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SPENDING WISELY FOR IMPROVED TB OUTCOMES: LESSONS IN STRATEGIC PURCHASING FOR TB IN EASTERN EUROPE AND CENTRAL ASIA



September 2018

This publication was produced for review by the United States Agency for International Development. It was prepared by Dasha Migunov, Sara Feinstein, Sevim Ahmedov, Olga Zues, and Alexandr Katsaga for the Health Finance and Governance Project.

The Health Finance and Governance Project

The Health Finance and Governance (HFG) Project works to address some of the greatest challenges facing health systems today. Drawing on the latest research, the project implements strategies to help countries increase their domestic resources for health, manage those precious resources more effectively, and make wise purchasing decisions. The project also assists countries in developing robust governance systems to ensure that financial investments for health achieve their intended results.

With activities in more than 40 countries, HFG collaborates with health stakeholders to protect families from catastrophic health care costs, expand access to priority services – such as maternal and child health care – and ensure equitable population coverage through:

- Improving financing by mobilizing domestic resources, reducing financial barriers, expanding health insurance, and implementing provider payment systems;
- Enhancing governance for better health system management and greater accountability and transparency;
- Improving management and operations systems to advance the delivery and effectiveness of health care, for example, through mobile money and public financial management; and
- Advancing techniques to measure progress in health systems performance, especially around universal health coverage.

The HFG project (2012-2018) is funded by the U.S. Agency for International Development (USAID) and is led by Abt Associates in collaboration with Avenir Health, Broad Branch Associates, Development Alternatives Inc., the Johns Hopkins Bloomberg School of Public Health, Results for Development Institute, RTI International, and Training Resources Group, Inc. To learn more, visit www.hfgproject.org

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The Defeat TB project

The USAID Defeat TB project (2014-2019) aims to reduce the burden of TB in Kyrgyzstan by limiting the development of drug-resistant strains of the disease, supporting equitable access to quality health care for vulnerable groups, and strengthening the national healthcare system. The project works closely with national partners to improve general access to quality TB care and services, such as diagnosis and treatment; to strengthen the capacity of healthcare service providers to deliver on their mandate, including supporting the modernization of laboratories; and to improve the quality of data pertaining to TB, as well as how this data is used. The Defeat TB project is led by Abt Associates, Inc. in partnership with FHI 360 and the Resource and Policy Exchange.

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| RTI International | Training Resources Group, Inc. (TRG)



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ACRONYMS

DRG	Diagnosis-related group
DOT	Directly-observed treatment
HFG	Health Finance and Governance
MHIF	Mandatory Health Insurance Fund of the Kyrgyz Republic
MDR-TB	multi-drug resistant TB
NHSU	National Health Service of Ukraine
P4P	Pay-for-performance
PHC	Primary health care
SPARC	Strategic Purchasing Africa Resource Center
TB	Tuberculosis
TB-REP	WHO Tuberculosis Regional Eastern Europe and Central Asia Project
PAS	Centre for Health Policies and Studies
WHO	World Health Organization
USAID	United States Agency for International Development

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I. INTRODUCTION

Until recently, the concept of strategic purchasing for tuberculosis (TB) was discussed by only a small group of financing experts. The global TB community generally saw strategic purchasing as an approach for saving money, not improving health outcomes, and “TB financing” was focused on increasing the percentage of national health budgets going to TB.

Today, a growing number of stakeholders are promoting strategic purchasing for TB as a tool for improving not only the efficiency but also the effectiveness of TB care. These advocates include ministries of health, USAID, the World Health Organization, the World Bank, and implementing partners. Several countries in the Eastern Europe and Central Asia region have begun using resources more wisely to improve TB outcomes.

Building on this momentum, the USAID Defeat TB and Health Finance and Governance (HFG) projects in Kyrgyzstan and Ukraine convened representatives from 10 countries in the Eastern Europe and Central Asia region for a workshop to share the tools and practices that have helped them move toward more efficient and effective TB services. The result was the *Spending Money Wisely for Improved TB Outcomes* workshop, held May 28-30, 2018 in Bishkek, Kyrgyzstan.

This report documents the workshop proceedings and offers recommendations for countries interested in implementing strategic purchasing to improve TB services, both within the Eastern Europe and Central Asia region and beyond.

The report’s objectives are to:

- Explain the importance of strategic purchasing for improving TB services in the Eastern Europe and Central Asia region, specifically through the examples presented at the May 2018 *Spending Money Wisely for Improved TB Outcomes* workshop;
- Share the Ukraine and Kyrgyzstan experiences with strategic purchasing for TB, particularly as they relate to the reforms underway or planned in other countries in the region;
- Describe the status of strategic purchasing for TB services in other countries in the region; and
- Demonstrate the value of exchanging experiences with strategic purchasing for TB amongst countries through fora such as *Spending Money Wisely for Improved TB Outcomes* workshop.

It is the authors’ hope that this report will be a valuable work planning resource for former Soviet countries that wish to begin or continue reforming their TB service systems. For countries beyond the former Soviet Union, and for technical partners working on strategic purchasing for TB, we hope that the practices and reforms described here will serve as informative, inspiring, and practical models.

Strategic purchasing, within the context of allocating pooled funds to health care providers that serve a covered population, means active, evidence-based engagement in defining the service-mix and volume, and selecting the provider-mix in order to maximize societal objectives.

Adapted from WHO definition at http://www.who.int/health_financing/topics/purchasing/passive-to-strategic-purchasing/en/



1.1 Workshop Organizing Partners

USAID's Defeat TB and HFG projects, in collaboration with the Mandatory Health Insurance Fund (MHIF) of the Kyrgyz Republic, organized the workshop in consultation with the World Health Organization (WHO) Europe team and the WHO Tuberculosis Regional Eastern Europe and Central Asia Project (TB-REP).

Ukraine and Kyrgyzstan have done groundbreaking work in strategic purchasing for TB over the past few years with support from the HFG and Defeat TB projects. HFG supported the introduction of strategic purchasing approaches and the development of data analytics for strategic purchasing for TB in Ukraine. In Kyrgyzstan, HFG provided technical assistance to support the development of diagnosis-related groups (DRGs) for a new case-based payment system for TB hospitals. HFG worked closely in Kyrgyzstan with the Defeat TB Project, the Ministry of Health, and the MHIF, which implemented the new TB hospital payment system.

Defeat TB has been a key partner for the MHIF, the National TB Program, and the Ministry of Health in their efforts to improve TB care in the country through a comprehensive set of interlinked reforms. In the area of strategic purchasing for TB, Defeat TB has provided extensive technical assistance with the following activities: design and implementation of the new TB hospital payment system based on the DRGs developed by HFG; design and rollout of a new bonus payment system for primary health care staff involved in TB care; and development and implementation of a roadmap to guide restructuring and optimization of the TB system. Defeat TB has also supported a number of innovative TB service delivery reforms that complement the financing changes.

The workshop organizers were eager to create a forum to share Ukraine's and Kyrgyzstan's implementation experiences with countries across the region, which share similar challenges and health systems. To ensure that the forum covered the right topics and brought together the right people, USAID (at both the headquarters and country Mission levels), HFG, and Defeat TB engaged with the WHO/Europe team and the WHO Tuberculosis Regional Eastern Europe and Central Asia Project (TB-REP), including the Centre for Health Policies and Studies (PAS Centre). WHO and TB-REP provided links to their national counterparts and points of contact in countries across the region, helping to identify appropriate stakeholders to invite to the workshop. The USAID projects also worked closely with key counterparts from Ukraine and Kyrgyzstan, with the MHIF of Kyrgyzstan serving as a workshop co-organizer.

1.2 Workshop Participants

Sixty people attended the workshop, including representatives from 10 Eastern European and Central Asian countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, and Uzbekistan. While these countries have all reformed in various ways since the collapse of the Soviet Union, they all still share a vertically structured tuberculosis hospital system inherited from Soviet times.

Workshop participants included national TB program managers, TB decision makers, TB system reformers (from city, oblast, and national levels), and representatives from organizations with health financing authority, such as ministries of finance and health insurance agencies. To promote productive discussions, the workshop organizers sought to have at least one TB expert and one health financing expert from each country attend. Due to scheduling conflicts, such representation was possible for only about half of the countries. The organizers compensated for this during the group work sessions by matching the country teams with facilitators who complemented the skills and experience of the

participants. For example, a country group with extensive TB experience and limited health financing expertise was matched with a facilitator with a background in health financing, and vice versa.

Representatives from USAID, WHO, the World Bank, and implementing partners in Kyrgyzstan also participated, helping facilitate the discussion and connect the dots across countries.

Workshop Structure

Because most participants had taken part in other discussions or trainings on provider payment and health systems, the *Spending Money Wisely for Improved TB Outcomes* workshop included only one session on the key elements and importance of strategic purchasing. Most of the workshop focused on sharing experiences and stimulating thought about how strategic purchasing approaches could be used to improve TB outcomes in participants' own countries. To this end, the workshop included the following activities:

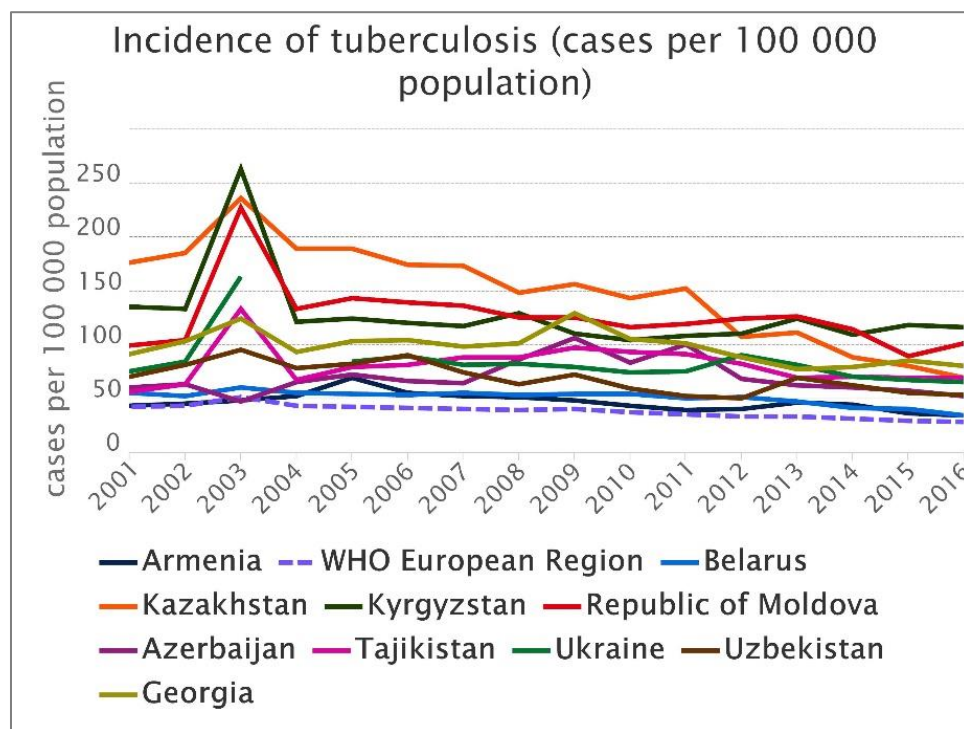
- **Session I:** Strategic Health Purchasing. Presentation/training session to orient participants on the key elements of strategic purchasing and provide a common language for the workshop.
- **Session II:** Tuberculosis Service Delivery: Where We Can Spend Money More Wisely. Interactive session for country working group participants to discuss gaps and problems in TB care in their respective countries.
- **Session III:** Strategic Purchasing Tools and their Applications for TB in Ukraine. Panel discussion to provide examples of how cost accounting was used to inform decision makers.
- **Session IV:** Incentives and Data for Improved Tuberculosis Service Delivery. Interactive discussion for country working groups to share information and ideas about incentives that can drive improvements in TB care, and data needed to do so.
- **Session V:** Driving Change in TB: Experience in the Kyrgyz Republic. Panel discussion to share examples of how strategic purchasing and other reforms were implemented to improve TB care.
- **Session VI:** Health Financing Approaches to Improving TB Care Across the Region. Presentations from Belarus, Moldova, and Azerbaijan on their TB financing efforts.
- **Session VII:** Strategic Purchasing Arrangements & Implementation Steps. Interactive session for country working groups to discuss potential next steps pertaining to strategic purchasing in each country.
- **Site Visits.** Participants split into two groups for visits to the Family Medicine Center (a primary health care center) in Issyk-Ata Rayon of Chui Oblast and the Chui Oblast branch of the Mandatory Health Insurance Fund to learn more about new TB payment and incentive systems in Kyrgyzstan.
- **Session VIII:** Site Visit Debrief. Interactive full group discussion to share impressions from site visits.
- **Session IX:** Steps Toward Spending Money Wisely for Improved TB Outcomes. Presentations by each country on key priorities and next steps based on learnings from the workshop.

2. BACKGROUND

2.1 TB in Former Soviet Countries

Following sharp increases in the TB burden in the 1990s and 2000s, TB incidence in the former Soviet countries has generally decreased. Nevertheless, TB remains a critical public health problem in the region due to continued high incidence, poor treatment success rates, alarming rates of multi-drug resistant TB (MDR-TB), and increasing coincidence of TB and HIV.

Figure 1: TB Incidence in Former Soviet Countries



Source: European Health Information Gateway Health for All Explorer. WHO Regional Office for Europe. Graph generated September 17, 2018, from <https://gateway.euro.who.int/en/hfa-explorer/>

MDR-TB incidence among the former Soviet countries in the Eastern Europe and Central Asia region range from 25 cases per 100,000 population (Azerbaijan) to 80 cases per 100,000 population (Kyrgyzstan). Eight of the countries represented at the workshop are among the world's 30 high MDR-TB burden countries: Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, and Uzbekistan.

Many of the reasons for these dire statistics can be found in the health care system inherited by former Soviet countries. Under this system, national governments put most of their health resources – including medications and better-trained doctors – into hospitals, with the result that hospitalization was routine, and expected by patients, for many conditions. The health financing system also created incentives to

build unnecessarily large TB hospital infrastructure and to admit TB patients for long hospitalizations. These lengthy hospitalizations in TB facilities are believed to be a major contributor to the epidemic of MDR-TB, the more difficult-to-treat form of the disease, across the region.

When WHO recommended the directly-observed treatment (DOT) protocol for TB in the 1990s – which calls for the patient to be observed by a health care worker or a volunteer each day as he takes his medications – most countries around the world responded by administering DOT in outpatient facilities or the community. But in the former Soviet countries, patients were hospitalized in TB facilities for up to nine months while on DOT. Research has shown that these patients often infected one another with different forms of the disease during their hospitalization. Thus, a patient entering the hospital with a case of simple, easily-treated tuberculosis could end up leaving with harder-to-treat MDR-TB.

2.2 TB Reforms in Former Soviet Countries

By the late 1990s, reforms of the TB system in former Soviet countries became essential for both public health and financial reasons. TB rates were soaring, and the governments could not afford to maintain their expensive TB hospital networks. As part of their reforms, these countries moved toward developing national clinical practice guidelines in line with the WHO recommendations for a significant shift to outpatient treatment and reduced hospital stays.

However, the region's health systems were not structured to support outpatient TB treatment. In particular, financing for TB services was not aligned with the goal of more outpatient TB treatment. TB hospitals were paid based on inputs such as beds and staff, which incentivized them to maintain large facilities and keep patients hospitalized for long periods. Meanwhile, the primary health care level lacked the resources, capacity, and motivation to deliver outpatient treatment for TB patients. In addition, the national policies of several countries in the region still do not reflect the latest WHO guidance for TB treatment to be patient-centered, decentralized, and outpatient.

When combined with service delivery changes such as new clinical protocols and clinical training, strategic purchasing can encourage outpatient TB treatment by removing incentives for hospitalization and creating incentives for evidence-based care. Strategic purchasing can also improve TB outcomes at the primary health care level.

3. STRATEGIC PURCHASING FOR TB

Strategic purchasing can be a powerful tool to improve the efficiency and effectiveness of health services, but it has not generally been part of the global TB toolkit. This section describes the key elements of strategic purchasing, and explains the importance of strategic purchasing for improving TB services in the Eastern Europe and Central Asia region, in particular.

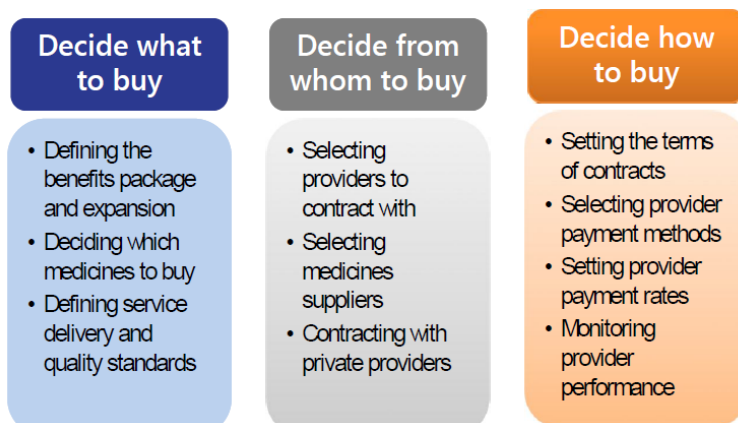
3.1 From Passive to Strategic Purchasing

The WHO defines purchasing as “the allocation of pooled funds to providers that deliver healthcare goods and services to the covered population, as per the defined benefit package.” Rethinking purchasing is particularly important in the Eastern Europe and Central Asia region due to the Soviet legacies of universal health care and expensive hospital-based health systems, combined with the reality of limited health budgets following the collapse of the Soviet Union.

Like many other countries around the world, the former Soviet countries have primarily used “passive” purchasing, in which budgets are based on past costs. In other words, health facilities are paid based on what they spent in previous years on inputs like salaries, medicine, and building maintenance. While this purchasing approach has the benefit of being straightforward from an accounting perspective, it can create perverse incentives for providers that may not align with the health system’s goal of optimizing health outcomes for patients. Strategic purchasing, by contrast, offers the potential to both manage costs and incentivize provider behavior to optimize health outcomes for patients.

As defined by the WHO, strategic purchasing is “active, evidence-based engagement in defining the service-mix and volume, and selecting the provider-mix in order to maximize societal objectives.” As illustrated in Figure 1, strategic purchasing entails three types of strategic decisions.

Figure 2: Key Strategic Health Purchasing Functions

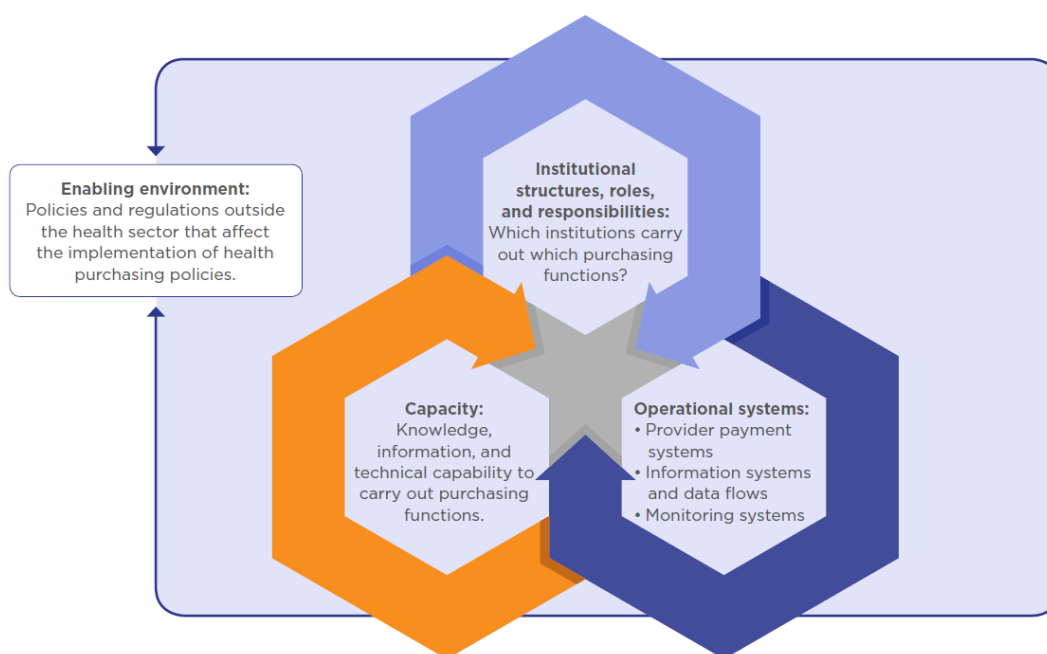


Source: Strategic Health Purchasing for Priority Services. Presentation. Cheryl Cashin, R4D, HFG project

Through these deliberate decisions, the purchaser can manage overall costs in the system, create intentional incentives, contract selectively with providers, set price and quality standards, and stimulate quality improvement.

Implementation of effective strategic health purchasing brings into play four interlinking factors: institutional structures, roles and responsibilities; operational systems; institutional capacity; and an enabling policy and regulatory environment. (See Figure 2.) Based on the interests of the workshop participants and the experiences of Kyrgyzstan and Ukraine, the workshop focused on operational systems, including information systems, monitoring systems and provider payment mechanisms for strategic purchasing.

Figure 3: Strategic Purchasing Implementation Factors



Source: Unleashing the Potential of Strategic Purchasing (HFG Series: Advances in Health Finance & Governance)

3.2 Provider Payment Mechanisms

Purchasers have several options for how they can pay providers: fee-for-service, case-based payment (diagnosis-related groups), capitation, global budget, and add-on payments. Each of these payment mechanisms can affect provider behavior, as summarized Table 1.

It is important to note that there is no ‘best’ provider payment mechanism. They all have strengths and weaknesses, and all are capable of introducing both desired and perverse incentives. The challenge is to figure out the best mix of mechanisms in a given environment, and determine how to adjust the mix in response to changes in the environment.

Table 1: Provider payment mechanisms

Payment Method	Description	Unit of payment	Provider Incentive
Fee for service	Retrospective activity-based payment billing of individual services and patient contacts.	Individual service	Increase the number of services and reduce inputs per service
Case-based payment or diagnosis-related groups	Prospective activity-based patient per patient, patient classified into groups based on diagnoses and resource use.	Hospital discharge	Increase number of hospital admissions and reduce cost per admission (e.g., fewer tests; lower length of stay)
Capitation	Prospective lump-sum payment per enrolled patient covering a range of services.	Enrolled person	Increase number of enrolled individuals and reduce cost per person (e.g., keep population healthy or increase referrals and reduce quality)
Global budget	Prospective lump-sum payment covering a range of services independent of actual volume provided.	Varies	Provide fewer services, refer to other providers, increase inputs, and improve efficiency of inputs.
Add-on payment	Pay-for-performance bonus and/or penalty linked to quality of care.	Achievement of quality targets	Improvements in quality of care

Adapted from OECD: <https://www.oecd.org/els/health-systems/Better-ways-to-pay-for-health-care-FOCUS.pdf>

3.3 Strategic Purchasing of TB Services

The goal of strategic purchasing of TB services is better health outcomes for patients. This focus on the patient is a helpful reminder for decision makers navigating the potential tension between clinical and purchasing outlooks. Strategic purchasing is not about cutting back on spending to save money at the cost of patient care. It is about using resources in the most effective way to achieve the best results (health outcomes) for patients.

“Remember, if one patient is in the hospital who doesn’t really need to be there, he’s pulling resources away from the patient in the next bed, who does need to be there.”

– Alla Bredikhina, Head of Finance & Economic Unit, Poltava Regional Health Department, Ukraine

As described in the background section, many former Soviet countries face the same challenges when it comes to TB service delivery and TB financing. Historically, most treatment took place in hospitals, so most resources went to inpatient care. With the acceptance of the DOTS strategy throughout the region in the early 2000s, more TB care has shifted to the primary health care (PHC) level. Due to the historical emphasis on hospital-based care, however, there is misalignment between the expected large role of PHC in TB care and the actual provider payment mechanisms for PHC. Meanwhile, the passive purchasing approach of input-based payments for the TB system has meant that there have been few or no incentives for health providers at the hospital and PHC levels to ensure that patients are found, get diagnosed, start treatment, stay on treatment, and complete treatment. Strategic purchasing is a powerful way for former Soviet countries to align TB service delivery practices with new clinical protocols.

Global experience shows that strategic health purchasing can drive changes in TB service delivery. For example, Taiwan introduced fee-for-service and pay-for-performance (P4P) mechanisms to encourage providers to treat TB patients according to recommended approaches. The fee-for-service payments cover physician counseling, medications, physical examinations, and laboratory tests. The P4P includes extra payments for diagnosis confirmation, treatment success (for MDR and drug-susceptible TB), comprehensive follow-up, and education. Patients also receive payment rewards for completing treatment. Following these changes in provider payments, Taiwan saw significant increases in cure rates (from 43.4% to 63.5%). Although the Taiwan model is costly and may not be fully replicable in Eastern Europe and Central Asia, the example nevertheless provides important evidence that incentive payments can work for TB care.

Most of the former Soviet countries have started moving towards strategic purchasing for TB, but the region as a whole is currently characterized by a mix of passive and strategic purchasing for TB. Table 2 summarizes each country's provider payment mechanisms for hospitals and PHC facilities, the impact of the mechanisms on TB hospitalization, and whether a separate agency is responsible for strategic purchasing.



Table 2: Purchasing for TB in 11 Countries in Eastern Europe and Central Asia

Country	Primary health care	Outpatient specialized TB services	Hospitals	Impact on hospitalization pattern of patients in first-line treatment (admission rate; ALOS) in 2015	Separate agency for strategic purchasing
Armenia	Capitation (pay-for-performance pilot)		Mixed: global budget/ case payment	High admission rate High ALOS	Yes
Azerbaijan	Line-item budget		Line-item budget	Relatively high admission rate Relatively high ALOS	Yes
Belarus	Capitation		Line-item budget	High admission rate High ALOS	No
Georgia	Capitation	Case payment	Per diem	Low admission rate High ALOS	Yes
Kazakhstan	Capitation (pay-for-performance pilot)		Case based (TB in transition)	High admission rate High ALOS	Yes
Kyrgyzstan	Capitation		Case based (TB in transition)	High admission rate High ALOS	Yes
Republic of Moldova	Capitation, pay-for-performance model	Mixed: Capitation/ case payment	Per diem	High admission rate High ALOS	Yes
Tajikistan	Capitation (pay-for-performance pilot)		Line-item budget	High admission rate High ALOS	No
Turkmenistan	Line-item budget		Line-item budget	High admission rate High ALOS	No
Ukraine	Line-item budget (per capita pilot)		Line-item budget (global budget pilot)	High admission rate High ALOS	No
Uzbekistan	Line-item budget		Line-item budget	High admission rate High ALOS	No

(Source: World Health Organization. A people-centred model of tuberculosis care. A blueprint for eastern European and central Asian countries, first edition, 2017.)

Suggested Strategies for Purchasing of TB Services—Many of the workshop participants came with a theoretical understanding of strategic purchasing and a desire to learn more about the nuts and bolts of strategic purchasing design and implementation. To that end, the workshop organizers reviewed some suggested strategies for purchasing of TB services:

- **Pooling and purchasing should not be segmented by revenue source.** Separate pooling can lead to health financing fragmentation, duplication of purchasing functions, and reduced access, equity, and efficiency. At the provider level, it can lead to conflicting financial incentives in payment systems. There needs to be a single pool from which all health services are paid.
- **Provider payments should be linked to desired service delivery outcomes.** Purchasers should pay health care facilities for treatment of the patient rather than for inputs such as beds, buildings, utilities, equipment, and salaries. It is important to set financial incentives at levels that are appropriate to incentivize desired service delivery outcomes. Payment rates should be established within the framework of the available health care budget.

- **Strong information management systems are critical for strategic purchasing.** In fact, strategic purchasing is impossible without high-quality information because purchasers need to have a clear sense of what they are buying and from whom. This information feeds into the data analytics required for strategic purchasing design and implementation.
- **Data analytics are essential throughout the life cycle of strategic purchasing design and implementation.** Data analytics for strategic purchasing begin with an analysis of the current situation to understand what services are currently being purchased, whether the right service mix is being delivered, whether any efficiency or quality concerns exist, and what elements of the health system are the cost drivers. The results of this analysis then feed into payment system design or refinement of the payment system. A simulation analysis can then help decision makers determine whether the proposed payment system can indeed achieve the desired impact. Once the payment system has been implemented, ongoing monitoring is needed to ensure that the system is continuing to achieve the desired impact and to inform potential adjustments.

With these strategies in mind, the overall recommended process for improving purchasing of TB services can be summarized through the illustration in Figure 3. It is important to note, however, that with the right analytics, strategic purchasing mechanisms can be used to improve the effectiveness and efficiency of TB services even before a new, comprehensive payment system is introduced. Ukraine's experience, described in the next section, offers a good example of this.

Figure 4: Recommended process for improving purchasing of TB services



4. UKRAINE EXPERIENCE

Rather than introducing new payment systems right away, Ukraine has focused first on data collection, analytics, and cost accounting. Ukraine's experience with strategic purchasing instruments and frameworks provides valuable lessons for other countries in the region looking to make their TB systems more effective and efficient even before implementing new payment systems.

4.1 Background

Like the other former Soviet countries, Ukraine faces a stabilization in overall TB incidence but a concerning rise in MDR-TB. In 2016, TB incidence was 87 cases per 100,000 population, the mortality rate was 9.5 cases per 100,000 population, and 27 percent of new cases and 47 percent of previously treated cases were drug resistant.

A major contributor to these high MDR-TB rates is the over-hospitalization of TB patients.¹ For example, in 2017, Odesa Oblast reported that 89 percent of TB patients there were hospitalized for at least two months. Ukraine's input-based payment system for TB hospitals has incentivized this over-hospitalization. Paid based on bed occupancy rather than outputs, the TB hospitals try to keep their beds full, including with TB patients who only have outpatient care needs and even patients who do not have active TB disease. This not only contributes to the rise in MDR-TB (due to poor infection control and nosocomial transmission) but also uses up limited resources unnecessarily.

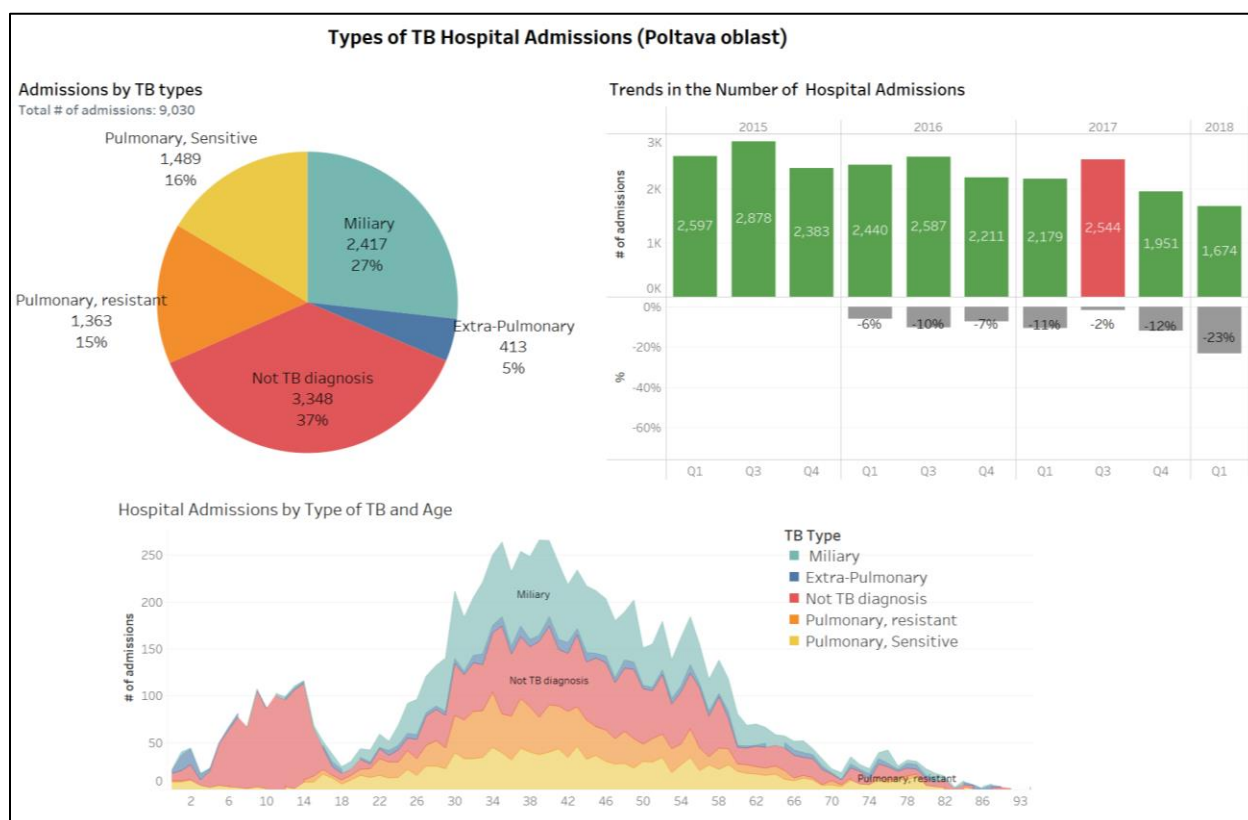
Ukraine's 2015-2020 health care strategy, which includes an emphasis on new provider payment mechanisms to incentivize better health outcomes, has served as an important catalyst for the country's move towards strategic purchasing for TB. Working with the USAID HFG Project and the World Bank, Ukraine has started to prepare for the introduction of strategic purchasing by designing a national-level cost accounting methodology, developing indicators of hospital payment, calculating payment rates, developing information systems and supporting the newly-created strategic purchasing agency. In addition, with technical assistance from HFG, the Ministry of Health and the health departments of three oblasts (Poltava, Odesa, and Lviv) and Kyiv City introduced several new tools to enable decision makers to better understand the effectiveness and efficiency of the TB hospital system and to prepare for making more strategic management and purchasing decisions about TB services.

The Cost Accounting Tool used the step-down cost accounting methodology^[1] to allocate all costs incurred by a health care facility across its various departments and services in order to determine the cost of things such as one bed-day, one visit, or one lab test. The process, conducted by HFG-trained statisticians and finance specialists from TB hospitals, involved consolidating information from the annual facility budget, personnel data, data on the facility's structural units, and various other sources.

¹ Genotyping and molecular analysis have allowed for tracing MDR TB infection sources, revealing a pattern of transmission amongst patients hospitalized together. See Nodieva A, I. Jansone, L. Broka et al. , *International Journal of Tuberculosis and Lung Disease*, 2010, 14(4):427-433 and Shen G, Xue Z, Shen X, et al. *The study of recurrent tuberculosis and exogenous re-infection, Shanghai, China. Emerging Infectious Disease*. 2006; 12:1776–1778, as cited in Barton Smith, unpublished PowerPoint presentation, presented at a seminar of the USAID Quality Health Care Project, Bishkek, Kyrgyz Republic, 2015.

A second tool was the TB Hospital Performance Monitoring System, which analyzes performance metrics such as average length of stay, bed occupancy, case mix, costs, and patient demographics. The system's electronic dashboard and individual facility reports allow health departments and hospitals to see if the hospitals are admitting the right patients for the right amount of time. For example, the system showed that more than half of the patients in TB hospitals did not have active TB, meaning that these patients were being unnecessarily exposed to TB and receiving treatment that could be provided at lower cost in outpatient settings. Figure 4, below, illustrates the types of TB hospital admissions in one particular oblast. The performance monitoring system also showed that hospitals were keeping patients longer than necessary in order to keep beds full during periods when they had few admitted patients.

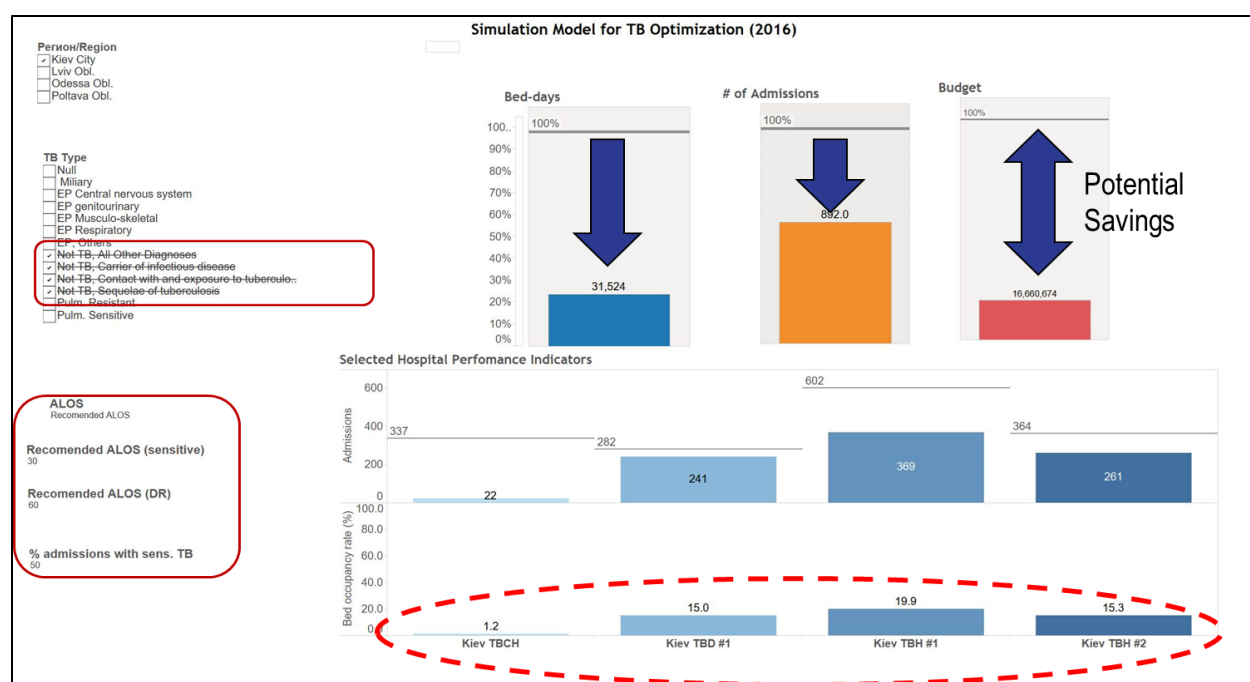
Figure 5: TB Hospital Performance Monitoring System Dashboard



Source: Screenshot of TB Hospital Performance Monitoring System Dashboard

Another new tool was a simulation module within the TB Hospital Performance Monitoring System that enables health departments to see the cost savings that can result from changes in service delivery practices. For example, the health departments can estimate the costs saved by reducing hospitalization of non-TB patients or average length of stay. As seen in Figure 5, decreasing the average length of hospital stay and removing hospitalization of non-TB patients in TB hospitals can reduce the number of bed-days by 80 percent and decrease admissions by more than 50 percent.

Figure 6: TB Hospital Performance Monitoring System Simulation Module



Source: Screenshot of TB Hospital Performance Monitoring System Simulation Module

4.2 Results to date

The TB Hospital Performance Monitoring System has equipped the health departments and TB hospitals with data to make strategic decisions about their TB services. Based on the effectiveness and efficiency indicators, the health departments can determine which services should be provided at each facility. Meanwhile, TB hospitals are incentivized to improve their effectiveness and efficiency because they can monitor their own performance and compare it to other hospitals in their oblast.

Using the analysis from the system, two of the pilot oblasts, Odesa and Lviv, have started to optimize their TB hospital network and redirect resources towards better uses. The Odesa oblast health department closed three costly, outdated TB hospitals and replaced them with a single, modern facility for TB and HIV. In the Lviv oblast, the health department closed two TB hospitals that were no longer needed and reinvested the savings into equipment upgrades for the remaining ones.

“The numbers don’t lie. Now I’m not afraid to be asked to answer questions anywhere. There’s no reason to worry about those who want to keep the status quo, because I have evidence-based information behind all of my decisions.”

- Dr. Svetlana Esipenko, Head of TB Service, Odesa Region

Ukraine's next step towards strategic purchasing is to implement new provider payment mechanisms. This step will be supported by the country's new health payer, the National Health Service of Ukraine (NHSU), which was established in 2018. The NHSU will introduce a case-based hospital payment system using DRGs and payment coefficients developed with support from the HFG project. With the new payment system, the NHSU will be able to further improve the efficiency and effectiveness of the TB hospitals by de incentivizing unnecessary admissions and incentivizing shorter lengths of stay, as recommended by national guidelines and the WHO. The NHSU has also begun to implement new provider payment systems for PHC, and is well positioned to introduce provider payment incentives for improved TB outcomes at the PHC level in the future.

4.3 Lessons for other countries

Ukraine's experience demonstrates that it is possible to increase the efficiency and effectiveness of TB services using strategic purchasing mechanisms even before new payment methods are implemented. Ukraine's data-driven approach can be particularly useful for countries that need to increase buy-in from stakeholders in order to proceed with more comprehensive financing reform.

As the Ukraine experience shows, good data is essential for identifying the factors that are contributing to ineffective and inefficient TB care. But data collection alone is not sufficient for change. Prior to the TB Hospital Performance Monitoring System, large amounts of data were collected but not shared, presented, or analyzed in a way that facilitated decision making. For decision makers to clearly see the issues and opportunities within the TB system, they need data to be presented in a graphic, user-friendly way. Increasing people's access to the data has also been invaluable. When hospital managers can see how their performance compares to other hospitals, they are even more motivated to improve.

Countries looking to follow a path similar to Ukraine's can start by assessing whether their current data contain the information they need regarding the effectiveness and efficiency of TB services. The data should allow decision makers to answer these questions: "What services are you currently buying?" "Is the right service mix being delivered?" "Are there efficiency or quality concerns?" and, "What are the cost drivers?"

The *HFG Ukraine Country Report* provides a detailed description of the strategic purchasing tools used in Ukraine and lessons learned to date.

5. KYRGYZSTAN EXPERIENCE

Like Ukraine, Kyrgyzstan has been working to improve the efficiency and effectiveness of its TB services through strategic purchasing approaches. However, the two countries differ in the scale, scope, and stage of their efforts. Kyrgyzstan had introduced new provider payment systems for PHC and most hospitals (though not TB hospitals) in the 1990s, with the Mandatory Health Insurance Fund (MHIF) of the Kyrgyz Republic as the strategic purchaser. Extending strategic purchasing to TB hospitals and establishing specific payment incentives for PHC-level TB care were part of more recent comprehensive TB reforms.

5.1 Background

Despite reductions in TB incidence and mortality over the past decade, TB remains an urgent health priority in Kyrgyzstan due to increases in the numbers of MDR-TB cases and low MDR-TB treatment success rates. According to the National TB Program, in 2015, 25 percent of new cases and 60 percent of previously treated cases were drug resistant, and the MDR-TB treatment success rate was only 54 percent. As in Ukraine, hospitalized TB patients in Kyrgyzstan run the risk of being reinfected with drug-resistant TB during their inpatient stay. In 2014, 85 percent of TB patients in Kyrgyzstan were hospitalized for at least part of their TB treatment.

Kyrgyzstan's TB reforms have built on the country's general health reforms to date. Starting in the mid-1990s, Kyrgyzstan embarked on a series of multiyear comprehensive health reform programs aimed at introducing family medicine, strengthening primary health care, and restructuring the hospital network. These reforms helped to bring about substantial service delivery improvements, such as evidence-based medicine, new clinical practice guidelines, better pharmaceutical prescription practices and use, modern medical education, and improved quality of care for maternal and child health, cardiovascular diseases, HIV/AIDS and TB. The reform programs also launched several major health financing reforms, including the introduction of a mandatory health insurance payroll tax; the creation of the MHIF as a single payer for health services covered by the state-guaranteed benefit package; a transition from local to national-level pooling of funds; and a shift to case-based payments for the general hospital system and capitation payments for primary health care. These changes have provided a strong foundation for subsequent reforms focused on TB.

The TB delivery system in Kyrgyzstan was in grave need of reform to improve patient outcomes. Even as clinical guidelines in the country moved toward allowing increased outpatient treatment for TB, in line with WHO recommendations, health payment systems inherited from the Soviet Union encouraged long hospitalization. TB care was available at the primary health care level, but providers had no particular incentive to treat TB patients or make sure they completed treatment. The TB hospital system was costly and ineffective, often in disrepair, and prone to poor infection control. Gaps between levels of the system often hampered diagnosis and treatment.

5.2 Results to date

To use resources more wisely, eliminate gaps in care, and improve patient outcomes, Kyrgyzstan over the past six years has reexamined what TB services it was buying and from whom or at which level of care, and how the country was paying for the services. First, the Ministry of Health began moving TB patients who did not require hospitalization out of hospitals, updating national clinical TB guidelines in line with WHO recommendations and training health workers on the new guidelines. In parallel with these service delivery changes, the government moved financing of TB services from the Ministry of Health to the MHIF as the single payer, and guaranteed that any savings from optimization of the TB system could be reinvested in TB care. These changes gave the MHIF the resources and flexibility to implement new provider payment mechanisms for TB.

With technical support from USAID's HFG and Defeat TB projects, the MHIF introduced a case-based payment system that pays TB hospitals based on the types of cases they treat, or DRGs, to incentivize shorter hospital stays. The design process for this new payment system involved the following steps:

1. Collecting and analyzing clinical and cost accounting data;
2. Specifying nearly 40 TB subcategories;
3. Aggregating subcategories into 10 groups for financial/statistical cohesiveness ; and
4. Adjusting relative payment weights to further differentiate drug-susceptible and resistant cases to incentivize a rapid shift of non-MDR TB cases to outpatient TB services and stimulate bacteriological confirmation rather than clinical diagnosis.

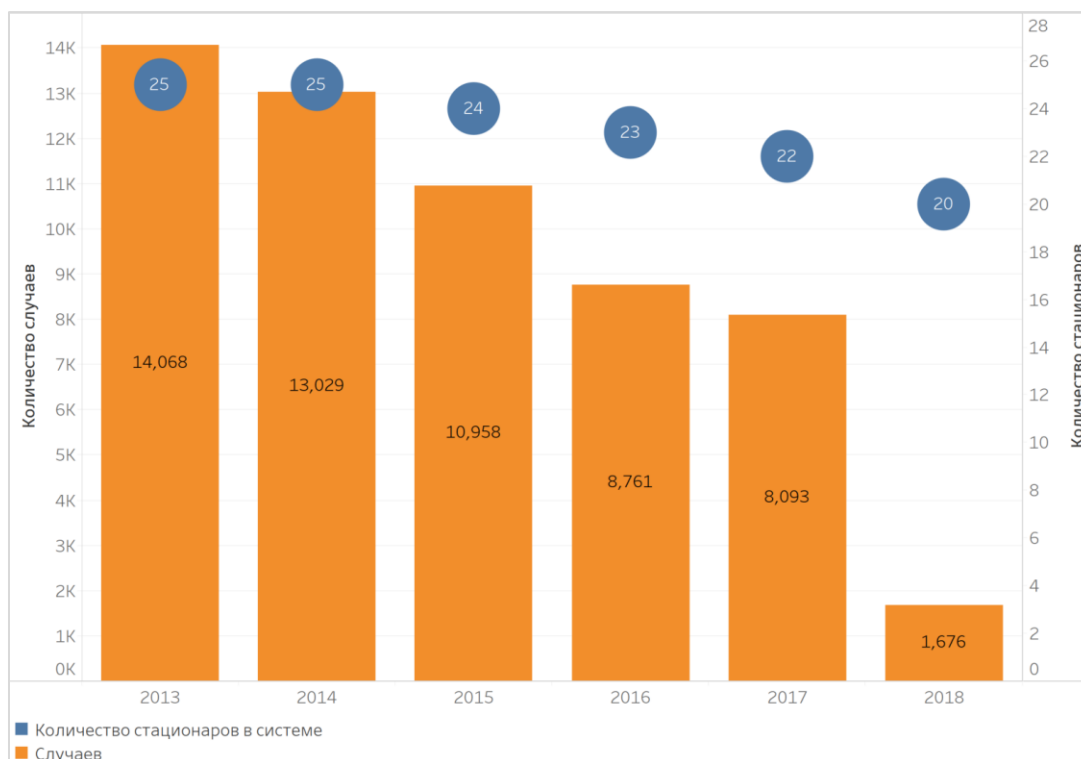
Under the new payment system, the payment rate for an MDR-TB case is three times higher than for a drug-susceptible case (i.e., a patient who could be successfully treated in an outpatient setting). All MDR-TB cases should be bacteriologically/histologically confirmed, or approved through an assessment by the MHIF. The payment rate of a clinically diagnosed TB case is about 50 percent lower than a bacteriologically confirmed pulmonary TB case. Non-TB cases are paid at the lowest rate (about 40 percent of the average rate).

Through these payment rates and clinical practice guidelines, the new TB hospital payment system is helping to reduce the number of inappropriate hospital admissions, encourage shorter lengths of stay, and enhance the quality and safety of TB treatment. Since the introduction of the new payment system and other restructuring efforts, five TB hospitals have been closed and the number of cases treated in TB hospitals has fallen from 14,068 in 2013 to 8,093 in 2017 (see Figure 9).

In addition to the new TB hospital payment system, the Kyrgyz government adopted the *Road Map for TB Care System Optimization*, which includes among its main objectives the expansion of outpatient treatment and the optimization and restructuring of the TB hospital network. Implementation of the new hospital payment system and other components of the roadmap is already resulting in annual savings of about \$1 million due to reductions in beds, staff, equipment, and other operating costs, and is expected to continue to do so over the next two to three years.

An important feature of the optimization process is to not only keep these savings within the TB system but to redirect a significant portion to the PHC level, where additional resources are needed to realize the transition to outpatient TB treatment. Using the savings from the new efficiencies within the TB hospital network, the MHIF started piloting a bonus payment for PHC workers for successfully treated TB cases in Chui oblast to further encourage outpatient TB treatment. This is in contrast to Ukraine, where strategic purchasing focused only on the hospital level. Decision makers selected Chui for the pilot due to the oblast's high TB incidence and the potential to leverage other TB reforms in the oblast, such as a new sputum transportation system and new guidelines on TB case management.

Figure 7: Results of TB Hospital Restructuring in Kyrgyzstan



Source: Analysis by Alexandr Katsaga, as presented at the Regional Workshop on Strategic Purchasing, Bishkek, Kyrgyzstan, May 2018, based on national data from the MHIF and NTP of KR.

As part of the PHC bonus payment pilot, the MHIF issues payments to PHC facilities that successfully complete treatment for a TB patient in accordance with new guidelines on outpatient TB case management. The bonus payment amount is determined by the complexity of the case: \$176 for each drug-susceptible TB patient and \$353 for each MDR-TB patient (in 2018). The amount paid to each health worker directly involved in the TB patient's care is determined by the health worker's level of effort in the patient's care:

- Family medicine providers (nurses and feldshers) receive the majority of the bonus payment (up to 85 percent) because they do the bulk of the work with TB patients.
- District TB doctors and TB nurses receive up to 10 percent of the payment for their role in monitoring the quality of TB care and supporting family medicine providers.
- PHC managers receive about 5 percent of the payment to incentivize their involvement in coordinating TB services at the PHC level.

The bonus payments are made on top of the health workers' regular salaries, which are funded through per capita payments to the PHC facilities from the MHIF. The proportional distribution of the bonuses was agreed upon after an extensive consultative process and active engagement with all stakeholders and beneficiaries.

Between November 2017 and January 2018, the MHIF issued a total of \$62,647 in bonus payments to PHC health workers in Chui oblast for the successful completion of treatment by 294 TB patients,

including 61 with drug-resistant TB. Based on the pilot experience in Chui, the MHIF is expanding the bonus payment system to other regions.

The MHIF envisions an in-depth study of the payment system's impact following a longer implementation period. In the meantime, anecdotal evidence suggests positive changes in the attitudes and behaviors of family medicine providers responsible for outpatient TB treatment following the introduction of the bonus payments. The providers have become much more proactive in the treatment of their TB patients, meeting them following discharge from the TB hospital and arranging more patient-friendly and people-centered approaches using the new case management tools.

5.3 Lessons for other countries

Kyrgyzstan's experience provides useful lessons about the power of strategic purchasing for improving TB outcomes, particularly when combined with other TB reforms. Clinical changes alone are not sufficient for sustainable and large-scale changes. Likewise, strategic purchasing alone will not address all issues within the TB system. Kyrgyzstan's comprehensive approach to TB reforms demonstrates that strategic purchasing is one important mechanism that can support overall systems change for improved TB outcomes.

Another key lesson from Kyrgyzstan is the importance of ultimate objectives. Each time decision makers make a change in the system, they think about what they are trying to achieve and what incentives already exist that will help or hamper achievement of the objective, and then readjust incentives as necessary. This objective-based approach makes it easier for stakeholders who come from different perspectives, such as TB providers and financing specialists, to work together towards one common goal.

Although Kyrgyzstan's reform history and enabling environment are unique, other countries in the region can still look to Kyrgyzstan for specific examples of how to combine strategic purchasing with system restructuring and how to revise incentives as each change is made in the system.

Implementation of Bonus Payments to PHC Staff for Successfully Treated TB Cases: Site Visit to Chui Oblast Branch of the Mandatory Health Insurance Fund (MHIF)

Workshop participants visited a regional branch of the MHIF to learn more about the new TB payment and incentive systems in Kyrgyzstan from the perspective of managers. The Chui Oblast MHIF Office has been responsible for collecting and analyzing data for the PHC bonus payment system and making the payments to the PHC staff since November 2017. Although the new system is in the early stages of implementation, the site visit highlighted several lessons worth noting for those considering a similar system:

Pilot early and adjust along the way

- There was consensus among decision makers that it was important to launch the new payment mechanism even if it was not perfect.
- The pilot was very helpful to work out issues, many of which could not be predicted prior to implementation.
- The implementation process is dynamic. For example, the new payment mechanism started with a paper-based information system that then evolved into an electronic system.
- Adjustments to the system need to balance the desire for information with the risk of unnecessarily increasing the reporting burden for health workers.

Keep the focus on health outcomes

- Kyrgyzstan made an intentional decision to reward complete treatment, rather than attempted treatment or components of treatment, because the ultimate goal is to improve TB outcomes, not simply to reward providers or to increase provider satisfaction.

Introduce check points and accountability measures to minimize potential for fraud

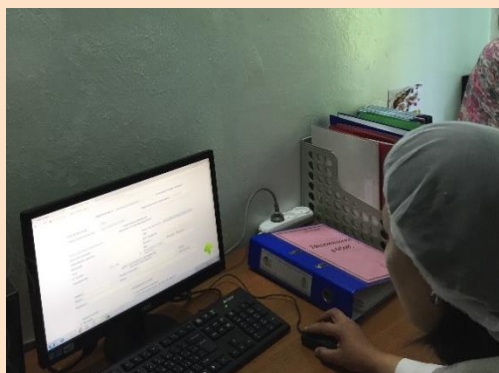
- Time points (e.g., when case opened, when submitted, when approved, when paid) in the electronic reporting form submitted to MHIF for payment can help minimize manipulation of data.
- Multiple step verification process helps to prevent bogus cases.

Assess impact and roll out at the appropriate time

- An analysis of the new payment system has not yet been conducted because it is still too early to determine if the bonus payments are affecting TB treatment outcomes. Kyrgyzstan is considering evaluating the impact of the bonus payments once it has been implemented for a full year.
- Other oblasts have expressed a strong desire to be involved in the new payment system. The payment system will be rolled out to these oblasts once they are deemed to be ready to implement it correctly.

Implementation of Bonus Payments to PHC Staff for Successfully Treated TB Cases: Site Visit to Issyk-Ata District Family Medicine Center

Workshop participants visited a PHC facility to learn more about the new TB payment and incentive systems in Kyrgyzstan from the perspective of managers and health workers implementing and influenced by the new systems. Issyk-Ata Family Medicine Center staff and Chui oblast MHIF representatives shared their experiences with implementation of the new bonus payments, with a focus on the notification and verification processes, the system for allocating the payments to various health workers, and potential perverse incentives.



Notification and verification of successful treatment completion

- PHC workers notify MHIF of successfully treated cases through a user-friendly electronic reporting form. The notification reporting form will eventually be merged with other reporting forms so that some of the data will populate automatically.
- The oblast MHIF branch authorizes payment after verifying the data based on certain criteria as per their data verification guidelines. Criteria include treatment provided in line with clinical protocols/treatment guidelines, clinical diagnosis, length of treatment, and treatment outcome.
- The MHIF conducts monitoring visits to the PHC health facility twice a year to ensure quality of TB services.

Allocation of bonus payments to health workers

- Allocation of bonus payments is made according to an approved procedure. For example, at Issyk-Ata Family Medical Center, a family nurse may receive 75 percent of the bonus payment, a family doctor may receive 10 percent, and the TB cabinet nurse, TB doctor, head doctor and facility director may receive 2-5 percent each.

Risks

- Bonus payments for PHCs are not on their own sufficient to improve treatment outcomes. Rapid introduction of payment for the treatment completion without appropriate training and preparation of PHC workers could end up discrediting this payment approach.

6. COUNTRY OVERVIEWS AND PLANS

The workshop gave participants ample opportunities to think critically about where they are with their TB services, where they want to be in the future, and how to get there. To that end, they worked in country teams with support from facilitators to identify their key TB service delivery challenges and priorities, consider payment mechanisms that could help address those challenges, and plan their next steps. This section provides a summary of each country's context, priorities, and plans, followed by general reflections on the workshop from TB financing experts.

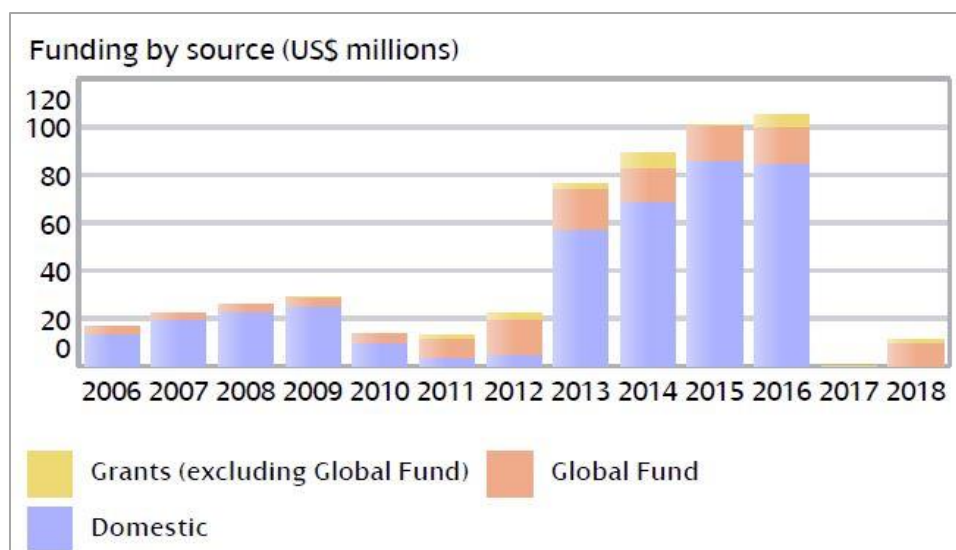
6.1 Armenia

Starting in 2014, Armenia introduced several TB reforms, including new financing mechanisms for TB hospitals and updated patient admission and discharge criteria in line with WHO recommendations. This transition from payment based on the number of occupied bed days to a mixed system of global budgeting with case-based payment has helped reduce unnecessary hospitalizations and decrease long lengths of stays. The savings from the efficiencies are being reinvested in the TB system to improve care.

At the PHC level, Armenia is piloting new financing mechanisms combining capitation and performance-based incentives for outpatient TB care, with further performance-based reforms planned. While these changes should help promote a patient-centered model of care and the role of outpatient centers as gatekeepers to hospitalization, policy barriers to optimally efficient TB care remain. As of 2017, contrary to WHO recommendations, hospitalization is mandatory for initiation and treatment of both drug-resistant and drug-susceptible TB, except on case-by-case bases.

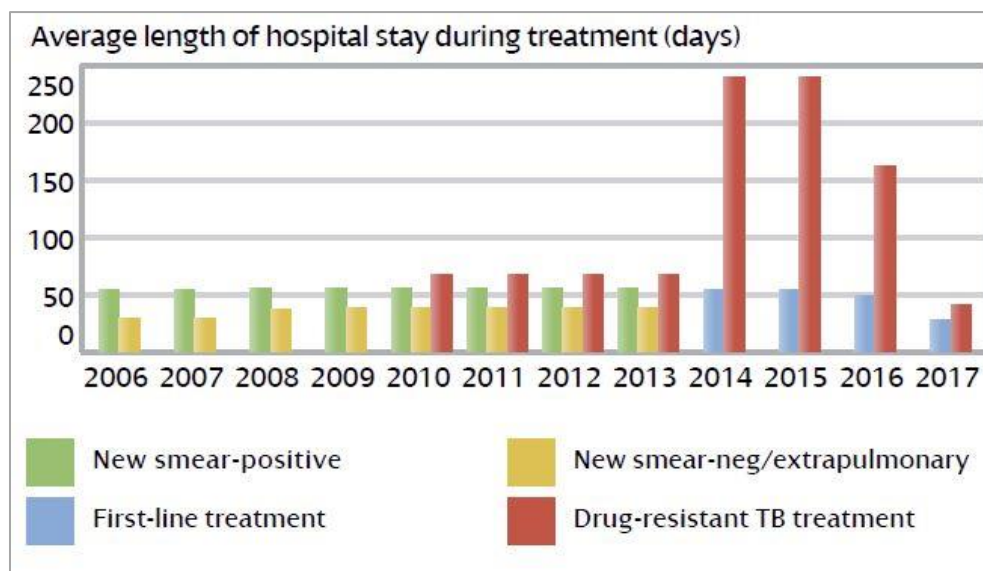
The workshop participants noted that Kyrgyzstan's experience aligning financing mechanisms with policies and clinical guidelines for implementation of the bonus payments to PHC workers serves as a useful lesson as Armenia pursues a similar effort.

Figure 8: Total National TB Budget, Funding by Source—Armenia



Source: Armenia—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 9: Average Length of Hospital Stay—Armenia



Source: Armenia—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

6.2 Azerbaijan

TB services in Azerbaijan are provided through a vertical system of specialized facilities, with little integration into primary care. Health facilities receive their funding from the Ministry of Finance based on prospective, fixed, line-item budgets. This payment mechanism provides no incentives for hospital administrators to reduce costs or improve efficiency, and there is no mechanism under current payment arrangements to reward better performing facilities.

In light of the challenges within the existing system, the Ministry of Health and Ministry of Finance are planning radical changes to the existing mechanism for paying providers through the State Agency for Mandatory Health Insurance. The reforms are being rolled out as district-level pilots to test changes to fund pooling, provider payment, provider decision-making autonomy, and people-centered models of TB care before implementation at the national level.

In the two pilot districts, line-item budgeting for TB services is being replaced by capitation payment at primary care facilities and by case-based payment in hospitals. Findings from the pilots will be used to evaluate the impact of mandatory health insurance on TB care and inform a roadmap for improving TB prevention and care nationally.

The workshop participants noted that increasing early detection is a major priority for addressing the TB burden in Azerbaijan. This will require better coordination between the TB and HIV programs, and motivation on the part of both programs to screen early for both diseases. To increase screening, the country is considering performance-based payments for referral of risk groups (HIV patients) and performance-based payments for detected cases. The workshop experts encouraged the participants from Azerbaijan to consider all of the potential risks when selecting a new payment method. For example, payments for referral of HIV patients for TB screening could create perverse incentives for HIV doctors and lead to an unnecessarily high number of referrals, which in turn could overload labs. In this situation, focusing on results, such as cases detected, could be a better option.

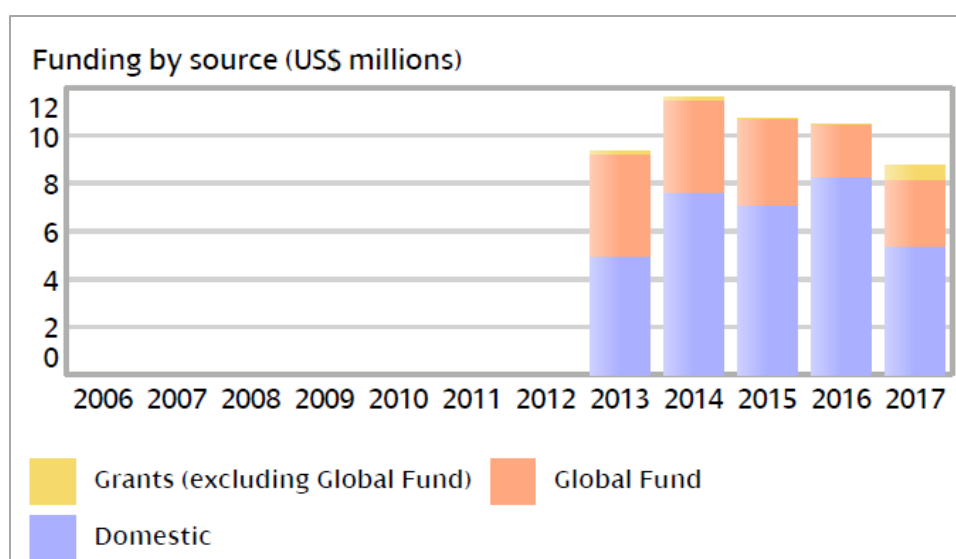
6.3 Belarus

As with other health services in Belarus, funding for TB care in primary care settings is based on capitation, and funding for TB care in hospitals is based on line-item budgets.” In 2015, over 75 percent of the state TB budget went to hospitals, compared to 20 percent for primary care facilities. Overuse of hospitals for TB care is driven in part by national policies that mandate hospitalization for the initiation and treatment of drug-susceptible and drug-resistant TB care, except on case-by-case bases.

According to the World Bank, optimized allocation of state TB funds in Belarus could reduce adult TB prevalence by up to 45 percent and total TB deaths by up to 60 percent by 2035. Shifting from hospital-based to outpatient TB care could save up to 40 percent in treatment costs, which would ideally be reinvested in services that have a higher impact on TB outcomes. To facilitate this transition, Belarus piloted results-based financing incentives for primary care in Mogilev and Brest Oblasts. The pilots showed improved rates of patient follow-up and net cost savings at the regional TB dispensary. Satisfied with these results, the Ministry of Health decided to expand the pilot to at least one district per region in 2015, and obtained Global Fund support for additional pilot expansions in 2017-2018.

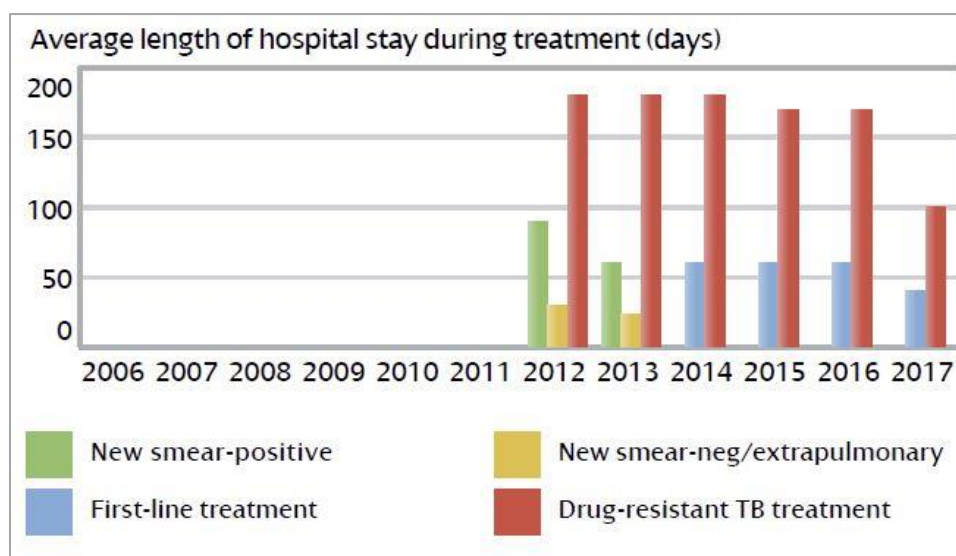
As explained by the workshop participants, improving the quality of care for TB patients at the PHC level remains a priority in Belarus. To further motivate PHC workers, the country recently introduced additional bonus payments for the provision of TB services, such as a \$5 per day bonus payment to nurses for every visit they made to a patient’s home to supervise their TB treatment. These visits are verified through phone calls to the patients and monitoring visits to the PHC facilities by the TB doctors responsible for the catchment area.

Figure 10: Total National TB Budget, Funding by Source—Belarus



Source: Belarus—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 11: Average Length of Hospital Stay—Belarus



Source: Belarus—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

6.4 Georgia

TB services in Georgia are paid for through a mix of capitation at primary care facilities, per diem budgets at hospitals, and other mechanisms. Out-of-pocket payments are not a factor because TB care is funded through a state program for priority issues. In fact, TB patients receive cash payments as a form of social assistance under Georgia's TB patient case-management model.

Hospitalization is mandatory for initiation of drug-susceptible and drug-resistant TB care in Georgia, except in districts currently piloting primary care-level treatment initiation for drug-susceptible TB. The

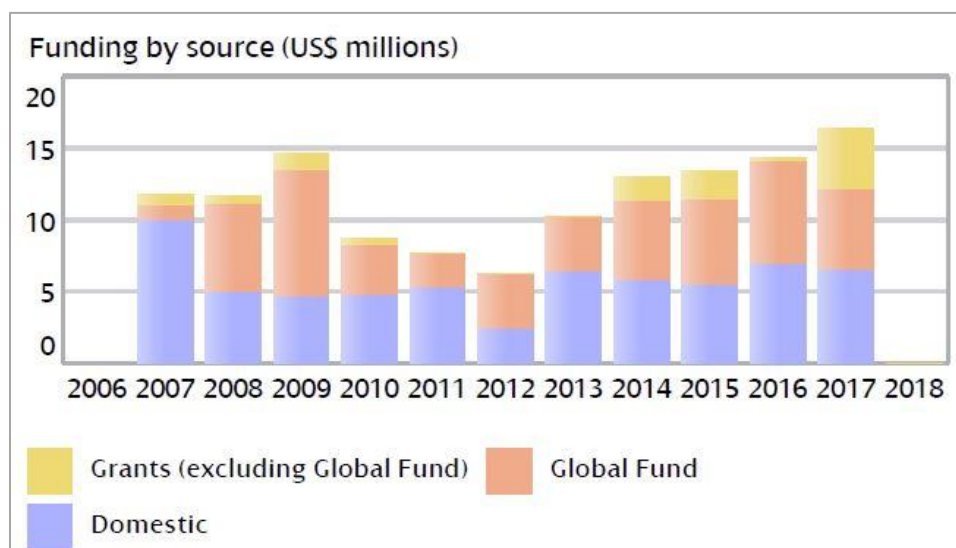
combination of mandatory hospitalization and per diem funding of hospital-based care results in long average lengths of stay for patients. Additionally, patients tend to self-refer to hospitals due to perceptions about the quality of primary care services.

Results-based financing incentives for primary health care facilities are being piloted and evaluated with support from partners. The evaluation study will assess the impact of results-based financing on treatment outcomes, measure cost-effectiveness, identify implementation facilitators and barriers, and recommend ways to optimize national-level implementation.

At the workshop, early TB case detection was highlighted as a priority in Georgia. Motivating the PHC level to conduct early case detection can help to address this issue. The country is considering the following steps: present data to convince stakeholders to support bonus payments to PHC doctors and nurses for successfully treated TB cases; introduce bonus payments to PHC staff, with nurses receiving the bulk of the payment due to their greater involvement in TB treatment (like Kyrgyzstan); develop a plan to train PHC doctors and nurses on TB detection and treatment; develop guidelines on TB detection and treatment at the PHC level; conduct quarterly meetings with regional representatives at the central level to monitor effectiveness. Bonuses for treated cases are seen as a way to stimulate better case detection.

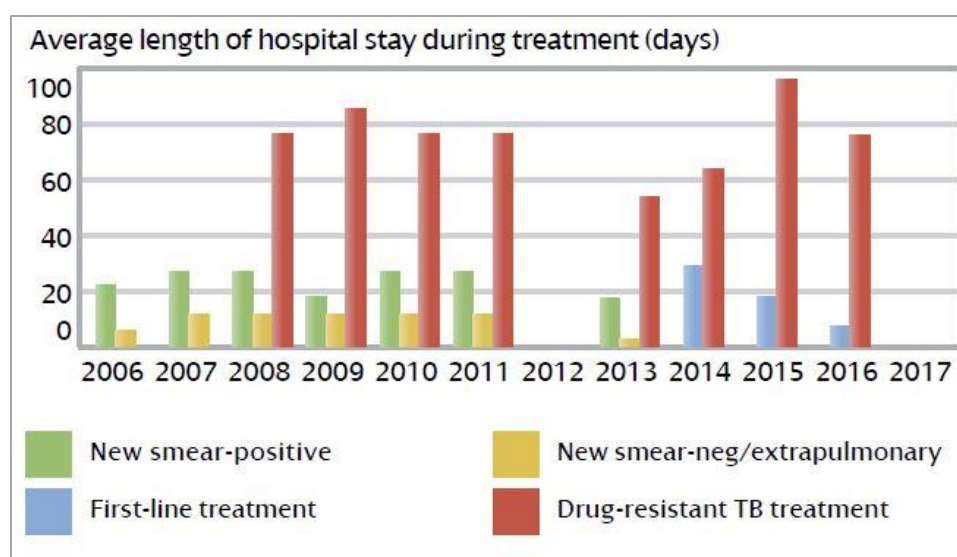
Experts at the workshop commended the holistic nature of the proposed approach to improving TB case detection in Georgia. They noted that health financing is important but not sufficient for achieving better TB outcomes; other health system strengthening reforms are also needed.

Figure 12: Total National TB Budget, Funding by Source—Georgia



Source: Georgia—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 13: Average Length of Hospital Stay—Georgia



Source: Belarus—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

6.5 Kazakhstan

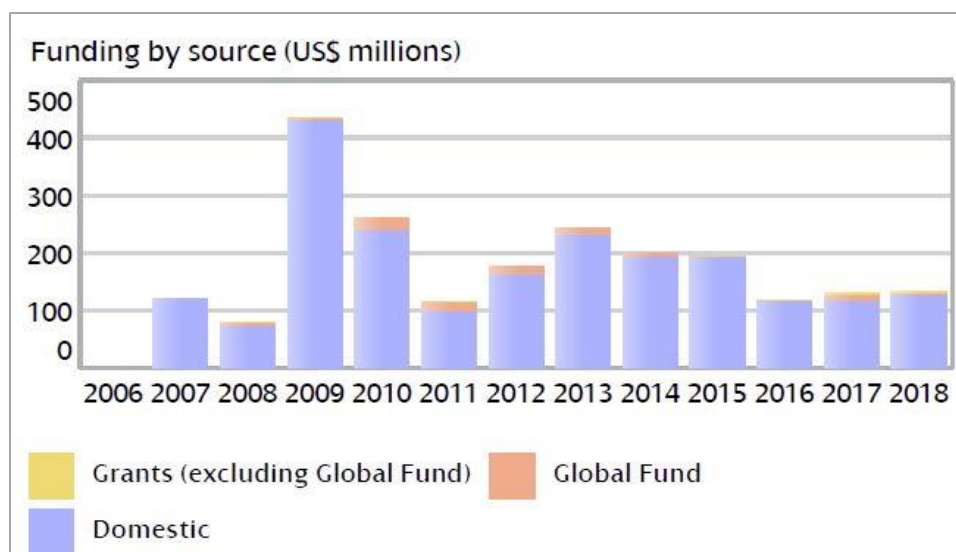
Kazakhstan has been working to optimize its TB hospital network since 2014, but several inefficiencies and outdated health practices remain. The issues include mandatory six-month hospitalization of pediatric TB cases, involuntary patient isolation, and regional imbalances in TB spending relative to demographic and epidemiologic differences. To address these issues, Kazakhstan is aligning its TB payment mechanisms with the more efficient mechanisms used for general health services through pilots of pay-for-performance incentives in PHC and case-based payments (DRGs) in hospitals.

Kazakhstan allows initiation of drug-susceptible TB treatment at the primary care level and initiation of drug-resistant TB treatment at the district level, but routine hospitalization is still required for treatment of all TB except on case-by-case bases.

Current TB priorities in Kazakhstan highlighted at the workshop include reducing hospitalization and expanding outpatient care and patient-centered care. To that end, the country is considering these steps: revising normative guidelines; updating standards for treatment and diagnosis; adapting and implementing the management information system; conducting costing of treated cases; developing a roadmap to guide TB financing reforms; providing training; and technical assistance.

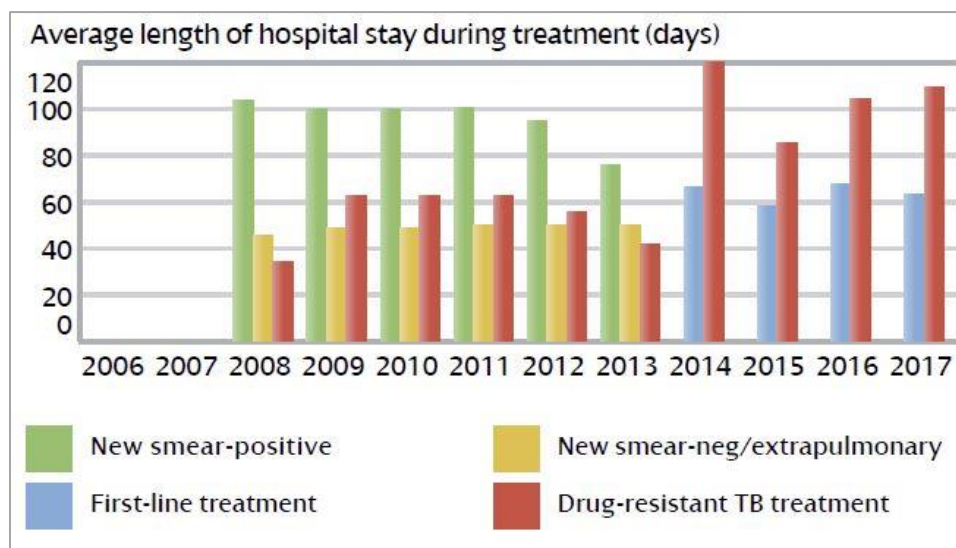
An expert at the workshop noted that Kazakhstan's extensive financing reform experience provides a strong foundation for creative thinking about how to improve TB care through strategic purchasing. In addition, the absence of TB costing experience in the country does not need to delay progress because costing, while important, is not the main piece in the design and categorization process.

Figure 14: Total National TB Budget, Funding by Source— Kazakhstan



Source: Kazakhstan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 15: Average Length of Hospital Stay—Kazakhstan



Source: Kazakhstan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

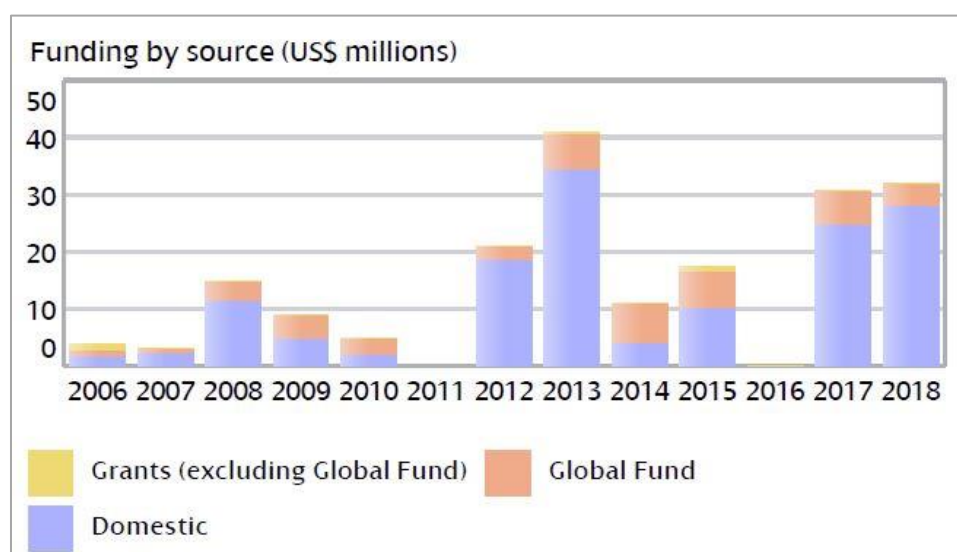
6.6 Moldova

Per capita funding represents approximately 85 percent of the total budget, and "supplement for performance" is 15 percent of the total budget in Moldova. This funding breakdown also applies to TB care, with performance payments based on the number of patients screened for TB, cases diagnosed, and cases treated. However, the efficacy of this approach is questionable: A review in 2013 found the performance pay to be too low and thus an unproductive incentive.

Moldova's National TB Programme 2016-2020 and accompanying roadmap emphasize the implementation of patient-centered models of care, including improved financial and human resource arrangements for primary care settings. The roadmap also aims to reduce hospitalization rates and average lengths of stay for TB by promoting detection and treatment of TB, including drug-resistant TB, in community, primary care, and specialized outpatient settings.

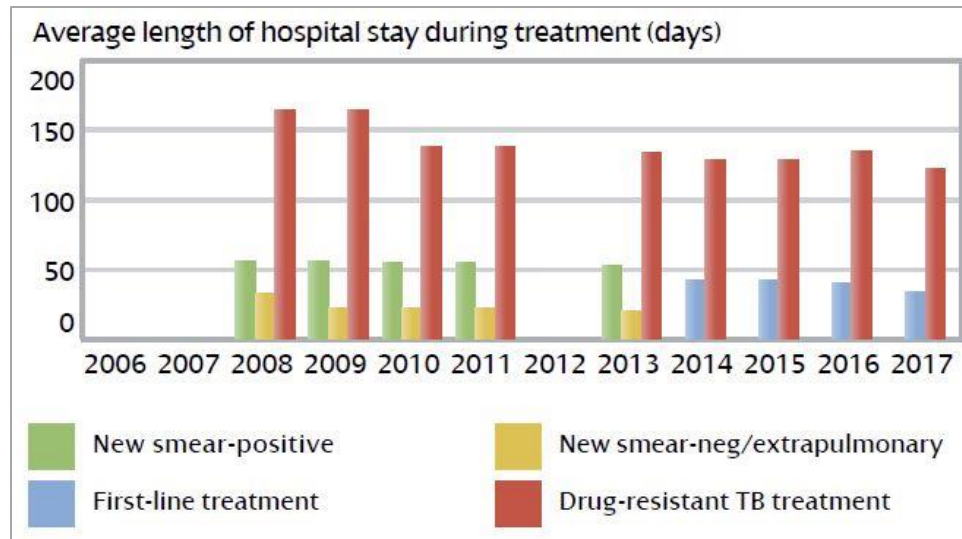
Current TB challenges in Moldova highlighted at the workshop include prolonged hospitalization of TB patients and late detection. To reduce unnecessarily long hospitalizations, the country is considering modifying its current method of per diem (bed day) payments to TB hospitals by differentiating between drug-susceptible and drug-resistant cases, and establishing maximum hospitalization durations. Also under consideration is a combined payment method for complicated cases that includes payment by bed-day and treated case. At the PHC level, Moldova is considering individual contracts between its mandatory health insurance fund and the PHC-level providers of X-ray services for TB diagnosis, as well as bonus payments to PHC staff for early detection. To move forward with these changes, the country needs to collect additional data, such as on costing of services. The workshop experts noted that payment for early detection does not always lead to the desired outcome in lower-income countries and should therefore be examined carefully.

Figure 16: Total National TB Budget, Funding by Source—Moldova



Source: Moldova—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 17: Average Length of Hospital Stay—Moldova



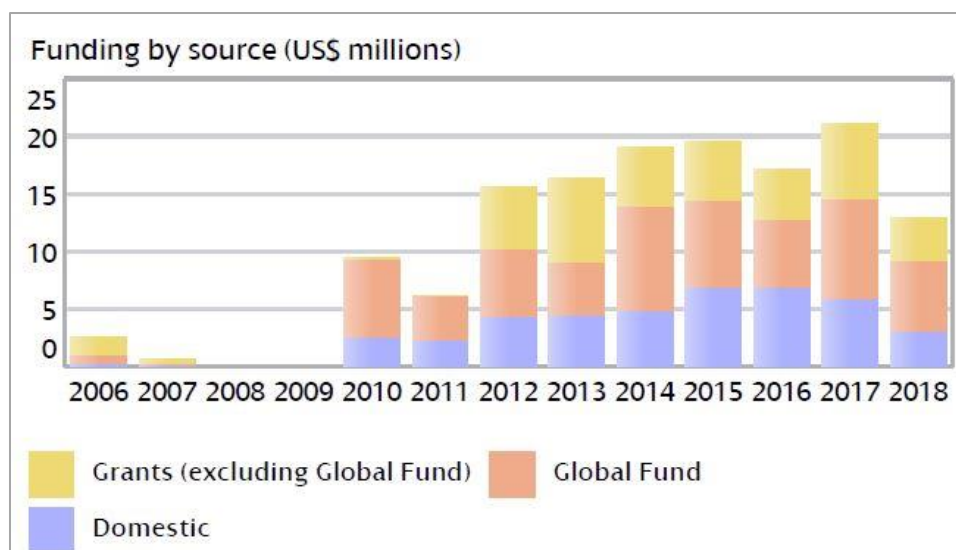
Source: Moldova—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

6.7 Tajikistan

TB care in Tajikistan is included in a basic benefits package that was adopted as a pilot in 2007 and then expanded to 14 rayons. National policies permit initiation of treatment for drug-susceptible TB at the primary care level and drug-resistant TB at the district level, though neither policy is widely implemented. Additionally, hospitalization is not required for any treatment, unlike in most other countries in the region.

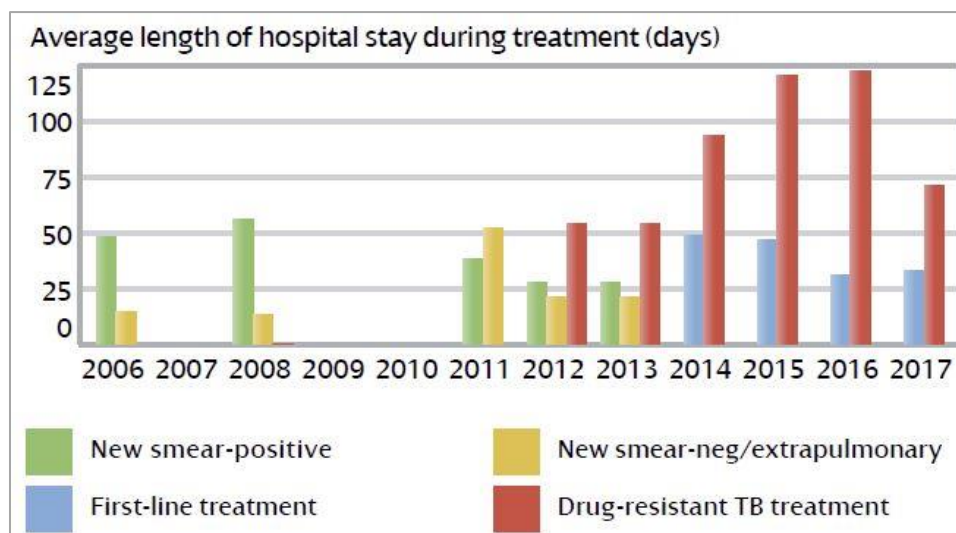
The workshop participants discussed increasing TB case detection at the PHC level, reducing hospitalization, and reducing treatment interruption as three key priorities in Tajikistan. The country is considering bonus payments for PHC facilities based on the experiences of Taiwan and Kyrgyzstan to increase case detection and improve treatment adherence. At the hospital level, the country is considering a case-based payment system and changes to clinical protocols.

Figure 18: Total National TB Budget, Funding by Source—Tajikistan



Source: Tajikistan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 19: Average Length of Hospital Stay—Tajikistan



Source: Tajikistan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

6.8 Uzbekistan

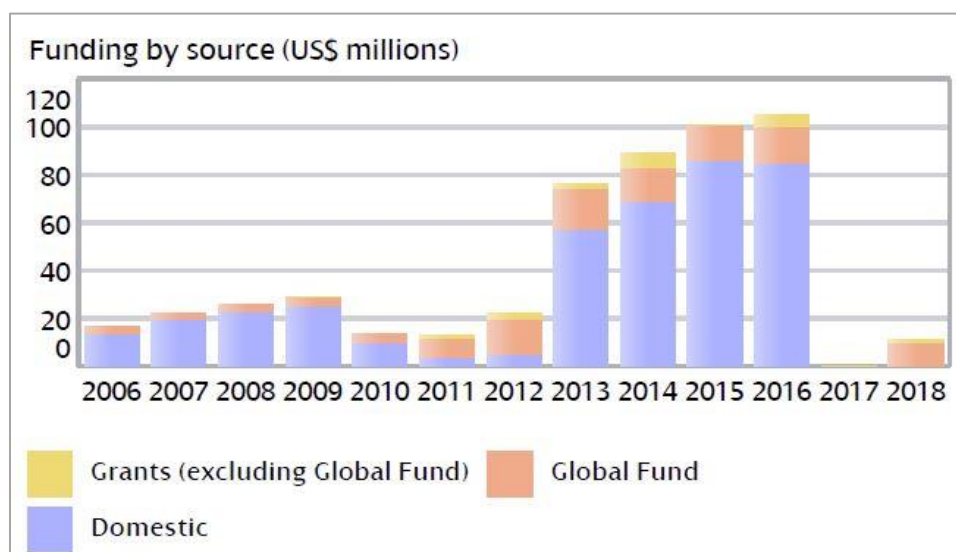
Uzbekistan’s “Comprehensive TB Care for All” program, launched in 2014, enabled nearly all TB patients to initiate or continue care in outpatient settings, but, critically, did not change the associated financing mechanisms. In hospitals, funding for TB care remained tied to the number of occupied beds at the same time that bed numbers were being reduced. In primary care settings, the number of patients seeking outpatient TB care was increasing while capitation rates remained flat, unlinked to TB funding allocated separately by the Ministry of Health. These circumstances discourage hospitals from reducing admissions or lengths of stays and do not incentivize primary care facilities to seek new patients. New financing mechanisms are needed to address these issues while promoting patient-centered models of care.

The two priorities for Uzbekistan flagged at the workshop are increasing the number of TB patients receiving outpatient treatment and improving DOTS at the PHC level. To address these priorities, the country is considering introducing motivational payments for the PHC level based on results. This change will require an information system, which is currently under development, and indicators specific to TB.

Uzbekistan does not yet have immediate plans for changing TB hospital payments. These changes are expected to happen more gradually following the development of a health insurance system. An expert at the workshop noted that these reforms can be introduced prior to the establishment of a health insurance fund, and can look different from the approach used in Kyrgyzstan.

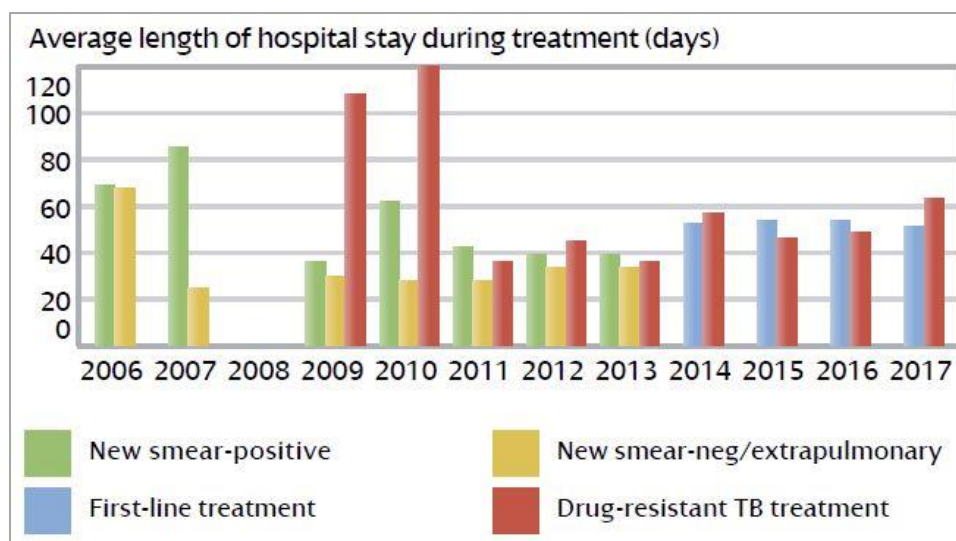


Figure 20: Total National TB Budget, Funding by Source—Uzbekistan



Source: Uzbekistan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

Figure 2I: Average Length of Hospital Stay—Uzbekistan



Source: Uzbekistan—Tuberculosis finance profile. www.who.int/tb/data. Generated September 20, 2018

7. LESSONS LEARNED AND RECOMMENDATIONS

The workshop served as an excellent opportunity for the participating countries to learn not only from each other, but also from experts with extensive practical experience in strategic purchasing for health and for TB specifically. In addition to their insights on the countries' plans, these experts provided reflections on the most relevant lessons from Kyrgyzstan and Ukraine, the most realistic next steps for the participating countries, and key challenges for the countries to consider when implementing strategic purchasing for TB.

7.1 Most relevant lessons from the Kyrgyzstan and Ukraine experiences

- **Reliable and evidence-based analytical information can help reduce resistance to reforms in the TB sector on the part of politicians and the medical community.** Reforms that involve restructuring and optimization are very politically sensitive. Data that clearly showed the scope and scale of the issues in the TB system equipped the reformers with the evidence to convince other stakeholders of the need for restructuring and optimization. In most cases, valuable analysis can be conducted using information that has already been collected (but not yet analyzed). This data analysis needs to be ongoing and institutionalized, not a one-time event.
- **The TB system can be integrated into the overall health system.** Throughout former Soviet countries, vertical TB systems have always remained outside of reforms to the general health system. The experiences of Ukraine and Kyrgyzstan suggest that TB can be integrated into the general health system in terms of information, service delivery, and finances.
- **Strategic purchasing instruments can influence the behavior of providers and increase the effectiveness of the TB system even before new payment systems are introduced.** As demonstrated by the Ukrainian experience, hospitals and health departments started making changes to make the TB system more efficient and effective once they saw the data on inefficiencies and opportunities to improve care. New provider payment mechanisms can stimulate further improvements in TB care, but even data alone – when presented well and to the right people – can be a powerful catalyst for change. As one expert at the workshop said, “Pool information before you pool money.”
- **There is no single correct approach to strategic purchasing.** The strategic purchaser will need to continuously review and revise approaches to arrive at the best incentives to encourage desired provider behavior.
- **Strategic purchasing is an integral part of comprehensive reforms.** Based on the implementation of strategic purchasing for TB in Kyrgyzstan, it is clear that strategic purchasing is necessary but not sufficient to achieve improved care. Strategic purchasing needs to be combined with system restructuring, and incentives need to be revised as each change is made in the system.



- **Generating political will requires significant time and effort.** Political commitment for strategic purchasing reforms does not is not born overnight. It is a long process that requires substantial advocacy and negotiation with a number of different stakeholders.
- **Implement and adapt as part of the design.** Conducting pilots to generate lessons quickly enables early course corrections that can strengthen the approaches.
- **Institutionalization is critical for sustainability.** The strategic purchasing work in Kyrgyzstan and Ukraine is inherently institutionalized. The efforts will continue because they are led by the government and are taking place within the existing system and structures. Furthermore, outside of technical support from donors, these reforms are being implemented with existing domestic resources.
- **Create linkages across TB and health financing stakeholders.** Successful strategic purchasing for TB requires the involvement of both TB and health financing experts. Each group brings important perspectives and knowledge to inform the design and implementation of these approaches.
- **Champions are critical to the success of strategic purchasing reforms.** Kyrgyzstan and Ukraine have benefitted greatly from the support and leadership of local champions who have supported reforms for many years.
- **Making data more meaningful for stakeholders can drive improvements in data quality.** As stakeholders see the benefits of the data, they are incentivized to provide better data.

7.2 Most realistic next steps for participating countries

- **Develop an electronic database with discharged patient data (form 66) to inform strategic purchasing decisions.** Collecting the right data is a critical first step for assessing the effectiveness of the TB system and identifying opportunities for efficiencies. Some countries in the region have not been collecting the discharged patient data that is needed to make these strategic decisions (e.g., data on drug susceptibility category, age, gender, length of stay, etc.). These data can inform the design of new provider payment mechanisms, such as case-based payments using DRGs.
- **Analyze the case mix of patients in TB hospitals and identify financial incentives to reduce unjustified hospitalizations.** Admitting only those patients who truly require hospital-based TB care ensures that the right resources go to the right needs. Financial mechanisms that consider the best use of resources, such as only paying for justified hospitalizations or paying higher rates for more complicated cases, can reduce admissions of patients who can be effectively treated in lower-cost outpatient settings.
- **Strengthen and incentivize the PHC level in parallel with changes in the hospital system.** TB control efforts will succeed only with the active involvement of capable and motivated PHC workers. While the general trend of hospital bed reductions in countries is welcome, it is critical to have increased capacity at the PHC level to appropriately manage TB patients and ensure effective health outcomes in outpatient settings. Thus, it is important to ensure a cohesive approach and address the incentive structures at both the hospital-based and PHC levels. As demonstrated by Kyrgyzstan and Belarus, bonus payments can help to motivate and support PHC workers to successfully implement their new TB responsibilities.
- **Engage in policy dialogue and discussion on the strategic purchasing approaches.** It is important to keep stakeholders informed and engaged in the process. Decision makers should be included in discussions and understand the reasoning behind new approaches as well as the results

of implementation. Governmental and nongovernmental stakeholders can become champions to help the country move forward with strategic purchasing for TB, and have the power to support other important structural changes that complement strategic purchasing and contribute to improved TB outcomes.

7.3 Potential challenges for countries to keep in mind

- **Insufficient capacity in data analytics and automated systems within TB hospitals.** Many TB hospitals have limited capacity in data analysis and low computer literacy because the TB system was typically left out of general health system reforms in former Soviet countries. Capacity building in these areas can help countries overcome these challenges. In addition, the hospital- and PHC-level systems might not be always linked for complete provision of clinical data.
- **Lack of standard classification by providers.** Clinicians working in TB are generally unfamiliar with standard classification systems and prefer to use their own TB patient classifications, which are often outdated. There are no clear rules for coding a number of clinical parameters (e.g., coinfection, miliary TB, etc.). This lack of standard rules for classification can impede the collection of high-quality data, but, as with the challenge above, capacity building can help address the issue. In addition, some countries in the region continue to employ two TB classification systems (DOTS classification and the old Soviet era classification).
- **Limited readiness of TB hospital managers to change practices and increase efficiency.** Some TB hospital managers are not ready to adapt to the new economic conditions focused on efficiency. They prefer to keep their special status as a vertical system and receive continuous increases in funding regardless of outputs. In this type of environment, data that highlights inefficiencies may not be sufficient to motivate TB hospital managers to change their practices. New provider payment mechanisms that directly tie resources to outputs serve as a more powerful tool to incentivize TB hospital managers to increase the efficiency of their facilities.
- **Management of stakeholder expectations regarding progress.** Strategic purchasing is a dynamic and continuous process requiring incremental changes, but some stakeholders may want to see immediate and ongoing progress. People opposed to the changes may be quick to criticize the difficulties or corrections that are a natural part of strategic purchasing reforms.
- **Existing perverse incentives can thwart efforts to increase efficiency.** Some countries face systems with perverse incentives, such as out-of-pocket payments, that are difficult to discontinue. Convincing stakeholders of the benefits of the new systems can help to reduce these perverse incentives.
- **Donor support in the region is dwindling.** As external resources decrease, stakeholders need to rely more on local and regional resources to implement strategic purchasing reforms.

8. NEXT STEPS

The *Spending Money Wisely for Improved TB Outcomes* workshop provided a unique forum for sharing of effective strategic purchasing tools and innovations and rich discussion regarding potential next steps for each country. Recommendations for maintaining momentum with reforms and continuing exchanges of experience across the region are summarized below.

8.1 Maintaining momentum with reforms

“The discussions face-to-face, with the participation of health system and finance specialists, will have a great impact on the planning and development of strategic purchasing activities. I am sure that these 3 days will contribute to changes in our thinking and will be very helpful for reaching the correct decisions.”

– Workshop participant

Every participant left the workshop with some concrete ideas for discussion and potential implementation in their home countries. Transforming these high-level workplans into action will require substantial effort, political will, dedicated resources, and committed champions. Equipped with detailed examples of how Kyrgyzstan, Ukraine, and other countries in the region are tackling similar challenges, the workshop participants are well-positioned to serve as these dedicated champions. However, some factors, such as political will and resources, may be outside of their control. Financing changes are very political and require extensive negotiations across stakeholders. Nevertheless, in response to a question in the workshop evaluation about their next steps, a number of the participants appeared confident about their momentum, indicating that they would “very probably” or “definitely” implement the workplans they developed during the workshop.

Countries in need of technical assistance to move forward with certain components of their plans can consider hiring consultants or reaching out to their colleagues in the region as part of continued cross-country exchange. Technical partners and donors have a role to play in supporting continued momentum through technical support. These partners and donors should continue strong collaboration to leverage limited resources wisely.

8.2 Continued cross-country exchange

The end of the workshop is not the end of regional exchange on strategic purchasing and other TB reforms. In fact, some of the participants have already started to share guidance and tools with each other virtually since the workshop. Following the workshop, Kyrgyzstan reached out to the Ukraine team to request the hospital cost accounting analysis tool. In response to requests following the PHC site visit, Kyrgyzstan shared its new *Clinical guidelines on psychological support for TB patients* through a shared drive accessible to all of the participants.

This type of exchange can continue across the countries, with varying levels of support from partners and donors. For example, a partner or donor could set up an online forum for the countries to share and discuss challenges, lessons learned, and useful resources. The countries could also participate in quarterly conference calls to discuss specific topics of interest to the group and provide virtual technical

assistance. For more formal and structured cross-country exchange, donors can consider supporting the creation of an Eastern Europe and Central Asia strategic purchasing resource network similar to the Strategic Purchasing Africa Resource Center (SPARC), which uses existing strategic purchasing expertise in sub-Saharan Africa to offer “tailored packages of strategic purchasing support” and “provides capacity-building and support for its network of experts and foster peer learning.” TB-REP’s current and future efforts to support countries in the region may serve as a platform for facilitating continued cross-country exchange.

Given the high satisfaction with the workshop and the strong desire to learn more, donors could consider supporting another regional workshop in the next year or two. This follow-on workshop would give the participants an opportunity to share specific operational challenges and successes that they have encountered in their efforts since the May 2018 workshop. The follow-on workshop would also create a sense of accountability for moving forward with the steps discussed at the original workshop.

REFERENCES

- Curatio International Foundation. 2017. "Designing and evaluating provider results-based financing for tuberculosis care in Georgia (RBF4TB)." Accessed September 18, 2018. <http://curatiofoundation.org/realist-evaluation-2/>
- Curatio International Foundation. 2017. Integrating Tuberculosis Services in Primary Health Care – Evidence Summary. Tbilisi, Georgia: Curatio International Foundation.
- Defeat TB Project. 2015. Defeat TB Project Kyrgyzstan Annual Report: Year One. Defeat TB Project, Abt Associates.
- Defeat TB Project. 2017. Defeat TB Year 3 Annual Progress Report. Defeat TB Project, Abt Associates.
- Global Fund. 2015. Program Grant Agreement BLR-T-RSPCMT. GA Number 940. Geneva: The Global Fund to Fight AIDS, Tuberculosis, and Malaria.
- HFG Project. n.d. "Kyrgyzstan Modernizes TB Hospital Financing." Accessed September 18, 2018. <https://www.hfgproject.org/improved-payment-system-moves-tb-hospitals-out-of-soviet-era/>
- HFG Project. 2018. Technical Brief: Strategic Purchasing Approaches for the Tuberculosis Hospital System in Ukraine. Health Finance and Governance Project, Abt Associates.
- Ibraimova A, Akkazieva B, Ibraimov A, Manzhieva E, Rechel B. 2011. "Kyrgyzstan: Health system review." *Health Systems in Transition*, 13(3):1–152.
- Kohler S, Asadov DA, Bründer A, et al. 2016. "Health system support and health system strengthening: two key facilitators to the implementation of ambulatory tuberculosis treatment in Uzbekistan." *Health Economics Review*, 6(1): 28-39. <https://doi.org/10.1186/s13561-016-0100-z>
- MSF and Stop TB Partnership. 2017. Out of Step in EECA: TB Policies in 8 Countries in Eastern Europe and Central Asia. A survey of prevention, testing and treatment policies and practices. Médecins Sans Frontières and Stop TB Partnership.
- van den Boom, Martin and Stefan Talevski, ed. 2016. WHO assessment of tuberculosis prevention, control and care in Kazakhstan, 17-24 November 2015. Copenhagen: WHO Regional Office for Europe.
- World Health Organization. 2018. "Health system response to TB: learning from the Armenian experience." Accessed September 18, 2018. <http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/news/news/2018/2/health-system-response-to-tb-learning-from-the-armenian-experience>
- World Health Organization. 2017. Tuberculosis Regional Eastern European and Central Asian Project (TB-REP): Mid-term update. WHO Regional Office for Europe.
- World Bank. 2017. Optimizing investments in Belarus' Tuberculosis response (English). Washington, D.C. : World Bank Group.
- World Health Organization. 2014. "Belarus pilots new financial model to strengthen ambulatory tuberculosis care." Accessed September 18, 2018. <http://www.euro.who.int/en/countries/belarus/news/news/2014/12/belarus-pilots-new-financial-model-to-strengthen-ambulatory-tuberculosis-care>

World Health Organization. n.d. "Tuberculosis country brief, 2016: Georgia." Accessed September 18, 2018. <http://www.euro.who.int/en/health-topics/communicable-diseases/tuberculosis/country-work/georgia>

WHO Regional Office for Europe. European Health Information Gateway Health for All Explorer. Accessed September 17, 2018. <https://gateway.euro.who.int/en/hfa-explorer/>

World Health Organization. Tuberculosis Country Profiles. Accessed September 18, 2018. <http://www.who.int/tb/country/data/profiles/en/>

World Health Organization. 2018. Global tuberculosis report 2018. Geneva: World Health Organization. http://www.who.int/tb/publications/global_report/en/

Ya-Hsin Li, Wen-Chen Tsai, Mahmud Khan, Wen-Ta Yang, Tsuey-Fong Lee, Yi-Chun Wu, and Pei-Tseng Kung. 2010. "The effects of pay-for-performance on tuberculosis treatment in Taiwan." *Health Policy and Planning*, Volume 25, Issue 4, 1 July 2010, Pages 334–341, <https://doi.org/10.1093/heapol/czq006>



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