August 15th 2014

TB CARE I Partners:

American Thoracic Society (ATS)
FHI 360
Japan Anti-Tuberculosis Association (JATA)
KNCV Tuberculosis Foundation
Management Sciences for Health (MSH)
International Union Against Tuberculosis and Lung Disease (The Union)
World Health Organization (WHO)
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<tr>
<th>ART</th>
<th>Antiretroviral Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPHS</td>
<td>Basic Package of Health Services</td>
</tr>
<tr>
<td>CAR</td>
<td>Central Asian Republics</td>
</tr>
<tr>
<td>CB-DOTS</td>
<td>Community-Based DOTS</td>
</tr>
<tr>
<td>CTBC</td>
<td>Community-Based TB Care</td>
</tr>
<tr>
<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
</tr>
<tr>
<td>C/DST</td>
<td>Culture/Drug Sensitivity Testing</td>
</tr>
<tr>
<td>CN</td>
<td>Concept Note</td>
</tr>
<tr>
<td>CoE</td>
<td>Center of Excellence</td>
</tr>
<tr>
<td>CHW</td>
<td>Community Health Worker</td>
</tr>
<tr>
<td>CPT</td>
<td>Cotrimoxazole preventive therapy</td>
</tr>
<tr>
<td>CSH</td>
<td>Child Survival and Health</td>
</tr>
<tr>
<td>CSO</td>
<td>Civil Society Organization</td>
</tr>
<tr>
<td>CV</td>
<td>Community Volunteer</td>
</tr>
<tr>
<td>DHIS2</td>
<td>District Health Information System 2</td>
</tr>
<tr>
<td>DM</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>DOT</td>
<td>Directly Observed Treatment</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Treatment Short Course</td>
</tr>
<tr>
<td>DQA</td>
<td>Data Quality Assessment</td>
</tr>
<tr>
<td>DR</td>
<td>Drug Resistance</td>
</tr>
<tr>
<td>DR-TB</td>
<td>Drug-Resistant TB</td>
</tr>
<tr>
<td>DRS</td>
<td>Drug Resistance Survey</td>
</tr>
<tr>
<td>DST</td>
<td>Drug Susceptibility Testing</td>
</tr>
<tr>
<td>ECSA</td>
<td>East, Central and Southern Africa</td>
</tr>
<tr>
<td>EQA</td>
<td>External Quality Assurance</td>
</tr>
<tr>
<td>FAST</td>
<td>Finding TB cases Actively, Separating safely, and Treating effectively</td>
</tr>
<tr>
<td>GDP</td>
<td>Good Distribution Practices</td>
</tr>
<tr>
<td>GFATM</td>
<td>Global Fund for AIDS, Tuberculosis and Malaria</td>
</tr>
<tr>
<td>GLI</td>
<td>Global Laboratory Initiative</td>
</tr>
<tr>
<td>GSP</td>
<td>Good Storage Practices</td>
</tr>
<tr>
<td>HCW</td>
<td>Healthcare Worker</td>
</tr>
<tr>
<td>HF</td>
<td>Health facility</td>
</tr>
<tr>
<td>HMIS</td>
<td>Health Management Information System</td>
</tr>
<tr>
<td>HSS</td>
<td>Health System Strengthening</td>
</tr>
<tr>
<td>IC</td>
<td>Infection Control</td>
</tr>
<tr>
<td>IDP</td>
<td>Internally Displaced Persons</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
</tr>
<tr>
<td>IC</td>
<td>Intensified Case Finding</td>
</tr>
<tr>
<td>IH</td>
<td>Isoniazid</td>
</tr>
<tr>
<td>IPT</td>
<td>Isoniazid Preventive Therapy</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>ISTC</td>
<td>International Standards of Tuberculosis Care</td>
</tr>
<tr>
<td>JATA</td>
<td>Japanese Tuberculosis Association</td>
</tr>
<tr>
<td>KIT</td>
<td>Royal Tropical Institute</td>
</tr>
<tr>
<td>KNCV</td>
<td>KNCV Tuberculosis Foundation</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Areas</td>
</tr>
<tr>
<td>LPA</td>
<td>Line Probe Assay</td>
</tr>
<tr>
<td>MDR</td>
<td>Multi Drug Resistance</td>
</tr>
<tr>
<td>MDR-TB</td>
<td>Multi Drug Resistant Tuberculosis</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOPH</td>
<td>Ministry of Public Health</td>
</tr>
<tr>
<td>MS</td>
<td>Management Sciences for Health</td>
</tr>
<tr>
<td>NAP</td>
<td>Mycobacterium Tuberculosis detected (Xpert)</td>
</tr>
<tr>
<td>NAP</td>
<td>National AIDS Program</td>
</tr>
<tr>
<td>NF</td>
<td>New Funding Mechanism</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>NPO</td>
<td>National Program Officer</td>
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<tr>
<td>NPS</td>
<td>National Prevalence Survey</td>
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<tr>
<td>NSP</td>
<td>National Strategic Plan</td>
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<tr>
<td>NTP</td>
<td>National TB Program</td>
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<tr>
<td>NRL</td>
<td>National Reference Laboratory</td>
</tr>
<tr>
<td>OR</td>
<td>Operations Research</td>
</tr>
<tr>
<td>PCA</td>
<td>Patient-centered Approach</td>
</tr>
<tr>
<td>POP</td>
<td>Participation Credit Points</td>
</tr>
<tr>
<td>PH</td>
<td>Partners in Health</td>
</tr>
<tr>
<td>PLHIV</td>
<td>People Living with HIV</td>
</tr>
<tr>
<td>PMDT</td>
<td>Programmatic Management of Drug-resistant Tuberculosis</td>
</tr>
<tr>
<td>PMU</td>
<td>Program Management Unit</td>
</tr>
<tr>
<td>PMV</td>
<td>Patent Medicine Vendor</td>
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<tr>
<td>POC</td>
<td>Point of Care</td>
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<tr>
<td>PPM</td>
<td>Private Public Mix</td>
</tr>
<tr>
<td>RSS</td>
<td>Psycho-Social Economic Support</td>
</tr>
<tr>
<td>RIF</td>
<td>Rifampicin</td>
</tr>
<tr>
<td>RR-TB</td>
<td>Rifampicin-resistant TB</td>
</tr>
<tr>
<td>SES</td>
<td>Sanitation and Epidemiologic Authority</td>
</tr>
<tr>
<td>SLD</td>
<td>Second Line Drug</td>
</tr>
<tr>
<td>SNRL</td>
<td>Supra National Reference Laboratory</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>SSp</td>
<td>Spinal Smear positive</td>
</tr>
<tr>
<td>STA</td>
<td>Senior Technical Advisor</td>
</tr>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>TB-IC</td>
<td>TB Infection Control</td>
</tr>
<tr>
<td>TB-CAP</td>
<td>Tuberculosis Control Assistance Program</td>
</tr>
<tr>
<td>TOT</td>
<td>Training of Trainers</td>
</tr>
<tr>
<td>TWG</td>
<td>Technical Working Group</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WHD</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
Following a short illness on July 15th, our Country Director for Namibia, Dr. Omer Ahmed Omer, passed away. We remember him as a very friendly, devoted, hardworking and enthusiastic team member. His death is a great loss for all of us within TB CARE I, and for his family, colleagues and friends in Namibia. A full obituary for Dr. Omer can be found on the TB CARE I website: http://www.tbcare1.org/pdfs/omer_obituary.pdf

The TB CARE I program is nearing the end of implementation; in the third quarter of the final (fourth) year, there are many achievements to highlight from TB CARE I’s 18 country projects, four regional projects and 30 core projects that were implemented this quarter. TB CARE I’s most significant achievements from April-June 2014 and challenges for completion and close out of the program are highlighted below.

Main Achievements:
- TB CARE I is closely involved in Global Fund (GFATM) support and concept note (CN) development in nearly every country where the program works. At the country level, some of the most important contributions to Global Fund this quarter have included:
  - TB CARE I lead the writing of the CN in Cambodia, advised on the selection of principal recipients and sub-recipients, and is helping to respond to follow-up questions from the GFATM after the CN was submitted on June 16th.
  - The program has led and contributed to epi analyses in both Ghana and Botswana this quarter.
  - TB CARE I provided the lead consultant and additional budgeting and technical support on the development of the National Strategic Plan (NSP) for CN development in Nigeria.
  - The single TB/HIV concept note in Mozambique is being developed with substantial in-country and external technical assistance (TA) from the program.
  - TB CARE I played a key role (technical, budget/costing, and managerial support) in the development of a revised TB/HIV NSP and a single TB/HIV concept note in Zambia. TB CARE I then presented lessons learned from the process at a global TB TEAM meeting in Geneva in June.
  - TB CARE I is a member of the Concept Note Development Committee in Afghanistan. To date, the committee has developed two drafts of the CN and submitted them to the GFATM, the latest of which received positive feedback from the Global Fund.
- With regards to the programmatic management of drug-resistant TB (PMDT), when comparing initial 2013 data to 2010 figures across 17 active TB CARE I countries, the project observed a 50% increase in multi-drug resistant TB (MDR-TB) diagnosis and a 91% jump in treatment initiation.
- TB CARE I gave inputs on the TB content of the new 2014 guidelines on HIV in key populations, which were launched at the Melbourne AIDS Conference to great acclaim (http://www.who.int/hiv/pub/guidelines/keypopulations/en/). TB CARE I was the only TB contributor to these guidelines.
- TB CARE I will again be well represented and visible at the Union World Lung Health Conference in October. TB CARE I-Afghanistan had five abstracts accepted – three of which are oral presentations. TB CARE I Ethiopia was accepted by the Scientific Programme Committee to present their operations research (OR) studies at the conference during a sponsored satellite symposium.
- TB CARE I-Cambodia is supporting five provincial referral hospitals with TB and diabetes clinics to implement a bi-directional screening and referral mechanism. During the quarter, 1,734 of the total 10,465 clients presenting to the outpatient departments and diabetes clinics were referred to the TB units of the hospitals. Ninety percent (1,560) of those referred reported to the TB unit, 17% (266) of whom were eventually diagnosed with TB.
- Based on the success of TB CARE I’s strategy for the management of TB in children in Vietnam, Dr. Nguyen Thien Huong (TB CARE I-Vietnam’s Country Director) was chosen as co-chair of the Western Pacific Regional Childhood TB Working Group.
- Based on TB CARE I’s successful implementation of Xpert services in Nigeria, Cepheid has appointed KNCV as its official service provider in the country.
- As a result of strengthened political commitment and ongoing implementation of the TB CARE I outpatient care model in Kazakhstan, the proportion of MDR-TB patients put on outpatient care increased to over 50% between January-March 2014 in comparison with only 10% in 2011.
- In Ghana, based on the success of TB CARE I’s piloting of intensified hospital-based TB case detection in six hospitals, the National TB Program (NTP) has included the approach in both the new NSP and the Global Fund CN.
- Data collection for the Indonesian national prevalence survey (NSP) was completed for all 156 clusters at the end of June 2014; 67,915 participants were included in the survey (89% participation).
- This reporting period 48% of all notified TB patients (2,205/4,553) in TB CARE I areas in Mozambique were referred by TB CARE I-supported community health workers (CHWs). Twenty-three percent of all CHW-referrals were diagnosed with TB (all forms).
Post-project data collection (May 2014) for the Ndola TB infection control (TB-IC) demonstration project in Zambia showed a 5% increase in notified TB cases from Ndola district after the TB-IC intervention compared to September 2013. The increase in case notification for Ndola district is noteworthy because the number of notified cases decreased over the same period for Kitwe District (control district) and the Copperbelt province (-13% and -4% respectively). Analysis of May 2013–April 2014 health care worker (HCW) screening data shows a notified TB incidence among HCWs of 1.02% (95% CI 0.6–1.6). When corrected for age, the calculated case notification rate (CNR) ratio among HCWs compared to the adult population of Ndola district was 1.05 (1.02%/0.97%) suggesting good implementation of TB-IC according to the WHO recommended proxy indicator.

Main Challenges:

– Several Country Directors and other key staff have moved on to other high-level positions outside of TB CARE I this quarter. Country teams have expressed their concern over further staff attrition as the end date of TB CARE I approaches.
– Although eight core projects were newly completed this quarter, 22 projects are left to be finished by the end of Year 4 (including two extended Year 3 projects). All partners need to be very vigilant about completing these projects on time and within budget.
– There are still 48 OR studies (56% of those started) that need to be completed in the last quarter of implementation. This puts a lot of pressure on the country teams to deliver, while also requiring attention from the PMU and technical advisors to ensure all studies are completed as planned and results are available.
– Most country projects have several outstanding international TA visits that need to be completed in the last quarter of the program. Although many of these trips have already been scheduled, completing trips (or reprogramming them in time) while also finishing up other project activities will be a challenge. The PMU will work closely with country teams that have the largest backlog of visits to reprogram or accelerate the implementation of these visits.

On the Job UVGI Training, Kazakhstan
Throughout the quarter the PMU has provided technical and managerial assistance and has participated in global meetings (summarized below).

### TB CARE I countries visited by PMU members for technical or managerial purposes, April-June 2014

<table>
<thead>
<tr>
<th>Country</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mozambique</td>
<td>PMU monitoring mission; support for the single TB/HIV concept note application</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>PMU monitoring mission; strengthen use of Xpert for TB case detection among people living with HIV (PLHIV)</td>
</tr>
<tr>
<td>Malawi</td>
<td>Mini-review NTP Malawi</td>
</tr>
<tr>
<td>Switzerland (Geneva)</td>
<td>Global Laboratory Initiative (GLI) meeting; Strategic and Technical Advisory Group for TB (STAG) meeting</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Building design standards; GeneXpert site assessment and implementation support (Core Xpert project)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Patient-centered approach (PCA) scale up and standard operating procedures (SOPs) development</td>
</tr>
<tr>
<td>Zambia</td>
<td>Ndola end-of-project data collection</td>
</tr>
</tbody>
</table>

### Knowledge Exchange

#### TB CARE I website:

This quarter saw the number of documents downloaded from the TB CARE I website climb by 44% to 3,455 illustrating that the website is an invaluable resource for TB tools, guidelines and information. The table below summarizes website activity over the last two quarters and the ten most popular downloads between April-June 2014. The graph displays the geographic distribution of website visitors.

#### Summary of visitors to the TB CARE I website, April-June 2014

<table>
<thead>
<tr>
<th></th>
<th>January-March 2014</th>
<th>April-June 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Visitors</td>
<td>6,139</td>
<td>5,584</td>
</tr>
<tr>
<td>Number of Countries Visitors Came From</td>
<td>142</td>
<td>139</td>
</tr>
<tr>
<td>Number of Pages Viewed</td>
<td>13,850</td>
<td>12,938</td>
</tr>
<tr>
<td>Total Number of Downloaded Documents</td>
<td>2,397</td>
<td>3,455 (44% increase)</td>
</tr>
</tbody>
</table>

#### TB CARE I website visitor locations for the quarter

Top 10 most popular downloads:

1. International Standards of Tuberculosis Care 3rd Edition (Number of downloads - 274)
2. Compendium of Tools (194)
3. TB CARE I Publications – The Complete List (146)
4. TB CARE I Childhood TB Activity Update (136)
5. Systematic Screening for Active Tuberculosis (108)
7. TB CARE I Year 3 Annual Report, October 2012-September 2013 (47)
8. TB CARE I Year 4 Quarterly Performance Monitoring Report, Oct-Dec 2013 (41)
9. TB CARE I Year 4 Quarterly Performance Monitoring Report, Jan-Mar 2014 (41)
10. TB-IC Job Aid (32)
Vietnam Childhood TB Materials
Vietnamese:

English:

Compendium of Tools & Strategies – To achieve universal access to TB care for at risk and vulnerable Groups.
This publication is designed to introduce users to the range of tools and strategies available in TB control. The TB community is encouraged to browse the Compendium to select approaches that meet the needs of specific types of TB patients.

PPM PMDT Linkage – A Toolkit
One of the obstacles in scale up of PMDT is the poor linkage with hospitals and private practitioners. This toolkit is designed to help establish better links and is a collection of best practices and lessons learnt from the experiences in the participating countries, including inputs for improvement and use of Public-Private Mix (PPM) PMDT linkage assessment and planning.

Zimbabwe Engaging Community Organizations in TB Control
These guidelines and the accompanying training manuals, aim to provide guidance on how to involve and collaborate with communities in TB control activities, contributing to increased early TB case detection, treatment adherence and access to quality patient centered TB services. Zipped package of 4 files.

Childhood TB Activities
After decades of being side-lined, the childhood TB epidemic is now front of stage. TB CARE I has been active in fighting childhood TB since the start. This six-page document contains an overview of what TB CARE I is doing to help put a stop to this scourge.

Laboratory Diagnosis of TB by Sputum Microscopy – A Handbook (2nd Edition)
This microscopy handbook uses simple text and clear illustrations to assist laboratory staff in understanding the important issues involved in conducting sputum smear microscopy for the diagnosis of TB.

New Publications

Announcing a comedy video to raise TB awareness, Kampong Cham Province, Cambodia - Photo by Ngo Menghak
As the end of TB CARE I draws near, the program is prioritizing the finalization of all core projects on time and within budget. As of June 2014, 83% of all 137 core projects have been completed. Even with the addition of four new Year 4 projects this quarter, eight projects were completed in the same timeframe (see graph). Although 22 core projects continue (including two projects from Year 3), the program is monitoring them closely to ensure timely completion.

All completed tools can be found on the TB CARE I website, and links to newly published tools are also available on page 8.

http://www.tbcare1.org/publications/

Core Projects

Status of core projects started in Years 1-4
## Approved Year 4 Core Projects & Ongoing Year 3 Projects

### UNIVERSAL ACCESS

<table>
<thead>
<tr>
<th>Code</th>
<th>Partners</th>
<th>Title</th>
<th>Expected Deliverable(s) Year 4</th>
<th>Progress to date</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.05</td>
<td>WHO</td>
<td>Layout/print of pediatric guidelines</td>
<td>2000 printed documents of the pediatric guidelines, incl. design, lay-out and 2000 CD ROMS</td>
<td>Guidance for National Tuberculosis Programmes on the Management of Tuberculosis in Children: Second Edition is being printed. 200 copies were distributed during the STAG-TB, annual TBTEAM and the TB network meeting; the remaining 1,800 copies are being printed. Training materials will be available online and on CDs during the next reporting quarter.</td>
<td>75%</td>
</tr>
</tbody>
</table>
| C1.12 | WHO, ATS, FHI 360, KNCV, MSH, URC | Manual for TB screening in risk groups | 1. Field test, assessment (One summary report from each country case study);  
2. Meeting (Meeting report);  
3. Tool, Document (Manual including toolbox) | Case studies are ongoing. The consultation meeting will be held in early September 2014. The final version of the manual will be ready in September and will be disseminated in a scientific symposium during the Union conference in October. | 45%        |
| C1.13 | ATS, WHO | ISTC ed. 3 (International Standards of Tuberculosis Care) | 1. Stakeholders Meeting;  
2. Publish ISTC ed. 3 as an electronic version & develop a mobile application;  
3. Update existing training modules;  
4. Develop collaboration & dissemination strategies between National TB Programs (NTPs) & the private sector in targeted high burden countries and update Handbook for Using the ISTC;  
5. Develop a process for timely and routine updates | The ISTC edition 3 has been published electronically and as an app for mobile technology. A regional meeting (Asia) is scheduled for September 8-9 to inform completion of the implementation guide and address care in the private sector. | 90%        |
| C1.16 | ATS, WHO | Contact investigation guidelines     | 1. Workshop;  
2. Train the Trainers on new WHO Contact Investigation | A consultant workshop/training was held in June in The Hague to expand the ability to provide country/regional TA to implement the new WHO recommendations on contact investigations. Participants were from Afghanistan, Benin, Botswana, Cambodia, India, Indonesia, Kenya, Kyrgyzstan, Uganda, and Zambia. Country experiences and workshop materials will be used to complete the Contact Investigation Implementation Field Guide. | 90%        |
<p>| 1.18  | KNCV     | Task Force meeting on catastrophic cost | 4x attendance workshop in Geneva | The definition of catastrophic costs was discussed, based on results from ongoing and finalized studies. Two weeks after the meeting, the World Health Assembly endorsed the post-2015 global TB strategy and its targets, including the catastrophic cost target. | 100%       |
| C1.22 | The Union, WHO | Childhood TB online training | e-learning training tool | Training materials and platform under development. Extension granted through December 2014. | 40%        |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Partners</th>
<th>Title</th>
<th>Expected Deliverable(s)</th>
<th>Year 4 Progress to Date</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2.07</td>
<td>KNCV</td>
<td>Develop the Benin NRL to join the SRLN</td>
<td>The Benin NRL has achieved an advanced level laboratory quality management system (QMS) to achieve SNRL status and start the application process for ISO accreditation.</td>
<td>Based on two TA visits this quarter, the national reference laboratory (NRL) has shown great improvement in implementing QMS, however it will not be ready for accreditation until 2015. ITG Antwerp will provide TA after TB CARE I ends. Transfer of the work to ITG and the mock audit by ITG will be done in August.</td>
<td>75%</td>
</tr>
<tr>
<td>C2.10</td>
<td>WHO KNCV MSH</td>
<td>Xpert Global Forum</td>
<td>1. Meeting 2. Document (summarizes meeting presentations, discussions and lessons learned)</td>
<td>The meeting took place in May in Geneva and provided an opportunity to share lessons learned and challenges for wide-scale implementation of Xpert in different epidemiological and resource settings, while also focusing on evidence of impact and linking scaled-up diagnosis with scaled-up access to treatment.</td>
<td>100%</td>
</tr>
<tr>
<td>C2.14</td>
<td>KNCV MSH The Union WHO CDC</td>
<td>Rollout of quality indicators for WHO laboratory techniques</td>
<td>1. Guide on evaluation &amp; troubleshooting of quality performance indicators LPA and Xpert 2. 2 meetings on product development &amp; roll-out 3. Presentation of the final product</td>
<td>The minimum list of quality laboratory indicators is being finalized. A meeting to present the final product is planned for September.</td>
<td>45%</td>
</tr>
<tr>
<td>C2.15</td>
<td>KNCV</td>
<td>GLI Stepwise Process towards TB Laboratory Accreditation</td>
<td>A lessons learned document with experiences from 3 African NRLs and international experts</td>
<td>The desk reviews of accreditation projects at the NRLs of Botswana, Uganda and Benin have been completed. Visits have been conducted to Botswana and Uganda. An extension has been granted through November to finalize the lessons learned document.</td>
<td>55%</td>
</tr>
<tr>
<td>C2.17</td>
<td>The Union JATA</td>
<td>Network Accreditation</td>
<td>1. 3 consultants mentored &amp; assessed during country visits in the use of the microscopy network accreditation tool; 2. Assessments (3)</td>
<td>Benin assessment completed, including training of assessors from Benin and Uganda SRL. Cambodia (July) and Uganda (September) assessments are planned.</td>
<td>50%</td>
</tr>
<tr>
<td>C2.21</td>
<td>The Union</td>
<td>GeneXpert Zimbabwe</td>
<td>14 Gene Xpert machines installed in 14 district laboratories.</td>
<td>All 14 machines are installed and functioning well. The three remaining activities are planned for August and September 2014.</td>
<td>80%</td>
</tr>
<tr>
<td>C2.22</td>
<td>FHI 360</td>
<td>GeneXpert Zambia</td>
<td>1. Supervisory support visits (4) 2. Provincial trainings (4) 3. Strategic Meetings (4)</td>
<td>TB CARE I supported 3 Xpert trainings of 44 HCWs in the Copperbelt, Central and Southern Provinces. Two technical supervisory visits were made to the 15 3Is health facilities in Central and Copperbelt provinces to monitor Xpert usage. Three standardized checklists were used (clinical, general laboratory and operator proficiency). In all facilities visited, the correct patients were being referred for Xpert testing. The completeness of the presumptive and treatment registers was generally good and the use of the Xpert instrument had increased laboratory confirmed TB cases. Laboratory personnel performed the sample processing procedures well. However, 40% of clinicians were not aware that a TB specimen courier system for referring samples had been established.</td>
<td>75%</td>
</tr>
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</table>
### LABORATORIES

<table>
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<tr>
<th>Code</th>
<th>Partners</th>
<th>Title</th>
<th>Expected Deliverable(s) Year 4</th>
<th>Progress to date</th>
<th>% Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2.23</td>
<td>KNCV</td>
<td>GeneXpert Nigeria</td>
<td>1. Review/update the Xpert assessment &amp; supervision checklists and calibration SOP; 2. Xpert M&amp;E guidelines &amp; training tools; 3. 1 workshop, 2 ToTs</td>
<td>Ongoing TA has been provided for the maintenance of TB CARE I-procured machines; technical and training support was provided to all Xpert sites. An Xpert trainer’s guide &amp; participant’s manual review meeting is planned for July. ToTs for lab staff and clinicians are both planned for next quarter.</td>
<td>55%</td>
</tr>
<tr>
<td>C2.24</td>
<td>KNCV</td>
<td>GeneXpert Ethiopia</td>
<td>1. Xpert DR-TB strategy (including algorithm); 2. ToT training for laboratory staff &amp; clinicians; 3. Mentoring and supportive supervision</td>
<td>Two consultants visited in May to perform new Xpert site assessments, provide supportive supervision for current Xpert sites, and hire an Xpert coordinator at the Ethiopian Public Health Institute. Two visits are planned for July (training material development) and September (support for trainings in four regions). Sixteen new machines arrive in August and will be installed by October.</td>
<td>35%</td>
</tr>
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### INFECTION CONTROL

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<th>Partners</th>
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<th>Progress to date</th>
<th>% Complete</th>
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<tbody>
<tr>
<td>C3.07</td>
<td>PIH</td>
<td>KNCV</td>
<td>Capacity building in TB-IC 1. Harvard Summer Course; 2. 8 mentored field visits (MFVs); 3. TB Design Roster on GHDonline.org</td>
<td>No MFVs took place this quarter; two out of three identified mentees were no longer eligible for MFV due to job changes. A third MFV to CAR was postponed to Quarter 4. Challenge: Harvard TB-IC course is not taking place during Year 4 as planned.</td>
<td>25%</td>
</tr>
<tr>
<td>Code</td>
<td>Partners</td>
<td>Title</td>
<td>Expected Deliverable(s) Year 4</td>
<td>Progress to date</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>C4.05</td>
<td>KNCV, WHO, MSH</td>
<td>Ambulatory care</td>
<td>1. Comparison framework for best practices on psycho socio- economic support (PSS) for DR-TB patients; 2. Best practices document; 3. Lessons learned for sustainable patient centered PSS systems</td>
<td>The questionnaire to collect best practices has been developed. Best practices are being collected. 25%</td>
<td></td>
</tr>
<tr>
<td>C4.06</td>
<td>PIH / TB CARE II, KNCV</td>
<td>Drug-resistant TB Learning Site</td>
<td>1. Webinars (3-4 series); 2. Case Catalog 12-18 new cases from Russia, Peru, Kazakhstan, Haiti, etc.; 3. A self-guided quiz series</td>
<td>Four TB CARE I experts reviewed two cases: one on adverse drug reactions during MDR-TB treatment and one on MDR-TB meningitis. 60%</td>
<td></td>
</tr>
<tr>
<td>C5.13</td>
<td>KNCV</td>
<td>Strengthen Xpert use for TB case detection among PLHIV (PEPFAR)</td>
<td>1. Assessment visits to Nigeria &amp; Zimbabwe to determine the requirements for GeneXpert implementation &amp; routine use in HIV settings; 2. Final workplan</td>
<td>The pilots in Nigeria and Zimbabwe are now being fully implemented. In Nigeria, the number of Xpert tests run has increased significantly since the trainings in April, likely resulting from the extra Xpert knowledge and the newly established transportation systems. In Nassarawa State, testing increased seven-fold from 25 in March to 180 in June. The number of TB cases detected with Xpert also increased three-fold from 10 in March to 32 in June - 18% positivity and Rif resistance (RR) rates. In Zimbabwe, following trainings in May (85 trained), Xpert testing and the number of patients diagnosed also increased. In April, 145 tests were performed compared to 345 tests in June (138% increase). TB diagnosis increased from 28 in April to 41 in June (12% positivity rate) including 6 RR-TB cases. An additional machine is being installed to address the increased workload. Analyses to measure any changes in case notification will be done next quarter. 50%</td>
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</table>
**HEALTH SYSTEMS STRENGTHENING**

<table>
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<tr>
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<th>Progress to date</th>
<th>% Complete</th>
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<tbody>
<tr>
<td>C6.1.5</td>
<td>KNCV</td>
<td>3rd Kenya International Lung Health Conference</td>
<td>Participation of 3 TB health professionals in the Kenyatta International Conference.</td>
<td>Completed in Quarter 1.</td>
<td>100%</td>
</tr>
<tr>
<td>C6.1.6</td>
<td>KNCV</td>
<td>Participation in Sondalo workshop</td>
<td></td>
<td>Completed in Quarter 1.</td>
<td>100%</td>
</tr>
<tr>
<td>C6.1.7</td>
<td>KNCV</td>
<td>Workshop TB/HIV</td>
<td>A workshop was held in The Hague (April) on the TB burden in hidden populations. Ellen Mitchell reviewed the TB content in the new 2014 guidelines on HIV in key populations, which were launched at the Melbourne AIDS Conference (<a href="http://www.who.int/hiv/pub/guidelines/keypopulations/en/">http://www.who.int/hiv/pub/guidelines/keypopulations/en/</a>). TB CARE I was the only TB contributor to these guidelines. 2) Upon request, TB CARE I submitted TB questions for a UNAIDS-funded study of people who inject drugs in Ethiopia, representing one of the first HIV studies to address TB health seeking behavior in hidden populations.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>C6.1.8</td>
<td>KNCV</td>
<td>TB/HIV prevalence RDS course</td>
<td>In April nine epidemiologists were trained in respondent driven sampling (RDS) methods, including the use of Analyst software and Net-Draw software. These TB CARE I (and USAID) consultants will be able to advise countries on doing TB/HIV surveys as part of combined TB/HIV programming and CN development.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>6.1.9</td>
<td>KNCV</td>
<td>GF training on TB HIV</td>
<td>In April, three TB CARE I consultants were supported to attend a GFATM training focused on HIV CN development, which took place in Nairobi. The consultants who attended the training will now be equipped to provide support to the development of joint TB/HIV CNs.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>6.2.0</td>
<td>KNCV</td>
<td>Consultancy to NSP costing in Zambia</td>
<td>Independent consultant, David Masengu, provided TA to Zambia (April-May) to help with NSP costing. Using the WHO TB budgeting tool the consultant provided a proposed layout for the operational plan and produced a final costing in collaboration with the local NSP team.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>6.2.1</td>
<td>FHI 360</td>
<td>TB team meeting</td>
<td>TB CARE I-Zambia Country Director, Seraphine Kaminsa, participated in the TB TEAM annual meeting that was held in Geneva, Switzerland (June), which focused on the new GFATM funding mechanism. TB CARE I presented on their experience with the New Funding Model for Zambia’s application of a single HIV/TB concept note and the revision of the National TB/HIV NSP.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>6.2.2</td>
<td>KNCV</td>
<td>Support to Nigeria concept note</td>
<td>Independent consultant, David Masengu, provided support to Nigeria (June-July) on the writing and costing of the CN. He reviewed the draft Nigeria costing and helped finalized the final costing.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Partners</td>
<td>Title</td>
<td>Expected Deliverable(s) Year 4</td>
<td>Progress to date</td>
<td></td>
</tr>
<tr>
<td>-------</td>
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<td>-------------------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>C7.04</td>
<td>WHO, The Union</td>
<td><strong>Revised Definitions and Reporting Framework (RDRF) essential practical guidance</strong></td>
<td>Training package available in all 6 official WHO languages.</td>
<td>60% Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Frequently Asked Questions on the RDRF-TB 2013 document and instructions on reporting TB data to WHO in 2014 have been completed. The Arabic translation will be published on the web in July. The list of revised indicators is expected by September. MDR-TB indicators will also be published in the forthcoming companion handbook to the 2011 WHO guidelines for PMDT. Mozambique and/or Zimbabwe will be the case study for updating a paper-based system while Kenya will be the case study for updating an electronic system. A workshop is planned for October 31, 2014 in Barcelona. WHO’s Western Pacific Regional Office and a software development company in the Philippines are developing the training module.</strong></td>
<td>Complete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## ONGOING YEAR 3 PROJECTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Partners</th>
<th>Title</th>
<th>Expected Deliverable(s) Year 4</th>
<th>Progress to date</th>
</tr>
</thead>
</table>
| C4.11 | TB CARE II  
  KNCV  
  Union  
  MSH | Pocket guide for the  
  Medical Management of  
  MDR-TB | Pocket guide for clinicians treating MDR-TB in English | Extension granted through September. The guide has been translated into Russian and is undergoing final layout. 85% |
| C7.10 | WHO  
  KNCV  
  MSH | Handbook on analysis of  
  TB surveillance data | Handbook | Extension granted through July 2014 when final document is expected. 95% |
| C3.05 | FHI360  
  KNCV  
  Mc Gill  
  PiH | TB-IC demonstration Ndola district | Safe work practices reducing TB transmission in 15 health facilities | The project was reopened with an extension granted through Jun to collect and analyze case notification and HCW screening data. Compared to Sep 2013, data collected in May 2014 show a 5% increase in notified TB cases from Ndola district after the TB-IC intervention (from 2,784 in 2011 to 2,928 in 2013). The increase in case notification in Ndola district is noteworthy because the number of notified cases decreased over the same period for Kitwe district (as control district) and the Copperbelt Province (-13% and -4% respectively). Analysis of May 2013-April 2014 HCW screening data shows a notified TB incidence among HCWs of 1.02% (95% CI 0.6-1.6). When corrected for age, the calculated case notification rate (CNR) ratio among HCWs compared to the adult population of Ndola district was 1.05 (1.02% / 0.97%) suggesting good implementation of TB-IC according to the WHO recommended proxy indicator. The draft HCW screening study report and end-of-project report have been submitted to the Zambia Ethics Committee, and USAID/W and NTP Zambia respectively. The final reports (using Zambia country funds) are expected in August. 100% |
TB CARE I implements projects in 18 countries (including Senegal, which has no TB CARE I in-country office). The map above displays the geographic distribution and investment size of TB CARE I country projects.

Global Fund

TB CARE I is closely involved in Global Fund support and CN development in nearly every country where the program works. At the country level, some of the most important contributions to Global Fund this quarter have included:

• TB CARE I lead the writing of the CN in Cambodia, advised on the selection of principal recipients and sub-recipients, and is helping to respond to follow-up questions from the GFATM after the CN was submitted on June 16th (see the Cambodia section for more details).
• The program has led and contributed to epi analyses in Ghana and Botswana respectively this quarter.
• TB CARE provided the lead consultant and additional budgeting and technical support for the development of the NSP for CN development in Nigeria. TB CARE I also provided technical support for the roll-out of ambulatory PMDT care in GFATM-funded states.
• The single TB/HIV concept note in Mozambique is being developed with substantial in-country and external TA from the program.
• TB CARE I played a key role (technical, budget/costing, and managerial support) in the development of a revised TB/HIV NSP and a single TB/HIV concept note in Zambia. TB CARE I then presented lessons learned from the process at a global TB TEAM meeting in Geneva in June.
• TB CARE I is a member of the Concept Note Development Committee in Afghanistan. To date, the committee has developed two drafts of the CN and submitted them to the GFATM.

Programmatic Management of Drug Resistant TB (PMDT)

As more complete and accurate data become available for 2013 and 2014, the continued gains in the diagnosis and treatment of MDR-TB patients are becoming apparent. Based on available data from 17 active TB CARE I countries (Senegal excluded) as of June 2014, 15,456 MDR-TB cases were diagnosed in 2013 and nearly an equal number (15,327) were started on treatment (see graph page 18). This translates to a 50% increase in diagnosis from 2010 to 2013 (19% compared to 2012) and a 91% jump in treatment initiation from 2010 to 2013 (23% increase from 2012 alone) (see table page 18). Although the data from Indonesia (2013-2014), Nigeria (2014) and Zimbabwe (2013-2014) include Rifampicin-resistant TB (RR-TB) cases (Xpert-diagnosed), even when these countries are excluded a 33% increase in diagnosis and a 77% increase in treatment initiation is seen between 2010 and 2013. Unfortunately, initial reporting on January-June 2014 data is incomplete, but preliminary conservative estimates show diagnosis remaining steady and treatment initiation improving slightly (8%).
Total number of MDR-TB cases diagnosed and started on treatment in 17 active TB CARE I countries, 2010-Quarter 2 2014

Number of MDR-TB cases diagnosed and started on treatment in active⁰ TB CARE I countries, 2010-2013 and January-June 2014
(2010-2012 data are from the 2013 WHO Global TB Report; 2013-2014 data were reported through the TB CARE I quarterly reporting process, as of June 2014. Numbers in red were extrapolated for data that were not yet available.)

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<tr>
<th>Countries</th>
<th>2010 #dx</th>
<th># put on trt</th>
<th>2011 #dx</th>
<th># put on trt</th>
<th>2012 #dx</th>
<th># put on trt</th>
<th>2013 #dx</th>
<th># put on trt</th>
<th>Jan-Jun 2014 #dx</th>
<th># put on trt</th>
<th>Data extrapolated for:</th>
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</thead>
<tbody>
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<td>Afghanistan</td>
<td>19</td>
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<td>19</td>
<td>21</td>
<td>38</td>
<td>38</td>
<td>49</td>
<td>48</td>
<td>31</td>
<td>31</td>
<td>Apr-Jun 2014</td>
</tr>
<tr>
<td>Botswana</td>
<td>106</td>
<td>114</td>
<td>46</td>
<td>46</td>
<td>53</td>
<td>58</td>
<td>58</td>
<td>53</td>
<td>32</td>
<td>32</td>
<td>Apr-Jun 2014 dx</td>
</tr>
<tr>
<td>Cambodia</td>
<td>31</td>
<td>38</td>
<td>56</td>
<td>57</td>
<td>75</td>
<td>75</td>
<td>110</td>
<td>131</td>
<td>122</td>
<td>29</td>
<td>Jan-Jun 2014</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>140</td>
<td>120</td>
<td>212</td>
<td>199</td>
<td>284</td>
<td>289</td>
<td>496</td>
<td>452</td>
<td>330</td>
<td>254</td>
<td>Apr-Jun 2014 dx</td>
</tr>
<tr>
<td>Ghana</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>38</td>
<td>23</td>
<td>18</td>
<td>12</td>
<td>Apr-Jun 2014 dx</td>
</tr>
<tr>
<td>Indonesia</td>
<td>182</td>
<td>142</td>
<td>383</td>
<td>260</td>
<td>428</td>
<td>426</td>
<td>1,074</td>
<td>819</td>
<td>700</td>
<td>549</td>
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<tr>
<td>Kazakhstan</td>
<td>7,387</td>
<td>5,705</td>
<td>7,408</td>
<td>7,425</td>
<td>7,608</td>
<td>7,213</td>
<td>7,076</td>
<td>6,913</td>
<td>3,292</td>
<td>3,282</td>
<td>Apr-Jun 2014 dx</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>566</td>
<td>556</td>
<td>806</td>
<td>492</td>
<td>958</td>
<td>775</td>
<td>1,124</td>
<td>1,107</td>
<td>620</td>
<td>962</td>
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<tr>
<td>Mozambique</td>
<td>165</td>
<td>87</td>
<td>283</td>
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<td>266</td>
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<tr>
<td>Namibia</td>
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<td>192</td>
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<tr>
<td>Nigeria</td>
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<td>539</td>
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<td>South Sudan</td>
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<td>15</td>
<td>0</td>
<td>0</td>
<td>Apr-Jun 2014 dx</td>
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<tr>
<td>Tajikistan</td>
<td>333</td>
<td>245</td>
<td>604</td>
<td>380</td>
<td>694</td>
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<td>1,065</td>
<td>666</td>
<td>329</td>
<td>405</td>
<td>Apr-Jun 2014 dx</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>1,023</td>
<td>628</td>
<td>1,385</td>
<td>855</td>
<td>1,728</td>
<td>1,491</td>
<td>1,728</td>
<td>2,903</td>
<td>864</td>
<td>1,452</td>
<td>2013 dx, Jan-Jun 2014</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>101</td>
<td>101</td>
<td>601</td>
<td>578</td>
<td>273</td>
<td>713</td>
<td>918</td>
<td>943</td>
<td>460</td>
<td>633</td>
<td>2013; Jan-Jun 2014</td>
</tr>
<tr>
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<td>97</td>
<td>80</td>
<td>97</td>
<td>80</td>
<td>97</td>
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<td>48</td>
<td>Apr-Jun 2014 trt</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>17</td>
<td>27</td>
<td>118</td>
<td>64</td>
<td>149</td>
<td>105</td>
<td>209</td>
<td>196</td>
<td>246</td>
<td>132</td>
<td>Apr-Jun 2014 trt</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,309</strong></td>
<td><strong>8,013</strong></td>
<td><strong>12,221</strong></td>
<td><strong>8,641</strong></td>
<td><strong>12,967</strong></td>
<td><strong>12,478</strong></td>
<td><strong>15,456</strong></td>
<td><strong>15,327</strong></td>
<td><strong>7,363</strong></td>
<td><strong>8,265</strong></td>
<td><strong>2013 dx, Jan-Jun 2014</strong></td>
</tr>
</tbody>
</table>

⁰ Data for countries where TB CARE I is no longer working have been removed from the table (Dominican Republic, Djibouti, Kenya and Uganda)

* Number of MDR-TB cases diagnosed & started on treatment include RR-TB (Xpert and culture/drug sensitivity testing (C/DST))

† 2014 data are from TB CARE I Xpert sites only

As TB CARE I helps NTPs scale up PMDT, the urgent need for electronic recording and reporting (ERR) systems to help manage, aggregate and analyze PMDT data has never been more pressing. In the countries that have an established ERR for PMDT, the data are much more readily available (i.e., Indonesia). In the countries that are just developing or scaling up an ERR for MDR-TB with TB CARE I support (i.e., Cambodia, Mozambique, Viet Nam, Zimbabwe), TB CARE I must ensure the system is accurate, timely, complete and robust enough to handle the complexities of PMDT monitoring and reporting.
TB CARE I has supported the implementation of 107 OR studies in 17 countries (Years 1-4). Excluding 22 projects that were cancelled or did not get ethical approval, 44% (37) of OR studies had been completed by the third quarter of Year 4; 56% of studies (48) continue to be implemented. Between April-June 2014, although no studies were newly completed, the results from one study became available; Ethiopia completed a study on Factors influencing patient adherence to anti-TB treatment in Mekelle Zone. Using a visual analogue scale the study has shown that 91% of TB patients adhered to treatment and that fewer drug side effects and knowledge of TB were significant predictors of adherence to anti-TB treatment.
MSH is the lead partner in Afghanistan with collaboration from WHO and KNCV; community-based DOTS (CB-DOTS) activities are subcontracted to BRAC. The project works in four technical areas (universal and early access (UA), infection control (IC), health system strengthening (HSS) and monitoring and evaluation (M&E)).

Contact Screening Conducted
In the 13 provinces supported by TB CARE I, between April-June 2014 the NTP conducted TB screening among 6,138 contacts of TB patients and notified 75 TB cases (all forms) – 1% of those screened - of which 58 were sputum smear positive (SS+). NTP also screened 1,097 children under the age of five who had contact with TB patients for signs and symptoms of TB and put 894 of them (81%) on isoniazid (INH) preventive therapy (IPT). Cumulatively since the start of Year 4 (October 2013) 2,708 children (under five) were put on IPT, which is 35% more than the annual target of 2,000.

CHWs Referred and Administered Treatment
This quarter in TB CARE I-supported provinces (13) CB-DOTS resulted in the identification of 6,025 presumptive TB cases, which translates to 18% of all presumptive TB cases identified in the 13 USAID supported provinces being referred by CHWs. Sixteen percent (579) of these CHW-referred presumptive TB patients were diagnosed as SS+ and 610 TB patients were receiving their treatment from CHWs within their own village.

Concept Note Being Developed
TB CARE I is a member of the CN Development Committee for Global Fund in Afghanistan. To date, the committee has developed two drafts of the CN and submitted them to the GFATM. The Global Fund has commented on these drafts and the committee has revised them accordingly. Final comments from GFATM indicate that the CN is strong.

TB and General Health Information System Integrated
This quarter, TB CARE I helped the NTP to change its policy/approach for data collection and data entry by further integrating the TB information system (surveillance) into Afghanistan’s general health management information system. The Ministry of Public Health (MoPH) agreed to shift the data collection and entry strategy from provincial TB coordinators to organizations implementing the Basic Package of Health Services (BPHS) in all 34 provinces of Afghanistan. The MoPH circulated an official letter to all related departments declaring this shift.

Global Abstracts Accepted
TB CARE I team assisted the NTP in submitting nine abstracts to the 45th World Conference on Lung Health taking place in Barcelona, Spain. Five abstracts were accepted - three for oral poster presentation and two for poster discussion presentation. The abstract cover public health approaches (including SOP implementation) at public health facilities that resulted in improved TB case notification; results from urban DOTS implementation and screening malnourished children for TB in three provinces; the results of TB-IC implementation in public facilities; and experiences of DOTS implementation in hard-to-reach areas of central Afghanistan.

Students Educated to Refer Presumptive TB Patients to Health Facilities
This quarter, TB CARE I organized 26 school events aimed at increasing awareness of TB, reducing stigma against TB patients, mobilizing communities and school students to refer presumptive TB cases to health centers for diagnosis, and helping TB patients complete their treatment regimens. In total, 3,800 students and teachers in eight provinces attended these events and received TB information, education, and communication (IEC) materials. Although not measured systematically across all intervention areas, these educational activities resulted in referral of at least five presumptive TB cases to public health facilities for diagnosis.
**Botswana**

KNCV is the lead partner and sole implementer in Botswana. In Year 4 the project focuses on three technical areas (UA, laboratories and PMDT).

**Research on community TB care (CTBC) being finalized**

TB CARE I's Senior Technical Advisor (STA) in Botswana has been supporting a research project on the evaluation of CTBC in Botswana. The STA supported data analysis, report writing and sharing of preliminary results with stakeholders on the research carried-out during this quarter. The results of the study will guide the NTP/MoH to adopt an appropriate CTBC approach to be scaled up, taking into consideration the future decline in funding. CTBC approaches using incentivized volunteers were deemed the most effective and associated with quality, despite poor sustainability. CTBC approaches managed by civil society organizations (CSOs) were significantly effective for hard to reach populations. The final report will be ready during the next quarter and the study results will be presented at the Union TB Conference in October 2014.

**Global Fund Concept Note Development Supported**

TB CARE I has supported development of the addendum to the current TB Strategic Plan 2013-2017 in-line with the WHO post-2015 TB strategic plan and the Global Fund new funding model requirements. The strategic plan will be finalized in the next quarter to be used for CN development. The TB CARE I STA has supported the epidemiological/impact analysis and the TB program desk review, as well as the single TB/HIV concept note development (anticipated submission date: October 15, 2014). This quarter, TB CARE I has also supported the closure of the previous Round 5 Global Fund TB grant and the transitional funding mechanism.

**Tele-audiology Services for MDR-TB Patients Established**

MDR-TB patients are at risk for developing hearing loss from the use of aminoglycosides (Amikacin), and until recently, audiology was not done on a routine basis in Botswana. TB CARE I proposed tele-audiology services (KUDU Wave), a portable, mobile and cost efficient clinical diagnostic audiometer as a feasible option for Botswana. TB CARE I provided technical support from the inception of the idea, helping to develop and present a concept note to MoH officials and the MDR-TB Working Group. TB CARE I also helped to mobilize resources; the initiative was funded by CDC Botswana through existing PEPFAR funding. As a result, routine audiology services are now provided at all five MDR-TB treatment initiation sites. TB CARE I continues to closely support the proper implementation and success of the project.

**Cambodia**

JATA is the lead partner in Cambodia, with collaboration from FHI 360, KNCV, MSH and WHO. The project has activities in seven technical areas (UA, laboratories, IC, PMDT, TB/HIV, HSS and M&E).

**Cambodia Honored by USAID Award**

TB-IC monitored and implemented well - This quarter, all 36 health centers (HCs) in the TB infection control project sites were monitored and scored on their TB-IC practices using a standard checklist. All HCs achieved over 80% (set as the acceptable score) with 83% (30/36) HCs scoring 100% and the remaining 6 HCs scoring 85%. In addition, the Simplified Checklist for TB-IC at Community Level is being used by DOTS observers to assess TB patients’ awareness on minimizing TB transmission, to observe their practices, and give suggestions on how to improve the TB-IC practices.

**Systematic HCW Screening Planned**

TB CARE I is planning to organize systematic TB screening of HCWs in three operational districts in Kampong Cham. Around 370 HCWs are expected to participate on a voluntary basis, tentatively scheduled to begin in August 2014. If this proceeds as planned, this will be the first time that HCWs have been systematically screened for TB. It will also provide information on the prevalence of TB among HCWs, which is currently unknown in Cambodia.

**Global Fund Concept Note Submitted**

TB CARE I led a series of focus group discussions with technical stakeholders and key affected populations in May to obtain their perspective on the interventions that should be prioritized for future funding applications. These culminated in a national country dialogue, which brought together over 100 international, national and subnational stakeholders, including key affected populations, to discuss and prioritize activities for the CN through an inclusive and transparent process. TB CARE I also assisted in a joint assessment of the national strategy to meet the requirements of GFATM. TB CARE I led the CN writing (submitted June 16, 2014) with inputs from the NTP, the Country Coordinating Committee and Secretariat, and many other partners. The TB CARE I team served as panel members to select the principal recipient and sub-recipients for the CN. TB CARE I is now assisting with responses to queries from the GFATM on the submitted CN and related processes and documentations. In June 2014, TB CARE I participated in the GFATM Southeast Asia Regional Workshop and made several key presentations on TB epidemiology and resource mobilization/maximization. Senior GFATM officers complimented TB CARE I’s leadership and the quality of TB CARE I’s contributions during the CN process; Cambodia’s CN development process is recognized by GFATM as a example of a successful partnership and effective TA resulting in a strong application.

**TB-Diabetes Referral System Functioning**

TB CARE I is supporting five provincial referral hospitals (Battambang, Pursat, Kampong Cham, Kampong Thom and Prey Veng) with TB and diabetes clinics to implement a bi-directional screening and referral mechanism. Monthly coordination meetings were held in all five hospitals to review implementation of activities, achievements and challenges. During the quarter, 1,734 of the total 10,465 clients presenting to the outpatient departments and diabetes clinics were referred to the TB units of the hospitals. Ninety percent (1,560) of those referred reported to the TB unit, 17% (266) of whom were eventually diagnosed with TB.
CAR-Kazakhstan

KNCV is the lead and sole implementer of TB CARE I activities in Kazakhstan where activities are carried out in six technical areas (UA, laboratories, IC, PMDT, HSS and M&E).

**Xpert Maintenance Plan Developed**
An Xpert maintenance plan has been finalized and submitted to the NRL for incorporation in new TB government TB policy.

**Outpatient Care Expanded**
As a result of strengthened political commitment and ongoing implementation of the TB CARE I outpatient care model, the proportion of MDR-TB patients put on outpatient care increased to over 50% between January-March 2014 in comparison with only 10% in 2011; in Akmola and East Kazakhstan regions respectively 52% (128/248) and 57% (140/245) of registered patients were put on outpatient care.

**PMDT in Prisons is Expanding**
With ongoing TB CARE I TA to the prison TB program in Akmola, East Kazakhstan and North Kazakhstan regions, preliminary Year 4 data indicate 90% of incarcerated MDR-TB patients (168/186) have been put on second line drug (SLD) treatment compared to only 60% in 2012.

CAR-Kyrgyzstan

As the lead and sole implementer of TB CARE I activities in Kyrgyzstan, KNCV implements activities in six technical areas (UA, laboratories, IC, PMDT, HSS and M&E).

**PMDT Lessons Learned Exchanged**
Cross-monitoring missions between Kazakhstan, Kyrgyzstan and Tajikistan were conducted this quarter with participation from key specialists on MDR-TB from general, prison TB services and the Sanitary-Epidemiological Service (SES). Starting in Tajikistan, the monitoring team then moved to Kazakhstan and finally Kyrgyzstan. During the mission participants exchanged best practices and lessons learned on MDR-TB case detection and treatment. As a follow-up event, the Kyrgyzstan team organized a workshop on the results of the cross-country monitoring visits with the heads of the oblast TB centers, responsible MDR-TB specialists and SES representatives. Recommendations on MDR-TB in Kyrgyzstan developed by the Kazakhstan and Tajikistan teams were also presented.

**Operations Research Plan Developed**
TB CARE I organized a workshop on OR needs for the MoH, NTP, SES specialists and other partners in April. Participants discussed OR needs in Kyrgyzstan and developed an OR plan for the next three years. This OR plan was included in the NSP for 2013-2016.
CAR-Tajikistan

KNCV is the lead and sole implementer in Tajikistan where it implements activities in six technical areas (UA, laboratories, IC, PMDT, HSS and M&E).

**Advocacy Strengthens Support for MDR-TB Patients**

TB CARE I prioritizes the implementation of full outpatient care with the provision of social support in all TB CARE I pilots. As a result of strategic advocacy work, TB CARE I received strong political support from municipal bodies (Khukumats). This quarter, Khukumats provided sustainable social support for TB patients in TB CARE I pilots through the provision of food, property and electricity tax discounts, allocation of land for farming, and construction of houses. In total, 59 MDR-TB patients received social support from Khukumats and local business leaders.

**Patient Adherence Improves**

The project implements several activities to improve MDR-TB patient treatment adherence (i.e. social support). These activities likely contributed to the improvements in treatment adherence between 2012 and 2013; the number of patients with missed doses decreased by 18%, TB treatment default decreased by 10%, and the number of patients that refused treatment dropped by 12% in 2013 compared to 2012.

**GeneXpert Samples and Results are Available**

By supporting the sample transportation system, TB CARE I contributes to the uninterrupted access to GeneXpert testing. Between April-June 2014, 901 presumptive TB patients were tested by GeneXpert in Rasht and Khatlon areas from which 187 TB cases (21%) were detected including 14 (2%) RR-TB cases.

**Guidelines for TB-IC in Outpatient Settings Developed**

SOPs on TB-IC measures in ambulatory care settings and guidelines on patient triage and separation in primary healthcare centers have been developed with TB CARE I support.

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CAR-Uzbekistan

WHO is the lead partner in Uzbekistan with KNCV as a close collaborating partner. Activities in Year 4 cover six technical areas (UA, Laboratories, IC, PMDT, HSS and M&E).

**NSP on Psycho-social Support Developed**

TB CARE I provided an international expert to support the development of a NSP on psycho-social support to TB patients. The plan was developed in close collaboration with experts from Uzbekistan’s Multi-Expert Council which includes representatives from the ministries of health, labor and social protection, education, justice, civil society and parastatal organizations. According to the national plan, Uzbekistan aims for psychological care and social support to be available in every TB hospital in the country by mid-2016.

**TB-IC Supervision Recommendations Implemented**

The TB CARE I Regional IC Officer and NTP staff performed supervision and monitoring visits to four pilot regions in May and June. The team assessed implementation of TB-IC plans at the regional TB dispensaries in Samarkand, Bukhara, Navoi, Kashkadarya and Khorezm regions, as well as provided on-the-job training on the development and implementation of the TB-IC activity plans. Observations showed that local staff adopted almost all recommendations made by the same team during the previous mission in February 2014.

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Follow up TB-IC visit to Samarkand City TB Dispensary, Uzbekistan
KNCV is the lead partner in Ethiopia, working closely with collaborating partners MSH, WHO and The Union, as well as subcontractor German Leprosy and TB Relief Association. The Year 4 workplan has activities in all eight technical areas. Country Director, Ezra Shimeles, has moved on to a position with Global Fund in Geneva; Dr Getachew Wondimagegn is taking over the Country Director position.

**Patients’ Perspective of TB Service Quality Measured**

TB CARE I piloted the TB QUOTE Light tool, which assessed nine quality dimensions of TB services from a patients’ perspective. This assessment was a quantitative and qualitative study which enrolled 300 patients from 30 systematically selected public and private health facilities in Addis Ababa. The patients graded the level of importance of the quality dimensions through focus group discussions. Findings indicated that TB patients value the presence of infrastructure (such as a functioning water supply, toilets and adequate waiting space), collaborative or integrated TB/HIV services, and the reduction of stigma as the most important quality dimensions in TB services. Clients rated the TB/HIV relationship (information and service), as well as patient/provider and counseling aspects of TB care services as performing well. TB patients accessing services in DOTS-providing health facilities evaluated the support provided by facilities and the access to TB services (i.e., cost of TB services) as poorly performing. Relevant officers in the Addis Ababa Health Bureau were briefed on the assessment findings; Bureau staff have indicated that the information is the first of its kind and valuable. As a result, the health bureau has suggested the tool be part of the formal TB program monitoring.

**Diagnostic Capacity Expanded**

LED fluorescent microscopy was introduced to all hospitals in the Southern Nation Region this quarter. All LED microscopes were supplied by the government, while TB CARE I supported two rounds of training in which 59 laboratory professionals were trained.

**MDR-TB Patient Support Provided**

In Year 4 TB CARE I planned to provide socio-economic support to 150 MDR-TB patients; as of June, 160 MDR-TB patients had already been provided nutritional and transportation support.
MSH is the lead partner in Ghana with support from KNKV and WHO as collaborating partners. The Year 4 workplan focuses on seven technical areas (UA, laboratories, IC, PMDT, TB/HIV, HSS and M&E). The Country Director, Rehhab Chimizizi, will be moving on in July to pursue an MDR-TB/GFATM advisory position in Zambia; Berhanemeskal Assefa will be taking over the Country Director role.

**Hospital-based TB case detection incorporated into NSP and CN**

Since early 2012, TB CARE I has been supporting the implementation of intensified hospital-based TB case detection in six hospitals in the Eastern Region of Ghana. TB CARE I’s work demonstrated that intensified hospital-based TB case detection has increased—TB case detection in these six hospitals rose by 53.5% in 2012 and 68% in 2013, relative to the baseline year of 2011. It is evident that this intervention has the potential to have a high impact without requiring substantial financial input since the clients and patient being screened for TB have already come to the health facility for various reasons. Therefore, the NTP has included the hospital-based TB case detection intervention in both the new NSP and the Global Fund CN.

**Epidemiological Assessment Conducted**

In May 2014, through external consultants and in-country expertise, TB CARE I successfully provided TA in performing an epidemiological assessment of TB in Ghana. This assessment is an important for the development of the new NSP and the CN. TB CARE I made the following recommendations for TB surveillance in line with the general health systems: 1) The NTP should consider linking with the national health management information system (HMIS) and using the existing district health information system 2 (DHIS2) architecture for moving summary reports from the facilities to the district and national levels to avoid the operation of parallel systems. 2) The NTP team should consider using the electronic system as a mechanism for supporting data collection at the service delivery points of those facilities that have the capacity to do so. The NTP should introduce this system in a phased manner, beginning with those facilities that have the necessary infrastructure to accommodate and use it, and then gradually roll the system out to other facilities.

**Priority Research Agenda Developed**

TB CARE I helped the NTP develop a research road map for inclusion in the new NSP, which focused on implementation research and impact evaluation. Following the consultative process with various stakeholders, including the Ghana Health Service Research Unit, a list of 60 research topics was compiled. By the end of July the list will be narrowed to priority topics for inclusion in the research road map and the NSP.

**PMDT Assessed**

TB CARE I arranged TA from two external consultants to support PMDT in Ghana. Key findings from the visit included:

- The drug-resistant (DR)-TB program is not fully programmatically implemented, but rather managed on a case-by-case basis and in a non-standardized manner.
- M&E and logistics management are still not integrated into the NTP system. Interim and final treatment outcomes for MDR-TB placed on SLDs are not systematically collected.
- The infrastructure for DR-TB management is absent or inadequate in some regional hospitals that TB CARE I visited; some patients are admitted into a general ward without proper TB-IC measures and consultation rooms have suboptimal TB-IC.
- The number of MDR-TB patients on SLDs by June 2014 was 28. About 50 MDR-TB patients have been diagnosed and a number of them are on a waiting list for treatment due to limited SLDs and in-patient admission facilities for the very sick.

The two consultants recommended that the NTP central unit should ensure that the DR-TB suspect and treatment registers are updated and that it should use the DR-TB reporting tools on a quarterly basis alongside the other drug-susceptible reporting tools.

**GeneXpert tools developed and local capacity developed**

With the support of an external laboratory expert, ten new lead laboratory trainers were trained on Xpert machine utilization. These lead trainers will support all existing and new Xpert sites, allowing for local capacity to support Xpert roll-out, while reducing dependence on external consultants. National guidelines for GeneXpert, a GeneXpert scale-up plan for 2015–2020, a TB laboratory strategic budget for 2015–2020, maps of Xpert sites and methodology for site selection and placement, and a laboratory diagnostic algorithm incorporating Xpert were all developed this quarter. According to the scale-up plan, Ghana will have an additional 38 Xpert machines in the next five years (53 machines in total).

**Prevalence survey results inform CN**

According to the preliminary results of the NPS (not TB CARE I supported), the burden of TB is much higher than currently estimated by WHO. The preliminary results show that Ghana has a TB prevalence rate of 286/100,000 (much higher than the estimated 92/100,000), and that the TB case detection rate is 21%, which is substantially lower than the WHO estimate of 81%. This level of the TB burden requires more resources than are currently available.
Indonesia is the largest of the TB CARE I countries in terms of financial investment; KNCV is the lead partner with collaboration from all other Coalition partners; TB CARE I-Indonesia works in all eight technical areas.

PPM Implemented
This quarter 123 hospitals developed their Clinical Pathways (AK) and Clinical Practice Guidance (PPK), which are in line with the National Medical Practice Guidelines (PNPK) for TB. These guidelines are based on the International Standards of TB Care (ISTC). As a result, medical practitioners and specialists in these hospitals are now obliged by medical practice law to follow these guidelines. This approach has turned ISTC into national regulation that is enforced by the medical professional societies. Linking the clinic practice standards to the national health insurance system will enable further expansion of quality assured universal access for TB to all providers in Indonesia. The standards will serve as quality assurance for TB services and, as such, improve transparency and accountability for reimbursement by health insurance. By the end of the quarter, 44 hospitals (36%) had already implemented their clinical pathway for TB guidelines.

TB/Diabetes Referral Being Established
In collaboration with professional organizations (pulmonologists, internists and endocrinologists), a protocol and guideline for systematic screening and intensified case finding in diabetes patients has been developed. Screening algorithms have also been developed for bi-directional screenings among TB and diabetes patients in referral facilities. Both algorithms are to be piloted in three provinces in Quarter 4 2014 targeting 150 patients from each population.

TB/HIV Targets Surpassed
TB CARE I support has contributed to the following TB/HIV achievements from October 2013-June 2014:
- 89% of released inmates with TB or TB/HIV were successfully transferred to their referral health care facilities and continued treatment.
- The proportion of HIV patients screened for TB reached 89% (Year 4 target is 85%); 99% of inmates with HIV in prisons were screened for TB.
- IPT was introduced to seven provinces this quarter. It was implemented in 29 hospitals, resulting in 255 PLHIV being screened for TB and 76 eligible PLHIV receiving IPT this quarter.
- The proportion of HIV patients with active TB who received TB treatment increased to 98% (Year 4 target is 90%).

Number of MDR-TB patients in Indonesia diagnosed and put on treatment (2009-2014) and the proportion of all MDR-TB cases diagnosed via Xpert

Xpert Coverage Expanded
During the quarter TB CARE I provided TA for the installation and operationalization of 13 additional Xpert machines procured through GFATM, bringing the total number of operational Xpert machines to 36 nationwide. Introduction of Xpert has improved screening of DR-TB; over recent years the number of diagnosed RR-TB cases have increased drastically and the proportion of patients diagnosed through Xpert is growing substantially. The graph (left) shows the significant impact of Xpert on the diagnostic capacity of the PMDT program (the number of Xpert tests performed to date in Year 4 is almost two times the number of tests in Year 3) and a substantial increase of MDR-TB patients being diagnosed and treated.

Diagnostic delay Reduced with Xpert
As a result of Xpert usage, a substantial reduction of DR-TB diagnostic delay was measured, from an average of 59 days in 2013 to 35 days this quarter. The number of patients enrolled on treatment within seven days of diagnosis increased from 18% in Quarter 2 to 29% in Quarter 3. In addition, 91% of presumptive cases receive test results within 0-7 days (47% on the same day). Introduction of Xpert has contributed to the reduction in the initial high mortality of MDR-TB patients caused by the long diagnostic process of conventional C/DST; initial mortality dropped from 8% in (2009-2012) to less than 2% between April-June 2014. However improvement in diagnostic capacity needs to dovetail with improvements in treatment capacity: only 66% of confirmed MDR-TB cases started treatment within two weeks of diagnosis and the enrollment rate is still below 75%. These are major priorities to be addressed. Treatment services are now available in 18 provinces and access to diagnosis has been expanded to 196 districts in 28 provinces.

Clinical Cohort Review Expanded
Following the successful Clinical Cohort Review in February a second review was conducted at Persahabatan Hospital in May. This review engaged technical staff from seven other PMDT sites that were trained in this new approach. In total, 26 programmatic challenges were identified and action steps addressed. Progress towards resolution and any new challenges will be evaluated on a quarterly basis through the cohort review sessions.

TB Covered by National Health Insurance
The new National Health Insurance (NHI) system in Indonesia was launched in January. TB CARE I-Indonesia supports the NTP to ensure the incorporation of TB medical care and services in the insurance package. NTP succeeded in inserting technical guidance for TB patient services in the Ministerial Decree No. 28 – 2014. This decree provides guidance for implementation of the NHI scheme. The success story of integrating TB under universal health coverage in Indonesia has been shared internationally in several meetings, such as the workshop on PPM models for the sustainability of successful TB control initiatives in Washington, DC (May) and the global PPM Workshop in India (June).
**Successful Xpert tests conducted since the beginning of implementation (Jan 2012) to June 2014 based on reason for testing**

![Graph showing successful Xpert tests](image)

**Testing of PLHIV with Xpert Increasing**

The use of GeneXpert to diagnose TB among patients with HIV is increasing, resulting in an increased number of TB/HIV patients being enrolled on TB treatment (see graph left).

**Costing Results Used for Advocacy**

The TB costing tool has been expanded to prepare for the 25-year TB Financing Roadmap of Indonesia. USAID used the results of the TB Economic Burden Report to develop an advocacy concept paper for a public private partnership between Nike and USAID Indonesia, as a possible signature initiative for USAID’s Science Technology and Innovation program. Nike has a big factory in West Java with more than 70,000 workers. This initiative would draw attention to the issue of TB in the workplace and contribute to national TB control in Indonesia.

**TB Maintaining a Presence on Social Media**

The TB blogger competition launched on World TB Day is still in progress. The competition aims at increasing public awareness for TB. So far, more than 500 articles on TB have been posted on social media (i.e. Twitter, Facebook and blogs). A judging committee consisting of TB CARE I partners, the NTP and media experts are reviewing all submissions and will select and announce 12 winners next quarter.

**Prevalence Survey Data Collection Complete**

National Institute on Health Research and Development (NIHRD) with support from the NTP and TB CARE I partners completed the data collection of the NPS for all 156 clusters at the end of June 2014; 67,915 participants were included in the survey (89% participation). Preliminary analysis has been conducted for 99 clusters consisting of 43,684 participants. Final laboratory results will be available in September. Data analysis will also be done in September and form the basis for the impact measurement scheduled for the same month.

**e-TB Manager Role Expanded**

During this period, the e-TB manager team developed a module to support Xpert cartridge management as part of the laboratory module. The NTP is now using the e-TB manager laboratory reports as an accountability tool and basis for reimbursement of laboratory expenses.

**Bedaquiline Being Introduced**

A TB CARE I-led workshop was conducted in June to prepare Indonesia for the introduction of BDQ. A draft National Implementation Plan for Bedaquiline was developed, and three hospital sites were selected to implement BDQ therapy: Surabaya (Soetomo), Jakarta (Persahabatan) and Bandung (Hasan Sadikin). A Technical Working Group (TWG) of all major stakeholders was established and a plan and framework to set up active pharmacovigilance under BPOM/FDA and NTP was developed. Inputs for improvement of e-TB manager software to support recording and reporting of pharmacovigilance in all sites were provided. Implementation will start in April 2015 after the SOPs, guidelines and budget are finalized and approved by the Global Fund.
FHI 360, the lead partner for Mozambique, works with collaborating partners KNCV and MSH on a dual TB/malaria workplan. The Year 4 workplan has activities in all eight TB technical areas, as well as malaria control.

**CB-DOTS Increasing Case Notification**

In this quarter, CHWs trained in CB DOTS (comprising community volunteers, traditional healers and leaders) referred 10,466 presumptive TB cases to health facilities in project target districts. From the total referred, 92% of the presumptive TB referred by CHWs (9,640), successfully reached the health facilities for TB diagnosis, demonstrating the practical functioning of the TB referral system in communities. Of those that reached the health facilities for TB screening, 23% (2,205) were diagnosed with TB (all forms), disaggregated as follows: 69% (1,522 of which were 800 males) were diagnosed as bacteriologically confirmed TB, 31% (683 of which 341 were males) were clinically diagnosed or had extra-pulmonary TB. This reporting period 48% of all notified TB patients (2,205/4,553) in TB CARE I areas were referred by TB CARE I-supported CHWs.

**PCA Results Disseminated**

TB CARE I presented on PCA activities implemented in Mozambique at the 4th South African TB Conference. A highlight of the conference was when the Mozambican experience using PCA was shared at the closing ceremony as one of the emerging themes. Implementation of two PCA tools (The Patients’ Charter and the TB Literacy toolkit) has been expanded to cover more than 23 districts in Mozambique.

**FAST Being Piloted**

The project initiated a pilot phase of FAST (Finding TB cases Actively, Separating safely, and Treating effectively) strategy in eight health facilities across two provinces (Niasa and Zambézia). The strategy focuses on the most important administrative TB transmission control interventions; by actively separating all coughing patients, the officers will be reducing the risk of TB infection from presumptive TB cases to other patients. A baseline study was conducted to measure the number of TB cases diagnosed from unsuspected cases within health facilities. Analysis reflects that many of the TB cases registered are from people referred from communities and other departments (general consultation) rather than an internal health facility presumptive TB referral system. An endline survey will be conducted after the three-month intervention period to evaluate the contribution of the strategy to case detection. Depending on the results, expansion to more districts might be advocated.

**PMDT Capacity Building Conducted**

Forty-eight central and provincial MDR-TB focal persons, medical doctors from the main MDR-TB hospital, and clinicians working in public hospitals and the private sector were trained in new approaches for MDR-TB clinical management by external TB CARE I specialists. The training was planned as a TOT with follow up training to be conducted at provincial levels, including sensitization of provincial staff to establish provincial level MDR-TB TWG for case management. At central level, with TA from national and international experts, an interim MDR-TB TWG conducted clinical case discussions and provided follow-up support on three cases sent from provinces.

**Prevalence Survey Being Planned**

The second phase of preparing for the NPS was initiated in Quarter 3 with TA from KNCV and WHO. A study chronogram and timeline were developed.

**Electronic Register Developed**

An electronic reporting register has been developed and awaits approval from the NTP. The register is in line with all new registers and forms that have been developed, is patient-based, and designed to improve patient management. There will be administrators at two levels: 1) Provincial level to manage district information and 2) National level where all national information is accessible and can be modified if and when necessary.

**CB-DOTS Approach Being Evaluated**

The TB CARE I Mozambique CB-DOTS evaluation protocol received expedited review from FHI 360’s Protection of Human Subjects Committee. The protocol has been translated and reviewed by TB CARE I technical staff in preparation for submission to the local Institutional Review Board (IRB) in Quarter 4. The cost efficacy study draft report has been submitted to TB CARE I for review. The study was conducted by an external local consultant and looked at costs incurred by CB-DOTS implementing partners related to suspect identification, referral, diagnosis, treatment and follow-up. This study will be finalized in Quarter 4.
KNCD is the lead partner in Namibia and collaborates with WHO and The Union. Activities are implemented in six technical areas (UA, IC, PMDT, TB/HIV, HSS and M&E); TB CARE I also plays a role in the 3 ‘I’s project being implemented in Namibia. Abbas Zezai, previously the TB CARE I-Namibia M&E Officer, is now Acting Country Director after the passing of Dr. Omer.

**Community-Based TB Care Shown as Cost-Effective**
The CTBC assessment was finalized and submitted to the MoH. The major finding of the assessment, showing cost-effectiveness of the various packages of CTBC services in Namibia, was positively received by all stakeholders and partners. This assessment nullified the anecdotal remarks suggesting that the CTBC services provided by some NGOs were too expensive per TB patient served.

**Drug Resistance Survey Planned**
Recruitment of all TB drug resistance survey (DRS) staff (survey coordinator, survey data manager and two data clerks) has been completed. The DRS is set to begin July 1, 2014. TB CARE I plays an integral role in the DRS; technical staff from TB CARE I are part of the DRS technical working group and the DR-TB Coordinator (supported through TB CARE I funding) is also responsible for the overall coordination of the survey.

**3 ‘I’s project**

**CHWs and Community Counsellors (CCs) Deployed**
All 40 CHWs and eight CCs have been recruited, trained on the phased implementation of the 3 ‘I’s strategy in health facilities and community settings, and deployed to their respective duty stations in the four selected districts. Implementation has started. The Initiative conducted a TB/HIV 3 ‘I’s TOT to assist with continuous capacity building for CHWs. Participants (21) included managers and supervisors from four implementing partners and MoH staff drawn from the four project districts. The training focused on how to incorporate adult learning principles and training methods into the TB/HIV training content, as well as how to manage training logistics and coordinate a successful course.

**TB-IC Assessed**
TB-IC assessments were conducted in 30 health facilities (across two districts); the visits were also used to provide on-site support and advocate for the implementation of policies, tools and procedures to promote effective TB-IC.

**Managerial and Technical Meetings Occurring Regularly**
Two TB/HIV Steering Committee meetings were conducted at national level to improve project coordination, to encourage collective decision-making and to ensure regular communication with stakeholders. One quarterly TWG meeting was also conducted as planned.
KNCV is the lead partner in Nigeria and works closely with collaborating partners, FHI 360, MSH and WHO. The Year 4 workplan addresses all eight technical areas using both PEPFAR and Child Survival and Health (CSH) funds.

**TB CARE I Experience Builds National Xpert Capacity**
Based on TB CARE I's successful implementation of GeneXpert services in Nigeria, Cepheid has appointed KNCV as its official service provider in country. Also based on TB CARE I's successes, KNCV (not TB CARE I funded) is collaborating with the National AIDS Control Agency in Nigeria to install 185 Xpert machines in ART clinics to expand access for PLHIV to rapid TB diagnostic services.

**Community PMDT Expanding**
As a result of the training of state consilium members on community PMDT initiation in the eight states supported by TB CARE I, an additional 25 DR-TB patients were enrolled on outpatient care during the quarter bringing the total number of enrolled MDR–TB patients in community PMDT to 57. Through TB CARE I support, the states were able to provide support for all enrolled MDR-TB patients including additional medical care, transportation and food.

**Xpert Testing Accelerating**
This quarter a total of 5,096 samples were tested using GeneXpert services showing a 41% improvement over Quarter 1; 97% of samples were successfully tested. Of these, 1,245 (25%) were MTB+ and 139 (11%) were RR-TB.

**Community Volunteers Increase Access to TB Services**
TB CARE I continued to work in communities with the assistance of Patent Medicine Vendors (PMVs) and Community Volunteers (CVs) to identify and refer persons with presumptive TB. As part of the CTBC strategy TB CARE I used CVs to move samples from ART sites to Xpert sites as well as to conduct outreach to religious outlets such as churches and mosques. As a result, a total of 1,334 persons with presumptive TB were referred for TB services from which 157 TB cases were notified (12%) and 122 patients (78%) are being managed by CVs. Additionally, a total of 147 sputum samples were transported by community volunteers to Xpert sites from which 8 (5%) RR-TB cases were detected during the quarter; CVs also helped to identify six buruli ulcer patients in the communities.

**FAST Reduces Time to Treatment for TB Patients**
With TA from TB CARE I, six states were chosen for the piloting of the FAST Strategy in a total of 13 facilities with the purpose of reducing TB or DR-TB transmission in outpatient and in-patient health care settings, as well as contribute to increased case detection. Data received during the quarter indicate a slight improvement in the average time to diagnosis, which went down to 2.7 days compared to three days at baseline. Similarly, the average time to treatment decreased from five days to 2.2 days. The project aims to further decrease the time to treatment to one day.

**NSP Developed**
Leveraging in-country and external experts, TB CARE I continued to provide support and input for the national gap analysis for the single TB/ HIV concept note development process. TB CARE I also played an instrumental role in the review, writing and finalization of the NSP 2014-2018, providing the lead writer and other technical and budgeting TA. The process was also supported by WHO, UNAIDS, TBTEAM, Global Fund and national consultants from the TB and HIV programs. TB CARE I helped select indicators to track achievements and set national targets for the disease programs. The programmatic and financial gaps for the single TB/HIV concept note were discussed and agreed to by both programs.
The Union is the sole implementer of this small project. A consultant visited in April and prepared a situation analysis report on PMDT in Senegal. A key conclusion was that PMDT is in general well organized in six regions and in 18 treatment centres/sites. An extension plan 2014-2017 for MDR-TB patients, linked to the Senegal 2013-2017 strategic plan, was developed. An NTP protocol on the assessment of the toxicity and effectiveness of the 9-month short course treatment for MDR-TB was drafted and will be finalized by the consultant in collaboration with the NTP. All documents mentioned above are being finalized and printing of revised supporting documents (i.e., registers, posters) is forthcoming.

**South Sudan**

MSH is the lead partner in South Sudan and works closely with collaborating partners KNCV and WHO. The project implements activities in seven technical areas (UA, laboratories, IC, PMDT, TB/HIV, HSS and M&E).

**Partnerships Built to Reach Displaced Populations**

Since mid-December 2013, South Sudan has been gripped by violence that has now escalated into fighting across substantial portions of the country. This violence has resulted in over one million people being displaced. In response, TB CARE I-South Sudan is planning and implementing interventions to reach the displaced population. TB CARE I is working closely with the State MoH and Aids Resistant Trust, a local NGO, in Juba where logistical support is provided to reach the internally displaced persons (IDPs) in camps within Juba city. In addition, TB CARE I is also supporting meetings of partners working in the camps to address TB among the internally displaced and refugees. Eighteen representatives from 12 partners providing primary health care and TB services at three IDP camps participated in the meeting this quarter. TB CARE I identified several key gaps, which included a lack of coordination of TB activities in the camps, a lack of TB microscopy, a lack of standardized simplified tools for collecting TB data from the camps, and inadequate funds to support TB services. The project has helped the NTP develop forms that are being used to gather information on TB activities in the camps.

**SOPs Introduced**

To improve TB case finding, TB CARE I introduced SOPs for TB case detection at 13 health facilities. The project team trained 172 HCWs on the use of the SOPs. After these trainings, the proportion of SS+ TB cases detected among presumptive TB patients during the reporting period increased by 5% at the Juba Teaching Hospital (JTH) (from 15% (39/259) to 20% (58/288)). Despite this success, the project team is still working to address the slow uptake of SOPs by HCWs with limited state-level supervision being a challenge.

**TB Services Integrated and Re-established**

TB CARE I has newly integrated TB services at three health facilities and re-established TB service integration at six health facilities in the Central and Eastern Equatoria States. During the process, TB CARE I mentored 18 staff members on TB diagnosis and TB case management through on-the-job training. The project team will measure the effect of introducing TB services in the next quarter.

**Supportive Supervision Re-establishes Laboratory Services**

TB CARE I conducted supportive supervision and mentorship visits at laboratories in the Eastern and Western Equatoria States to follow up on recommendations from the assessment visits conducted by TB CARE I between October and December 2013. TB CARE I’s Laboratory Technical Officer visited Western Equatoria State with the aim of re-establishing TB diagnostic services in functional laboratories. The officer also provided laboratory supplies, delivered the SOPs, and reviewed IC, data recording and reporting, and internal quality assurance practices. Twenty-six laboratory staff were mentored on improving TB diagnostic services during these visits.

**NSP Drafted**

In collaboration with the NTP, TB CARE I lead the NSP review process. The NTP held a review meeting in Nairobi, due to the security situation in South Sudan, with participation from 35 people from more than 23 partners (community-based organizations, CSOs, Global Fund, USAID, United Nations High Commissioner for Refugees, MoH, etc.). TB CARE I continued to provide in-country and remote support to finalize the NSP, which is currently under review by partners.

KNCV is the lead partner in Viet Nam and works with collaborating partners MSH and WHO. The Year 4 workplan has activities in all eight technical areas.
Global Fund Concept Note Development Supported
TB CARE I continued providing TA to the NTP in the development of the NSP for 2015-2020 and preparing a CN for Global Fund.

Childhood TB Co-Chair Announced
Based on the success of TB CARE I-Viet Nam’s strategy for the management of TB in children, Dr. Ngueyn Thien Huong (TB CARE I-Viet Nam’s Country Director) was chosen as co-chair of WHO’s Western Pacific Regional Childhood TB Working Group next to Steve Graham.

Child Contacts Treated
TB in children continues to be a priority and the implemented approach continues to produce positive results. In this quarter four pilot provinces of TB CARE I registered a total of 1,059 child contacts and are providing 259 children (24%) with IPT; 56 children (5%) were diagnosed with TB. TB CARE I also supported the drafting of the NSP on the management of TB in children, which is expected to be completed next quarter.

Xpert Usage Accelerated
As a result of intensified supervision and training during the Xpert uptake acceleration workshops for all Xpert sites in early 2014, Xpert testing reached 96 tests/month/Xpert machine in May 2014 - more than double compared with those in 2013 (30-40 test/month/Xpert machine) and has maintained its accelerated pace since March (Figure 7). This quarter, among 4,756 tests conducted, 16% of tests (764) were for TB/HIV and 8% (363) for children. In total, 1,852 samples were MTB+ (39%) including 385 that were RR-TB (21% RR rate). Between January-June 2014, the number of MDR-TB patients (633 cases) that were diagnosed by Xpert and enrolled on MDR-TB treatment doubled compared to the same period in 2013 (388).

Advocacy Increases TB Budget
As the result of multi-level and continued advocacy for more sustainable funding for first-line drugs, an additional $3.7 million USD was granted to the national TB budget.

Supply Chain Assessed
The final report of TB pharmaceutical supply chain systems and performance assessment is available with some assessment findings highlighted below:
- No site currently qualifies as being fully compliant with Good Storage Practices (GSP) or Good Distribution Practices (GDP), but numerous sites are close to that target and relatively small changes and strengthening activities could bring them within that goal.
- Areas of particular weakness in logistics across the surveyed sites are:
  - Distribution – (Average Score 13%): Many provinces are not undertaking the distribution themselves. Districts and treatment sites collect the medicines themselves and provinces feel little responsibility for the process. Unfortunately the ad-hoc transport mechanism being used does not ensure safe and reliable treatment of the commodities and it will be necessary to address this area through improved Province/District interactions and SOPs.
  - Budgets and financing - (Average score 17%): There is little knowledge of the budget, and the current budget structures are not activity specific. For example, all staff within a hospital appear to be classified as staff costs so breakdowns between departments and units are not apparent. The overall impression is that budgets are probably too low in relation to commodity values being handled with the exception of the central stores in Hanoi, which are close to target levels.
  - Lack of written procedures (SOPs) at provincial level - (Average Score 20%)
FHI 360 is the lead partner in Zambia and works closely with collaborating partners KNCV, WHO and MSH. Two workplans are being implemented in Zambia: a CSH-funded workplan (consisting of UA, laboratories, IC, PMDT, HSS and M&E) and a 3Is workplan (UA, laboratories, IC, TB/HIV, HSS and M&E).

**Single TB/HIV CN Submitted**
TB CARE I technically supported the development of the Zambia TB and HIV GFATM concept note. The TB CARE I-Zambia Country Director and the TB CARE I-supported WHO National Program Officer (NPO) participated in national workshops convened by the country coordinating mechanism and the Global Fund project management unit (PMU) to prepare the concept note, together with the MoH, Ministry of Community Development Mother and Child Health (MCDMCH), CSOs and other local partners. The CN was submitted by June 15, 2014. The two TB CARE I representatives also participated in a global annual TB TEAM meeting convened by the TB TEAM secretariat and WHO Geneva with a focus on GFATM proposals. The WHO NPO presented lessons learned from developing a single TB/HIV concept note and revised TB/HIV NSP at the meeting.

**Laboratory Biosafety Training Conducted**
The MoH, NRL and TB CARE I laboratory experts provided technical, logistical and financial support for the training of 15 laboratory managers from nine provincial hospitals and one district hospital on TB biosafety measures and practices. Participants were taught how to develop an action plan for safe practice implementation and quality improvement in the work environment. The participants’ pre-training and post-training performance showed significant knowledge gain after the training (pre-test scores ranged from 35-75%; post scores ranged from 70-95%). Activity monitoring will be conducted by the NRL laboratory staff members during quarterly supervisory visits.

**TB-IC Monitoring Visits Conducted**
TB CARE I, MoH and MCDMCH participated in monitoring visits to 23 facilities, three of which were facilities implementing the 3 ‘Is. During the monitoring visits it was observed that most facilities have maintained good TB-IC practices with a focal person available and infection control IEC materials displayed for staff members and patients to observe. The compliance scores for the facilities monitored per province were 40% in Copperbelt, 20% in North Western (only one site), 42% in Northern and 61% in Luapula; the average score for the three 3 ‘Is sites was 64%. However, challenges were observed that included a high turn-over of staff members in the district hospitals due to staff transfers and limited involvement of senior management staff who had not been trained in TB-IC. Continued orientation of facility level staff members on TB-IC is necessary and senior management in the facilities need to be included to ensure compliance with the TB-IC measures.

**National Prevalence Survey On Track**
By June 2014 prevalence survey activities were conducted in 58 out of 66 target clusters (88%) with an average participation rate of 83%.

**3 ‘Is project CB-DOTS Expanded**
This quarter, 83% (15/18) of 3 ‘Is-supported health facilities have functioning CB-DOTS services compared to only 61% (11) last quarter. TB CARE I has been supporting transportation costs for community volunteers implementing intensified case finding (ICF) activities in the 15 health facilities and communities.

**Sputum Collection Established**
Sputum collection points have been established at the 3 ‘Is-supported health facilities. Community volunteers collect sputum from presumptive TB patients that are identified at the registration desk or outpatient departments of the participating health facilities.

**GeneXpert Coverage Expanded**
An additional five GeneXpert machines were installed in Lusaka and Southern Provinces this quarter to support the 3 ‘Is activities, bringing the total number of machines to 13. From the start of Year 4, 7,880 Xpert tests have been conducted from which 1,158 MTB+ TB cases were detected (14.7% positivity rate) including 67 RR-TB (6% RR rate).
Zimbabwe is led by The Union and has KNCV and WHO as collaborating partners. The Year 4 workplan focuses on seven technical areas (UA, laboratories, IC, PMDT, TB/HIV, HSS and M&E).

**Community Tools Developed**
The Community Guidelines, Training Curriculum and Training and Participant manual of Community Involvement in TB Care were completed this quarter with TB CARE I assistance and are available on the TB CARE I website (http://www.tbcare1.org/publications/toolbox/tools/country/Zimbabwe_Guidelines_and_Training.zip). IEC materials for the community workers (funded by the MoH) will be ready in September.

**Xpert Cartridge Stock Out Ended**
Using TB CARE I core funds, a total of 16,000 Xpert cartridges were procured to mitigate against frequent stock outs experienced in previous quarters. There were no cartridge stock outs reported this quarter.

**Xpert Use Accelerated**
A total of 10,825 Xpert tests were run between April-June 2014 (56/58 sites reporting), through which 1,584 (15%) cases of TB were diagnosed; of these 125 (8%) were diagnosed with RR-TB. This demonstrates an increase in testing compared to 8,394 tests run the previous quarter, of which 1,371 (16%) were MTB+ including 121 (9%) with RR-TB.

**Rapid CD4 Count Turn-around maintained**
This quarter, 4,129 CD4 count tests were conducted using point of care machines procured through TB CARE I (22/23 Integrated TB HIV Care [ITHC] sites reporting); 5,496 tests were run last quarter. These machines have sustained a test turn-around time of less than 24 hours, compared to previous delays of more than a week.

**Specimen Transport Accelerated**
During the quarter an average of 4,169 specimens per month were transported using the TB CARE I-supported specimen transport system compared to an average of 3,623 per month in the previous quarter. The number of confirmed TB cases diagnosed in the supported districts and towns during this quarter has not yet been reported.

**Concept Note Supported**
TB CARE I staff and a community health consultant engaged through TB CARE I, together with other partners, provided technical support throughout the development of the TB CN for the Global Fund. The funding request prioritized the following modules: TB Care and Prevention, TB/HIV and MDR-TB. Three other supportive modules: Program Management, Health Information (M&E), and Procurement Supply Management were also prioritized for funding support. The CN was successfully submitted on June 15, 2014.

**TB/HIV Coverage Improving**
The national target is to test all registered TB patients for HIV and commence all HIV positive TB patients on both Cotrimoxazole Preventive Therapy (CPT) and ART. At the 23 ITHC sites there has been a progressive improvement of ART and CPT coverage with time due to on-going mentorship, supportive supervision and training activities. Patients with recorded HIV test results remained at 97% in Quarter 2 and 3 of Year 4. ART uptake increased from 72% to 79% from Quarter 2 to Quarter 3. A total of 47,615 HIV positive patients were screened for TB in HIV care settings at the ITHC sites compared to 43,739 during the previous quarter. Among those screened eight (0.02%) were diagnosed with TB and initiated on treatment. A total of 157 HCWs (from 22 reporting ITHC sites) were screened for TB this quarter compared to 147 during the second quarter. Of those screened this quarter none were diagnosed with TB.

**M&E Course Launched**
An inaugural pilot TOT course on data collection, analysis and use entitled “Making sense of TB data” was conducted with 35 participants from all provinces and major cities in the country. The two-week hands-on and practical training was facilitated by the NTP and TB CARE I (in-country staff and international consultants). During the first week, basic principles of TB data collection and analysis were introduced and discussed. Participants did several exercises based on real data from a district and its health facilities. During the second week, the participants split up to visit eight districts in the Midlands Province where they further practiced using data collection tools and presenting data while being mentored by an experienced facilitator. The trained participants will conduct further trainings in their respective provinces, which are expected to result in improvements in data quality, analysis and use, and eventually in the performance of the TB program activities. Changes in current practice will be tracked through quarterly supportive supervision and performance review sessions.
Regional Projects

In addition to the aforementioned country and core programs, TB CARE I currently manages four regional projects.

Center of Excellence (CoE) for PMDT

The CoE for PMDT project is implemented by KNCV. A sixth international training on PMDT was carried out May 19-23, 2014 at the School of Public Health of the University of Rwanda, College of Medicine and Health Sciences. The course was used to introduce the QuanTB tool for the quantification and management of SLDs. The course had seventeen participants (4 females) drawn from eight countries: Burundi (2), Ethiopia (1), Kenya (1), Nigeria (2), Rwanda (7), Tanzania (1), Uganda (2), and Zambia (1). Fifteen came from TB programs, one from a project and one from the private sector. Seven participants were from the National level and 10 from district level. Seven Rwandese doctors paid for their participation to receive Continuing Professional Development credit. There were 11 facilitators, 82% of which were local experts. Two types of certificates were issued based on performance during the post-test: certificate of attendance (50-69%) and achievement (70% and above). Fifteen participants (88%) received certificates of achievement and two participants (12%) received certificates of attendance.

The second international TB/HIV training and fourth international laboratory training are scheduled for next quarter; the childhood TB course is planned for October. The draft Childhood TB curriculum has been developed and reviewed this quarter. The CoE is helping to train the Somalia NTP on Childhood TB (see Somalia section below); the Somalia project is expected to send six participants to the training.

The CoE received a visit from Kevin Cain (CDC-Kenya on behalf of USAID) in April to evaluate the impact of the CoE trainings in the region as a part of a larger USAID East Africa portfolio review. The visit also aimed to assess where the issue of TB/MDR-TB is in the regional context, which components surface as the major regional needs, and what direction should be taken on TB/MDR-TB by USAID East Africa in the coming years. TB CARE I has not yet received feedback from this visit.

East Africa Supranational Reference Laboratory

The Union, the lead partner, works closely with KNCV and the Royal Tropical Institute (KIT) on the SNRL project. Blue Edge, a business consultancy firm, is subcontracted to develop and implement a business plan for the SNRL. Highlights from the quarter include:

- SNRL expanded its formal network from Zambia and South Sudan to an additional five countries (Eritrea, Tanzania, Rwanda, Lesotho and Swaziland) - all seven countries have been visited;
- SNRL participated in the formation of the GLI-Africa as a founding member;
- An organogram for SNRL was developed;
- SNRL working with the USAID Regional Office received a letter from the Permanent Secretary MoH-Uganda endorsing the use of ECSA-HC to facilitate SNRLs financial mechanism and logistics.
- Next quarter the SNRL plans to implement the M&E tool, organize study tours to Uganda for the region, identify and engage in TB advocacy coalitions, and design the appraisal & evaluation process for the SNRL.

ECSA (East, Central and Southern Africa)

The ECSA project is led by KNCV. During the quarter, two consultants were engaged for policy harmonization, cross border TB strategy development and reviewing the TB/DR-TB content in the nursing curriculum. The consultants will present drafts for discussion during the experts committee meeting in August. Two staff participated in the WHO training course for TB consultants and managers in Sondalo, Italy during the quarter. No country mission was done during the quarter, however a mission to Malawi is planned for next quarter (Zambia dates are still pending).

As a part of the same USAID East Africa TB portfolio review mentioned in the CoE section, ECSA received a visit from Catherine Lijinsky (USAID/ Washington) to evaluate the impact of the project. The project has not yet received feedback from this visit.
KNCV and The Union are providing TA to the NTP in Somalia on IC and childhood TB respectively.

**TB-IC**
The NTP quarterly meeting was held in June. A rapid assessment is planned for July/August. The assessment will be followed by a TOT and development of SoPs at the Rwanda CoE in October. Discussions are ongoing to set a date for the training and to work closely with Uganda SNRL, which is also involved in providing lab TA to Somalia.

**Childhood TB**
A project working group was established with representatives (NTP manager and one pediatrician) from each of the three Somalia regions as well as some additional experts from the CoE in Rwanda and the Regional Centre for Quality of Healthcare in Uganda. The project workplan has been slightly revised. The working group will develop an updated child TB chapter for the Somalia TB guidelines, a practical field guide for child TB taking into account the situation in Somalia (being drafted), and an implementation plan. Somalia representatives and one Union consultant will meet at the CoE childhood TB training in October to participate in the training and work on these documents.
We would like to acknowledge all the people across the world who make TB CARE I possible; our gratitude and thanks go out to all our partners and everyone in the field.

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