



USAID
FROM THE AMERICAN PEOPLE

Ukraine Tuberculosis Control Partnership Project

TASC2 TB IQC, Delivery Order 3
Contract Number GHS-I-00-03-00034-00

Final Report

Table of contents

Acronyms and abbreviations.....	iv
Executive summary.....	v
Introduction.....	1
Summary of tuberculosis control in Ukraine.....	1
Project goal and objectives.....	2
PATH management structure and key personnel.....	2
Key partners and collaborators.....	3
Strategic approach.....	5
Guiding principles.....	5
Patient-centered.....	5
Evidence-based.....	5
Country-owned and sustainable.....	6
Expansion to new regions.....	7
Ensuring high-quality coverage.....	7
Dissemination of results.....	7
Activities and key results.....	8
Result 1: High-quality DOTS services available to 50 percent of the population.....	8
DOTS expansion.....	8
Increasing laboratory capacity and quality.....	14
Human resource development.....	23
Strengthening surveillance, monitoring, and evaluation.....	285
Introduction of eTB Manager.....	30
Increasing case detection and case-holding.....	31
Tuberculosis in prisons.....	34
Infection control activities.....	37
Assessment of implementation of the <i>National Standards on Infection Control in TB Settings</i>	41
Research on characteristics of male and female tuberculosis patients in Ukraine.....	43
Result 2: High-quality DOTS-Plus (including MDR-TB, XDR-TB, and TB/HIV co-infection) services available to 30 percent of the population.....	45
MDR/XDR-TB.....	45
TB/HIV co-infection.....	52
Result 3: Reduced policy, legal, regulatory, fiscal, and attitudinal barriers inhibiting access to TB and TB/HIV co-infection prevention, diagnosis, treatment, and care according to international DOTS-based standards.....	64
Creation of an enabling environment for DOTS implementation.....	64
Enlistment of key decision-makers and stakeholders in reducing TB treatment barriers.....	65

Enhancement of mechanisms to ensure transparency and accountability	67
Capacity-building of Regional Coordination Councils on TB/HIV collaborative program management.....	69
Expansion of training and other activities to reduce stigma and discrimination	70
Support for publication of <i>Tuberculosis, Lung Diseases, HIV Infection</i>	70
Annex 1. Project training materials	71
Annex 2. PATH technical assistance in the development of state regulations.....	75
Annex 3. National conferences	79
Annex 4. Project publications	84

Attachments

1. Success story
2. Human resource assessment of the Ukrainian tuberculosis laboratory network
3. Risk of TB transmission: current situation and strategy for risk reduction
4. Characteristics of male and female tuberculosis patients in Ukraine
5. Brochure: *Tuberculosis is Curable! Guide for Recovering Patients*
6. Brochure: *Tuberculosis. Questions? Answers!*
7. Brochure on TB screening
8. Project Performance Monitoring and Evaluation Plan

Acronyms and abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AR Crimea	Autonomous Republic of Crimea
ART	Antiretroviral therapy
ARV	Antiretroviral medication
CDC	US Centers for Disease Control and Prevention
DCT	Diagnostic counseling and testing
DIP	Detailed Implementation Plan
DOTS	Directly Observed Treatment Short Course
DST	Drug susceptibility testing
EQC	External quality control
FDU	Foundation for Development of Ukraine
FILHA	Finnish Lung Health Association
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GF	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	Human immunodeficiency virus
IPCC	Interpersonal communication and counseling
IQC	Indefinite Quantity Contract
M&E	Monitoring and evaluation
MDR-TB	Multidrug-resistant tuberculosis
MOH	Ministry of Health
MSH	Management Sciences for Health
NGO	Nongovernmental organization
NRL	National TB Reference Laboratory
NTP	National TB Control Program
PATH	Program for Appropriate Technology in Health
PHC	Primary health care
PLHIV	People living with HIV
PSN	Prison Support Network
QA/QC	Quality assurance/quality control
TASC2	Technical Assistance and Support Contract 2
TB	Tuberculosis
The Union	International Union Against Tuberculosis and Lung Disease
Three I's	Intensified case-finding, isoniazid preventive therapy, and tuberculosis infection control
TOT	Training of trainers
UATB	Ukrainians Against Tuberculosis
URCS	Ukrainian Red Cross Society
USAID	United States Agency for International Development
VCT	Voluntary counseling and testing
WHO	World Health Organization
XDR-TB	Extensively drug-resistant tuberculosis

Executive summary

Background

From October 2007 through March 2012, PATH implemented the Tuberculosis (TB) Control Partnership Project in Ukraine under the United States Agency for International Development (USAID) Technical Assistance and Support Contract II: Tuberculosis Indefinite Quantity Contract (TASC2 TB IQC), Contract Number GHS-I-00-03-00034-00, Delivery Order Three. The work undertaken through this project continued previous USAID-funded support for TB control in Ukraine, work in which PATH has been engaged since 2001.

Through this recent project, PATH continued providing wide-ranging support to Ukraine in expanding international standards for TB care and improving the quality of TB services within the civil and penitentiary systems in ten administrative territories, including seven oblasts (regions) of Ukraine—Dnipropetrovska, Donetska, Kharkivska, Khersonska, Luganska, Odeska, and Zaporizhska; the Autonomous Republic of Crimea; and two cities—Kyiv and Sevastopol. Particular attention was paid to introducing and expanding up-to-date TB control approaches based on the World Health Organization-recommended DOTS strategy. To ensure sustainability of effective TB control interventions at national and regional levels, the project sought to enable the government of Ukraine to make critical, technically sound policy and program decisions to improve TB, drug-resistant TB and TB/HIV control in accordance with international best practices. The project also intensified efforts to assist the government in building adequate TB control system capacity to address the growing burdens of multidrug-resistant and extensively drug-resistant tuberculosis (MDR-TB and XDR-TB). In addition, the project helped Ukraine's civil society groups active in the TB and TB/HIV domains bolster the government's commitment to improving TB control, and to catalyze the establishment of government-civil society partnerships in monitoring and evaluating the implementation of the National TB Control Plan for 2007–2011.

The cumulative results of USAID's strategic investments in TB show how far Ukraine has come in moving toward internationally recommended approaches that will ultimately reduce TB-related morbidity and mortality, while at the same time underlining the need to continue investments in TB control and intensify pressure on Ukraine's decision-makers to sustain the gains that have been made.

Project goal and scope

According to the Delivery Order contract, the goal of the project was “to help Ukraine achieve a TB case detection rate of 70% and a treatment success rate of 85% by 2011, thereby contributing to a reduction of TB morbidity and mortality.” This project contributed to the USAID Program Objective of *Investing in People* in the *Health* Program area and Program Elements:

1.2 *Tuberculosis* and 1.1. *HIV/AIDS*.

The following USAID-defined Results comprised the scope of the project:

- Result 1: High-quality DOTS services available to 50% of the population.
- Result 2: High Quality DOTS Plus [including MDR-TB, XDR-TB and TB-HIV co-infection] services available to 30% of the population.

- Result 3: Reduced policy, legal, regulatory, fiscal and attitudinal barriers inhibiting access to TB and TB-HIV co-infection prevention, diagnosis, treatment and care according to international DOTS-based standards.

Summary of key achievements

The project reached all of the results listed above. It advanced the objectives of USAID to create strong health systems and enhance national TB control program staff capacity to address TB control challenges. The project resulted in significant policy changes and other health system improvements that support effective implementation of high-quality TB control services in the ten oblasts, autonomous regions, and cities participating in the project. While a number of formidable challenges remain in Ukraine related to overall governance, the project results have proven that, at the regional level in particular, significant progress can be made toward reducing morbidity and mortality related to TB, MDR-TB and TB/HIV.

As of the project end date, the following key results have been achieved¹, all of which are described in detail in this report:

- **Twenty-four million people (50 percent of Ukraine’s population) can now access quality DOTS services**, increased from 29 percent in 2007 at the beginning of the project.
- An **MDR-TB Center of Excellence** was established in Dnipropetrovska and has the potential to become the regional/national training hub for clinicians.
- **Nine laboratories are able to provide quality-assured culture and drug susceptibility testing** for the diagnosis of smear-negative and drug-resistant TB, up from one laboratory at project outset.
- A **framework for TB/HIV service collaboration** is in place, along with supporting **policy and administrative changes**, to allow for improved access to services for co-infected patients in the project areas.
- More than **80 percent of TB patients** in the project areas—greater than 14,000 patients—**received HIV counseling and testing** and got their results in the last year of the project alone.
- Thanks to training from PATH, clinicians in project areas placed **an increasing proportion of TB/HIV co-infected patients on early ART**, which should contribute to significant reductions in the extremely high mortality rates for this population.
- A **successful and scalable model of community-based outreach and treatment support** was developed with local partners and continues to improve treatment outcomes for marginalized populations.
- Civil society organizations and prison health systems are working together to improve the **continuity of care for released prisoners** and significantly reduce high treatment default rates. All 230 prisoners served by this pilot initiative have either completed treatment or are continuing on treatment, with no deaths or defaults reported.
- TB control managers and staff in the project regions **report data accurately and regularly analyze their data to guide program priorities**.

¹ Full Monitoring & Evaluation is available in Attachment 8

- An **electronic system to support patient management** (e-TB Manager) was introduced in collaboration with MSH to address the need to improve accessibility of treatment information.
- A system of **standardized pre-service and in-service training** for clinicians was put in place to ensure that training in internationally accepted approaches to TB diagnosis and case management is institutionalized and will continue beyond the life of the project.
- **Functional coordination mechanisms** at national and regional levels have been created to improve strategic planning, monitoring, and evaluation functions of TB control services in Ukraine.

While the project achieved the intended results outlined above, and made significant gains with respect to the quality and timeliness of services in the project areas, Ukraine failed to achieve the goal of reaching 85 percent treatment success. There are a number of interrelated factors that contributed to this gap, all of which have been documented in numerous program reviews and project reports and are described further project in the pages of this report.

Lessons Learned/Recommendations

A number of recommendations are included in the report related to specific project activities. Overarching recommendations based on PATH's experience in Ukraine include the following:

- As an important donor in Ukraine, USAID can play a key advocacy role in increasing pressure on the Government of Ukraine to prioritize investment in TB control, maintain internationally accepted practices, and address urgent issues related to drug supplies and other essential elements of TB control that hamper progress toward targets.
- USAID can also play a coordination role for implementing partners to ensure that efforts are not being duplicated and coverage is maximized.
- Work to strengthen TB control must occur at both national and regional/local levels to promote and sustain adoption of internationally accepted approaches. Given the rapid change in WHO recommendations, ongoing training and support will be required to keep practice up-to-date. The government should be encouraged to require the pool of trainers created through the project to expand trainings to cover the whole country.
- National laws and orders (*prikaz*) related to TB need to be reviewed, revised, simplified, and consolidated into fewer and more clear documents, as well as to expunge outdated laws and *prikaz*.
- Given the complexity of issues facing people with TB, it is critical to engage civil society in outreach to support people to access services and complete treatment. Local governments should be made aware that they have existing mechanisms to do so.
- Ongoing support should be provided to Coordinating Councils and Task Forces to further develop their skills in strategic planning and monitoring of TB interventions.

Conclusion

USAID's support for TB control in Ukraine under this project has made a significant contribution to moving the country towards achieving global targets for TB using internationally

accepted approaches. However, there is no room for complacency if these gains are to be sustained and expanded to all regions of Ukraine. Lasting progress will require an ongoing intensive effort to address the remaining challenges outlined in this report.

Introduction

Summary of tuberculosis control in Ukraine

US Agency for International Development (USAID) assistance to strengthen tuberculosis (TB) control in Ukraine resulted in significant improvements over the last ten years, especially in USAID's ten priority regions. PATH's efforts, supported by USAID since 2001, led to the following critical achievements:

- Ukraine adopted the DOTS approach as the official national strategy for TB control in 2006.
- More than 10,000 health and laboratory personnel were trained in DOTS.
- The laboratory network was strengthened at all levels and includes both TB and primary health care (PHC) laboratories.
- DOTS coverage increased from about 5 percent in 2001 to 29 percent in 2007 and reached 50 percent by the end of the project.
- Policies, guidelines, and ministerial orders were developed to improve TB/HIV co-infection management, the prevention and management of multidrug-resistant tuberculosis (MDR-TB), and infection control.
- Case detection is estimated at 73 percent, while treatment success, on average, is 59.9 percent.

Despite these important advances, challenges remain. While national drug resistance data are unconfirmed, estimates based on local studies and reporting suggest a continued increase in MDR-TB, a rising HIV seroprevalence rate among new TB patients (15.5 percent in 2008²), and high default and treatment failure rates, especially in non-project regions. Data extrapolated from a World Health Organization (WHO) study in Donetska Oblast (Region) suggest that 16 percent of newly detected TB cases and 44 percent of previously treated cases are MDR-TB, with approximately 8,700 new MDR-TB patients requiring treatment each year.³ Ukraine's extensively drug-resistant tuberculosis (XDR-TB) burden is unknown; however, WHO's National TB Review suggests that it may be significant, pointing to increases in MDR-TB and HIV co-infection among at-risk populations. The situation in detention centers and prisons is particularly dire, with TB prevalence rates exceeding 5,300 per 100,000 and high rates of MDR-TB in TB/HIV co-infected prisoners.⁴

The HIV epidemic in Ukraine is concentrated, disproportionately affecting injecting drug users and their partners, sex workers, and other socially marginalized populations. In 2010, adult HIV prevalence was 1.1 percent. TB and HIV control programs in Ukraine are highly vertical and

² Raykert I et al. HIV seroprevalence among new TB patients in the civilian and prisoner populations of Donetsk Oblast, Ukraine. *Scandinavian Journal of Infectious Diseases*. 2008;40(8):655–662.

³ Dubrovina I et al. Drug-resistant tuberculosis and HIV in Ukraine: a threatening convergence of two epidemics? *International Journal of Tuberculosis and Lung Disease*. 2008;12(7):756–762.

⁴ Dubrovina I et al. Drug-resistant tuberculosis and HIV in Ukraine: a threatening convergence of two epidemics? *International Journal of Tuberculosis and Lung Disease*. 2008;12(7):756–762.

slow to reform, and the WHO National TB Review team cited several challenges, including limited collaboration between programs, poor screening coverage of people living with HIV (PLHIV), and poor infection control.⁵ Political instability, frequent rotation of staff, and the weak capacity of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases and the National TB Center impede progress.

Despite this epidemiologic and political backdrop, at the oblast, rayon (district), and facility levels in USAID priority regions, key stakeholders welcomed the technical assistance and training provided by PATH and its partners under this and previous USAID contracts. These collaborations resulted in strong relationships and ownership of the process—factors that will contribute significantly to the success of future work and the sustainability of results achieved under this project.

Project goal and objectives

The goal of this Task Order was to help Ukraine achieve a TB case detection rate of 70 percent and a treatment success rate of 85 percent by 2011, thereby contributing to a reduction of TB morbidity and mortality. The Task Order sought to enable the government of Ukraine, in partnership with Ukrainian civil society, to take critical policy and program actions to improve the prevention, detection, and treatment of TB and TB/HIV co-infection in harmony with international best practices. The project's key objectives are listed below:

Result 1: High-quality DOTS services available to 50 percent of the population.

DIP (Detailed Implementation Plan) Objective 1: Expand DOTS coverage to 50 percent of the population and improve DOTS quality.

Result 2: High-quality DOTS-Plus (including MDR/XDR-TB and TB/HIV co-infection) services available to 30 percent of the population.

DIP Objective 2: Build adequate capacity for rapid implementation of DOTS-Plus for MDR/XDR-TB in the project regions.

DIP Objective 3: Provide access to TB/HIV co-infection services to 30 percent of the population.

Result 3: Reduced policy, legal, regulatory, fiscal, and attitudinal barriers inhibiting access to TB and TB/HIV co-infection prevention, diagnosis, treatment, and care according to international DOTS-based standards.

DIP Objective 4: Create an enabling environment for DOTS implementation by removing or reducing existing policy and attitudinal barriers.

PATH management structure and key personnel

The project was managed out of PATH's Ukraine Country Office. Dr. Katya Gamazina, the Ukraine Country Director, served as Project Director. She maintained in-country partner relationships and communications and identified local/regional consultants. With input from PATH's Senior Program Director and the TB Team Leader, she was responsible for country-level project design, implementation, and evaluation; work plan development and monitoring; donor reporting and project documentation; and technical skills-building for local staff. The

⁵ World Health Organization Regional Office for Europe (WHO/EURO). *Review of the National Tuberculosis Programme in Ukraine, 10-22 October 2010*. Copenhagen, Denmark: WHO/EURO; 2011.

majority of country-based technical work was implemented by PATH's local TB team and in-country consultants, with input from PATH headquarters staff for technical, management, and administrative support as needed.

Key partners and collaborators

PATH recognized the importance of collaborating with a wide range of stakeholders to strengthen activities and build sustainability of changes in TB control. PATH maintained existing relationships with a number of important in-country and international organizations that support TB and HIV control activities in Ukraine, as follows.

International partners

- ***Management Sciences for Health (MSH)***: Along with PATH and local management staff, MSH supported the drug management component of the project.
- ***WHO Collaborating Centre for Research and Training in Management of MDR-TB (Riga, Latvia)***: PATH worked in partnership with the Latvia WHO Collaborating Centre and other organizations to support MDR- and XDR-TB activities.
- ***WHO Collaborating Centre for TB and Lung Diseases (Tradate, Italy)***: The WHO Collaborating Centre in Italy provided training and support for a group of master DOTS program evaluators to strengthen monitoring and evaluation (M&E).

Government partners

- ***State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases***: The main body overseeing Ukraine's NTP.
- ***F. G. Yanovsky Institute of Phthiology and Pulmonology***: The main national research institute on TB in Ukraine.
- ***Ministry of Health***: Oversees the activities of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases.
- ***National Coordination Council***: Functions as Ukraine's Country Coordinating Mechanism for Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) grants.
- ***Department of Detention***: Oversees the penitentiary and detention systems.

Civil society partners

- ***Ukrainians Against Tuberculosis (UATB)***: PATH and the nongovernmental organization (NGO) UATB developed and implemented an advocacy strategy at both the national and local levels.
- ***National Committee of the Ukrainian Red Cross Society (URCS)***: PATH worked to mobilize patients and communities through an expanded model of community involvement and outreach to vulnerable populations, developed in the pilot projects with URCS and in collaboration with URCS nurses and local NGOs.

- ***All-Ukrainian Network of People Living with HIV/AIDS and the Coalition of HIV Service Organizations:*** Key partners that, with PATH, worked closely with the AIDS Center service structure as well as with NGOs involved in HIV service delivery to strengthen their capacity in identifying PLHIV who may have TB and providing integrated TB/HIV services and referrals to clients.
- ***International HIV and TB Institute:*** PATH's work with this institute focused on supporting Regional Coordination Councils in strategic planning and policy development to improve collaboration between the TB and HIV services.
- ***Foundation for Development of Ukraine (FDU):*** FDU is the Principle Recipient of the Global Fund Round 9 grant on TB, under which PATH is a subrecipient. As such, PATH necessarily worked closely to coordinate and harmonize all interventions.

PATH also collaborated with the **HIV Service Capacity Project in Ukraine**, led by the Futures Group, on using a coordinated approach to building the capacity of the Regional Coordination Councils on TB and HIV/AIDS.

Strategic approach

PATH's overall strategic approach has been to work closely with national and international partners to help Ukraine reach the goals and objectives set out in the contract and in accordance with global strategies.

Guiding principles

Patient-centered

This project supported the USAID/Ukraine strategy of improving “the economic and social well being of all Ukrainians within a framework of democratic governance” by contributing to the program objective of “Investing in People in the Health Program Area” and Program Elements 1.2 Tuberculosis and 1.1 HIV/AIDS.

A primary focus of PATH's work was to partner with key local organizations to effectively reach out to key vulnerable populations to improve case detection and treatment outcomes. For example, PATH's collaboration with URCS and its oblast-based chapters led to the development of successful models of patient and family outreach, education, and treatment support. PATH also worked closely with HIV NGOs to develop verbal screening approaches to better identify clients who may have active TB and ensure that outreach and social support activities were linked with the formal health care system to provide the greatest continuity of care possible, including linkages between TB and HIV services. Strategies also were developed in collaboration with social service agencies or other relevant groups to address the broader needs of these populations. All of this work involved training of health care and NGO service providers in communication and counseling skills in support of improved client-provider communication and reduction of stigma and discrimination.

Evidence-based

PATH promotes a focus on strengthening M&E as a cornerstone of effective TB program implementation. In close collaboration with the MOH/NTP and partners, PATH worked to build stronger surveillance and reporting and a common understanding of data and processes, and focused especially on improving use of program data for better management of systems and prioritization of budget allocations.

In 2007, a new national M&E system was officially endorsed by the MOH and included analysis of TB treatment effectiveness based on cohort analysis. Expansion of M&E training in new PATH project regions followed trainings on basic DOTS components and included M&E and strengthening the use of program data to better manage programs and to ensure data reliability. PATH also provided technical support to the MOH advisory group on monitoring and effective implementation of the NTP and helped revise TB statistical forms in line with international standards.

A comprehensive analysis of the TB monitoring and surveillance practices at PHC facility, district, regional, and central levels was conducted, and priority actions to improve the TB surveillance system were developed. In addition, PATH supported joint monitoring by oblast TB

and HIV specialists, helping strengthen supervision and integrate services. In 2011, draft M&E forms for MDR-TB were approved and treatment results data for MDR-TB started to be collected. PATH introduced M&E for MDR-TB into trainings to strengthen both M&E and analysis of the data.

Monitoring visit results, cohort analysis and laboratory data, and other relevant information was reviewed in a series of general review meetings that engaged stakeholders to analyze findings and develop recommendations for improving the TB program. Review meetings also included a comprehensive analysis of the challenges and gaps, as well as positive lessons learned.

Country-owned and sustainable

PATH supported Ukraine in expanding international standards for TB control and improving the quality of TB services. To ensure sustainability of effective TB-related interventions at national and regional levels, the project sought to enable the government of Ukraine to make critical, technically sound policy and program decisions to improve TB and TB/HIV control in accordance with international best practices. The project also helped Ukraine's civil society groups active in the TB and TB/HIV domains to bolster the government's commitment to improving TB control and to catalyze the establishment of government/civil society partnerships in monitoring and evaluating the implementation of the National TB Control Plan for 2007–2011 and development of the new National TB Control Plan for 2012-2016.

All activities were implemented in close collaboration with local managers and staff (both civil and penitentiary) to ensure capacity-building at the oblast and rayon levels so local staff could assume responsibility for DOTS activities. International consultants were always paired with Ukrainian counterparts to ensure that knowledge was being transferred to local experts and that resource networks were developed for Ukrainian experts.

PATH was very actively involved in national-level discussions on TB policy and protocol issues and worked with the MOH/NTP to promote understanding of international TB control strategies and their relevance to Ukraine. PATH worked closely with the NTP to strengthen services through training of PHC and TB service providers and ensuring they were adequately supplied to effectively function to detect, diagnose, and treat TB. Trainings focused not only on doctors, but also nurses, laboratory workers, social workers, community NGO workers, and volunteers. To maintain high quality, PATH helped strengthen supportive supervision and M&E systems. PATH also supported a better understanding of global guidelines and policies and how they apply to the context in Ukraine.

To ensure sustainability, PATH collaborated closely with medical educational institutions to develop and incorporate both DOTS training and training in client-provider communication into standard curricula for schools of medicine, nursing, and social work and postgraduate training curricula. In addition, PATH supported the creation of a Center of Excellence in Dnipropetrovska for building sustainability and strengthening MDR-TB diagnosis and treatment in Ukraine. PATH provided intensive support to build the Center's operations in 2009, including support to develop an overall scope of work, training plans, and an evaluation system. PATH procured equipment, provided finalized presentations and curricula, and supported Center trainers to build their skills to address drug-resistant TB. In 2010-2011, trainers from the Center,

with the support of PATH specialists, conducted nine trainings on the WHO Stop TB Strategy components, including DOTS principles, MDR-TB case management, TB/HIV, laboratory diagnosis, and TB program M&E. Overall, 129 specialists from Dnipropetrovska Oblast took part in this series of trainings, and the Center of Excellence is now operating independently and now planning to offer training to health care providers in other oblasts.

Expansion to new regions

Ensuring high-quality coverage

At the start of the project, PATH and WHO TB activities covered approximately 29 percent of the population in eight regions of the country (five oblasts, one autonomous region, and two municipalities): Dnipropetrovska, Donetsk, Kharkivska, Khersonska, and Zaporizhska; the Autonomous Republic of Crimea (AR Crimea); and Kyiv and Sevastopol Cities. To reach 50 percent coverage of the population with high-quality DOTS services, PATH expanded services to new oblasts as well as enhanced coverage within existing oblasts. Odeska and Luganska were selected based on a review of their disease burden for both TB and HIV, availability of high-quality DOTS services, geographic locations and concentrations of vulnerable populations, availability of local NGOs already operating in the regions that could provide outreach and support services, and the desire of oblast health authorities to participate in expansion activities. Activities in Odeska started in the first year of the project and in Luganska in Year 2.

In existing oblasts, PATH conducted assessments to better understand the needs for TB services within the broader health structure. Based on the analysis of TB treatment outcomes and other indicators, PATH provided refresher training and technical assistance to health providers in both the TB and PHC services to strengthen the essential components of the DOTS strategy, including supportive supervision and M&E, to make sure that high-quality services were accessible throughout the oblasts. PATH also supported dissemination of information on the International Standards of TB Care and the accompanying Tuberculosis Patients' Charter through workshops.

Dissemination of results

Information on up-to-date international approaches to TB control, including the Stop TB Strategy and Global Plan to Stop TB 2006-2015, International Standards of TB Care, and best practices, was disseminated throughout project areas through trainings and meetings with health providers; the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases; and other key stakeholders. PATH convened an annual meeting with partners and stakeholders to disseminate information about lessons learned and planned activities.

PATH and partners were very active in sharing information and lessons learned through seminars, national and regional meetings and conferences, and international conferences. PATH convened several national conferences on key topics in TB—MDR-TB, infection control, and the TB/HIV collaborative program—and encouraged active participation from all groups involved in TB control. PATH conducted a national final project meeting in February 2012 to share lessons learned and recommendations gained from the project.

A list of presentations by PATH staff and partners at national and international conferences was provided in the quarterly and annual reports.

Activities and key results

Result 1: High-quality DOTS services available to 50 percent of the population

DOTS coverage

Previous PATH and WHO TB activities supported by USAID resulted in DOTS coverage of approximately 29 percent of the Ukrainian population in eight administrative areas of the country, comprising five oblasts (Dnipropetrovska, Donetska, Kharkivska, Khersonska, and Zaporizhska), one autonomous region (AR Crimea), and two municipalities (Kyiv City and Sevastopol City). DOTS coverage—defined as the “percentage of the population living in the area of basic management units implementing the DOTS strategy”⁶—served as a platform for consistent implementation of cost-effective international approaches in TB control. During project implementation, PATH also worked with inter-rayon, city, and regional TB dispensaries, which represented higher levels of the specialized TB control system, to introduce up-to-date international approaches in TB case management. In particular, PATH focused on improving directly observed treatment of TB during inpatient care as well as technical supervision of TB-related outpatient care provided by TB dispensaries. These efforts sought to ensure that outpatient services, including those provided by Rayon TB Coordinators and PHC providers, were consistent with international standards.

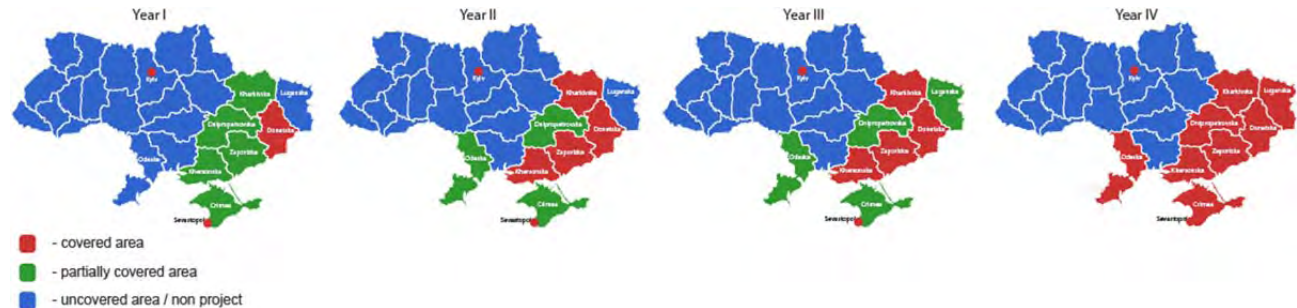
PATH worked toward ensuring DOTS coverage by providing training and technical assistance to basic TB control management units. These units, at the rayon level, comprise the Rayon TB Coordinator, to whom TB suspects are initially referred by PHC providers. As the first entry point to the health system, PHC clinics are responsible for TB detection and also can be used to ensure treatment follow-up (outpatient TB treatment continuation after an intensive inpatient phase). For this reason, the project worked to strengthen these primary echelons of basic TB services toward improving cornerstone elements of TB control to increase proper TB case detection, referral, and treatment completion. A rayon was considered “covered” when all specialized TB entities and PHC clinics were capable of providing appropriate TB services. PATH considered specialized TB and PHC facilities ready to provide DOTS-based services when at least 85 percent of TB providers and at least 75 percent of PHC providers were trained, thus ensuring availability of high-quality TB services to the majority of the rayon population.

At the start of the new USAID Tuberculosis Control Partnership Project in 2007, PATH identified rayons that were not covered and areas already covered by initial DOTS training where the quality of DOTS services needed improvement. Mapping the results of this analysis helped PATH visualize and guide gradual introduction and/or improvement of DOTS-based TB control practices in the initial eight regions. By expanding DOTS-based services to two additional regions—Odeska and Luganska Oblasts—high-quality DOTS services became available to an additional 10 percent of Ukraine’s population. Coverage by DOTS-based TB control services of the entire population (approximately 19 million people) in the initial eight administrative areas, and in Odeska and Luganska Oblasts (approximately 5 million people), resulted in

⁶ World Health Organization (WHO). *Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programs*. Geneva, CH: WHO; 2004.

approximately 24 million people—50 percent of the population of Ukraine—having access to DOTS services (50 percent DOTS coverage), thus meeting a key programmatic objective. (See Figure 1.)

Figure 1. DOTS rollout by year and region.



DOTS Rollout

Strengthening health systems to support DOTS expansion and enhancement is a cornerstone of the WHO Stop TB Strategy and provides the basic foundation on which other TB control objectives are based. Due to the successful advocacy of PATH, WHO, and other agencies, Ukraine officially adopted the DOTS strategy in 2006. In seeking full DOTS coverage in the ten project regions, PATH’s strategy was focused on the reorientation of all health personnel to combat TB by implementing evidence-based, internationally endorsed, patient-centered approaches. This required eliminating historic, ineffective, sometimes harmful, and/or incorrect practices in TB care; maintaining receptive environments for positive changes; and providing intensive training, supervision, and targeted technical assistance in all critical areas of TB control. This work built on and expanded the previous work of PATH and others, focusing on strengthening the foundational elements of Ukraine’s TB control program in USAID priority oblasts as the most cost-effective way to achieve a 70 percent detection rate and 85 percent treatment success in controlling TB and prevent increases in MDR-TB.

The PATH team leveraged previous, ongoing, and new efforts funded by the World Bank, the Global Fund, and FDU (established by Rinat Akhmetov) to maximize project impact. While continuing to focus on building systems and capacity to support TB control at the national level, the PATH team also provided increased support at the oblast and municipal levels, where health personnel and other key stakeholders were very receptive to introducing DOTS. This bottom-up approach was very useful in maximizing sustainability and creating successful local advocates, who, in turn, requested national support for DOTS implementation in their regions. Recent changes in TB control policy, formation of the NTP and the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, as well as commitments of personnel and resources, particularly at the oblast level, are evidence of the success of this approach. PATH also sought out and engaged new local organizations, ensuring that work under the contract complemented that of partner organizations and priorities.

Development of TB-related training curricula

As virtually all TB specialists had been trained in the initial project areas by PATH and WHO with USAID support, the primary focus in Years 1 and 2 of this contract was on training doctors, nurses, and laboratory staff in the general health care system in the remaining rayons within the initial eight project regions that had not yet benefited from project interventions. In Years 2, 3, and 4, PATH undertook intensive efforts to roll out DOTS trainings in the new project oblasts (Odeska and Luganska) as well as in selected rayons of the other project regions. Refresher training and technical assistance were also provided to TB and PHC specialists, as needed, to strengthen essential components of the DOTS strategy.

During the course of the project, PATH reviewed training curricula and materials that were developed and used under the previous USAID-funded work. These materials were refined and adapted to Ukraine's norms while remaining consistent with WHO recommendations, and used to develop a comprehensive training module on TB case management in Ukraine. This module covers all aspects of TB case management, including case detection and diagnosis, treatment of drug-sensitive TB, TB/HIV co-infection management, data management and cohort analysis for M&E, infection control, drug management, and patients' rights based on the Tuberculosis Patients' Charter. Using this module as a foundation, a number of additional, focused training curricula also were developed by PATH staff and local Ukrainian consultants to ensure responsiveness to the needs of particular audiences and geographic or technical realities. For example, PATH developed DOTS training curricula for PHC providers to enhance their knowledge and skills on how to effectively organize early detection and referral of new TB cases and to improve treatment adherence through outpatient PHC clinics. A working group comprising PATH and PATH-trained specialists from project regions adapted the DOTS training curriculum and training materials to local needs, and the final training package included a three-day training agenda, presentations, cases, role-plays, individual tasks, and group exercises. All project-supported DOTS trainings for PHC providers utilized this standardized training curriculum.

The following types of trainings were provided:

- Three-day training for TB doctors working at TB dispensaries and hospitals: "DOTS-based TB case management according to international standards and best practices."
- Four-day training for TB doctors providing inpatient services: "Organizing DOTS-based TB services at specialized TB facilities: principles of MDR-TB case management."
- Three-day training for PHC providers: "High-quality DOTS-based TB services at PHC clinics."
- Two-day training for pulmonologists and therapists working at inpatient and outpatient facilities: "DOTS-based TB case management according to international standards and best practices."

In addition, PATH developed training curricula and a set of presentations that were pre-tested and used for various training courses. These included:

- Three-day training for heads of clinical diagnostic laboratories and laboratory specialists: “Laboratory diagnosis of TB by smear microscopy. Quality assurance of smear microscopy testing in clinical diagnostic laboratories.”
- Three-day training for TB and infectious disease doctors: “Training on interpersonal communication and diagnostic counseling for clients (patients) on tuberculosis and HIV/AIDS.”
- Three-day training for heads and staff of HIV service NGOs: “Peculiarities of HIV service NGOs’ work in the TB epidemic environment.”
- Three-day training for heads of statistics departments of TB dispensaries, statisticians, and monitoring specialists: “Monitoring and evaluation as a critical component of TB control activities.”

All training materials developed by PATH included a curriculum, presentations, and handouts for training participants (see list in Annex 1). The training packages were used in TB training centers created in two project regions: the Training Center to Fight the TB Epidemic in Ukraine, established by FDU in Donetsk; and the Center of Excellence on MDR-TB, created within the Dnipropetrovska Oblast TB Dispensary and TB department of Dnipropetrovska Medical University, with technical, organizational, and financial support from USAID through PATH.

To ensure sustainability of this work and to improve the quality of pre- and post-diploma medical education, PATH also recommended and supported the adoption of the module and curricula by medical schools and academies for postgraduate continuous medical education, nursing schools, and in continuing medical education for TB for PHC physicians and nurses. The detailed process and results are described below.

Collaboration with medical schools

PATH devoted much effort to institutionalizing the project training curricula within medical schools and academies for postgraduate continuous medical education, as well as in nursing schools, to ensure sustainability. In Years 1 and 2, PATH worked with leading TB specialists of the National Tuberculosis and Lung Diseases Research Institute, the TB departments of Donetsk Medical University and Dnipropetrovska Medical Academy; Kyiv and Kharkivska Medical Academies for Postgraduate Continuous Education; the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases; the WHO/Ukraine TB Unit; and FDU to evaluate the availability of training materials and to analyze the quality of information on essential TB control components consistent with international approaches. As a result of these consultations, a working group on standardizing training curricula development was officially established by an MOH order as a collaborative effort between PATH and FDU. The goal of the group was to develop standardized curricula based on the components of the WHO Stop TB Strategy and international guidelines. The group recommended that these curricula be institutionalized by the MOH and used in medical and nursing schools, as well as for continuous medical education for TB and PHC physicians and nurses. This work also served as a platform for prioritizing and synchronizing PATH’s training activities with the training plans of other TB control partners.

TB control training materials included the module and a set of training plans, aids, and handouts, as well as curricula on TB case management and TB laboratory practices and quality control; a set of training plans and training materials on monitoring and supervision; and an interpersonal communication and counseling (IPCC) training curriculum. By Year 2, Dnipropetrovska Medical Academy had already officially incorporated training on DOTS into their regular education. In addition, in Year 3, the TB department of Kyiv Medical University, the Donetsk Medical School, the Kharkivska and Zaporizhska Postgraduate Academies for Continuous Education, and AR Crimea Medical University incorporated the module on DOTS-based TB case management into their regular educational courses on TB. PATH, in close collaboration with faculty members from the TB departments of Kharkivska and the Kyiv Postgraduate Academies for Continuous Medical Education, as well as the Kyiv, Donetsk, Dnipropetrovska, and Odeska undergraduate medical schools, provided technical support to develop appropriate training curricula and associated guidelines and materials to help trainers and faculty provide specific short-term training courses.

PATH also worked with consultants from the Division of Clinical Laboratory Diagnostics at Kyiv Medical Academy of Postgraduate Education on preparing an academic curriculum for laboratory specialists at institutions of higher medical education and within departments of postgraduate education. This task was critical for improving the quality of TB diagnosis, increasing the TB detection rate, and ensuring sustainability of interventions, as only two to four hours of training had been dedicated to TB during the two-month program offered by postgraduate departments. As part of this effort, PATH developed a 36-hour TB microscopy and quality control training curriculum and course plan. This course was designed for heads of clinical diagnostic laboratories, laboratory physicians, and laboratory specialists with backgrounds in specialized laboratory education at institutions of postgraduate continuous education. The course was incorporated into the Kyiv Medical Academy of Postgraduate Education's clinical laboratory diagnostics curricula and is routinely used for continuing medical education. TB training centers and medical schools also widely use the course materials.

In Year 3, PATH developed the guidelines, *Standards of Bacteriological Diagnosis of Tuberculosis in Clinical Laboratories*, which include guidance on performing TB smear microscopy and external quality control (EQC) for microscopy. PATH published 2,000 copies and distributed them to project sites. The guidelines include information on laboratory diagnosis of TB by smear microscopy and quality assurance of smear microscopy in clinical diagnostic laboratories. It is targeted at students of medical universities, postgraduate students, doctors, and laboratory specialists of clinical diagnostic laboratories working at PHC and specialized institutions. The guidelines were officially approved by the national medical education system and endorsed and recommended by the Ministry of Education. It is now an official document that is used all over Ukraine.

To comprehensively discuss the results and challenges of collaboration with medical schools, PATH organized the All-Ukrainian workshop "Human Resources Capacity Strengthening in TB Control in Ukraine," which was conducted September 29-October 1, 2010, in Gaspra, AR Crimea. The goal of the national workshop was to present and discuss up-to-date approaches to developing educational and training programs for the enhancement of pre-diploma, post-diploma, and in-service education of TB specialists and PHC providers in Ukraine. Participants

discussed the main challenges of the national education system, such as time constraints and reluctance of the centralized curricula system to incorporate changes and updates. Representatives from the project oblasts shared their best practices and ways to incorporate project curricula into the educational system.

PATH staff facilitated a discussion on a particular need regarding pre- and post-diploma education in TB control and within the general health care system and presented the possibilities of incorporating an adult learning training approach into basic medical education programs. Training curricula on TB microscopy and laboratory quality assurance and on IPCC were presented by PATH and recommended for adoption by medical schools and academies for postgraduate continuous medical education.

The main result of the workshop was a set of written recommendation, which was submitted to all key educational stakeholders. Specifically, workshop participants recommended that to improve pre-diploma and continuing medical education and readiness to combat TB after graduation, all physicians should receive special courses on TB case management, with staff being certified to provide high-quality services. It was also recommended that the number of hours of postgraduate TB control education for PHC providers be increased significantly. For laboratory specialists, it was deemed highly important to conduct regular short-term (five- or ten-day) training courses on specific issues of TB diagnosis in compliance with international standards and best practices, and that these training courses should be included in the training curricula of the medical academies of postgraduate education.

Creation of master trainer teams

Within the framework of the USAID Tuberculosis Control Partnership Project, PATH created a sustainable network of master trainers (50 specialists) capable of conducting various trainings on the WHO Stop TB Strategy components, including DOTS, MDR-TB case management, TB program management, TB/HIV co-infection, laboratory diagnosis, infection control, IPCC for TB and HIV, and M&E. These trainers were prepared by PATH through an intensive training of trainers (TOT) program held in Years 1 and 2 and a follow-on series of TOTs conducted in Years 3 and 4 to further enhance training skills. This TOT program proved its sustainability, as the majority of the trainers trained by PATH now conduct trainings for other projects, including the Global Fund-supported Stop TB in Ukraine Program and the MSH Strengthening Pharmaceutical Systems program. This effort was a major capacity-building step, which ensured sustainability of project results, because these trainers will continue to retrain staff and train newcomers to TB control as other health workers rotate out of their positions.

It is worth highlighting that the majority of DOTS trainings for PHC providers were conducted at the rayon level, rather than having the training participants from rayons travel to oblast cities. This organizational approach afforded PATH an excellent opportunity to include additional training participants, which exceeded training estimates, to meet the need to train new staff to cover the high level of turnover among rayon-level PHC and TB providers (up to 30 percent over the course of the project).

DOTS training

Many of the key achievements as part of Result 1 were related to training on essential components of TB case management at the PHC and specialized TB levels; thus, during the project, PATH needed to maintain an extensive volume, breadth, and frequency of training to achieve the DOTS coverage goals and to establish a platform for the consistent implementation of international approaches to TB care.

During project implementation, PATH replicated the same standard training approach in all project regions. As a first step, before launching a series of DOTS trainings for PHC providers, PATH staff and Ukrainian TB consultants visited sites such as oblast TB dispensaries and oblast, rayon, and city PHC clinics within the target regions to review existing inpatient and outpatient practices. Based on the assessment results, the trainers adapted the training curriculum to address particular local needs and challenges. Core content, such as reviewing modern approaches to providing high-quality DOTS-based TB control services following the WHO Stop TB Strategy and the latest TB treatment guidelines, always remained. Special attention also was given to properly establishing directly observed treatment practices, especially during the outpatient phase.

At the request of training participants who were seeing increasing numbers of MDR-TB cases in their everyday practice, PATH included modules on MDR- and XDR-TB in the TB case management training curriculum for TB specialists. During this four-day training course, participants had an opportunity to discuss in detail the nature of resistance to TB drugs in populations, emphasizing that this phenomenon is fueled largely by poorly managed TB care. During individual and group exercises, as well as multiple case reviews, training participants discussed key causes of MDR-TB, including incorrect drug-prescribing practices by providers and poor-quality or erratic supply of drugs, as well as strategies for increasing patient adherence to treatment.

In Years 1 through 4, the project provided 296 training events, both international and in-country, to a total of 6,311 health care staff in both specialized TB and general health care services to improve their knowledge and skills in implementing the WHO Stop TB Strategy elements. This number included 1788 TB specialists, 803 laboratory specialists, 243 M&E specialists (121 statisticians and 122 epidemiologists), 1432 PHC providers, 285 infectious disease specialists, 1178 nurses, 239 NGO representatives, and 343 health administrators and other health care specialists, representing all project target administrative areas. In some cases, the same individuals participated in multiple trainings, depending on their responsibilities.

The majority of trainings were region-specific events, with participants working in medical institutions, medical universities, and NGOs of that region. M&E trainings and TB/HIV educational interventions were interregional events that included participants from the various target regions.

Increasing laboratory capacity and quality

Strengthening the country's laboratory systems was an essential priority for improving TB control in Ukraine. As was identified during PATH's assessment and a WHO external laboratory

system review,⁷ there was an urgent need to improve all levels of laboratory diagnostics, support the establishment of a laboratory network, introduce and strengthen laboratory quality control and assurance (QA/QC) in culture and drug susceptibility testing (DST), provide technical assistance to build the capacity of the National TB Reference Laboratory (NRL), and assist in development of adequate educational programs on TB laboratory testing at both undergraduate and postgraduate educational institutions. Significant gaps in all of these areas limited health care system capacity to detect TB. According to PATH's assessments, some of the key issues that needed improvement included the following:

- Up to 30 percent of sputum samples collected for TB microscopy and other laboratory testing were of poor quality (saliva instead of sputum).
- Proper procedures for collecting materials were not in place at many PHC facilities.
- Not all laboratories participated in EQC of TB microscopy testing; and as a result, laboratory specialists did not have confidence in the results they produced.
- Selection and referral of TB suspects for laboratory testing were suffering: In some PHC facilities, all patients with respiratory symptoms were referred for microscopy testing, which burdened laboratories; while in others, only 10 to 13 suspects a year were referred for laboratory testing.
- Collaboration of PHC clinical providers and laboratory specialists needed improvement in many regions.

The main activities under this objective included the following:

- Preparation of technical and operational guidelines for bacteriological diagnostic procedures.
- Support to the MOH to create a functional laboratory network for diagnosis of TB.
- Establishment of a system of quality assurance of smear examination at all levels.
- Collection and evaluation of information for planning TB bacteriology activities and required resources.
- Strengthening of the capacity to conduct culture and DST following the establishment of basic TB laboratory diagnostic and monitoring functions.
- Expansion of the training of laboratory workers on quality control and external quality assurance to all regions using trained personnel from existing pilot sites.

On-the-job training

To increase laboratory confirmation of TB cases, PATH focused on a three-pronged strategy of:

- Training laboratory workers in both general health and TB facility laboratories.
- Implementing a quality improvement program in individual laboratories as well as throughout the laboratory network.

⁷ World Health Organization Technical Assistance on Laboratory to Strengthen Tuberculosis Investigation in Ukraine; February 22–28, 2009.

- Training general practitioners to improve selection of TB suspects within primary health care.

During the project period, 707 laboratory specialists from TB and general health facility laboratories were trained through 57 trainings on bacterioscopy (“Laboratory diagnostics of TB by smear microscopy” and “Quality assurance of smear microscopy in laboratories”). As a result, the proportion of laboratory-confirmed, smear-positive TB cases among TB suspects significantly increased at the PHC level after four years of project implementation as compared with 2005 (as shown in Table 1 for selected oblasts).

Table 1. Proportion of sputum smear-positive TB cases among pulmonary TB suspects at the PHC level.*

Project area	% 2005	% 2008	% 2011
Donetska	0.01	5	8.6
Dnipropetrovska	0.32	2.4	3.7
Kharkivska	0.15	5.5	7.2
Khersonska	0.12	2.51	3.8
Sevastopol	0.20	5.2	6.3
Kyiv	2.19	7.15	5.85
Odeska	N/A	1.3	2.5
Luganska	N/A	0.5	1.3
Zaporizhska	N/A	1.8	2.6
AR Crimea	N/A	2.9	4.8

*From project data; oblasts new to the project after 2005 did not provide data for that year.

The importance of QA/QC was emphasized throughout training and on-the-job support. As a result, all project oblasts either developed oblast orders on EQC or used other legislative mechanisms, such as project-related decrees, to introduce EQC. All ten regions are now using EQC regularly.

In addition, the Level 3 oblast TB laboratories in all pilot regions became reference laboratories for their oblasts, strengthening oblast laboratory networks through quality control, supervision, and mentoring of all first- and second-level oblast laboratories.

Other critical results of PATH’s technical assistance to strengthen bacteriologic diagnosis of TB included the following:

- The quality of smear preparation and the results of smear microscopy improved (See Figure 2.)

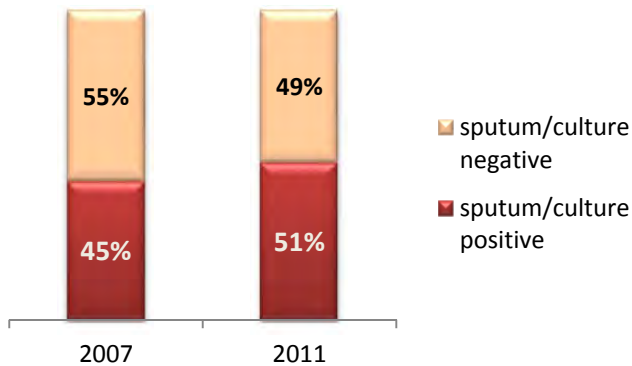
Figure 2. Photo (left) showing slides before the introduction of EQC. Photo (right) showing slides after implementation of EQC.



Photos provided by the Kharkivska Oblast TB Dispensary.

- The level of detection of smear-positive patients increased.

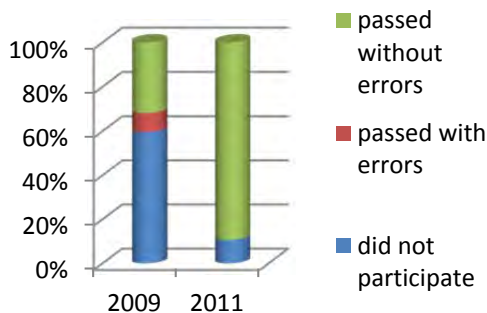
Figure 3. Proportion of laboratory-confirmed new pulmonary TB cases.



From: MOH, National TB Control Center, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, MOH Statistical Center. *Tuberculosis in Ukraine; 2012.*

- The number of false-positive and false-negative results of bacterioscopy decreased.
- High-quality diagnosis according to international approaches and standards was provided.

Figure 4. Laboratory EQC results.*



*From project data.

For example, thanks to the project-supported training, regular EQC, monitoring, and supervision, Dnipropetrovska Oblast reduced the proportion of microscopy errors from 23.9 percent in 2007 to 2.5 percent in 2010.

Training of trainers

Two TOTs were conducted for laboratory specialists from the project regions, resulting in a total of 14 national trainers capable of conducting trainings at the national and regional levels. Ten of these trainers were invited to conduct training in other oblasts of Ukraine, in addition to leading trainings in their home oblasts. The trainers also were selected on a competitive basis to conduct trainings for the Round 9 Global Fund project. They are often invited by the MOH to participate in different working groups as national experts to develop regulatory documents and participate in assessment missions.

In addition, Ukrainian professionals, with project support, were able to participate in a range of regional and international courses, including those on MDR-TB at the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia; on International Principles of TB Management, Epidemiology and Laboratory Diagnosis from the UK Health Protection Agency National Mycobacterium Reference Laboratory/Barts and The London School of Medicine and Dentistry, Queen Mary, University of London, England; and on TB culture and DST from the NRL/National Tuberculosis and Lung Diseases Research Institute in Warsaw, Poland. Additional details are shown in Table 2.

Table 2. Summary of laboratory training activities.

Training	Year 1	Year 2	Year 3	Year 4	Total
TB laboratory diagnostics by smear microscopy. Quality assurance of smear microscopy in laboratories (for laboratory specialists at PHC and TB-specialized facilities).	13/196 PHC - 130 TB - 66	23/278 PHC - 218 TB - 60	18/197 PHC - 191 TB - 6	3/36 PHC - 26 TB - 10	57 trainings 707 specialists
TOTs (2).		11		12	14 trainers*
One-week training course on MDR-TB at the WHO Collaborating Centre for Research and Training in Management of MDR-TB; Riga, Latvia.		1 person			1 NRL specialist
One-week training course on MDR-TB at the WHO Collaborating Centre for Research and Training in Management of MDR-TB; Riga, Latvia.		8 people			8 TB specialists
International Principles of TB Management, Epidemiology and Laboratory Diagnosis; UK Health Protection Agency/University of London, England.				8 people	8 TB specialists
One-week intensive training provided by experts from the NRL/National Tuberculosis and Lung Diseases Research Institute, Warsaw, Poland.				9 people	9 TB specialists

*The majority of trainers received initial and follow-up trainings.

Culture and DST for drug-resistant TB diagnosis

In March 2011, PATH supported the participation of the head of the NRL and seven regional laboratory specialists in a training course on the International Principles of TB Management, Epidemiology, and Laboratory Diagnosis from the UK Health Protection Agency National Mycobacterium Reference Laboratory/Barts and The London School of Medicine and Dentistry, Queen Mary, University of London, England. The knowledge gained through this course helped the specialists deepen their understanding of modern TB diagnostic methods, interpret test results, and advocate for the more efficient use of local and national TB resources.

In May 2011, with USAID project support, nine national TB laboratory specialists from the project regions participated in a one-week intensive training course provided by experts of the Polish NRL and the National Tuberculosis and Lung Diseases Research Institute in Warsaw. The focus of the course was TB culture and DST methods using the BACTEC™ MGIT™ system. The participants had an opportunity to practice their new skills in the Polish NRL. They also learned about new molecular genetic tests for TB, especially for MDR-TB diagnosis. As a result, the participants were able to integrate TB culture and DST into their routine work.

The opportunity to participate in both national and international trainings enabled Ukrainian laboratory specialists to learn the most advanced international approaches to existing standards in smear microscopy and culture. As the result of intensive training and technical assistance, all project laboratories successfully completed EQC of culture and DST, while five of the other 17 Level 3 laboratories failed.

The table below reflects the growing number of laboratories capable of performing quality-assured TB culture and first-line DST according to international standards.

Table 3. Cumulative number of Level 3 laboratories that successfully completed EQC of culture and DST.

	Year 1	Year 2	Year 3	Year 4
No. of laboratories performing quality-assured TB culture and first-line DST according to international standards	1	4	6	9
No. of MDR TB cases detected under these oblasts	n/a	n/a	1861	2482

*The laboratory in Odeska oblast (tenth project site) did not yet complete EQC because the cultures were lost in transportation.

Procurement of equipment and supplies

Through this project, PATH supported procurement of equipment and supplies for laboratories in Luganska, Odeska, and Zaporizhaska Oblasts, including binocular microscopes, pipettes, and scales to ensure efficient TB testing. In Year 3, PATH procured five high-speed centrifuges (Allegra® X-22) with refrigeration for regional Level 3 laboratories in Dnipropetrovska, Kharkivska, Khersonska, and Zaporizhaska Oblasts and Sevastopol City. The addition of this essential equipment enabled regional laboratories to increase the detection of patients with active TB and to effectively participate in EQC.

Development of guidelines and policies

In 2010, PATH completed a national laboratory manual and associated training curriculum entitled *Standards of Bacteriological Diagnosis of Tuberculosis in Clinical Diagnostic Laboratories*. The content focuses on laboratory diagnosis and quality assurance of TB by smear microscopy in clinical diagnostic laboratories, which can also be used for medical school education. The manual and curriculum are being used widely not only in USAID project regions, but throughout Ukraine as well.

In addition, PATH reviewed and provided technical input on draft MOH recommendations on restructuring the TB Laboratory Service and on the organizational structure and functions of the NRL. For example, MOH Decree 33 successfully addresses the issue of laboratory personnel shortages, and MOH Decree 410 regarding the standards for personnel education, laboratory workload, and equipment led to the reduction of the number of TB laboratories from 405 in 2008 to 356 in 2011 (meeting the new standards for optimization). The TB laboratory network at the regional level was effectively created. The NRL structure and functions are still being reviewed by the MOH.

PATH also worked with consultants from the Division of Clinical Laboratory Diagnostics at Kyiv Medical Academy of Postgraduate Education on preparing an academic curriculum for training of laboratory specialists at institutions of higher medical education and departments of postgraduate education. This task was critical for improving the quality of TB diagnosis, increasing the TB detection rate, and ensuring sustainability of interventions, as previously only two to four hours of training were dedicated to TB during the two-month training in postgraduate departments.

As part of this effort, PATH developed a 36-hour TB microscopy and quality control training course designed for heads of clinical diagnostic laboratories, laboratory physicians, and laboratory specialists with backgrounds in specialized laboratory education at institutions of postgraduate continuous education. The training course was introduced at the Chair of Clinical Laboratory Diagnosis of the National Academy of Postgraduate Education for specialists of the PHC network of clinical diagnostic laboratories.

With PATH technical support, statistical forms to monitor TB laboratory investigations and other TB-related practices were revised and finalized, with accompanying instructions on how to complete them. As a result of introducing international TB information system standards, Ukraine was able to more accurately assess the state of the epidemic and the performance of the TB clinical and laboratory services, and to meet WHO reporting requirements. These revised forms were approved as official statistical forms by MOH Order No. 657 (September 2, 2009).

Finally, Ukraine's first protocol on drug-resistant TB case management, which was developed with PATH technical assistance, was endorsed by the MOH in December 2008, providing a critical element for improving overall TB treatment efficiency.

External quality control of smear microscopy for TB diagnosis

All project regions conducted EQC of smear microscopy beginning in 2007; however, the results were only sufficiently reliable beginning in 2009. Of 405 Level 1 laboratories in the project

regions, 291 (72 percent) participated in proficiency testing using the panel-testing methodology as part of laboratory quality control. As a result of PATH's efforts in EQC rollout, this proportion increased to 89 percent in 2011. Lack of qualified personnel was a key reason for non-participation of some of the laboratories in EQC.

One hundred percent of the participating laboratories demonstrated high proficiency in reading panels, with mistake rates of less than 5 percent (see Table 4).

Table 4. Results of proficiency testing (panel-testing method) as part of EQC of smear microscopy for TB diagnosis in Level 1 laboratories in 2009 and 2011 in all project sites.

Year	Number of Level 1 laboratories	Number and proportion of laboratories participating in EQC		Number and proportion of laboratories that passed EQC with an error rate of less than 5%	
		Number	Proportion	Number	Proportion
2009	405	291	72%	291	100%
2011	356*	318	89%	318	100%

**Reflects the reduction in the number of laboratories resulting from a Ministerial Order on laboratory optimization.*

Laboratory review meetings

A total of 61 laboratory review meetings were conducted in the project regions over four years. The key objectives were to:

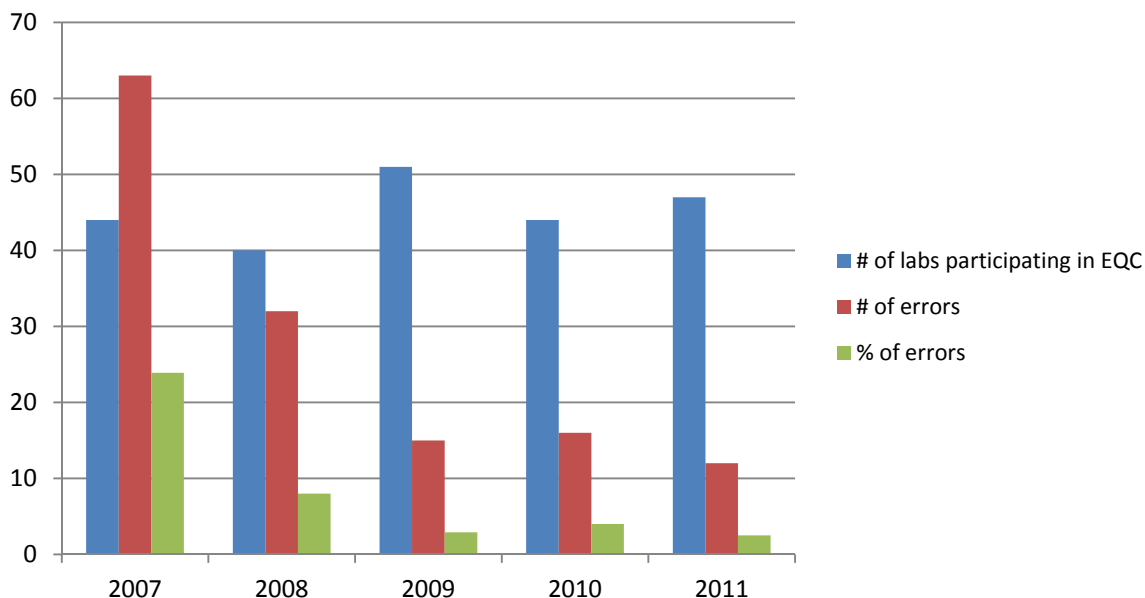
- Strengthen control of TB case detection in PHC services.
- Improve the work of TB microscopy centers.
- Improve internal quality control procedures.
- Discuss the results of EQC at quarterly meetings.

Due to regular EQC, the number of errors decreased by ten-fold, as illustrated by Dnipropetrovska Oblast EQC results (see Table 5 and Figure 5).

Table 5. EQC results in Dnipropetrovska Oblast.

	2007	2008	2009	2010	2011
Number of laboratories participating in EQC	44	40	51	44	47
Number of EQC smears	264	400	510	440	470
Number of errors	63	32	15	16	12
Percentage of errors	23.9%	8%	2.9%	4%	2.5%

Figure 5. Dnipropetrovska Oblast EQC results.



By 2010, the proportion of smears meeting WHO standards reached 84 to 89 percent.

The most important laboratory achievements are as follows:

- EQC of smear microscopy was organized on a regular basis in the ten pilot oblasts, which resulted in a significant decrease in false results (see Table 5 above).
- Trained specialists from Level 3 laboratories, due to the equipment and supplies procured by the project, had satisfactory EQC results, while five non-project sites did not have satisfactory EQC results for culture and DST.
- All project laboratories were equipped with binocular microscopes.
- As evidenced by EQC, protocols of review meetings, and monitoring visits, laboratory specialists now understand the importance of high-quality diagnosis, are familiar with fundamentals of infection control in laboratories, and follow the existing infection control regulations.
- Trained trainers assumed technical leadership roles, conducting training nationwide and participating in national and regional working groups and roundtable meetings.
- The National Medical Academy of Continuing Postgraduate Education now includes a series of lectures (a 36-hour course) on bacteriological diagnosis of TB and quality control.
- Working meetings and roundtables comprising laboratory specialists, general health practitioners, and TB specialists resulted in improved ability to detect TB in patients due to improved sputum samples and better diagnostic processes (read a success story in Attachment 1).
- Monitoring visits helped to ensure sustainability of high-quality TB diagnosis and discovered and eliminated existing gaps.

- Using the training materials and guidelines developed by PATH (*Standards of Bacteriological Diagnosis of Tuberculosis in Clinical Diagnostic Laboratories*), a training course on bacterioscopy and EQC was developed as part of the Global Fund project.
- The attitude of health authorities and clinicians toward the Laboratory Service and laboratory specialists has improved. Health authorities provided funding for the renovation of nine out of ten oblast-level laboratories. Laboratory specialists are now regularly invited to take part in clinical discussions and working meetings with clinicians, established medical commissions, and monitoring visits to the field.
- As evidenced by reviews of TB patient case histories and outpatient cards, laboratory results are now used for diagnosis, determination of treatment regimens, possible changes if regimens, and assessment of patients' conditions during the treatment or at completion of treatment.

Human resource development

A human resource assessment of the TB laboratory network was completed under a subcontract with Health Strategies International(HSI) in December 2009 to provide evidence of human resource shortfalls and other issues, including demographics, recruitment, retention, and training and education at TB laboratories. The findings of the assessment are included in a full report in Attachment 2.

Applying current Ukrainian staffing standards, the assessment team concluded that there is a shortfall of almost 16,000 TB laboratory workers nationally that, if filled, would add up to US\$10 million per year to the civil service wage bill. Within the ten project areas, only 28 percent of required positions are currently filled. This human resource shortfall is concentrated in the most important two cadres: doctors and laboratory technicians. Interviewed staff reported several factors that significantly affect morale and job commitment:

- **Low compensation:** Salary levels are significantly below comparable labor markets and centrally mandated, with little opportunity for salary increases.
- **Heavy and increasing workloads:** Workloads are ever increasing and inefficient, and no additional compensation or other incentives are provided.
- **Difficult working conditions:** Although there have been infrastructure and equipment improvements in recent years, TB laboratories continue to struggle to meet international standards for TB infection control and updated biosafety procedures. Ventilation systems are not properly functioning, and a regular supply of personal protection gear is not assured, HEPA-filtered masks in particular. Staff perception of mask availability is lower than the actual supply, adding to workers' safety concerns.

A critical component to ensuring a more efficient and productive TB laboratory network is strengthening and empowering the NRL to oversee the TB laboratory system. The NRL is currently understaffed and therefore not fully operational. It is estimated that reaching the full human resource capacity of 24 NRL staff would cost US\$139,000 annually. When fully functional, the NRL would have responsibility for EQC, M&E of the laboratory network,

training, and analytical work. This national-level facility is envisioned to oversee the functioning of the laboratory network and coordinate efforts of all three laboratory levels.

Two key factors related to TB laboratory staff competency are the high indirect costs of continuing education with little financial incentive and the lack of up-to-date and practical TB-specific curricula. The human resource strategy could include several components to address these challenges, including increased collaboration with medical and nursing schools to ensure integration of relevant TB coursework, especially in light of the revised points system, and increased commitment and resources mobilized to ensure that PATH's applied skills training curricula are institutionalized within the MOH as thematic courses. This model would reach a broader audience for less time and money, using existing curricula.

Rapid updating of continuing education curricula and approaches applying innovative strategies to mobilize voluntary attendance are essential. Trainings over shorter periods of time in local areas will provide more useful education in less time and at less cost, and developing a sustainable cascading training model is more likely to promote sustainable oblast coverage. Other options include online and distance education programs, which would offer an inexpensive and more comprehensive training model. Computers could also help fill gaps in keeping up with the most recent knowledge. Health facilities operate on tight budgets with few funds for purchasing reference books with pictures to compare with microscope views. Using the Internet to maintain cutting-edge knowledge is more sustainable and effective.

This assessment provided further justification of the effectiveness of PATH's approach of establishing strong collaborations with Ukrainian medical universities and schools, with a goal of including TB training curricula and modules developed under the project in regular pre- and post-diploma national curricula and expanding them to additional medical schools.

To address the assessment's recommendations, PATH convened a three-day All-Ukrainian workshop entitled "Human Resources Capacity Strengthening in TB Control in Ukraine" in late September 2010 in AR Crimea in cooperation with the MOH, the TB Chair of the National Medical University, and the TB Chair of the National Medical Academy of Postgraduate Continuous Education. Overall, 84 participants took part in this national workshop. Participants included key representatives from each administrative territory of Ukraine and staff from the National Tuberculosis and Lung Diseases Research Institute, the National Medical University, the National TB Control Center, the MOH of AR Crimea, heads of TB departments of pre- and post-diploma programs of medical universities, chief TB doctors representing regional TB services, and AIDS Centers of Ukraine.

The goal of the workshop was to present and discuss strategies for developing new, effective educational and training programs based on the WHO Stop TB Strategy that would be flexible enough to incorporate updated WHO recommendations as they are developed. PATH staff facilitated a discussion on the urgent issues of revising and updating the outdated curricula used for pre- and post-diploma education in TB control and in the general health care system, and presented ideas for incorporating a training approach of adult learning into basic medical educational programs. Results of the human resource assessment also were presented and discussed. Training curricula on TB microscopy and laboratory quality assurance and IPCC were

presented by PATH and recommended for adoption by medical schools and academies for postgraduate continuous medical education.

Participants also discussed urgent issues regarding training of physicians based on up-to-date approaches to TB/HIV case management and the development of integrated educational programs by TB specialists together with infectious disease specialists.

Strengthening surveillance, monitoring, and evaluation

Improving TB and TB/HIV surveillance is essential to strengthening the overall health system, and specifically the NTP, as it enables close tracking of disease trends and progress toward international goals for case detection and treatment success, as well as generation of data that are internationally comparable. A paper-based and electronic management information system for TB had already been introduced in Ukraine by 2007 and was being actively used in at least eight regions; however, additional support was needed to expand the system to the remaining regions, to ensure that data are being used to guide program implementation and that data on HIV and MDR-TB are included and used.

The main task of the project was to support the NTP to reduce the burden of TB in Ukraine. The achievement of this goal was directly measured by means of impact-level indicators, the data for which were gathered through a surveillance system using internationally accepted indicators for cohort analysis. A key resource for applying these indicators was the WHO *Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programs*.⁸ The document includes a comprehensive set of indicators to measure effectiveness of TB control programs. Key indicators include DOTS coverage, case detection rate (with a target of at least 70 percent), and treatment success rate (with a target of at least 85 percent). The project assisted the Ukrainian NTP to introduce the WHO-recommended M&E system, thereby strengthening its ability to properly manage data and conduct reliable cohort analyses using WHO-recommended indicators.

With PATH technical support, an advisory working group on monitoring and effective implementation of Ukraine's NTP was established by the MOH on March 3, 2008, under Order No. 71-adm. In addition to bringing the recording and reporting system in line with international standards (it was essential that all definitions and indicators be consistent with DOTS, as discrepancies existed at that time), this group focused on the following activities:

- Developing a surveillance system for the TB/HIV co-infection control program and working toward approval.
- Improving the drug management system.
- Strengthening the supervision system for routine on-the-job monitoring (e.g., checklists).
- Ensuring that data generated from the surveillance system (“cohort analyses”) are used to take action to address weaknesses in the system as they emerge.

⁸ World Health Organization (WHO). *Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programs*. Geneva, CH: WHO; 2004.

With PATH's leadership and technical assistance, this advisory group reviewed the statistical forms for collecting TB-related information in accordance with international recommendations. These forms had been endorsed by the MOH for pilot utilization in Ukraine in 2006. Members of the advisory group on monitoring analyzed comments and suggestions provided by specialists from the project regions for improving the temporary forms. TB/HIV co-infection surveillance data were incorporated into revised forms. The associated instructions for using them were developed in accordance with the requirements of the Ministry of Justice. A ministerial order (No. 657) was issued on September 2, 2009, which endorsed the forms for use countrywide on a permanent basis.

PATH provided technical assistance at the oblast and rayon levels in provision of a DOTS-based surveillance system. Cohort analysis of TB treatment effectiveness in all rayons is now being reported through this system. As part of the introduction of new forms, PATH conducted trainings on data definitions, the process for correctly completing forms, how to analyze the statistical forms, and which actions to take based on the results.

The new forms then became the basis for the electronic TB data management system "eTB Manager," which was adapted and introduced in Year 4 of the project. The software, originally developed by MSH, combines all TB patients' care-related data in one place for TB case and NTP management purposes, and provides key information for decision-making and epidemiological surveillance. As part of this process, PATH organized and provided technical assistance to the MOH's advisory group to adopt the software for the Ukrainian surveillance system. This included modification of the data entry module, automation of data output, and development of other software components. Specifically, in collaboration with MSH, PATH conducted a series of trainings on the use of eTB Manager for project oblast specialists. The purpose of these trainings was to:

- Explain the components of eTB Manager and describe the role of a centralized information system in the NTP for case management, drug management, data flow, and surveillance.
- Provide hands-on experience in TB case management with further data transformation into various monitoring forms and indicators.
- Describe the structure and format of the TB case management module, its features, and capabilities.
- Provide hands-on practice using eTB Manager.
- Explain the data required by the TB case management module and identify the initial data sources.

The main outcomes of the training were as follows:

- Trained oblast specialists and the National TB Control Center are prepared to begin piloting and using the system as soon as an error-free version of the eTB Manager becomes available.
- A list of bugs and system errors was compiled and provided to MSH.

In addition, through hands-on sessions, participants discovered the importance of proper and thorough completion of recording and reporting forms used for TB case management. Practical

sessions highlighted the importance of having a reliable and uninterruptable electronic system, maintained in proper environmental conditions, prior to nationwide introduction. PATH therefore provided the National TB Control Center with an air conditioning system designed to support smooth functioning of the computerized system.

Although the eTB Manager system has not been introduced officially yet by the MOH, because of legislation requirements for personal data protection, project oblasts began entering TB cases into the system starting in 2011. The Security Service is expected to approve eTB Manager as a legal tool for processing individual data by June 2012. Although not all standard reports/outputs have been incorporated into the system, this should be accomplished in the coming year.

Expansion of the broader M&E training into new project regions followed trainings on basic DOTS components. A model set of training materials was revised to reflect trainees' feedback and to expeditiously roll out M&E training courses. The M&E training covered the following topics:

- Epidemiology of TB: basics of epidemiology and main factors influencing the level of TB morbidity.
- Key M&E indicators.
- Cohort analysis.
- Indicators for TB case detection and treatment outcome determination, analysis, and interpretation.
- DOTS TB statistical forms and how to complete them.
- Monitoring of TB services as a background for proper management and evaluation of TB-related indicators and decision-making based on the data obtained.
- Supervision (site visits) as a part of monitoring and on-the-job training.

As a result of these trainings, as well as the technical assistance that PATH provided, the oblast TB dispensary statistical departments became M&E units capable of action-planning and monitoring and supervision. Technical assistance also included procurement of limited information services equipment, support for an Internet connection, monitoring visits, and review meetings where oblast specialists analyzed their findings and solved problems identified through analysis. Technical assistance to strengthen monitoring and supervision visits at oblast and rayon levels resulted in the implementation of enhanced application of WHO Stop TB principles at the regional level.

PATH supported participation of project oblast representatives at a WHO workshop on M&E of TB programs (February 23–24, 2009), which addressed the annual submission of TB statistical data to WHO, definitions of TB indicators and their criteria, and evaluation of TB programs according to defined indicators. Donetsk, Khersonska, and Zaporizhska Oblasts presented their oblast TB indicators and discussed them with other participants. PATH staff played a key role in these sessions.

A wide range of onsite monitoring visits at oblast, rayon, and city levels were conducted by both oblast TB dispensaries and PATH staff. Monitoring and supervision visits were undertaken in project regions with the goal of identifying and immediately addressing weaknesses through on-the-spot technical assistance and training, and to ensure that acquired knowledge was being utilized in practice.

Monitoring and supervision

PATH conducted a series of start-up workshops for oblast NTP managers and health department representatives and representatives of the Sanitary Epidemiological Service for implementation strategy development to create an M&E system of TB control activities with on-the-job supervision. In particular:

- Monitoring and supervision teams were created.
- A training plan was developed.
- An oblast health care administration order was drafted.

Early in project implementation monitoring, team members were trained on DOTS strategy components, including monitoring and supervision. Depending on needs and capabilities, approximately 15–20 monitoring visits were conducted by the supervision teams. Project staff participated in site visits with the goal of providing ongoing technical support in determining gaps in TB case management and developing plans for TB health care provision improvement, including the following:

- It was found that second-line drugs were being used for treatment of drug-sensitive TB. This issue was discussed during a roundtable meeting that included all facility TB specialists. The specialists were trained in TB case management, and as a result, TB case management was improved in compliance with international recommendations.
- Following a supervision visit to Yalta TB Hospital, a system of separating patients according to infection level was established, and patient flow was organized in accordance with administrative infection control requirements.
- Inadequate treatment regimens were noted during an MDR-TB counseling meeting in Luganska Oblast with PATH specialists. Subsequently, the MDR-TB specialist received on-the-job training.
- Monitoring checklists were revised based on pilot experience and provided to oblast monitoring units.

These visits were followed by review meetings in each project region, which were used to discuss the findings of the visits and to identify key barriers and other issues requiring action. Based on monitoring visit results, cohort analysis data, and laboratory data and other information, a series of general review meetings was conducted so that all stakeholders were engaged in the analysis of findings and in developing recommendations for program improvement in the oblasts. Intensification of replication of lessons learned and scale-up of best practices were the main objectives of these meetings. General review meetings were conducted on a semi-annual basis in each project oblast. Initially, PATH provided technical assistance

during these visits and meetings, but they have become routine practice in the initial project target regions.

Some achievements are listed below:

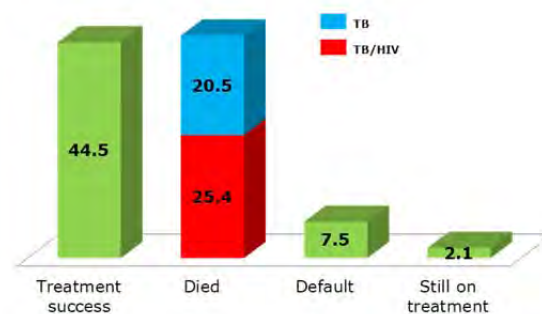
- PHC providers are now involved in TB control, with the goal of improving early case detection through quality-assured bacteriology and outpatient treatment.
- Standardized treatment was promoted.
- Monitoring was improved through the introduction of cohort analysis (recording and reporting forms that are compliant with WHO recommendations).
- TB/HIV collaborative case management was introduced.
- Advocacy and communication with local administrations was undertaken.

In addition, the project supported national and regional TB control program managers to attend a series of international trainings at the WHO Collaborating Centres in Sondalo, Italy, and Riga, Latvia. These trainings enhanced their knowledge and skills in the M&E strategies and approaches in the key elements of the WHO Stop TB Strategy. Following both international and in-country training in the Stop TB elements, PATH provided technical support and on-the-job supervision to trained specialists in utilizing the acquired knowledge and skills in their everyday work.

Examples of outcomes from the combination of training and follow-up on-the-job supervision include:

- MDR-TB case management practice was considerably improved in Odeska Oblast through the implementation of an oblast MDR-TB patient register, which includes a patient-based drug management component.
- The laboratory network was reorganized in Kharkivska Oblast through the reduction of the number of the first and second level labs and optimization of the culture diagnostics.
- Elements of TB-related administrative infection control and personal protection equipment were introduced and expanded, and are being monitored on a permanent basis in AR Crimea and Kyiv City.
- A TB/HIV co-infection monitoring system was established in Zaporizhska Oblast and is supported by oblast normative documents.
- A joint monitoring group of specialists from the Khersonska Oblast TB Dispensary and AIDS Center was created and approved by an order of the head of the Oblast Health Administration (No. 171, April 25, 2008). Monitoring group meetings are held quarterly.
- The TB case notification rate decreased in Khersonska Oblast.
- In Luganska Oblast, the improved M&E system enabled identification and resolution of key challenges related to TB smear-positive case detection by PHC facilities.

Figure 6. Treatment results for MDR-TB patients registered in quarters 2 through 4 of 2009 in Odeska Oblast.



Introduction of eTB Manager

All ten project areas received initial training in all four modules of eTB Manager, conducted by PATH, and they started to work with the system. About four specialists from each project area completed the TOT. Trained oblast specialists conduct on-the-job training for rayon TB providers to scale up the system and improve data quality.

The main challenges to rapid system implementation from the very beginning were a slow system adaptation process by MSH and the Ukrainian law governing patient privacy, requiring design and certification of a special security system.

Overall, eTB Manager needs to be improved before it is introduced nationwide. Automated outputs (summary tables, graphs, etc.) need to be developed; the Security Service needs to approve it as a legal tool for processing individual data; and access to the Internet at the rayon level should be made more reliable and confidential. Trainings should be conducted at the oblast and rayon levels for proper TB recordkeeping (recording and reporting), with priority given to those oblasts without previous international support. Some reporting forms (like TB-07 and TB-08) were recently implemented in the system. This allows the NTP to produce reports based on the data entered into eTB Manager.

Although the DOTS recording and reporting system was introduced throughout Ukraine in the project period and approved at the national level (MOH Order No. 657 in 2009), it still exists in parallel with traditional data collection systems. Specifically, three parallel TB data reporting and recording systems are in use:

- The system inherited from the former Soviet Union.
- The system compliant with WHO recommendations.
- The Sanitary Epidemiological Service system.

A separate recording and reporting system also exists within the penitentiary system, which is consistent with the recently introduced system and is integrated into the country's national reporting system. Key next steps include phasing out the parallel systems and relying exclusively on the new, internationally compliant approach introduced by the project. This will require targeted advocacy at the NTP and MoH statistic department level.

Increasing case detection and case-holding

Poor treatment effectiveness has been one of the main obstacles for controlling TB in Ukraine. There are several reasons for this, one of which is the high TB treatment default rate in many areas. To address this weakness, PATH engaged the URCS to continue to expand the provision of support services in all ten project regions. The key goal of this work was to sustain a system of supporting TB patients who have various social problems during the outpatient treatment stage using the existing network of URCS visiting nurses. Specifically, URCS visiting nurses were charged with ensuring direct observation of TB drug intake by patients at risk of dropping out of treatment because of limited access to health services. The URCS also focused its efforts on provision of psychosocial services to TB patients, implemented an advocacy strategy for strengthening of community involvement in TB control, and ensured continuum of care and treatment adherence of released prisoners in Khersonska and Dnipropetrovska Oblasts. URCS work plan objectives included:

- Expand support to TB patients who, for whatever reason, have limited access to TB services in order to enhance their adherence to TB treatment and ensure direct observation of TB treatment at the outpatient phase in the ten project areas.
- Improve TB treatment adherence among TB patients in prisons in Dnipropetrovska and Khersonska Oblasts.
- Implement regular monitoring of URCS support services to TB patients.
- Strengthen advocacy for TB patient rights and needs by participating in the work of Coordination Councils.
- Disseminate informational materials aimed at decreasing stigma and discrimination toward TB patients and improve knowledge among the general population and patients about TB control in Ukraine.
- Support cooperation with local NGOs and governmental social services to ensure continuum of care for TB patients at the different stages of TB treatment.

PATH worked primarily with the URCS National Committee, which, in turn, oversaw the work of regional chapters, appointed project coordinators, approved oblast-specific work plans, and created an expert group to monitor implementation. The distribution and number of project staff are presented in Table 6.

Table 6. Number of URCS staff who worked on the project.

	Number, per site										
	AR Crimea	Dnipro- petrovska	Donetska	Zaporizhska	Luganska	Odeska	Kharkivska	Khersonska	Sevastopol	Kyiv	Total
URCS Oblast Coordinators	1	2	2	1	1	1	1	2	1	1	13
Nurses	20	15	5	20	20	10	15	15	5	10	135

As indicated in Table 7 below, treatment adherence of civil TB patients at high risk for discontinuing treatment was improved through strengthened collaboration between the URCS and the national TB service. In accordance with collaboration agreements, upon receiving approval from TB physicians, URCS visiting nurses:

- Provided psychosocial support and counseling to TB patients with alcohol or drug addiction, as well as other patients who needed support during outpatient TB treatment.
- Developed treatment schedules according to physician recommendations.
- Ensured DOTS of patients throughout the treatment course.

Patient motivation was increased through provision of social support (food and clothing provided through funding from the oblasts, private donors, other organizations, and charitable funds) to those who continued with treatment. The agreements required monthly meetings between visiting nurses and attending physicians to monitor TB treatment progress. Table 7 presents the results of this work. The default rate among patients who received the URCS support (0.6 percent) favorably compares with the national average (7.7 percent in 2009 according to results of cohort analysis).

Table 7. Breakdown of TB patients admitted for treatment in project regions by treatment outcome.

Project area	Total number of TB patients	Completed the treatment course	Still on treatment as of March 2012	Died	Defaulted
AR Crimea	347	48	288	6	5
Donetska	192	78	111	2	1
Dnipropetrovska	939	279	647	9	4
Zaporizhska	362	206	145	11	-
Luganska	513	241	258	3	11
Kharkivska	353	130	217	6	-
Odeska	119	40	67	3	9
Khersonska	244	89	155	-	-
Sevastopol	107	35	70	-	2
Kyiv	152	64	85	1	2
Total	3,328	1,210	2,043	41	34 (1.0%)

Treatment adherence among former prisoners also was improved due to strengthened collaboration between the URCS, regional prison departments, and the coalition of organizations working in the prison system. In accordance with collaboration agreements, the URCS conducted seminars for prisoners about the importance of full adherence to TB treatment. Soon-to-be-released TB patients were informed by a program coordinator about the opportunity to receive psychosocial and TB treatment support by URCS visiting nurses, and they were provided with contact information for local URCS committees and civil TB treatment facilities. Many ex-prisoners turned to the URCS for counseling. Visiting nurses accompanied them to TB treatment facilities and supported directly observed therapy as necessary. The patients who continued treatment received social support (food, clothing). Table 8 presents the results of this work.

Table 8. Breakdown of ex-prisoners admitted for TB treatment in project regions by treatment outcome.

Project area	Total number of TB patients	Completed the treatment course	Still on treatment as of March 2012	Died	Defaulted
Dnipropetrovska	136	20	116	-	-
Zaporizhska	67	16	51	-	-
Khersonska	27	10	17	-	-
Total	230	46	184	0	0

The URCS conducted fundraising activities in all project regions. The funds were used for provision of food and social support to TB patients and their families, especially ex-prisoners facing difficult financial situations, to encourage them to continue receiving treatment. Other methods to encourage TB patients to undergo URCS-monitored treatment included assistance in the form of used items, food parcels, hygiene products, medications, and financial support. The amount of assistance is shown in Table 9 below. This social support was provided in addition to the support funded by the project.

Table 9. Social support provided to TB patients during the project period.

	AR Crimea	Dnipro-petrovska	Donetska	Zaporizhska	Luganska	Odeska	Kharkivska	Khersonska	Sevastopol	Kyiv	Total
Number of people served	127	195	173	24	231	N/A	177	105	47	87	1,166
Total, Ukrainian Hryvna (UAH)	16,100	7,318	5,573	Clothes, hot food	2,435	N/A	2,354	21,581	5,954	7,170	68,485

In each oblast, the URCS conducted trainings for the nurses involved in the program. Training topics included direct-observation treatment, personal safety when working with infectious disease patients, provision of social and psychological support, TB prevention, and development of a performance monitoring system. Workshops were also conducted with TB Service staff, Social Service staff, representatives of other NGOs, and the mass media. In total, 152 training events were held during the reporting period.

Every week, URCS visiting nurses met with TB physicians to monitor and discuss TB treatment progress. Special attention was paid to ensuring close engagement with patients and development of their understanding of the importance of treatment adherence. As experience has shown, the success of these efforts was helped by the political support of local leaders and the readiness of the URCS Oblast Coordinator to deal with challenges and motivate staff.

Primary challenges

- Lack of funding to support all TB facilities because of the limited coverage of the URCS visiting nurses network.

- Significant URCS staff turnover due to very low compensation, which resulted in a need to use a portion of the funding on new personnel training.
- Lack of financial support from local governments, which reflects inadequate understanding of the importance of URCS visiting nurses' work by local leaders. Occasionally, local governments did allocate some funding for social support of TB patients, but they have never funded the work of the visiting nurses.
- Frequent political leader turnover in the oblast governments, which required ongoing advocacy to support the program.

Results and recommendations

During the project, the URCS demonstrated how important social support is to TB treatment adherence. Because the use of the URCS was so successful in improving treatment adherence, the model was included in the Round 9 Global Fund grant to Ukraine. PATH recommends to USAID and the Global Fund that a comprehensive epidemiological analysis of URCS involvement in the NTP be conducted in the future, with the aim of determining the impact of the roles of the URCS and other NGOs in the ongoing TB control effort. Assuming the results are positive, these data could then be used to advocate for further support of these activities by local governments and authorities. The URCS will continue advocating for program continuation with the government after the end of the Global Fund support in 2015 and hopes to identify resources to increase the compensation of visiting nurses in order to develop local social support expertise.

Tuberculosis in prisons

Prisoners are a well-defined vulnerable population for TB in Ukraine, with extremely high rates of TB incidence and unacceptably high mortality related to the disease. PATH worked with the penitentiary system (comprising pre-detention facilities as well as prisons) in all project sites, focused on providing technical assistance for review and revision of TB policies and protocols, building the capacity of staff, and ensuring continuity of care for released prisoners. Penitentiary staff were included in oblast DOTS trainings for civil-sector staff, not only to ensure consistency between approaches, but also to build links between penitentiary and civil-sector health staff that can be used to improve the continuity of care for released prisoners with TB. Overall, 216 people were trained in: DOTS (140), sputum microscopy and quality control (29), M&E (20), and infection control (27). These trainings are described under the appropriate section above.

PATH also worked to refine referral mechanisms between the penitentiary and civil sectors to decrease loss to follow-up when prisoners are released before completing TB treatment, or when individuals with TB are incarcerated before completing treatment in the civil sector. In 2008, PATH subcontracted the All-Ukrainian charitable organization Network of Organizations that Provide Support in the Penitentiary System (Prison Support Network, or PSN) to work with prisoners before and after release to support adherence to TB treatment. This work was coordinated by a national expert group co-chaired by PSN Coordinator, Dr. Gagarkin, and the head of the Medical Division of the State Department of Corrections. The group also included specialists from PATH, Regional Departments of Corrections, and Regional TB Dispensaries.

Two pilot oblasts—Zaporizhska and Khersonska—were selected based on the recommendation of the State Department of Corrections. Factors that were considered included TB and MDR-TB

incidence among the prisoners, commitment of the prison medical staff in these regions, the status of TB physician staffing, and the existence (or lack thereof) of social adaptation programs for ex-prisoners.

The situation analysis conducted by the expert group demonstrated that the key reasons for poor adherence of released prisoners to TB treatment were as follows:

- Inaccurate beliefs and poor awareness of the disease threats, which resulted in poor motivation to continue treatment.
- Lack of resources to afford TB treatment.
- The state of opposition of the penitentiary community to prison personnel, including health personnel, which resulted in disregard of their recommendations and asocial behavior in general.
- The negative attitudes of civilian health care workers toward ex-prisoners.

The group also identified a number of health system weaknesses that precluded effective resolution of the problems:

- A gap in the legislation regarding which agency should be responsible for TB treatment of released prisoners, which resulted in poor coordination between TB institutions in the penitentiary and civilian health systems.
- Lack of mechanisms to implement respective provisions of the penitentiary and civilian codes, including the absence of an effective referral system for released prisoners with TB.
- Lack of NGOs specialized in the provision of care, support, and social adaptation to released prisoners with TB.

Based on this analysis, in 2009, the expert group developed a Stop TB in Prisons Program, the overall goal of which was to increase adherence to TB treatment through:

- Provision of relevant information to various target audiences.
- Raising the motivation of prisoners.
- Provision of referral support.
- Improved coordination between the agencies involved in the provision of care to this population group.
- Advocacy for continued TB care of released prisoners.

The information component of the program included the following:

- Radio lectures on TB and its prevention, TB and HIV, TB treatment, and treatment and support to TB patients after release from the prison. The lectures were developed using simple language and pre-tested among prisoners. They were aired every ten days in 11 target corrections institutions in the two pilot oblasts.

- 5,000 copies of the “To Freedom with Clean Lungs” brochure and 8,000 copies of the “TB and Life” brochure, disseminated in the above corrections institutions.
- 20,000 copies of the “You are Not Alone” brochure on TB and HIV for prisoners, distributed in pilot oblast corrections institutions.
- Poster and story contests on TB prevention and treatment that involved 180 volunteers among prisoners in the target institutions.
- Six workshops for 60 health personnel of the civilian health care system and 60 staff of the social and psychological assistance service in the pilot oblasts aimed at the development of more tolerant attitudes toward prisoners with TB in the target corrections institutions.
- 10,000 copies of the “Health or TB” brochure, developed and distributed with the input of penitentiary system TB staff for staff of corrections institutions.

The motivational component of the program included:

- Seven workshops for 140 peer-respected volunteer prisoners with TB in the target corrections institutions.
- Seven support teams for soon-to-be released prisoners with TB in the target institutions. Teams staffed by PSN volunteers conducted several small group meetings during the last three months of imprisonment, providing needed information and counseling to prisoners (760 people over the life of the project).
- Social support to released prisoners with TB, including provision of food and medications. PSN provided this assistance to 580 people.
- Information and counseling support meetings conducted by physicians and social workers at oblast TB dispensaries two to three times a month. The meetings were attended by more than 500 released prisoners.

Referral support was focused on accompaniment of released prisoners to the civil TB system by members of the NGO network. More than 600 released prisoners continued TB treatment and 50 had successfully finished by the time of this report.

The interagency coordination component of the program focused on facilitating stakeholder meetings with the participation of penitentiary and civilian TB care specialists. The meetings were held approximately every two months in each target oblast.

Partnerships were developed between all stakeholder agencies involved in the provision of care to ex-prisoners, including:

- TB Service.
- Penitentiary system.
- Social Service.
- Sanitary Epidemiological Service.
- URCS.

- Christian organizations.
- Community organizations.

Advocacy activities included “For Life without TB and AIDS” campaigns attended by more than 2,000 people in Khersonska and Zaporizhska Oblasts, and a sailing regatta in Nikolayev entitled “TB and AIDS Do not Choose their Victims,” with the participation of more than 600 yachtsmen, journalists, and public-spirited people.

In 2011, 32 leaders of community and religious organizations participated in a regional workshop entitled “The Role of Social and Religious Organizations in Combating TB in the Penitentiary System,” held in Nikolayev. Meeting participants adopted a resolution and an open address to the President and the government of Ukraine to improve TB care of prisoners.

Key results of the penitentiary TB program

- 617 ex-prisoners with TB have continued TB treatment since being released from prison.
- 50 ex-prisoners finished treatment successfully.
- About 40,000 people, mostly prisoners, were provided with information on TB prevention and treatment and related topics.
- Every released prisoner with TB was offered counseling, information, and social support.
- Ninety percent of released prisoners accepted and received support on a regular basis.
- Interagency coordination meetings to discuss the issues of TB treatment continuum for prisoners have become the norm in the pilot regions.

Infection control activities

A key approach to protecting medical and laboratory workers from exposure to TB is to ensure that effective systems of infection control are in place in all facilities. In these settings, it is equally important to protect other patients as well, especially where individuals with HIV and TB disease may be receiving care. Activities in support of strengthening infection control under the project were focused on the following:

- Assessment of existing infection control policies and practices.
- Provision of technical assistance in developing and disseminating national infection control guidelines for TB-related infection control in health care facilities, including administrative, engineering, and personal protective measures.
- Capacity-building of partners at the national and regional levels in infection control management.
- Procurement and training on the use of personal protective equipment (respirators) to allow for adequate infection control at facilities with high volumes of TB patients.

PATH first conducted an infection control assessment of TB facilities, including laboratories within selected project regions. Consultants from the Latvia State Agency of Tuberculosis and Lung Diseases and the WHO Collaborating Centre for Research and Training in Management of

MDR-TB participated in the assessment. Results revealed a low overall understanding of biosafety and infection control principles among clinical and laboratory personnel, the absence of national guidelines, outdated sanitary epidemiological norms, and insufficient utilization of biosafety measures and infection control practices nationally, in particular, in the project sites. Case notification data in Ukraine suggest that nosocomial infection is a serious problem in Ukraine, as evidenced by consistently high rates of TB disease reported among medical providers of PHC and TB services is about 600 per 100,000 of personnel (see Attachment 3).⁹

To increase general understanding of TB infection control principles, and to develop both national and regional capacity to draft and implement effective infection control strategies at all levels, PATH focused on supporting the NTP to develop a set of national TB infection control guidelines. These guidelines are now being included in oblast and facility infection control plans. PATH also supported the NTP to disseminate the guidelines through a national workshop, build the capacity of key providers from the national level and project sites in infection control, and procure personal protective equipment for providers in all the sites, especially for those who work in the riskiest environments (MDR-TB departments, chronic TB departments, diagnostic departments, etc.).

During the second and third years of the project, PATH provided technical assistance to the National TB Control Center in developing national infection control guiding documents, which resulted in the creation of *National Standards on Infection Control in TB Settings*, aimed at improving TB infection control practices in Ukraine. A few PATH staff participated in the MOH's working group to develop these standards to ensure compliance with international recommendations to address three major areas: administrative controls, engineering controls, and personal protection controls. The standards were issued through an MOH order in October 2010.

In 2011, PATH engaged in major efforts to introduce and disseminate the infection control standards to all Ukrainian oblasts, as well as to other TB services, such as those within the penitentiary system. International recommendations for TB infection control and the national infection control standards also were presented at the "Tuberculosis Infection Control in Healthcare Facilities" conference held in June 2011 in Kyiv City. The conference was organized and led by PATH with USAID support, in collaboration with the National TB Control Center, the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, WHO, and the F. G. Yanovsky Institute of Phthysiology and Pulmonology. The conference served as a national forum to discuss the most recent international recommendations for TB infection control; to present the new infection control standards for Ukraine; and to share experiences from the USAID project sites in organizing administrative, engineering, and personal protection interventions. Given the innovative nature of the infection control approaches introduced by the project, forum participation was very high and comprehensive: overall, about 230 participants took part in this national event. All key stakeholders in TB control participated in the conference, including the Chief TB Specialist of Ukraine; the Director of the F. G. Yanovsky Institute of Phthysiology and Pulmonology; the head of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases; the head of the State Sanitary Epidemiological Service of Ukraine; the Director of the National TB Control Center; the head of the WHO Country Office in Ukraine; faculty members of the F. G. Yanovsky Institute of Phthysiology and Pulmonology;

⁹ Assessment report "*Risk of transmission: current situation and strategy for risk reduction,*" 2011

chief doctors and other health care providers representing regional TB dispensaries and polyclinics in both the public and penitentiary sectors; and representatives from the national and regional Sanitary Epidemiological Stations (responsible for infection control in the oblasts). WHO supported participation of international experts at the conference. International standards of infection control were presented by Igor Raikhert, Advisor on MDR-TB and TB/HIV Co-infection of the WHO Bureau in Ukraine. Girts Skenders, Director of the Supranational Reference Laboratory in Latvia, presented on international approaches to infection control activities within TB laboratory networks. Svitlana Doltu, Chief TB Specialist of the Ministry of Justice of Moldova and TB Coordinator of the Medical Office of the Department of Penitentiary Institutions, Chisinau, Moldova, shared experiences in implementing infection control measures in the penitentiary service of the Republic of Moldova. Dr. Tamara Tonkel, PATH Program Officer, made a presentation during the plenary session, entitled “Individual protection equipment within the infection control system,” and facilitated a group session.

As a follow-on activity, a number of regional meetings and conferences were organized to disseminate the infection control standards and discuss application of the national standards within oblast and facility adjusted plans. For example, a “Regional Conference on Infection Control” for 95 participants from all rayons and cities took place in Zaporizhska on July 14, 2011 (with project support), organized in collaboration with the Zaporizhska Oblast Health Administration, TB Dispensary, and Medical Academy of Postgraduate Education. The conference served as a regional forum for discussing international recommendations for TB infection control, to present the newest infection control standards, and to discuss the actual need to develop oblast- and facility-specific infection control plans. Participants discussed efficient ways to separate smear-positive patients from smear-negative patients and divide MDR-TB patients from drug-sensitive TB patients. During the conference, participants emphasized the importance of other infection control measures, including proper implementation of personal protection and proper usage of respirators provided under the project.

Capacity-building of the providers responsible for infection control implementation at the national level and project sites was addressed through a series of international trainings and study tours. In addition, a series of trainings also was conducted for key partners at the oblast and national levels. The project trained a total of 55 people during six international training courses. Specifically:

- Two representatives from AR Crimea participated in the WHO training course on infection control, led by the WHO Collaborating Centre in Sondalo, Italy, in May 2009.
- Seven Ukrainian TB specialists from the project areas participated in the European Regional Conference of the International Union Against Tuberculosis and Lung Disease (The Union), convened in Dubrovnik, Croatia, in May 2009, and took part in a one-day infection control workshop led by Paul Jensen of the US Centers for Disease Control and Prevention (CDC), Grigoriy Volchenkov (Vladimir TB Dispensary, Russia), and Lucica Ditiu, the STOP TB Partnership’s Executive Director.
- Six chief and deputy chief doctors from six project oblasts participated in a course entitled “Capacity Building in TB Control,” which took place in January 2010 in Murmansk, Russia, organized by the Finnish Lung Health Association (FILHA), a designated WHO Collaborating Centre for Prevention, Control, and Treatment of Tuberculosis, and the

Murmansk Regional TB Dispensary, with support from the CDC. (Murmansk has maintained a longstanding collaboration with FILHA and the CDC on infection control and is considered by the CDC as an infection control Center of Excellence.)

- Twenty-five Ukrainian TB specialists participated in a series of two-week training courses on MDR-TB at the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia, which were conducted in November 2008 and October 2009 and included significant content on infection control.

PATH also collaborated with Ukraine's detention system, bringing international technical expertise in infection control to detention system officials and TB specialists for improving TB infection control practices within the penitentiary system. On September 26, 2009, PATH organized and conducted a workshop on current TB-related infection control approaches and practices for chief doctors of all ten TB prison hospitals and 25 representatives from the detention department in charge of health issues. The training was led by Paul Jensen of the CDC, with co-training by Dr. Tamara Ivanenko, PATH. As a result, a TB-related infection control strategic plan was developed as a key element of preventing MDR-TB in prisons.

The training courses gave the participants a clear understanding of TB infection control strategies, principles, and essential components. They were able to practice basic skills to perform a risk assessment and develop a plan for infection control interventions based on international approaches within the context of their local conditions. Participants were able to immediately use their newly acquired knowledge and skills in their facilities, while also participating in the development of national and regional infection control guiding documents.

As a result, eight project regions (not including Kyiv and Sevastopol Cities) developed regional and/or facility infection control plans. These plans have been implemented in all eight regions and include adoption of key administrative controls, such as separation of patients, improved organization of sputum collection sites, more accurate completion of recording documentation (TB-01, TB-03), and intensified TB detection activities among high-risk populations. Instituting engineering controls (proper ventilation, installment, and maintenance) is more challenging due to the high costs of new equipment and building changes. Personal protection measures are also harder to implement due to the high cost of appropriate respirators.

To introduce infection control measures in NGO settings, PATH conducted a series of trainings for NGO representatives on TB case detection among HIV-positive and other vulnerable populations, including basic infection control measures, and supported the development of specific infection control plans by all NGOs involved in TB detection and care under the project. These trainings are described in more detail in the section on TB/HIV accomplishments under Result 2.

The annual project partners meeting was held April 21–23, 2009, in Kyiv City. The meeting specifically focused on TB laboratory infection control. Biological safety in TB laboratories was thoroughly discussed during the meeting, and Dr. E. Yann, head of the Donestka Oblast TB Dispensary laboratory, presented on her experience in implementing infection control measures within her laboratory. Infection control materials for TB laboratories also were provided to all participants.

In Year 3, PATH procured protective respirators to reduce the risk of health and laboratory worker exposure to airborne infection. In some workplaces, especially in TB laboratories, respirators are an important component of employee personal protection, allowing them to perform essential work that might put them at greater risk for exposure to TB mycobacteria. PATH procured two types of respirators: 5,000 of the third class (95 percent protection) and 7,000 of the second class (up to 90 percent protection). To guarantee the proper distribution and usage of respirators, a one-day training was conducted for assigned specialists from the project sites responsible for the distribution of respirators and for teaching staff how to use respirators properly. The training, “Basic principles of infection control in TB hospitals: individual protective equipment,” took place on September 17, 2010, in Kyiv City. Ten assigned specialists, mainly chief nurses of TB dispensaries in the project regions, took part in the training. PATH distributed respirators to project sites in Year 3, as detailed in Table 10.

Table 10. PATH distribution of respirators to project sites.

Project area	Class 3 protection	Class 3 protection	Class 3 laboratory respirators	Class 2 protection	Class 2 protection
	Boxes	Pieces		Boxes	Pieces
AR Crimea	3	360	180	5	600
Dnipropetrovska	6	720	180	9	1,080
Donetska	9	1,080	345	11	1,320
Zaporizhska	3	360	180	5	600
Luganska	5	600	180	5	600
Odeska	4	480	85	7	840
Kharkivska	4	480	180	6	720
Khersonska	3	360	85	4	480
Kyiv	3	360	180	5	600
Sevastopol	2	240	85	1	120

In 2011, PATH continued capacity-building in national laboratory infection control with involvement of international experts in collaboration with WHO, the National TB Control Center, and an international laboratory specialist from the Supranational Reference Laboratory in Riga, Latvia. This team carried out a series of consultations for laboratory specialists in Ukraine on infection control and organization of a safe working environment in TB laboratories.

Assessment of implementation of the *National Standards on Infection Control in TB Settings*

An infection control assessment mission followed the June 2011 “Tuberculosis Infection Control in Healthcare Facilities” conference. The purpose of the mission was to further evaluate progress in infection control implementation in TB institutions, PHC settings, and penitentiary system facilities. The team also provided onsite technical assistance in organizing administrative, engineering, and personal protection interventions in December 2011.

The infection control assessment team consisted of 16 national and four international experts, including the head of and other representatives from the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, the Center for TB Control, the State Penitentiary

Service, WHO, and PATH in each of the four regions where the assessment was performed. The group included:

- A group coordinator.
- A specialist on administrative controls and organization of personal protection.
- A specialist on monitoring of indoor air safety (engineering control).
- A specialist on laboratory infection control.
- An epidemiologist/nosocomial disease specialist.

The joint assessment took place in the randomly selected oblasts of Zhytomyr, Ivano-Frankivsk, Poltav, and Kharkivska December 5–13, 2011. Kharkivska Oblast was selected as a project oblast example. During the evaluation mission, experts had an opportunity to visit TB and PHC hospitals, PHC outpatient clinics, and penitentiary system health services.

Primary conclusions and recommendations

- The vast majority of the facilities are following routine infection control recommendations aimed at prevention of many infectious diseases but not the specific recommendations for TB infection control.
- Hospital officials and medical workers are very concerned about the need for prevention of patient-to-patient and patient-to-provider TB transmission.
- At the same time, very few people are aware of current international recommendations on TB infection control measures, and in particular, the national standards. For example, different “risk zones” have not been created and marked, and drug-sensitive TB patients and those with delayed DST results (up to three or four months) are hospitalized for long periods of time and are housed in wards together. In addition, many are without appropriate treatment because of the long-term lack of TB drugs. All of these factors significantly elevate the risk of nosocomial MDR-TB transmission.
- None of the hospitals visited have a general ventilation system, and the few local ventilation systems are not maintained properly, even in the laboratories and sputum collection rooms. They are often very old and ineffective.
- Laboratory biosafety measures are not implemented or well known or understood among personnel in the majority of laboratories, with the exception of laboratories in Kharkivska Oblast, where all personnel are well aware of measures of protection and are able to implement proper biosafety procedures.
- Personal protection measures are not implemented in the majority of the hospitals, besides Kharkivska’s TB facilities, which received infection control training and respirators from the project.

The assessment team developed a set of recommendations that might be used for further development of a national TB infection control protocol. Also, onsite infection control technical assistance was immediately provided to address the major challenges that had been identified.

- Ukraine TB providers require intensive training in infection control and technical assistance for administrators and clinicians for further development of specific regional and facility infection control plans to prevent TB transmission not only in TB facilities but in other settings as well (PHC, NGO, etc.).
- Special attention should be given to cost-efficient approaches of administrative control measures in parallel with engineering measures or when expensive engineering measures are not immediately possible.
- Personal protective equipment should be included on the list of mandatory supplies and prioritized by oblasts and donors.

Research on characteristics of male and female tuberculosis patients in Ukraine

PATH conducted research entitled “Characteristics of Male and Female Tuberculosis Patients in Ukraine.” Objectives of the research were to:

- Look at sex-disaggregated data and differences between the sexes among TB patients to shed light on gender issues in Ukraine.
- Evaluate differences in sociodemographic, lifestyle, and medical characteristics, as well TB knowledge and health-seeking behaviors, between male and female TB patients.
- Better inform current and future programs undertaken by PATH and partner organizations to address the TB epidemic in Ukraine.

Findings on gender differences should assist program managers and their partners at the oblast, national, and international levels in designing and implementing tailored interventions to increase case-finding and treatment adherence within a context where HIV, substance abuse, and TB epidemics co-exist, and provide a new piece of information which may be useful to the global fight against TB. PATH developed a research protocol and an assessment tool that were reviewed and approved by the PATH Research Determination Committee on July 17, 2010.

Sampling design and sample size

Given that PATH implemented the project in ten oblasts of Ukraine, a multistage sampling scheme was utilized for the study to recruit study subjects within these oblasts. Research participants were taken from oblast TB dispensaries in five project regions: AR Crimea, Kharkivska, Luganska, Odeska, and Zaporizhska. Participants were stratified by collection site and gender during recruitment. Persons 18 years of age and older who had been recently diagnosed with TB and admitted to a TB dispensary in the previous month were eligible to participate in the study. The study excluded individuals with impaired mental capacity or who were terminally ill. In total, 600 participants were recruited, 300 males and 300 females.

Results of the research highlight potential areas where interventions are needed and where they may have a meaningful impact. These include:

- Continue/Increase training sessions for physicians and medical staff on effective communication in order to reduce stigmatization, as well as to minimize potential discriminatory attitudes and practices. Expand these sessions to those working in testing facilities, collecting samples, or anyone who may have contact with patients.

- Continue laboratory capacity-building, with increased efforts in oblast(s) lacking sufficient material and human resources. For example, in Luganska Oblast, more than 20 percent of participants (12.5 percent of males and 30.3 percent of females) did not receive their primary diagnosis for more than 30 days.
- Target advocacy, communication, and social mobilization messages to ensure men and women are aware of symptoms, know where to seek testing and treatment, and complete TB treatment. For example, participants in AR Crimea and Odeska Oblast were much more likely to present with advanced TB as compared to participants in other regions.
- Once characterized, target more interventions toward the “problem areas” for each region, such as large disparities between the sexes, areas with longer delays, or higher prevalence of TB risk factors. For example, participants in AR Crimea are more likely to report currently or previously being exposed to potential risk factors for TB than participants in other oblasts.
- Increase the focus on areas where men and women differ in the Cough to Cure Pathway.

This study provided a glimpse into some of the differences and disparities between male and female TB patients in five oblasts of Ukraine, as well as into how TB patients differ in these regions. Among the demographic characteristics, significant differences between males and females were observed for several factors; most notably, education level and employment status. Employment status and income also were significantly different between regions.

All care-seeking factors were significantly different between oblasts. Zaporizhska Oblast had the highest proportion of participants reporting a short travel time to the TB dispensary and a primary diagnosis time of less than seven days. AR Crimea had the lowest proportion reporting a short time delay between symptom onset and seeking care. Men were more likely to report receiving a primary diagnosis in less than a week than women (71 percent versus 56 percent), while women were more likely to respond “very likely” to whether they would complete treatment or not.

A more in-depth analysis of differences between males and females within the same oblast found several significant differences. Most notably, men were more likely to receive a primary diagnosis within a week than women. Participants were also asked to identify reasons that contributed to their delay in seeking care for TB symptoms. All were significantly different between collection sites. Between males and females, the only significant difference was in fear of discrimination at the medical facility, which women were more likely to identify as a reason for delaying than men (19 percent for women versus 8 percent for men). For males and females within the same oblast, Luganska Oblast had the most significant differences, with women being more likely than men to report transportation cost, negative perceptions of the health care facility or staff, and fear of discrimination at the medical facility as reasons for delay.

The detailed report is provided in Attachment 4.

Result 2: High-quality DOTS-Plus (including MDR-TB, XDR-TB, and TB/HIV co-infection) services available to 30 percent of the population

MDR/XDR-TB

According to WHO estimates, Ukraine has the eighth highest number of MDR-TB cases in the world and is considered a high priority for action to prevent additional cases of MDR- and XDR-TB and to detect and treat current cases. Ukraine's challenges related to MDR- and XDR-TB include lack of quality-assured first-line drugs, lack of adequate DOTS coverage (especially patient support to ensure treatment completion), inadequate infection control to prevent nosocomial transmission of MDR-TB to other patients and health care workers, wide availability and use of second-line drugs without standard protocols, lack of quality-controlled DST for first-line drugs, and no capacity to test sensitivity of second-line drugs.

PATH's approach to MDR- and XDR-TB control and prevention in Ukraine was developed using the framework presented in the recently published WHO/Stop TB Partnership document *The Global MDR-TB & XDR-TB Response Plan 2007–2008*,¹⁰ as well as the updated MDR-TB targets from the revised second *Global Plan to Stop TB (2006-2015)*.¹¹

Based on the framework, considering the lack of capacity in Ukraine to implement quality-assured DOTS-Plus treatment for MDR/XDR-TB, and given the project's funding constraints for MDR-TB activities (10 percent of the overall project budget), PATH focused on laying the groundwork for rapid expansion of DOTS-Plus services in the project sites in parallel with strengthening the quality of basic DOTS services (as described under Result 1) by providing the necessary support for laboratory and case management improvements.

Under Result 2, PATH implemented a wide range of activities aimed at building adequate capacity for rapid implementation of DOTS-Plus services for MDR- and XDR-TB in project regions, an issue that was driven by growing severity of the TB epidemic. A WHO study in 2005 indicated that almost 16 percent of newly detected TB cases and 44 percent of previously treated TB cases were multidrug resistant.¹² Throughout the project, PATH provided technical assistance to the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, the National TB Control Center, and experts on TB and MDR-TB. PATH also made significant efforts to assist the government of Ukraine in capacity-building of the TB control system to address the growing burdens of MDR-TB, XDR-TB, and TB/HIV co-infection as part of updating TB case management.

Baseline assessment of MDR/XDR-TB control in pilot regions

In early 2007, PATH analyzed international guidelines and reports and assessed available national data, guidelines, practices, and supplies for MDR/XDR-TB control in the project regions and at the national level. This area of TB control had not been addressed under previous

¹⁰ World Health Organization (WHO), Stop TB Partnership. *The Global MDR-TB & XDR-TB Response Plan 2007–2008*. Geneva, CH: WHO; 2007.

¹¹ Stop TB Partnership. *Global Plan to Stop TB (2006-2015): Transforming the Fight Towards Elimination of Tuberculosis*. Geneva, CH: World Health Organization; 2006.

¹² Dubrovina I et al. Drug-resistant tuberculosis and HIV in Ukraine: a threatening convergence of two epidemics? *International Journal of Tuberculosis and Lung Disease*. 2008;12(7):756–762.

USAID-funded efforts and thus required special attention to properly understand the situation. The results of the assessment demonstrated that second-line drugs had been available in the country for a number of years and were widely used for empirical MDR-TB case management. At the same time, key gaps existed, as follows:

- No proper DST for first-line drugs.
- Zero capacity for second-line DST.
- Absence of proper MDR-TB treatment protocols in accordance to WHO standards.
- Absence of an M&E system for MDR-TB case management.
- Lack of understanding of and tools for drug management.

All of these points were taken into consideration in developing project work plans.

Development and piloting of a standardized MDR/XDR-TB assessment tool

In Year 1, PATH leveraged existing core funds received from USAID's Global Health Bureau in Washington, DC, under the Technical Assistance and Support Contract 2 TB Task Order to pilot-test an MDR/XDR-TB standardized country assessment tool that was designed to collect data to assess country MDR-TB risk (epidemiological data, policy information, second-line drug use, etc.); capacity of the country to respond to MDR-TB (laboratory capacity, drug management systems, patient support systems, etc.); and needs for training, technical assistance, and procurement of necessary equipment and supplies. The tool aimed to provide the basis for developing country-specific MDR-TB action plans, prioritizing activities and formulating requests for technical assistance. The project team provided technical input and participated in the piloting of the draft MDR/XDR-TB country assessment tool, which was simultaneously evaluated in a number of countries around the world. In Ukraine, the tool was piloted in selected project regions (Dnipropetrovska, Donetska, and Kharkivska Oblasts) and at the national level to provide the basis for prioritizing recommendations on MDR-TB and XDR-TB at the oblast level, developing realistic action plans, and identifying any technical assistance the country needed to help prevent and treat MDR-TB cases. In addition, in Year 2, Ukrainian experts who participated in the May 2010 European regional conference of The Union in Dubrovnik, Croatia, took part in a participatory workshop aimed at introducing the finalized tool for action. The tool was then used to collect MDR-TB data in Luganska and Odeska Oblasts. These data were further analyzed to provide an accurate evaluation of the MDR-TB situations and programs in these regions.

Assessment of the country's readiness to treat MDR-TB patients using second-line drugs

During the first quarter of Year 5, PATH, in collaboration with WHO, conducted an assessment of Ukraine's readiness to properly use the reserve of second-line drugs (procured under Global Fund Round 9) to treat MDR-TB patients. In October 2011, WHO consultant Dr. Vaira Leimane and PATH's specialist Dr. Tamara Tonkel worked in the Kyiv TB Central Dispensary where the outpatient stage of treatment in Kyiv was going to be organized. During the visit, a number of key issues were discussed with the chief doctor and other providers involved in MDR-TB case management. These included drug management, procedures for transferring drugs for directly observed treatment to selected medical workers in case of the absence of DOTS offices, treatment regimens using drugs that differ from Ukrainian protocol, patient registration, and monitoring and other related issues. The overall conclusion was that Ukraine still needs to

address multiple issues to be ready to start MDR-TB case management and that the national MDR-TB protocol should be revised and updated to incorporate the latest WHO MDR-TB treatment guidelines.

Development of national guidelines on treatment of MDR/XDR-TB

In 2007-2008, PATH staff and consultants provided technical assistance to review, revise, and disseminate the national guidelines on MDR/XDR-TB treatment. A technical expert from the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia, conducted an assessment mission in Ukraine to review current MDR-TB treatment practices and develop recommendations. A roundtable discussion was convened with consultants, Ukrainian NTP staff, oblast TB specialists, WHO, the F. G. Yanovsky Institute of Phthysiology and Pulmonology, and others to discuss the challenges of diagnosing and treating MDR/XDR-TB and to provide recommendations for protocols that can promote better treatment outcomes and prevention infection with XDR-TB among patients. PATH provided significant technical input into drafting Ukraine's first protocol on drug-resistant TB case management in line with international standards, which was endorsed by the MOH in December 2008. The MDR-TB protocol is used by clinicians for MDR-TB case management, although it needs further revision and updating to incorporate the latest WHO MDR-TB guidelines.

Development of an MDR-TB monitoring system

In Years 3 and 4, PATH specialists provided technical assistance to the MOH by participating in the MOH working group on developing a monitoring system for MDR-TB case management and side effects, including recording and reporting forms. The system allowed quality monitoring of MDR-TB treatment using four to five drugs over 24 months and longer, cohort analysis of treatment outcomes, and proper drug management so that needed drugs were available and replacement drugs were not used.

These monitoring tools were piloted during a series of monitoring and supervision visits conducted within the project. Thus, a supervision visit to monitor regional TB- and TB/HIV-related activities in AR Crimea was conducted April 24-29, 2010, by officials of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases with participation of PATH Deputy Project Director at the time, Dr. Olena Radzievska. This visit revealed serious deficiencies in managing drug-resistant TB cases in AR Crimea. These included incorrect prescribing of treatment regimens, insufficient knowledge on how to manage side effects of second-line TB drugs, poor collaboration with HIV specialists, and inadequate treatment of TB/HIV cases. Following the visit, PATH TB Clinical Coordinator Dr. Tamara Tonkel provided on-the-job technical assistance to TB specialists at the AR Crimea TB Dispensary in May 2010. A particular focus of this onsite technical support was on drug-resistant TB case management. A thorough review of TB patient medical records, TB case recording and treatment forms, discussions with and guidance to TB specialists on appropriate treatment regimens, and review of drug requests to the MOH and drug supplies from the national level for treatment of drug-resistant TB cases resulted in the development of an agreed-upon MDR-TB plan, which was favorably assessed by the NTP and PATH teams.

Collaboration with international partners and international training of Ukrainian TB providers on MDR/XDR-TB control

Within the framework of the project, PATH worked in partnership with the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia, as well as with other international training centers and international consultants, to build adequate capacity for rapid implementation of MDR/XDR-TB related activities that included:

- Development of MDR-TB clinical experts in Ukraine.
- Review of and recommendations for national policies on MDR-TB diagnosis and treatment.
- Consultation for creation of potential MDR-TB Centers of Excellence in Ukraine that could serve as a technical resource for the entire country.

To develop a pool of MDR-TB clinical experts, PATH supported participation of selected TB providers from each project oblast and from the national level in a series of training courses provided by the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia. In particular, in Years 2, 3, and 4, overall, 27 Ukrainian TB specialists from project target areas acquainted themselves with international recommendations for effective MDR-TB case management. They also had the opportunity to discuss organization of services, diagnosis, treatment, and management of adverse effects of drugs, infection control, and other MDR-TB related matters with their Latvian counterparts. In addition, in Year 4, international MDR-TB training courses were conducted to enhance knowledge and practical skills of nine selected TB providers from project oblasts, the penitentiary system, and the national level in MDR-TB control. The training covered essential components of MDR-TB case management, including hands-on practice. Upon completion of the international training courses, 36 selected TB providers from the project regions were capable of providing high-quality MDR-TB and XDR-TB services according to international and national standards.

Besides, 11 Ukrainian MDR-TB specialists took part in two consecutive one-week international training courses: the “Organization of Treatment of MDR-TB Patients,” conducted April 18–22, 2011, in the FILHA-supported training center in Tallinn, Estonia; and, with Partners in Health, which helped to establish a regional MDR-TB training center in Tomsk, Russia.

Regional trainings on MDR-TB case management

To ensure that a standard approach to treating current MDR-TB patients was established and disseminated, a cadre of experts was trained and was able to support adoption of standardized approaches to treatment to stabilize the situation, while other activities were focused on strengthening the foundation for DOTS-Plus scale-up. PATH conducted trainings for a total of 364 clinicians from the national level and in each project oblast. This was in addition to the other training provided through the WHO Collaborating Centre in Latvia and the other international courses described above.

Specifically, PATH specialists and trained Ukrainian trainers conducted a four-day training course entitled “Organizing DOTS-based TB services at specialized TB facilities: principles of MDR-TB case management” in October 2010 in Sevastopol for 25 TB doctors providing inpatient and outpatient services for TB patients in Sevastopol and AR Crimea. During the

training, MDR-TB case management was addressed as a part of overall TB case management. The participants were able to review the international recommendations for effective MDR-TB case management and to discuss organization of services, diagnosis and treatment, management of adverse effects of second-line TB drugs, infection control, and other MDR-TB related issues. Special attention was focused on the registration and rapid relief of various side effects that patients may develop while receiving second-line TB drugs. In September 2011, a series of regional trainings on MDR-TB case management also was conducted by the Ukrainian Center of Excellence in Dnipropetrovska for Ukrainian TB specialists.

Creation of an MDR-TB Center of Excellence in Ukraine

DOTS-Plus services could not be scaled up rapidly in Ukraine because of the lack of the basic prerequisites described above. The major thrust of project efforts was to ensure that these foundational elements were put in place so that high-quality DOTS-Plus services could be scaled up more rapidly. This, in part, was accomplished by creating a relationship between oblast-level specialists and a national Center of Excellence that would continue to provide national-level consultation on MDR/XDR-TB management.

In August–September 2008, PATH staff and international consultants assessed the feasibility of creating a National Ukrainian Center of Excellence for MDR-TB. Dr. Vaira Leimane, head of the WHO Collaborating Centre for Research and Training in Management of MDR-TB in Riga, Latvia, and Dr. Girts Skenders, head of the Bacteriology Supranational Reference Laboratory of the Latvia State Agency of Tuberculosis and Lung Diseases, participated in the assessment. The team visited three project sites: the Kyiv City Central TB Dispensary, the Dnipropetrovska Oblast TB Dispensary, and the Kharkivska Oblast TB Dispensary. The goal was to investigate the general MDR-TB situation in Ukraine; routine MDR-TB case management; laboratory aspects of MDR-TB control, including the basic procedures for drug-sensitivity testing in laboratories; and the availability of knowledgeable clinicians and other staff to implement high-quality drug-resistant TB control. Specific attention was paid to clinical and treatment aspects of MDR-TB control, including availability of second-line drugs, treatment approaches, and management of side effects.

Although the initial regimen choice and changes in pharmaceuticals and treatment schemes used for regular and drug-resistant TB in Ukrainian TB facilities were similar to those recommended internationally, very weak organization of regular TB and MDR-TB diagnostic and treatment processes and generally poor infection control were noted by the assessment team, and all sites visited were deemed to need significant improvements in provision of services.

Following the assessment, the Dnipropetrovska Oblast TB Dispensary, the training center of the TB department of Dnipropetrovska Medical Academy, and the oblast's Professional Association of Phthisiatricians were selected as potential demonstration/training sites for MDR-TB case management. PATH assisted Dnipropetrovska Oblast's TB-related institutions in developing a scope of work, capacity-building and training plans, and a fundraising strategy for establishing an MDR-TB Center of Excellence. Also emphasized in the assessment report was the need to develop a detailed QA/QC manual that would be officially recognized by the MOH and introduced to laboratories through training. This was based on the observation that current QA/QC activities were fragmented and that maintaining the quality of laboratory testing was

poorly understood as an overarching principle of laboratory services. Elimination of outdated laboratory techniques, improved biosafety, stronger infection control measures, and standardization of DST methods were recommended to improve the detection rate of TB by culture testing, identifying drug resistance, and ensuring a safer work environment. It should be recognized, however, that good laboratory services with quality-assured DST are not enough for excellent MDR-TB treatment and management; changes in TB treatment policies and implementation of infection control principles in clinics were also noted as vital. Other recommendations included the need to develop appropriate procedures with the MOH and Customs to import and export biological materials for executing laboratory EQC. The establishment of routine data collection on drug resistance and linkages between laboratory and case registration units also were strongly recommended so that DST can be conducted at the beginning of treatment.

During 2009 and 2010 and based on the detailed recommendations of the assessment, PATH provided intensive support for the creation and operation of the MDR-TB Center of Excellence. This included support to develop an overall scope of work and to create plans for the center, including site identification, staffing structure, infrastructure and equipment requirements, drug management, training plans and curricula, and an evaluation system. Through the USAID-supported contract, PATH procured all required equipment, including computers, other IT equipment, a high-speed centrifuge for the laboratory, and furniture. In addition, PATH made available all finalized curricula and presentations to the center's trainers. To ensure sustainability, PATH was able to gain agreement from partners that trainees would receive a State certificate that would be part of the national continuing medical education system. All Center of Excellence trainers enhanced their skills through PATH-managed TOTs, co-training with PATH technical specialists, on-the-job training by visiting PATH staff and consultants, and international trainings and study tours, including participation in trainings at the WHO Collaborating Centre for Research and Training in Management of MDR-TB at the Latvia State Agency of Tuberculosis and Lung Diseases. In addition, the head of the Center of Excellence, Professor Dmytro Kryzhanovsky, and the Chief of the Level 3 laboratory, gained state-of-the-art knowledge in diagnostic approaches at the training on International Principles of TB Management, Epidemiology and Laboratory Diagnosis in London, England, in 2011.

In Year 4, Dr. Tamara Ivanenko of PATH visited the Center of Excellence and the TB laboratory of the Dnipropetrovska Oblast TB Dispensary to assess the readiness of the Center of Excellence to conduct a series of trainings for clinicians and laboratory specialists from the project oblasts. The first three-day training, entitled "Laboratory diagnosis of TB by smear microscopy. Quality assurance of smear microscopy in clinical diagnostic laboratories," was conducted for nine heads of clinical diagnostic laboratories, as well as laboratory physicians and microbiologists, in May 2011. Following the success of this training, PATH coordinated with the Dnipropetrovska Oblast Health Care Administration, TB Dispensary, and State Medical Academy to develop a schedule of trainings for TB doctors, laboratory specialists, M&E specialists, and other health care providers working in the oblast, as well as a group of interns who studied at Dnipropetrovska State Medical Academy.

During the remainder of Year 4, trained trainers at the Dnipropetrovska Center of Excellence, with supervision from PATH specialists, conducted nine trainings on the WHO Stop TB Strategy

components, including DOTS principles, MDR-TB case management, TB/HIV, laboratory diagnosis, and TB program M&E. In total, 129 specialists from Dnipropetrovska Oblast took part in this series of trainings.

The successful creation of the Dnipropetrovska Center of Excellence demonstrated that it was feasible to update existing Ukrainian facilities, establishing state-of-the-art care and educating providers within the oblast and the region. A total of 138 providers from Dnipropetrovska Oblast and from neighboring oblasts were trained at the center in 2011.

Continued USAID support for the next few years will be essential to ensure long-term sustainability of the MDR-TB Center of Excellence so that it can continue supporting its trainers and operations, as well as further curricula development to incorporate all recent WHO and other international guidelines and best practices in TB diagnosis and case management. At this time, due to the lack of funding for this work from the oblast government and the medical academy, and also the legal difficulties of having trainees pay for the training, sufficient local support is not yet possible. It also will be important to strengthen the management capacity of the Dnipropetrovska Professional Association of Phthisiatricians, which is interested in the continued development of the center.

National conference on MDR-TB case management

Due to the limited capacity of the Ukrainian NTP to diagnose, prevent, and manage MDR- and XDR-TB, the specific complexities of TB case management (TB often coincides with other diseases), and limited access to WHO's latest guidelines and other international publications and documents, it was critical that the topic of MDR-TB be paid national attention. PATH therefore planned and conducted an All-Ukrainian conference, "Multi-Drug Resistant Tuberculosis (MDR-TB) Diagnosis and Treatment" on May 12, 2011, in Kyiv. The conference was organized in collaboration with the MOH, the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, WHO, and the F. G. Yanovsky Institute of Phthiology and Pulmonology. The conference served as a national forum to discuss international recommendations on MDR-TB diagnosis and treatment, to raise concerns in relation to non-compliance with standard TB treatment regimens, and to suggest approaches for effective MDR-TB case management. The key stakeholders in TB control participated in the conference, including the Chief Phthisiatrician of Ukraine, the director of the F. G. Yanovsky Institute of Phthiology and Pulmonology, the head of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, the head of the WHO Country Office in Ukraine, faculty members of the National Academy of postgraduate medical education, chief doctors and other health care providers representing regional TB dispensaries and polyclinics, and other stakeholders. Representatives of the Estonia National MDR-TB Control Program, the WHO Country Office in Ukraine, and PATH's MDR-TB and laboratory specialists made presentations on international approaches to effective MDR-TB case management. Around 200 participants took part in this national conference.

Experience of project partners in MDR-TB case management

Following the national conference on MDR-TB, an ad-hoc meeting of project partners was conducted in which 37 representatives of TB services from project sites took part. The meeting was devoted to the experience of the regional Consultation Councils on MDR-TB in providing

adequate treatment to MDR- and XDR-TB patients according to international practices. Each project region presented its achievements, innovations, challenges, and suggested solutions.

The project also provided technical support to the national workshop “Providing High-Quality Health Care to MDR-TB Patients in Ukraine,” which took place in Kyiv on January 25, 2011. The workshop was initiated by the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases and gathered together 110 oblast, rayon, city, and penitentiary TB hospital chief doctors. The conference raised attention to the importance of compliance with international treatment regimens and suggested approaches for effective MDR-TB case management. PATH’s Dr. Tamara Tonkel presented an analysis of the quality of case management of MDR-TB based on the results of supervision visits conducted within the project.

In March 2012, a conference on MDR-TB case management was organized by the F. G. Yanovsky Institute of Phthiology and Pulmonology, in collaboration with PATH, WHO, FDU, and other partners. Dr. Olga Pavlova from PATH presented the MDR-TB Planning Tool, developed with core funding through the TB2015 Task Order by PATH in collaboration with WHO, which recommends this tool as an instrument to develop national MDR-TB plans.

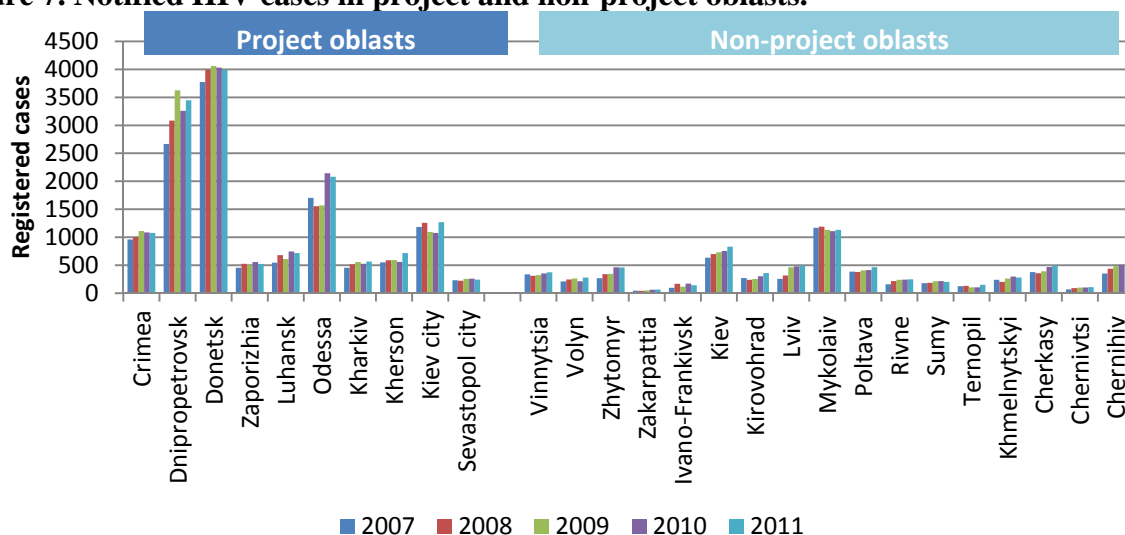
Recommendations/Priority areas for future strengthening

- Because the project was limited in its ability to cover a large proportion of the population with DOTS-Plus services, the MDR-TB and XDR-TB management principles that were introduced should be further supported and extended all over Ukraine.
- In addition, a DST survey should be conducted to inform the NTP, partners, and donors on the actual MDR/XDR-TB situation in Ukraine, which remains largely speculative.
- A national MDR-TB operational plan for 2012-2016 for implementation of the MDR-TB component of the NTP should be developed with significant international assistance given limited in-country capacity.
- Building on the significant results in laboratory strengthening, further improvements should be supported, especially given the advent of rapid diagnostics for MDR/XDR-TB and the constantly changing costs and availability of new test systems
- Continuous support for the capacity-building of local experts will contribute to sustainability; thus, the MDR-TB Center of Excellence for Ukraine in Dnipropetrovska should be given additional support to ensure its function and capacity-building in the coming years.
- The MDR-TB treatment protocol in Ukraine should be revised to incorporate new international guidelines, and then disseminated and adopted by individual practitioners.

TB/HIV co-infection

PATH’s work focused on the oblasts with the highest burden of HIV in the country. As shown in Figure 7, Dnipropetrovska, Donetsk, and Odeska Oblasts continue to have the highest rates of registered cases of HIV, year after year, according to Ukraine’s National AIDS Center.

Figure 7. Notified HIV cases in project and non-project oblasts.



From: MOH, National AIDS Center, National Institute of Epidemiology and Infectious Diseases named after L. Gromashevsky. *HIV Infection in Ukraine*, No. 37; 2012

PATH's approach to increasing access to TB/HIV co-infection services over the life of the project was multifaceted and comprehensive. The key elements of PATH's strategy were as follows:

- Assess TB/HIV policy and practice.
- Provide technical assistance to the NTP to establish a National Collaborative Program.
- Strengthen the capacity of Regional Coordination Councils to address TB and TB/HIV issues.
- Support creation of TB/HIV case management teams (integrated with NGO services), pilot use and support rollout, and develop an integrated case management model.
- Develop a training plan and comprehensive training curricula, including both TB/HIV program management and TB/HIV case management.
- Prepare a pool of trainers to scale up and improve the quality of existing in-country TB/HIV capacity and establish proper monitoring of the rollout of TB/HIV case management trainings.
- Strengthen the capacity of providers on collaborative TB/HIV case management through trainings.
- Conduct DOTS training for nurses, HIV service NGOs, and the All-Ukrainian Network of People Living with HIV/AIDS.
- Conduct training for TB providers in communication and diagnostic counseling and testing (DCT).
- Support the strengthening of surveillance of TB/HIV cases and monitoring and supervision of TB/HIV case management.

- Introduce infection control measures in NGO settings.

Assessing policy and practice

To evaluate TB/HIV policy and routine practice at the national and regional levels and to identify training and treatment support needs, a survey tool was reviewed and revised in January-March 2008. The tool focused on local NGO collaboration to improve referral of clients at risk of TB/HIV. In addition, the attitudes and knowledge of medical experts and NGO staff on TB/HIV, the existing policy and practice of TB/HIV co-infection case detection and treatment, and social support and care for people with TB/HIV co-infection also were assessed. The main goal was to identify barriers to the provision of timely and comprehensive care and support to people with TB/HIV co-infection and to determine directions for project activities in the TB/HIV domain.

Results of these efforts suggested that neither existing legislation nor regulations contained any barriers to implementing a comprehensive approach to the provision of medical and social support to people with TB/HIV co-infection. As seen by medical experts at that time, the main barriers to the provision of effective support to TB/HIV patients included:

- Absence of an appropriate TB/HIV case registration, reporting, and monitoring system and of clearly defined algorithms to guide provision of services and support.
- Continuing segregation of TB and HIV services.
- Absence of information exchange and planning of joint activities.
- Lack of information on the provision of care and support to people dually affected.

In addition, the findings provided important information about the needs of TB/HIV co-infected individuals and the role of NGOs in addressing those needs. For example, the clients of HIV service NGOs noted a number of reasons for delays in seeking medical assistance, especially HIV testing. Key factors included:

- Fear of a positive result.
- Concern about disclosure of their status and consequences of such disclosure for them and their family.
- A generally low perception of risk.

These findings formed the basis for the design and implementation of all interventions and activities, as described below.

Provision of technical assistance to the NTP to establish a National Collaborative Program; capacity-building of Regional Coordination Councils to address TB and TB/HIV issues: In collaboration with the HIV/AIDS Service Capacity Project in Ukraine (being implemented by the Futures Group), a coordinated approach was developed to build the capacity of Regional Coordination Councils on TB and HIV/AIDS. Within the framework of these joint efforts, PATH provided technical support to strengthen Coordination Council functions in guiding and monitoring TB/HIV collaborative activities at local and regional levels in the project oblasts and

to help establish oblast-level TB/HIV collaborative task forces (working groups) to review policies and practices and revise existing guidelines to better manage and support TB/HIV co-infected individuals. Specifically, as part of its capacity-building efforts, PATH convened six seminars in May-June 2011 for 139 members of the Coordination Councils from nine project regions (all but Kyiv). The focus was on strategic planning and implementation of a coordination algorithm for TB/HIV care and social support considering specific findings of the assessment in each oblast. As a result, collaborative strategic plans for improved TB and HIV systems coordination were developed by these collaborative task forces by October 2011 in the nine project sites. PATH provided ongoing assistance and support in monitoring strategic plan implementation and helped to revise management approaches and decisions. For example, based on the assessment findings that one of the main barriers for TB/HIV treatment of co-infected drug users was unavailability of substitution therapy, Dnipropetrovska, Kharkivska, Khersonska, Odeska, Zaporizhska, and AR Crimea, with PATH's guidance, incorporated substitution therapy into TB/HIV case management. This process required significant advocacy and technical assistance at the oblast health administration level, with both TB providers and oblast HIV/AIDS providers, as well as civil society responsible for substitution therapy support and management.

In addition, joint training for NGO delegate members of local Coordination Committees was conducted for 12 participants from the project regions in January 2010. The training focused on building understanding of and capacity to advocate for specific TB/HIV issues—especially those best raised by civil society—within the Coordination Committees. This included addressing stigma reduction at all levels of health care, as well as advocating for more patient-centered approaches to organization of services to ensure convenience (even “one-stop” services) and quality of care. For example, as a result of civil society advocacy within the Coordination Committees, the usual practice of referring people with HIV who have been newly diagnosed with TB to the HIV Center for antiretroviral medications (ARVs) was replaced with inviting the HIV Center provider to the TB hospital to assess the patient and prescribe ARVs.

TB/HIV case management capacity-building: In 2009 and 2010, with the support of international consultants Dr. G. B. Migliori and Dr. Alberto Matteelli, PATH conducted an assessment visit to project oblasts and national institutions and provided recommendations for improvement of TB/HIV case management in Ukraine. The need for a national guiding document on collaborative TB/HIV program management to synergize resources at all levels and to ensure a patient-centered approach to case management was the key recommendation. After intensive PATH advocacy efforts and discussions with all partners and stakeholders, a national working group was established to develop an order on TB/HIV collaborative programming and case management to ensure the sustainability of implementing client-centered international approaches to TB/HIV case management. The working group, with PATH's leadership and technical assistance, developed a draft order, which was then updated based on feedback received during public discussion between March and May 2011. It was submitted for final approval in August 2011 after all changes and suggestions were incorporated. Approval had been expected by October 2011, but it was delayed due to changes in legislative requirements and government personnel turnover. Dr. T. Aleksandrina, head of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, recently confirmed that the order is undergoing internal MOH review.

PATH also conducted a workshop on TB/HIV case management for 18 TB and HIV providers from the project oblasts, as well as for national leaders, in May 2009. A similar workshop was conducted for another 18 participants in June 2009 and for 36 participants in May 2010. Dr. G. B. Migliori and Dr. Matteelli, PATH's consultants, were the technical leads for this workshop. They, with PATH staff, conducted a plenary presentation on TB/HIV case management as well as two teaching events—a mini-training and a case study session on TB/HIV clinical case management. The mini-training session, entitled “Components of effective case management of TB/HIV co-infection,” compared the main challenges in case management of TB/HIV co-infected patients in Ukraine with international recommendations, analyzed TB/HIV co-infection clinical cases, and clarified options to improve detection and case-finding, diagnosis, prevention, and treatment standards. A clinical case review session sought to share information on the practical aspects of clinical management of patients with TB/HIV co-infection, focusing on WHO TB/HIV treatment guidelines, through presentation and discussion of selected clinical cases. A plenary session presentation entitled “Modern approaches to TB/HIV co-infection prevention and treatment based on evidence-based medicine principles” recalled the international recommendations on TB/HIV activities, reviewed progress in implementation, and presented ongoing constraints. The recommendations of the TB/HIV working group of the Stop TB Partnership for the European Region were presented, focusing on the need to integrate the HIV and TB programs and to establish mechanisms for ensuring access to high-quality prevention and care interventions for vulnerable populations, namely drug addicts, prisoners, and migrant populations.

Following the workshop, PATH conducted ten TB/HIV case management trainings for 211 TB and infectious disease physicians between October 2010 and October 2011. The goal of these trainings was to strengthen case management of co-infected patients and cooperation among various public health institutions, social services, and NGOs to improve TB/HIV case management. The key objectives were to improve participants' knowledge of TB/HIV case management, discuss a multidisciplinary approach to TB/HIV case management, and develop skills for creating collaboration plans and for implementing program M&E. According to results of the post-training evaluation, most participants found the training to be “excellent.” Further, 96 percent of participants noted the excellent professionalism of the trainers, while 80 percent gave the highest mark regarding the relevance of the training content. Participants' knowledge of selected topics improved from 24 to 46 percent. Information on screening of patients, diagnosis and treatment of TB/HIV co-infection, and infection control was in greatest demand. Follow-up TB/HIV review conferences were convened in Dnipropetrovska, Kharkivska, , Khersonska, Luganska, Odeska, Zaporizhska, and AR Crimea, to improve the knowledge and skills of health care providers to implement TB/HIV collaborative practices. A key result of the training and conferences is a change in the approach to treating co-infected patients: specifically, a clear trend toward prescribing antiretroviral therapy (ART) to newly diagnosed TB patients earlier in the treatment process has taken hold in most of the project regions after significant technical assistance from PATH, especially in the last project year (Odeska, Dnipropetrovska, and AR Crimea, in 20 percent of cases; Kharkivska, 30 percent; Zaporizhska and Khersonska, 40 percent; Donetska, up to 60 percent). This approach, which is evidence-based and reflective of international best practices, has been demonstrated as effective in improving the survival rate of co-infected patients, compared to the widely practiced approach of prescribing ART to TB/HIV patients after TB treatment has been completed. The latter approach typically has resulted in

earlier deaths among co-infected individuals and is directly responsible for the very high case mortality rate of co-infected patients in Ukraine (up to 75 percent).¹³

The other impact of this intensive training and capacity-building effort in case management will be further discussed in the “Results and challenges” section below.

TB/HIV surveillance and M&E: TB/HIV surveillance and monitoring of TB/HIV collaborative services continues to be a critical challenge in TB/HIV management in Ukraine. In fact, it has been difficult, even in the project regions, to obtain accurate data because of inconsistency in the data on TB/HIV received from TB and HIV services. There is still no agreement on basic definitions and indicators, and there continues to be an absence of cross-checking procedures for reported TB/HIV cases. This, in turn, makes it very difficult to perform meaningful data analyses to guide management decisions and plan for new interventions to ensure an adequate response to the growing TB/HIV burden. In the non-project regions, the reliability of data remains highly questionable.

To strengthen TB/HIV surveillance and case management, PATH provided technical assistance to the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases in developing and adapting, with stakeholder input, a table of indicators for TB/HIV monitoring that was based on WHO TB/HIV indicators. The table was included in the draft order on TB/HIV case management described above. PATH expects improvement of M&E in the regions after the order is approved. The inclusion of indicators for evaluation of TB/HIV activities is a key factor contributing to the sustainability of project activities in the technical area of TB/HIV monitoring.

PATH also provided ongoing support to strengthen the M&E system at the regional level. This included conducting monitoring visits to project oblasts for evaluation of clinical management of TB/HIV cases and TB/HIV collaborative activities. Recommendations were provided as follows:

1. Oblast health authorities should establish a system of M&E of TB/HIV activities which includes at least:
 - Rate of HIV testing and positivity rate among TB cases.
 - TB treatment outcomes among TB/HIV co-infected persons as compared to uninfected ones.
 - Number of HIV-positive people who are screened for TB.
 - Incidence of TB cases among registered HIV cases.
 - Number of HIV-positive people who receive an isoniazid preventive therapy course.
 - ARV use among TB cases and timing of ARV start.
2. Oblast TB dispensary and other central TB clinics should achieve a high quality of laboratory diagnosis of TB and MDR-TB through consistent availability of media for liquid culture and DST.
3. Oblast TB dispensary and other central TB clinics should shorten the diagnostic delay of MDR-TB by using rapid tests.

¹³ From: MOH, National TB Control Center, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, MOH Statistical Center. *Tuberculosis in Ukraine; 2012*

Following the recommendations, project oblasts made significant efforts to enhance management of TB/HIV collaborative activities. For example, data on voluntary counseling and testing (VCT) performance from monitoring and supervision visits to TB institutions were reviewed at an oblast-level meeting in Zaporizhska in April 2011. The meeting participants—78 providers representing TB institutions throughout Zaporizhska Oblast—discussed the current VCT legislation, objectives and procedures for HIV testing and counseling, supervision and M&E of counseling quality, and ways to strengthen coordination of HIV and TB diagnostic services. Similarly, data from monitoring and supervision visits to oblast TB and HIV institutions were discussed at a review meeting in Berdyansk at the end of May 2011. This discussion focused on TB/HIV case management. Based on the discussions among more than 100 providers, the following steps were taken to improve detection, diagnosis, and treatment of TB/HIV co-infection, in particular:

- Monthly meetings of TB and HIV service providers to discuss and resolve everyday issues.
- Quarterly reviews of clinical TB/HIV case management.
- Additional on-the-job training in TB/HIV diagnosis for the staff of oblast TB dispensaries and AIDS Centers.
- Social mobilization at the rayon level to improve provision of social and psychological support to TB and HIV patients.
- Possibilities to establish new HIV service NGOs at the rayon level.

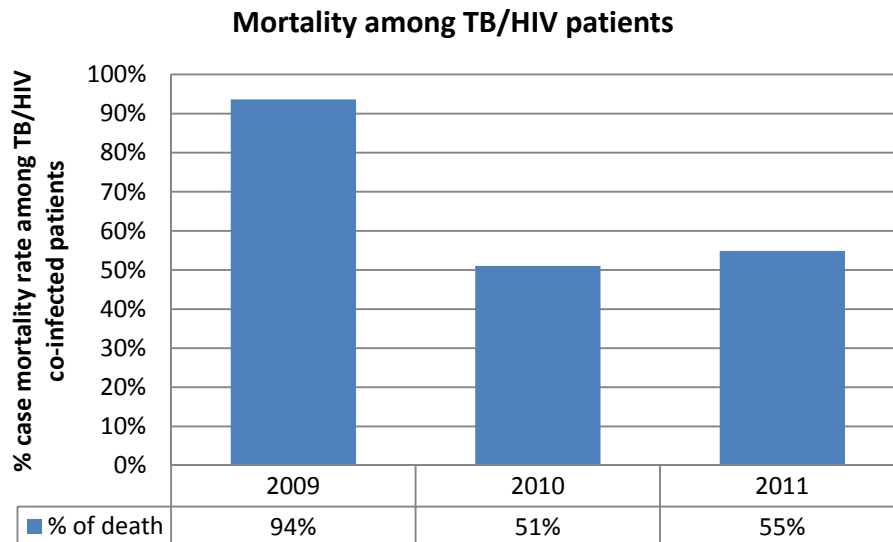
Further, data from monitoring and supervision visits to oblast TB and HIV institutions were discussed at a review meeting in Zaporizhska at the end of September 2011. The discussion focused on TB/HIV case management and cohort analysis, especially on the results of an analysis of TB/HIV deaths. Main causes of death included ineffective treatment, poor treatment adherence due to drug addiction or alcoholism, limited or no access to substitution therapy or psychosocial support, and late diagnosis of TB among HIV-infected persons due to patient delays in seeking care as well as poor provider skills and poor access to equipment needed to diagnose extra-pulmonary TB. Proposed solutions included:

- Access to substitution therapy for TB patients.
- Timely administration of highly active antiretroviral therapy for HIV-infected TB patients.
- Involvement of narcologists and psychologists in TB and TB/HIV case management.
- Involvement of HIV service NGOs in intensive TB case-finding among drug users and PLHIV.

Based on these recommendations, in June 2010, Zaporizhska Oblast issued a new order on TB/HIV co-infection management, including collaborative program management, case management protocols, treatment protocols, VCT guidance, and M&E.

The impact of interventions on the case mortality rate among new TB/HIV co-infected patients is shown in Figure 8.

Figure 8. Decreasing case mortality among TB/HIV patients in Zaporizhska Oblast.



“Current Issues in TB/HIV Co-infection Management” national conference

PATH analyzed the implementation of TB/HIV activities with representatives of the National Medical University, the National Center of Prevention and Control of AIDS, and the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases. Together, the group decided to hold a national conference on TB/HIV co-infection to discuss the common challenges and issues in co-infection control and methods to improve TB/HIV prevention, detection, diagnosis, and treatment, including best practices from the project oblasts. The conference was convened March 29–30, 2011, in Kyiv, and was attended by more than 160 TB and HIV specialists, TB specialists from the penitentiary system, academic staff of medical schools, public health officials, and NGO representatives. Key outcomes of the conference included the following:

- Deepened understanding of effective approaches to TB/HIV case management and the national approach to collaborative TB/HIV program management.
- Improved communication and collaboration of various health services involved in provision of care for TB/HIV patients.
- An opportunity to discuss a range of issues related to TB/HIV prevention, detection, diagnosis, and treatment to improve the situation in Ukraine.
- New ideas regarding improving collaboration among various services.
- Proposed effective ways to address medical and social problems at the regional level.
- Agreement on the necessity of providing ART to TB/HIV patients earlier in the TB treatment process. After the conference and following TA, the proportion of patients on TB treatment who started ART earlier increased, although these data have not yet been included in official M&E. For example, in Zaporizhska Oblast the proportion of TB patients starting ART within three months after beginning of TB treatment increased from 12 percent to 34 percent, while

in Odeska Oblast, it increased from 3 percent to 16 percent.) Oblast orders on TB/HIV case management were reviewed in several project oblasts to accommodate changes in ARV prescription for TB/HIV patients.

National partners decided to introduce changes in TB/HIV clinical protocols in order to clearly emphasize the requirement for isoniazid preventive therapy, cotrimaxozole preventive therapy, and earlier administration of ART regardless of CD4 count.

DOTS training for nurses, HIV service NGOs, and the All-Ukrainian Network of People Living with HIV/AIDS

Involving HIV service organizations is essential to increasing case-finding among hard-to-reach populations in Ukraine. Use of a verbal screening tool and establishment of an effective referral algorithm was critical to identifying co-infected individuals, many of whom represented prevalent TB cases who had not been identified through standard health care services.

For this work, PATH worked with the Ukrainian Coalition of HIV Service Organizations to develop and implement a comprehensive strategy to identify TB suspects, ensure appropriate referral to diagnosis and treatment services where trusted medical staff were identified, and provide treatment adherence support through counseling and patient advocacy. To prepare for these activities, social workers and psychologists from ten selected community organizations were trained in October 2010 on the basics of TB and TB/HIV, motivation of clients to become engaged in TB/HIV projects, infection control practices, specific needs of PLHIV during TB treatment, and use of a verbal screening tool. PATH also sought to emphasize the linkages and synergies among this effort and other NGO projects on harm reduction and care and support of PLHIV within the context of TB prevention and treatment, and ways to improve communication collaboration between AIDS Center and TB hospital staff and the PHC level.

Between 2010 and 2011, partner NGOs conducted TB screening and counseling for 2,058 clients. Of these, 1,675 clients (81 percent) were directed to medical facilities for TB diagnostic testing. Of those referred, 1,189 clients (71 percent) were tested for TB, and 308 TB cases (26 percent of those tested, or 15 percent of the total counseled) were detected and directed for treatment to TB facilities. Nearly all (305) started treatment. The majority of those diagnosed were prevalent cases, having not been seen by health facilities of any sort in more than two years. Due to timing, no data are available yet on the treatment completion and success of these cohorts.

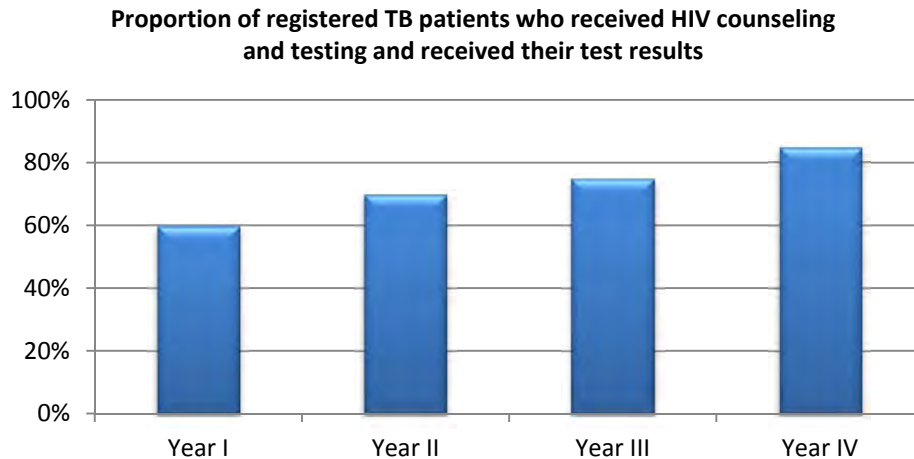
Training for TB providers in communication and diagnostic counseling and testing

Forty-five training sessions, entitled “Effective Communication and Counseling on TB/HIV,” were conducted for 870 project oblast TB and infectious disease physicians and epidemiologists over the course of the project. The training focused on enhancing the knowledge and skills of TB and HIV service providers and on preparing trainers in effective communication and counseling in support of continued scale-up of DCT among TB patients. In addition, the communication training sought to improve adherence to TB and ART among TB/HIV co-infected patients.

As indicated in Figure 9, the percentage of patients who received high-quality DCT in project oblasts over the course of the project period increased from 60 percent to 85 percent. In addition,

the number of registered TB patients who received HIV counseling and testing and received their results increased by nearly 35 percent over the project period in the project regions.

Figure 9. Progress toward high-quality counseling and testing in project regions.



From: Project data.

In collaboration with the Ukrainian Coalition of HIV Service Organizations, PATH also conducted a training course in March 2009, entitled “Provision of Social Support Services to People with TB/HIV Co-infection,” for 21 NGO activists whose organizations had started field-testing the standards of social care and support for TB/HIV patients developed during the first year of the project.

Guidelines entitled *Standard for Patients with TB/HIV Co-infection Social Service Provision* were developed with project support at the request of various NGOs as a framework for providing social care and support for TB/HIV and HIV patients, as well as patients from vulnerable groups. After an assessment of social support programs in May 2009, a final version of recommended social support standards was submitted for approval to the Ministry of Family, Youth, and Sport and was approved in September 2009. Implementation of enhanced standards of social support for TB/HIV patients started in October 2009 by all organizations working with Global Fund and USAID support.

As part of its efforts to support outreach and education on TB/HIV among key populations, PATH printed and disseminated 150,000 copies of brochure “Tuberculosis is Curable! Guide for Recovering Patients”, 160,000 copies of brochure “*Tuberculosis. Questions? Answers!*” and 520,000 copies of a questionnaire on TB screening “*Easy and Quick. TB Self-testing Questionnaire*” developed under previous contracts with USAID (Attachments 5, 6, and 7). All copies of printed materials were distributed to ten HIV service NGOs involved in TB screening and referral. According to the distribution plan, all materials were subsequently distributed to clients, their family members and friends, and to AIDS Centers for use as supporting materials in post-test counseling of PLHIV.

Results and challenges

Significant progress was made during the project period to strengthen TB/HIV-related policies, improve TB/HIV case management, and expand TB screening among HIV patients, as well as DCT for HIV among TB patients. As indicated in Figure 10 below, TB/HIV case notification rates steadily increased in the project regions, where the burden of co-infection is highest. The near doubling of case notification rates between 2006 and 2011 likely reflects both a worsening of the HIV epidemic and improved detection and diagnosis of co-infection.

Figure 10. Burden of TB/HIV co-infection in the project area compared to the rest of the country.

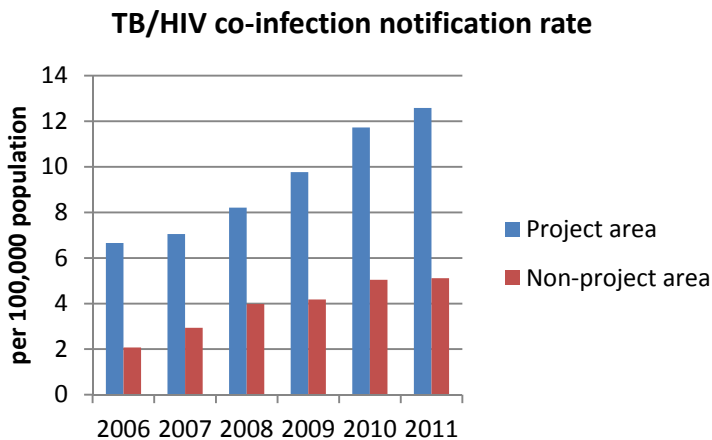
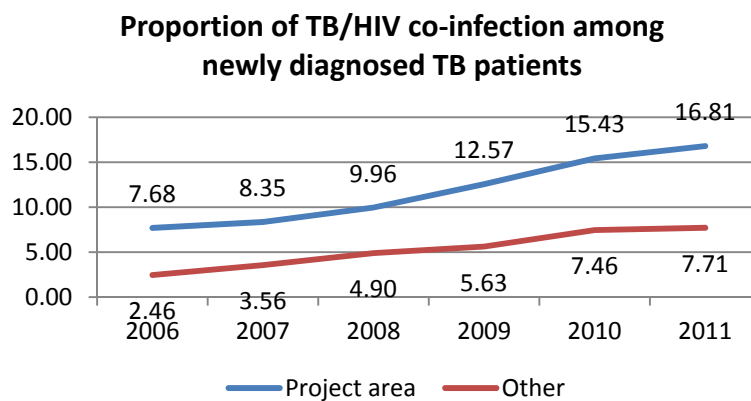


Figure 11 suggests that the proportion of TB patients with HIV continues to grow. Based on the figure, there is some indication of a slowing of this growth starting in 2010 in both project and non-project regions, but this is likely a spurious result related to the gaps in HIV testing supplies in 2010–2011.

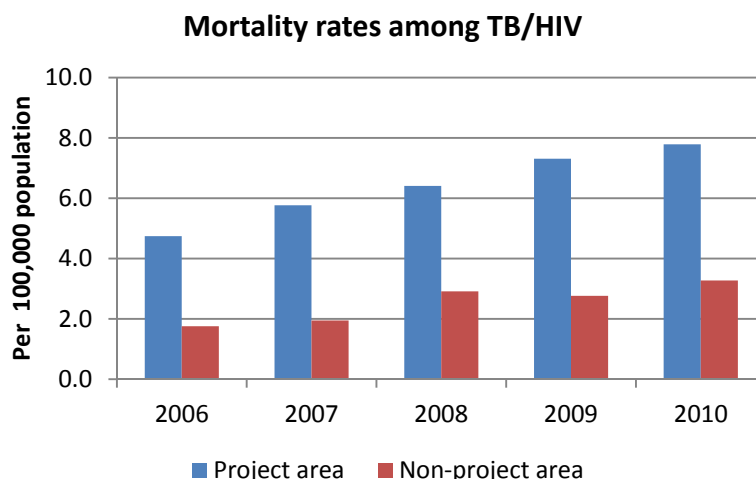
Figure 11. Dynamics of the TB/HIV epidemic in Ukraine.



From: MOH, National TB Control Center, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, MOH Statistical Center. *Tuberculosis in Ukraine*; 2012.

Progress in reducing TB/HIV-related mortality has been challenged by a number of factors, despite improvements in case management and service collaboration. For example, some oblasts still experience shortages in ART, with nearly 50 percent of PLHIV in need of ART without access. In addition, shortages of first-line TB drugs, as well as lack of availability of substitution therapy for injecting drug users, is compromising the effectiveness of interventions. Figure 12 indicates that the mortality rate continues to grow, though perhaps at a slower rate since 2009.

Figure 12. Mortality rates among TB/HIV co-infected individuals, 2006–2010.



The biggest remaining challenges to implementing TB/HIV programs in the next few years are as follows:

- Continuation of vertical TB and HIV/AIDS systems with poor collaboration and competing priorities, as well as continuing separation of these systems from the PHC system.
- Lack of ARV and TB tests and drugs in 2010–2011, which significantly impeded results of improved TB/HIV case detection and case management in project sites.
- Poor technical skills of TB and HIV/AIDS providers in TB/HIV co-infection diagnosis and case management of both regular TB and MDR-TB.
- Poorly coordinated strategy on TB prevention among PLHIV and delay in approval of the draft collaborative order developed in 2011.
- Poor understanding and implementation of the Three I's (intensified case-finding, isoniazid preventive therapy, and tuberculosis infection control).
- Insufficient infection control measures, poor understanding of how and where they should be applied, and lack of funding for implementation.

PATH addressed these challenges during project implementation, and priority areas that should be continued and strengthened over the next few years are the following:

- Strengthening of the collaborative TB/HIV program is the major priority for Ukraine. In fact, the mechanisms for basic coordination between the vertical and separate systems for delivery of TB and HIV services so that patients can access appropriate, integrated care for co-

infection (patient-centered approach) are defined and described in the draft Collaborative TB/HIV Order, so support of the order's approval and implementation is essential.

- Full and reliable supplies of ARV and TB diagnostics and drugs is essential to conduct proper case detection and case management, so improvement and assistance to the Ukrainian government in these areas should continue to be a priority.
- PHC and civil society involvement (national and international) is essential, especially in advocating for greater political support and resources, modeling innovations, and catalyzing changes in health service delivery. Oblast task forces created under the project and proven to be effective in strategic planning, implementation, M&E, and management should be supported and enhanced.
- An important framework for implementation and evaluation will be the Tuberculosis Patients' Charter, which outlines the rights and responsibilities of people with TB and TB/HIV and the ways in which patients, communities, health care providers, and governments can work together as partners in a positive and open relationship to improve standards of TB care and enhance the effectiveness of the health care process.
- Much work needs to be done to enhance national capacity to improve TB/HIV service coordination and effective monitoring of implementation.
- Implementation of the Three I's should be adopted given that it is a key public health strategy endorsed by WHO to reduce the impact of TB on PLHIV.¹⁴

Result 3: Reduced policy, legal, regulatory, fiscal, and attitudinal barriers inhibiting access to TB and TB/HIV co-infection prevention, diagnosis, treatment, and care according to international DOTS-based standards

Creation of an enabling environment for DOTS implementation

PATH provided ongoing support to the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases to raise awareness among key policymakers on global TB strategic approaches and best practices to removing or reducing existing policy and attitudinal barriers to accessing TB and TB/HIV co-infection services in Ukraine. PATH participated actively in State Service activities to maintain a mechanism for regularly sharing information on TB activities planned by the MOH, Global Fund Round 9 implementing partners, and international and national NGOs to improve coordination of their TB-related efforts. An important limitation in garnering political support is the lack of awareness among decision-makers at all levels about the TB situation, the global TB strategy, and the European regional response. PATH utilized an advocacy presentation on TB to orient key policy- and decision-makers.

PATH provided ongoing support to the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases. Multiple meetings were held with the heads and key personnel of the committee and leadership of the National TB Control Center to discuss strategies for

¹⁴Report of a Joint World Health Organization HIV/AIDS and TB Department Meeting, 2-4 April, 2008, Geneva, Switzerland

implementing the NTP and NTP priorities. PATH provided technical assistance to the NTP by conducting an analysis of TB program implementation in 2009, as well as providing significant technical assistance to the different working groups on the development of regulatory documents on TB and TB/HIV. PATH reviewed and provided technical input to the documents listed in Annex 2, including national law regarding TB control and MOH recommendations on restructuring the TB Service. PATH was also an active participant in the group of key stakeholder representatives, TB experts, and civil society (NGO) representatives working under the auspices of the MOH in 2011 to develop a National TB Control Plan for 2012-2016 and to revise the national protocol for DOTS implementation in Ukraine, as well as standard operating procedures for program activities.

PATH collaborated closely with the MOH, the NTP, and educational and research institutions in disseminating project results and international approaches as well as discussing and reviewing newly developed documents through the various national conferences (see Annex 3).

Enlistment of key decision-makers and stakeholders in reducing TB treatment barriers

To ensure continuing political support for TB control, PATH worked with government officials, health and social service providers, other gatekeepers, people living with TB and HIV/AIDS, professional associations and academics, media representatives/journalists, and other civil society organizations to promote their engagement in developing and implementing TB control-related advocacy, policy development, “watchdog,” and other transformational activities. PATH subcontracted the All-Ukrainian coalition UATB to work at the national and oblast levels to increase commitment to and support of governments and civil society to combat TB in Ukraine. UATB focused its activities at the national and regional levels to reach key policy institutions and providers. PATH provided the URCS and UATB with continuation subcontracts to bolster advocacy, particularly at the regional level, as well as communication, social mobilization, and community involvement in TB control.

Under the subcontract with UATB, PATH accomplished the following activities:

- Spearheaded the development of a registry of the MOH’s TB-related regulatory documents as part of MOH advisory group activities on implementing and monitoring the NTP, which is supported by PATH.
- Conducted press conferences with representatives of central media to promote advocacy and informational activities around World TB Day, specifically focused on the political commitment of the government of Ukraine to combat TB; in particular, timely procurement of drugs and other commodities for uninterrupted TB diagnosis and treatment.
- Encouraged timely scheduling and provided leadership in developing the agenda for the National Council on TB and HIV.
- Conducted monitoring of organizational and social aspects of TB control in Odeska and Khersonska Oblasts, utilizing a unified monitoring tool/questionnaire developed with PATH assistance.
- Worked with the Ukrainian Parliament Health Care Committee and Cabinet of Ministers to put TB control on the priority list for receiving humanitarian assistance available for Ukraine.

As a PATH subcontractor, UATB participated in the MOH working group established to provide support to improving Ukrainian legislation and regulatory documents on TB control. As a result of the analysis, which revealed numerous discrepancies and an absence of clear systematization of documents in effect, a request was sent to appropriate decision-making bodies to initiate the process of codifying the Ukrainian legislative framework within the health care system, which could start with TB-related regulations. UATB continued its TB-related awareness and promotion activities among Ukrainian parliamentary people's deputies, representatives of government executive bodies, national NGOs, and beneficiaries in order to publicly discuss Ukrainian legislation on and practices regarding TB control. A presentation on the WHO Stop TB Strategy, recommended TB control standards, and MDR-TB was delivered to the Ukrainian Parliament Health Care Committee. In addition, informational materials were prepared and discussed at Health Care Committee meetings. An agreement concerning the development and publication of informational materials for parliament members and staff on international approaches to and best practices in TB control was signed with the international journalist association Health without Borders.

An informational manual focused on the TB situation both globally and in Ukraine and internationally recommended TB control approaches was developed and issued by UATB and PATH. The manual summarizes international approaches and Ukrainian legal documents. It was disseminated at a conference to support advocacy and communication efforts.

UATB convened 16 informational meetings with members of parliamentary committees on health care, budget matters, international affairs, education and science, national security, and people's rights in order to overcome delays in allocation of national budget funds through the Ministry of Finance to the MOH to procure TB drugs and mitigate a dangerous situation caused by TB drug shortages at the oblast level. A press conference was held on April 23, 2008, to advocate for changes in financial practices as they related to procurement of TB drugs. This was essential to ensuring uninterrupted availability of drugs in TB hospitals. Twenty letters concerning TB drug-related financial policy were sent to the President and Prime Minister of Ukraine, parliament people's deputies, and ministry heads. As a result, despite difficulties with the national budgeting process and continued delay in appropriating national funds, the Ministry of Finance allocated funding, and TB drugs were procured by the MOH.

UATB also prepared and submitted 33 appeals to the President and Prime Minister of Ukraine, parliament people's deputies, and ministers regarding implementation of international TB control approaches, their relevance to Ukraine, and the need to make appropriate changes in Ukraine's legislative framework. A Memorandum of Understanding between the Ministry of Family, Youth, and Sport; UATB; and Health without Borders was signed to identify joint anti-TB activities, including training of officials and employees of the centers for youth and social support under the auspices of this ministry.

An important limitation in garnering political support is the lack of awareness among decision-makers at all levels about the TB situation, the global TB strategy, and the European regional response. PATH developed an advocacy presentation on TB to orient key policy- and decision-makers during the various meetings and workshops. With regard to work being conducted at the oblast level, the PATH team met with the heads of health administrations and key policymakers

of Dnipropetrovska, Donetsk, Kharkivska, Luganska, Odeska, and Zaporizhska Oblasts and AR Crimea to discuss a collaborative strategy for addressing the main barriers to strengthening TB and TB/HIV services. PATH staff gave presentations at oblast multidisciplinary conferences, Coordination Council meetings, roundtable meetings, and press conferences at the oblast level on the main approaches to TB control and the role that other services (e.g., social, media, police, oblast parliament, educational, and others) can play in strengthening routine TB and TB/HIV control.

Enhancement of mechanisms to ensure transparency and accountability

To ensure transparency and accountability at the national, oblast/provincial, local, and site levels of TB-related public- and private-sector decision-making and implementation of policy, legal, regulatory, and fiscal standards related to TB prevention, diagnosis, treatment, and care, PATH worked with Ukraine's civil society organizations to promote their engagement in developing and implementing TB control-related advocacy activities. Specifically, PATH worked with consultants from the Ukraine-based International HIV/AIDS and TB Institute. During these visits, they interacted with other governmental and nongovernmental stakeholders through participation in meetings of Regional and Rayon Coordination Councils to combat HIV and TB in order to continue the process of creating an enabling environment for anti-TB activities in project target areas.

In order to further provide technical assistance on TB and TB/HIV strategy for Regional Coordination Councils and provide ongoing technical support to Regional TB Programs, during the reporting period, PATH's consultants visited Kharkivska, Khersonska, Luganska, Odeska, and Zaporizhska Oblasts, AR Crimea, and Sevastopol and Kyiv Cities to monitor and provide technical assistance to Coordination Council support for TB and TB/HIV programs. The objectives of these visits were to assess current practices and provide technical assistance on TB and TB/HIV strategy development for the Coordination Councils, provide ongoing technical support to Regional TB Program units, and to update the National Coordination Council as well as the NTP regarding on-the-ground progress. They reviewed how the oblast and rayon councils were functioning and how much support they were to their respective HIV and TB control programs. Specifically, the role of Rayon TB Coordinators in ensuring high success rates of DOTS interventions through strong patient-centered inpatient and outpatient care and support activities was assessed. The main focus was how both the inpatient and outpatient phases were being implemented and how patients would be followed as they returned home and which support services were being provided to complement the basic DOTS intervention.

The overall finding of the monitoring was a significant improvement in Coordination Council understanding and "political will" to provide leadership for support of their respective TB programs. The particular issue emphasized by the operational capacity of the councils and the team's overall observation was the growing capability of Coordination Council monitoring functions, though it varied from site to site. The councils were meeting regularly and closely monitoring progress made in the implementation of previous decisions through working groups and information dissemination to rayons and eventually to the villages. The consultants found growing concerns regarding the lack of an uninterrupted and consistent supply of drugs and lack of both first- and second-line drugs in local TB facilities. Also, although the consultants found that there was engagement of the oblast and rayon governments in social support service

provision to patients at various administrative levels, there remained a significant number of people who were categorized as “asocial” (homeless, abusers of drugs and alcohol, former prisoners, the unemployed, etc.), and a massive scale-up of social service support aimed at not only these patients but also their families to ensure treatment adherence and completion is still needed.

Other specific findings are listed below:

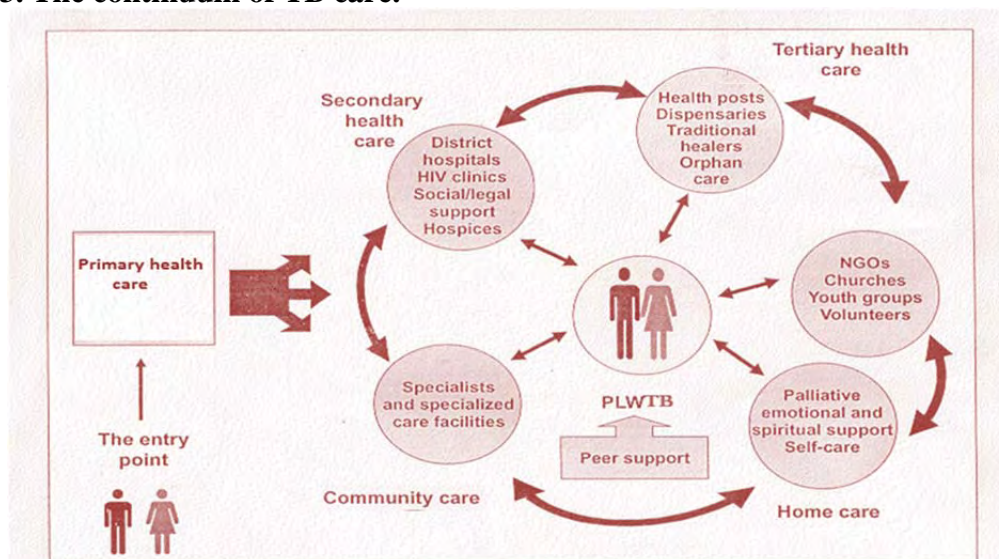
- There is a large cadre of dedicated and caring TB health staff members at all levels of the health care system who are committed to improving the effectiveness of the TB program in Ukraine.
- At present, their efforts are restrained by the lack of necessary equipment, pharmaceuticals, and supplies, rendering them powerless to treat XDR-TB cases.
- A number of young professionals are entering the field of TB control, which should result in successful advocacy for needed policy, legal, regulatory, and fiscal changes to enable wider adoption of modern TB and TB/HIV co-infection prevention, diagnosis, treatment, and care according to international DOTS-based standards.
- URCS nurses, supported by PATH, and TB dispensary nurses and fieldshers are tenacious in their efforts to track down all patients, especially non-compliant ones. However, there is only so much they can do without further support.
- Effective program leadership at the national and regional levels is critical for integrating the TB control program with the mainstream of primary health care in Ukraine, the importance of which is broadly recognized and reflected in the WHO Practical Approach to Lung Health and other international TB policy and guidance documents.
- The government of Ukraine’s effort to ensure a consistent and uninterrupted supply of high-quality TB medications is not fully successful yet. A positive change in TB control cannot be envisaged until the drug supply problems are addressed.
- A large segment of people living with TB is categorized as asocial (i.e., from the lower socioeconomic strata of Ukraine society: the homeless, the under- or unemployed, abusers of drugs and alcohol, and former prisoners). This cohort lacks a sense of social responsibility and commitment, especially concerning TB treatment and cough hygiene. The government and society will need to find an effective way to convince them to accept treatment while respecting their human rights. A massive scale-up of patient-centered social service support, aimed at not only the patient but also family members, is a possible solution. But it will entail a financial commitment that would be difficult for the government to realize at the present time.

Consultants were able to present the findings at meetings with government organizations providing social service support to TB patients and local URCS chapters. Additionally, they were able to meet with both HIV service NGOs and TB-oriented NGOs. However, the number of NGOs working with TB patients at the regional and rayon levels is woefully inadequate. Coupled with assessing the interrelationships of NGO and URCS representatives, and visiting local health care facilities, which are dealing directly with TB control issues, the consultants used

a reality check from various perspectives on the mechanisms for coordination of TB and social support services and the means for the accountability of those services.

Through these activities, there is a better understanding of the TB/HIV situation and the mechanisms working to address the situation in the oblasts visited and in Sevastopol City, plus an appreciation of how governmental and nongovernmental organizations through the mechanism of Coordination Councils are functioning to coordinate their available resources in an efficient manner. An approach the country could consider for the successful continuum of care for TB patients is shown in Figure 13 below.

Figure 13. The continuum of TB care.



From: Joint United Nations Programme on HIV/AIDS.

Capacity-building of Regional Coordination Councils on TB/HIV collaborative program management

A collaborative approach to training for Regional Coordination Councils was developed in cooperation with the USAID-funded project HIV/AIDS Service Capacity Building in Ukraine, implemented by the Futures Group. A coordinated schedule of training events and a coordinated training module entitled “Development of Regional Coordination Council activities to combat TB and HIV based on inter-sector collaboration” was developed. An effective collaborative approach to TB, HIV, and TB/HIV co-infection case management was presented at six trainings for Coordination Council members in Dnipropetrovska, Kharkivska, Khersonska, Kyivska, Luganska, Mykolaiivska, Odeska, and Zaporizhska Oblasts, as well as AR Crimea, Sevastopol City, and Kyiv City (participants from Mykolayivska and Kyivska Oblasts were supported by the Futures Group).

The objectives of the training were to improve council members’ skills in organization of interagency collaboration to combat TB/HIV co-infection and to discuss new approaches to and recommendations on organization and coordination of efforts for improvement of TB/HIV collaborative program and case management. Participants evaluated the training positively, and their knowledge of the topics improved from 21 percent to 45 percent. Cooperation of the

USAID-funded projects proved to be very effective; it provided an opportunity to use US government funds more efficiently, approach the same target group in a comprehensive way, and leverage the intellectual and information resources of the two projects.

Expansion of training and other activities to reduce stigma and discrimination

PATH will continue to combat stigma and discrimination by incorporating communications skills training into existing DOTS trainings to reduce stigma and discrimination, particularly among health and social service providers, community decision-makers, civil society groups, local media, and other gatekeepers. Specifically, trainings in IPCC related to TB were provided to a number of TB providers at project sites. Special comprehensive training curricula were developed to standardize the training approach and to incorporate it into the national training curricula for TB and PHC providers. These trainings were described under Result 1.

Support for publication of *Tuberculosis, Lung Diseases, HIV Infection*

In order to further create an enabling environment for DOTS implementation and to participate in the development of TB regulations and national advocacy, PATH supported the publication of the All-Ukrainian scientific journal *Tuberculosis, Lung Diseases, HIV Infection*, which was initiated by the TB Chair of the National Medical University named after O. O. Bohomolets. Professor Vasyl Petrenko, TB Chair Head, is the Chief Editor of this newly published journal. The publication is currently the only specialized journal on phthisiology in Ukraine. It reviews the latest theoretical and practical achievements in TB control in Ukraine and worldwide; presents modern scientific and research information on TB, lung diseases, and HIV/AIDS; and disseminates the best practices of domestic and foreign scientific schools and medical centers. In a separate section called “Legal and Regulatory Environment,” the journal publishes versatile guidance documents as well as the latest MOH orders and regulations and international standards for TB diagnostics, treatment, and care. It also reports on the congresses and conferences devoted to TB, lung diseases, and HIV/AIDS. For example, recommendations of the All-Ukrainian workshop “Human Resources Capacity Strengthening in TB Control in Ukraine,” conducted under the USAID Tuberculosis Control Partnership Project in September 2010 in AR Crimea, were published in the third issue of the journal. Thus, a nationwide audience was informed through publication of results of conference discussions on up-to-date approaches to the development of educational and training programs for the enhancement of pre- and post-diploma and on-the-job education of TB specialists and PHC providers in Ukraine. The fourth issue of the journal published resolutions of the roundtable “Availability of anti-mycobacterial therapy: provision and control of quality of anti-mycobacterial medicines, procurement and supply management, WHO prequalification of the drugs.” Thus, a nationwide audience was informed about the results of discussions that took place during the roundtable about the challenges and barriers of the adequate supply and proper use of drugs for TB control. Also highlighted was the project-support conference “Current issues on TB/HIV co-infection control.”

Tuberculosis, Lung Diseases, HIV Infection is published quarterly, and has a circulation of 3,000 copies. The journal is distributed to MOH officials, TB clinics and dispensaries, AIDS Centers, officials of the Ministries of Internal Affairs and Defense, the penitentiary system of Ukraine, teaching staff of higher medical institutions and universities of pre- and post-diploma education, scientific medical libraries, TB doctors, infectious disease doctors, and general practitioners. The journal is also presented and distributed at national and regional medical forums.

Annex 1. Project training materials

Title	Translation	Target group	Type of training material	Short description	Year of issue	Circulation
Матеріали для проведення тренінгу “Моніторинг і оцінка заходів щодо виявлення, діагностики та результатів лікування хворих на туберкульоз на основі когортного аналізу”	Materials for a series of trainings on “Monitoring and evaluation of TB detection, diagnosis, and patients’ treatment results based on cohort analysis”	Tuberculosis (TB) specialists, medical statisticians at rayon- and oblast-level TB health care facilities	Set of training materials: training program, presentations, practical exercises, recommendations for trainers	These training materials were developed by PATH specialists to update knowledge and improve the practical skills of rayon and oblast medical staff to record, register, and report on results of TB case management; improve the filing of medical documentation; showcase data interpretation and use in TB control activity success and failure analysis; develop cohort analysis skills for monitoring and evaluation of TB patient diagnosis and treatment; and introduce eTB Manager.	2007	Electronic version
Методичний посібник для проведення тренінгу “Міжособистісне спілкування та консультування пацієнтів на тему ТБ та ВІЛ/СНІД”	Training curriculum on interpersonal communication and counseling of patients on TB and HIV/AIDS	Health care providers working in TB and TB/HIV control, TB specialists, infectious disease doctors, nurses	Curriculum	This three-day curriculum was designed to introduce the principles of interpersonal communication and counseling to TB medical workers and to provide practical experience in TB and HIV/AIDS counseling, including voluntary counseling and testing according to international norms and Ukrainian law. Treatment of TB and HIV/AIDS require medical providers’ understanding of the importance of counseling oriented toward patient needs. Effective interaction between medical providers and patients will help to achieve more successful patient adherence with TB treatment. The curriculum also includes a chapter on stress management for TB medical providers to cope with the psychological and social issues of their patients and their long-term treatment.	2009	Published on PATH website

Title	Translation	Target group	Type of training material	Short description	Year of issue	Circulation
Матеріали для проведення тренінгу “Ведення випадку ТБ та контроль за розповсюдженням МР ТБ”	Training materials: “TB case management and MDR-TB prevalence control”	TB specialists, nurses in TB health care facilities	Set of training materials: training program, presentations, practical exercises, knowledge evaluation questionnaire, training evaluation questionnaire	These training materials were designed, developed, and implemented by PATH to update TB specialists’ knowledge and skills in line with the World Health Organization’s most recent recommendations on TB and multidrug-resistant tuberculosis (MDR-TB) case management: <i>Treatment of Tuberculosis Guidelines (Fourth Edition)</i> , WHO/HTM/TB/2009.	2009	Electronic version
Матеріали для проведення тренінгу “Організація ефективного ведення випадку ТБ/ВІЛ ко-інфекції шляхом координації зусиль ТБ і ВІЛ програм”	Materials for a series of trainings on “Organization of effective TB/HIV co-infection case management by coordination of TB and HIV program control efforts”	Health care facility managers, members of Regional Coordination Councils, medical assistants, nurses, nongovernmental organization (NGO) representatives	Set of training materials: training program, presentations, practical exercises, recommendations for trainers	These training materials were developed by PATH specialists to improve collaboration between various health care facilities, social services, and NGOs providing services to patients with TB and HIV to decrease epidemics growth rates. Training objectives: provide trainees with the characteristics of TB/HIV case management to improve planning of joint activities on TB/HIV case management; develop joint activities and planning skills; and introduce key principles of program implementation monitoring.	2009	Electronic version
Матеріали для проведення тренінгу “Особливості роботи ВІЛ-сервісних недержавних організацій в умовах епідемії туберкульозу”	Materials for a series of trainings on “Characteristics of HIV service NGO activities in TB epidemics”	Managers of HIV service NGOs, managers of HIV service projects	Set of training materials: training program, presentations, practical exercises, recommendations for trainers	This training program was developed with the aim of defining the role of HIV service NGOs in providing TB services, and the unique situation of TB/HIV control design and implementation with regard to patient epidemiology and needs. Training objectives: improve understanding of TB infection transmission, prevention, detection, and treatment; introduce the structure of TB medical care provision; define the NGO role in TB detection and prevention management; define NGO capabilities in HIV prevention among patients with TB; define the position of NGOs within the structure of health care provision for people with TB/HIV co-infection; showcase the best practices of	2010	Electronic version

Title	Translation	Target group	Type of training material	Short description	Year of issue	Circulation
				collaborations between NGOs and health care facilities; analyze approaches to TB and TB/HIV control project implementation.		
Методичні матеріали для проведення тренінгу з бактеріоскопічно і діагностики туберкульозу в клініко-діагностичних лабораторіях та контролю за якістю досліджень	Training curriculum on laboratory diagnosis of TB by smear microscopy and quality assurance of smear microscopy in clinical diagnostic laboratories	Trainers in laboratory diagnosis of TB by smear microscopy and quality assurance of smear microscopy in clinical diagnostic laboratories	Curriculum	In order to improve continuing medical education for laboratory specialists, it was highly important to conduct regular short-term (five-day) training courses on specific issues of TB diagnosis in compliance with international standards and best practices. PATH supported curriculum development to ensure course effectiveness. The program includes daily lesson plans; training goals and objectives; and lists of lectures, practical exercises, seminars to be covered, skills to be improved and practiced, training tools and materials, and references.	2010	2,000
Методичний посібник “Ведення випадку туберкульозу в протитуберкульозній службі України”	Training curriculum on TB case management within the TB Service of Ukraine	Teachers and trainers of TB case management in Ukraine	Curriculum	This curriculum was developed to support continuing education on TB epidemic control in Ukraine and summarizes the recent knowledge in phthisiology and best practices in TB case management. It contains individual and group exercises, real-life examples and clinical cases, case studies and other resources, and recommendations for trainers and teachers. Also included are daily lesson plans; training goals and objectives; and lists of topics to be covered, skills to be improved and practiced, training tools and materials, and references. The curriculum is part of a manual that also includes a set of information annexes on TB case management within the TB Service of Ukraine and a CD of all presentations envisaged by the training program.	2011	Electronic version

Title	Translation	Target group	Type of training material	Short description	Year of issue	Circulation
Матеріали для проведення тренінгу “Розбудова діяльності регіональних рад з питань протидії туберкульозу та ВІЛ-інфекції/СНІДу на засадах міжсекторальної взаємодії”	Materials for a series of trainings for Regional Coordination Councils on HIV/AIDS and TB capacity-building based on multisectoral cooperation	Members of Regional Coordination Councils	Set of training materials: training program, presentations, practical exercises, recommendations for trainers	These training materials were developed by PATH specialists and aimed at updating knowledge and improving skills of Regional Coordination Council members on the effectiveness of multisectoral cooperation in TB epidemic control. Training objectives: provide an update on the epidemiological situation of TB, HIV/AIDS, and TB/HIV co-infection in Ukraine; define ways to improve the quality of health care provision to decrease the rates of TB, HIV, and TB/HIV co-infection; study the needs of most-at-risk populations for TB and TB/HIV co-infection prevention, diagnosis, and treatment using real-life stories as examples; depict multisectoral activity coordination in TB and HIV infection prevention and epidemic control; analyze possible ways for Regional Coordination Councils to improve multisectoral cooperation; and provide practical advice.	2011	Electronic version

Annex 2. PATH technical assistance in the development of state regulations

Title	Translation	Target group	Link	Short description	Year of issue	Circulation
Форми первинної облікової документації і форм звітності з туберкульозу та інструкцій щодо їх заповнення. Затверджено наказом МОЗ України 657 від 02.09.2009 року	TB Primary Recording and Reporting Forms and Instructions for Filling Them Out, approved by the Ministry of Health of Ukraine, Order No. 657 as of 09/02/2009	Ukraine health care facilities	http://zakon1.rada.gov.ua/laws/show/za069-09?key=4%2FUMfPEGznhh7RZ.ZiWTpU0THI4b6s80msh8Ie6	With PATH's leadership and technical assistance, the statistical forms for collecting tuberculosis (TB)-related information in accordance with international recommendations were reviewed. The forms were revised following useful suggestions for changes. TB/HIV co-infection surveillance data were incorporated into the revised forms. The associated instructions for using them were developed in accordance with the requirements of the Ministry of Justice.	2009	Published on the Ministry of Health (MOH) website
Тимчасові форми первинної облікової документації і форми звітності з хіміорезистентного туберкульозу. Затверджено Наказом МОЗ України від 31.03.09 № 199	Temporary MDR-TB Recording and Reporting Forms, approved by the Ministry of Health of Ukraine, Order No. 199 as of 03/13/2009	Ukraine health care facilities	http://www.moz.gov.ua/ua/portal/dn_20090331_199.html	PATH specialists provided necessary technical assistance for development of multidrug-resistant tuberculosis (MDR-TB) recording and reporting forms with the aim of improving the MDR-TB recording and reporting system in Ukraine and aligning the forms with international standards.	2009	Published on the MOH website
Інструкція щодо заповнення форм первинної облікової документації і форм звітності з хіміорезистентного туберкульозу. Затверджено Наказом МОЗ	Instruction for Filling Out Temporary MDR-TB Recording and Reporting Forms, approved by the Ministry of Health of Ukraine, Order	Ukraine health care facilities	http://www.moz.gov.ua/ua/portal/dn_20090414_245.htm	Instructions for completing and using temporary MDR-TB recording and reporting forms, developed in accordance with the requirements of the Ministry of Justice.	2009	Published on the MOH website

Title	Translation	Target group	Link	Short description	Year of issue	Circulation
України від 14.04.2009 № 245	No. 245 as of 04/14/2009					
Стандарт надання медичної допомоги хворим на хімеорезистентний туберкульоз”. Затверджено Наказом МОЗ України від 22.10.2008 № 600	Standard for Patients with Drug-Resistant Tuberculosis: Medical Care Provision, approved by the Ministry of Health of Ukraine, Order No. 600 as of 10/22/2008	Medical providers of TB specialized health care facilities and general health care facilities	http://www.moz.gov.ua/ua/portal/dn_20081022_600.html	PATH specialists assisted in development of the standard to ensure that patients with drug-resistant TB receive the necessary health care services. The regulation is aimed at establishing unified requirements toward drug-resistant TB prevention, diagnosis, and treatment activities in Ukrainian health care facilities; providing unified health care services optimized for patients with drug-resistant TB; and defining the optimal amount, availability, and quality of medical care ensured by the state budget that can be provided in TB specialized and general health care facilities. The standard can be applied to both children and adults.	2008	Published on the MOH website
Проект Наказу Про порядок перенаправлення та надання послуг з діагностики, лікування і супроводу пацієнтів при супутній патології ВІЛ-інфекція/СНІД – туберкульоз – вірусні гепатити	Draft Order on the Referral and Service Provision in Diagnostics, Treatment, and Support of Patients with HIV/AIDS-TB-Hepatitis Co-infection and Pathology	Local health care administrations, TB facilities, AIDS Centers, primary health care facilities	http://dssz.gov.ua/index.php/uk/gromadske-obgovorennya	With PATH’s technical assistance, this draft order was developed to improve regulatory documentation on TB/HIV co-infection case management and to make it compliant with Ukrainian legislation, as well as with international standards and best practices to meet patients needs; coordinate efforts of all TB and HIV medical providers, local health care administrations and primary health care providers in TB/HIV co-infection detection, diagnosis, and treatment; and improve TB/HIV co-infection prevention and control activities.	2010-11	Published for public discussion on the website of the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases
Стандарт інфекційного контролю за туберкульозом в лікувально-профілактичних закладах, місцях	TB Infection Control Standard in Healthcare Facilities, in Places of Long-Stay and of TB Patients	МОЗ, local health care administrations, sanitary and epidemiological stations at the central and local	Printed publication	This infection control standard was approved by MOH Order No. 684 as of 08/18/2010 and registered under No. 803/18098 as of 09/10/2010 in the Ministry of Justice of Ukraine. This regulation consists of eight sections: common clauses; infection control components; infection control in TB health	2010	3,000

Title	Translation	Target group	Link	Short description	Year of issue	Circulation
довгострокового перебування людей та проживання хворих на туберкульоз	Permanent Residence	levels, national transportation administration, AIDS Centers, health care facility staff at all levels		care facilities; TB infection control in AIDS Centers; TB infection control in health care facilities; TB infection control in places of population long-stay; TB infection control in places of permanent residence of TB patients; TB infection control activities monitoring.		
Стандарт надання соціальних послуг хворим на поєднані захворювання туберкульоз та ВІЛ-інфекцію	Standard for Patients with TB/HIV Co-infection Social Service Provision	Nongovernmental organizations providing social services to TB/HIV patients	http://zakon3.rada.gov.ua/laws/show/z0905-10	The standard for patients with TB/HIV co-infection social service provision was approved by a joint order of the Ministry of Family, Youth and Sport, the Ministry of Labor and Social Policy, and the MOH (No. 3123/275/770 [z0903-10] as of 09/13/2010) and registered under No. 905/18200 as of 10/08/2010 in the Ministry of Justice of Ukraine. The regulation consists of the following sections: common clauses; types and content of services (social, psychological, medical, legal, information); conditions for service provision; and procedures.	2010	http://zakon3.rada.gov.ua/laws/show/z0905-10
Порядк взаємодії установ виконання покарань та суб'єктів соціального патронажу під час підготовки до звільнення осіб, які відбувають покарання у виді обмеження волі або позбавлення волі на певний строк. Затверджено	Interaction Procedure Between Penal Institutions and Social Patronage in the Course of Release Preparation of Persons Serving Sentence or Being Imprisoned for a Specific Term, approved by Joint Order of the Ministry of Justice, Ministry	Civil servants, medical staff, and social workers of the related ministries, and regional social services of Ukraine	http://zakon2.rada.gov.ua/laws/show/z0487-12	PATH specialists took part in the working group meetings and contributed to development of this regulation, which is aimed at providing assistance to persons serving prison sentences and those to be released, to provide support for their return to society, including providing assistance with employment and housing and social adaptation and support.	2011	http://zakon2.rada.gov.ua/laws/show/z0487-12

Title	Translation	Target group	Link	Short description	Year of issue	Circulation
<p>спільним Наказом Міністерства юстиції, Міністерства соціальної політики, Міністерства освіти і науки, молоді та спорту, МОЗ, МВС України від 28.03.2012 № 478/5/180/375/21 2/258</p> <p>Зареєстровано в Міністерстві юстиції України 30.03.2012 за № 487/20800</p>	<p>of Social Policy, Ministry of Education and Science, Ministry of Family, Youth and Sport, Ministry of Health, Ministry of Internal Affairs of Ukraine, No. 478/5/180/375/2 12/258 as of 03/28/2012 and registered with the Ministry of Justice under No. 487/20800 as of 03/30/2012</p>					
<p>Завдання і заходи загальнодержавн ої цільової соціальної програми протидії захворюванню на туберкульоз на 2012-2016 роки</p>	<p>Tasks and Activities of the National Program to Fight Tuberculosis for 2012-2016</p>	<p>State institutions, ministries, and civil society organizations engaged in National TB Control Program implementation</p>	<p>The draft is under review and approval at the Cabinet of Ministers of Ukraine</p>	<p>PATH specialists took part in the working group meetings and contributed to National TB Control Program tasks and activities development. This document consists of lists of tasks, activities, responsible entities, funders, estimated costs, and timelines for implementers of the National TB Control Program for 2012-2016.</p>	<p>2012</p>	<p>The draft is under review and approval at the Cabinet of Ministers of Ukraine</p>

Annex 3. National conferences

Conference name	Translation	Target group	Goal	Date and location
Установча зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Initial stakeholder meeting: Tuberculosis (TB) Control Partnership in Ukraine Under Indefinite Quantity Contract TASC2: 2007–2011	TB control stakeholders: Ministry of Health (MOH), nongovernmental organizations (NGOs), health care facilities, and National Tuberculosis and Lung Diseases Research Institute representatives	To present the goal and objectives of the US Agency for International Development (USAID)-funded TB Control Partnership in Ukraine Project, and discuss project indicators and the Year 1 implementation plan.	November 19, 2007, Kyiv
Щорічна зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Annual TB Control Partnership Project stakeholder meeting	Key representatives from each project administrative area; representatives of the MOH, Ministry of Justice, penitentiary system, National Tuberculosis and Lung Diseases Research Institute, and Ukrainian AIDS Centers; national and international NGO and civil society representatives, including the All-Ukrainian Network of People Living with HIV/AIDS, Coalition of HIV Service Organizations, Futures Group, and the World Health Organization (WHO); and the Chief Technical Officer of USAID/Kyiv	To present the status of implementation of the project components: TB laboratory capacity-building; DOTS training; multidrug-resistant tuberculosis (MDR-TB); TB/HIV collaborative measures; TB services in prisons; TB control monitoring; and advocacy, communication, and social mobilization activities. To discuss plans of action and the Memorandum of Understanding for each project administrative region.	February 21–22, 2008, Kyiv
Щорічна зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Annual TB Control Partnership Project stakeholder meeting	Key representatives from each project region; representatives of the MOH and Ministry of Justice, penitentiary system, National Tuberculosis and Lung Diseases Research Institute, and Ukrainian AIDS Centers; and national and international NGO and civil society representatives, including people living with HIV/AIDS, the Coalition of HIV Service	To present Year 1 accomplishments and the Year 2 implementation plan; summarize TB control monitoring data for each project region; and provide an annual analysis of project and National TB Control Program accomplishments.	February 25–26, 2009, Kyiv

Conference name	Translation	Target group	Goal	Date and location
		Organizations, the Futures Group, WHO, and the USAID/Kyiv Chief Technical Officer		
Щорічна зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні” на тему “Удосконалення якості лабораторної діагностики”	Annual TB Control Partnership Project stakeholder meeting: “Increasing laboratory capacity and quality”	MOH representatives and heads of diagnostic laboratories in the project sites	To discuss progress and barriers in improving laboratory TB diagnosis in project target regions; highlight quality control in laboratories of all project regions; discuss results of regular monitoring visits; emphasize biological safety and infection control enhancement in TB laboratories; present data on smear microscopy TB detection by primary health care (PHC) clinics.	April 21-23, 2010, Kyiv
Регіональна конференція “Туберкульоз з множинною медикаментозною стійкістю як одна з головних проблем сучасної фтизіатрії”	Regional conference: “Multidrug-Resistant Tuberculosis as One of the Major Problems of Modern Phthisiology”	TB clinic chief and deputy chief doctors, TB doctors, heads of departments of TB dispensaries, faculty members of Zaporizhska State Medical University	To enhance TB doctors’ and other health care specialists’ knowledge on organization of high-quality treatment for TB patients (including patients with MDR-TB) by applying international recommendations and guidelines for treating TB, and to facilitate discussion on current approaches to organization and supervision of MDR-TB treatment.	June 4–5, 2010, Zaporizhska
Всеукраїнський семінар-нарада “Актуальні проблеми посилення кадрового потенціалу в галузі боротьби з туберкульозом в Україні”	All-Ukrainian conference: “Human Resources Capacity Strengthening in TB Control in Ukraine”	MOH representatives; TB Chairs of the National Medical University and National Medical Academy of Postgraduate Continuous Education; key representatives from each administrative territory of Ukraine, including staff of the National Tuberculosis and Lung Diseases Research Institute, National Medical University, Ukrainian TB Control Center, MOH of the Autonomous Republic of Crimea (AR Crimea), heads of TB departments of pre- and post-diploma medical universities, chief TB doctors, and AIDS Centers	To present and discuss up-to-date approaches to the development of educational and training programs for the enhancement of pre-diploma, post-diploma, and in-service education of TB specialists and PHC providers in Ukraine; highlight the role of educational programs based on up-to-date international approaches and standards in TB control in pre-diploma, post-diploma, and on-the-job education of medical professionals; facilitate a discussion on urgent issues regarding pre- and post-diploma education in TB control and the general health care system; and present the possibilities of incorporating a training approach of adult learning into medical education programs.	September 29-October 1, 2010, Gaspra, AR Crimea

Conference name	Translation	Target group	Goal	Date and location
Щорічна зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Annual TB Control Partnership Project stakeholder meeting	Chief doctors of TB dispensaries and AIDS Centers from each project region; and representatives of the National Tuberculosis and Lung Diseases Research Institute, National Medical University, and the MOH TB Control Center	To present Year 3 project accomplishments and the Year 4 implementation plan; facilitate discussion on conducting onsite monitoring visits and review meetings and planning issues for program implementation in the project sites; and highlight biological safety and infection control enhancement in TB laboratories.	October 1–2, 2010, Gaspra, AR Crimea
Робоча зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Ad-hoc partners’ meeting	Chief doctors of oblast TB dispensaries in the project sites, representatives of the Ukrainian Red Cross Society (URCS)	To discuss upcoming project work plan priorities and the Global Fund to Fight AIDS, Tuberculosis and Malaria Round 9 draft implementation plan to reduce the potential for duplication and overlap of activities; share project partners’ experiences in conducting monitoring and supervision visits in the targeted oblasts, districts, and cities; present results and lessons learned from implementation of the URCS/PATH joint program “Support for Detection and Treatment of TB in Socially Vulnerable Population Groups”; discuss collaboration between TB services and the URCS program and lessons learned from the previous year.	January 26, 2011, Kyiv
Науково-практична конференція з міжнародною участю “Сучасні проблеми ко-інфекції туберкульоз і ВІЛ/СНІД”	Theoretical and practical conference: “Current Issues in TB/HIV Co-infection Control”	Representatives of the MOH, National Medical University, National AIDS Center, NGOs, and the State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases; TB specialists; HIV specialists; TB specialists from the prison department; and autopsy specialists	To discuss current issues related to TB/HIV prevention, detection, diagnosis, and treatment in Ukraine and TB relapse in HIV-infected patients; highlight AIDS services during an epidemic of TB and HIV; offer ways to improve provision of health care to co-infected patients; improve TB diagnosis in HIV-infected patients; present WHO policy for collaboration in the field of TB/HIV and international recommendations on TB/HIV co-infection control program implementation; present findings of monitoring and assessment of TB/HIV co-infection control activities; review findings regarding stigma and discrimination of TB patients; share experiences of antiretroviral therapy	March 29–30, 2011, Kyiv

Conference name	Translation	Target group	Goal	Date and location
			effectiveness in TB/HIV co-infected patients; and discuss morphologic aspects of TB and HIV/AIDS pathology.	
Науково-практична конференція на тему “Актуальні питання діагностики та лікування мультирезистентного туберкульозу”	Theoretical and practical conference: “Topical Problems of MDR-TB Diagnosis and Treatment”	Representatives of the MOH, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, WHO, and the F. G. Yanovsky Institute of Phthisiology and Pulmonology; chief doctors and other health care providers of regional TB dispensaries and polyclinics; and representatives of the Estonia National MDR-TB Control Program	To discuss international recommendations on MDR-TB diagnosis and treatment; raise concerns regarding non-compliance with standard TB treatment regimens; and suggest approaches to effective MDR-TB case management.	May 12, 2011, Kyiv
Позапланова зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні” на тему: “Досвід роботи консиліумів з мультирезистентного туберкульозу. ЦЛКК в організації лікування хворих”	Ad-hoc partners’ meeting: “The Experience of Councils of Physicians/ Central Medical Counseling Committee in Support of MDR-TB Patient Treatment Management”	Oblast TB dispensary chief and deputy chief doctors; heads and members of oblast Consultation Commissions on MDR-TB	To share the experience of the oblast Consultation Commissions on MDR-TB in providing adequate treatment to MDR-TB and extensively drug-resistant tuberculosis patients according to international anti-TB practices, and to present each project region’s achievements, innovations, challenges, and suggested solutions.	May 13, 2011, Kyiv
Всеукраїнський семінар-нарада “Інфекційний контроль за туберкульозом у лікувально-профілактичних закладах”	National conference: “Tuberculosis Infection Control in Health Care Facilities”	Representatives of the MOH, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, WHO, F. G. Yanovsky Institute of Phthisiology and Pulmonology; regional TB dispensary and polyclinic chief doctors/providers (public and penitentiary sector), national and regional Sanitary and Epidemiological Stations; and international experts	To discuss international recommendations for TB infection control; present the newest national infection control guiding document, <i>Infection Control Standard</i> , developed with project technical assistance; and share experiences from project sites in organizing administrative, engineering, and personal protection interventions.	June 14–15, 2011, Kyiv

Conference name	Translation	Target group	Goal	Date and location
Заключна зустріч партнерів Проекту USAID “Партнерство в контролі за туберкульозом в Україні”	Final stakeholder meeting	TB control area stakeholders: MOH, State Service of Ukraine on HIV/AIDS, TB, and Other Socially Dangerous Diseases, MOH TB Center, chief doctors of oblast TB facilities, heads of TB laboratories in the project sites, and international and local NGOs	To present accomplishments and lessons learned from the project to stakeholders and partners, and discuss the sustainability of project achievements in expanding international standards for TB care and improving the quality of TB services in Ukraine; and report on project results in expanding DOTS coverage and improving DOTS quality in project regions, increasing laboratory capacity and quality, providing access to TB/HIV co-infection services, building adequate capacity for rapid implementation of MDR/XDR-TB related activities, creating an enabling environment for DOTS implementation by removing or reducing behavioral and attitudinal barriers, and enhancing monitoring and evaluation as a key component of TB control in project regions.	February 21–22, 2012, Kyiv

Annex 4. Project publications

Title	Translation	Target group	Link	Short objective	Year of issue
Брошюра “Добровольное консультирование и тестирование на ВИЧ. В помощь консультанту	Brochure: “Voluntary Counseling and Testing on HIV: Provider’s Guide”	Tuberculosis (TB) doctors, primary health care (PHC) providers, psychologists, and social workers who provide voluntary counseling and testing (VCT) services for tuberculosis (TB) patients	Reprinted publication developed by PATH for the US Agency for International Development (USAID) Scaling-up the National Response to HIV/AIDS through Information and Services (SUNRISE) project	This guide is intended for VCT providers in medical facilities and NGOs. The brochure includes basic information on goals, objectives, and principles of VCT; shows a VCT algorithm; describes types and details of pre- and post-test counseling; provides an overview of the knowledge and skills necessary for counseling; analyzes typical mistakes during counseling sessions and ways of overcoming them; describes the referral system among VCT health care providers	2009
Рабочие карты по добровольному консультированию и тестированию на ВИЧ	Job aids on voluntary counseling and testing on HIV	Health care providers, psychologists, social workers, and people living with HIV/AIDS who provide VCT services	Reprinted publication developed by PATH for the SUNRISE project	(AIDS Centers and sexually transmitted infection and drug abuse clinics) and HIV service NGOs; and discusses counseling quality supervision. The accompanying job aids describe each stage of pre- and post-test counseling.	2009
Стандарти бактеріоскопічної діагностики туберкульозу в клініко-діагностичних лабораторіях	Standards of Bacteriological Diagnosis of Tuberculosis in Clinical Laboratories	Students of medical universities and postgraduate schools, doctors, clinical diagnostic laboratory specialists in PHC and specialized health care facilities, lung and extra-pulmonary TB specialists	Printed publication	This manual gives detailed guidance on performing TB smear microscopy: rules of collecting, preparing, and coloring, and detailed testing of biological material. The publication includes a training curriculum on laboratory diagnosis of TB by smear microscopy and quality assurance of smear microscopy in clinical diagnostic laboratories.	2010

Title	Translation	Target group	Link	Short objective	Year of issue
Учетно / отчетная документация для ведения случаев чувствительного ТБ и ТБ с множественной лекарственной устойчивостью	Recording and reporting forms and registers for drug-sensitive TB and multidrug-resistant tuberculosis (MDR-TB) case management	National TB Control Program (NTP) health care providers, oblast and rayons TB specialists	Printed publication	These forms were endorsed for countrywide use in 2009 by Ministry of Health (MOH) Order No. 657 for drug-sensitive TB and MDR-TB case management. The project funded printing and distribution of the necessary cards, forms, and registers to ensure collection of reliable, high-quality data and proper recordkeeping in project sites.	2011
“Туберкульоз в Україні” (аналітично-статистичний довідник за 2000-2011 р.р. [за півріччя])	Tuberculosis in Ukraine (analytical and statistical reference book for 2000–2011 (half a year)	NTP health care providers, oblast and rayon TB specialists	Printed publication	The latest information about the status of TB services in Ukraine along with the latest statistical data.	2011
“Туберкульоз в Україні” (аналітично-статистичний довідник за 2000-2010 р.р.)	Tuberculosis in Ukraine (analytical and statistical reference book for 2000–2010)	NTP health care providers, oblast and rayon TB specialists	Printed publication	The latest information about the status of TB services in Ukraine along with the latest statistical data.	2011
“Туберкульоз в Україні” (аналітично-статистичний довідник за 1999-2009 р.р.)	Tuberculosis in Ukraine (analytical and statistical reference book for 1999–2009)	NTP health care providers, oblast and rayon TB specialists	Printed publication	The latest information about the status of TB services in Ukraine along with the latest statistical data.	2010
“Туберкульоз в Україні” (аналітично-статистичний довідник за 1998-2008 р.р.)	Tuberculosis in Ukraine (analytical and statistical reference book for 1998–2008)	NTP health care providers, oblast and rayon TB specialists	Printed publication	The latest information about the status of TB services in Ukraine along with the latest statistical data.	2009
“Туберкульоз в Україні” (аналітично-статистичний довідник за 1997-2007 р.р.)	Tuberculosis in Ukraine (analytical and statistical reference book for 1997–2007)	NTP health care providers, oblast and rayon TB specialists	Printed publication	The latest information about the status of TB services in Ukraine along with the latest statistical data.	2008
Український науково-практичний журнал “Туберкульоз. Легеневі Хвороби.	All-Ukrainian scientific journal <i>Tuberculosis, Lung Diseases, HIV</i>	MOH officials; TB clinics and dispensaries; AIDS Centers; Ministry of Internal Affairs, Ministry	Printed publication	This publication is currently the only specialized journal on phthisiology in Ukraine. It reviews the latest theoretical and practical achievements in TB control	Starting from Quarter 4, 2010

Title	Translation	Target group	Link	Short objective	Year of issue
ВІЛ-інфекція”	<i>Infection</i>	of Defense, and penitentiary system of Ukraine; teaching staff of higher medical institutions and universities of pre- and post-diploma education; scientific medical libraries; and TB doctors, infectious disease doctors, and general practitioners; the journal was also presented and distributed at national and regional medical forums		in Ukraine and worldwide; presents modern scientific and research information on TB, lung diseases, and HIV/AIDS; and disseminates the best practices of domestic and foreign scientific schools and medical centers. In a separate section called “Legal and Regulatory Environment,” the journal publishes versatile guidance documents as well as the latest orders and regulations of the MOH and the international standards for TB diagnostics, treatment, and care. It also reports on the congresses and conferences devoted to TB, lung diseases, and HIV/AIDS.	
Стандарт інфекційного контролю за туберкульозом в лікувально-профілактичних закладах, місцях довгострокового перебування людей та проживання хворих на туберкульоз	TB Infection Control Standard in Healthcare Facilities, in Places of Long-Stay and of TB Patients Permanent Residence	MOH, local health care administrations, central- and local-level Sanitary Epidemiological Stations, national transportation administration, AIDS Centers, health care facility staff at all levels	Printed publication	The Infection Control Standard was approved by MOH Order No. 684 as of 08/18/2010 and registered under No. 803/18098 as of 09/10/2010 in the Ministry of Justice. The regulation consists of eight sections—common clauses; infection control components; and TB infection control in TB health care facilities, AIDS Centers, PHC facilities, TB infection control in places of population long-stay; TB infection control in places of permanent residence of TB patients; TB infection control activity monitoring.	2010
Брошюра “Туберкульоз. Вопросы? Ответы!”	Brochure: “Tuberculosis. Questions? Answers!”	TB patients, TB suspects, vulnerable populations	Printed publication	This brochure contains basic information on TB; pathways of transmission; opportunities for TB detection, diagnosis, and treatment in Ukraine; patient rights and responsibilities; and Ukrainian legislation on TB detection, diagnosis, and treatment. The main idea of the publication is to encourage people to seek early TB diagnosis and treatment.	2009, reprinted in 2011

Title	Translation	Target group	Link	Short objective	Year of issue
Брошюра “Туберкулез излечим! Практическое руководство для выздоровливающих”	Brochure: “Tuberculosis is Curable! Guide for Recovering Patients”	TB patients under treatment and their family members	Printed publication	This brochure provides basic information on TB infection; pathways of transmission; TB treatment and the importance of treatment adherence for cure; drugs for TB treatment and their possible side effects; details on TB/HIV co-infection; infection control recommendations; and recommendations for patients’ family members.	2009, reprinted in 2011
Буклет “Просто и быстро. Лист самоконтроля”	Booklet: “Easy and Quick TB Self-testing Questionnaire”	Vulnerable and general populations	Printed publication	This booklet includes basic information on the importance of early detection of TB; TB symptoms; and a questionnaire regarding key TB symptoms and signs of TB vulnerability. It is designed to be used for TB self-testing.	2009, reprinted in 2011