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HEALTHCARE SYSTEM STRENGTHENING IN ARMENIA

WORKING PAPER

NEW FINANCING MECHANISMS FOR TUBERCULOSIS: INCENTIVIZING THE STOP TB STRATEGY IN ARMENIA

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Acronyms

BBP	Basic Benefit Package
CP	Clinical Protocol
CPG	Clinical Practice Guideline
DOTS	Directly Observed Treatment Short-Course
EBM	Evidence-Based Medicine
HS-STAR	Healthcare System Strengthening in Armenia project
MCH	Maternal and Child Health
MDR-TB	Multi-Drug Resistant TB
MOH	Ministry of Health
NTP	National TB Program
PHC	Primary Health Care
RTBD	Republican TB Dispensary
SHA	State Health Agency
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extremely Drug Resistant TB

Executive Summary

An HS-STAR project consultant traveled to Armenia July 8-18, 2011 to review the status of financing for tuberculosis (TB) services in Armenia and make recommendations for potential HS-STAR technical assistance to improve TB financing. The consultant also contributed to discussions on overall health financing issues and refining other provider payment systems.

The consultant visit resulted in this internal project working paper which summarizes key findings and issues in financing of TB services and makes recommendations for potential future HS-STAR technical assistance. The primary objective of a new financing system for TB will be to align financing with service delivery objectives, including improved diagnosis and treatment of TB and multi-drug resistant TB.

This working paper summarizes the current service delivery structure and financing for TB in Armenia. It then recommends technical assistance to the State Health Agency to refine provider payment systems for outpatient and inpatient TB services, and to support the piloting of new mechanisms that provide incentives to both health workers and TB patients for treatment adherence and completion.

The recommendations will be considered by the HS-STAR local project team and discussed with country counterparts and stakeholders. Agreed-upon recommendations and activities where HS-STAR can provide technical assistance will be included in the project's Year 2 work plan.

1. Introduction

Tuberculosis (TB) is a major global public health issue, particularly the rising burden of multi-drug resistant TB (MDR-TB). The growing problem of TB in Armenia may be attributed to health system failure, in part due to an incomplete transition from the old Soviet vertical dispensary system to a new system with previously vertical services integrated into the general health system. This incomplete transition in the service delivery structure seems to have been exacerbated by a National TB Program (NTP) that has been underperforming and is only recently being turned around.

WHO initiated discussions on refining the financing systems for TB services with the Ministry of Health (MOH), State Health Agency (SHA), and the Global Fund in 2009. A working group was formed that made recommendations to better align TB financing with service delivery objectives, including improving diagnosis and treatment of TB and MDR-TB. However, the recommendations of the working group have yet to be implemented. The USAID Healthcare System Strengthening in Armenia (HS-STAR) Project will collaborate closely with the MOH, SHA, NTP, and WHO to build on these initial discussions and provide technical assistance to refine the working group's recommendations and design and implement a new TB financing system.

An HS-STAR project consultant traveled to Armenia July 8-18, 2011 to review the status of financing for TB services in Armenia and make recommendations for potential HS-STAR technical assistance to improve TB financing. The consultant's scope of work is included in Attachment A.

This resulting working paper is divided into five sections:

1. Review of TB epidemiology in Armenia, which shows that Armenia is performing poorly with high incidence of TB, low cure rates, inadequate case finding, and high rates of MDR-TB.
2. Review of implementation of the WHO Stop TB Strategy focusing on incentives inherent in current service delivery and health financing arrangements.
3. Further detail on health financing issues in Armenia, focusing primarily on hospital and ambulatory sectors.
4. Key recommendations to improve health financing to better align incentives with the Stop TB strategy.
5. Suggested implementation strategy.

2. TB Epidemiology

Table 1 provides general statistics on TB in Armenia.

TABLE 1: TB STATISTICS IN ARMENIA¹

	2005	2006	2007	2008	2009	2010
Number notified – all new cases	1886	1598	1533	1507	1464	1329
Number notified – all cases including retreatments	1995	2155	2129	2125	2006	1780
Smear + new cases	581	580	497	487	440	339
% smear + of new cases	31	36	32	32	30	26
Case detection rate (new cases)	86	73	70	69	67	-
MDR cases	162	215	125	128	156	-

These statistics reveal a high level of new cases and MDR-TB cases, especially given the high level of support from international donors and extensive donor funding for TB. The number of MDR-TB cases is increasing – in 2007 WHO estimated that Armenia had an MDR rate of 9.4% among new TB cases and 43% among re-treatment cases with 4% of extensively-drug-resistant tuberculosis (XDR-TB) cases, placing Armenia near the top of WHO's list of the 27 countries with the highest MDR-TB burden in the world.²

One important finding is the relatively low percentage of smear positive TB cases which is less than a third of total cases and only 26% of new cases in 2010. As these are the most infectious cases, it is imperative that diagnosis and treatment of smear positive cases be the highest priority of the TB control program. As the ratio of smear positive to smear negative cases is significantly higher in most other countries, further research is needed to understand why there are so few smear positive cases in Armenia.

Another outstanding issue in Armenia is the source of the high rate of MDR-TB. It is important to stress that the existence of MDR-TB is a sign of health system failure. Although TB itself is a social disease and its increase in Armenia can be attributed, in part, to the difficult economic transition, the emergence of MDR-TB is a sign of health system failure, as increases in the incidence of MDR-TB in large part may be due to poor treatment by the health system.

As evidenced by other countries in the region, there are a number of possible causes for MDR-TB:

- MDR-TB is coming from prison sector, where there is overcrowding and poor treatment (one of major causes of MDR-TB in Russia and other post-Soviet countries, but not an issue in Armenia);
- Poor compliance with recommended treatment regimens;

¹ Armenia National TB Program, 2011.

² WHO Tuberculosis Country Profile for Armenia, accessed at: https://extranet.who.int/sree/Reports?op=Replet&name=%2FWHO_HQ_Reports%2FG2%2FPROD%2FEXT%2FMDRTBCountryProfile&ISO2=AM&outtype=html

- Limited infection control and potential for cross-infection of TB patients in TB hospitals;
- Unregulated over the counter sale of first and second line drugs and improper use of the 1st and 2nd line drugs by the physicians for conditions other than TB
- Poor TB program and patient monitoring; and
- Infection of migrant workers, e.g. those working in Russia and traveling back to Armenia.

Though it is difficult to determine precisely the cause of the high rate of MDR-TB, but many of the above-mentioned factors likely play a part. Even without conclusive evidence, it appears the cause of MDR-TB may be attributed to health system failure.

Based on a review of the epidemiology of TB in Armenia, the critical service delivery issues are to:

- Increase case detection;
- Increase the treatment success rate, especially of smear positive TB cases; and
- Prevent the creation of new cases of MDR-TB by:
 - Improving treatment success of new TB cases;
 - Preventing cross-infection between MDR and non-MDR cases; and
 - Successful treatment of MDR-TB.

3. Armenian Stop TB Strategy

The National Program for TB Control in Armenia (2007-2015) is based on the 2006 WHO Stop TB Strategy. The *Stop TB Strategy: Building and Enhancing DOTS to Achieve the TB Millennium Development Goals* has six components:

- Pursue high quality DOTS expansion and enhancement;
- Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations;
- Contribute to health systems strengthening through primary care;
- Engage with the private sector;
- Empower people with TB and communities through partnership; and
- Promote research.

This report is concerned with the financing of TB services, so it will focus on the relationship between the Stop TB Strategy and TB financing. It is useful to see whether the incentives inherent in the organization and financing of the TB system in Armenia support or inhibit the implementation of the WHO Stop TB Strategy.

Financing of TB includes the overall level of financing for TB compared to other health services. At the moment, there is a high level of international donor financing including KfW financing for drugs, Global Fund grants, extensive technical support of MSF, technical assistance from USAID, etc. It would be useful to review TB financing in Armenia using a National Health Accounts framework to fully understand the total level of financing and the flow of funds.³

³ The new revision of National Health Accounts, System of Health Accounts 2.0, contains more detailed classification of donor financing. It was understood that the Working Group on TB Financing was tasked to develop TB NHA sub-

TB financing also includes how providers are paid.⁴ Payment systems create incentives for providers. The issue of incentives is intimately connected to how services are delivered and particularly incentivizing changes in service delivery as part of health reform. In reviewing the Stop TB Strategy, most of the DOTS strategy is in the first component which also includes improved case detection through quality assured bacteriology; improved standard treatment with supervision and patient support; adequate and sustained drug supply; and improved monitoring and evaluation. This is where Armenia needs to concentrate – *on getting the basics right*.

In addition, Armenia needs to diagnosis and treat MDR. But even in this regard, a critical element will be to integrate TB services into primary care, since primary care strengthening is an over-arching health system strategy as well. Finally, Armenia needs to make a big push on patient-centered care; improving the supply-side of delivery of TB services is necessary, but not sufficient to tackle the TB problem.

Table 2 below walks through the components of the Stop TB Strategy in the Armenian context. The Table provides a more detailed analysis of issues of service delivery and incentives using the Stop TB Strategy framework.⁵ This exercise proved useful in confirming that the current set of incentives inherent in the service delivery organization and financing system is doing very little to incentivize providers to follow the tenets of the WHO Stop TB Strategy to improve TB prevention, detection, and care. This is reflected in relatively low cure rates; rising incidence of TB; inadequate case finding; and a growing percentage of new cases with MDR-TB. These are indicators of a TB system that is failing.

TABLE 2: HEALTH SYSTEM COMPONENTS OF STOP TB STRATEGY

Stop TB Strategy	Service Delivery	Supporting Incentives
1A1. Political Commitment	NTP versus Republican TB Dispensary (RTBD) Weak marz structure	GFATM funding to NTP but limited management capacity to implement. Consider increased funding and/or incentives at marz level for supervision based on a revised monitoring system to be introduced by NTP.
1A2. Increased and Sustained Financing	State budget GFATM grants Other donor assistance	Transition to state funding especially for drugs. Focus on efficient use of available public resources.

accounts, however this was not included in their report: *Assessment of Financing Mechanisms of TB Service Delivery within Health System of Armenia*.

⁴ The overall level of financing on TB was reviewed by the Working Group on TB Financing. One critical issue not examined is pooling. Armenia benefits generally from having a single payer which pools health funding. TB financing is more complicated because of the NTP and Global Fund including the Global Fund PIU. It is recommended to carry out financial funds flow and NHA mapping.

⁵ This comes from the table at the beginning of the WHO Stop TB Strategy. It provides a potentially useful framework for analysis and creates a potential score-card for looking at the effectiveness of implementation of the TB program.

1B1. Case detected	Breakdown of strong contact tracing through SES, weak passive case finding, poorly targeted active case finding (without focus on high risk groups, aside from HIV positive patients).	Fund public health surveillance Incentivize improving targeted active as well as passive case finding in primary care (overall polyclinic incentive)
1B2. Quality assured bacteriology	NRL strong but could continue to improve quality, including external quality assurance. Remaining lab infrastructure weak. Sputum collection skills weak.	Ensure adequate payment system for a functional lab network including sample handling and reporting and quality assurance of the regional labs.
1C1. Standardized treatment	There remain several weaknesses in treatment of TB. The ambulatory phase is under-resourced with poor training, supervision, and incentives. This needs to be rectified, if the hospital system is going to be down-sized.	Consider caseload adjustment for primary care payment instead of catchment area-based, as well as incentive payments to encourage correction of NSP:NSN:EPT (new sputum positive/new sputum negative/extra-pulmonary TB), improve case finding and decreasing the 'others' category among the retreatment cases and close monitoring of DOTS being given at the health posts.
1C2. Supervision	Limited incentives to ensure proper monitoring of TB program implementation and quality of care.	Improve monitoring system and consider payment and incentives for monitoring.
1C3. Patient support	Patients are the key to success of TB control, and yet are neglected. Some patients do receive food packages, but tremendous need remains for additional incentives including: public education; enablers (food, transport); direct incentives especially for accompanier.	Patient incentives including regular incentives (e.g. fortnightly) to cover travel costs to health facility and/or final incentive shared with care accompanier (e.g. family member, community leader).
1D. Drug supply	Current vertical drug supply will need to be re-adjusted. Best to incorporate into normal polyclinic drug supply system including engaging with private sector.	Current system seems to work, where NTP distributes drugs, but is not sustainable.
1E. M&E/measurement	Improvements needed in routine monitoring system. Key performance metrics may include: -treatment success rate/cure rate for sputum positive TB -treatment success rate/cure rate for sputum positive MDR-TB - case notification rate	Consider incentives to improve treatment success/cure rates, and to improve case finding, case holding, contact tracing and to increase ratio of new smear positives of total cases

	<ul style="list-style-type: none"> - case detection rate - average length of stay for different categories of patients 	
2. TB + HIV	There are two separate competing services. Putting diagnostic equipment in the AIDS center is an idea, but better to transfer specimens to NRL. The real question is where to treat positive cases?	Better incentives are needed. It could be a requirement for anyone with confirmed TB to have HIV test and vice versa.
2B1. MDR prevention	In the long-term there may need to be improved epidemiological understanding of MDR epidemic in Armenia. The causes remain diverse and unclear.	Better incentives for case detection will have some effect, but this should be monitored as there is limited availability of second line drugs to treat MDR patients.
2B2. MDR treatment	It is critically important to separate MDR cases from non-MDR cases in the hospital setting. This is one rationale for recommending closing down all of the TB hospitals and leaving only RTBD. There needs to be strict separation of MDR and non MDR. In general, most non-MDR-TB should be treated in community even during the intensive phase especially sputum negative and non-pulmonary TB.	MDR requires high payments for both hospital and ambulatory care. In ambulatory phase, the length of treatment is more than double and the intensity is greater. There needs to be high payments across the board for MDR-TB.
3. Health Systems	The goal is to break the long tradition of hospitalization for TB and to strengthen primary care and public health.	The focus on incentives should be to build a strong primary care system that can strengthen case finding and ensure strong continuation phase of DOTS with high cure rates of smear positive TB. Also, to increase case detection through better passive case finding and targeted active case finding in high risk groups.
3A. Primary care	This is <u>key</u> to an effective DOTS strategy and most neglected area in Armenia. There has been very little capacity building including continued education, investment in physical infrastructure, and incentives. This is the lynchpin for down-sizing the inefficient hospital sector.	First, the payment should be related to the workload of practices rather than catchment area numbers. Second, a joint patient-provider incentive should be introduced based on adherence milestones and completed case.
3B. Hospital care	In the both the short and long-run, there is a need for hospital consolidation. Overall, hospital beds should be declining. Hospitalization for diagnosis should be	Consider consolidating TB departments in marzes. The increase in occupancy from the increased case-load could be off-set by decreased length of stay.

	strongly discouraged or stopped.	RTBD could be moved to performance-based budget based on cure rates, infection control, etc.
Public health	The SES should be revitalized like the US CDC with good epidemiological contact tracing. This requires long-term investment in human resources.	This requires core state funding with offices in marzes.
Human resources	Ratio of the number of TB cases to the number of TB specialists is not low but there is unequal distribution, with more of in Yerevan than in the marzes. It is a bit early for introduction of WHO's PAL, but this is an important long-term transition especially for ambulatory TB physicians (<i>physiotrists</i>) – as TB rates decline the need for specialized TB doctors may recede with family doctors and pulmonologists trained to provide TB services.	Focus of human resources should be on improving distribution of TB specialists, moving toward a cadre of pulmonologists in the long-term, involving family doctors in prevention, case detection, and follow-up treatment, and improving field epidemiology skills.
4. Engage Private Sector	The pharmacy is the key part of the private sector.	Pharmacies should not be allowed to sell TB drugs. This ban should be strictly monitored and enforced.
5. Patients	Patients are the most critical along with care-givers. There needs to be concentrated action to improve patients' knowledge, attitudes and behaviors. This requires major intervention, including considering direct patient incentives.	Direct patient incentives may improve treatment completion and success rates.
6. Promote research	Research may be considered to understand the higher number of sputum negative TB diagnoses. There needs to be research with patients and providers to know what are the correct incentives for the pay-for-performance scheme.	Impact evaluation is needed for the new provider and patient incentive payment schemes, since this will be of global importance.

This rapid assessment of implementation of the Stop TB Strategy in Armenia provides evidence that the current system is not providing the right incentives.

4. Service Delivery and Financing for TB

This section reviews the current service delivery model and financing for TB services and discusses a number of options to improve TB financing and ensure that it is aligned with objectives of TB service delivery.

The TB system in Armenia has undergone significant reforms since the Soviet times, adopting the WHO recommended DOTS strategy. At the clinical level, there has been a shift away from hospitalization, where the intensive phase (2 months) remains in the hospital and the continuation phase (4 months) has been shifted to the ambulatory sector. The number of TB hospitals/dispensaries has been decreased. There remains the RTBD with 300 beds, a TB dispensary in Yerevan, and 8 other additional dispensaries that are now part of general hospitals in the marzes. Outpatient TB specialists have been integrated into polyclinics in marz centers, and a number of PHC physicians have received training in TB prevention, diagnosis, and treatment.

4.1. Hospital Payment

The current method of payment for inpatient TB services in hospitals is based on the number of bed days up to a maximum. Based on the guidelines for TB care outlined in the TB State Standard, the hospital phase is 60 days for non MDR-TB and 90 days for MDR-TB. For non-MDR-TB, if a follow-up smear conducted at two months is positive, the intensive phase can be extended for one more month. At the moment, the current financing is based on having the entire intensive phase being kept in the hospital. The current method encourages hospitalization and potentially excessive hospital stays.

It is important to emphasize that in most OECD and low income countries, there is limited use of hospitalization even for the intensive phase of treatment. In the case of high income countries, hospitalization is extremely expensive and it is not possible to keep patients in the hospital for 2-3 months, whereas in low income countries there are a limited number of hospital beds. Therefore, in most countries outside of the former Soviet Union, even the intensive phase occurs in an ambulatory setting.

In post-Soviet countries, where hospitalization is the norm, and there is extensive hospital infrastructure, the compromise has been to maintain hospital care for an intensive phase until sputum conversion and then shift to the ambulatory phase. Obviously, the critical issue is the capacity of the ambulatory system to carry out Directly Observed Therapy (DOT) which we will discuss in the next section.

The first and most straightforward option for changing hospital financing is to shift from having the entire intensive phase in the hospital and to only keep patients in the hospital until smear conversion. Interviews with key players suggest that sputum conversion in most new cases of smear positive TB would be 2-4 weeks and 6 weeks for MDR-TB. Thus, one could maintain a hospital per diem system, but use smear conversion as criteria for patient discharge. If it were possible to implement this small change of only hospitalizing until smear conversion, it may lead to a decrease in TB hospital bed days by almost 50%.

However, as sputum examination is not indicated within WHO DOTS guidance until two months (end of intensive phase), instituting this change may not be feasible. Further, sputum conversion is no longer being consistently recorded, per WHO suggestion.

It is important to emphasize that a large percentage of TB patients (over two-thirds of new TB patients) are smear negative and therefore not infectious. One of the advantages of new rapid test technology is that it may be used to make a more definitive diagnosis of smear negative TB patients. Once the diagnosis is confirmed, the majority of smear negative patients can be safely and effectively treated in an ambulatory setting even for the intensive phase.

Thus, with two small clinical changes, there is likely to be a huge decrease in hospitalization in Armenia:

- Hospitalization until smear conversion, if deemed feasible to implement; and
- No hospitalization of smear negative patients.

Consistent with the recommendations of the WHO Mission Report, it is strongly recommended that RTBD no longer hospitalize TB suspects for diagnosis. Without adequate infection prevention measures, this puts suspects at further risk of infection before they are even diagnosed. Diagnosis (and initial treatment while awaiting confirmation if clinically indicated) should be managed and financed on an outpatient basis.

Elements of TB Financing Reform in Kyrgyzstan

A new budget formation process for each TB facility is being introduced in Kyrgyzstan. The budget is formed based on cases treated using a case classification system based on DOTS groups. Cost accounting is conducted to create a relative weight for each group in the case classification system. Each TB hospital budget is then based on the expected number of cases in each group times the relative weight for each group calibrated to the total level of the TB budget (average cost per case). The provider payment system is a global or chapterless budget with the amount of the global budget determined by the number and type of cases treated. The system is not a case-based hospital payment system, but rather a case-based hospital budget formation process.

Under the new budget formation process and global budget, TB facility-level assessment of revenues vs. expenses will be conducted to lead to development of rationalization and restructuring plans (within facilities and across the vertical TB system, possibly including hospital mergers). The salary payment system also will be converted to a contract basis enabling bonuses and other salary distributions, based on performance, from facility restructuring savings.

Borowitz M, et al, Conceptual Paper: A Health Systems Approach to TB Infection Control in Central Asia, USAID ZdravPlus II Project, Abt Associates, 2008.

These clinical changes would significantly decrease hospitalization but would also decrease the payments to hospitals. This would create even greater scope for rationalization of the TB hospital sector. If a larger percentage of the TB hospitals were to be closed or significantly downsized, the patients could be shifted to fewer and better hospitals. There is probably scope for closing the majority of TB hospitals outside of Yerevan; a couple of TB hospitals in Armenia are sufficient, perhaps even only one. This would allow Armenia to concentrate resources and improve quality of care in those hospitals. The closure or downsizing of other hospitals may lead to increased case load for RTBD, but this could be offset by clinical changes (suggested above), with the likely overall outcome leading to a rough balance in case load and overall funding. Any downsizing of hospital TB capacity should follow a needs assessment and mapping exercise. Peripheral TB departments simultaneously should be bolstered to increase their capacity to provide diagnosis, inpatient, and follow-up care.

If the hospital sector was consolidated into only 1-4 hospitals, there would be scope for shifting the hospital payment system from per case system to a performance-based budget that would include risk-adjusted case load, but also other key performance metrics like infection control. As there are many issues beyond just the length of treatment such as infection control, it would make sense to shift from a per-case system to a global budget with performance measures. The global budget may be calculated using a case classification system or case-mix index – basically adjusting an average payment by the severity of the case. A cost accounting study would need to be conducted in the facility to determine the relative weights of each of the groups in the case classification system. Each TB hospital budget would be based on the expected number of cases in each group times the relative weight for each group calibrated to the total level of the TB budget (average cost per case). Once the hospital budget was determined, it would be given as a global (“chapterless”) budget to the hospital to manage. As the hospital’s number of overall cases may decrease with proposed clinical changes, weighted payments for the complex cases requiring hospitalization (MDR-TB, XDR-TB, “chronic” patients, or those with co-morbidities, etc.) may increase, partially offsetting any reduction in financing the hospital may face. Such a differentiated scheme would be envisioned for RTBD only, as MDR, XDR and chronic disease patients are all currently admitted there.

Alternatively, Armenia might consider using the current hospital budgets, but withholding a percentage or adding additional money coming from rationalization of TB hospitals for use as a performance bonus. The performance measures would need to be determined but might include cure/sputum conversion, but also include other important dimensions of quality care, such as infection control and patient satisfaction. The bonus mechanism may encourage improved performance at peripheral hospital level and help to avoid over-centralization of care and treatment in RTBD.

In conclusion, the payment system should include incentives so that inpatient services are provided with fewer hospitals and beds offering higher quality treatment and care. With minimal clinical changes, there would be scope for extensive rationalization of the hospital sector. However, it is important to stress that these reforms presuppose a well-functioning system of ambulatory TB treatment.

4.2. Payment for Ambulatory Care

Although this paper began the discussion with hospital care, the first and foremost priority is to create better incentives for ambulatory TB care. This is the backbone of the system and a strong system of ambulatory care is needed to compensate for decreasing the size of the TB hospital system. The core of the ambulatory system is the TB cabinets in polyclinics and the associated bacteriological laboratories. These cabinets should carry out the bulk of treatment and case finding complemented by rural ambulatories (under their supervision) for rural TB patients.

As part of the reform process, Armenia made the innovative decision to break up the Soviet TB dispensary and shift the ambulatory component to general polyclinics along with improving lab capacity within polyclinics to carry out sputum microscopy. In urban areas, the TB cabinet is in a larger polyclinic. In essence, the outpatient side has shifted the TB physicians and nurses to polyclinics which should, in theory, improve patient access. However, from the standpoint of the clinical teams, the advantages are less clear, since they are now no longer connected to the wider structure and supervision of the TB dispensary. Within the polyclinic, the TB cabinet is responsible for following the patients, so there is in reality limited role for PHC, though, in theory, there should be enhanced patient case finding among frontline primary care providers.

The creation of TB cabinets in polyclinics was a very innovative reform, but these reforms were not matched by changes in financing. The current ambulatory payment system is based on capitated rate to catchment areas. The catchment rate pays for the salaries of doctors and nurses and their supplies with the TB cabinet. Although the structural reform is very innovative, the financing system does not really provide adequate incentives. Given the radical nature of the reforms, they should be coupled with sufficient payment as well as incentives to make the new system work.

One of the disadvantages of the current system is that it does not adjust payment for workload. The capitation rate assumes a fixed percentage of cases, but this assumes even distribution of TB cases including case finding. At the moment, a TB cabinet would be paid the same if they had to follow 10 or 20 patients. Therefore, at the very least, there should be some adjustment for caseload.

In addition, the caseload also may be adjusted for the complexity of cases. At the very least, the adjustment for caseload should include coefficients for MDR and non-MDR patients, given the greater complexity and length of required follow-up treatment on an outpatient basis.

The current system also provides insufficient incentives for ensuring patients are followed until they complete their treatment. Providers are paid the same whether the case is cured or if they fail treatment or even drop out. In addition to adjusting payments for case-load, there is scope to consider an additional bonus payment for a complete case. A completed case could be defined as the patient taking all of their medications under directly observed therapy (123 doses or 183-61 doses in the hospital). A bonus payment for completed case and/or increased case finding, would give the providers a much stronger incentive for ensuring adherence. It would align the incentives of payment with the goals of the TB system. Clearly, the incentive could be used for all sputum positive TB cases. This would give a large financial incentive to ensuring high rate of completed treatments for new sputum positive TB cases.

At the moment, TB patients are required to go to the TB cabinet for all of their services. This system works for urban areas, but is difficult for rural patients who would have to travel all the way to the TB cabinet. There is a role for rural primary care providers to play in the ambulatory phase. This means they could take on the role of ensuring daily taking of medications in rural areas and also may be included in any new adjusted workload-based payment or incentive system. Bonuses to rural primary health care providers might also improve case finding at this level.

4.3. Patient Incentives

Although incentivizing providers is important, the most critical player is the patient who has to take a long course of medication even after they feel better. Therefore, if one wants to ensure high levels of treatment completion there may be a role for a complementary patient incentive. Given the relatively small number of cases and the need to ensure patient completion of treatment, a direct patient financial incentive may encourage Directly Observed Treatment (DOT).

Although patients should follow their course of treatment, it is widely known that they often do not, and perhaps this situation could be rectified by adding incentives. There are currently some patient incentives such as food packages, but these appear insufficient. Given that TB is a public health priority and there are externalities (e.g., patients infect others), it is worth considering adding a financial incentive for completing treatment. Armenia may consider paying patients a modest sum for adhering to and completing the entire course of treatment.

The actual payment for patients should be set at a high enough level to make the reward sufficient to increase motivation, but not too high so as not to encourage patients to contract TB for payment. It has been suggested that something on the order of \$100 for non-MDR patients and \$300 for MDR-TB patients may be appropriate. However, actual amounts should be based on local market analysis and operational research with TB patients to determine what level of payment would be most appropriate and effective.

In addition to the bonus for completing treatment, smaller payments could be used to encourage patients to regularly follow DOTS. It is probably useful not to have only an all or nothing payment. It is suggested that small payments be made to patients every 2-4 weeks for completing each round of DOT. Introducing incentive payments effectively will require strong clinical and financial recording and monitoring systems.

Possible role of a TB certificate. Armenia has been using a certificate to educate patients about their right to free maternity services and to select a provider, and several studies indicate that this

“Evidence suggests that incentives can be valuable in implementing the components of the Stop TB Strategy. Although it is difficult, given the available evidence, to attribute changes in performance fully to the incentives, experience indicates that performance incentives for patients and providers can help to support increased detection of cases and contribute directly to an improvement in treatment completion rates. Reviewing cases of performance incentives in TB programs reveals the importance of careful design and implementation, particularly involving the distribution of money or food.”

Beith A, Eichler R, Weil D, *Incentives for Tuberculosis Diagnosis and Treatment in Performance Incentives for Global Health: Potential and Pitfalls*, Eichler R, Levine R, and the Performance-Based Incentives Working Group, 2009.

approach has been successful. There is a fixed payment for a normal delivery and patients may choose to visit any provider. One could imagine a similar patient certificate or contract between patients and TB cabinets for the ambulatory phase of treatment. The contract would lay out their roles and responsibilities for completing the course of treatment and outline the patient financial incentive program. It could contain a patient passport with all of the information on the TB patient including their course of medication treatment, sputum tests, etc. There may be scope for limited patient choice in TB treatment. In rural areas, patients can decide whether they want to go to a rural PHC provider or to the TB cabinet to supervise taking of medication.

The role of care-givers in patient incentive scheme. It may be useful to consider involving a care-giver in the patient incentive scheme, particularly for patients in rural areas. The care-giver could be responsible for the DOT of the patient. This could be a health worker in a rural health post, a family member, or some other member in the community. They also might receive some payment. The use of community health workers has been very effective in other countries and might play a useful role in Armenia, with sufficient political will and investment in making such a strategy work.

4.4. Improving Case Finding

It is difficult to accurately know the actual number of TB cases, though WHO estimates that case finding in Armenia is low. Given the high levels of stigma and the weak system of primary care, it is likely that case finding is inadequate. The first part of the solution is to strengthen the current system of passive case finding. This means that all primary care physicians and nurses in polyclinics and rural ambulatories need to have better knowledge of the symptoms of TB.

There is also scope for expanding active case finding, including through strengthening the role of health posts and nurses to perform this function. Rather than use population-based screening with fluorography, it seems more cost-effective to focus on high risk groups. This may likely include: people living with HIV/AIDS, alcoholics, and drug users. This means there needs to be active case detection among these groups. Although policies are in place, it appears that case finding may be inadequate because it requires patients to travel from the AIDS Center and Narcology Hospital to TB hospital. This system should be strengthened by making diagnosis easier. This can be done by strengthening the laboratory in the AIDS Center and Narcology Hospital, or even better, by collecting sputum specimens and transporting them to the National Reference Laboratory. There is also scope for use of x-ray screening in these high risk populations. These changes may require additional financing.

One high risk group stands out based on interviews with clinical teams – people returning from Russia. Many of the cases of TB are among people that have been living in Russia, often in difficult circumstances. Given the high rate of TB and MDR-TB in Russia, and the large number of Armenians living in Russia, this group may be targeted for active case finding.

There is also need to ensure there is adequate contact tracing. This is the responsibility of the primary care system and should be one of the advantages of a strengthened primary care system. Contact tracing should be mandatory and accompanied by supervision on a regular basis to ensure that the primary care system is carrying out this function. This means that where there is a confirmed case, screening for TB among the patient's family members is carried out. Design of the

financing system for TB services and any performance-based payment at primary care level may consider including payment or incentive to ensure adequate contact tracing.

There is also great need to increase knowledge of TB in the population. There is an overwhelming sense of stigma for TB, but for a disease that is curable. There needs to be much greater awareness of the population of symptoms of TB, that TB is curable disease, and that cure requires adherence to the long regimen even after symptoms have declined.

4.5. Paying for Improved Governance, Care Coordination, and Supervision

It is clear that there should be supporting funding of the marz health departments to oversee the care coordination in the region. There are many care coordination issues including linkages with prisons, bacteriology/sputum collection, passive and active case finding. There should be scope for additional funding and incentives to ensure that this system works. In addition to care coordination, funding and incentives at marz level may be used to encourage improved supervision and monitoring. At national level, roles of NTP and RTBD regarding clinical and managerial monitoring and supervision should be agreed upon, with adequate funding identified for these institutions to fulfill their roles.

5. Key Recommendations for Reforms in TB Financing

This section consolidates the options discussed above into key recommendations for TB financing reforms.

Payment for TB services at hospital/inpatient level:

- Consider revising clinical standards for hospitalization (e.g., hospitalize until sputum conversion (if deemed feasible), and do not hospitalize sputum negative cases).
- Consider down-sizing the inpatient delivery structure for TB services (e.g., downsizing or even closing a few TB departments with clear guidance on hospitalization and referral, roles and responsibilities, accompanied by proper TB treatment guidelines).
- Shift the remaining TB hospitals to a performance-based budget that would include risk-adjusted case load, but also other key performance metrics like infection control.

Payment for TB services at primary care/ambulatory level:

- Consider changing ambulatory payment system to include case-adjusted workload payment.
- Add performance payment system for adherence and completed cases for providers/patients/care-givers.
- Consider financing mechanisms aimed to improve passive case finding in ambulatory care and active case finding of high risk groups.
- Ensure adequate evaluation of the new performance payment system for ambulatory care.

Other payment considerations:

- Add incentives for coordination, monitoring, and supervision including possible performance funding to marz health departments.

6. Implementation Strategy

As discussed above, service delivery and financing changes should be implemented in a synergistic manner, so that financing changes reinforce agreed upon service delivery objectives and provide incentives to improve TB detection and treatment. HS-STAR will coordinate with NTP to develop and/or support implementation strategies for both service delivery improvements and changes to the way TB services are financed, and will ensure that the strategies are consistent with the recommendations of the *WHO Mission Report: Extensive Review of TB Prevention, Care and Control Services in Armenia*.

One first step may be to work with NTP to revise the TB State Standard document for 2012. The State Standard defines the TB services covered for the population with government funding, like a Basic Benefits Package for TB, and also includes information to guide clinical practice almost like a protocol or guideline. Revisions to the Standard will provide a foundation for aligning service delivery with the WHO Stop TB Strategy, including reinforcing implementation of DOTS, reducing unnecessary hospitalizations for TB, and strengthening delivery of TB diagnosis and treatment services at primary care level. Financing reforms then may be designed to support any changes in service delivery organization and clinical practice.

SHA has expressed its interest in reconvening a working group on TB financing. While HS-STAR supports this idea and can provide technical assistance to the working group, it should be agreed from the outset that the group's task would be to move forward quickly with design/detailed specification and implementation of new financing systems, consistent with any agreed changes in the organization and delivery of services. Through discussions with NTP, MOH, SHA, WHO, and GFATM, HS-STAR has confirmed that all of the key players are in agreement that changes in TB financing are desperately needed, and that the next step is to develop a detailed strategy for their concrete design and implementation, rather than engaging in further debate and discussion.

During this consulting assignment, HS-STAR developed a table to guide the project's thinking about how to support changes in TB financing. The table includes two reform options for discussion with and consideration by counterparts (including a newly constituted working group on TB financing). The first option focuses on strengthening outpatient care and providing incentives to primary care providers and patients to improve treatment adherence and completion. It does not require significant changes to the hospital delivery structure for TB. The second option proposes significant changes to clinical practice and the hospital system structure. The options may also be considered phases of an implementation strategy. For each option, the table includes a suggested health financing improvement, implementation arrangements and questions that may arise during design and implementation, and suggestions for monitoring implementation. The table is provided in Attachment B.

Attachment A: Consultant Scope of Work

Consultant Scope of Work Short-term Technical Assistance in TB Financing

Background

TB is an important and escalating problem in Armenia, exacerbated by a government TB program that is underperforming. The most recent reported prevalence rate of TB is 81 per 100,000 with an incidence rate of 72 per 100,000. More significant, Armenia has an MDR rate of 9.4% among new TB cases and 43% among re-treatment cases, placing Armenia near the top of WHO's list of the 27 countries with the highest MDR-TB burden in the world. Armenia remains significantly below the targets set for case detection rate (51% versus 70%) and treatment success rate (70% versus 85%).

WHO initiated discussions with the Ministry of Health (MOH), State Health Agency (SHA), and the Global Fund in 2009 on refining the financing systems for TB services. As part of its first year project work plan, the USAID HS-STAR Project will collaborate closely with these stakeholders to continue and build on initial discussions. The primary objective of a new financing system for TB will be to align financing with service delivery objectives. A new financing system might include matching payment to the BBP entitling the population to TB services; improved allocation of TB resources; increased efficiency and effectiveness of TB service provision; increased payments for MDR-TB (and other, more complicated TB cases); and introduction of incentives to rationalize the vertical delivery structure for TB services, improve integration into PHC, and improve treatment outcomes. A new TB payment system might include innovative features to create incentives to improve case finding and diagnosis, and incentives for both health personnel and patients upon the completion of both the intensive and continuation phases of DOTS treatment.

Objective of Consultancy

The international TB Financing consultant will provide short-term technical assistance to the HS-STAR Project to make recommendations for the further design and implementation of a new TB financing system for Armenia based on international experience and best practices.

Specific Tasks

1. Lead a series of internal HS-STAR brainstorming sessions on new financing systems for TB.
2. Share international experiences and best practices on TB financing systems with the HS-STAR health financing team.
3. Meet with WHO/Armenia, Global Fund PIU, and MSF to discuss potential collaboration on TB financing issues.
4. Develop a series of in-depth recommendations to improve the TB financing system in Armenia, including:
 - PHC-level financing for TB services;
 - Hospital payment system for TB services; and
 - Demand and supply-side pay-for-performance schemes.
5. Contribute to development of draft detailed action plans and timelines for implementation of the above recommendations.

6. Help the project prepare for meetings with MOH and SHA on TB financing issues to agree on implementation of expert recommendations and to develop joint action plans.
7. Meet with USAID to debrief on the visit.

Deliverables

1. Report summarizing detailed recommendations to improve the TB financing system.
2. Input to and review of draft detailed action plans and timelines for implementation of the recommendations.

Period of Performance: July 7-18, 2011

Number of Days: 8

Attachment B: TB Service Delivery and Financing Reform Options and Implementation Strategy

USAID HS-STAR Project objective – options below serve as a framework for dialogue on TB financing reform and corresponding structure, service delivery and clinical improvements

Options and implementation phases based on dialogue with country and development partners but situation evolving rapidly (e.g. possibly close Marz Hospital TB Departments)

Service Delivery Improvements	Health Financing Improvement	Health Financing Specifics	Implementation Arrangements and Questions	Monitoring
PHASE I IMPLEMENTATION				
<i>Service Delivery – no major changes to hospital system structure or clinical practice and priority is strengthen outpatient care</i>				
<i>TB Financing – refine outpatient care payment system and add incentives which are largely additional and one-time Global Fund investment but also small SHA shift in payment from hospital to outpatient care for sustainability and to drive preparation for Phase II Implementation</i>				
Outpatient (PHC and Specialty)				
Strengthen TB Cabinet (polyclinic outpatient) continuation phase services	Increase payment and allocate on workload	Maintain current per capita and salary adjustments; Add monthly payment based on workload, investigating symptomatic, and/or TB case identification rate	<ol style="list-style-type: none"> 1. Determine share from SHA and share from Global Fund Round 8 Phase II? 2. How to include transportation costs for home visits and patient travel? 3. Additional dialogue to determine if should change base per capita and salary adjustment payments? 4. How to ensure case payment reaches TB Cabinet? 5. Can patients in Yerevan and other larger urban areas choose their TB Cabinet? 	Case registration system verifies number of cases

Increase and strengthen rural PHC continuation phase services (assumes urban PHC all in TB Cabinet)	Increase payment and allocate on workload	Maintain current per capita and salary adjustments; Add monthly payment based on workload Payment shared between TB Cabinet for cases served and supervision, and rural PHC provider for cases served (DOT)	Same as Urban TB Cabinet except no choice of TB Cabinet	Case registration system verifies number of cases
Increase completed cases	Bonus for completed case	Set amount of bonus for reasonable incentive, determine bonus pool by multiplying bonus times estimated completed cases (assuming increase from current level to 80-90%)	1. Pay a higher bonus for a cured case vs. basic bonus for completed case? 2. Difficult to monitor or validate completed case but may not be fault of patient than not cured case – not address?	DOT validation form
Improve patient adherence	Incremental payment DOT	Determine a small amount for 20 DOT and pay monthly (to total of 183)		DOT validation form
Improve case finding and contact tracing	Bonus for investigating symptomatic and/or TB case identification rate	Set amount of bonus for reasonable incentive, determine bonus pool by multiplying bonus times estimated targets		Records review
Hospital				
Minimize hospitalization of TB patients within current hospital structure and clinical practice	Pay for sputum conversion if deemed feasible	Options: 1. Continue per diem hospital payment with case and hospital ceiling but use sputum conversion number of days as case ceiling 2. Convert per diem payment into case payment using normatives on sputum conversion.	Generate epidemiological information on sputum conversion for regular and MDR-TB Change guidelines on smear testing for inpatients Change guidelines for payment on case conversion	NRL data on smear conversion

Decrease infection/cross-infection in hospitals, especially issues with confirming diagnosis on an inpatient basis in RTBD	Refine payment system for RTBD	Options: 1. Refine current payment system 2. Major shift to global budget and performance incentives	Improve management and separation of patients while confirming diagnosis Assess laboratory operations and payment systems	SHA monitoring/QA
PHASE II IMPLEMENTATION <i>(the hospital structure and clinical practice options below could be implemented either linear or in parallel)</i>				
Service Delivery – significant changes to clinical practice and hospital system structure to further integrate TB into outpatient care <i>Possible step-by-step approach – first SS-, then SS+, then MDR TB fully integrated into outpatient care (no hospital care except complex cases or extremely vulnerable populations)</i>				
TB Financing – maintain outpatient care payment system and incentives and change TB hospital payment system consistent with further integrating TB services into outpatient care hospital to outpatient care for sustainability and to drive preparation for Phase II Implementation				
Hospital structure – options include: 1) close several Marz Hospital TB departments; and set up Regional Hospital TB departments; or 3) downsize all hospital TB departments and introduce strict hospitalization criteria	Refine TB hospital payment system	Options: 1. Refine current payment system 2. Major shift to global budget to protect fixed costs, possibly performance incentives	Decision on Marz Hospital TB Departments (could be analysis of structure and patient flow but appears decision will be made quickly) Decide number, plan and establish Regional Hospital TB Departments	SHA monitoring/QA

Clinical practice - - step-by-step full integration of TB services into outpatient care (SS-, SS+, MDR)	Refine TB hospital payment system and increase payment to outpatient care	1. Hospital – options above 2. Outpatient care – options above	Service delivery and clinical practice decisions on graduate integration into outpatient care including clinical pathway and clear patient flow schematic	SHA monitoring/QA, NTP QI and monitoring
Strengthen RTBD as Center of Excellence for MDR TB	Refine payment system for RTBD	Move RTBD to global budget for case type/severity including increases for MDR TB and performance incentives.	Possible performance indicators for RTBD: 1) infection control (e.g. staff wearing masks; 2) sputum conversion monitored; 3) separation of patients; 4) adequate food	Monitor performance indicators