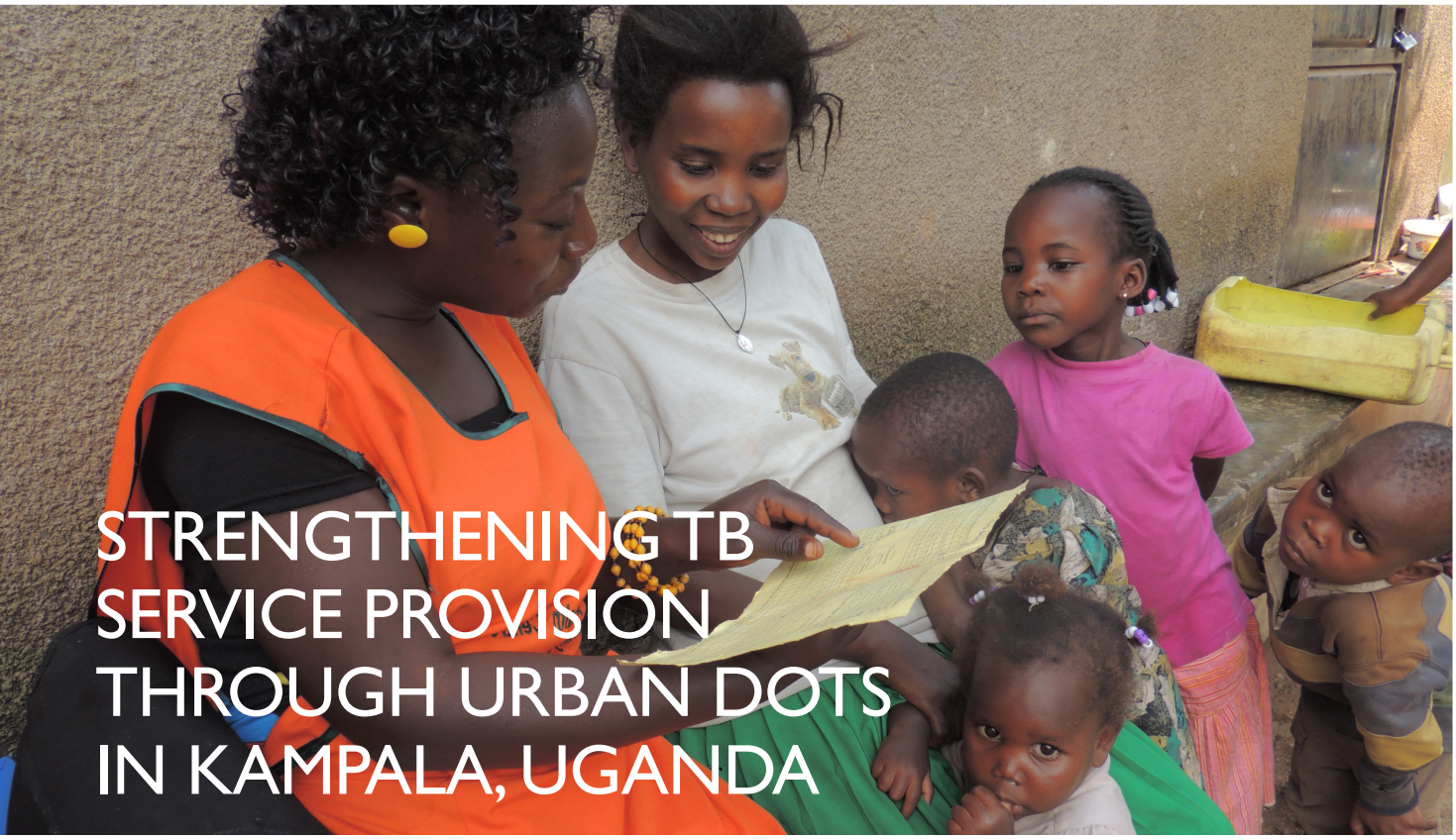
TECHNICAL BRIEF
FEBRUARY 2016



STRENGTHENING TB SERVICE PROVISION THROUGH URBAN DOTS IN KAMPALA, UGANDA

Photo by Diana Tumuhairwe

Background

IT IS ESTIMATED that urban residents currently represent more than 60 percent of the world's population, compared to 30 percent in 1950. Over the last two decades the world's largest cities have seen a surge in tuberculosis (TB) incidence, exacerbated by dense populations, overcrowding, and inadequate control measures. MSH is working to expand TB service provision in densely populated areas. A key component of this work involves implementing the World Health Organization's directly observed treatment, short-course (DOTS) strategy which consists of five key components:

1. Political commitment with increased and sustained financing,
2. Case detection through quality-assured bacteriology,
3. Standardized treatment, with supervision and patient support,
4. An effective drug supply and management system, and
5. Monitoring and evaluation systems as well as impact measurement.

The DOTS strategy has demonstrated high cure rates, through strict supervision and monitoring of cases by health and non-health personnel. The Urban DOTS model applies these strategies to an urban setting, including cities and large towns, to inform the management of TB in more densely populated areas.

In Uganda, Kampala is the capital and largest city, with a population of over two million and the largest group of transient people in the country. The city detects about a fifth (7,500-9,000 TB cases annually) of the national TB load in Uganda. About half of the cases reported to the National TB/Leprosy Programme (NTLP) are new bacteriologically confirmed, or infectious, cases.

The coverage of health facilities providing TB services has been low, with approximately 47 percent of TB patients living within less than five kilometers from a TB diagnostic and treatment unit (DTU). The involvement of the private sector and of private health facilities in TB care has been minimal, yet almost half of TB patients first seek care from private outlets.

In Kampala, only 6 percent of TB patients were on DOTS and the city registered the highest levels of multidrug-resistant TB (MDR-

TRACK TB is a five-year project, funded by US Agency for International Development (USAID) and PEPFAR since January 2013. The project is implemented by Management Sciences for Health (MSH) and its partners: AIDS Information Centre (AIC) Uganda and University of California, San Francisco/Curry International Tuberculosis Centre (UCSF/CITC). The TRACK TB project also works to strengthen the capacity of the National TB/Leprosy Programme (NTLP) to provide leadership for TB response and deliver quality, well-organized, and efficient services in close collaboration with other USAID programs; scale up programmatic management of MDR-TB; and provide technical support to the NTLP and USAID TB implementing partners to ensure that interventions implemented are coordinated, harmonized, and of high impact. This brief provides details on the Urban DOTS component's achievements, experiences, challenges and lessons learned over the past two years.

TB) cases in the country. Furthermore, the Kampala Capital City Authority (KCCA), which oversees the delivery of health service, had no designated budgetary commitment towards TB interventions.

Our Strategic Approach

In response to the need for improved TB services and to address the growing challenge of MDR-TB, the USAID-funded and MSH-led TRACK TB project sought to expand Urban DOTS in Kampala. When implemented in urban settings, DOTS improves TB service delivery by involving public and private health care providers in TB control efforts. The goal is to ensure that:

- ***All clients*** attending outpatients departments are screened for TB;
- ***All presumptive TB patients*** are evaluated in the clinic and laboratory and those diagnosed with TB are initiated on treatment; and
- ***All those on treatment*** are followed up to completion and cure.

The expected outcomes are:

- ***Increased case notification*** for TB as well as a higher proportion of patients with favorable outcomes (cure rates and treatment success);
- ***A reduction*** in the proportion of patients with poor outcomes (loss to follow up, death, and treatment failure).

TRACK TB designed an Urban DOTS model to support the KCCA's efforts in Kampala by strengthening health systems and communities to provide quality and patient-centered TB care (Figure 1). Interventions under this program model targeted strengthening existing health facilities and decentralized TB services to involve more public and private health facilities. The program model also increased community involvement in TB care. The model focused on training city-based health facility staff to identify individuals with TB symptoms, provide timely TB testing and treatment, supervise patients' medication intake, and accurately register and report TB-related data. The health workers were also trained to improve TB case detection by encouraging and facilitating TB testing for people living with or in close contact with TB patients.

Using this model, TRACK TB supported the KCCA to achieve four specific results:

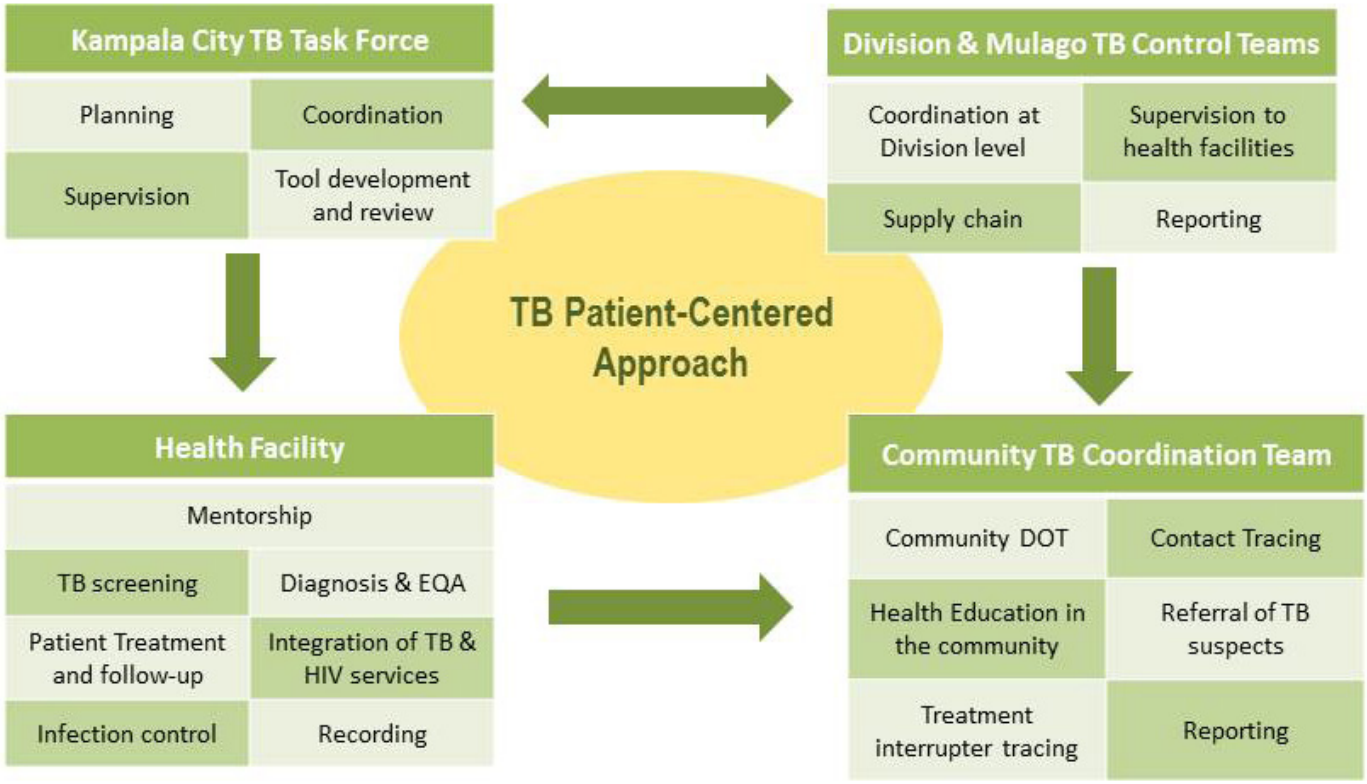
1. Increasing TB case notification
2. Improving cure rates and treatment success rates
3. Increasing TB/HIV service delivery
4. Reducing morbidity and mortality.

Planning, coordination, and building capacity for Urban DOTS implementation

TRACK TB supported the KCCA in the establishment of a TB planning and coordination mechanism: the Kampala City TB Task Force (KCTF). The task force brought together all partners and TB stakeholders, divisional TB focal persons, and selected health facility managers. Through this mechanism, key gaps were addressed in a collective and inclusive manner. These gaps included incomplete patient data in the unit TB registers, lack of some tools (e.g., laboratory TB registers), transfer forms, and laboratory request forms for sputum analysis. The KCTF partners, with support from TRACK TB, provided mentorship and training in TB/HIV case management and records management to health workers within the five municipalities that make up Kampala city. These include: Central, Kawempe, Makindye, Lubaga, and Nakawa.

In collaboration with KCCA and partners in Kampala, TRACK TB supported dissemination of the Urban DOTS model to the existing 56 DTUs and an additional 41 private health facilities. TRACK TB worked closely with the Directorate of Public Health and Environment at KCCA to identify a team of technical officers from partners, health care facilities, and members of the City Health Team to participate in the mentorship and quality improvement programs, targeting health workers in TB and TB/HIV care. TRACK TB facilitated the teams in the provision of on-the-job mentoring support to health workers at all the partner DTUs. Through this initiative about 15–25 health workers per DTU including health facility in-charges, clinicians, nursing staff, laboratory staff, counselors, and village health teams receive regular mentorship support and coaching. The targeted quarterly event focuses on those facilities with the greatest gaps.

Figure 1: Levels at which the Urban DOTS Model Operates



A partnership between KCCA, TRACK TB, and USAID-ASSIST established a team of mentors in continuous quality improvement at the district level. TRACK TB facilitated this team to carry out coaching sessions at selected pilot health facilities over the past two years. Quality improvement interventions also focused on TB patient follow-up, intensified screening of active TB, and TB records management. This approach was initially rolled out to 20 high volume DTUs toward the end of the second year of the project with a plan to phase the support to additional health facilities.

Through partner support from the East African Public Health Laboratory Networking Project, Foundation for Innovative New Diagnostics, UCSF, and the Infectious Diseases Institute, TRACK TB supported 10 laboratories with the utilization of four-module RIF Gene Xpert sets and reporting mechanisms. These are currently serving the 56 DTUs in Kampala. In addition, TRACK TB effectively established strategic collaboration with partners to strengthen a sputum specimen referral system within five municipalities of Kampala city. Subsequently, there is an easy flow of sputum specimens from presumptive TB patients eligible for Gene Xpert testing and MDR-TB suspects between health facilities lacking this diagnostic facility to those with RIF Gene Xpert for diagnosis.

Strengthening community-based DOTS

TRACK TB supported 46 community linkage facilitators (CLFs) who worked to strengthen the connection between health facilities and communities through facility and community-based DOTS; patient follow-up and reminders using phone call and text messages; home visiting and referrals; TB awareness raising at outpatient departments; and health education at TB clinics. Through regular mentorships and logistical support by a TRACK TB Program team, CLFs provide patient adherence counseling at treatment initiation, and maintain regular telephone/SMS contact with the patients and the treatment supporters throughout the course of the treatment cycle.

At health facilities, the project provided a regular supply of clean water and facilitated health worker supervised swallowing (uptake) of initial doses of TB drugs for outpatients and daily doses for admitted patients. Health workers received regular sensitization through continuous medical education sessions and were provided information, education, and communication materials, including posters and flip charts on TB treatment and patient follow-up. An appointment book for TB patients on treatment was operationalized to ease identification of missed appointments by patients and encourage timely follow-up through telephone calls. The project provided landline telephone sets and monthly air time, based on patient load, to facilitate this process.

Photo by Diana Tumuhairwe

NINETY-SIX percent of all health facilities with capacity to provide both TB and antiretroviral therapy services established the one-stop shop model of care.

Improving integration of TB and TB/HIV services

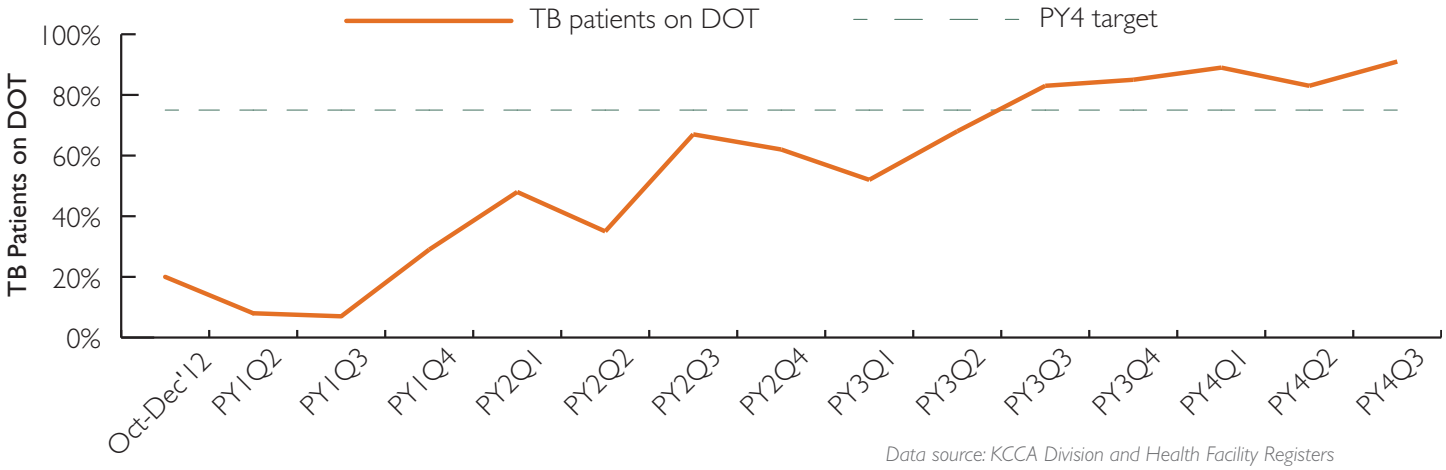
Integration of TB/HIV services is a key component of the Urban DOTS model. TRACK TB, in collaboration with KCCA and the Infectious Disease Institute, strengthened the capacity of the majority health facilities across the five divisions to implement a one-stop shop model for TB/HIV collaborative services. This was achieved through training, coaching, and mentorship support, as well as the provision of job aids. Ninety-six percent of all health facilities with capacity to provide both TB and antiretroviral therapy services established the one-stop shop model of care. The result of this intervention has been sustained improvement in TB/HIV collaborative services.

Enhancing supervision, monitoring, and patient tracking

TRACK TB facilitated district and divisional health teams to carry out support supervision to the lower health facilities. These visits to each DTU identified good practices that can be used elsewhere in KCCA to improve performance and address gaps in TB screening; diagnosis; monitoring of stock levels of TB drugs, and laboratory requirements; patient follow up; maintenance of complete records in TB registers; and TB infection control, among others. TRACK TB supplied KCCA with three motorcycles to help the Divisional TB Focal Persons (DTFPs) conduct regular support supervision to health facilities. Through monthly support supervision visits, the DTFPs have enabled the beneficiary health facilities to improve in following areas:

- Completeness and accuracy of TB patient records;
- Monitoring and tracking of registered patients to ensure continuity of treatment;
- Sputum follow-ups;
- Integration of TB and HIV services;
- Increased utilization of clinical support tools (especially standard operating procedures, guidelines, job aides); and
- Effective TB patient tracing by CLFs and referral to the health units for diagnosis.

Figure 2: TB Patients on DOT



Data source: KCCA Division and Health Facility Registers

Quality improvement interventions resulted in a noticeable increase in the proportion of presumptive TB cases identified at outpatient and HIV clinics each month.

TRACK TB also supported the DTUs to improve the quality of TB recorded and reported TB patient data. Health workers and CLFs have continuously and regularly worked together to identify and address gaps in the laboratory and TB unit registers.

Results

Increased percentage of TB patients on DOTS

Over the past three years, since the development and implementation of the Urban DOTS model, the KCCA has seen an increase in the numbers of TB patients on DOTS. As shown in Figure 2, the percentage of TB patients on DOTS has increased nearly tenfold between October 2012 and September 2014; surpassing the national target of 50 percent.

Better integration of HIV and TB services

There has been a notable improvement in the performance of KCCA health facilities in selected TB/HIV indicators. For instance, the percentage of TB patients tested for HIV increased from 77 percent to 92 percent between October 2012 and September 2013; exceeding the 80 percent target for that fiscal year. The percentage of TB/HIV co-infected patients receiving antiretroviral therapy rose from 52 percent to 62 percent in eight months (between January and September 2013).

In the second year of the project, uptake of cotrimoxazole preventive therapy among TB/HIV co-infected patients in KCCA increased to 98 percent, up from 94 percent in project year one; while HIV testing among diagnosed TB patients improved to 97 percent, up from 92 percent in year two. The uptake of antiretroviral therapy for TB/HIV co-infected patients increased to 81 percent, up from 63 percent in one year (between October 2013 and September 2014). This trend shows that KCCA is on track to achieve the WHO and national target of 100 percent antiretroviral therapy uptake among TB/HIV co-infected patients. Figure 3 illustrates the performance trend for the past six fiscal years.

Figure 3: HIV Testing among TB Patients, CPT and ART Uptake among HIV+ TB Patients in Kampala, 2008 - 2015

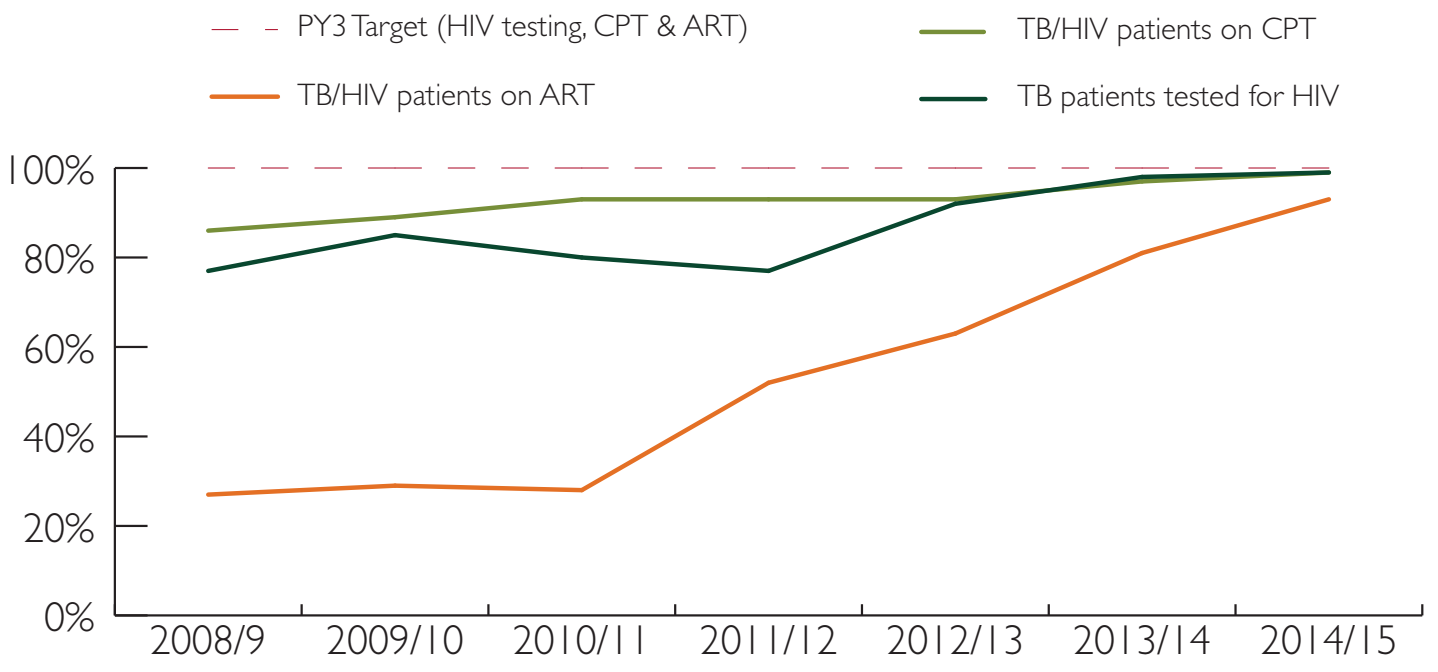
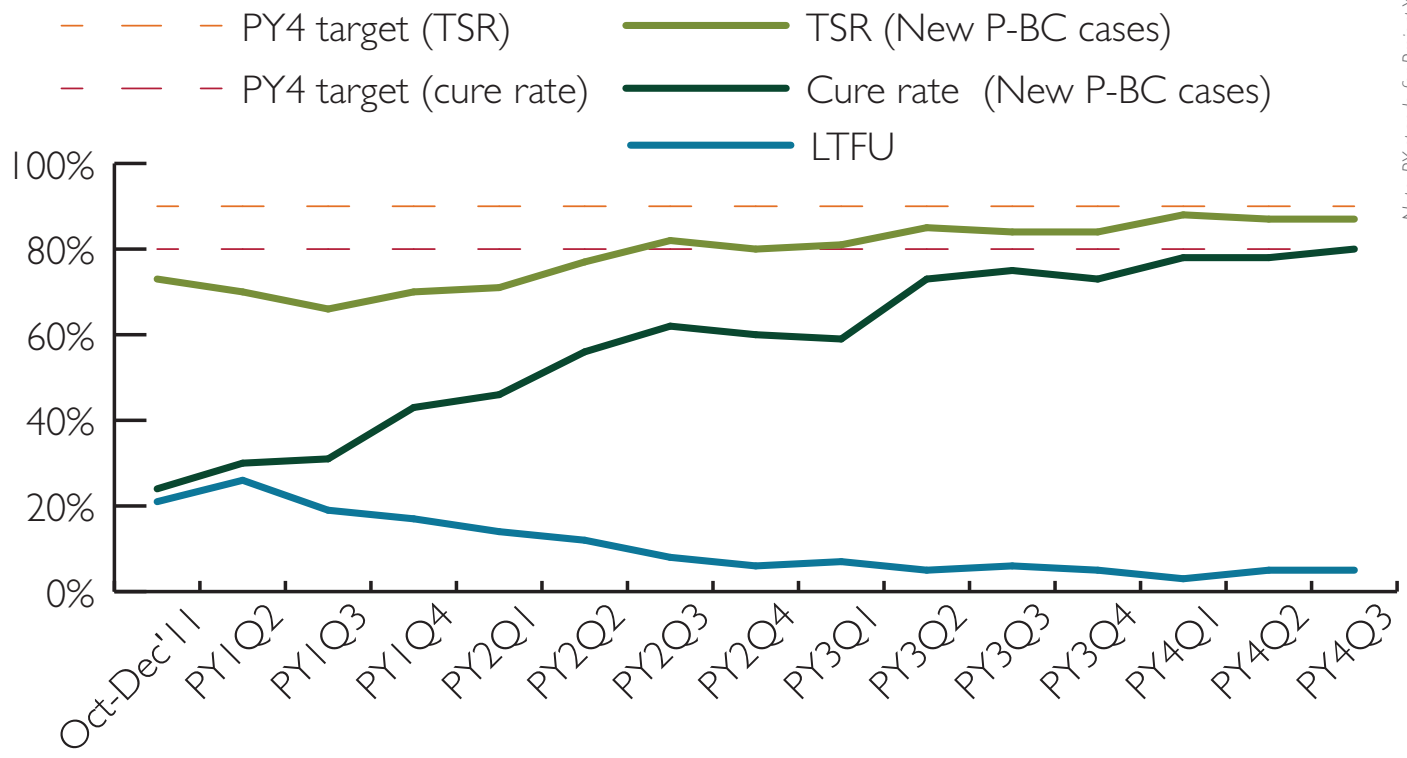


Table 1: Treatment outcomes for new pulmonary bacteriologically confirmed (P-BC) TB cases in KCCA by quarter, January 2013-2014

Indicator	January - March 2013	April - June 2013	July - September 2013	October - December 2013	January - March 2014	April - June 2014
New P-BC cases	1,095	1,012	1,027	945	980	858
Cured n (%)	328 (30)	315 (31)	442 (43)	435 (46)	549 (56)	534 (62)
Treatment completion n (%)	436 (40)	348 (34)	277 (27)	236 (25)	208 (21)	171 (20)
Lost-to-follow-up n (%)	289 (26)	189 (19)	175 (17)	132 (14)	114 (12)	70 (8)
Death n (%)	33 (3)	35 (4)	51 (5)	38 (4)	46(5)	45 (5)
Treatment failure n (%)	7 (1)	10 (1)	10 (1)	9(1)	18 (2)	22 (3)
Unevaluated n (%)	2 (0)	115 (11)	72 (7)	95 (10)	45(5)	16 (2)
Treatment success rate n (%)	767 (70)	668 (66)	719 (70)	671 (71)	757 (77)	705 (82)

Figure 4: Trend of TB Treatment Outcomes for TB Patients in Kampala (2008 - 2015)



Note: PY stands for Project Year
Data source: KCCA Division and Health Facility TB Registers

Community TB control interventions are feasible in an urban setting. Our experience found that they generate good results for TB control, especially favorable treatment outcomes, and create demand for TB services.

Reduced loss-to-follow-up and better treatment outcomes

The close treatment monitoring and support by the CLFs contributed to the positive treatment outcomes that were registered by KCCA over the past few months (Table 1, Figure 4). Out of the 3,713 pulmonary bacteriologically confirmed TB patients registered and treated over one year (October 2013-September 2014), 3,709 (96%) were evaluated. Of these, 2,079 (56%) were cured, and 799 (22%) completed treatment. This equals a treatment success rate of 78 percent for project year two, compared with 71 percent in project year one. The loss-to-follow up rate was also reduced by almost half, from 21 percent in project year one to 11 percent in project year two. The proportion of new sputum smear positive cases who had their sputum examined after the first two months of treatment (intensive phase) was increased by 18.6 percent (from 43 percent in the first quarter of 2014 to 51 percent in the second quarter). The number of patients that were not evaluated for treatment outcomes was also reduced. However, a failure rate of 2 percent and death rate of 5 percent were noted. The CLFs followed up with 108 treatment interrupters and those who were lost-to-follow-up, and helped the majority (72 percent) of these patients return to care.

Discussion and Next Steps

Community TB control interventions are feasible in an urban setting. Our experience found that they generate good results for TB control, especially favorable treatment outcomes, and create demand for TB services.

Successful implementation of the Urban DOTS model and the encouraging results were made possible through the strengthening of lower level health facilities and community structures. Effective engagement of community support teams contributed to improved TB treatment outcomes, patient data, and more accurate and complete reporting. Providing regular mentorship to health facility and community TB teams improved health workers' technical capacity, offered motivation, and created positive change in their practice.

TRACK TB in collaboration with other partners will continue to strengthen TB control interventions under the Urban DOTS model in order to achieve the national targets for TB treatment outcomes in Kampala (cure rate of 85%, treatment success rate of 90%, loss to follow up rate of <5%) by the end of the project. The KCTF partnership will aim to sustain achievements in the integration of TB/and HIV services including 100 percent HIV testing among TB patients and 100 percent cotrimoxazole preventative therapy and antiretroviral therapy coverage among TB/HIV co-infected patients. To further reduce the rates of TB transmission at the community level, TRACK TB will prioritize and strengthen the processes for evaluation of the close contacts of infectious TB cases and the TB diagnostic cascade at the health facilities in order to increase case notification. TRACK TB will continue to engage the leadership for TB control at NTLP and KCCA and steadily transition the implementation and monitoring of activities for increased ownership and sustainability of these gains. ■

Photo by Diana Tumuhairwe

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Additional information can be obtained from:
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