community-facility linkage activities. ASSIST's work built on activities begun under the USAID Quality Assurance Project (QAP) in 2003/04 and under the USAID Health Care Improvement (HCI) project in 2008 to 2012. Since the end of HCI, ASSIST has been working with RHMTs and CHMTs in improving skills of health care providers through training, capacity building, supportive supervision, and supply of improvement tools and guidelines.

In an attempt to raise the tempo and quality of efforts directed towards accelerating access to ART to children, ASSIST Tanzania, along with the MOHCDGEC, PEPFAR, and IPs, organized the "1st National Forum on Accelerating Pediatric HIV and AIDS Services" and the "2nd National Pediatric ART Quality Improvement Learning Platform" which took place in June 2015 and November 2016 respectively in Dar es Salaam, Tanzania.

The objective of the forums was to bring together pediatric HIV and AIDS services stakeholders from inside and outside Tanzania to share knowledge, experiences, lessons learned, and best practices aiming at improving quality of services provided to pediatric HIV and AIDS clients. A total of 250 and 290 participants attended the first and second learning platform respectively from across Tanzania, and representatives from ASSIST activities in Uganda and Lesotho. The objectives were specifically categorized into: increasing access to HIV testing and counseling (HTC) including early infant diagnosis; linkage to care and treatment centers (CTC); initiation of ARVs; and adherence to ARV and retention to care. The first forum focused on presentations from the four demonstration regions of Njombe, Morogoro, Tabora, and Shinyanga. Best practices were shared for other regions to pick up improvement thus spreading coverage to accelerate ART for children below 15 years. The second forum which was baptized as the National Quality Improvement Learning Platform with a similar range of specific focus as the first forum.

A. Situation of Pediatric ART services in Tanzania

At the first learning platform, the following facts on pediatric ART services in the country were presented by the National AIDS Control Program (NACP):

- Estimated number of children 0-15 years children eligible (or in need of ART) was 129,128.
- 86,929 children were enrolled in care and treatment clinics with 50,980 HIV positive children ever initiated on ARVs.
- By 2014, 41,882 were on ART with 50,230 children in need of ART.
- The national average of children under 15 years of age receiving ART has remained at less than 26% of the national target.

B. Next steps from First National Forum

Winding up the first forum, participants made the following deliberations:

1. All regions and districts to effectively implement provider initiated testing and counseling (PITC).

2. Health facilities should test small changes to ensure all children attended in their respective facilities receive HIV counseling and testing and linked to HIV care and treatment if tested positive for HIV.
3. MOHCDGEC to work out completion of the disclosure policy for pediatric HIV pediatric HIV and it was suggested that children should know their HIV status beginning age of 10 years.
4. Regular regional supervision on pediatric issues from national level.
5. Community based health service providers to be motivated to trace lost to follow up children in order to improve pediatric retention in care and treatment services.
6. Regions to purchase enough test kits. Institute a proper system of quantification of commodities and supplies to ensure smooth availability at health facility level.
7. Strengthen existing quality improvement (QI) teams and form new ones where they don't exist.
8. Maintain sustainable pediatric/youth friendly services across all levels.

ASSIST supported IPs and all levels of MOHCDGEC to conduct QI activities to improve pediatric ART services across the country and share outcomes during the second forum (learning platform).

C. Spread Scale

Following the first pediatric QI forum, the participating districts and IPs were urged to take the next steps as a basis for improving pediatric HIV care and be ready to share progress in the second forum. ASSIST continued to provide technical support to the districts based on what worked from the demonstration regions using the same indicators with opportunities to increase if need be and so QI knowledge and skills were spread. The second forum (QI Learning Platform) convened more participants with presentations from more regions.

ASSIST worked with MOHCDGEC, IPs, R/CHMTs and health facilities introducing the gap in pediatric HIV care and emphasized on the need to apply QI methods to close the performance gaps. The QI process at any facility went through baseline assessment supported by IP and council management to determine performance gaps. Since IPs, CHMTs and health care providers had some QI experience gained through ASSIST's technical assistance (TA) they supported QI training at facility level through continued education sessions, coaching and mentoring. Baseline assessment results were shared among service providers and facility management to obtain a buying in for applying QI methods to improve pediatric ART services pediatric ART was included during learning sessions supported by ASSIST or the IPs. In addition to sharing of baseline assessment results, learning session covered: introduction to quality improvement concepts, dimensions of quality, principles of QI (focusing on systems and processes, client's needs and expectations, team work including formation of QI teams, measurements and communication). Service providers developed work plans using the Standard Evaluation System tool (SES-Journal) to plan, test changes through Plan Do Study Act (PDSA) Cycles, monitor QI progress through collecting data for selected QI indicators. Facility QI teams were emphasized on the fact the whole QI process was to focus on increasing access to HIV testing for HIV exposed infants, children under five years and those 6-14 years at all points of care.

D. Outcome of spread of QI for pediatric ART

Following the two learning platforms, ASSIST prepared this guidance document to provide a wider coverage of outcomes and learning of improving pediatric ART services in the country and from neighborhoods. The changes were compiled from presentations made during the two platforms. The document provides a summary of learnings from Tanzania, Lesotho, and Uganda to be used as guidance by teams that intend to improve pediatric HIV and AIDS services.

1. National level

National data revealed an increase of children accessing ART services from 38,848 in 2013 to 55,670 in 2016 although not doubled but showed a steady raising trend as presented by MOHCDGEC during the 2nd pediatric QI Learning Platform.

2. Regional level

Across regions there were increasing trends of children below 15 years accessing ART services as observed in Njombe (67% to 71% between June 2014 to August 2015), Morogoro (from 56% to 75% between May 2014 to October 2015), and Tabora (from 61% to 67% between May 2014 and August 2015). In Tabora implementation was on a much shorter timeframe and therefore the data is insufficient.

II. Improving ART services for children under 15 years

Following the two learning platforms, USAID ASSIST prepared this guidance document to inform and guide the global community on small changes to common problems that hinder pediatric ART care. This guidance document is organized to cover pediatric ART objectives presented at the platform, testimonies from HIV infected children in care, and home-based care providers supporting these children at community levels and facility staff supporting adolescent clubs.

A. Platform objectives

The platform objectives were as follows:

- Increase access to HIV testing for children under 15 years at pediatric service delivery point
- Improving access to HIV testing through PITC using rapid HIV antibody testing at RCH, inpatient and outpatient departments (IPD and OPD) and CTC HIV testing campaigns for children below 15 years
- Increase HIV testing, counseling, and enrollment to care and treatment through facility-based testing campaigns for children below 15 years
- Facility/CTC based pediatric HIV testing campaigns as a strategy to improve testing and enrollment into care and treatment
- Increase HIV case identification, enrollment to care and initiation of ART
- Integrating NACS Programme into pediatric HIV treatment
- Improving access to HIV services for most vulnerable children

The changes are organized by platform objective and include the challenge being addressed, system level of the challenge, and suggested changes to address the challenge.

B. Recommendations

QI teams should be empowered to be able to identify gaps in HIV testing and close monitoring of changes to bring about desired output. The revised National Pediatric Training package and guidelines must be distributed throughout facilities. There is a need for regular updating of the clients' contacts and routine monitoring of pediatric retention data. Teams should build in plans for evaluation from the outset to enable to measure effectiveness of interventions. Integrate pediatric HIV services (for early identification and treatment). Strengthen and implement differentiated community-based services. HIV services and QI need to be in pre-service curricula and availability of simplified pediatric ARV formulations needs to be improved.

1. Priority strategies

- Strengthen case identification strategies to all paediatric entry points including exposed infant diagnosis in order to enhance early ART initiation
- Scale up implementation of PITC in all health facilities
- Strengthen linkages between RCH and CTCs
- Strengthen facility and community-based linkages including differentiated community-based services, adherence and support packages to increase retention to care and treatment services
- Promote adolescent reproductive health programs to improve knowledge and awareness of HIV transmission and empower adolescents on saying no/safe sex practices

2. Interventions that work

- Integration and decentralization of services
- Set up of family-centered care
- Use of Lay Counselors/expert patients
- Community health workers with active tracing of lost to follow-up (LTFU) and clients missing appointments
- QI efforts looking at retention
- Use of focal person, pairing mother/baby clinic cards, same day appointments, mother baby pair seen by same provider, home visits

III. Change package

The following changes are recommended to providers and teams trying to improve pediatric ART services. The guidance is organized by objective and by common challenges affecting quality of care at four levels: management, facility, patient, and community. These recommendations are a result of discussions held and experiences shared during the national learning platforms.

Objective 1: Increase access to HIV testing for children under 15 years at pediatric service delivery point

Challenge addressed	Changes to try
Changes to improve early infant diagnosis (EID)	
<p>Facility level</p> <p>Providers were not systematically implementing HEI screening at registration desk</p>	<ul style="list-style-type: none"> • Orientation of staff on screening RCH card to identify HEI at RCH registration desk
<p>Facility level</p> <p>Inadequate counseling on postnatal attendance and early HEI testing</p>	<ul style="list-style-type: none"> • Providing continuous postnatal counseling to HIV-positive mothers on the importance of early infant testing • Monthly monitoring of early HEI testing indicator with quarterly coaching • Making use of excel spread sheet to record and review site performance

Challenge addressed	Changes to try
<p>Facility level</p> <p>Delay in registration of HEI for PMTCT follow up and uptake of first DNA PCR test at 4-6 weeks</p>	<ul style="list-style-type: none"> • During ANC visits, service providers delivered health education sessions that insisted mothers to come to postnatal care at 7, 28, 42 (first postnatal care checking was done before discharge from the ward) • Give health education to mothers on attending all four postnatal visits for continuum of care. • Providers gave mothers date for postnatal visit • Linking HEI to PMTCT follow-up care at 4-6 weeks • During the 28 and 42 days visit, providers linked HEI to PMTCT follow-up care • At each PMTCT follow up visit, providers continued to counsel HIV positive mothers on bringing children for 2nd HIV testing 6 weeks after complete cessation of breastfeeding • At 12 months visit, providers gave the mother of HEI date for second HIV test for her baby to determine baby's final HIV status after cessation of exposure to breast milk
<p>Facility level</p> <p>HIV exposed children not receiving second HIV test following cessation of breastfeeding</p>	<ul style="list-style-type: none"> • Train providers to identify exposed children eligible for second test by birth cohort by using mother child follow-up register (MCFR) • Update RCH providers on recommended breastfeeding practices in the context of HIV emphasizing on exclusive breastfeeding, complementary feeding and timing for cessation of breastfeeding • Monthly update of client records in the MCFR and HEI diagnosis (HEID) card • Conduct regular review of records and provide feedback to providers • Weekly submission of DBS sample and collection of results from the DBS collection points
<p>Facility level</p> <p>Limited effort to link testing and retaining HIV infected children into lifetime ART services</p>	<ul style="list-style-type: none"> • Intensify PITC for children in all testing points including IPD, TB clinic, RCH, CTC, and lab by setting targets, sharing of performance in clinical meetings and integration into key service delivery care processes • Escort HIV positive pediatric clients with their parents/caretakers to CTC for enrolment and inter-facility linkages • Establish systems to identify pre-ART children attending clinics and initiate ART without delay • Establish special clinic days and children club for children under 15 years with HIV • Enhance use of appointment book and tracking of clients missing appointment through HBCs

Challenge addressed	Changes to try
	<ul style="list-style-type: none"> • Use HBC to track lost to follow among children and document outcomes in NACP CTC2 data base • Identify list of children under 15 years with ART unknown status and review records to understand their outcomes • Review records to ensure proper filling of client cards and update of information into CTC2 data base • Provide decision tool to help providers and supervisor to monitor children currently on ART on quarterly basis and respond to observed gaps • Intensify health education to parents and providers about the importance of ARVs to HIV infected children
<p>Facility level</p> <p>Work flow processes that do not support quality care</p>	<ul style="list-style-type: none"> • Assign target for each shift for pediatric testing • Introduce “No child discharged without knowing HIV status” hospital campaign • Include pediatric PITC testing in shift handover reports with files of children not tested • Conduct daily monitoring of pediatric PITC during clinical rounds • Checklist to tick admitted and tested handed over to next shift • Place written reminders at nursing station to HCW for Pediatric PITC • Mark all pediatric IPD files (sticker) who receive PITC • Conduct internal weekly supportive supervision visits to IPD
<p>Facility level</p> <p>Low pediatric HIV case identification</p>	<ul style="list-style-type: none"> • Service providers were insisted to increase registration of lifelong ART for people with AIDS for women using CTC2 cards • Facilities emphasized strengthening integration of IMCI/EPI/HEI identification, including outreach services • Focus on day-to-day changes in processes of improving documentation (CTC2, HEI cards), patient flow (improving screening of infants), and monitoring retention (mother-infant pairs) • Orientation to RCH staff on screening and identification of HEI • Use local register to monitor sample collection, transportation and results by District and zonal level coordinators through; • Monthly calls to both site and zonal labs to ensure samples and results are delivered • Use of quarterly template to monitor sample turnaround time (TAT) • Providing feedback on TAT to labs and sites for improvements

Challenge addressed	Changes to try
	<ul style="list-style-type: none"> Monitoring SMS printer functioning and provide monthly updates Quarterly analysis of EID cascade with CMHT Linkage to IMCI and use of lay counselors to increase integration
<p>Facility level</p> <p>Incompetent staff for DBS collection</p>	<ul style="list-style-type: none"> CHMT and EID trained providers conducted onsite DBS collection mentorship to service providers on quarterly basis
<p>Facility level</p> <p>Inadequate knowledge on quantification and forecasting of DBS kits at site and district level resulting into shortage of rapid HIV test kits</p>	<p>Work with District Laboratory Technologist to:</p> <ul style="list-style-type: none"> Conduct quarterly mentorship to service providers on quantification and forecasting of DBS kits Make phone calls to emphasize timely ordering of DBS kits Conduct redistribution of kits and seek support whenever need arise Document monthly DBS taking at facility level for tracking and forecasting of DBS kits Discuss EID data at district level through meetings Allocate Council/district QI focal person and work with him/her to track, quantify and forecasting DBS kits. Started a what's App group to connect sites to inform others on stock levels for support CHMT redistributed test kits and other supplies from over to understocked sites
<p>Patient level</p> <p>Mothers not bringing HEI back to confirm their status</p>	<ul style="list-style-type: none"> Health education on importance of postnatal visits, to achieve this, providers ensured the following: Educate mothers on importance of attending every PMTCT follow up visit including the 12th month visit to receive 2nd HIV testing Peer mentoring on how to document services in the appropriate tools that is Mother Child Follow-up register and HEID card TCH in-charge or knowledgeable appointee conducted weekly review of registers and HEID cards of attended children on completeness and accuracy of the recorded information Advocate to mothers on importance of attending all four postnatal visits for easy linkage to PMTCT follow up
<p>Patient level</p> <p>Mothers not receiving DNA PCR results</p>	<ul style="list-style-type: none"> Give feedback to mothers when results are back to the facility Mentor providers at RCH on proper recording of data in MCFR
<p>Patient level</p> <p>Inadequate adherence to Option B+ guidelines for infant feeding</p>	<ul style="list-style-type: none"> Support HIV positive mothers on proper infant feeding practices DRCHCO, DACC and infant feeding trained providers conducted onsite training to RCH staff on Option B+ Infant Feeding

Challenge addressed	Changes to try
in the context of HIV	<ul style="list-style-type: none"> recommendation to HIV exposed infants Continued counseling to mothers on infant feeding during ANC
<p>Patient level</p> <p>Parents not sensitized on importance of knowing their children's HIV status</p>	<ul style="list-style-type: none"> Sensitize parents on importance of knowing their children HIV status
<p>Community level</p> <p>HIV+ mothers were not linked to lay health workers for close follow-up</p>	<ul style="list-style-type: none"> Engaging lay health workers in following up HIV-positive mothers

Objective 2: Improving access to HIV testing through PITC using rapid HIV antibody testing at RCH, IPD, and OPD and CTC HIV testing campaigns for children below 15 years

Challenge addressed	Changes to try
Tested changes for improving access to HIV testing through PITC at IPD, OPD, and RCH	
<p>Facility level</p> <p>Some health care workers were sent for PITC training but were not practicing</p>	<ul style="list-style-type: none"> Make PITC the agenda during clinical meetings Identify hospital PITC mentors. Make follow-up with regular internal supervision with monitoring and evaluation/hospital PITC zones identified Identify and appraise the best PITC practitioners during clinical meetings to encourage HTC providers who were not implementing HTC services
<p>Facility level</p> <p>Service providers not aware of need to test every child attending outpatient or admitted in inpatient wards</p>	<ul style="list-style-type: none"> Trained health care workers conducted pre- and post-test counseling while conducting on the job training under CHMT supervision to fellow providers who were not trained on pediatric PITC Facility in-charge identified a PITC trained provider to be a focal person for pediatric ART, to coordinate pediatric ART service at the facility including stock management for test kits Establish HIV testing for children as part of admission and ward round processes. Admitting nurse checked HIV status in the file or RCH card for children under five At RCH providers noted HIV status of the mother and child Providers at pediatric service entry points set targets on minimum number of children to be tested per day/month
<p>Facility level</p> <p>Low HIV testing for children at RCH: Parents and caregivers not receiving adequate HTC at RCH</p>	<ul style="list-style-type: none"> Assign responsible person for HTC at RCH to follow-up at testing points to ensure children are tested RCH workplace improvement team (WIT) identified one staff to coordinate and remind staff on testing under five children with unknown HIV status

	<ul style="list-style-type: none"> • Check HIV status of all children attending RCH • The provider at registration point was checking each under five card for HIV status. Those with unknown status were sent for HTC • Each provider was supposed to countercheck the HIV status and put an agreed marker/ code on the card to show the HIV status • Set target and review HTC performance • Providers agreed on the number children to be tested over each week/month • Share PITC performances during QI and clinical meetings
<p>Facility level</p> <p>Inadequate number of staff trained on HTC</p>	<ul style="list-style-type: none"> • Regional Hospital QI team conducted formal and on the job PITC training/orientation for untrained health workers
<p>Facility level</p> <p>Some pediatric care entry points were not providing PITC services</p>	<ul style="list-style-type: none"> • Expand PITC services to all departments that were not providing the service
<p>Facility level</p> <p>No special room (Clinic) for under 15 years of age at OPD</p>	<ul style="list-style-type: none"> • Facility management allocated one room at the OPD for Paediatric OPD clinic and PITC services
<p>Facility level</p> <p>Pediatric ART guideline was in place but not well known to health care workers</p>	<ul style="list-style-type: none"> • Conduct sensitization meetings to create awareness to HCW and emphasize on PITC as per Government Policy guideline document for implementation
<p>Facility level</p> <p>Testing was being done only to sick suspected children</p>	<ul style="list-style-type: none"> • Providers were informed importance of testing all children under 15 years admitted to the ward • Providers agreed on a ward policy for testing all children admitted to pediatric or other wards by the admitting providers at admission • Shift report included the list of children pending to be tested and these were tested by the incoming team or at ward round
<p>Facility level</p> <p>Some of the wards were found to have many trained counselors and others did not have or had few PITC providers</p>	<ul style="list-style-type: none"> • Facility management re-allocated PITC trained staff to wards with fewer counsellors

<p>Facility level</p> <p>Management not demanding data/PITC report</p>	<ul style="list-style-type: none"> • The PITC focal person shared PITC report with management and at clinical meeting
<p>Facility level</p> <p>Distribution of HIV test kits was not regularly documented</p>	<ul style="list-style-type: none"> • Pediatric wards/service delivery points were prioritized for test kits • Providers oriented on reporting and requesting for test kits
<p>Facility level</p> <p>Some of the HCW workers were sent for PITC training but were not practicing</p>	<ul style="list-style-type: none"> • Make PITC the agenda during clinical meetings • Identify Hospital PITC mentors. Make follow up with regular internal supervision with monitoring and evaluation/hospital PITC zones identified • Identify and appraise the best PITC practitioners during clinical meetings to encourage HTC providers who were not implementing HTC services
<p>Facility level</p> <p>Pediatric PITC not given priority among health care providers</p>	<ul style="list-style-type: none"> • Children not tested by admitting team were handled to incoming shift for testing • Keep a trained PITC provider at each work shift • PITC incorporated during ward round • Parents and caretakers advised to remind providers to test their children • Provider oriented on importance of testing children admitted to the ward • Each shift team to handle PITC report to the incoming team
<p>Facility level</p> <p>Lack of PITC focal person in the departments</p>	<ul style="list-style-type: none"> • A paediatric QI focal person was identified by hospital management to identify continuously sensitize PITC in each department • Escort HIV infected children to CTC for enrolment • The focal person also monitored supplies of HIV test kits conducted timely requisition of supplies and informed CHMT on redistribution of supplies to maintain stocks
<p>Patient level</p> <p>Parents not sensitized on importance of knowing HIV status of their children</p>	<ul style="list-style-type: none"> • At facilities, providers delivered health education sessions with focus on importance of parents knowing their children's HIV status • Providers counseled HIV-positive parents to understand mother to child transmission of HIV, prevention, and readiness to accept HIV testing for their children who are exposed to the virus • Service providers held meetings with community leaders (local government, religious, and opinion leaders) to integrate issues on pediatric HIV services in meetings and prayer houses

<p>Community level</p> <p>Inadequate community awareness and index case testing for HIV at CTC</p>	<ul style="list-style-type: none"> • Introduced a campaign at CTC to sensitize CTC clients to bring their children for HIV testing • PLHIV groups were used for community sensitization • Conduct HIV testing at community level through integration with outreach clinic
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Objective 3: Increase HIV testing, counseling and enrollment to care and treatment through facility-based testing campaigns for children below 15 years

Challenge addressed	Changes to try
<p>Increasing HIV testing, counseling and enrollment to care and treatment through facility-based testing campaigns for children below 15 years</p>	
<p>Facility level</p> <p>No continued counseling and health education on importance of timely and continued attendance to PMTCT follow up clinic and timing for EID</p>	<ul style="list-style-type: none"> • Continued Health education to pregnant women and lactating mothers on timing enrollment to PMTCT mother child follow up clinic and EID services for HEI
<p>Facility level</p> <p>Providers not linking HEI to PMTCT follow up at the right time</p>	<ul style="list-style-type: none"> • Providers reminded by focal person on sharing with parents and caretakers at the second visit to remind each other on linkage to PMTCT follow up at the following visits (3rd&4th)
<p>Facility level</p> <p>Providers not keeping a list of HEI expected for 2nd HIV testing in each month thus HIV status (PMTCT outcome) of most of the HEI was unknown</p>	<ul style="list-style-type: none"> • Team of coaches supported providers to identify HEI eligible for 2nd HIV test at enrolment by using their birth cohorts and include the baby to the respective month of the cohort • RCH in charge reminded providers to document all children receiving 2nd HIV test
<p>Facility level</p> <p>Date for second test not documented for mothers to refer</p>	<ul style="list-style-type: none"> • Provider documented the date for 2nd test on CTC 1 card kept by the mother
<p>Facility level</p> <p>Inadequate, poor and at times lack of documentation by service providers</p>	<ul style="list-style-type: none"> • All gaps identified in documentation, clients missing intervention were discussed with clinician and nurses' quality improvement activities were put in place • Facility made QI meeting a mandatory to discuss identified gaps and decide on prompt action
<p>Facility level</p> <p>Inaccurate provision of ARV prophylaxis, CTX prophylaxis, early HIV testing services, and HIV confirmatory test at 18 months of age</p>	<ul style="list-style-type: none"> • The clinic offered comprehensive care to both HIV positive mother and her HEI on a selected day in a week.

<p>Facility level</p> <p>Giving mother and baby different appointments</p>	<ul style="list-style-type: none"> • Providers sorted and attached HEI card with the mother's CTC2 record • Thereafter it was made a practice at registration to put mother and HEID card together
<p>Facility level</p> <p>Provision of integrated services created increased demand Limited capacity of HCWs to do active follow-up</p>	<ul style="list-style-type: none"> • Model mothers were empowered to offer psychosocial support to new enrolled mothers • IP supported staff on conducting coaching sessions
<p>Facility level</p> <p>Failure to use appointment book to identify clients who have missed scheduled return visits</p>	<ul style="list-style-type: none"> • Conduct mentoring for health workers on how to document in the appointment book and effectively use HBC to track mother-baby pairs who missed their scheduled visits
<p>Facility level</p> <p>Mother and baby enrolled at different care points</p>	<ul style="list-style-type: none"> • Identify space to create mother-baby care point • Allocate a staff at the mother-baby care point • Merge mother and baby files and keep at the mother-baby care point
<p>Facility level</p> <p>Different return dates for the mother and baby</p>	<ul style="list-style-type: none"> • Synchronize return dates for mother and baby • Identify and follow up missed appointments weekly
<p>Facility level</p> <p>Improper documentation in PMTCT and HEID card</p>	<ul style="list-style-type: none"> • IP and CHMT supported staff on documentation in PMTCT register and HEID card
<p>Facility level</p> <p>Follow up role was not allocated to specific team member</p>	<ul style="list-style-type: none"> • HBC coordinator reallocated the role of following up LTFU and missed appointment clients through facility HBC team and community structures
<p>Patient level</p> <p>Lack of adherence to clinic appointments</p>	<ul style="list-style-type: none"> • Missed appointments were tracked back using HCWs, HBC volunteers and through mother club • Providers gave same day appointment for mother and baby • For clients coming from very far they were counselled and if agreed were transferred to nearest clinic
<p>Patient level</p> <p>Clients not coming as per scheduled appointment</p>	<ul style="list-style-type: none"> • Providers agreed to • Schedule appointments for a specific day to help them to concentrate on individual counseling • Use appointment book and tracking book • Review appointment and tracking book immediately after completion of clinic day • Use health care workers, HBC volunteers and mother clubs to track missed appointments

	<ul style="list-style-type: none"> • Empower model mothers to offer psychosocial support to newly enrolled mothers • Provide integrated services to reduce rates of defaulting clients
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Objective 4. Facility/CTC based pediatric HIV testing campaigns as a strategy to improve testing and enrollment into care and treatment

Challenge addressed	Tested Change and how to do
Facility/CTC based pediatric HIV testing campaigns as a strategy to improve testing and enrollment into care and treatment	
<p>Patient level</p> <p>Few children of People Living with HIV and AIDS (PLHA) attending CTC were tested for HIV</p>	<ul style="list-style-type: none"> • QI team with support from IP and CHMT conducted HIV testing campaign targeting children of PLHA at facility and invited community members to test HIV during the campaign. Capture information on HIV testing for children of PLHA
<p>Community level</p> <p>Low awareness on pediatric HIV testing among HCW and the community</p>	<ul style="list-style-type: none"> • Use PLHA volunteers and banners to inform community members about the campaign • Invite children and their caretakers to test for HIV during the campaign • Use traditional dancers to entertain participants

Objective 5: Increase HIV case identification, enrollment to care and initiation of ART

Challenge addressed	Change to try
Increase HIV case identification, enrollment to care and initiation of ART	
<p>Management level</p> <p>Inadequate technical supportive supervision</p>	<ul style="list-style-type: none"> • ASSIST and IPs trained health managers at council level on QI approaches and Paediatric HIV management • IPs, CHMT supported QI teams on quarterly basis through supportive supervision and mentorship • IPs, CHMT supported facility staff to analyse data during quarterly data review meetings
<p>Facility level</p> <p>Some service providers not conversant with diagnose and treat guideline for pediatric ART</p>	<ul style="list-style-type: none"> • IP, CMHT and trained providers sensitized all HWs on importance of initiating all HIV positive children on ART
<p>Facility level</p> <p>Children getting lost from testing points to CTC</p>	<ul style="list-style-type: none"> • Assign a specific HW to escort identified HIV +ve children from testing points to ART clinic.
<p>Community level</p> <p>No community level follow-up of HIV positive children under 15</p>	<ul style="list-style-type: none"> • Community follow up of all HIV positive children with support of linkage facilitators

<p>Facility level</p> <p>Lack of routine CTC 2 card review at site level for identification of eligible children/ (adults) who missed opportunity of being initiated on ART timely</p>	<ul style="list-style-type: none"> • QI team conducted monthly CTC 2 card review to identify children (and adults) not yet on ART • Initiation of ART to all HIV positive children <2years, currently to all children with the change in guideline
<p>Facility level</p> <p>Long client waiting time</p>	<ul style="list-style-type: none"> • Teams were supported by IP and CHMTs to introduce the Client block booking system to improve client flow over the day and managed to cut short the waiting time to get services
<p>Facility level</p> <p>Low index case testing for children of HIV positive children attending CTC</p>	<ul style="list-style-type: none"> • Service providers conducted continued sensitization of parents attending CTC to bring their children for HIV testing • IP and CHMT supported CTC staff to conduct small scale testing events focused on finding untested children at higher risk of being infected with HIV that include: <ul style="list-style-type: none"> • Children of adults attending CTC • Other vulnerable populations: orphans, children with malnutrition, tuberculosis • Children identified as HIV positive received same day enrollment in CTC care, baseline lab investigations, and treatment for opportunistic infections
<p>Facility level</p> <p>Some CTC staff not conversant with changes in testing algorithm</p>	<ul style="list-style-type: none"> • IP and CHMT provided focused refresher training to local CTC staff on pediatric testing algorithms prior to event
<p>Facility level</p> <p>Delayed linking HIV positive children to CTC</p>	<ul style="list-style-type: none"> • Conduct same day CTC enrolment (escorted) and baseline labs for HIV+ and same day enrollment in CTC care for children identified HIV positive, conduct baseline lab investigations and treat for OIs
<p>Community level</p> <p>No peer mentors support on testing innovations</p>	<ul style="list-style-type: none"> • Link clients with CHWs • Start psychosocial support groups • Peer tracking of LTFU/Miss appointment
<p>Community level</p> <p>Community health workers not involved in tracking LTFU and clients missing appointment</p>	<ul style="list-style-type: none"> • Community Health Workers oriented on identifying clients in need of health service and refer to the facility • Link community with facility through local leaders • Used HBC to trace LTFU and missed appointment

Objective 6: Integrating Nutrition Assessment Counselling and Support (NACS) Programme into pediatric HIV treatment

Challenge addressed	Change to try
<p>Integrating Nutrition Assessment Counselling and Support (NACS) Programme into pediatric HIV Treatment</p>	

<p>Facility level</p> <p>Inadequate provision of NACS guidelines at services provision areas</p>	<ul style="list-style-type: none"> • R/DRCHCO to obtain and distribute NACS guidelines and tools to all facilities • Peer mentoring to providers who did not attend NACS training by NACS trained providers • DRCHCO provided on job coaching during supportive supervision
<p>Facility level</p> <p>Limited staff knowledge and skills on NACS</p>	<ul style="list-style-type: none"> • IP, NACS providers, and CHMT conducted on job training on NACS • Following the trainings, IP and CHMT conducted the following: • Post-training evaluation of nutrition assessment and counselling to supported facilities • Supportive supervision visits monthly • Chart reviews regarding documentation of nutritional status • Service providers conducted monthly weight, height/length and MUAC measurements • Perform nutritional status classification • Record results in children's follow-up forms and CTC2 cards
<p>Facility level</p> <p>Use of different algorithms to assess nutritional status</p>	<ul style="list-style-type: none"> • Providers urged to use national algorithm to classify nutritional status
<p>Facility level</p> <p>Lack of anthropometric equipment and inadequate providers skills on correct use of the equipment</p>	<ul style="list-style-type: none"> • Provide anthropometric tools (Weighing scales, length/height boards and MUAC tapes) • On job training on use of the anthropometric equipment's
<p>Facility level</p> <p>few parents and caretakers receive nutrition counselling and support services</p>	<ul style="list-style-type: none"> • Providers urged to provide NACS service to all parents and care takers and support accordingly • Accompany guardian/parents to received nutrition counseling and support.
<p>Facility level</p> <p>Inadequate provision of guidelines on nutrition services among HIV pediatric service providers</p>	<ul style="list-style-type: none"> • R/DRCHCO to obtain and distribute NACS guidelines and tools to all facilities • Peer mentoring to providers who did not attend NACS training by NACS trained providers • DRCHCO provided on • Job coaching • Supportive supervision
<p>Community level</p> <p>Few CHW and HBC trained on NACS</p>	<ul style="list-style-type: none"> • IP and CHMT conducted nutrition training to HBC and CHW • CHW and HBCs were urged conduct nutritional assessment whenever possible during home visits

Objective 7: Improving access to HIV services for most vulnerable children

Challenge addressed	Change tested
Improving access to HIV testing for most vulnerable children	
<p>Patient level</p> <p>Inadequate knowledge about CHF services and birth certificate</p>	<ul style="list-style-type: none"> Organize meetings with people with stable income in the communities to advocate and request financial support for vulnerable children to access CHF cards and birth certificate
<p>Patient level</p> <p>Vulnerable children have limited access to HIV and other social services due to social and economic reasons</p>	<ul style="list-style-type: none"> ASSIST provided technical support to IP, CHMT, Local government authority, MVCC and community groups to collaborate with facility QI team to conduct voluntary HIV counselling and testing mobile clinic in residential areas or link vulnerable children to health facility for HTC and linkage to CTC for those found to be HIV positive Collaborate with village officer to organize a mobilization meeting to educate and sensitize the community on HIV/AIDS care and treatment services
<p>Community level</p> <p>Weak community and facility linkage</p>	<ul style="list-style-type: none"> Organize meetings with different community groups in the village/ward to form community QI teams (CQIT) CQIT members collaborated with MVCC to identify and register vulnerable children and organize their linkage to HIV testing through HBC
<p>Community level</p> <p>Weak functional of MVCC and other community structures</p>	<ul style="list-style-type: none"> Orient MVCC team members on quality improvement approaches and use the knowledge to increase identification of vulnerable children and facilitate linkage to HIV care at facility
<p>Community level</p> <p>Low community awareness on how to support vulnerable children using available local resources</p>	<ul style="list-style-type: none"> CQIT agreed to prepare quarterly CQITs Action Plan Ask one QI team member to educate and sensitize the community on HIV/AIDS care and treatment during village meeting
<p>Community level</p> <p>Low community awareness on HIV testing</p>	<ul style="list-style-type: none"> ASSIST through community QI teams created awareness to MVC caregivers on importance of early diagnosis of HIV and enrollment to care for children below 15 years Use HBC to refer and link vulnerable children to facility/outreach for HIV services
<p>Community level</p> <p>MVCCs were dormant/and in some villages MVCCs were not available</p>	<ul style="list-style-type: none"> ASSIST supported CHMT and local government to identify active community groups, held sensitization meeting and formed CQIT that included members from MVC QIT/MVCC in three wards using community linkage approach. Include one facility staff in the team Conduct frequent home visit to vulnerable households (divide roles for nearby houses)

IV. Lessons learned

Through this process, it became evident that continuous QI can bring changes in PITC uptake among children below 15 years, but it requires structured and consistent monitoring and local leadership engagement. Focusing on client needs and expectations, good communication and feedback, good spirit of team work, and availability of HIV testing commodities remain critical to the success of any QI project. Applying QI approaches, regular supervision, and mentorship to service providers improves district performance in initiating ART to pediatric clients. Timely data monitoring, continuous mentoring and support of the hospital QI teams to promptly address challenges are all vital for sustainability. Integration of multiple approaches and strategies are essential in improving quality of services. A collaborative approach can yield desired results within a short time and the national level QI learning platforms are great opportunities for spreading learning to vast majority over a short period of time.

1. HIV testing

For older youth, adolescent/teen HIV clubs are a good entry point for adolescent reproductive health to empower adolescents on issues pertaining to sexual reproductive health and rights.

HIV testing through community events and campaigns will yield high numbers of beneficiaries tested; but targeted testing may yield higher positivity rates. Strengthening index case testing at facility level is a short cut to reach majority of children exposed to the virus.

2. Enrollment

Access to ART among children can be significantly be improved at lower level health facilities through simple and inexpensive interventions by health care workers. Use of QI and involvement of leadership in QI initiatives is key in addressing challenges observed on low pediatric ART initiation. The Partnership for Pediatric ART QI in Njombe facilitated achieving HTC and ART targets for children through increased testing for HIV among children, enrollment into HIV care, and ART services. Involving all facility service entry points in PITC for children increases access to testing for sick children seeking care through OPD.

3. Retention

Continued counseling on PMTCT services throughout pregnancy labor and postnatal period intensifies mother's awareness of these services. Linking mothers to postnatal care improves timely enrolment, follow-up to care and identification of those eligible for second test for each cohort and thus minimizes losing HEI for second test after cessation of breast feeding. Keeping mother and baby together minimizes missed opportunities and enhances retention in care. Reminders help mothers to keep their scheduled visits. Identify and follow up cohort of among HIV exposed and infected children improves sites capacity to monitor retention rates and 2nd HIV testing. Having a special day for mother-baby pair helps provider to deliver a more focused service package including collecting DBS results. Adolescent clubs provide a platform for improved retention to care, stigma reduction and learning positive living with HIV. Linking a CHW with a client at a facility builds up trustful relationship, improves tracing at a time a client misses an appointment before qualifying as a lost follow-up.

4. EMTCT

Empowering model mothers to talk and share experience also helps in completing 18 months follow up which doubles the national effort in elimination of mother – child transmission. Of the HEI who completed 18 months of follow up the number identified as HIV positive was less than the national elimination target indicative of the effectiveness of the program to those adhering to it. Still there are HEI who did not complete full follow-up package, additional efforts and innovative approach are needed to improve HEI to critical prevention services and retention. Decentralization of support services for HIV exposed children is

crucial for accurate monitoring of their outcomes. Health care workers still need support on the whole process of data management and using data to improve outcomes.

5. Leadership

Involvement of all cadres including management and assigning roles helped to improve commitment and responsibility to HCW, with time this will improve sense of ownership at all levels. Data demand by the Medical Officer in charge during the weekly clinical meetings re-enforced documentation and data use by the HCW. Using the existence approach in the regional/district level to support QI initiative is more beneficial than setting a parallel support (DACC vs QI focal person). Village Executive Officers (VEOs) and Ward Executive Officers (WEOs) are the key components in ensuring MVCCs perform their duty. Involvement of local government authority, community, religious and opinion leaders is crucial when dealing with gaps having cultural aspects.

6. Community

HBC providers are key component in ensuring HIV and MVC clients have access to HIV services. Community groups stand dual position on improving group objective and health promotion advocates at their households. The formation and supervision of CQITs/MVCCs has transformed mindset and remind community members on importance of helping MVC to ensuring MVC are getting health and social services. Shared confidentiality between the community program and facilities could ensure community partners better support clients through the HIV continuum of care. If educated on the importance of caring and supporting MVC, community members can change. Partnership and community linkage is important for continuum of care.

7. General

The One Stop Clinic provide a feasible, cost-effective and scalable model for pediatric and maternal HIV care in Tanzania. A paper-based referral system can be functional; but given the number of referrals issued there was a backlog of referrals slips for data entry.

V. Challenges

1. HIV Testing

Difficult to get consent from parents/guardians in testing children under 18 for HIV and age of consent is a barrier for adolescents to test. Countrywide shortage of HIV test kits is a major stumbling block to closely coordinate demand creation efforts with inadequate supply of HIV test kits. Inadequate knowledge on reporting and reordering supplies contribute to a chain of shortage of supplies. Sustained food and nutrition to support Children Living with HIV is a weakness nationally. There are many children who are re-tested and therefore there is double counting and misuse of test kits. Most mothers would not easily agree that her child is infected and therefore do not accept testing when she is requested.

2. Retention

Adolescents living with HIV experience stigma and peer pressure, hence poor adherence, depression and changes in behavior.

3. Community

It's difficult to link MVC to HIV test in villages with no health facilities. Low community awareness on supporting MVC with other social services. Donor/government dependency "syndrome" to community members. Communities need to be empowered to realize how they can utilize local resources to obtain

income to support MVCs and improve outcome. Distance to health facility - Some community members have to travel a long distance to access ART services. Inadequate home-based care service providers in the community. According to the nature of community linkage activities, HBCs are key actors in improving community health linkage. External support mindset for MVC and families who need support beyond HIV services. Low Motivation and recognition of Community QITs by local authorities. Low community awareness and patriotism on identifying and support OVC.

4. Leadership

Inadequate supportive supervision especially in budgets for RHMT/CHMT to conduct frequent visits.

5. Disclosure

Parent/guardian resistance to disclose HIV status to their children despite their maturity. Adolescents face challenges when they disclose their HIV status to teachers and fellow students.

6. Challenges along the Pediatric Treatment Cascade

Case identification ages 0-18 months: Lack of first HIV testing 4-6 weeks after birth and testing through child health service delivery points. Delayed or misplaced results. HEID cards and reagent stock-outs. Dysfunctional DBS transportation to zones. Repeat HIV testing to mothers initially tested negative.

Children older than 18 months: Lack of health worker initiative to test. Children coming to facility with illnesses related to HIV suspicion. Test kit stock-outs. Age of consent for adolescents.

Patient knowledge and support groups: Problems with trust and confidentiality among adolescent /teen clubs result into weak peer support groups.

Low positivity rate: Unfocused HIV testing. Unrealistic target set.

Low enrolment of children to CTC/few pediatric clients on ARV: Inadequate documentation. Inadequate linkage- anonymous/fake IDs, wrong address

Low retention of clients to CTCs/LTFU: Unfriendly services. Late disclosure. Erratic availability of ARV pediatric formulations (ABC/3TC/LPVr). Erratic supply of HIV test kits and DBS kits. Shortage of skilled staff, an overall issue nationally as Tanzania is working with 35% capacity of HR. Lack of confidence to provide pediatric care among health care providers.

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