SUCCESS STORY

USAID Builds Information Systems to Assist the Kyrgyz Government's Response to COVID-19

Cure Tuberculosis medical information systems (MIS) proved useful to the national health system challenged by the COVID-19 outbreak.

NRL specialist uses the USAID-developed COVID-19 LDMIS tools to track new COVID-19 cases in Bishkek.
Photo by Cure Tuberculosis

"The [LDMIS] system can be used in routine laboratory work not only with COVID-19 but also with other infections, like flu, ARVI, various bacterial and viral infections. It's universal; it can be adapted to any infection or any laboratory testing," says Azat Bodoshov, the head of a SES virus laboratory.

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With the emergence of the COVID-19 epidemic in the Kyrgyz Republic in late March 2020, the Kyrgyz Government tasked the National Reference Laboratory (NRL), along with 12 Sanitary Epidemiological Service (SES) laboratories, with testing for COVID-19. To quickly register and map new cases and control the spread of infection, the country needed a system to record, store, and share laboratory test results in real time to track cases.

The laboratory data management information system (LDMIS) developed by the United States Agency for International Development (USAID) to record and report cases in tuberculosis (TB), became even more useful during the COVID-19 epidemic as an existing national health information system. Its coverage and user-friendly interface were the decisive factors that made the Kyrgyz authorities reach out to USAID for help. A short time later, the USAID Cure Tuberculosis Project had modified the LDMIS to include a new module to capture tests for COVID-19, implemented the new system in the NRL and all 12 SES laboratories performing COVID-19 testing nationwide, and trained all staff in its use.

Gulmira Kalmambetova, head of the NRL, advocated for the use of the LDMIS for COVID-19 testing. She argued that the system was easy to adapt to the situation, and the simple interface could save time on training new users. *"The database that was used for TB, the same computer, same printer and barcode scanner are now used for COVID-19,"* says Kalmambetova.

The upgraded system facilitated recording and reporting of test results, reduced paperwork, saved time on processing information, and facilitated data exchange with other public systems collecting information on COVID-19. The system allows for linking test results to each patient's public record and automatically enters the data into the LDMIS, thus removing the risk of incorrect input. The use of the COVID-19 LDMIS module made the data exchange safer for laboratory specialists and health care workers by reducing personal contacts and the flow of physical or paper-based documentation.

At the height of the epidemic, when restrictions on movement and the physical exchange of information were in place, the COVID-19 electronic test results tracking system was the only source of information about patient tests. The COVID-19 LDMIS module was also connected to Tunduk, the overarching national government information system, which linked patient information to other required personal information and eliminated errors in the identification of cases and contact tracing.

"It's a huge plus that we can receive all personalized patient data directly from Tunduk. This allows us to accurately identify the patient, avoid mistakes when entering data into the system and issuing test results, and significantly reduce waiting time for patients," says Kalmambetova.

The COVID-19 LDMIS module saved the government time and money on data collection and processing. The dashboard and other means of visualization, disaggregation of data, and dissemination of information enabled monitoring, accurate mapping of cases in real time, and prompt re-allocation of resources to curb the infection.

The Kyrgyz authorities greatly appreciated USAID's efforts in this area. The State Committee on Information Technologies and Communications awarded the Cure Tuberculosis Project a Letter of Recognition for the significant contribution to the national fight against COVID-19.

The Cure Tuberculosis Project's efforts to create an enabling health information environment benefited regular Kyrgyzstanis, too. Cure Tuberculosis developed an encrypted text message notification system that gave people immediate access to COVID-19 test results online, minimizing the risk associated with visiting a medical facility to collect results. *"This is very convenient,"* says a 54-year male patient who was tested for COVID-19 twice. *"You don't need to travel to the hospital again. You get results the next day online and just follow the link sent to your phone. Fast and easy."*

Cure Tuberculosis also developed software that generates QR codes for validation of laboratory certificates for international travel. A QR code links to the official database and helps immediate authentication of test results. Laboratory certificates with QR codes issued by a laboratory performing PCR tests for COVID-19 are increasingly recognized internationally as more and more countries require QR codes on test results for validation. The system also prevents the possible falsification of negative test results. Cure Tuberculosis ensured the new COVID-19 LDMIS system contains all necessary measures to ensure the protection and safety of personal data.

At the end of 2020, Cure Tuberculosis transferred the COVID-19 module and accompanying text message notification and QR code systems to a new USAID initiative to help the Kyrgyz government response to COVID-19. Cure Tuberculosis will continue to upgrade the LDMIS to build a robust and sustainable data collection and management information system for TB, with a potential to roll out to all state and private laboratories to capture test results for diagnosis and monitoring of other infectious diseases nationwide.