TECHNICAL ASSESSMENT – ADDENDUM

Additional Financing and Restructuring of the

Primary Health Care Quality Improvement Program (PHCQIP)

(P167598) (P178856)

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Contents

1. The technical assessment addendum provides (a) a detailed assessment of the progress and bottlenecks for each results area and DLI; (b) an update to the Program expenditure framework to incorporate CY 2025 and update numbers based on actual budgets of 2019-2021; (b) an update to the strategies proposed for the achievement of DLIs 3 and 4 (improving service delivery), (c) a justification for the realignment of DLIs 7 and 8; and (d) an economic analysis for the AF.

A. Progress and bottlenecks by results area and DLI

RESULTS AREA 1: INTEGRATING SUSTAINABLE QUALITY IMPROVEMENT MECHANISMS INTO SERVICE DELIVERY

2. **Results area 1: Integrating sustainable quality improvement mechanisms into service delivery.** This results area supports the establishment of two key information systems: (i) a system for routine collection and reporting of quality-of-care data, and (ii) an online system for continuing professional development (CPD) of health care workers. The results area also supports improvements in the quality of prenatal care and care for noncommunicable diseases, both of which are priorities at the national level. For both areas of care, a specific set of tracer services represents the overall progress in improving the quality of care.

3. Progress in the information systems.

- **The development of a system for routine collection and reporting of quality-of-care data Under DLI 1 is underway.** The MoH approved[1] technical specifications for the primary care data collection platform (PCP) and the quality-of-care analytics platform, thus completing the requirements under *DLR 1.1 – Technical specifications for online primary care data collection and analysis platforms*. However, since the result was completed after the deadline specified in the financing agreement (December 2021), the WB is unable to disburse against this DLR until the restructuring removes the deadline. The e-Health Center also prepared technical specifications for developing the outpatient card, which will move the information system towards an Electronic Medical Record system.[2] A new server and computers were procured and delivered in late 2022 - early 2023. The development of the platforms themselves is underway but is delayed compared to the Program design.
- **The development of the CPD platform/Learning Management System (LMS) under DLI 2 and related activities have progressed well.** The MoH created a new HR database to facilitate enrollment in CPD activities and record keeping. Information has been collected and the database is currently at 80% completion. The KSMIRCE completed the requirements under DLR 2.1 - *Technical specifications developed and approved for (i) the online CPD platform; and (ii) integration of CPD and HRH platforms.* However the deadline was not met and no disbursement can be made until after the restructuring. The KSMIRCE's IT infrastructure was strengthened with the purchase of servers, computers, and a backup power generator. An up-to-date Moodle-based LMS platform was developed and installed and is currently functioning with limited functionality. By July 2023, the KSMIRCE will (i) develop and install two missing LMS elements, and (ii) link the LMS with the new HR database. This will complete the achievement of the *DLR 2.1 - Technical specifications developed and approved for (i) the online CPD platform; and (ii) integration of CPD and HRH platforms*. The KSMRICE has also made significant progress towards developing online learning content and evaluation tools. In 2021-2022, the Institute developed the first eight online courses. Another twelve courses are in the pipeline for development in 2023. In the same period, the KSMIRCE also added 17 new Clinical Practice Vignettes (CPV) to its evaluation tools and plans to develop an additional twenty. The KSMIRCE is also advancing in the creation of two simulation centers for in-service training of PHC providers in Bishkek and Karakol.

4. The **main challenges** in implementing the information systems have been:

- Delays implementation of activities due to the COVID-19 pandemic.
- **High staff turnover**, especially at the e-Health Center.
- **Software development.** Delays in determining the appropriate mode of developing software (firm, consultants, or in-house) led to further delays in the preparation of technical specifications for the quality-of-care analytics platform and in the development of both platforms.
- **Procurement.** Difficulties in tendering of computers, servers, and other information technology (IT) equipment delayed the roll-out of the electronic CIF and setup of the data warehouse. Sudden exchange rate variations in the Spring of 2022 led to delays in the procurement of IT equipment. The KSMIRCE also struggled to access to online, high-quality medical literature, which are difficult to procure under Government procurement regulations.
- **Design of the existing information systems.** The function of the CIF is mainly statistical, with little or no feedback to healthcare providers and patients. There are no incentives to register visits in the CIF, and actual registration of visits in CIF has steadily declined – in 2022, the system only recorded 1.5 outpatient visits per person per year, down from 2.5 visits in 2019. Similarly, the databases used for the independent verification of DLIs 3 and 4 show poor recording of basic laboratory test results in CIF.
- **Operational challenges.** Reorganization of health facilities (PHC/hospitals) requires frequent updating of the unique identifiers in the Health Information System (HIS), which takes up scarce staff time needed to advance

[1] MoH Order No. 1399 of December 2, 2022.

[2] MoH Order No. 840 of July 13, 2022.

the development of the systems.

- **DLR design.** The second DLR includes a mobile application as part of the development of the LMS platform. However, this is not feasible since it would require major adjustments to the Moodle platform as well as specific course design. Another hurdle is the lack of a *regulation on the accumulation and requirements of credit hours or points for continuous medical and pharmaceutical education* to incentivize health workers to take online courses. Both issues are being addressed in this restructuring.
- **DLR 1.1. and 2.1 included a deadline at the end of 2021.** Although the MoH delivered on the content of the DLRs, the WB has been unable to disburse due to the lack of provisions in the financing agreement on how to handle late achievement of DLR.

5. **Progress in the service delivery tracers.** DLI 3 and 4 use tracer indicators that help track overall the improvements in service delivery for prenatal care and NCDs. Despite the efforts of the MoH, the actual number of tests for HbA1c, Hemoglobin (Hb), and bacteriuria among the target population continues to be lower than the yearly DLR targets. There was a significant decline in the verified numbers between 2020 and 2021 for both DLIs 3 and 4 (Table 1).

Table 1: Comparison between verified values and target values (2020 and 2021)

	Verified number 2020	Verified number 2021	Baseline 2019	Target for 2020	Target for 2021
(DLI 3) Hemoglobin and bacteriuria	26,871	6,222	24,000	34,000	44,000
(DLI 4) HbA1c	944	630	0	5,000	15,000

6. The main **challenges** under DLI 3 and 4 have been:

- Ineffective **coordination** between and within the various national structures (Ministry of Finance (MoF), MoH, MHIF, eHealth center, national clinical institutions, laboratory services throughout the country, procurement units etc.), and multidirectional agenda of the development partners, all exacerbated by the strain of responding to the COVID-19 pandemic.
- **Implementation.** Even when the developed clinical guidelines and protocols are of high quality, the MoH often lacks a solid mechanism for implementing them in front-line facilities. Bacterial culture is currently the only approach for testing for bacteriuria. Unfortunately, the test is both expensive and generally inaccessible, as the public sector only offers these tests in SSES laboratories (where it is often still done manually) and, in most cases, patients must pay out-of-pocket for the test.
- **Geographic accessibility** to HbA1c testing is severely limited. Only 17 public laboratories, five of which are in Bishkek, have the necessary biochemical analyzers, leaving the test out of reach for much of the population.
- **Supplies and reagents** necessary to perform laboratory tests are often in deficit due to (i) a disconnect between planned health budgets and actual funds received by facilities, (ii) cumbersome state procurement procedures, and (iii) lack of domestic suppliers.
- **Information systems.** Even in sites where analyzers are available, only few HbA1c tests are reported through the CIF, which points to issues with the information systems.

RESULTS AREA 2: STRENGTHENING STRATEGIC PURCHASING FOR THE QUALITY OF CARE

7. **Results area 1 includes** improvement in payment mechanisms to facilitate strategic purchasing of quality services through the institutionalization of a process for revision of benefits packages, revisions to provider payment

mechanisms, and improvements of the drug coverage arrangements under the insurance drugs benefit program (the ADP) and the SGBP to include prioritized maternal and child health (MCH) and NCD conditions.

8. The progress under results area 2 includes:

- **Under DLI 5**, the first *DLR 5.1 - The structure, process, and methodology for SGBP revision developed and approved by end of Year 2* has been materially completed and is due to be verified in 2023. The result was achieved after the deadline specified in the financing agreement, and cannot be disbursed until after restructuring to remove the deadline. Work on the development of the revision methodology started with a delay in January 2021 and took two years to complete. *DLR 5.2 - the revision of the SGBP* must incorporate, among others, HbA1c tests for all diabetic patients and antihypertensive drugs for uninsured patients. The revision of the SGBP started in February 2023 and is expected to take one year. In 2021, the MHIF went ahead with updating the SGBP to include HbA1c tests for all diabetic patients and bisoprolol (a hypertensive drug) for uninsured patients, despite the lack of a formal revision methodology.
- **Under DLI 6,** the MoH approved an initial set of PHC service classifiers in 2021, followed by an additional set in December 2022, thereby achieving the *DLR 6.2 - Procedure classification developed by end of Year 2).* The progress on *DLR 6.1 - Provider capitation payment mechanism revised and endorsed* has been more limited. The MHIF is working on a revised capitation formula that takes into account (i) the number of registered patients in each sex-age group, (ii) the service utilization patterns of each group at the national level, and (iii) the population density in the catchment area of each health organization. This revision proposal is less ambitious than the revisions outlined in the Program design, which included (i) the introduction of fee-for-service for selected priority and/or preventive services, and (ii) the revision of pay-for-performance (P4P) indicators.
- **Under DLI 7,** the target of achieving a 15 percent annual increase in the approved ADP budget was reported by the MoH completed for three consecutive years (2020 to 2022). The work on *DLR 7.2 - Regulation on ADP revision methodology* started in 2021 and took two years to complete, and was adopted by MoH in February 2023. The next step will be *DLR 7.4 - Adopt the revised ADP based on the new methodology*. The achievement of DLR 7.4 is dependent on the prior achievement of subsets of *DLR 8.1 - Regulation on pricing, prescribing, and reimbursement under the ADP*. Given the interdependencies and number of intermediate required steps, DLR 7.4 will take longer than originally envisaged. However, the implementation of the targets related to ADP revision combined with the implementation of the targets related to *DLR 8.1 - regulation on pricing, prescribing and reimbursement of drugs under ADP*, will trigger a consistent shift in the regulatory environment for the commercial pharmaceutical players active in the Kyrgyz Republic.

9. The **main challenges** have been:

- **Both MoH and MHIF lack human and technical capacity** for conceptualizing the revision of the SGBP, provider payment mechanisms, and ADP. This lack of capacity was compounded by delays in obtaining the necessary international and local technical assistance.
- **Lack of reliable national data** on morbidity and healthcare system costs make it challenging to revise the SGBP. Lack of reliable national data on healthcare system performance and service delivery at the PHC level (related to the lack of a PHC classifier) limits the technical options for both fee-for-service and pay-for-performance schemes.
- **Program boundary definition.** Under the Program fiduciary arrangements, half of the Program funds are allocated to the MHIF while the other half is allocated to the MoH. However, the Program boundary definition for MHIF only includes financing of PHC services, excluding management and administration. This arrangement effectively prevents the MHIF from using Program funds to finance activities needed to achieve the DLI 5, 6, 7, and 8, such as strengthening IT structure, developing its analytics capacity, organizing training for its central staff and regional branches, monitoring of results, etc.
- **DLR design.** The DLR timeline and content for the revision of the SGBP and provider payment mechanisms were

overly ambitious given the available data and the need to build data collection systems. The DLR timeline for DLI 7 was overly ambitious as it does not consider the intermediate steps required for the ADP revision to be successful. The interrelation between the ADP and the rest of the pharmaceutical market required an expansion in the regulatory territory to be tackled under DLI 8, which delayed the achievement of DLRs under DLI 7.

- **Impact of COVID-19.** The Kyrgyz Republic has a history of implementing pay-for-performance (P4P) schemes in the health sector; however, in part due to the COVID-19 pandemic, the two existing schemes of P4P for physicians and health facilities were put on hold or abolished.

RESULTS AREA 3: STRENGTHENING HEALTH SECTOR STEWARDSHIP AND GOVERNANCE FOR QUALITY IMPROVEMENT

10. The third results area aims to establish a national-level structure and mechanism to ensure coordinated efforts to improve the quality of care in the country. This results area also supports the adoption and execution of price regulation under the ADP – to address the largely unregulated pharmaceutical market in the country.

11. The progress under results area 3 includes:

- **Under DLI 8**, DLR 8.1has three components (*8.1 - Regulation on (i) pricing, (ii) prescribing, and (iii) reimbursement of drugs under ADP approved*). The first component on pricing regulation is on track. In 2019, the Government approved temporary rules for the regulation of the prices of medicines; amendments were made in early 2021 and May 2022. The temporary regulation served as a valuable learning tool for the MoH and informed the development of a permanent pricing regulation. The latter is in its final stage of development and will be approved in 2023.
- The third component of the first DLR (*regulation on reimbursement*) will be addressed in 2023 – it suffered delays as it depended on the development of the methodology for the ADP revision and the pricing regulation. This component is also a pre-condition to achieve the result under *DLR 7.2 - Adopt the revised ADP based on the new methodology*. The work on the second component of DLR 8.1 (regulation on prescribing) has not yet been initiated as it should be tackled after the other two. The remaining DLR targets related to checking the pricing, prescribing, and reimbursement compliance of the contracted drug dispensing points and implementation of the public campaigns are delayed due to the lag in the approval of the relevant policies.
- **Under DLI 9**, *DLR 9.2 - National QI strategy with action plan and roadmap developed by the QI unit and endorsed* has been achieved and a QI unit was established at the MoH in 2020. However, the staff of the unit became partly engaged in routine operations of the MoH, leaving insufficient attention to stewardship and governance in quality improvement. As a result, *DLR 9.2 - developing a national QI strategy with action plan and roadmap* has not been achieved. A technical consultant to support the development of the strategy was hired in June 2022. With support from the WHO and the technical consultant, the QI unit has developed draft versions of the quality-of-care strategy, framework, and operational plan. The documents are expected to be finalized by June 2023 and adopted shortly thereafter.

12. The **main challenges** have been:

- **DLR design.** *DLR 8.1 - Regulation on (i) pricing, (ii) prescribing, and (iii) reimbursement of drugs under ADP approved* is overly ambitious in that it amalgamates three policies with different but interdependent timelines: one starting-point (pricing), one mid-point (reimbursement) and one endpoint (prescribing). In addition, the DLRs under DLI 7 and 8 are highly interdependent.
- **Legal.** The approval of the permanent pricing regulation suffered delays as it initially depended on a prior amendment of the Law on Circulation of Medicines. This amendment is needed to allow the permanent pricing regulation to apply to all on-prescription medicines and not only to the medicines in the Essential Drug List (EDL). However, in early 2023 the MoH decided that the permanent pricing Regulation could be approved before Parliament's endorsement of the amendments to the Law. The pricing regulation will be re-approved after the

Law is amended.

- **Capacity.** Over the past years, the MoH has faced capacity constraints in conceptualizing reforms and strategies to support improving the quality of care. Even once the strategies are defined, operationalizing them will continue to be challenging. The newly established unit lacks capacity for developing and implementing a comprehensive quality-of-care strategy. Staff time at MoH tends to be significantly impacted due to mandates to address complaints from the public. Strengthening local submission, review, and resolution of complaints could free up staff time to address system-wide quality issues.
- **Information systems.** The scope and quality of the data currently available in the national databases remains insufficient to allow the QI unit to evaluate and monitor quality of care.

B. Update to the Program expenditure framework

13. **The financial boundary of the Program uses the existing delineations of the public program-based budget (PBB),** which includes a hierarchy of BPs and BMs for each ministry and certain public institutions. In the health sector, the MoH and the MHIF each have 4 BPs. The original Program boundaries included five BMs under three BPs at the MoH (planning, management, and administration; organization of healthcare services; medical education and human resource management in health care) and seven BMs under one BP at the MHIF (delivery of PHC services) (**Error! Reference source not found.**). The largest BP among these is the "delivery of PHC services" under the MHIF, which largely represents MHIF's purchase of services from PHC providers.[3] The BP structure has been stable since Program approval. Although the MHIF is now administratively under the MoH, the budget distinguishes both entities.

14. The Program boundary will be expanded to the BP on planning, management, and administration under the MHIF to allow the MHIF to use Program funds to support its health financing policy development and implementation. The exclusion of this BP in the original Program design created a contradiction between the objectives of the Program under DLI 5, 6, 7, and 8, which are led by the MHIF, and the allowed usage of the Program funding received by the MHIF: the MHIF has not been able to use its Program funds to support functions that are critical to achieving the objectives under DLIs 5, 6, 7 and 8, such as the management of information at the central and decentralized level (IT systems), policy development, analytical work, monitoring of policy implementation, training, and piloting of new financing tools. As a result, the MHIF has been dependent on the MoH to support these functions, which goes against the usual division of responsibility between the MoH and the MHIF and has led to delays in the implementation of Program activities. Including this BP in the Program boundary will allow the MHIF to use its funds to support DLIs 5, 6, 7, and 8.

15. At the BM level, the Program boundary must be adjusted due to changes in the BPP structure since the approval of the Program in 2019. While the higher-level BP categories are unchanged, various regroupings were carried out at the BM level (Table 2).

Table 2: BM regrouping relevant to the Program

	2020	2021-2025	Comments
MoH			
BP 1: Planning, management, and administration	BM 7: Provision of monitoring, analysis, and strategic planning and stewardship in the health sector	BM 1: Management and administration of the sector at the central level BM 2: Management and administration of the sector at the territorial level	BP 1 was consolidated into 2 BMs. No change in the nature of expenses.

[3] About 75 percent of this funding is spent on salaries, while the remainder is used for utilities, maintenance, drugs, and supplies. Neither large-scale construction nor major procurement contracts were included in the Program.

	2020	2021-2025	Comments
	BM 8: Implementation of online systems and databases		
BP 3: Organization of health care services delivery	BM 1: Improvement of the quality of health services delivery at the PHC level BM 4: Accessibility of drugs and medical devices at healthcare organizations.	BM 1: Improvement of the quality of health services delivery at the PHC level BM 2: Early detection of patients with diabetes mellitus BM3: Accessibility of drugs and medical devices at healthcare organizations.	BM 2 is a new BM under BP 3 and relevant to the Program. This was previously included under BM 1. No change in the nature of expenses.
BP 4: Medical Education and Management of Human Resources for Health	BM 3: Improving the skills of healthcare workers		No changes in BMs. No change in the nature of expenses.
MHIF			
BP 1: Planning, management, and administration	Not applicable	BM 1: Management and administration of the sector at the central level BM 2: Regional administration	This BP was not previously included in the Program boundary. This is the only change in the expenditure framework.
BP 2: Delivery of PHC services	BM 2: Provision of essential health services at PHC for the whole population (SGBP) BM 3: Provision of tuberculosis care in PHC BM 4: Drugs reimbursed under the SGBP for the whole population BM 5: Drugs reimbursed under the ADP for the insured population BM 6: Provision of fee-based services beyond the SGBP BM 7: Provision of non-medical and other services by the healthcare organizations operating under the Single Payer System BM 8: Incentives for Family Group Practices based on quality performance		No changes in BMs. No change in the nature of expenses.

16. **The financial boundary for the Program is expanded with the addition of one calendar year (2025) and BP 1 of the MHIF**. The financial scope of the Program supported by the Program was, therefore, recalculated by (i) substituting actual spending for calendar years 2020 and 2021 for the estimated spending used at the time of appraisal; (ii) replacing the original budget estimates with the actual budget for CY 2022 and the official projected budgets for CYs 2023 and 2024; and (iii) adding the official projected budget for CY 2025 (Table 3, compare Panel A and Panel B). Adding BP 1 of the MHIF results in the revised boundary with updated budget numbers (highlighted in Table 3, Panel C).

Table 3: Program boundaries (original and revised, in Kyrgyz Som)

	Panel A: Initial boundaries, initial budget numbers		**Panel B: Initial boundaries, updated budget numbers**		**Panel C: Revised boundaries, updated budget numbers**	
	Kyrgyz som (thousand)		Kyrgyz som (thousand)		Kyrgyz som (thousand)	
	MoH	MHIF	MoH	MHIF	MoH	MHIF

CY 2020	386,398	4,548,178	411,962	5,036,423	411,962	5,036,423
CY 2021	395,697	4,634,994	536,529	5,164,490	536,529	5,164,490
CY 2022	407,419	4,829,231	632,996	5,289,133	632,996	5,289,133
CY 2023	419,489	5,031,608	622,554	5,366,532	622,554	5,627,032
CY 2024	431,915	5,242,465	680,629	5,423,682	680,629	5,684,182
CY 2025	-	-	741,607	5,553,209	741,607	5,813,709
Total	**2,040,918**	**24,286,476**	**3,626,277**	**31,833,471**	**3,626,277**	**32,614,971**

17. **The Program budget in US$ is also affected by the deterioration in exchange terms of the Kyrgyz som**. The Program boundaries in Kyrgyz som were converted into US$ using the exchange rates listed in Table 4. After conversion into US$, the new Program budget amounts to US$ 444.78 million, an increase of US$ 30.60 million compared to the original budget (Table 5). Of this increase, US$ 8.94 million comes from the inclusion of MHIF's BP 1. **Error! Reference source not found.** in the main text presents the summary original and revised Program boundary and corresponding budget.

Table 4: Exchange rates used for Program boundary revision

Budget year	Kyrgyz som per US$	Date
2020	75.4423	29-Jun-20
2021	84.6605	25-Jun-21
2022	79.5014	24-Jun-22
2023 - 2025	87.42	22-Feb-23

Table 5: Program boundaries (original and revised, in US$)

	Panel A: Initial boundaries, initial budget numbers		**Panel B: Initial boundaries, updated budget numbers**		**Panel C: Revised boundaries, updated budget numbers**	
	US$ (million)		US$ (million)		US$ (million)	
	MoH	MHIF	MoH	MHIF	MoH	MHIF
CY 2020	5.54	65.16	5.46	66.76	5.46	66.76
CY 2021	5.67	66.4	6.34	61.00	6.34	61.00
CY 2022	5.84	69.19	7.96	66.53	7.96	66.53
CY 2023	6.01	72.09	7.12	61.39	7.12	64.37
CY 2024	6.19	75.11	7.79	62.04	7.79	65.02
CY 2025	0.00	0.00	8.48	63.52	8.48	66.50
Total	**29.24**	**347.94**	**43.15**	**381.24**	**43.15**	**390.18**
Total MoH and MHIF		**377.18**		**424.39**		**433.33**
PforR financing		**37**		-		**-**
IPF financing		**-**		-		**11.45**
Total Operation financing		**414.18**		-		**444.78**

18. **Program spending from 2020 till 2022**, the first three years of the Program, amounted to US$ 214.05 million (Table 5, cells highlighted in yellow). This is slightly below the US$ 223.34 million envisaged in the original estimates, mostly due to the deterioration of the exchange rate.

C. Technical assessment regarding DLIs 3 and 4

19. The Program supports the improvement of quality of care delivered primarily to pregnant women and people with NCDs through measures towards the achievement of targets of DLIs 3 and 4. The bottlenecks identified based on the results of 2020-2021 are multi-dimensional and include structural issues, gaps in clinical strategies and practices, weak data collection and management systems, and difficulties related to the budgeting cycle.

20. **Structural issues and governance.** The health system suffers from structural issues that slow down innovation and problem-solving. The predominant motivation culture is negative, looking for faults rather than solutions. During the initial implementation of the Program, few spontaneous decisions were taken to identify and resolve issues. High turnover of staff and frequent reorganizations led to a lack of consistency in objectives and strategies. At the district level, hospitals and PHC facilities were merged; less than two years later, some were unmerged. The 19 FMCs in Bishkek were reorganized into 4 Merged District FMCs, but a subsequent reorganization ended up with 10 FMCs.

21. **Clinical guidelines.** Clinical guidelines on antenatal care, diabetes mellitus, and gestational diabetes were developed or updated with the technical support of development partners; however, there is no mechanism to ensure their implementation at the health organization level. For example, the 2018 clinical protocol on antenatal care requires testing all pregnant women in the first trimester of pregnancy for asymptomatic bacteriuria via bacterial culture or Gram-stained bacterioscopy. In practice, the latter is not performed in PHC organizations due to scarce human resources, while bacterial culture is available only in the laboratories of SSES.

22. **Testing strategy for bacteriuria (under DLI 3).** The current practice relies on bacterial *culture* as the only bacteriuria testing method. The public sector only offers these tests in SSES laboratories, and payment is required either by the patient out-of-pocket or by the PHC organization through a contract. Some remote organizations attempt to prevent the risk of women not going to the SSES by collecting urine samples and delivering them to the SSES by taxi – they then distribute the cost of this additional service among the patients. Obtaining the results of the tests is another challenge. Either the pregnant women themselves repeatedly travel to the SSES lab, or the health organization has to hire a courier/taxi. Overall, limited access to testing brings a financial burden to the patients and PHC organizations, which MoH needs to address by introducing a new system for bacteriuria screening (see below).

23. **Testing strategy for HbA1c (under DLI 4**). Seventeen PHC organizations currently have hematology analyzers and offer HbA1c testing. The patient referral and test administration processes are well established. However, there are gaps in processes after the test has been completed in terms of where the result goes and how (see below). Second, once opened, reagent test sets expire within one month, and this forces FMCs to actively invite all diabetic patients within one month. However, patients who do not show up on time may miss the test entirely. Third, reagents and supplies for HbA1c are procured centrally and delivered to the health organizations by the vendors. However, there is no mechanism for health organizations to report non-compliant delivery of reagents to the procurement unit of the MoH. Some of the 17 PHC organizations with HbA1c analyzers have procured reagents themselves without waiting for centralized procurement to cover their needs.

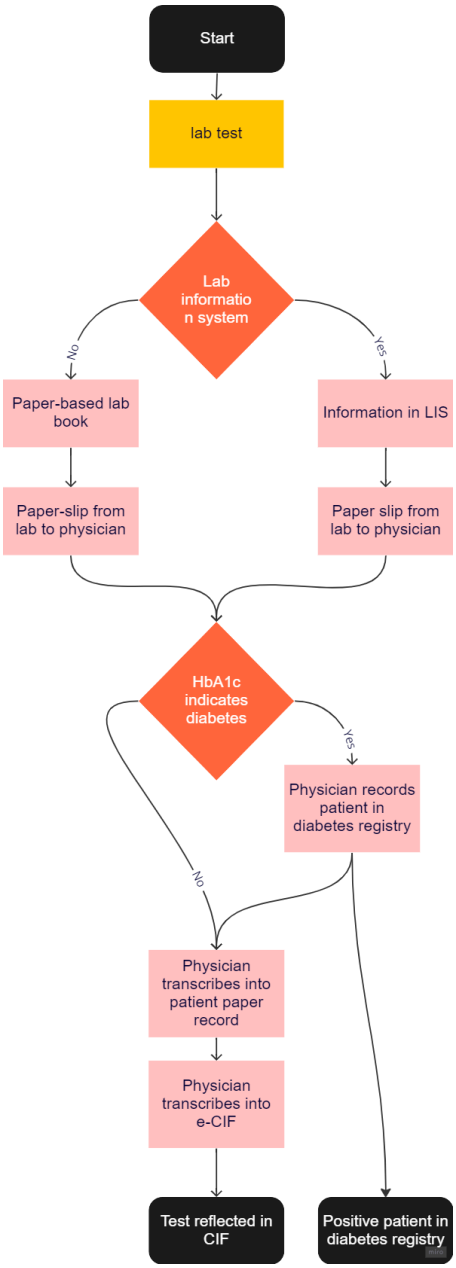
24. Defining the target population under DLI 4. Two medical information systems provide information on the target population of diabetic patients in the country: the “Registry of patients with diabetes mellitus” and the electronic CIF. However, these databases are not linked, and their information is inconsistent. The Republican Endocrinology Center runs the Registry and only patients with confirmed diabetes mellitus are included - patients with suspected diabetes or pre-diabetes conditions are not. Medically speaking, this group of patients should not be excluded from early diabetes care, including HbA1c testing.

25. **Registration of HbA1c and bacteriuria tests.** Root cause analysis of the low independent verification results of 2021 on testing (both for bacteriuria and HbA1c) revealed ineffective data collection mechanisms. In theory, HbA1c tests are reflected in the CIF, while positive tests result in an entry into the diabetes registry (Figure 1). However, the

test recording process fails at several stages. Some laboratories have specialized information systems, such as the Data Management Information System (DMIS) or the pilot iLab system. They can easily extract information on the performed tests (number, referring organization, dates, etc.) Other labs use paper records to track tests and manually collate information on the production of tests. However, even when laboratories have an information system, this system does not exchange information with the CIF, and test results reach the physician through paper slips. Spot checks in several health organizations revealed that information extracted from the health organizations' paper-based documentation (laboratory and patient records) does not match the information in the electronic CIF. Laboratories do not continuously transmit data to physicians due to failures in the paper relay system. Health workers who receive the test results may not record them in the CIF due to lack of time, motivation, forgetting, or frequent freezing of the electronic CIF.

26. **Budgeting and financing cycle.** Once the budget is approved at the end of a calendar year, the MHIF signs contracts with PHC facilities for the new calendar year. Financing becomes available around April, at which time facilities initiate procurement. Medicines, reagents, and supplies are finally delivered around May or June. All funds must be utilized by the end of the calendar year. This cycle of budgeting and financing leads to a scarcity of reagents and supplies in health organizations every first half of a calendar year. For diabetic patients, this implies that health organizations delay HbA1c testing until funding and supplies are available, resulting in a bunching of tests during the year's second half. However, for pregnant women, health organizations do not have the option to delay the bacteriuria testing since it must be administered in the first trimester. PHC organizations with a contractual relationship with SSES labs for bacterial culture tests tend to fall into debt towards the SSES during the first half of a year when their financing is unavailable.

Figure 1: Registration process for HbA1c tests



PROPOSED ACTIONS

27. Immediate changes in procedures

- (DLI 3) Include SESS labs in the definition, which are also outpatient public facilities and will become allowable locations for the respective indicator calculation.
- (DLI 4) Include all testing for HbA1c, not only to confirmed diabetic patients, as long as the physician referred the patient for the testing due to suspected diabetes.
- (DLI 3) Modify the verification protocol: use SESS and health facility statistical reports for the initial laboratory

logbooks to identify the number

- (DLI4) Modify the verification protocol: use health facility statistical reports for the initial number of tests reported by MoH; use laboratory logbooks (paper or electronic) and patient records to verify the tests.

28. Short-term changes

- The MoH will introduce a tiered system for bacteriuria testing that includes cheaper, more accessible screening tests at the PHC organization and, when the screening is positive, a more expensive, selective test at SESS labs or (in some cases) PHC lab.
- The MoH will expand HbA1c testing to more locations to make it more accessible.
- The MoH will implement a system for health organizations to provide feedback and register complaints to its procurement unit regarding the delivery of items procured under centralized tenders.

29. Medium-term changes (may not be completed within the timeline of the Program)

- Improve the CIF/patient health card process;
- Create an API to exchange data between the Register of patients with diabetes mellitus and the electronic CIF;
- Create an API between the laboratory information system and the eCIF or patient health card.

D. Realignment of DLIs 7 and 8

30. In the original Program design, both DLIs 7 and DLI 8 were focused on the ADP, which only covers the insured population. Under DLI 7, the aim was to revise the coverage of the ADP and increase its financing, while under DLI8, the aim was to move towards price regulation of medicines covered under the package. However, regulating the price of medicines under the ADP by itself entails a risk. The ADP only represents a small share of the pharmaceutical market in the Kyrgyz Republic. Therefore, any restriction on the pricing of medicines included in the ADP may incentivize manufacturers and distributors to pull out of the ADP to avoid the price regulation. This interrelation between the ADP and the rest of the pharmaceutical market requires expanding the regulatory territory tackled under DLI 8. In 2019, the MoH passed a temporary regulation on the pricing of medicines and started developing a more permanent regulation. However, this regulation would apply to all drugs (not only those included in the ADP) and requires the prior or concurrent approval of the revised Law on the Circulation of Medicines. In early 2023 the MoH decided that the permanent pricing regulation could be approved before Parliament's endorsement of the amendments to the Law and that the pricing regulation would be re-approved after the Law's approval.

31. Under DLI 7, the work on the second DLR (regulation on ADP revision methodology) started in 2021 and took two years to complete. The methodology is under finalization for MoH's approval. The next step will be to develop an ADP based on the new methodology, followed by its approval. The achievement of this DLR under DLI 7 is dependent on the prior achievement of subsets of the first DLR under DLI 8, specifically (i) an updated version of the ADP basic price (based on internal reference pricing); and (ii) setting the levels of reimbursement. Meanwhile, under DLI 8, the first DLR under DLI 8 amalgamated three policies with different but interdependent timelines: one starting point (pricing), one mid-point (reimbursement) and one endpoint (prescribing).

32. The revised setup for DLIs 7 and 8 disentangles the steps in DLIs 7 and 8, as illustrated in Figure 2. DLI 8 is expanded so it will apply to all medicines and not just to medicines in the ADP. Actions that focus on the ADP (updating the ADP basic pricing methodology, setting up ADP basic prices, setting reimbursement levels for ADP drugs by MHIF, and regulating prescription drugs under the ADP) fit logically in Results Area 2 and DLI 7 and are moved there.

E. Economic assessment of the AF

33. **The economic assessment of the Operation was updated for the additional financing,** using updated numbers on disability-adjusted life years (DALYs) obtained from the Institute for Health Metrics and Evaluation Global Burden of Disease Study for 2019, updated estimates of impact on disease burden from improved primary care, and updated GDP estimates.

34. **The monetary value of health gains is calculated based on the estimated reductions in disability-adjusted life years (DALYs) of conditions amenable to primary care.** Given the focus of the Operation, three categories of disease burden were retained: maternal and neonatal conditions, cardiovascular diseases and other noncommunicable diseases. DALYs for the Kyrgyz Republic were obtained from the Institute for Health Metrics and Evaluation Global Burden of Disease Study for 2019.[4] The reduction in DALYs from these catgories attributable to the strengthening of the primary care services was set at 0.8% (low scenario), 1 percent (medium scenario) and 1.5% (high scenario). Each DALY was valued at GDP per capita ($1,277 in 2019). Benefits were assumed to accrue for 10 years after the investments take place. The monetary value of the future stream of health benefits (annual DALYs averted) is discounted at 3% based on the recommendations outlined by the WHO and the Disease Control Priorities Project. (Table 6)

Table 6: Economic analysis parameters

Parameter		Value
Investment value		48,050,000.00
GDP per capita (2021)		1,277
Discount rate future benefits		3%
Years of benefit		10
DALYs	Maternal and Neonatal	134,811
	Cardiovascular diseases	373,500
	Other noncommunicable	120,518
Total DALYS		628,829

35. Given the parameters outined in Table 6, the estimated present value of DALYs averted is $54 million, $85 million, and US$ 103 million, for the low, medium, and high scenarios in terms of the impact of improved primary care, respectively. The internal rate of return (IRR) is estimated at 5.65 percent, 16.25 percent and 21.48%, respectively. (Table 7)

Table 7: Economic analysis results

	Low scenario	Medium scenario	High scenario
Reduction in DALYs from improved primary care	0.80%	1%	1.5%
Annual value of DALYs averted (USD)	6,422,608	10,035,325	12,042,390
Present value of stream of DALYs averted	$54,786,148	$85,603,356	$102,724,027
Internal rate of return (IRR)	5.65%	16.25%	21.48%

[4] https://vizhub.healthdata.org/gbd-compare/

Figure 2: Reorganization of DLRs under DLI 7 and 8