Evaluation of PMTCT Program in Refugee Camps in North Western Tanzania, 2003-2007

Technical Report

IFAKARA Health Institute (IHI)
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Location  North Western Tanzania refugee camps (Mtabila, Nyarugusu and Lugufu)

Duration  December 2008 to March 2009

Beneficiaries  Key users of the findings of the evaluation:
- UN agencies (UNICEF, UNHCR, WFP)
- Ministry of Health and health focal points at district and regional level in Kagera and Kigoma Regions
- Partner NGOs working in the camps in North Western Tanzania.
- Current BPRM and new donors
- Refugees’ countries of origin (Burundi and DRC)

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LIST OF ACRONYMS

AFASS  Acceptable, Feasible, Affordable, Sustainable and Safe
AIDS  Acquired Immune Deficiency Syndrome
ANC  Ante Natal Clinic/Care
ART  Anti Retroviral Therapy
AZT  Azidothymidine
BCC  Behavior Change Communication
BPRM  Bureau of Population, Refugee and Migration
CS  Caesarean Section
CTC  Care and Treatment Centre/Community Therapeutic
DRC  Democratic Republic of Congo
FGD  Focus Group Discussion
HCT  HIV Counseling and Testing
HIT  Health Information Team
HIV  Human Immunodeficiency Virus
IHI  Ifakara Health Institute
IND  In-depth Interview
IRB  Institutional Review Board
KCMC  Kilimanjaro Christian Medical Centre
L&D  Labour and Delivery
M&E  Monitoring and Evaluation
MoHSW  Ministry of Health and Social Welfare
MTCT  Mother to Child Transmission
NACP  National AIDS Control Program
NGO  Non Governmental Organization
NVP  Nevirapine
PMTCT  Prevention of Mother to Child Transmission
PNC  Post Natal Care
RCHO  Reproductive and Child Health Officer
RPR  Rapid Plasma Reagin
STI  Sexually Transmitted Infections
TBA  Traditional Birth Attendant
TACAIDS  Tanzania Commission for AIDS
THMIS  Tanzania Health Metrics Information System
TRCS  Tanzania Red Cross Society
UN  United Nations
UNHCR  United Nations High Commission for Refugees
UNICEF  United Nations Children Fund
UNGASS  United Nations General Assembly Special Session
WFP  World Food Program
WHO  World Health Organization
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EXECUTIVE SUMMARY

This report presents key findings from an evaluation of a PMTCT program that has been implemented in 13 refugee camps in North Western Tanzania between 2003 and 2007. Due to ongoing refugee repatriation, the evaluation took place in three remaining camps namely Nyarugusu and Mtabila in Kasulu district and Lugufu in Kigoma rural district. By the end of 2007, the three camps comprised a population of 123,870 out of the total refugee population of 215,337. The evaluated program was being implemented by Tanzania Red Cross Society with financial and technical support from UNICEF. Other collaborating organizations include UNHCR, WFP, MoHSW and other agencies.

PMTCT efforts in Tanzania include the following prongs; primary prevention of HIV infection among parents to be, which may be achieved through among others, behavior change communication (BCC). Prevention of unintended pregnancies among HIV-positive women through family planning forms the second PMTCT prong. Prevention of transmission from HIV positive pregnant women to their offspring, through provision of ART prophylaxis is at the core of PMTCT. Prong 4 is comprehensive HIV care for women, their children and families including prophylaxis versus opportunistic infections and ART for eligible clients.

Now that the camps are coming to a close, not less than three quarters of the camps population have repatriated. Since the start of the PMTCT program in the North Western Tanzania refugee camps in 2003, there has been one partial external evaluation in 2004. This evaluation, however, is to analyze the program more comprehensively in a wider scope of focus.

The specific objectives include:

1. To evaluate the Impact and Effectiveness of PMTCT activities in the refugee camps
2. To evaluate the relevance of PMTCT activities in the refugee camps in terms of its relevance to the national guidelines on PMTCT implementation.
3. To evaluation the efficiency of PMTCT activities in the refugee camps.
4. To evaluate whether PMTCT activities in the refugee camps have been implemented in a sustainable way to enable its impact to continue after repatriation of refugees. (In such a way that those in need of the PMTCT services can have access when they arrive in their homeland).

The evaluation study employed both quantitative and qualitative methods. Quantitative information was collected using a desk review tool and a semi structured questionnaire through interviews with clients and service providers. Focus Group Discussions (FGD) were done with PMTCT implementers, PMTCT users, adult males in the community and women of reproductive age; and In-depth Interviews
(IND) with both health providers and collaborators/stakeholders. Findings from both FGDs and INDs were applied to answer important qualitative parameters around service quality, attitude, perception, knowledge as well as to explain the quantitative findings.
KEY FINDINGS FOR EACH STUDY OBJECTIVE

PMTCT Impact and Effectiveness

**Key Findings:**

- The PMTCT program reached it 50% MTCT reduction target in 2004 and 2005-2006 had almost close to 50% reduction rate. The overall MTCT reduction rate, from 2003 to 2007 was 41.2%.

- The camps demonstrated high frequency of health facility delivery at 77.1%, higher than the national average at 47.2%. Prevalence of HIV among pregnant women in the camps was found to be 0.9%, which is comparatively lower than the regional (Kigoma) level at 1.8% as well as the national average of more than 9.6%.

- There is outstanding knowledge of family planning methods, but females are less frequent users of these services and the decision for family planning option depend on male’s recommendations.

- There was consistent decline in prevalence of STIs among pregnant women and partners.

- Lack of alternative infant feeding was a challenge in PMTCT implementation.

- Confidentiality of HIV positive mothers and children has been adequately observed.

- All the HIV positive clients counseled individually on infant-feeding.

- The PMTCT program in the camps has constantly provided Nevirapine to both mothers and babies from 2003 to 2007.

- All HIV positive women provided with the modified obstetric care as prerequisite to all clients irrespective of the HIV sero status.

- All babies born to identifiable HIV positive women were given cotrimoxazole prophylaxis.

- Prophylaxis anaemia drugs were given to pregnant mothers during ANC visits.

PMTCT Relevance to National Guideline

**Key Findings:**

- PMTCT activities in the camp were implemented according to national guidelines.

- Training of staff was carried out regularly by professionals from the Ministry of Health and Social Welfare.

- Across all three camps, guidelines were displayed and were easily traced particularly in the ANC and HCT sections.

- Update of guidelines was well done whenever there was a need.
There was frequent generation of new guidelines for the purpose of improving services and survival. However, it was deduced from the evaluation that disruptions in routines as a result of adopting new guidelines were not favorable among staff.

**Efficiency of PMTCT activities in the refugee camps**

**Key Findings:**

- Human resources were available, although turnover was very high compelling the conduct of trainings on annual basis.
- Supplies and equipments were available on demand and financial resources to execute program activities were in most cases obtained on time and according to plans.
- The national PMTCT guidelines were applied almost consistently.
- The training is carried out by professionals from the Ministry of Health and Social Welfare (MoHSW).
- There were no formal data management systems at health facilities in the camps.
- Referral systems in the all three camps followed the MoHSW guideline.
- Cost effectiveness analysis and partner coordination information could not be done due to lack of reliable data.

**PMTCT Sustainability**

**Key Findings:**

- Implementation of PMTCT activities was performed in the refugee camps by staff from both the refugee communities and Tanzanian health personnel.
- Clients were provided with PMTCT repatriation packages that included supply of three months medication and information regarding access of closest PMTCT centre in their homeland.
- Political instability in Democratic Republic of Congo has been a key limitation in establishing collaborative efforts between DRC and the PMTCT refugee program in Tanzania for the purpose of the former to provide PMTCT services to returning refugees.
- Collaborative effects to provide PMTCT were very successful in Burundi. Refugees from Burundi had clear knowledge on where to access PMTCT services in their homeland.
- Training of staff (refugees) was part of the sustainability approach. This created a pool of PMTCT professionals to pioneer the implementation of PMTCT in their homeland.
- Retention of local health care providers particularly counselors has been a challenge. They may be attracted elsewhere in the labour market.
Recommendations

- To increase impact and effectiveness of PMTCT, the recommendations are:
  - The ANC and L&D should monitor STD trends among HIV positive pregnant women as a risk factor indicator to MTCT and a proxy indicator for HIV transmission among adults.
  - Women should know their HIV status and should receive appropriate counseling to help them make and carry out informed infant feeding decisions.
  - Utilize the PMTCT provision set up in the refugee camps as a future point for care and treatment.
  - PMTCT implementers and administrators should work together in developing strategies to further strengthen male partner involvement in maternal care and family support for infant feeding.
  - Issues around anemia and blood transfusion need to be considered as part of PMTCT monitoring since these are risk factors to MTCT.
  - Include community sensitization as part and parcel of the PMTCT program. Its contribution greatly affects the PMTCT outcome and overall impact. There is need for development of a sensitization action plan which aims at promoting local community support to community members living with HIV. This may help rectify issues of lack of trust, stigma and misconceptions.

- For PMTCT efficiency, the recommendations are:
  - Implementing agencies should improve data management system and financial recording system. This is important in order to monitor the program systematically and effectively, which would also allow further analysis on cost-effectiveness and improvement of the program in the future.

- For PMTCT sustainability and adherence to guidelines, the recommendations are:
  - Provision of enough information on the exact geographical availability of PMTCT services in the refugee home country and on how to access them after repatriation is important.
  - Strategize on how to help the Congolese establish / identify PMTCT centers in their country of origin despite existing political instability.
  - Record keeping is important for successful management of the PMTCT program. The PMTCT program should develop an M&E framework that incorporates all guidelines and indicators that affect the PMTCT program. It should also include indicators that can measure the performance of HIT and TBAs.
The records department should develop a user friendly archiving system that makes retrieval of records easier.
INTRODUCTION

HIV Burden and Available Interventions
Globally, there are almost 40 million people living with HIV/AIDS (UNAIDS 2008), where by millions of lives have already perished over the years and more are expected to come. The HIV virus remains to be at the centre stone of medical challenges in regards to developing a cure, developing a vaccine for protection and blocking the mode of HIV transmission. As a result, the rate of HIV infection continues to be high with more than 10,000 new HIV cases every day. Interpretations from scientific studies point out women and children to be the most at risk group, both at global and national level. In Tanzania, The TACAIDS report of 2008 shows that HIV prevalence is higher among women than men (7% and 5% respectively)((TACAIDS) and Statistics(NBS) 2008). Moreover, the key modes of HIV infection in the country are heterosexual practices as well as mother to child transmission.

The state of being a refugee is an important risk factor to HIV infection and community transmission (Tanaka, Kunii et al. 2008). Displacement of populations greatly disrupts the socio, economic and cultural safety nets that would normally be there to support vulnerable groups in the community. Furthermore, idleness has many times led to high alcohol intake and drug abuse which eventually increases the rate of promiscuity, sexual abuse, rape and sexually transmitted infections including HIV/AIDS. Tanzania has for many years provided home for many men, women and children who fled their countries as a result of war and political instability.

Transmission of HIV from mother to child has for a long time denied a lot of babies’ freedom from HIV infection and subjected them to fatal pain and suffering. Worldwide about 800,000 children a year get HIV infection from their mothers, either during pregnancy, childbirth, or breastfeeding(UNICEF 2003). Mother to child transmission is the major source of HIV infection in children below the age of 15 years. According to the National AIDS Control Program (NACP) in Tanzania, the prevalence of HIV infection among pregnant women is estimated to range from 9.6% - 20% across the country. Assuming 1.5 million annual live births, 12% HIV prevalence among pregnant women, and 40% risk of HIV transmission from mother to child with no PMTCT services, and 1-2 years of breastfeeding, approximately 180,000 infants in Tanzania are exposed to the risk of HIV infection each year and 72,000 will become HIV infected(CDC 2003). Preliminary studies revealed a small number of HIV sero-positive pregnant mothers at 2% to 4% in the camps. Even though this is significantly low compared to the general Tanzanian population as well as other communities elsewhere, it is still important to put firm HIV control programs to prevent disease escalation because every life counts.
In the case of PMTCT, the programs prevent infections among children as well as reinforce national HIV prevention activities among adults. Clients are given an opportunity to know their status; HIV infected clients are linked to care; risk reduction is promoted among HIV negative clients.

In Tanzania, PMTCT intervention started in May 2000, through the National AIDS Control Program (NACP) under the Ministry of Health and Social Welfare. PMTCT efforts in Tanzania include the following prongs; primary prevention of HIV infection among parents to be, which may be achieved through among others, behavior change communication (BCC). Prevention of unintended pregnancies among HIV-positive women through family planning forms the second PMTCT prong. Prevention of transmission from HIV positive pregnant women to their offspring, through provision of ART prophylaxis is at the core of PMTCT. Prong 4 is comprehensive HIV care for women, their children and families including prophylaxis versus opportunistic infections and ART for eligible clients.

UNICEF and other UN agencies have taken the lead in helping developing countries to mount programs for prevention of mother-to-child transmission (PMTCT) and these included babies in unstable conditions such as refugee camps. UNICEF in collaboration with UNHCR and other agencies embarked on the initiative to prevent mother to child transmission of HIV in North Western Tanzania (NWT) in 13 refugee camps following a pilot study in 2002 in Lukole camp. This current study was commissioned to evaluate both the process of implementation and impact of PMTCT program outcomes in the study area. This document will report on findings and recommendations following the evaluation that was carried out between December 2008 and March 2009 in Kigoma region. Although the camps are expected to come down to a close this year, evaluation outcomes will be available as a reference document for those implementing PMTCT programs or those who intend to start such programs in similar settings elsewhere.

**PMTCT Program in North Western Tanzania**

Back in 2002 when the PMTCT program started, north western refugee camps in Kigoma and Kagera were hosting almost 500,000 refugees in 13 camps. The major three nationalities were people from Congo, Rwanda and Burundi. During the time of the study, most camps had closed down leaving Lugufu (Congolese) in Kigoma rural district; and Nyarugusu (Congolese) and Mtabila (Burundian) in Kasulu district. Each one of those camps had at the time of evaluation an average population of 50,000.

The health facilities in the refugee camps were well furnished and stocked with equipment which can perform as a district hospital. The PMTCT program in the refugee camps operates in line with the
PMTCT guidelines set by the Ministry of Health and Social Welfare, both for staff training aspects as well as program services delivered. As a health system intervention, PMTCT demand creation was done through community sensitization mechanisms which included Health Information Teams (HIT) and Traditional Birth Attendances (TBA) under the leadership of the clinics. Each HIT staff serves a population of 1000. The HIT group reaches out to the community through campaigns and individual level discussions to create awareness about risks of pregnancy and need for hospital care, danger signs, male involvement. In the community, the HIT staff worked with selected elders, religious leaders and traditional healers. TBAs had defined roles for providing education on maternal and post delivery health care, hospital delivery, ANC attendance, early ANC and male involvement. Moreover, TBAs are discouraged to assist delivery but rather are promoted to lead patients to the health facility for that service.

Progress monitoring of activities at community level was done through weekly meetings during exchange of information. HIT and TBAs brought feedback from the community, on how a certain campaign was received, challenges and concerns raised by the community. In return, health workers at the facility provided guidance and support. Both TBAs and HIT had a list of all members in their respective catchment area. TBA and HIT overall supervisors were responsible for producing reports which were presented weekly on follow up meetings in the clinics.
Fig 1: Conceptual framework of PMTCT implementation in the camps

IN THE REFUGEE CAMP HEALTH CENTER

ANC Period
HIV testing, antenatal care, health education, antiretroviral treatment.

Term Period (L&D)
Health education, antenatal care, health education, antiretroviral treatment.

Follow up Period
HIV testing, antenatal care, health education, antiretroviral treatment.

IN THE COMMUNITY

HIT campaigns
TBAs identify pregnant women
Religious leaders
Traditional healers

TBA guide pregnant woman and spouse (ANC1)

Community Transforms

MTCT reduction
More staying negative
Less HIV positive are pregnant
Healthy HIV positive women and their children

Improved health seeking behavior
More aware about PMTCT
More aware about life saving skills of hospital
More hospital deliveries
PMTCT in the Refugee Camps
This is depicted in Figure 1 above and explained in the following paragraphs.

Community
HIT and TBAs together with other influential community members such as religious leaders educate the community on appropriate health seeking behaviors for control and prevention of diseases. Feedback meetings on outcomes and challenges in the community continue weekly at the hospital, which are addressed for improved results of HIT and TBA activities. TBAs identify pregnant women and lead them in couples of pregnant woman and spouse to the clinic for ANC visits.

PMTCT Practices in the Refugee Camp Health Facility
The hospital is the entry point for PMTCT and it starts with voluntary counseling and HIV testing during ANC visit. HIV positive pregnant women are given Nevirapine and infant feeding counseling initiates. HIV positive males are advised on family planning methods to prevent future pregnancies in HIV positive parents. HIV negative parents go through counseling to promote risk reduction behavior. HIV positive pregnant women are given a NVP tablet to take at onset of labour.

At onset of labour, clients take in a single dose of Nevirapine, and after delivery newborns are given Nevirapine (syrup). Before discharge HIV positive mothers make a decision for the type of infant feeding they will adopt. Moreover, HIV positive mothers are also counseled on family planning. During PNC, the new mother is further counseled on infant feeding, given advice and support. Home visits are carried out especially for those who fail to come to hospital. These visits provide both treatment and psychological support to client and family.

Impact and Outcome
Effective implementation of activities in the community by HITs, TBAs and others, together with activities at the hospital by clinical health personnel and others, could result in MTCT reduction. Mother to Child Transmission reduction may be presented with more parents staying HIV negative, less HIV positive women getting pregnant again, and more HIV positive women selecting appropriate infant feeding options according to their individual circumstances. Other impacts in the community include improved health seeking behaviors, more males getting involved in maternal health care of their spouses and more clients having hospital deliveries.
Study Rationale
Outcome of the PMTCT program had partially been evaluated through key indicators that were available through the health information system. However, there was no evaluation to identify the strengths and weaknesses of the program for the purpose of improving its quality. This evaluation sought to investigate both process and impact of the PMTCT program from 2003 to 2007 in the three refugee camps (Mtabila, Nyarugusu, and Lugufu). It is expected that the knowledge will be utilized by UNICEF and other partners in the planning of future interventions. The PMTCT program could potentially continue for the host communities after the closure of the camps as part of Joint Program 6.1 under UN Delivering as One pilot, but it is yet to be decided.

Tanzanian Current Guidelines Related to ARV Provision
There are two recommended ARV prophylaxis regimens for preventing MTCT as per national guidelines.

1st: A combination regimen for use at all health facilities which have the capacity to initiate ARV treatment and have the ARV medications available.

2nd: A minimum single-drug regimen that can be used at sites which do not have capacity to initiate ARV:

Women testing HIV positive during ANC who are not eligible for ARV treatment
Pregnant women who do not need ARV treatment for their own health should be given combination ARV prophylaxis starting in ANC.
During ANC: Start AZT 300 mg BD from 28 weeks or anytime thereafter.
During labour: Give NVP 200 mg at the onset of labour. Give AZT 300 mg and 3TC 150 mg at the onset of labour. Continue AZT every 3 hours and 3TC every 12 hours until delivery.

During the postpartum period: Continue AZT 300 mg BD and 3TC 150 mg BD for 7 days. All infants receive NVP 2 mg/kg as soon as possible after delivery and AZT syrup 4mg/kg BD for 4 weeks (1 month) if a mother received AZT for less than 4 weeks or 1 week (7 days) if a mother received at least 4 weeks of AZT during ANC.

Pregnant women presenting during labour who test HIV positive
During labour: Give NVP 200 mg at the onset of labour. Give AZT 300 mg and 3TC 150 mg at the onset of labour. Continue AZT every 3 hours and 3TC every 12 hours until delivery. During the postpartum period: Continue AZT 300 mg BD and 3TC 150 mg BD for 7 days.

\(^1\text{Source: National AIDS control Program-NACP-Personal communication}\)
NB: All infants receive NVP 2 mg/kg as soon as possible after delivery and AZT syrup 4 mg/kg BD for 4 weeks.

*Mothers who test HIV positive after delivery*

All infants receive NVP 2 mg/kg immediately after birth and AZT syrup 4 mg/kg BD for 4 weeks. ARV prophylaxis should be started for the infant as soon as he or she can tolerate oral feedings and within 12 hours of delivery.

*Conclusion: Infant ARV prophylaxis*

A single dose of NVP syrup (2mg/kg) should be given to all infants born to HIV-infected mothers as soon as possible after birth, and within 72 hours of delivery.

As for ARV treatment-initiating sites, AZT syrup (4 mg/kg BD) should be given to HIV-exposed infants twice a day for 4 weeks. If a mother received at least 4 weeks of AZT as part of her ARV treatment or prophylaxis regimen, then the duration of AZT prophylaxis for the infant can be shortened to 1 week (7 days).

*Evaluation Objectives*

**General Objective:**
To evaluate the success of PMTCT program in reducing the proportion of HIV infected infants born to HIV infected mothers.

**Specific Objectives:**
*Objective 1: To evaluate the Impact and Effectiveness of PMTCT activities in the refugee camps*

The expected program impact included:

i) To reduce MTCT by 50% from baseline levels by the end of 2005

ii) To counsel 100% of antenatal mothers and test 80% of those counseled by the end of 2005

iii) To counsel and test 50% of male partners by the end 2005

The specific indicators describing level of effectiveness in PMTCT service delivery:

a) Has the confidentiality of HIV positive mothers and children adequately been observed?

b) Are all the HIV positive clients counseled individually on infant-feeding?

c) Are both mothers and babies provided with ARV?

d) Are HIV-exposed babies provided with CTX?

e) Are HIV positive women provided with the modified obstetric care?
f) Have the sufficient measures been taken for prevention and treatment of anemia and STD?
g) Do pregnant mothers manage to start ANC early?
Objective 2: To evaluate the relevance of PMTCT activities in the refugee camps
To find out if the national guidelines on PMTCT was relevant for the PMTCT program in the refugee camps.

Objective 3: To evaluate the efficiency of PMTCT activities in the refugee camps
This part looked into implementation costs, timely availability, and human resources, planned and actual costs incurred in running the program. It is also providing an insight on training, guidelines, supplies, data management, infrastructure, partner coordination, referral services involved.

Objective 4: To evaluate whether PMTCT activities in the refugee camps have been implemented in a sustainable way whereby its impact will continue after repatriation/camp closure
This objective investigated the level of preparedness in making sure that those who repatriate and are in need of the PMTCT services can access them when they arrive in their homeland. Also, the objective explored the level of training to produce experts in different departments of PMTCT who can be pioneers in the implementation of this program in their homeland. Furthermore, the objective investigated the level of information provided to refugee clients with regards to closest PMTCT centers that can be accessed after repatriation.
METHODOLOGY

Study Area and Population
Kigoma region is located on the rift valley fringe of Lake Tanganyika. Historically, Kigoma has been the city of famous explorer and missionary Dr Livingstone. The region is terminus of the railway from Dar es Salaam. Kigoma is connected by ship with Congo and Burundi and has been an entry point for refugees from Congo Rwanda as well as Burundi. The UNICEF supported PMTCT sites form part of PMTCT sites operating in the region. This evaluation was conducted in three North Western refugee camps namely, Mtabila, Nyarugusu and Lugufu.

Study Design
This evaluation was a cross sectional study which employed a triangulation of methods, both quantitative and qualitative. The approach facilitated thorough understanding of quantitative data, and allowed support of qualitative findings through quantitative outcomes.

In terms of sample size, most of the data were qualitative and desk review. As such, the number of respondents was selected to represent subgroups of interest to gain an understanding of the objectives. For client exit interviews, one of the key indicators in the line of inquiry in the evaluation was client pre-test counseling. Therefore we used this indicator for sample size calculation. From desk review findings, “the overall pre-test counseling was 92.3%”. Based on this, we determined the sample size which was needed. Actual computations were done by using WHO sample size software. In order to allow for drop-outs or refusals, we added 10% in the sample and this gave a total of 129 as the number of clients required for interview.

Data Collection

Tools
The tools included Questionnaires, Focused Group Discussion (FGD) guides, and guides for In-Depth Interviews and Physical Site Assessment. Translations of the tools from English to Kiswahili were done before pre-testing and were revised accordingly. The following tools were produced:

1. Desk Review (For PMTCT indicators)
2. In-depth / key informants tools (For PMTCT implementers and PMTCT partners)
3. Physical site assessment tools
4. Client exit questionnaires
5. Providers questionnaires (For ANC, HCT, L & D and PNC health workers)
6. Focus Group Discussion (For Current and potential service users, Adult)
female from community members and Adult male from community members)

Training and Pre-testing of the Survey Tools and Field Work
A total of seven research assistants were trained at IHI Dar office for two days in January 2009. Pre-testing of the instruments was done at Amtulabhai Clinic in Dar Es Salaam. The pre-testing was very useful in testing flow and relevance of the questions, wording and terminologies (whether they were understood by the community), validity and estimating the duration for each questionnaire. Significant changes were made on the questionnaires after the pre-test. These included changes on the sequence of some questions for better flow and rewording for better understanding. Some responses were restructured into “mentioned” and “not mentioned” and a few questions were added. For each district a survey team comprised of three supervisors and research assistants.

Desk review
The desk work involved review of all the PMTCT-related implementation documents available at both UNICEF Country office (Dar es Salaam) and the Zonal offices (North Western Tanzania) using developed review guides. For this review, annual descriptive reports were collected especially on all PMTCT indicators in particular year starting from 2003 to 2007. MTCT reduction rate was calculated based on UNGASS core indicator 6.

Quality Control, Data Processing and Analysis
Measures employed in the field to ensure good quality data included proper training of the field team and daily review of completed forms. As soon as completed questionnaires reached the data unit at IHI, each was assigned a unique serial number. Data was then double entered using MS Access. Analysis was done in STATA 10.0 software. Qualitative data was manually managed whereby, the tapes used to record the interviews in field were transcribed and the notes typed. The data was grouped in respective sub-subjects based on the interview guides, and then analysis was done by themes as guided by the study objectives.

Ethical Consideration
This evaluative study was reviewed and approved by the Ifakara Health Institute – Institutional Review Board (IHI-IRB). Informed Consent of participants was obtained verbally. Major areas of verbal concern included the potential emotional stress that participants may face in discussions or interviews with participants who themselves are HIV cases or have been affected indirectly. To address that challenge when it happens, the evaluation team recruited a qualified counselor on board.
FINDINGS

The field work lasted 14 days in Nyarugusu and Mtabila camps. However, in the Lugufu camp the field work lasted for 20 days because some days were lost when study participants had to go for a registration process conducted by UNHCR. Overall the survey was successfully done but not without some operational limitations and hurdles. All interviews were done. All planned FGDs were conducted but few in-depth interviews were missed (those missed for interviews were DMO for Kigoma Rural District). Table 1 presents a summary of data from various tools. The explanation of findings is provided in the following paragraphs.

Table 1: Summary of Data collected through FGD, In-Depth, Desk Review and Physical Site Assessment

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<td>Semi-structure Questionnaires</td>
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<td>Focus Group Discussions</td>
<td>FGD Guide</td>
<td>12</td>
<td>Done</td>
</tr>
<tr>
<td>Physical Site Assessment</td>
<td>Inventory Checklist</td>
<td>3</td>
<td>Done</td>
</tr>
<tr>
<td>PMTCT Implementers and Partners</td>
<td>Key Informant Tools</td>
<td>9</td>
<td>DMO from Kigoma rural was not interviewed</td>
</tr>
<tr>
<td>Documentary Review</td>
<td>Desk Work Guides</td>
<td>______</td>
<td>Done</td>
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</tbody>
</table>
**Impact and Effectiveness of PMTCT Program**

**PMTCT Coverage and MTCT Reduction**

Target MTCT reduction of 50% was achieved only a year after the start of PMTCT in 2004. The MTCT reduction was maintained close to 50% in the following two years. The overall MTCT reduction rate, from 2003 to 2007 was 41.2% on average. Figure 2 below displays a trend of MTCT reduction rate for the years from 2003 to 2007.

![MTCT reduction rate by year](image)

**Fig 2: MTCT reduction rate by year**

There has been very good outcomes on strategies to promote “ANC attendance & Early ANC”. Likewise, pregnant women counseling and testing has been maintained impressively high, and as a result, it reached 100% in 2006 (Annex 3). In the same year, hospital deliveries also reached the highest rate of 83.2% and the least in 2005 at 71.1% (Annex 4). Delivery rate at the health facilities increased steadily from 76.9% (7,940/10,324) in 2003 to 80.2% (6,650/8,296) in 2007. There was a steady increase from 2003 to 2007 in males coming to hospital with spouse during ANC, which is an opportunity for male counseling and testing for HIV (Annex 5). Data analysis revealed male involvement increased from 68.6% (7,086/10,324) in 2003 to 72.4% (6,571/8,648) in 2007 (Fig 3), concurrently with the hospital delivery rate. Moreover, the percentage male partners who agree to HIV testing as well as post test results increased by 5.5% between 2003 and 2006.
The PMTCT program in the camps constantly provided Nevirapine to pregnant mothers from 2003 to 2007 (Annex 6). In addition, the number of babies born to identifiable HIV positive women who received Cotrimoxazole prophylaxis increased steadily between 2003 to 2007 (22.3% in 2003 to 61.9% in 2007; p-value = 0.0001). Overall results from 2003 to 2007 showed that more than a half of all babies born to HIV positive mothers were given Cotrimoxazole prophylaxis (55.8%).

Nevirapine given to mother and child reduces risk of MTCT at birth. The overall percentage of HIV positive mothers who were provided with Nevirapine was 86.8%, while the overall percentage of newborns to HIV positive pregnant mothers who were given a dose of Nevirapine was 85.2%.

The overall percentage of women diagnosed as RPR positive was 3.9% and all were provided with STI treatment. As a result, STI prevalence declined from 5.4% in 2003 to 2.7% in 2007. To a great extent, the results quoted above have contributed towards the success in reducing the number of HIV infected infants and children born to HIV infected mothers.

The outcome of MTCT largely depends on the successful implementation of health system and community factors based on four prongs of PMTCT: provision of ARVs for PMTCT and follow up linkages, communication for behavioral changes and promotion of family planning. The details of the factors that contributed to the reductions of MTCT are provided in the sub-sections that follow.
An efficiently implemented PMTCT package should have an impact beyond MTCT reduction. PMTCT prongs contribute to reduction of the number of HIV negative persons who turn HIV positive among potential parents, which in result reduces the number of HIV cases who fall pregnant. In the evaluated camps, the overall HIV prevalence among female and male ANC attendees decreased from 1.6% (106/6,780) and 1.4% (75/5,515) in 2003 to 0.9% (64/7,231) and 0.6% (31/5,058) in 2007 respectively (Fig 4). The results showed an overall increase in the percentage of pregnant women who agreed to counseling for HIV test from 80.4% (7,837/9,745) in 2003 to 96.8% (7,320/7,564) in 2007 as indicated in Annex 3.

Figure 4: Trends of HIV positive pregnant women and men

Decrease in the percentage of HIV positive pregnant women is an indication that prongs number 1 and 2 of the PMTCT program achieve positive impact. The aim of prong 1 is to carry out behavioral change communication for the purpose of reducing the number of potential parents putting themselves at risk of getting HIV infection and thereby reducing the number of HIV positive pregnant women. There are a number of previous HIV/AIDS activities which took place in the camps, which may have contributed to the reduced trend in HIV burden among pregnant women and the refugee community at large.

According to an in-depth discussion with a UNICEF focal person as well as other PMTCT implementers in the camps, campaigns to reduce the HIV burden in regards to rate of infection were more active years ago. Moreover, most of these HIV/AIDS programs and campaigns aimed at youth, by providing counseling services as well as health education on family planning methods. Other programs include
home based care programs which are currently being implemented in the camps. The home based care programs provide health education on HIV/AIDS.

On the other hand, the second PMTCT prong promotes the use of family planning methods with HIV positive individuals who can become parents. This in turn is expected to reduce the number of newborns put at risk of HIV infection through MTCT. Figure 5 below shows that injection, pills and condom are favorable family planning methods in the camps.

![Proportion of exit clients' knowledge about the different options of family planning methods](image)

**Fig 5: Proportion of exit clients’ knowledge about the different options of family planning methods**

About 87.61% (191/218) of the clients knew at least one type of family planning method. Exit interviews conducted revealed that all clients interviewed knew injectables as a family planning method. However, only 39.57% (74/187) of the female clients use any of the family planning methods mentioned. The low coverage in use of family planning among female clients means that the outcome of prong number 2 which aims at minimizing pregnancies among HIV positive parents, will have to rely mostly on male family planning methods such as male condoms and sterilization.

Data collected in the camps show that male sterilization as an option is almost none utilized, where as male condom consumption is very high. The number of condoms consumed may help get a rough interpretation on the trend of protective sexual behaviors in the community.

From this evaluation it can be stated that HIV prevalence among pregnant women attending ANC has declined with time. However, the PMTCT program in the refugee camps cannot take sole credit for HIV infection trend among pregnant women. Other HIV programs are part of the context and have
had a significant role. Some are still ongoing, for instance the home based care program promoting HIV testing and counseling as well as safe sexual practices and more.

**HCT coverage and confidentiality**

An impressive picture is seen in the evaluated camps in regards to confidentiality. Client satisfaction with regards to confidentiality in HCT, ANC, L&D and PNC was very high at 95.9%. Table 2 below shows the specific satisfaction level by camp.

**Table 2: Percentage distribution of HCT, ANC, L&D and PNC clients who satisfied with confidentiality of services provided**

<table>
<thead>
<tr>
<th>Type of services</th>
<th>Lugufu</th>
<th>Mtabila</th>
<th>Nyarugusu</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 118</td>
<td>N= 71</td>
<td>N= 29</td>
<td></td>
</tr>
<tr>
<td>HCT</td>
<td>91.7% (44/48)</td>
<td>100%(35/35)</td>
<td>100%(6/6)</td>
</tr>
<tr>
<td>ANC</td>
<td>85.7%(24/28)</td>
<td>100%(30/30)</td>
<td>100%(23/23)</td>
</tr>
<tr>
<td>L &amp; D</td>
<td>100% (20/20)</td>
<td>80%(24/25)</td>
<td>0</td>
</tr>
<tr>
<td>PNC</td>
<td>100% (22/22)</td>
<td>100%(1/1)</td>
<td>0</td>
</tr>
</tbody>
</table>

Moreover, satisfaction with the level of confidentiality of services that was provided at HCT, ANC, L&D and PNC differed between female and male clients. Women in all three camps were of the same opinion that, there was satisfactory level of confidentiality although in males this was not the case. This fact is evidenced among female as was documented through focus group discussion as follows:

“Ahh there is no single information that is spread outside the facility about one’s HIV status” (Female respondent from Nyarugusu Camp – Focus Group Discussion)

“Confidentiality is there, other people know your sero status only when the disease has developed and clear signs of sickness are apparent…” (Female respondent from Lugufu Camp – Focus Group Discussion)

Among males, there was a mixed picture regarding the perception of confidentiality. While males in Nyarugusu and Lugufu (the Congolese camps) reported to be satisfied with the services (90%), majority of males from Mtabila (the Burundian camp) complained about lack of confidentiality among health providers especially those with refugee status.

“We request caregivers to be honest…… there are some health workers who cannot keep client sero status as confidential, this irritates very much. Why should my results be known to people whom I have not consented?” (Male respondent from Mtabila Camp – Focus Group Discussion)
Some members of Mtabila Camp are of the opinion that all positive HIV individuals should be publicly announced. In their opinion this will allow for better dissemination of knowledge on how to halt transmissions of the disease, particularly from HIV positive undisclosed members of the community.

Interviews with counselors revealed very good understanding about ethical principles in confidentiality as quoted by international and national guidelines and the importance of abiding to them. Although the camps were many times understaffed, the few counselors available demonstrated advanced levels of professionalism and experience. Counselors were very close to their clients and had gained much trust to the extent that clients sought advice and support for large range of personal issues not just within the status of disease and its associated challenges.

Suitable infrastructure, staff training and good skills development were key contributors to successful adherence to ethical principles, reflected by confidentiality as a proxy indicator.

On physical view of the camps’ health centre facilities, it was found out that all three camp sites have the right infrastructure for practice of recommended standards of privacy and confidentiality. The waiting areas are comfortable and spacious, allowing many different hospital clients to mingle without being able to identify specific clients as HIV clients. Consultation rooms allowed patient privacy in such a way that clients in the rooms cannot be seen or heard from the outside. Infrastructure set up is an important factor for limiting or promoting clients turn up for counseling and testing.

This evaluation deduced that confidentiality practice in the camps is very well adhered to, with high level of satisfaction from clients. These high standards have been sustained for years. This is also supported by statements from members in focus group discussions who could not recall a time when breach of confidentiality was a challenge. The increasing trends in voluntary counseling and testing for HIV observed over the years reflect trust in counselors and the health system in the refugee camps. Satisfactory confidentiality practice will have partly contributed to increasing access of the PMTCT program to target population.

**Prevention and treatment of anaemia and STIs**

This evaluation revealed that many people were aware of the symptoms and signs of anaemia, whereby male and female refugees in all three camps were comfortably able to list all key signs of
anemia that included swollen legs, tiredness, whitish palms and eyes and others. Some males even highlighted that, involving males in the ANC takes credit for their understanding about anemia.

“For pregnant women the anaemia signs are many... it shows as swollen legs (oedema), some feel dizzy and others feel very tired and are unable to move... if you look on their palm it looks whitish ..” (Lugufu – male FGD)

Although not easily available to the refugees due to poor resources PMTCT users as well as non users mentioned green vegetables as a best way to prevent anemia as well as eating fish and beans. In the refugee camps all women received nutrient supplements (iron and other essential nutrients cereal called “Sooji”). Moreover, prophylaxis in terms of drugs was supplied during ANC. However, majority of women in focus group discussions commented that some pregnant women were not taking their anemia prophylaxis drugs. For example it was said:-

“These drugs are supplied here at the hospital for anemia, but most pregnant women do not use them while they are very anemic” (PMTCT user FGD – Lugufu)

The health workers in all camps reported that they were doing Hb estimation among HIV positive pregnant women and providing haematonics, however records were missing from the facilities to enable analysis of the prevalence of anemia and uptake of haematonics.

STIs are important risk factors to HIV infection among adults as well as from mother to child during giving birth. Important STIs include syphilis, gonorrhea as well as trichomoniasis. The refugee camp health facilities carry out the RPR test as a routine during the first ANC visit. Records from the health facilities in the camps showed that they succeeded in tracing and documenting all sexual partners in almost all ANC cases diagnosed. However, the RPR test did only test for syphilis, thereby leaving other STDs such as gonorrhea, trichomoniasis which are equally risky when it comes to HIV transmission. Absence of such tests creates a gap that could be responsible for HIV transmission in addition to heterosexually between adults and from mother to child at birth.

Infant feeding and its challenges
Breastfeeding provides nourishment for infant, immunity against infections, builds a loving bond between mother and infant. Breast feeding also carries a risk of HIV transmission, however, this risk must be weighed against the risk of replacement feeding in contexts where replacement feeding is not acceptable, feasible, affordable, sustainable and safe (AFASS).
Evidence has shown that breastfeeding for two years while being HIV positive increases the risk of infecting newborn by 10% to 20%. The Tanzania-National AIDS Control Program reports that out of 50,000 to 75,000 babies that acquire HIV infection annually, 25,000 to 37,000 are infected through breastfeeding. The risk of HIV transmission through breastfeeding can be significantly lowered by exclusive breastfeeding for six months. Mixed feeding in young infants carries a higher risk of HIV transmission due to exposure to bacteria or irritants which damage the oral mucosa and create entry point for HIV. Exclusive breastfeeding is therefore recommended for HIV-infected women for the first six months of life unless replacement feeding is AFASS.

During the period of review (2003-2007), the advice given to mothers was to abruptly stop breastfeeding when the infant reached six months of age and start replacement feeding\(^2\). Studies conducted in Burkina Faso have shown that breastfeeding is the natural thing to do and denying a child breastmilk may not be easily accepted (Hofmann, De Allegri et al. 2009). People may associate breastfeeding cessation with being HIV infected and this practice may lead to stigma and discrimination.

In poor settings, the ability of mothers to provide replacement foods that meet the nutritional needs of infants is also limited. Thus, there are multiple challenges in abrupt cessation of breastfeeding at six months, stigma & discrimination, affordability, sustainability, safety issues as well as social cultural norms which find it difficult for a mother to adopt an unnatural act of denying an infant breast milk (Miotti, Taha et al. 1999; Nicoll, Newell et al. 2000; WHO, UNICEF et al. 2003).

Interviews with health providers in the refugee camps revealed that counseling on infant feeding practices starts during the first visit to the ANC. Every woman that delivers at the health facility has numerous sessions on infant feeding, and by the time she leaves the hospital with her newborn, most would have made a decision on which type of infant feeding to adopt, given their individual circumstances. One health worker was quoted as saying:

“A new mother who is HIV positive does not leave hospital unless they have made up a decision on the type of infant feeding”. (Mtabila Camp)

\(^2\) Global guidance on infant feeding and HIV in the context of refugees and displaced populations has since changed (UNHCR, 2009). At six months, if replacement feeding is still not AFASS, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.
Exit interviews with women from HCT, ANC, L&D and PNC showed that, women do understand all the different ways a child can acquire HIV infection from mother, including breastfeeding. When mothers were asked if they were individually counseled on breast-feeding, over 90% (73/81) replied positively.

Through focus group discussions with men in the refugee community it was revealed that, most of them were not informed about how to feed exposed infants. Only men from Mtabila camp showed concern about being invited in sessions to learn about infant feeding practices. Some even highlighted that they would be more able to guide and support their wives on infant feeding if they had the knowledge. Some quotes include:

“This training has not been delivered to us men. However, it has to be remembered that a baby belongs to both a father and a mother. It is therefore important to train both parents on infant feeding since in most cases mothers do not take full responsibility in matters of baby care” (Males Respondent from Mtabila Camp – Focus Group Discussion)

Only a few males from Lugufu camp indicated some knowledge about exclusive breastfeeding with abrupt cessation at six months.

Both health workers and mothers reported that most mothers opt for exclusive breastfeeding for 6 months followed by abrupt cessation of breastfeeding and replacement feeding with soya porridge supplemented with essential nutrients. The major constraint to replacement feeding from birth was reported to be the financial cost of replacement feeding.

Practice of abrupt cessation of breastfeeding at six months is a significant challenge to all women in all three refugee camps. Most refugees complain of the difficulty in feeding babies replacement food after six months of exclusive breastfeeding. The nutrient supplemented soya porridge, although nutritious is not well received by infants from six months of age. This soya porridge is the only food the baby will have at every meal for as long as he or she remains in the camp. As a result many babies reject the meals, and cry for many hours due to hunger, and this tempts the mother to provide breastmilk as an alternative to calm the infant. Most users of PMTCT explained the challenge of abruptly stopping breastfeeding at six months:
“It is not very easy, for me breast feeding the baby is the only means as I have no financial capability. And then our food is not balanced at all, it is therefore not easy to suddenly stop breastfeeding.” (PMTCT user from Lugufu Camp – Focus Group Discussion)

“It is difficult for me. If I am to continue breastfeeding, I will be exposing my baby to infection. I fail to make a decision because I am poor. Imagine, what can I give the baby besides breastmilk?” (PMTCT user from Lugufu Camp – Focus Group Discussion)

The PMTCT implementers reported that Community Therapeutic Centres were established with the aim of treating infants who were severely malnourished. These centres were not providing food for the babies, but were rather trying to help mothers provide with the very same soya porridge to infants. Many times it proved difficult, and majority of the refugees in the camps and other stakeholders felt the need to provide formula milk for the infant. One of the PMTCT implementers said:

“Truly there is no way out, except to keep on providing education (on adhering to infant feeding practices). ...... maybe the best option is to find donors who can pay for provision of alternative food for the infants after cessation of breastmilk, particularly infant formula for at least a whole year... In this way, it could be guaranteed that the baby will not become malnourished.”

Both males and females in the refugee camps believe that with better financial capacity, they would be able to cope with feeding challenges. Some complaints were as follows:

“We are given soya, but that is truly not enough” (Nyarugusu camp – FGD PMTCT users)

“The way I see things, I think it is not going to be an easy thing (breast feeding with abrupt cessation), because even if you plan to stop breastfeeding after six months but with no money to pay for alternative food, you may find yourself continuing with breastfeeding until the baby is two years of age or a year and five months. By this time, the baby will have been infected with the disease that the mother of the child has” (FGD PMTCT users – Lugufu)

A female from Mtabila pleaded: “We ask the international organizations to extend their helping hands with food that could save these kids and provide them with balanced diet”.

Infant feeding is the most challenging part of PMTCT because it revolves around stigma and discrimination, hygiene and safety problems as well as affordability & sustainability.
The refugee camps need to re-assess the infant feeding situation and put in place strategies that will have a measurable impact. One of the most important recent developments is a change to global recommendations for infant feeding at six months and beyond. It is no longer recommended that breastfeeding be abruptly stopped at six months. Instead, it is recommended that breastfeeding at six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breastmilk can be provided. Judging from the difficulties expressed by many mothers in abruptly stopping exclusive breastfeeding at six months, it is likely that these new recommendations will bring relief to mothers.

*Modified obstetrics “a critical entity to PMTCT success”*

Modified Obstetric Care (MOC) in refugee camps starts with provision of Nevirapine to pregnant woman during ANC after being confirmed as HIV positive. A mother under MOC is handled differently from the traditional way, and therefore institutional delivery is crucial since that is where both skills and equipments for MOC can be obtained. The PMTCT program in the camps has constantly provided Nevirapine to pregnant mothers from 2003 to 2007. The number of babies born to identifiable HIV positive women who received Cotrimoxazole prophylaxis through this program has also increased steadily between 2003 to 2007 (22.3% in 2003 to 61.9% in 2007; p-value = 0.0001) (Fig 6).

![Fig 6: Proportion of babies born to HIV-positive mothers provided Cotrimoxazole prophylaxis](image-url)

While Nevirapine given to mother and child specifically reduces risk of intra-uterine and at birth risk of MTCT, Cotrimoxazole among others takes care of predisposing infections in newborns.
Pregnant women admitted to labour ward in the camp health facilities were discretely identified by sero-status and HIV sero-positive mothers were given a tablet to keep so that they can swallow it at the onset of labour. None of the sites used separate delivery wards for HIV positive women, which could potentially increase stigma and comprise confidentiality. Staff at Labour & Delivery wards in all three camps showed satisfactory level of adherence to modified obstetric practices. These include provision of Nevirapine, provision of Cotrimoxazole, absence of artificial membrane rupture, no episiotomies and others. After delivery the baby is also given a dose of Nevirapine syrup within 72 hours, to clear of any small load of HIV virus that may have passed through the baby and is trying to establish itself.

Due to the importance of Nevirapine, health workers in the camp put an effort to ensure that the drug is in stock at all times, thereby safeguarding night cases or those who come in awkward times. Health facilities staffs have succeeded in educating their clients about the importance of having all courses of nevirapine at recommended times. As a result, it was reported by health workers that even those who happen to deliver at home, mostly non refugee clients from neighbouring villages would rush to the hospital for their baby’s dose of nevirapine within the prescribed timeframe. As per national guidelines, every infant is administered with Cotrimoxazole at 6 weeks on ward. This is an antibiotic given for the prevention of opportunistic infections that are common among HIV infected infants.

Follow up of mother and child in the community is mainly the task of the counselor as was explained by a camp RCHO. Counselors had a list of names of their clients to follow up on how they adhere to medical directions and to establish problems that they may have in case they need medical support.

“... Some may be very sick, and cannot make it even to the clinic for their child, so you have to follow up...” (Counselor, Nyarugusu Camp in focus group discussion).

In-depth interviews revealed that labour and delivery health providers know the critical aspects of Modified Obstetric Care as well as the importance of adhering to it. On physical examination of the health facility by the evaluation team, it was found that the labour departments were well stocked with supplies that facilitated efficient modified obstetric care such as disinfectants, Nevirapine tablets, Nevirapine syrup, Cotrimoxazole.

In-depth interview with a health worker at Mtabila pointed out the main challenge facing nevirapine administration is compliance to the second dose. He said:-
“Some would come to the hospital for delivery without the nevirapine, either having lost it or spent on the husband who fell very sick”. (Mtabila Camp RCHO – Indepth Interview with health worker).

Majority health workers reported challenges with regards to provision of ARVs (for HIV treatment). The drugs for HIV treatment are not under the provision or supervision of UNICEF and PMTCT implementing partners. These are obtained from the district hospital, it is from this source only where clients collect monthly individual supplies. A user at Mtabila was quoted as saying that the challenge rests around the potential stigma around it, when seen by fellow refugees on board a bus that takes clients to the district hospital for ARVs. To alleviate this problem, plans are underway to set up Care and Treatment Centres (CTC) in the camps as was reported by the site manager of Nyarugusu camp during In-depth interview and which was also confirmed by UNICEF focal person working in the refugee camps.

Role of TBAs and HIT in community sensitization
The health facilities in the refugee camps have a unique community arm which comprises Health Information Teams (HIT) and Traditional Birth Attendants (TBA). These work hand in hand with religious leaders, traditional healers and elders to sensitize the community on various health seeking behaviors. Both HIT and TBAs link the health facility with the community. Health education in the community on STIs addressing the importance of prevention, diagnosis and treatment of cases together with corresponding sexual partners has been instrumental in the decline of STD prevalence. Their role was confirmed during FGD with HIT members of Nyarugusu camp.

“... the purpose of HIT, is to take messages to the community, to take messages from the community to the health facility... you can say it is a platform for exchanging messages...”

On the other hand TBA’s main messages were on maternal health. It was further deduced from the evaluation that TBAs are the entry point for ANC. Reproductive Child and Health Officers in all three camps confirmed that TBAs receive regular training on how to improve their role of educating on maternal health and recognition of danger signs, to promote male involvement and to make sure that pregnant women attend ANC early, regularly and deliver in the facility. A focus group discussion in Lugufu camp with TBA revealed the following:

“...... but these days every TBA is informed and conscious about the risk of doing a local delivery, we do not touch deliveries at all! And even if you find a mother delivering at home, you will ask her family
to help you get her to the hospital... in that way both the mother and I will have been protected from the risk of HIV infection"

“... as you go in your catchment area, you may see a woman you suspect to be pregnant, and then you try and talk to her in a friendly manner until she discloses to you that she is pregnant. That is when you introduce yourself to her, that you are the TBA around who will be helping her …”

Major success factors lie not only on the HIT activities but also the role of TBA as an entry point to ANC. It was further deduced from in-depth interviews with Reproductive Child Health Officers that TBAs would regularly scout their catchment area to identify women who are pregnant and hence slot them in line for starting ANC. The first visit to the clinic is with the TBA who ensures that the male partner is also part of it.

“The existing arrangement is that every TBA is responsible for women in her village, who she cares for in all aspect of health including bringing them to hospital for ANC” Lugufu TBA – Focus Group Discussion

Traditional healers have also been consulted to provide support in guiding mothers towards the hospital as soon as possible. A focal person in one of the camps explained that they found it useful to involve traditional healers since many pregnant mothers would waste time and money to traditional healers while deteriorating their health further.

Besides TBAs and HIT, another factor that has promoted ANC attendance and Early ANC include the extra food supplements ration (Soya), which is provided to the chronically ill, weak, elderly and pregnant mothers. Site managers throughout the three camps confirmed that, this “Soya” is only provided to a pregnant mother on presentation of her clinic card and the visit attended. This strategy has also been instrumental in realizing the high number of hospital deliveries documented.

Although the refugee communities are ideal environments with much more control of influencing parameters as compared to non refugee communities, the success in making TBAs help out stop non skilled delivery is a critical achievement and a learning platform. The exact reasons for TBA motivation to refer clients to the health facility can not be confirmed from this evaluation. However, it can be deduced that recognition of TBAs as health personnel within the health system in the camps, awareness of TBAs about risks to infection to themselves, to the mother and to the newborn have a major role to play.
Relevance

In-depth discussions with site managers in the refugee camps as well as focal persons at UNICEF office revealed that national PMTCT guidelines were applied almost consistently. This was confirmed by the fact that in the health facilities in all the three camps, national guidelines were hanged on walls in various PMTCT departments and hence easily accessed by staff.

It was deduced by the physical site view tool that throughout the three camps, both ANC and HCT sections had their guidelines placed on places of easy access for staff reference as compared to other sections such as pharmacy and laboratory which performed less adequately.

Guidelines were updated as need arose and training of staff went along with it. Most changes occurred with the way records were kept and reports were produced; and these meant changes to formats and sometimes even contents. Less frequently were changes on actual protocols/regimes for medical procedures and treatment. Moreover, not only is the staff training curriculum adapted from the national one, the actual training is carried out by professionals from the Ministry of Health and Social Welfare (MoHSW).

Referral systems in the all three camps followed the MoHSW guideline. Normally HIV pregnant mothers after deliveries were referred to CTC at district hospitals to receive ARV as continuum of care. Although all health facilities were clinically equipped to the level of district hospitals, capacity to effect prompt referrals to the district hospital as need arises was also there.

Furthermore, there was a concern from staff in the refugee camps regarding the frequency at which the guidelines changed. The main issue raised was that, frequent changes in guidelines do not allow uptake and mastering of one guideline before another one comes along. Staffs need to be informed that changes in guidelines are not a matter of option but rather a necessity for improved survival and well being.

Efficiency of PMTCT activities in the refugee camps

The implementation of the PMTCT activities was well funded and most key resources were available in the health facilities in northwestern refugee camps (Table 3). Moreover, human resources was also available, although turnover was very high compelling the conduct of trainings on an annual basis. Supplies and equipments were available on demand and financial resources to execute program activities were in most cases obtained on time and according to plans.
In the three health facilities there were no formal data management systems. The information was only available in the specific departments rather than specific data unit.

In regards to cost effectiveness analysis, this was within the scope of this study but could not be done due to lack of reliable data. It was deduced from in-depth discussions with PMTCT program implementers and health facility administrators that a number of implementing partners are involved. Such include among others World Food Program (WFP), United Nations High Commission for Refugee (UNHCR), United Nations Children Fund (UNICEF). However, documented evidence on partner coordination such as meetings’ minutes, Memorandum of Understanding and others were not available to credible assessment on the level of partner coordination.

**PMTCT Service Sustainability**

For a refugee, repatriation has a cloud of insecurity and fear in it as a result of not knowing for sure what will happen after venturing into the disturbed past. The study was able to document establishment of strategies to ensure that repatriating HIV positive pregnant women and infants and children in need of services can access them in their homeland. The preparations included supply of medications to last for three month, providing advice and information to refugee clients in regards to closest PMTCT centers that she can access after repatriation for continuation of services. However the level of assurance is low for refugees of Congo originality due to the unstable political situation in their homeland compared to those from Burundi. Unlike Lugufu and Nyarugusu camps (Congolese), refugees in Mtabila (Burundian) had clear knowledge on accessing PMTCT services after repatriation.

There have been efforts by UNICEF - Tanzania in collaboration with the Ministry of Health and Social Services and implementing partners which managed to guide the establishment of PMTCT centers in

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**Table 3: Check list of the services for efficiency of the PMTCT activities**

<table>
<thead>
<tr>
<th>Services</th>
<th>Lugufu</th>
<th>Mtabila</th>
<th>Nyarugusu</th>
<th>Comments</th>
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</thead>
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<td>Guidelines</td>
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<tr>
<td>Partner coordination</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>Information was not assessed</td>
</tr>
<tr>
<td>Referral services</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

Key: X = not available  
V = available
Burundi. However, up to the time of the evaluation, it had not been possible to establish the same kind of link and progress with the Ministry of Health in Congo due to unstable political situation. The challenge remains.

For the Burundian refugees who already have functioning PMTCT centers, evidence from the evaluation has shown that there is a need for better guidance on how to access services by providing actual directions on the ground. Both client exit interviews as well as focus group discussion with the refugee communities revealed that, refugees might know that there are PMTCT services across the border but majority do not know how to access them.

In order to increase sustainability of PMTCT for refugees after repatriation, trainings were part of the effort. Although most refugee health providers interviewed did not have a background in health, the camps had managed to train them into marketable health professionals through formal training according to national guidelines. Trainees were awarded certificates accredited by the Tanzania MoHSW. While the primary aim was to help out in the camps, trained staffs are now potential human resource for PMTCT centers in the refugee countries. In line with this, focus group discussion with counselors has shown that majority of these refugee health professionals would like to continue with the profession even after repatriation.

The challenge ahead is retention of this trained human resource, particularly counselors who run short in the camps regardless of frequent trainings. This is an indication that trained health personnel from the PMTCT program are attracted elsewhere in the labor market.

In-depth interview with site managers and UNICEF focal person indicated that refugees have been trained to cover positions in PMTCT departments. It was also deduced that counselors are the most trained staff as compared to the rest of the health providers. The site managers reported that although training of new counselors is done frequently, there is always deficiency of counselors in all camps.

In-terms of service availability in their home countries, health workers reported that they were informing refugees how and where they will access the service when they are back in their home countries. One health worker said:-

"Ehe, therefore, those getting home based HIV care are informed about places where they will access care in their home countries. They are also provided with three months doses during which they will get organized for a new place to continue with care." (Mtabila Camp RCHO – Indepth Interview)
However, interviews with refugees indicated that they do not know how to access services in their homeland after repatriation. The only thing they said they were aware of is that once they cross the border they will meet a team of UNICEF and UNHCR people who will guide them through everything.

“Aaah! Now it is apparent that you have come here to take our view so for the purpose of improving... truly in this camp we have not been informed about the actual situation with regard to services after repatriation. Of course you know the reality that people are infected with HIV and they need services and the situation in Congo is as you know it”.
DISCUSSION

The PMTCT program in the refugee camps in North Western Tanzania has to a great extent been successful in its implementation, and desirable results have been achieved. In 2004, the program reached its target 50% MTCT reduction which was maintained at approximately the same level through to 2006. However, in 2007 the program witnessed its lowest MTCT reduction rate (25.6%), which according to the evaluation is largely an outcome of repatriation. Evidence of significant population decline for the year 2007 is found in the reduction of pregnant women registering for ANC (almost 25% reduction) as compared to the previous year (Annex 9), and the trend was bound to continue due to ongoing encouragement to evacuate for camps closure. Moreover, decline in refugee population is also reflected in the significant drop in proportion of women who took nevirapine during labour from 96.6% the previous year to 51.2% in 2007.

According to WHO, the risk of transmission, without any interventions is determined to be 5-10% during pregnancy and 10-20% during the period of labour and delivery. The risk of transmission through breastfeeding is estimated at 5-20% if a baby were to be breastfed for two years. This means the total risk of MTCT rate in the absence of PMTCT is 20% to 45%(WHO 2007).

PMTCT implementation was also associated with other HIV/AIDS campaigns in the context which may also have significant roles in this positive impact on MTCT reduction. These community related activities affected ANC turn up, male involvement, counseling and HIV testing, ARV for PMTCT provision, hospital delivery and many others. In an African setting male active involvement in maternal health of their spouse has always been a challenge, but in this evaluation consistent achievements were documented from 2003 through to 2007.

Most of the specific health system factors measured indicated a reasonably high level of success, particularly in regards to confidentiality and client HIV sero status. In the absence of sufficient confidentiality, stigma and discrimination against HIV positive clients crops up in the society, and this result in circumstances and actions which prevent women from delivering in hospital for protection of their newborn(Kasenga, Hurtig et al. 2007). It is important to note that HIV/AIDS is a disease that affects not only the physical part of patients. Confidence impairment, fear and stress are part and parcel of mental disturbances which when compounded by outside forces like stigma and discrimination, could potentially lead to further client withdrawal from the community, lost hope and despair.
In the refugee camps confidentiality was adequately observed, all the HIV positive clients expressed their utmost satisfactions and this was positively reflected in the HCT turn up over the years. The problem of confidentiality revealed in the Burundian camp could be social cultural biased. Although Burundians and Congolese are closely related geographically, the two have distinct behavioral patterns which may arise from their existing differences socially culturally as well as economically. It is therefore not surprising to see Burundians and Congolese responding differently to situations as seen in issues of confidentiality.

Moreover, it has been reported that counseling for behavior change during HCT, should consider strategies to prevent transmissions within couple relationships. This is because in Africa, a large proportion of infections (>66%) (Desgrees-du-Lou and Orne-Gliemann 2008) occur in stable relationships, whereby it is common to see women fearing infection from spouse/regular partner and men fearing infection from outside partners (Smith and Watkins 2005).

MTCT is today the most important source of HIV infection in children, and hence strengthening of PMTCT programs is critical for containing pediatric HIV. According to 2005 statistics, 70% of female HIV infections were in women who are in stable relationships. HIV prevalence among pregnant women in the camps has been steadily reduced from 1.6 in 2003 to 0.9 in 2007. This rate is significantly low compared to the regional (Kigoma) value of 1.8%, and even much more when compared to national values (9-20%). Hence, the good news is that efforts in place to reduce MTCT, already have a very low number of target clients.

Family planning is the best product for prevention of unwanted pregnancies and thus essential in preventing pregnancies among HIV positive women. Information regarding coverage of the most popular family planning method (condoms) among target groups for estimation of its role in prevention of pregnancies in HIV infected persons and control of HIV transmission is limited. More investigation is needed to map out the pattern of condom use among HIV positive persons and other at risk groups. Furthermore, insight into understanding the motivation of condom use as being primarily driven by the desire to prevent HIV, STDs or pregnancies will guide the improvement of future sexual behavior awareness campaigns. Moreover, it may be useful to find out whether promotion of female family planning methods will have a significant synergistic effect to prevention of pregnancies among HIV positive pregnant women along with male family planning methods.

Both HIT staff and TBAs have been very instrumental in high level institutional deliveries achieved in the camps, a critical entry point for PMTCT. Delivery under skilled attendants is a universal problem
among poor countries, mainly due to multiple factors arising from the health system as well as the community. Elsewhere in Tanzania besides the refugee camps sites, more than 50% deliver at home with TBAs, friends or sometimes completely solitary.

Anemia is an important risk factor to HIV infection through blood transfusion. In pregnancy, anemia should be closely monitored by clinicians, because the physiological condition of being pregnant is a predisposing factor. In the camps, every pregnant mother is tested for anaemia routinely without identification of her sero status, both during testing as well as in record keeping. Although this is a good approach for prevention of stigma and discrimination, information in regards to the number of clients that receive blood transfusion, would assist in the estimation of blood transfusion as a risk factor to MTCT and hence provide guidance for interventions to prevent anemia. Likewise, the facility records for STD diagnosis and treatment did not distinguish according to sero-status, and again this limits exploration of the role of STDs in MTCT reduction in the refugee camps. Multiple RPR tests during ANC visits could also give an indication on the level of success in regards to behavior change communication which is part of PMTCT prong 1.

Nevirapine is the first anti retroviral that a pregnant mother receives as part of the PMTCT intervention for reduction of risk MTCT at birth. In this evaluation, it was deduced that nearly all mother child pair received the intervention drugs, except for only a small percentage. The reason 100% coverage has not been evident, may be due to home deliveries (mainly from the local community) and clients who perhaps repatriated or sometimes even lost life or pregnancies in early gestational period.

Infant feeding is a global challenge in the implementation of PMTCT. During the period of evaluation (2003-2007), exclusive breastfeeding was recommended for HIV-infected women for the first six months of life unless replacement feeding was acceptable, feasible, affordable, sustainable and safe (AFASS) for them and their infants before that time. At six months of age, it was recommended that breastfeeding be abruptly stopped, and replacement food be given. New evidence on child survival and infant feeding in the context of HIV has led to a revision of these recommendations.

Most recent guidelines (2009) for refugee/displaced populations recommends that at six months, if replacement feeding is still not AFASS, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once nutritionally adequate and safe diet without breast milk can be provided. While the infant feeding option for a HIV-infected mother depends on her individual
cirmumstances, it is likely that the continuation of breastfeeding after six months will be the most appropriate option for most mothers living in the camps, and that the soya porridge can complement intake through breastmilk. These new recommendations on infant feeding need to be introduced in the camps, if this has not been done already.

Guidelines are a necessity of any organized strategy, because it leads the way for those who are learning and those who need to refer. It is therefore essential that such tools are well understood, can easily be accessed by implementers at any time when necessary and is satisfactorily adhered to. New updates in guidelines are a result of new knowledge and hence evidence generation, which ultimately targets improved health care for increased survival and well being.

The concern of staffs about guideline changes can be understood, since it does not allow adaptation and settling before next re-adjustment is required. This may adversely have influenced the efficiency of staff by creating disruptions into routines and resulted in to inefficiency.

It must however be understood by staff that changes to the guidelines always have a primary goal of improving access and service quality for a reduced disease burden outcome. Many times changes cannot be avoided because people's health cannot be bargained. It is therefore important that staffs are educated on the extent of HIV infectiousness and need for dynamic counter strategies.

For a refugee, repatriation has a cloud of insecurity and fear in it by not knowing for sure what will happen after venturing into the disturbed past. The study was able to document establishment of strategies to ensure that repatriating HIV+ pregnant women and infants in need can access the service in their homeland. The preparations included a repatriation package which contained supply of medications to last for three month, providing advice and information to refugee clients in regards to closest PMTCT centers that she can access after repatriation to continue services.

Although Congo is in political instability, refugees have been repatriating from camps. Unless a strategy is put in place to build collaboration with the Ministry of Health in Congo, PMTCT service sustainability for Congolese refugees will remain less assured. For the Burundians, the collaborative link between UNICEF – Tanzania/MoHSW and Burundi Ministry of Health is an impressive achievement that needs to be strengthened. Providing exact directions to returning refugees for accessing PMTCT centers in their homeland may be one of the starting points.
The success demonstrated in training refugees to become experts for covering positions in different PMTCT departments offers a useful and unique learning opportunity. However, the challenge remains about retention of trained human resource and assurance that on repatriation they will continue serving their communities through PMTCT programs. The potential of a remuneration package for promoting human resources retention needs further investigation.

For successful refugee repatriation promotion, strategies should not only be for PMTCT service provision in place, but it is also necessary to provide refugees with information on the current situation in regards to security, as well as opportunities for starting a new and promising life.
RECOMMENDATIONS

Recommendations following the evaluation of the PMTCT program in North Western refugee camps related to each of the 3 study objectives.

1. Impact & Effectiveness of PMTCT program

In order to have reasonable program effectiveness, the following are recommended to ensure success implementation. The following are recommended for improved implementation and hence increased impact and effectiveness.

Community Involvement
PMTCT program implementers in the Northwestern Camps need to in-cooperate community sensitization activities as an integral part of the program in order to address important challenges related to demand side. HIT and TBA teams are core instruments for increasing awareness and tackle issues of stigma and misconceptions.

PMTCT program implementers should develop awareness campaigns to build a bridge between HIV positive persons and HIV negative ones for mutual support. Some victims may want to reach out to relatives, neighbours and friends for support but fail due to the problem of misconceptions. A strong community support group is necessary to alleviate the unintended negative consequences of individual advocacy.

ARV provision in PMTCT
Since ARVs for HIV treatment are an important entity to the overall outcome of the PMTCT intervention, there is a need for the NACP under the MoHSW to work with the health facilities in the camps in improving availability and access. Utilization of PMCT provision set up in the refugee camps are potential future points for care and treatment.

Monitoring of other MTCT risk factors
Health providers in the ANC department should incooperate parametters for Hb and blood transfusion records in the PMTCT M&E. STDs monitoring as well as anaemia and blood transfusion is very important to reduce chances of further HIV transmission. The data records for STI for all ANC women need to indicate their sero status to enable measuring the magnitude of STI that has been directly linked to risk of MTCT. Availability of anemia and blood transfusion information may help explain outcomes of the program as well guide interventions when necessary.
Promote family planning for reduction of pregnancies in HIV positive parents
Health providers in the ANC and L&D departments should develop strategies to strengthen family planning among HIV positive women would help enhance strategies to reduce pregnancies among HIV infected women

Increase hospital deliveries of non refugee clients
The PMTCT program implementers should strengthen strategies to promote ANC turn as well as hospital delivery among non refugee clients. Lessons learnt from promoting ANC visits and hospital deliveries among refugee clients may be applicable.

Infant feeding
The PMTCT program implementers needs to introduce the new 2009 global recommendations on infant feeding and HIV in the context of refugees and displaced populations (UNHCR 2009), if this is not already been done. The most appropriate infant feeding option for a HIV infected mother should continue to depend on her individual circumstances, including her health status and local situation, but should take greater consideration of the health services available and the counseling and support that she is likely to receive. It is important to involve male partners and family members during counseling, so that they can offer support to mothers in carrying out their infant feeding choice.

2. Adherence to PMTCT guideline

Updated guidelines
The PMTCT program implementers should use updated guidelines for any dynamic program like PMTCT that utilizes pharmaceutical products that are subject to increased drug resistance. It is crucial to take on board new evidence being generated to ensure well being of subjects under the program in question.

3. Efficiency of PMTCT activities

Data recording system
The implementing agencies should improve data management system at the camp level so that the information is systematically recorded. This is important for monitoring the program, which would also contribute to the improvement of the PMTCT program in the future. Similarly, the implementing agencies should establish the better financial recording system which would allow further analysis to evaluate the cost-effectiveness of the program.

4. Sustainability

Develop an M&E framework
The PMTCT program implementers should develop an M&E framework including all indicators according to national guidelines. Moreover, the framework should also include indicators to measure
HIT and TBA performance since these are important entities that influence service demand creation and hence service delivery. This will make future evaluations much easier and straightforward. At the moment, indicators collected are those of interest to specific donors only.

*Improve client record keeping*

The records departments in the health facilities should keep data in an organized manner so that retrieval becomes simplified. Although suitable storage facilities for record keeping were in place, retrieval was very difficult. Electronic back up of all data if implemented could even be more efficient.

*Access of PMTCT services after repatriation*

The PMTCT program implementers in the northwestern camps should establish links with Ministries of Health in refugees’ homeland to ensure that returning refugees get appropriate and enough information to access of PMTCT services in their home country.

*Establishment of Links with Congolese PMTCT centers*

PMTCT implementers, MoHSW and other implementing partners should develop strategies to support links with the Ministry of Health in Congo for the purpose of supporting the establishment of PMTCT centres for returning refugees. Successful experience in Burundi can serve as a lesson to adopt. This is now a matter of agency as camps are coming to a close.
LIMITATIONS

The evaluation team noted the number of limitations of the evaluation;

Firstly, the lack of a comprehensive baseline survey study before the start of PMTCT implementation posed a challenge that limited scientifically sound performance assessment.

Secondly, significant decline in refugee population in the camps limited the expected MTCT reduction rate (50%).

Thirdly, since the PMTCT program was not designed to operate beyond the refugee life span, it limits the scope of evaluation and eventual conclusions in regards to PMTCT service sustainability in the refugee home countries. Hence, the research was only conducted within Tanzania.

Fourthly, cost analysis was within the scope of this study but could not be done due to lack of reliable data.

Finally, the formula used to calculate MTCT reduction rate is generally applied to data at country level. However, in this evaluation the formula is applied to give a proxy estimate of MTCT reduction rate. The default values may therefore underestimate or overestimate the actual rates of MTCT reduction.

Despite these limitations, the evaluation team believes that this evaluation provides an objective description of the achievements and recommendations.
REFERENCES


CDC (2003). Overview of the PMTCT Pilot Project in Tanzania. DAR ES SALAAM, CDC.


UNICEF (2003). EVALUATION OF UNITED NATIONS-SUPPORTED PILOT PROJECTS FOR THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV. NEW YORK, UNICEF.


ANNEXES 1-10

Annex 1: General Information
A total of 218 clients (216 females and 2 males) participated in client exit interviews. In terms of citizenship, more than half, 63.3% (138/218), of the clients were Congolese. ANC and HCT clients were 37.16% (81/218) and 40.83% (89/218) respectively. A total of 30 health care providers (23 females and 7 males) were interviewed. More than half, 56.67% (17/30), providers were Tanzanians (Table 3).

Table 3: Percentage distribution of the clients who seek health services and health providers

<table>
<thead>
<tr>
<th></th>
<th>Lugufu</th>
<th>Mtabila</th>
<th>Nyarugusu</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLIENTS (N = 218)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1 (0.85%)</td>
<td>1 (1.41%)</td>
<td>0 (0%)</td>
<td>2 (0.92%)</td>
</tr>
<tr>
<td>Female</td>
<td>117 (99.15%)</td>
<td>70 (98.59%)</td>
<td>29 (100%)</td>
<td>216 (99.08%)</td>
</tr>
<tr>
<td><strong>Citizenship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burundian</td>
<td>2 (1.69%)</td>
<td>66 (92.96%)</td>
<td>0 (0%)</td>
<td>68 (31.19%)</td>
</tr>
<tr>
<td>Congolese</td>
<td>108 (91.53%)</td>
<td>2 (2.82%)</td>
<td>28 (96.55%)</td>
<td>138 (63.30%)</td>
</tr>
<tr>
<td>Tanzanian</td>
<td>8 (6.78%)</td>
<td>3 (4.23%)</td>
<td>1 (3.45%)</td>
<td>12 (5.50%)</td>
</tr>
<tr>
<td><strong>HF service</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC</td>
<td>28 (23.73%)</td>
<td>30 (42.25%)</td>
<td>23 (79.31%)</td>
<td>81 (37.16%)</td>
</tr>
<tr>
<td>HCT</td>
<td>48 (40.68%)</td>
<td>35 (49.30%)</td>
<td>6 (20.69%)</td>
<td>89 (40.83%)</td>
</tr>
<tr>
<td>L&amp;D</td>
<td>20 (16.95%)</td>
<td>5 (7.04%)</td>
<td>0 (0%)</td>
<td>25 (11.47%)</td>
</tr>
<tr>
<td>PNC</td>
<td>22 (18.64%)</td>
<td>1 (1.41%)</td>
<td>0 (0%)</td>
<td>23 (10.55%)</td>
</tr>
<tr>
<td><strong>PROVIDERS (N = 30)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4 (26.67%)</td>
<td>2 (25%)</td>
<td>1 (14.29%)</td>
<td>7 (23.33%)</td>
</tr>
<tr>
<td>Female</td>
<td>11 (73.33%)</td>
<td>6 (75%)</td>
<td>6 (85.71%)</td>
<td>23 (76.67%)</td>
</tr>
<tr>
<td><strong>Citizenship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burundian</td>
<td>1 (6.67%)</td>
<td>5 (62.50%)</td>
<td>0 (0%)</td>
<td>6 (20%)</td>
</tr>
<tr>
<td>Congolese</td>
<td>4 (26.67%)</td>
<td>0 (0%)</td>
<td>3 (42.86%)</td>
<td>7 (23.33%)</td>
</tr>
<tr>
<td>Tanzanian</td>
<td>10 (66.67%)</td>
<td>3 (37.50%)</td>
<td>4 (57.14%)</td>
<td>17 (56.67%)</td>
</tr>
</tbody>
</table>
Annex 2: Calculation of the Impact on MTCT Reduction Rate

Steps towards calculation of MTCT reduction rate;

1. Calculate the percentage of HIV-positive infants born to HIV-infected women using formula below;

\[ \left\{ T \cdot (1 - e) + (1 - T) \right\} \times v \]

Where:
- \( T \) = proportion of HIV – infected pregnant women given ART – Obtained in annex 6
- \( v \) = MTCT rate in absence of treatment (0.25) – default value
- \( e \) = efficacy of treatment provided. (0.5) – default value

2. Calculate the percentage of MTCT reduction using formula below;

\[
\frac{\text{MTCT reduction rate} = \left( \frac{\% \text{ MTCT in absence of treatment} - \% \text{ MTCT in presence of treatment}}{\% \text{ MTCT in absence of treatment}} \right) \times 100}{\% \text{ MTCT in absence of treatment}}
\]

Therefore, the calculation resulted to MTCT reduction rate by year were;

- 2003 = 35.7%
- 2004 = 50%
- 2005 = 46.6%
- 2006 = 48.1%
- 2007 = 25.6%

Limitation

The formula is generally applied to the data of country level, however, in this study the formula is applied to give a proxy estimate of MTCT reduction rate. The default values may therefore underestimate or overestimate the rates of MTCT reduction.
Annex 3: Proportion of New ANC Clients who had Pre-Test Counseling

![Bar chart showing the proportion of new ANC clients who had pre-test counseling from 2003 to 2007. The percentages are as follows: 2003: 80.4%, 2004: 87.1%, 2005: 97.7%, 2006: 100%, 2007: 96.8%.]
Annex 4: Proportion of Women who had Hospital Deliveries

<table>
<thead>
<tr>
<th>Year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>76.9</td>
</tr>
<tr>
<td>2004</td>
<td>73.3</td>
</tr>
<tr>
<td>2005</td>
<td>71.7</td>
</tr>
<tr>
<td>2006</td>
<td>83.2</td>
</tr>
<tr>
<td>2007</td>
<td>80.2</td>
</tr>
</tbody>
</table>
Annex 5: Proportion of Male who had Pre-Test Counseling and Testing (Male Involvement)
Annex 6: Proportion of Women who Took Nevirapine During Labour

![Bar chart showing the proportion of women who took Nevirapine during labour from 2003 to 2007. The percentages are as follows: 71.3% in 2003, 100.0% in 2004, 93.1% in 2005, 96.2% in 2006, and 51.2% in 2007.]
Annex 7: Proportion of Babies who Took Nevirapine

<table>
<thead>
<tr>
<th>Year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>73.4</td>
</tr>
<tr>
<td>2004</td>
<td>99.0</td>
</tr>
<tr>
<td>2005</td>
<td>77.9</td>
</tr>
<tr>
<td>2006</td>
<td>74.3</td>
</tr>
<tr>
<td>2007</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Annex 8: Proportion of Women Diagnosed as STI Positive (RPR) and Given Treatment

![Bar chart showing the proportion of women diagnosed as STI positive (RPR) and given treatment. The chart indicates the following percentages for each year: 5.4% in 2003, 3.5% in 2004, 3.1% in 2005, 4.6% in 2006, and 2.7% in 2007.](chart)
Annex 9: Number of new ANC clients per year (2003 – 2007)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>new clients</td>
<td>9745</td>
<td>11565</td>
<td>11235</td>
<td>9735</td>
<td>7554</td>
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</table>
**Annex 10: The research/evaluation matrix**

Objective 1: To evaluate whether the PMTCT activities in the refugee camps have achieved the intended objectives and in an effective way

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Indicators/Area of Enquiry</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Physical Site View</th>
<th>Questionnaires</th>
<th>Direct Observation</th>
<th>Focus Group Discussion</th>
<th>In-depth Interview</th>
<th>Exit Interview</th>
<th>Desk Review</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the PMTCT program been able to reduce MTCT of HIV in the Northwestern Tanzania refugee camps?</td>
<td>Percentage newborns from HIV+ women who are born free of HIV (test negative to HIV by age 18 months)</td>
<td>HIV positive newborns</td>
<td>HIV positive women</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage pregnant women who agreed to counseling for HIV test</td>
<td>Number of women who agreed to counseling for HIV test</td>
<td>Number of pregnant women who came for ANC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage pregnant women who agreed to counseling for HIV testing</td>
<td>Number of pregnant women at ANC who agreed to HIV testing after counseling</td>
<td>Number of pregnant women who came to ANC and agreed to counseling</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>What other short and long term changes have been produced?</td>
<td>Percentage of male partners who agreed to counseling at PMTCT clinic</td>
<td>Number of male partners who agreed to counseling</td>
<td>Number of pregnant women who agreed to HIV testing during ANC</td>
<td>√</td>
<td>ANC</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>---------------------------------------------------------</td>
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<td>ANC</td>
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<tr>
<td>Percentage of male partners who agreed to HIV testing after counseling at PMTCT clinic</td>
<td>Number of male partners who agreed to HIV testing after counseling</td>
<td>Number of male partners who agreed to counseling for HIV testing</td>
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<tr>
<td>Percentage male partners testing positive to HIV</td>
<td>Number of male partners testing positive to HIV</td>
<td>Number of pregnant women testing positive to HIV</td>
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<tr>
<td>Percentage mystery partners coming for VCT</td>
<td>Number of mystery male partners coming for VCT</td>
<td>Number of pregnant women coming for ANC</td>
<td>√</td>
<td>ANC</td>
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<td>Community perception about VCT and mystery partners</td>
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<td>Community</td>
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<td>Ethics consideration during VCT</td>
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<td></td>
<td>VCT site view, Community, Exit Clients, Counsellors</td>
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<tr>
<td>Client satisfaction</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<td>√</td>
<td>Community, PMTCT service providers and managers, Exit Clients</td>
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<tr>
<td>Adherence to guidelines to protect human rights and dignity according to national and international ethics regulations</td>
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<tr>
<td>Counsellors ethical skills and knowledge</td>
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<thead>
<tr>
<th>Community acceptance, value and use of PMTCT</th>
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<th></th>
<th>Community, PMTCT service providers and managers, Exit Clients</th>
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<tbody>
<tr>
<td>Percentage of HIV positive pregnant identified at L&amp;D</td>
<td>Number of HIV positive women identified at L&amp;D</td>
<td>Number of HIV positive women identified at ANC</td>
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<tr>
<th>Percentage of HIV positive pregnant identified at L&amp;D</th>
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<th>L&amp;D, ANC</th>
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<tbody>
<tr>
<td>Category</td>
<td>Description</td>
<td>PMTCT Implementers and Managers, , Postnatal Mothers</td>
<td>L&amp;D</td>
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<tr>
<td>Percentage HIV positive pregnant women who manage to take their second dose of niverapine at start of true labor</td>
<td>Number of women who manage to take their second dose niverapine at start of true labor</td>
<td>Number of pregnant women identified as HIV positive</td>
<td>√</td>
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<tr>
<td>Barriers to taking second dose of niverapine at start of true labor</td>
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<tr>
<td>Early access to PMTCT</td>
<td>Number of women managing early access of PMTCT</td>
<td>Number of pregnant women coming for ANC</td>
<td>√</td>
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<tr>
<td>- Percentage pregnant women managing early access of PMTCT</td>
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<tr>
<td>- Factors influencing early access to PMTCT</td>
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<tr>
<td>Frequency of HIV positive women becoming pregnant coming to ANC since start of the PMTCT program</td>
<td>Number of pregnant women identified as HIV positive</td>
<td>Number of pregnant women coming for ANC</td>
<td>√</td>
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</tbody>
</table>

Evaluation of PMTCT program in refugee camps of North Western Tanzania, 2003 -2007  
Page 64
<table>
<thead>
<tr>
<th>Frequency of couples coming for HIV testing before getting pregnant</th>
<th>Number of pregnant women who came for HIV screening before getting pregnant</th>
<th>Number of pregnant women coming for ANC</th>
<th>√</th>
<th>ANC, L&amp;D Community, Exit clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community perception on HIV testing before getting pregnant</td>
<td>√</td>
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</tbody>
</table>
- Access and practice of family planning
  - Frequency of an individual HIV positive woman delivering a number of her children under PMTCT (1\textsuperscript{st} preg, 2\textsuperscript{nd} preg, 3\textsuperscript{rd} preg and above)
  - Frequency in the number of women who start family planning after a PMTCT pregnancy
  - Barriers to access and practice of family planning among HIV positive women

- Percentage ANC women who received blood transfusion among those identified as anaemic

<table>
<thead>
<tr>
<th></th>
<th>Number of pregnant women using PMTCT services for the second time or more</th>
<th>Number of women that have used PMTCT at least once</th>
<th>Number of HIV positive pregnant women who come back for starting family planning after delivery</th>
<th>Number of HIV positive pregnant women who have used PMTCT at least once</th>
<th>Community, Exit Clients</th>
<th>√</th>
<th>ANC, L&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and practice of family planning</td>
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<tr>
<td>Description</td>
<td>Number of newborns from mothers with STD</td>
<td>Number of pregnant mothers treated with STD</td>
<td>Number of HIV positive mothers counseled individually on infant feeding</td>
<td>Number of HIV positive mothers with newborns</td>
<td>Contents for infant feeding delivered to HIV positive mothers</td>
<td>Percentage newborns born to HIV+ women, opting for breastfeeding</td>
<td>Number of newborns breastfed by HIV positive mothers</td>
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<td>• Percentage newborns from mothers with STD</td>
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<td>• Percentage HIV positive mothers counseled individually on infant feeding</td>
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<tr>
<td>• Contents for infant feeding delivered to HIV positive mothers</td>
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<tr>
<td>• Percentage newborns born to HIV+ women, opting for breastfeeding</td>
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<tr>
<td>• Reasons for breastfeeding while HIV positive</td>
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<tr>
<td>• Percentage HIV exposed babies provided with CTX</td>
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</tbody>
</table>

**ANC, L&D, PNC**

**WFP, ANC, PNC**

**Community, Exit Clients, PNC clients**
<p>| Availability and content of modified obstetric care at the health facility | √ | √ | √ | √ | PMTCT service providers and managers, DMO, PMTCT site view, L&amp;D, Community, Exit Clients |
| Availability of equipments and supplies to support modified obstetric care | √ | √ | √ | √ | PMTCT service providers and managers, DMO, PMTCT site view, L&amp;D, Community, Exit Clients |
| Knowledge and skills of health providers about modified obstetric care | √ | √ | √ | √ | PMTCT service providers and managers, DMO, PMTCT site view, L&amp;D, Community, Exit Clients |
| Community awareness about the availability and importance of accessing modified obstetric care in order to reduce MTCT | √ | √ | √ | √ | PMTCT service providers and managers, DMO, PMTCT site view, L&amp;D, Community, Exit Clients |
| Availability and coverage of long term care and support for HIV positive mothers and newborns | √ | √ | √ | √ | PMTCT service providers and managers, UNICEF Field Coordinator, ANC, PNC, Community, Exit Clients |
| Client satisfaction on community long term care and support for HIV positive women and newborns | √ | √ | √ | √ | PMTCT service providers and managers, UNICEF Field Coordinator, ANC, PNC, Community, Exit Clients |</p>
<table>
<thead>
<tr>
<th>Objective 2: To evaluate whether the PMTCT activities in the refugee camps have been implemented in the most efficient way in order to achieve the intended objectives</th>
<th>Percentage clients accessing PMTCT services from outside the refugee camps</th>
<th>Number of clients accessing PMTCT services from outside the refugee camps</th>
<th>Number of clients accessing PMTCT services at the refugee camps</th>
<th>ANC, L&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CBOs, NGOs programs that aim at reducing HIV transmission from mother to child</td>
<td>Number of CBOs, NGOs programs that aim at reducing HIV transmission from mother to child</td>
<td>District Medical Officer, UNICEF field coordinator, PMTCT partners,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contents of program activities</td>
<td>Contents of program activities</td>
<td>Community, Exit clients</td>
<td></td>
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</tr>
<tr>
<td>Community perspective on the importance of PMTCT and their role for successful implementation of PMTCT</td>
<td>Community perspective on the importance of PMTCT and their role for successful implementation of PMTCT</td>
<td></td>
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</tr>
<tr>
<td>RESEARCH QUESTIONS</td>
<td>INDICATORS/AREA OF ENQUIRY</td>
<td>Numerator</td>
<td>Denominator</td>
<td>Physical site view</td>
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<tr>
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</tr>
<tr>
<td>Has the PMTCT program been cost-effective?</td>
<td>• Percentage of staff with adequate training in the various PMTCT departments</td>
<td>Staff with adequate training on MTCT in the various PMTCT departments</td>
<td>Minimum number of adequately trained staff required in various departments</td>
<td>√</td>
</tr>
</tbody>
</table>
| Is there sufficient capacity to deliver the PMTCT service in the camp? | • Barriers to adequate staffing | | | | | | | | | | PMTCT site manager, UNICEF
PMFCT focal person |

**Numerator**
- Respondent
- Has the PMTCT program been cost-effective?
- Is there sufficient capacity to deliver the PMTCT service in the camp?

**Denominator**
- Staff with adequate training on MTCT in the various PMTCT departments
- Minimum number of adequately trained staff required in various departments

**Methods**
- Questionnaires
- Direct Observation
- Focus Group Discussion
- In-depth Interview
<table>
<thead>
<tr>
<th>Referral services for care and support</th>
<th>Level of budget sufficiency (deficiency, excess)</th>
<th>Number of activities covered within set budget</th>
<th>Number of activities that need to be covered for successful PMTCT intervention</th>
<th>Number of activities on original budget plan</th>
<th>√</th>
<th>√</th>
<th>PMTCT site manager, UNICEF PMTCT focal person, PMTCT finance department</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reasons for budget challenges</td>
<td></td>
<td></td>
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<td>√</td>
<td>√</td>
<td>All PMTCT departments ANC, PMTCT site manager, UNICEF PMTCT focal person</td>
</tr>
<tr>
<td></td>
<td>Level of staff awareness about national PMTCT guidelines</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
<td>All PMTCT departments</td>
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<tr>
<td></td>
<td>Level of on job capacity building</td>
<td></td>
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<td>√</td>
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<tr>
<td></td>
<td>Availability of PMTCT guidelines for staff access</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
<td>All PMTCT departments</td>
</tr>
<tr>
<td>Availability of supplies and equipments</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>All PMTCT departments, Finance and Supplies department</td>
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<tr>
<td>Level of record keeping in terms of supplies and equipments available and need for replenishing</td>
<td></td>
<td></td>
<td>✓</td>
<td>Supplies department</td>
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<tr>
<td>Filing standards in regards to records and reports and confidentiality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>L&amp;D, ANC, VCT, Management Information Department</td>
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<tr>
<td><strong>Available infrastructure for successful PMTCT implementation</strong></td>
<td></td>
<td></td>
<td></td>
<td>PMTCT site manager, All PMTCT departments</td>
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<tr>
<td><strong>Level of coordination and organization in regards to infrastructure repair and maintenance</strong></td>
<td></td>
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<td></td>
<td>PMTCT site manager, All PMTCT departments</td>
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</table>
Objective 3: To evaluate whether PMTCT activities in the refugee camps have been implemented in sustainable way whereby its impact will continue after repatriation/camp closure

<table>
<thead>
<tr>
<th>RESEARCH QUESTIONS</th>
<th>INDICATORS/AREA OF ENQUIRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Available networking system for referral of clients into care and treatment, support for infant feeding etc</td>
<td>PMTCT site manager</td>
</tr>
<tr>
<td>• Available network with partners in PMTCT</td>
<td>PMTCT site manager, Partner CBOs and NGOs</td>
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<tr>
<td>• Annual increase in demand for PMTCT</td>
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</table>

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
<th>Physical site view</th>
<th>Questionnaires</th>
<th>Direct Observation</th>
<th>Focus Group Discussion</th>
<th>In-depth Interview</th>
<th>Exit Interview</th>
<th>Desk Review</th>
<th>Respondent</th>
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<tr>
<td>Have sufficient skills and knowledge been provided to refugee service providers to ensure that they will be able to provide the PMTCT service in the country of their origin?</td>
<td>• Availability of refugees with PMTCT knowledge and skills to take over various PMTCT departments</td>
<td>Refugees with adequate knowledge and skills on MTCT in the various PMTCT departments</td>
<td>Minimum number of adequately trained staff required in various departments</td>
<td>√</td>
<td>√</td>
<td>PMTCT site manager, UNICEF PMTCT focal person</td>
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<tr>
<td>Frequency and content of community sensitization activities on how to access PMTCT service in country of origin</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td>√</td>
<td>PMTCT site manager, UNICEF PMTCT field coordinator, Community</td>
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<td></td>
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<tr>
<td>Community awareness about PMTCT access in country of origin</td>
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<td>√</td>
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<tr>
<td>Availability of motivation for service providers to take on PMTCT service provision in their homeland</td>
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**Objective 4: To identify strength and weaknesses of the PMTCT program**
<table>
<thead>
<tr>
<th>RESEARCH QUESTIONS</th>
<th>INDICATORS/AREA OF ENQUIRY</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Physical site view</th>
<th>Questionnaires</th>
<th>Direct Observation</th>
<th>Focus Group Discussion</th>
<th>In-depth interview</th>
<th>Exit interview</th>
<th>Desk Review</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the qualities that allow effective and efficient implementation of the program</td>
<td>• User friendly facilities - Level of privacy during the process of patient PMTCT registration - VCT service space to allow auditory and counseling privacy - Staff attitude - Waiting area in proportion to number of clients - Client waiting time</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>PMTCT site manager, All PMTCT departments, Exit clients, Community, PMTCT partners</td>
</tr>
<tr>
<td></td>
<td>• Available building infrastructure to accommodate all PMTCT departments and roles</td>
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<td></td>
<td></td>
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<td></td>
<td>All PMTCT departments</td>
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<tr>
<td></td>
<td>• Human resource – knowledge, skills and types of services</td>
<td>√</td>
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<td></td>
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<td>All PMTCT departments</td>
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<td></td>
<td>• Supplies and equipments</td>
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<td>PMTCT site manager, Supplies officer</td>
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</table>
management of the PMTCT (running and monitoring)

<table>
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<tr>
<th>RESEARCH QUESTIONS</th>
<th>INDICATORS/AREA OF ENQUIRY</th>
<th>Numerator</th>
<th>Denominator</th>
<th>Physical site view</th>
<th>Questionnaires</th>
<th>Direct Observation</th>
<th>Focus Group Discussion</th>
<th>In-depth Interview</th>
<th>Exit interview</th>
<th>Desk Review</th>
<th>Respondent</th>
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<tbody>
<tr>
<td>• Type of M &amp; E system available on site</td>
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<tr>
<td>• Frequency of data utilization at site level and at national level</td>
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</table>
What were the successes of the interventions? What were the key factors that contributed to the successes?

What were the failures/challenges of the interventions? What were the key contributing factors? How can they be avoided in future? How can we improve?

<table>
<thead>
<tr>
<th>What were the successes of the interventions? What were the key factors that contributed to the successes?</th>
<th>• Document PMTCT components that were successfully achieved and key factors contributing to a successful strategy</th>
<th></th>
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<th>PMTCT site manager, UNICEF PMTCT focal person, All PMTCT departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>What were the failures/challenges of the interventions? What were the key contributing factors? How can they be avoided in future? How can we improve?</td>
<td>• Document PMTCT components that could not be achieved and their reasons of barrier</td>
<td></td>
<td></td>
<td>PMTCT site manager, UNICEF PMTCT focal person, All PMTCT departments</td>
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<td></td>
<td>• Document solutions to overcome challenges and improve program performance</td>
<td></td>
<td></td>
<td>PMTCT site manager, Refugee PMTCT staff</td>
</tr>
</tbody>
</table>