



USAID
FROM THE AMERICAN PEOPLE

TB CARE I

TB CARE I - Uganda

Final Report

January 2, 2012 –December 31, 2013

December 31, 2013

Table of Contents

Executive Summary	4
Introduction	6
Core Indicators.....	7
Programmatic Management of Drug Resistant TB (PMDT)	10
TB/HIV.....	14
Monitoring & Evaluation, Surveillance and OR	18
Annex 1: Success story on the Role of Geographic Information Systems.	23
Annex 2: Success story on Improved TB treatment Outcomes and Patients' attitude towards TB care	25

List of Abbreviations

APA	Annual Plan of Action
ART	Antiretroviral Therapy
ACP	AIDS Control Program
CDR	Case Detection Rate
CPT	Cotrimoxazole Preventive Therapy
DOTS	Directly Observed Treatment Short Course
DR TB	Drug Resistant Tuberculosis
DST	Drug Susceptibility Testing
DTLS	District/Division Tuberculosis and Leprosy Supervisors
FY	Fiscal Year
GIS	Geographic Information system
HC	Health Centre
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
HSS	Health System Strengthening
IPT	Isoniazid Preventive Therapy
KCCA	Kampala City Council Authority
KNCV	KNCV Tuberculosis Foundation
M&E	Monitoring & Evaluation
MDR-TB	Multi-Drug Resistant Tuberculosis
MOH	Ministry of Health
MSH	Management Sciences for Health
NCC	National Coordination Committee
NLTP	National TB and Leprosy Program
NTRL	National TB Reference Laboratory
NMS	National Medical Store
OR	Operation Research
PLHIV	People Living with HIV
SMS	Short Message Service
PMDT	Programmatic Management Drug Resistant Tuberculosis
SLDs	Second Line TB Drugs
TA	Technical Assistance
TB	Tuberculosis
TBCTA	Tuberculosis Coalition for Technical Assistance
TB-IC	Tuberculosis-Infection Control
TSR	Treatment Success Rate
USAID	United States Agency for International Development
USTP	Uganda Stop TB Partnership
WHO	World Health Organization
ZTLS	Zonal Tuberculosis and Leprosy Supervisor

Executive Summary

In Uganda, TB CARE I - initially a 15 months project and later extended to 21 months - was a USAID funded project implemented by KNCV Tuberculosis Foundation (KNCV) to support the National TB and Leprosy Program (NTLP) to achieve national TB control targets. The specific objectives of the project were to: enhance leadership and technical capacity of NTLP to effectively guide and manage implementation of TB control activities at national and district levels; support implementation of DOTS in Kampala urban area; provide technical assistance for the coordination and implementation of comprehensive TB/HIV and DOTS interventions; and strengthen NTLP capacity to initiate a quality MDR-TB program. The project was implemented in collaboration with the NTLP and Kampala Capital City Authority (KCCA) as the main partners. Project implementation commenced in January 2012 and closed at the end of November 2013. The key project results are highlighted under the following areas; Universal Access (DOTS in Kampala), Programmatic Management of Drug-resistant TB (PMDT), collaborative TB/HIV activities and Health systems strengthening (HSS).

Universal Access: The geographical focus of implementation of this project technical area was Kampala. TB CARE I supported NTLP to conduct a baseline assessment of TB control in Kampala which revealed gaps in recording and reporting, weak support supervision of health facilities, erratic supply of TB drugs and poor patient adherence to treatment as the main findings. To address these gaps, the project implemented the following interventions: Organized meetings with health managers to highlight TB control and service delivery gaps in the city; supported training for additional health care staff to boost support supervision capacity; provided facilitation for support supervision of health facilities; provided airtime to TB clinics and division TB focal persons to follow-up TB patients on treatment to improve adherence; provided mentoring of division TB focal persons and TB clinic staff on management of TB patient records; and supported quarterly data exchange and performance review meetings. In addition, TB CARE I supported NTLP to monitor TB drug stocks at health facilities in order to improve management and quantification of drug needs. The effect of all these was as follows: TB treatment success rate (TSR) for Kampala increased to 70% in 2012 from the baseline of 49% in 2011 and it has been sustained at nearly the same level in 2013 with rates of 68%, 70% and 71% for first, second and third quarter, respectively (NTLP reports).

PMDT: TB CARE I supported NTLP to strengthen capacity to initiate and implement a quality MDR-TB program. Project interventions specifically addressed the inadequate technical capacity to manage MDR-TB at health facility level, capacity for coordination at NTLP central level and admission needs for MDR-TB at Mulago Hospital. These interventions were as follows: revitalization of the PMDT Central team; training of selected health care workers from accredited MDR-TB sites; active search to bring to treatment surviving MDR-TB patients diagnosed in the previous years before second line drugs became available; remodeling of a wing at Mulago National Referral Hospital into an environmentally infection controlled MDR-TB isolation ward; and support for MDR-TB treatment roll-out to Mulago, Mbarara and Kitgum hospitals. As a result, Mulago national referral Hospital has a fully

remodeled and equipped 39 bed capacity MDR-TB isolation ward. The number of MDR-TB patients enrolled on treatment has increased. For instance, 44 MDR-TB patients were put on treatment in 2012 at the three supported MDR-TB sites compared to 16 who were on treatment by the end of 2011 (9 started on treatment in 2010 and 7 patients put on treatment in 2011). From January 2013 to the end of September 2013, 81 MDR-TB patients started treatment at the same sites, contributing 63% of the total Country MDR-TB Treatment enrolment for this period of 129 patients.

TB/HIV: The objective of TB CARE I under this core technical area was to provide support to improve coordination and implementation of comprehensive collaborative TB/HIV activities. The interventions implemented by the project aimed to support NTLP, the AIDS Control Program (ACP) and partners to more effectively implement the 3 I's (Intensified TB case finding, Isoniazid Preventive Therapy (IPT) & TB Infection control) for people living with HIV (PLHIV) and to improve antiretroviral therapy (ART) uptake for HIV positive TB patients. Under TB CARE I, KNCV worked with NTLP, ACP and TB/HIV partners to reactivate the National Coordination Committee (NCC); an important national level mechanism for implementation of TB/HIV activities. Similarly, the project supported the two programs to conduct TB/HIV joint support supervision in selected districts in all NTLP zones across the country. Whereas NTLP was already performing well in 2011 with respect to the proportion of notified TB patients tested for HIV (80%) and of HIV positive TB patients given CPT (93%), only 32% of HIV positive TB patients were on ART. In 2012, ART uptake for HIV positive TB patients increased to 49% (WHO Global TB Report, 2013) while in the first and second quarters of 2013, ART uptake was reported at 50.9% and 57.2%, respectively (NTLP quarterly reports).

HSS: TB CARE I supported interventions to address NTLP central level gaps to enhance planning and technical support supervision. The project procured local technical assistance and supported stakeholder meetings to finalize the 2012/2013-2014/2015 TB National Strategic Plan and develop the 2012/13 Annual implementation plan. The process was completed and both documents have been approved by the Ministry of Health and are being implemented. Additionally, the project provided support to facilitate Uganda Stop TB Partnership (USTP) quarterly meetings and assisted NTLP to conduct two rounds of bi-annual TB support supervision in eight of the nine NTLP zones.

Overall, the TB CARE I major contribution to the NTLP is reflected in the TB treatment success rate which increased from 71% in 2011 to 77% in 2012. In addition, TB CARE I has played a critical role in supporting MDR-TB patient enrolment with all MDR-TB patients in 2012 and 63% of patients to date in 2013 being treated through TB CARE I-supported sites.

Introduction

This report highlights the results of 21 months of implementation of the TB CARE I project in Uganda beginning January 2012 to September 2013. The project was implemented by an eight-member Tuberculosis Coalition for Technical Assistance (TBCTA) with the KNCV Tuberculosis Foundation (KNCV) as the lead implementing partner. In Uganda, KNCV collaborated with the national TB/Leprosy Program (NTLP) and Kampala Capital City Authority (KCCA) as the main partners. This project was initially planned to last 15 months but was later granted two extensions to a total project life span of 21 months with an additional 3 months for project closeout. The overall objective of this project was to support NTLP improve TB case detection rate (CDR) and treatment success rate (TSR) to achieve national TB control targets. The specific focus of TB CARE I was to: enhance leadership and technical capacity of NTLP to effectively guide and manage implementation of TB control activities; support implementation of DOTS in Kampala; provide technical assistance for coordination/implementation of comprehensive TB/HIV and DOTS interventions; and strengthen NTLP capacity to initiate and implement a quality MDR-TB program. The project had a nationwide coverage for three of its technical support areas to the NTLP but specifically focused on Kampala with respect to support for DOTS implementation.

Although Uganda is still among the 22 WHO ranked high burden Tuberculosis countries, it has made some demonstrable progress in the control of TB. For instance, by 2011 TB treatment success rate had increased to 71% from 33% in 1996. Nevertheless the country still falls short of the national and international TB control targets and this has largely been due to gaps and challenges in TB control that the country has continued to grapple with including the emerging multi-drug resistant TB and TB/HIV co-infection. TB CARE I supported NTLP to specifically address TB control gaps and challenges in Universal access to TB treatment and care in Kampala; infrastructure, coordination and human capacity needs for PMDT; national level coordination needs for TB/HIV; NTLP central level planning and technical support supervision deficits; and program capacity for monitoring and evaluation.

In Uganda, the TB CARE I project was run by a KNCV team of eight staff headed by the project Chief of Party and worked closely with staff from NTLP, KCCA, and other implementing partners. Over the project period, a total investment of 1,677,917 US dollars was made to support implementation of the project technical activities.

Core Indicators

TB CARE I has seven core indicators that the program as a whole is working to improve across all countries. Table 1 summarizes the core indicator results across the life of the project for TB CARE I Uganda.

Table 1: TB CARE I core indicator results for Uganda

Indicators	2011 (Baseline)	2012 (Year 1)	2013 (Year 2)
C1. Number of cases notified (all forms)	49016	49211	Incomplete
C2. Number of cases notified (new confirmed)	25614	24916	Incomplete
C3. Case Detection Rate (all forms)	69%	69%	Incomplete
C4. Number (and percent) of TB cases among HCWs	No data	No data	No data
C5. Treatment Success Rate of confirmed cases	71%	77%	Incomplete
C6. Number of MDR cases diagnosed	71	89	133*
C7. Number of MDR cases put on treatment	16	44	129*

*As of September 2013

Indicators presented in Table 1 are national level and the data used for their measurement is calendar year. Indicators C1, C2, C3 and C5 for 2013 are reported as incomplete since the 2013 calendar year TB data collection and compilation is still on-going. Until now, the NTLP has not had specific provision to separately capture data on the number of TB cases among Health Care Workers and therefore, this indicator cannot be measured.

In 2012, the country TB TSR for new smear positive TB cases increased to 77% from 71% in 2011 while the number of MDR-TB cases diagnosed increased to 133 in January to September 2013 from 71 in 2011. The number of MDR TB patients enrolled onto treatment increased from 16 in 2011 to 129 in January 2013 to end of September 2013. TB CARE I has supported the MDR-TB treatment program in the three sites of Mulago, Kitgum and Mbarara hospitals up to the end of September 2013. During January 2013 to September 30, 2013 period, a total of 81 MDR-TB patients have been enrolled onto treatment at the three TB CARE I supported sites. TB CARE I support to enhance NTLP leadership and management capacity, and support for the MDR-TB program partly contributed to this improvement.

Universal Access

Working in collaboration with the national TB Program, the TB CARE I project actively engaged Kampala City Council Authority (KCCA) to improve access to TB treatment and care in Kampala. TB CARE I support to KCCA focused on facilitating improved implementation of three DOTS components. Through dialogue with the KCCA political leaders and health managers, the project secured KCCA buy-in and commitment to support delivery of TB services. At division and health facility level, TB CARE I provided support to facilitate regular support supervision of TB clinics, phone calls to patients to attend clinic

appointments and to update treatment outcomes, mentorship to improve health facility patient records, and quarterly meeting to exchange patient treatment outcome data and review performance. In addition, KNCV through TB CARE I supported NTLP to monitor TB drug stock levels in KCCA health facilities to generate feedback for the National Medical stores (NMS) to improve TB drug supply. SMS mobile phone technology for sending out text reminders to patients to pick their drugs was never implemented because of Ministry of Health restriction. The project spent a total of 158,777 US dollars under this technical area, representing 9.5% of the total project technical investment.

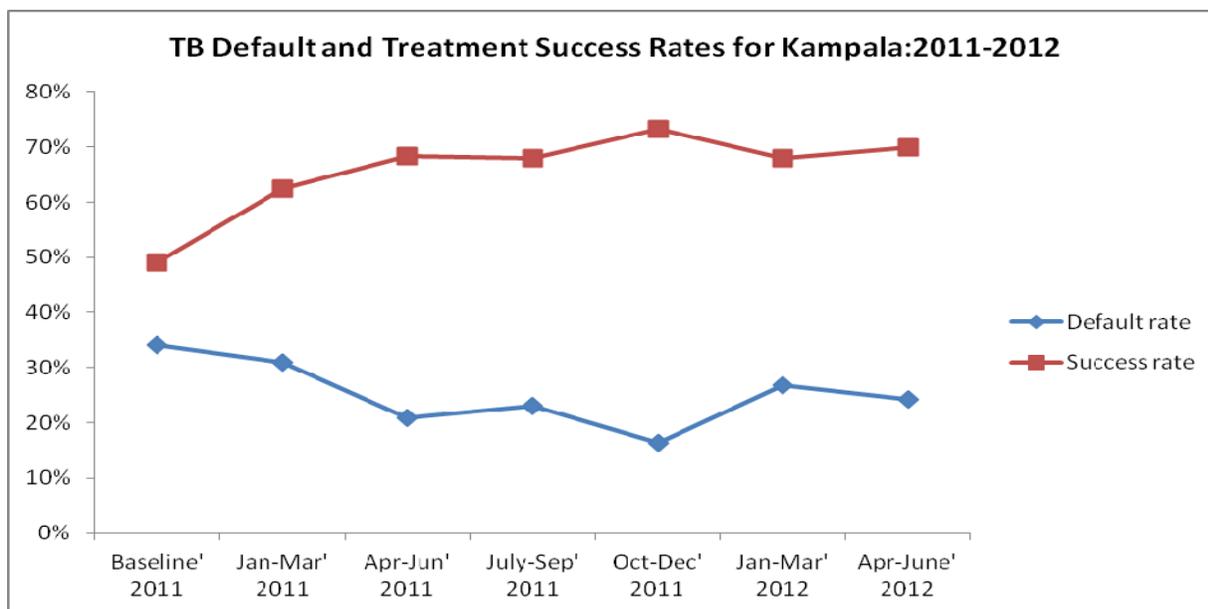
Technical Outcomes

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline (Year or timeframe)	Target	Result	Comments	
				Y2	Y2		
1.2	Increased quality of TB services delivered among all care providers (Supply)	1.2.5 Number of facilities in Kampala covered by support supervision visits	Numerator: Number of facilities in Kampala covered by support supervision visits Denominator: Total number of facilities in Kampala providing TB control services	8(baseline 2011)	38	48	The initial number of health facilities targeted for support supervision was 38. Along the way 10 more facilities were accredited as DTUs leading to a total number of 48 HFs. All these facilities received support supervision which mainly focused on improving data quality, treatment adherence and drug management.
		1.2.8 Number of defaulters receiving monthly SMS for treatment adherence	Indicator Value: Number	N/A	N/A	N/A	This activity was not conducted because of failure to get clearance from the e-health review committee of the Ministry of Health to send sms for treatment adherence to TB patients.

Key Results

Resulting from TB CARE I supported interventions highlighted above, the following were the key achievements. For the first time, all the five divisions in KCCA now have an updated Division TB register, Unit TB registers have more complete patient data, TB Division coordinators conduct support supervision more regularly, quarterly reports to NTLP are more accurate than previously and submitted by all KCCA divisions. For the first time, the national program now has fairly standardized interim TB tools for health facility level support supervision which are still being improved. During project implementation, TB TSR for new smear positive in Kampala increased to about 70% in 2012 from a baseline of 49% in 2011 while the treatment default rate dropped from 34% in 2011 to 24% in 2012 (Figure 1). Nearly the same level of treatment success has been sustained through the first, second and third quarters of 2013 at 68%, 70% and 71% respectively (NTLP quarterly reports 2013). The project would probably have had more positive effect on TSR if the SMS mobile phone technology had been implemented. Additionally, each KCCA division now has at least 2 staff trained and involved in TB support supervision with active support from their division Medical officers unlike in the past. Due to the short duration of the project, it was not possible to explore, identify and implement an appropriate urban DOTS model for Kampala. Hence, project interventions mainly focused on aspects of the DOTS strategy that strengthen political commitment, improve recording and reporting, and strength health facility capacity to manage and quantify TB Drug needs. Although part of the overall objective of TB CARE I was to support NTLP improve TB case detection in the country, in Kampala the project focused only on improving access to TB treatment. This was because the case detection rate for Kampala was over 100% (Kampala CDR in 2011 was 157%) yet the TSR was a mere 49%. The most urgent need was therefore to increase access to treatment and care for those already diagnosed.

Figure 1: TB treatment outcomes for Kampala:2011-2012



Lessons learned/Recommendation:

- Support Supervision visits have proved to be very important in finding out what is happening at the treatment centers for DOTS Kampala, for providing hands on technical support to the service providers and for addressing identified shortcomings as well as for identifying issues that need to be brought up and then resolved at the KCCA and the NTLP levels. Support Supervision has helped improve data collection: *“Prior to TB CARE I we were not really focusing on filling the registers properly as no one ever looked at them or tried to help us fill them better, but now we all fill the registers properly and both patient records and lab records are now kept together”.* (TB Focal persons at Kisenyi HC and at Rubaga Hospital).
- For strengthening the management of TB services within Kampala City, health workers in the various health facilities and TB treatment centers were keen to make a difference but needed outside stimulation in the form of training and encouragement to perform better.
- Simple innovations, such as introducing the use of appointment books, coupled with regular and supportive supervision can make a very big difference in the management of TB cases.
- Regular, focused and structured Support Supervision visits are essential for effective DOTS model. However, Supervision should not just happen as a matter of routine but needs detailed planning. Each Support Supervision should have a clear objective and focus, a budget of time, money and other resources and involve credible supervisors that are able to provide hands on TA to the supervisees.

Programmatic Management of Drug Resistant TB (PMDT)

Through TB CARE I, KNCV supported NTLP to strengthen capacity to initiate and implement a quality MDR-TB program. Project interventions specifically addressed the inadequate technical capacity to manage MDR-TB at health facility level, capacity for coordination at NTLP central level and admission needs for MDR-TB at Mulago Hospital. At the central level, the project supported the following: facilitation for the national MDR-TB Coordinator, revitalization of the PMDT Central team and training of health facility staff of Mulago, Mbarara and Kitgum Hospitals on MDR-TB. To ensure that all surviving MDR-TB patients diagnosed in the previous years before second line drugs became available in the country are put on treatment, TB CARE I supported NTLP to conduct a countrywide active search of these patients. Through international technical assistance, the project further supported NTLP to conduct assessment for infection control and architectural needs at Mulago and other MDR-TB accredited regional facilities. At health facility level, TB CARE I supported the remodeling of a wing at Mulago national referral Hospital into an isolation ward for MDR-TB and provided the necessary equipment for the ward. To facilitate MDR-TB treatment rollout; TB CARE I provided further support to Mulago, Kitgum and Mbarara hospitals.

The project facilitated reactivation, orientation and operations of PMDT panels at these three supported sites, supported salaries of additional MDR-TB staff at Mulago and Kitgum

hospitals, and provided treatment follow-up and food support for MDR-TB patients on treatment at the three sites. The project also provided transport support to patients enrolled on MDR-TB treatment in Mulago Hospital. However, due to the inability to put in place a voucher delivery mechanism; the project did not extend transport support to patients enrolled on MDR-TB treatment in Kitgum and Mbarara Hospitals. The total expenditure under this area over the project implementation period was \$1,107,081 equivalent to 66% of the total TB CARE I technical investment.

Technical Outcomes

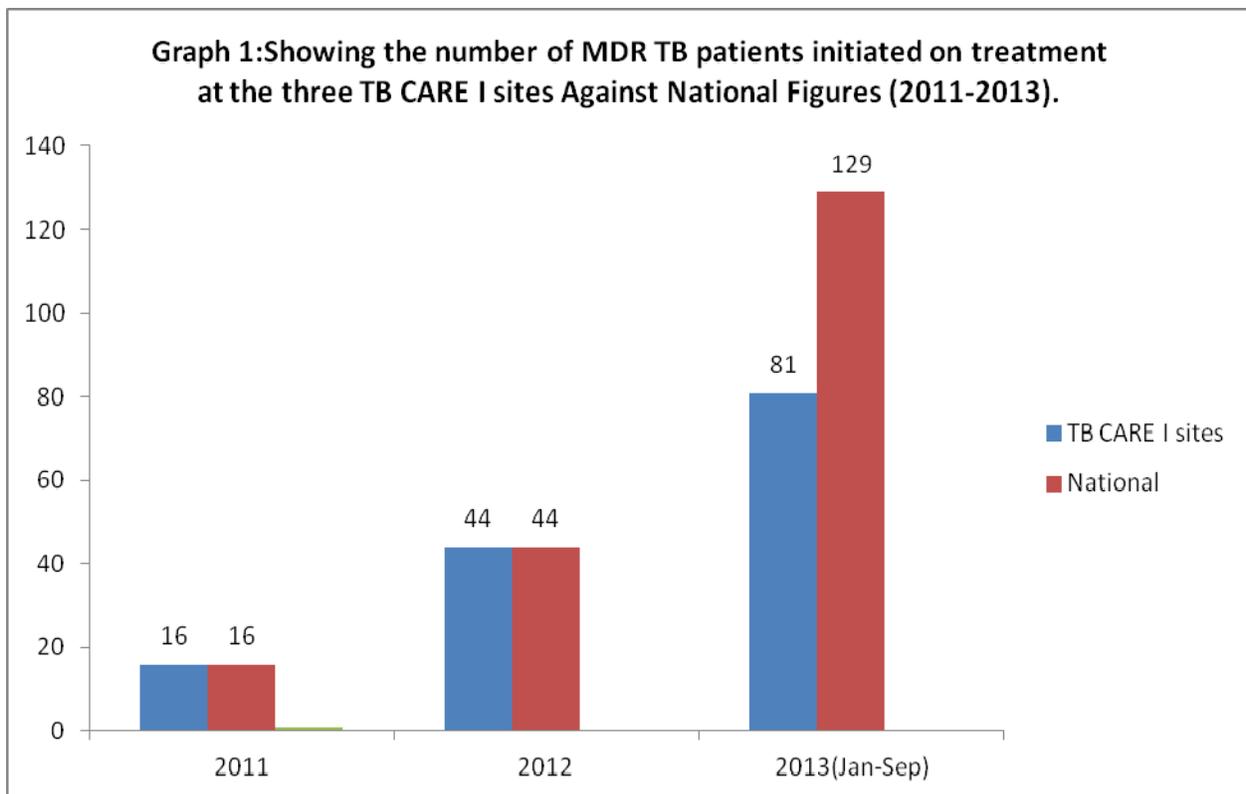
Expected Outcomes		Outcome Indicators	Indicator Definition	Baseline (Year or timeframe)	Target	Result	Comment
					Y2	Y2	
4.1	Improved treatment success of MDR	4.1.2 MDR TB patients who are still on treatment and have a sputum culture conversion 6 months after starting MDR-TB treatment	Numerator: number of MDR TB patients in a cohort who are still on treatment and had culture conversion latest at month 6 (having had 2 negative sputum cultures taken one month apart and remained culture negative since) Denominator: Total number of MDR patients who started treatment in the cohort.	N/A	70% (2012)	83% (2012)	
		4.1.5 Number of diagnosed MDR-TB patients who are enrolled on treatment	Number of MDR TB patients enrolled on treatment	16 (2011)	60 (2012)	125 (2012)	See graph 1:
		4.1.6 Number of MDR-TB beds made available through renovation of wards in Mulago hospital	Number of beds	0 (2011)	30 (2012)	39 (2012)	

Key Results

TB CARE I supported two rounds of a countrywide active search for an estimated 300 MDR-TB patients diagnosed between 2008 and June 2012 when government had not yet availed second line drugs and organized programmatic management of MDR-TB had not yet been rolled-out. As a result of this

active search, a total of 73 untreated surviving MDR-TB patients were located and linked for treatment to the various MDR-TB sites in the country.

Increased enrolment of MDR patients: The three TB CARE I supported sites have significantly contributed to the increase in the number of MDR-TB patients enrolled on treatment. In 2012, a total 44 MDR-TB patients were put on treatment compared to 16 who were on treatment by the end of 2011 (9 started on treatment in 2010 and 7 patients put on treatment in 2011). All these 44 patients were initiated on MDR-TB treatment at the three TB CARE I supported sites of Mulago, Mbarara and Kitgum hospitals. From January 2013 to the end of September 2013, 81 MDR-TB patients started treatment at the same sites, contributing 63% of the total country MDR-TB Treatment enrolment for this period of 129 patients. Moreover, some of the MDR-TB patients started on treatment in other MDR-TB treatment sites during this period were a result of the countrywide MDR-TB active search that was conducted through TB CARE I support.



A remodeled MDR TB ward at Mulago National Referral Hospital: Initially without any admission capacity for MDR-TB, Mulago National Referral Hospital now has a fully remodelled and equipped 39 bed capacity "State of art" MDR-TB isolation ward. The ward is now functional with ward occupancy of 62% currently.



Renovated "State of Art "MDR TB Ward with beds



Equipping MDR TB Ward at Mulago Hospital

MDR-TB is best prevented through effective management of susceptible TB. TB CARE I provided further support to the Mulago Hospital TB Unit, procuring medical and non-medical equipment for the susceptible TB wing of the unit to boost capacity for management of susceptible TB.

TB/HIV

The gaps identified under this technical area at the beginning of TB CARE I included weak partner coordination at the national level and absence of uniform implementation of TB/HIV interventions by the different partners in the country. The project therefore set out to support coordination and implementation of comprehensive collaborative TB/HIV interventions. The aim was to support NTLP, the AIDS Control Program (ACP) and partners to more effectively implement the 3 I's (Intensified TB case finding, IPT & TB Infection control) for people living with HIV (PLHIV) and to improve ART uptake for HIV positive TB patients. Through TB CARE I, KNCV coordinated and supported NTLP, ACP and TB/HIV partners to reactivate the National Coordination Committee (NCC) and worked with the two national programs, partners and district health teams to conduct joint support supervision of TB/HIV activities in selected districts in all the NTLP zones. The joint support supervision activity involved jointly identifying TB/HIV service quality gaps/challenges and working out solutions with staff at the facilities visited. The total expenditure under this area was \$164,060, constituting 9.8% of the total project technical investment.

Technical Outcomes

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline (Year or timeframe)	Target	Result	Comments	
				Y2	Y2		
5.2	Improved diagnosis of TB/HIV co-infection	5.2.4 TB CARE-supported supervisory visits conducted	Number of TB CARE-supported supervisory visits conducted.	0 (baseline 2011)	18	18	
5.3	Improved treatment of TB/HIV co-infection	5.3.3 Number of TB/HIV National coordination committee meetings supported	Indicator Value: Number	0 (baseline 2011)	4	4	TB CARE I smoothly handed over TB/HIV NCC tasks to TRACK TB.

Key Results

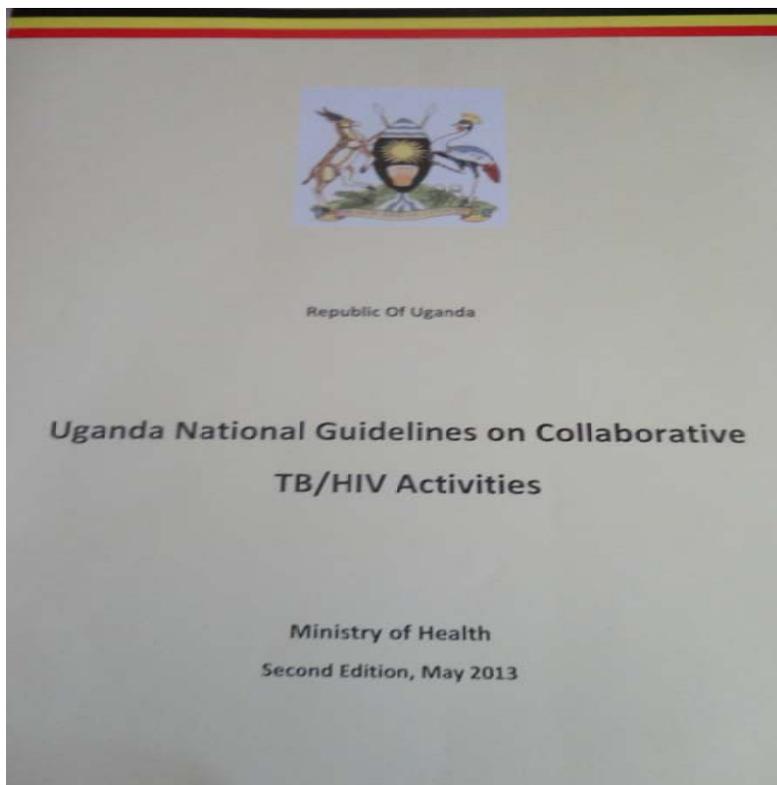
TB/HIV Support supervision: With support from TB CARE I, NTLP, ACP and TB partners conducted 18 rounds of joint TB/HIV support supervision visits aimed at providing technical support at health facility level to build capacity for quality delivery of TB/HIV services. In the first nine visits, a total of 45 districts (40%) and 209 health facilities were visited while in the second round of joint support supervision visits, 58 districts (52%) and 248 health

facilities were visited. As part of the process, the project supported improvement of a TB/HIV support supervision checklist which is being adapted further to develop into a standard checklist for health facility level TB/HIV support supervision.

TB/HIV partner coordination: TB CARE I coordinated and supported NTLP and ACP to reactivate NCC activities. The NCC is fully re-constituted and holds quarterly meetings regularly. The project supported a total of four quarterly NCC meetings and a series of technical working group meetings to revise the TB/HIV National Policy Guidelines. The result of all these includes increased contact and sharing of resources between the two programs and a revised and approved edition of the TB/HIV National Policy guidelines which will support improvement in quality of TB/HIV services.

The improved coordination of the two programs at national level and the joint support supervision of collaborative TB/HIV activities conduct have partly contributed to the reported increase in ART uptake among HIV positive TB patients down from 32% in 2011 to 49% in 2012 (WHO Global TB reports 2012 & 2013). In the first and second quarters of 2013, ART uptake for HIV positive TB patients is even higher; 50.9% and 57.2% respectively (NTLP M&E quarterly reports). Although, isoniazid is not available in the country for programmatic IPT, the NCC steered the process to formulate IPT implementation guidelines which are now being finalized and Isoniazid needs have been quantified.

Uganda National Policy Guidelines on Collaborative TB/HIV



Health System Strengthening (HSS)

Under this technical area, TB CARE I supported interventions to address NTLP central level deficits to enhance planning and technical support supervision. The project procured local technical assistance and supported stakeholder meetings to finalize the TB national strategic plan and develop the 2012/13 Annual implementation plan. In addition, project support was extended to facilitate Uganda Stop TB Partnership quarterly meetings and transportation for the NTLP Central Unit. Furthermore, the project facilitated NTLP to conduct two rounds of bi-annual TB support supervision in eight of the nine NTLP zones. As part of the process, interim TB support supervision checklists have been developed which are being further improved with support from MSH TRACK-TB into standardized checklists. The project also supported training of NTLP staff and health care workers from selected facilities to enhance their technical capacity for MDR-TB. An investment of \$117,821 was made under this technical area which is 7% of the TB CARE I total technical investment.

Technical Outcomes

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline (Year or timeframe)	Target	Result	Comments	
				Y2	Y2		
6.2	TB control components formed integral part of national plans, strategies and service delivery of these components	6.2.3 People trained using TB CARE funds	Numerator: Number of people trained disaggregated by gender and type of training.	0 (2011)	68 (2012)	77 (2012)	Trainees categorized by sex as; male=33 & female=44
		6.2.4 National TB strategic plan finalized	Indicator Value: Yes/No	No (2011)	Yes	Yes	National TB Strategic Plan (2012/13-2014/15) finalized
		6.2.5 Annual Implementation Plan developed	Indicator Value: Yes/No	No (2011)	Yes	Yes	Annual Implementation Plan (2012/13) finalized

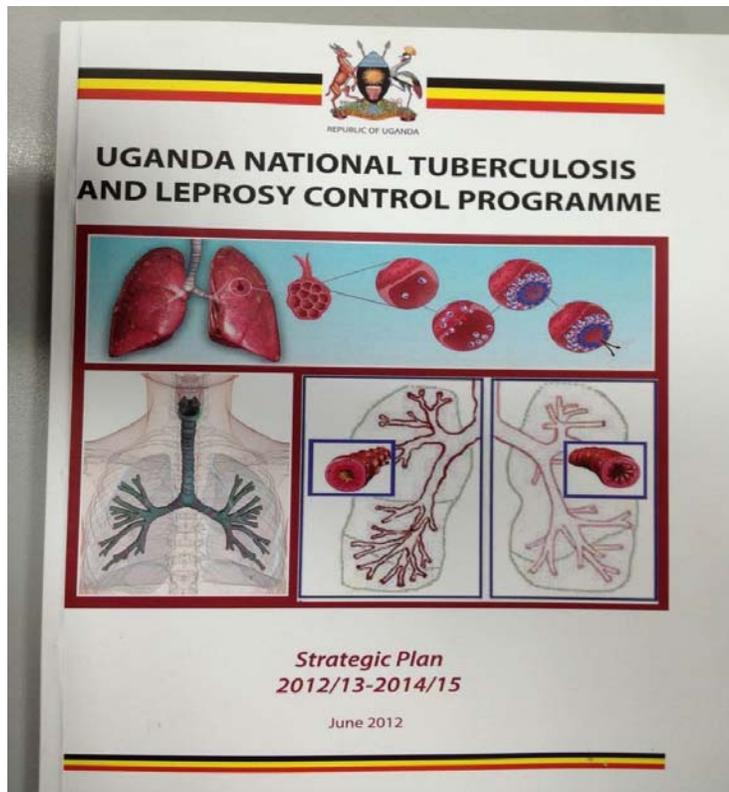
Key Results

Capacity building:

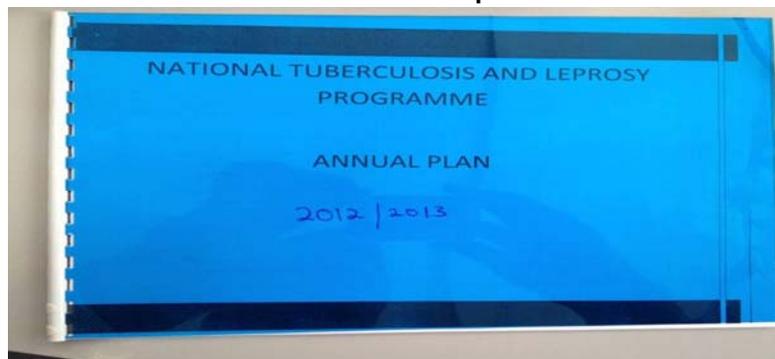
A total of 77 health care workers received training to enhance their technical capacity for MDR-TB with support from TB CARE I. The beneficiaries of these trainings were drawn from Mulago Hospital, five regional hospitals (Mbarara, Mbale, Gulu, Arua and Fort portal), one district Hospital (Kitgum) and the NTLP Central Unit. These trainings were conducted both within and outside Uganda with the following attendance breakdown; universal access (12), PMDT (21), HSS (21) and GIS (21).

National TB Strategic Plan and Annual TB Implementation: With support from TB CARE I, NTLP now has a National Strategic Plan for the period 2012/13–2014/15 approved by the Ministry of Health and an Annual Implementation plan for the fiscal year (FY) 2012/13, which are being implemented by Government and major TB partners in the country. The national TB strategic plan was a very essential input in the recently concluded Global Fund grant renewal application for the country.

The 2012/13-2014/15 Uganda NTLP Strategic Plan



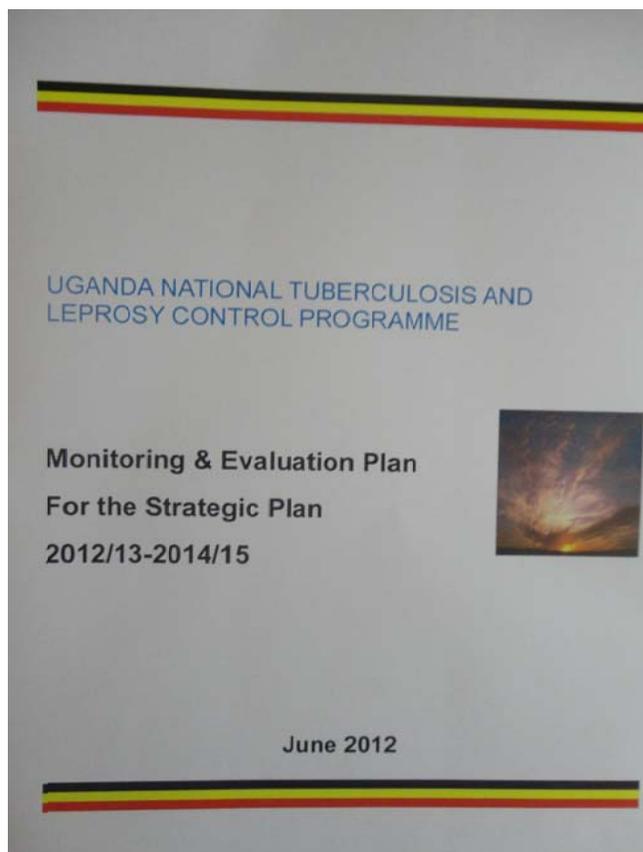
The 2012/13 NTLP Annual Implementation Plan



Monitoring & Evaluation, Surveillance and OR

Critical decision-making and TB programme management are both critically dependent upon the timely availability of accurate and complete TB information based upon sound data. Demonstrating progress towards the targets set in the NTLP strategic plan 2012/13–2014/15 clearly required formulated goals, objectives and well defined, results oriented service delivery. It also required that appropriate indicators are selected, targets set and progress reported regularly. TB CARE I supported the drafting of an M&E plan for NTLP which has been approved and printed. The M&E plan is intended to support NTLP to ensure successful implementation of the TB National Strategic Plan and also enable evidence-based decision making, NTLP learning and improvement in performance.

Monitoring and Evaluation Plan



TB CARE I introduced a geographical information system (GIS) application to support NTLP to improve programming for MDR-TB and TB control in Kampala Capital City. TB service offering facilities in Kampala, Laboratories with capacity for TB culture/DST and all MDR-TB accredited regional hospitals were mapped and staff from these facilities received training on GIS. Additionally, the project procured and distributed GPS devices, computers and GIS software to NTLP Central Unit, KCCA and the three TB CARE I supported MDR-TB sites (Mulago, Kitgum and Mbarara hospitals) to be used for integrating GIS applications into TB programming. The project also supported Kampala City Division TB focal persons conduct

quarterly data harmonization and performance review meetings. During these meetings, data quality, recording and reporting deficits at both health facility and division level were identified and resolved. The project supported the NTLP to print updated TB unit registers and patient treatment cards for KCCA facilities. The investment under this technical area over the projection implementation period was \$130,178, equivalent to 7.8% of the total TB CARE I technical investment.

Technical Outcomes

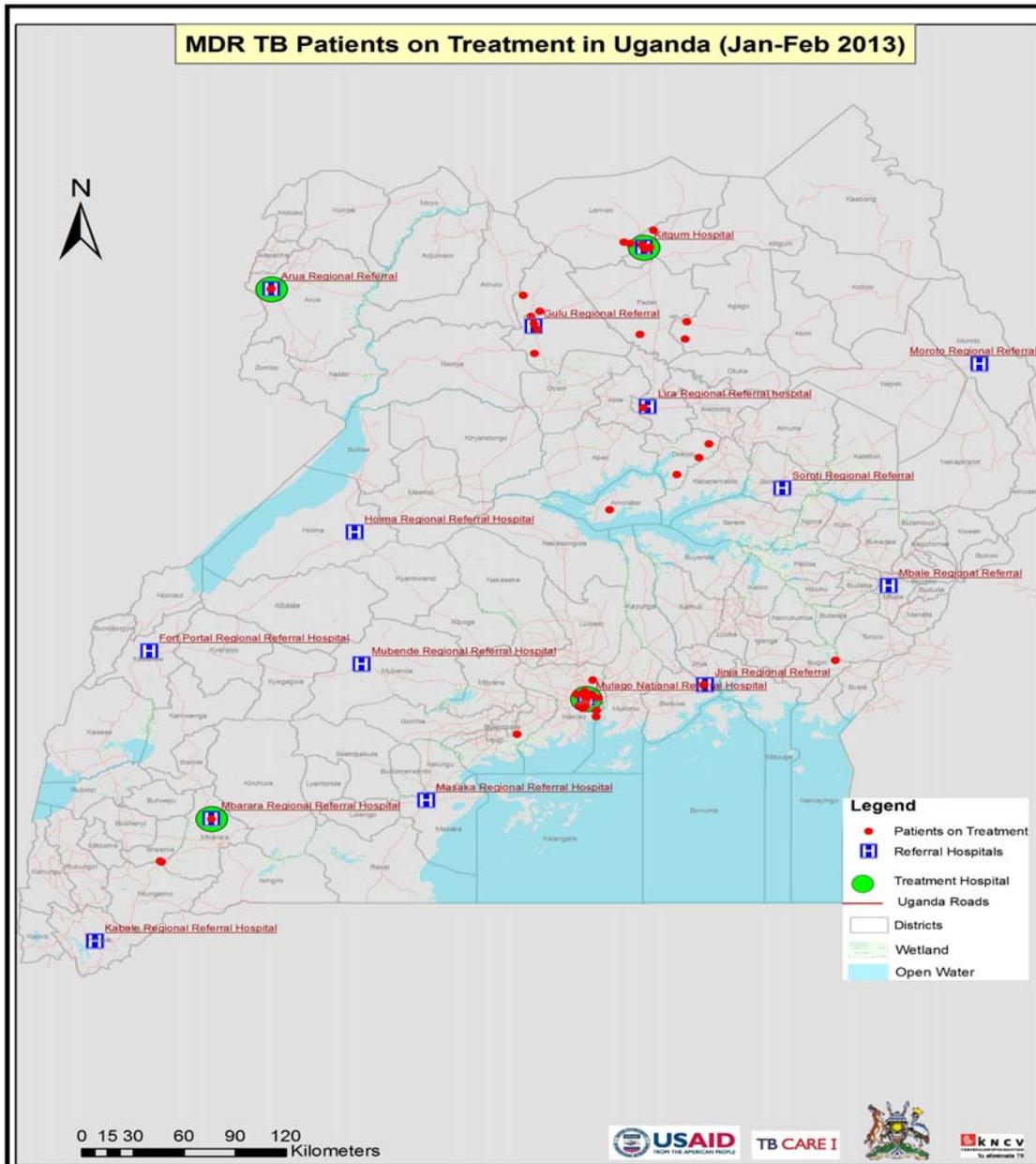
Expected Outcomes		Outcome Indicators	Indicator Definition	Baseline (Year or timeframe)	Target	Result	Comments
					Y2	Y2	
7.1	TB Surveillance Strengthened	7.1.1: Percentage of health facilities analyzing TB treatment outcome data on a quarterly basis	Numerator: Health facilities providing TB treatment within Kampala and are analyzing TB treatment outcome data on a quarterly basis Denominator: All health facilities providing TB treatment within Kampala	2(Baseline 2011)	38	48	TB Focal Persons of the 48 supervised facilities were supported to compile and analyze their Outcome treatment data
		7.2.12: Geographical Information System for Kampala Health Facilities TB control and MDR TB management established	Indicator Value: Yes/No	No(Baseline 2011)	Yes	Yes	2 Geo-databases have been established and fully functional

Key Results

Geographical Information System (GIS): With support from TB CARE I, all accredited MDR-TB sites, laboratories with capacity to conduct culture/drug susceptibility testing and over 100 health facilities in KCCA including the 48 TB service providing facilities have been mapped. Selected health workers (20) from MDR-TB accredited sites have received training on GIS. The program has a geo-database and GIS maps for MDR-TB which show the distribution of MDR-TB patients across the country (figure 2). These outputs have been valuable in aiding the program make estimation of the average distances the MDR-TB ambulatory patients have to travel to their nearest follow-up treatment facilities which has

informed computation of transport support. The geo-database and GIS maps for KCCA picture the distribution of TB services in the different divisions of the city which is useful to KCCA, the program and partners in targeting interventions. With improving GIS capacity at NTLP Central Unit and KCCA, GIS maps will be regularly updated.

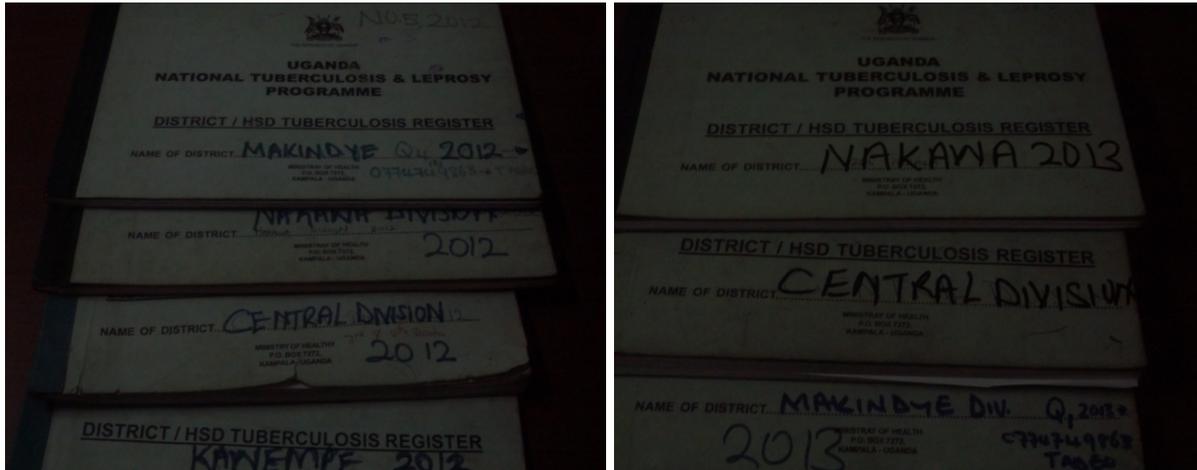
Figure 2: Map of Uganda showing the distribution of MDR-TB patients



Recording and reporting

Correct and complete TB registers are very important in the monitoring of patients and ensuring treatment completion. Through the TB CARE I project, KNCV provided technical support towards the revision of the NTLP recording and reporting tools including TB cards and unit registers. The project supported the NTLP to print updated TB unit registers (100) and patient treatment cards (10,000) for the 48 TB diagnostic TB health facilities in Kampala. At division and health facility level, TB CARE I provided support to facilitate regular support supervision of TB clinics to update treatment outcomes and mentorship to improve health facility patient records. For the first time, the national program now has fairly standardized interim TB tools for health facility level support supervision which are still being improved. Overall, documentation of TB data in all five divisions in Kampala improved greatly, which has resulted in better tracking of TB patients and data collection to inform decision making.

Divisional TB registers in place



Quarterly Performance review meetings:

TB CARE I successfully supported in total six zonal and divisional quarterly health facility TB performance review meetings planned for TB focal persons and health care workers both in Kampala and surrounding districts. These meetings provided a good forum for TB focal persons and the health care workers to discuss quality improvement initiatives as well as enhance use of TB data to highlight the key issues affecting TB control in general but specifically TB treatment outcomes in the respective health facilities. These efforts created awareness amongst facility health workers about performance in TB and also set targets for improved performance in 2013.

Quarterly Data Harmonization meetings:

TB CARE I supported KCCA and NTLP to conduct quarterly data exchange meetings for the divisional supervisors of Kampala and other surrounding districts. To ensure a better data harmonization process, KNCV through TB CARE I introduced a simple Excel based electronic tracking tool to aid the compilation and harmonization process of the patient transfers and defaulter data by districts supervisors for the respective health facilities. During the meetings, division TB data was verified and harmonized. This initiative improved documentation of TB data greatly which further resulted in better tracking of treatment outcomes of transfers out and defaulters. For instance, before DTLS data harmonization meetings, TB cases not evaluated in Kampala were as high as 27% and after this initiative, TB cases not evaluated reduced to 12%. Similarly, TB cases evaluated increased from 73% to 88%. Furthermore, in the April-June 2012 reporting period, 113 patients were transferred out. Through data exchange meetings, 66% (57) of patients that were transferred out were found to have completed treatment and 15% (13) were reported to be cured. These 111 patients (54 and 57) contributed to the overall treatment success rate (70%) for that particular quarter. Without this innovative follow up method, these patients would not have been easily discovered to have completed their treatment.

Patient follow up:

TB CARE I facilitated Health care workers in the TB Clinics with monthly airtime based on the number of interrupters to make phone calls to both patients who missed their appointments and those who failed to pick their drugs. Patient follow up was also conducted through use of the available TB unit registers and appointment diary records. In the process, reported treatment outcomes of death, failure and discontinuation of treatment were documented in the registers immediately while reported treatment outcomes of completion and cure were ascertained by follow up and contact with the respective reported health unit, Division or District TB focal persons. Constant patient follow up by the health care workers have partly contributed to the reported increased TSR to about 70% in 2012 from 49% in 2011. Furthermore, patients lost to follow up reduced from 621 to 256 in the first and second quarters of 2012. Similarly, treatment completion rates among those recovered through phone call initiatives increased to 66% from 44% in the first and second quarters of 2012. Use of low cost technologies like appointment diaries and mobile phone follow up calls in Kampala became an important promising approach for maintaining contact with patients and ensuring that they complete TB treatment.

Annex 1: Success story on the Role of Geographic Information Systems.

Improved Planning for Multidrug-Resistant Tuberculosis Services in Uganda through GIS application:

Challenge

The treatment of multidrug-resistant tuberculosis (MDR-TB) patients in Uganda is in its infancy; between 2008 and 2012 approximately 300 people were diagnosed with MDR-TB by the National Tuberculosis Reference Laboratory (NTRL), but as there were no second line drugs in country, none of these patients could be treated. In 2012, the National Tuberculosis and Leprosy Program (NTLP) rolled out a Programmatic Management of Drug-Resistant TB (PMDT) Expansion Plan, which identifies thirteen regional referral hospitals as ideal facilities for both the initiation of treatment and the overall management of MDR-TB patients. Using Directly Observed Therapy (DOT), the day-to-day management of patients is done by health centers close to the patients' homes.

As of February 2013, the Government of Uganda had named four hospitals as treatment centers for MDR-TB (Mulago National Referral Hospital; Arua and Mbarara Regional Referral Hospitals; and Kitgum General Hospital) and only about 50 patients were receiving MDR-TB treatment. In light of the relatively high number of MDR-TB that had accumulated since 2008, there was significant need to rapidly plan for and scale up MDR-TB services in the country, and to put this backlog of MDR-TB patients onto treatment.

Response

The TB CARE I project, funded by the US Agency for International Development (USAID), has been contributing to the implementation of quality PMDT in Uganda. One of the innovations introduced by TB CARE I was to use geographic information system (GIS) applications to provide insights into the planning for expanded MDR-TB services and as of February 2013, through TB CARE I, KNCV has supported the NTLP to map:

- The location of the four sites that had rolled out MDR-TB treatment and all other accredited sites that were yet to roll out MDR-TB treatment: one national referral hospital, thirteen regional referral hospitals, and one general hospital.
- The location of laboratories in Uganda with the capacity to diagnose MDR-TB.
- The location of the MDR-TB patient households who were already receiving treatment.
- The locations of known MDR-TB patients who were on the waiting list but not yet initiated on treatment.

Results

From this first round of GIS mapping and the analysis of the geo-data collected, the following information was generated and used by TB CARE I in collaboration with the NTLP to begin to improve the planning of MDR-TB services:

1. Extent of the distribution of MDR-TB in the country:

The NTLP was able to understand the geo-distribution of MDR-TB patients on treatment by being able to graphically illustrate the location of these patients. Although the maps only

showed the locations of patients on treatment, who were much less than those still on the waiting list, they still highlighted that MDR-TB was a widespread problem across the country. Even in Kampala City, the maps clearly showed that there was at least one MDR-TB patient in each of the five administrative divisions of the city (figure 1). KNCV and the national TB program have used these maps to raise awareness of MDR-TB in both Kampala and the rest of Uganda.

2. Distances covered by patients from their homes to follow-up treatment sites:

The distances MDR-TB patients on ambulatory care travelled from their homes to the nearest health centres were estimated (figure 2). For example, patients initiated on treatment at Kitgum Hospital in northern Uganda traveled on average 3.5 kilometres daily while patients initiated on treatment at Mulago National Referral Hospital traveled an average of 1 kilometre to their follow-up facility for their daily DOT. In order to ensure optimal adherence to DOTS, TB CARE I used this information to determine and support the transport costs of patients on treatment in the different parts of the country.

3. Distribution of MDR-TB treatment initiating sites:

GIS mapping displayed the locations of MDR-TB patients; those on treatment and those on the waiting list. One of the maps from this exercise showed that the four sites initiating MDR-TB treatment (Mulago, Kitgum, Arua, and Mbarara) was too unevenly distributed to ensure ease of access to second line TB drugs for all MDR-TB patients. The GIS maps clearly showed the need to urgently scale up MDR-TB treatment to additional regional referral hospitals to address this gap.

4. Distribution of laboratories to diagnose MDR-TB:

It is now known that Uganda has only seven laboratories with the capacity to diagnose MDR-TB. Five of these laboratories are located in Kampala and the other two are in Mbarara and Gulu, but only the NTRL in Kampala carries out confirmatory testing for MDR-TB, highlighting the gap in access to MDR-TB diagnosis. KNCV as implementer of TB CARE I used this information to recommend that the NTL explore options to shorten the distances sputum samples have to be transported from referring laboratories to the NTRL in order to increase access to MDR-TB laboratory services and shorten the turnaround time for receiving a confirmation result of an MDR-TB diagnosis.

Results of follow-up actions

Following dissemination of the TB CARE I supported GIS mapping findings;

- The number of MDR-TB treatment initiating sites has doubled to include Gulu, Fort Portal, Mbale and Iganga hospitals.
- Nearly all the surviving MDR-TB patients diagnosed before 2012 have been traced and put on treatment.
- A total of 45 GeneXpert machines have been made available and distributed to the major public health facilities around the country, meaning patients who are diagnosed Rifampicin resistant by GeneXpert molecular testing are immediately referred for MDR-TB treatment whilst their sputum samples are sent to the NTRL to confirm diagnosis.

Annex 2: Success story on Improved TB treatment Outcomes and Patients' attitude towards TB care

Improving on reported TB treatment outcomes and patients' attitude towards TB care by contacting TB patient defaulters and missed appointments.

In April 2012, a TB CARE I health facility assessment report revealed that 27% of patient's treatment outcomes were unknown. During TB CARE I support supervision with the Divisional TB & Leprosy Supervisor's (June 2012), a total of 314 patients registered during the second quarter from 21 health facilities were documented as defaulters. It was noted that some of these patients could be misclassified as defaulters if they died or transferred out for treatment at other health facilities without the health workers' knowledge. With support from USAID, TBCARE I provided airtime and patient diaries to the TB Unit focal person's of the respective health facilities. Patients with missed appointments were identified and called to ascertain their status of treatment and treatment outcomes. A total of 99 successful calls were made for patients seen during the period of April to June 2011. This confirmed 18 patients (17.1%) as dead, 17 (17.1 %) as defaulters and 45 (46.4%) claimed to have completed TB treatment from other health facilities. The rest had unclear responses (2 did not answer calls, 11 were wrong numbers and 6 were relatives without information on the patient's outcome). Further follow up at the respective health facilities to confirm completion of treatment among the 45 patients was done. At the time of this report 13 patients had been followed up and 6 (46%) of them were confirmed to have completed treatment while 1 had defaulted.

TB CARE I has noted that contacting patients with missed appointments, misclassified/unknown treatment outcomes can help improve treatment outcomes by helping TB patients with missed appointments and defaulters return into care, while also confirming those who died or completed treatment elsewhere. In addition to this, health workers have noted that this can strengthen correct documentation of treatment outcomes and improve patients' attitudes to care as stated by some of the Unit TB focal persons below.

"The TB records are better now because the calls we make have helped us come up with the real treatment outcome. Because most of these patients we call defaulters are actually not defaulters, some are dead, some are getting treatment elsewhere". Rubaga Hospital.

"We are able to confirm the dead and therefore complete the register where necessary". Namungoona hospital. *"With the help of the diary and airtime, we are able to call patients who have missed their visits and thus reduce the number of defaulters.... "Patients' feel that we care and they get encouraged. When we remind them with a phone call they actually come."* Rubaga Hospital

Below are some of the responses from patients who returned and restarted TB treatment.

..... I had thought of coming back to hospital but I was scared of returning for fear that the health workers would be mad at meAs I was stilling gathering the guts to return, I received a call asking me to come back I was so relieved. 25 year old lady who had defaulted for 5 months.