

# TELEMED KG

## EVALUATION REPORT

A telemedicine network for prevention and treatment of childhood disability through an early diagnosis, early intervention approach



Cover photo: Intelehealth

Intelehealth is a tech-nonprofit that works to improve access to quality healthcare where there is no doctor through telemedicine. We help governments, NGOs and hospitals with technology and implementation services to set up telemedicine programs that improve health access for hard-to-reach communities.

The Centre of Healthcare Development (CHD) and eHealth Centre under the Ministry of Health (MoH), with the support of UNICEF powered by Intelehealth, launched TeleMed KG in Nookat and Suzak districts, Kyrgyzstan. This telemedicine platform was launched primarily for children with developmental delays and infection/s who don't have proper access to quality healthcare which has been aggravated by the COVID-19 crisis.

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## Foreword

The Kyrgyz Republic is home to 2.1 million children, who make up 36.5% of the country's total population. About 34,000 of them live with disabilities, and various studies show that these children have limited access to quality healthcare that meet their needs, including basic early detection, development and rehabilitation services. This situation limits the ability of children to develop their potential. These figures also cannot show the real picture, as often these children are not identified at an early stage, and parents begin to realize that something has changed when their child is about three years old.

This report evaluates the experience of implementing the telemedicine platform TeleMedKG, aimed at early detection, primary prevention, and provision of quality and well-coordinated medical care for children with developmental delays and other diseases. The purpose of this report is to learn about the progress of the project, the acceptability of the system, its usefulness for providing care for children with disabilities, as well as factors contributing to implementation.

We hope that the conclusions and recommendations presented in the report will contribute to further expansion of the program, its improvement and, most importantly, provision of access to quality medical services for those whose access is limited due to various factors.



*Family Doctor in Batken, provides consultation to the mother, Batken*

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## Background & Problem

According to the World Report on Disability, approximately 15% of the global population lives with some type of disability, while the number of children ages 0 to 14 years old “experiencing moderate or severe disabilities” is approximately 5.1%, of which 0.7% “experiencing severe difficulties”. The prevalence rates in middle- and low-income countries vary and can be as high as 12.7% [1]. Calculating the prevalence of people living with disability in Kyrgyzstan has been challenging due to a lack of coherence in definitional standards for such classification, but government sources indicate that close to 32,000 Children with Disabilities (CWDs) receive state benefits, comprising approximately 1.3% of the children in Kyrgyzstan [2,3].

**Preventable disability:** The most prevalent causes of disability in Kyrgyzstan are cerebral palsy (81%); autism, epilepsy, & spinal bifida (3%); & range of other conditions, including injuries, Morquio Syndrome, spinal muscular atrophy, & intellectual impairment (16%) [1,3]. Many of these could have been prevented through proper antenatal & postnatal care. Kyrgyzstan has one of the highest rates of HIV-1 spread in Central Asia, with 725 HIV-positive children (under 18) registered in Kyrgyzstan as of November 1, 2021 [4]. It is estimated that a majority of cases are due to parenteral or nosocomial transmission and vertical transmission (from mother to child). Early intervention and identification of risk factors are essential to reduce the number of children born with disabilities or acquired in early childhood, as this can prevent conditions like cerebral palsy [5].

**Delay in identification:** The process of identification & treatment is fragmented, lacks specific expertise & capacities at the primary care level, & does not count on the participation of parents, caretakers, & their environment. Having a child identified as CWD often requires parents to navigate through a costly & emotionally difficult process. Primary care providers need to be trained to identify and intervene early and correctly. For children living with HIV, early infant diagnosis is critical [6], as early identification and treatment can help them lead longer, healthier lives. Without diagnosis and treatment, one-third of infected infants will die before the age of one, and almost one-half before their second birthday [7].

**Access to care:** The availability & accessibility of specialists for long-term care for CWDs is an area of concern. With only one public tertiary care facility based in the capital & nine secondary facilities located in provincial centers, families are burdened with the constant need for long-distance travel. In rural areas, primary healthcare clinics cannot provide specialized care or connect patients to experts in secondary or tertiary care facilities, and seeking specialized care can be expensive due to travel costs. The mountainous landscape, covering 92% of the country, poses additional barriers to healthcare access, especially for rural areas in the southern regions during winters. This results in institutionalization of CWDs, even when they could have been cared for at home with the appropriate medical assistance; or for the child to receive intermittent to no care & lead a life of isolation & stigma. The shortage of healthcare providers is also a challenge, with only half of the primary care family doctor posts filled in Kyrgyzstan, and many providers retiring or leaving the country.

The COVID-19 pandemic had further caused a disruption in healthcare services, particularly for rural areas and children with developmental delay and infections. The pandemic has limited access to specialized medical services, with providers being deployed to red zones or becoming ill.

To address this unmet need, UNICEF, the Ministry of Health, and digital experts are interested in piloting a telemedicine program that can deliver quality primary and specialized health services to rural areas [8]. The program aims to transform the care continuum for CWDs & their families through [2] early detection of risk

factors & early intervention to reduce preventable disability [6] long-term coordinated care at the primary healthcare level without the need for travel or institutionalization.

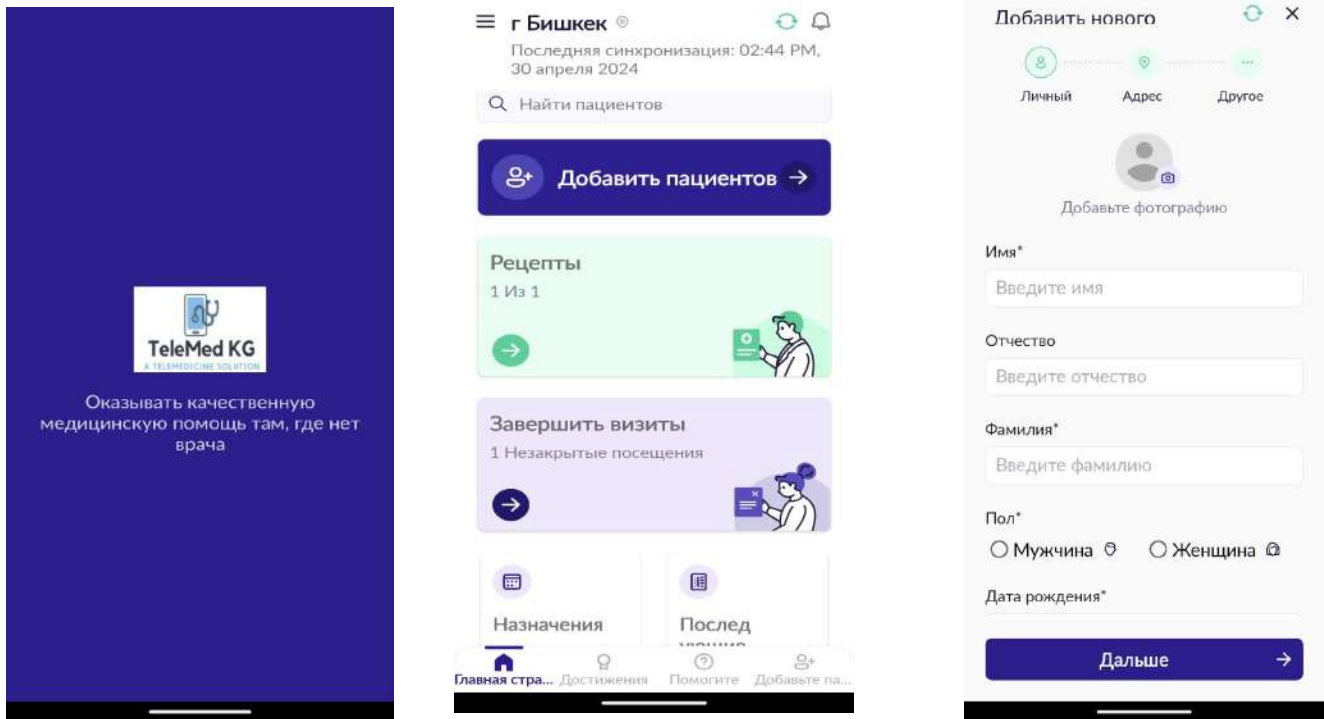
The program would connect primary care providers with experts in secondary and tertiary care facilities, enabling early identification and intervention for children with developmental delay or infections. This program has the potential to improve the quality of life for affected children and their families and reduce the overall cost of care.

Therefore, Early Identification and Early Intervention (EIEI) mechanisms must be set up, efficiently and professionally, with support from specialist hospitals. The recommendations for improving the needs of children with developmental delay and infection must aim towards

- Resolving the **unmet need at the rural primary health care level**
- Resuming and strengthening services due to the **COVID-19 pandemic**
- Improving access by overcoming human, geographical, and financial constraints **to specialized healthcare**
- **Improved linkages to specialist services** on the ground to tackle developmental disorders in their early stages
- **Strengthening infrastructure** (medical, ICT, broadband connectivity) at the primary healthcare level
- **Prioritizing Digital health as part of the government agenda**

## The Solution

Intelehealth, in collaboration with UNICEF & Center for Health Development and Medical Technologies (CHD) under the Ministry of Health of the Kyrgyz Republic (MoH of KR) & eHealth Center (eHC) under the MoH KR, have successfully deployed TeleMed KG, a novel open-source & cloud-based telemedicine platform. TeleMedKG connects primary health care providers to specialists to help diagnose & treat CWDs using the Early Identification/Early Intervention approach & reduce delays in receiving appropriate treatment. The program combines home visiting & telemedicine to deliver longitudinal care for CWDs.



*TeleMed KG Android Application for family doctors and Specialists*

Nurses conduct regular home visits in the first week post birth to identify risk factors of preventable disability, particularly neonatal jaundice, a known risk factor for Cerebral Palsy (CP) [9]. When a newborn with jaundice is identified during a home visit the nurse promptly refers them to the Family Medicine Center (FMC) where the family doctor initiates treatment via available phototherapy devices or refers to a higher facility if the equipment is not available. During this period, the family doctor can use the TeleMedKG app to capture details like bilirubin level, blood group, rhesus factor, & connect with a pediatric neurologist at tertiary care to assess the severity of jaundice & get treatment recommendations. The neurologist also assesses possible complications during the recovery period. By intervening early, the program aims to treat severe jaundice & reduce risk of developing brain damage. The nurse continues to follow a home visiting regimen upto 5 years of age & if they see signs of developmental delays & disabilities (such as CP, autism, epilepsy, Down syndrome, HIV, etc.) they refer these children promptly to the allocated family doctor at the nearest FMC. The family doctor uses the TeleMed KG clinical protocol to capture comprehensive case history & connects with a pediatric neurologist at tertiary care who appropriately diagnoses the child, recommends further tests & treatment plans, & referrals. This remote specialist guides the primary health provider to conduct follow-ups & assist the family with the treatment plan throughout the child's life [10].

The platform uses a mobile app and a digital assistant for family doctors, providing in-built evidence-based clinical guidance protocols and allowing remote physician collaboration for patient screening, diagnosis, and management of cases beyond their level of training. The platform is contextualized to the local situation and requirements and works in very low bandwidth or offline settings. Remote doctors and specialists access the patient record through a secure cloud-based electronic health record system, while patient care is managed by the local health worker who helps connect them with the fragmented health system to access medicines and referrals as needed. The platform is hosted on the server of the Ministry of Health's e-Health center, and maintained by the e-Health Center.



*Family Doctor in Suzak district FMC is collecting the data of a 3 years old child who was born prematurely and faced developmental delays for teleconsultation in February 2023*

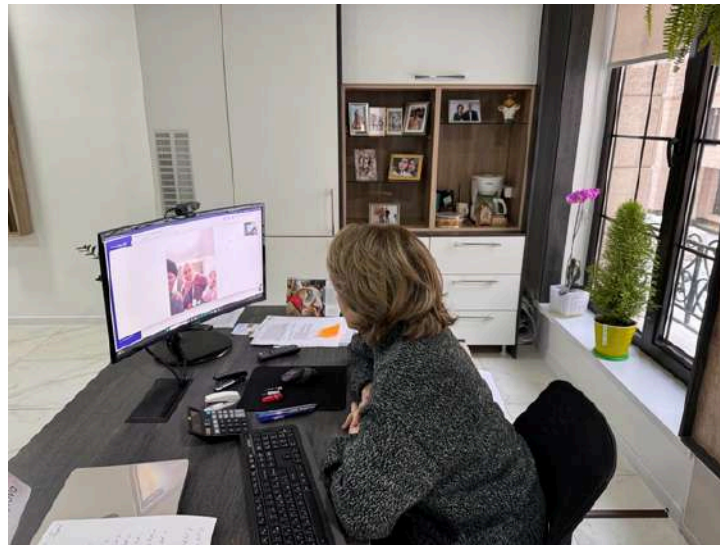
Many of the existing solutions resort to high-investment video-conferencing as the only element of telemedicine. While other telemedicine programs exist in the country, these programs do not focus on CWDs. Other programs also link secondary hospitals to tertiary hospitals rather than focusing on creating linkages & task-shifting to the primary care level. TeleMedKG incorporates community outreach, evidence-based protocols for case history, electronic health records (EHR), chat, text, & video channels for communication, schedules appointments, generates prescriptions, works on tablets & mobiles, & open-source, making it cost-effective while ensuring continuity of care & improving patient outcomes. In contrast to other solutions that are not integrated within the public health system, our innovation is interoperable and leverages the widespread utilization of the public health system in Kyrgyzstan, offering free & accessible teleconsultations to all. In addition a Telemedicine Working Group was formed comprising of key stakeholders like Ministry of Health of the Kyrgyz Republic, Center for Health Development and Medical Technologies, eHealth Center, National Mother and Child Health Center, UNICEF and external experts on medical information data and mother and child health convened by the Center for Health Development. The Working Group was tasked with:

1. Development of Normative Guidelines and digitization and validation of the clinical protocols

for telemedicine. The Working Group drafted the 'Concept on development of Telemedicine Technologies in Kyrgyz Republic' including strategy of telemedicine. Based on the concept, the Group developed guidelines on the provision of telemedicine and its regulatory framework. A sub-group also conducted an analysis of recommended approaches for 'Reimbursement mechanisms for telemedicine services in the Kyrgyz Republic' for the providers and the health systems. Digitization and validation of clinical protocols for telemedicine. A Working Group was formed with experts like pediatricians, neurologists, neonatologists, infectionist (AIDS specialists), and neuropathologists to digitize and clinically validate the patient-history collection protocols that were included on TeleMed KG platform. These protocols included Neonatal Jaundice, Cerebral Palsy, Screening for HIV, Autism, Down Syndrome, Epilepsy, Management of healthy baby, Management of underweight babies, Diabetes.



This novel telemedicine program has been implemented at **69 primary health care facilities in 4 districts (Nookat, Suzak, Batken & Leilek) of 3 southern provinces (Osh, Jalal-Abad & Batken) in Kyrgyzstan since 2021**. As of May 2023, the project already impacted **700 children & their caregivers** with long term coordinated care & provided primary prevention interventions to at-risk children who developed neonatal jaundice through early identification & treatment. The project has trained & engaged 25 master trainers, 156 doctors & 23 specialists across 69 primary health facilities, 3 secondary facilities, & 1 tertiary facility. The project was initiated through multi-stakeholder workshops & by creating a clinical protocol working group from hospitals comprising 15 medical experts to develop the intervention approach as well as the case history & screening protocols.



*Health Specialist from Bishkek on a video consultation for a child with cerebral palsy in Batken province, January 2024*

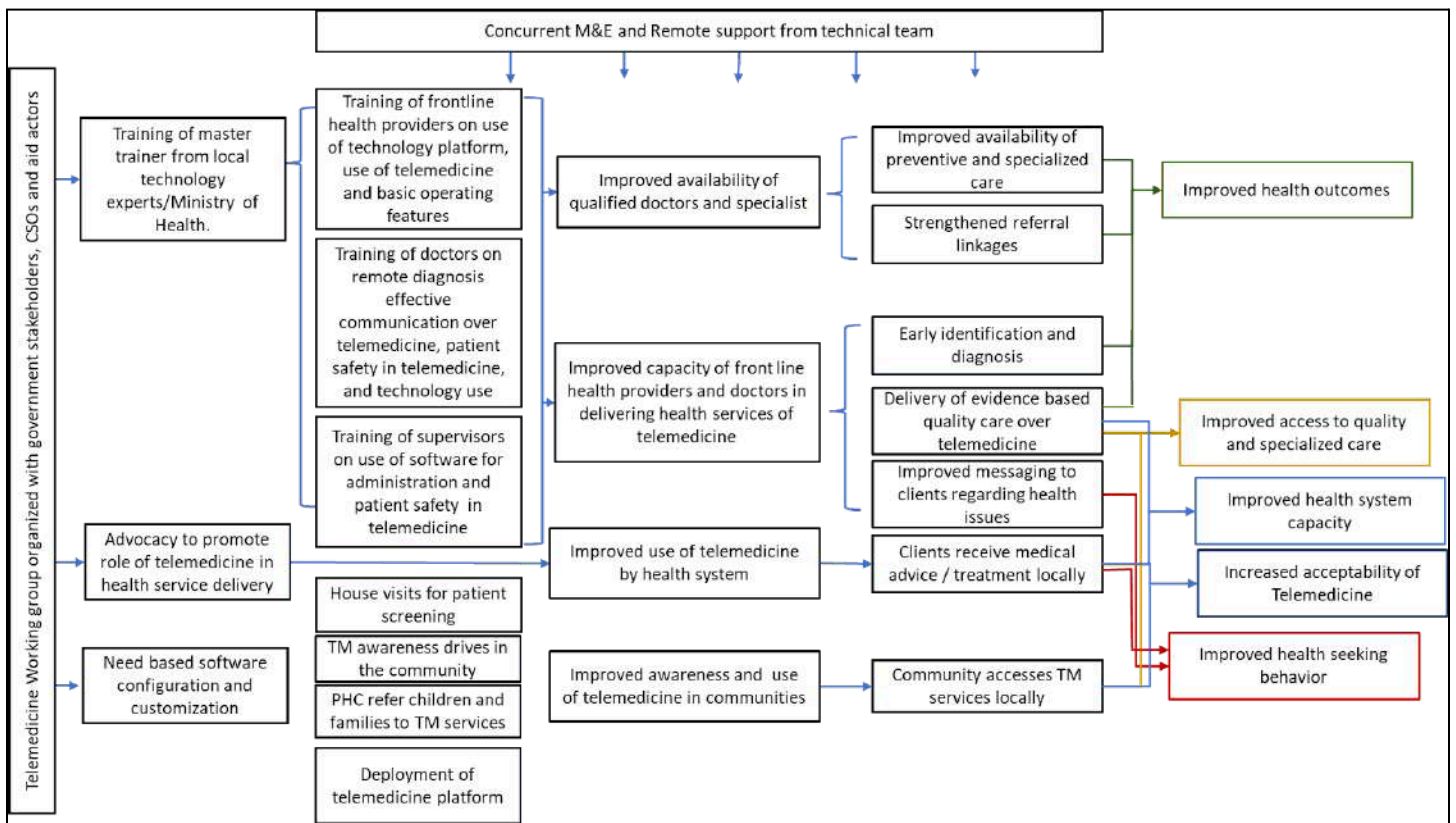
The program was initially launched in September 2021 focused on screening neonates for jaundice to reduce risk of developing functional disabilities & on long-term care for children with cerebral palsy. In March 2022, the project also expanded care services to children with autism, down syndrome and epilepsy. The software platform was continuously enhanced based on health providers' feedback & released 25 updates using a user-centered co-creation approach. There is also an interest from the MoH of KR to expand to care for other maternal & child health issues in the future. The program's stakeholders also actively contributed to the development of a telemedicine regulatory framework & health reimbursement policy to develop sustainable financing mechanisms for the project at scale via the Ministry's Mandatory Health Insurance Fund (MHIF).



*Training on new features of TeleMedKG web application for the health specialists of Osh Interregional Children*

# Theory of Change

Once a child with certain conditions depending on the availability of digitalized clinical protocols is identified, a family doctor arranges teleconsultations with a specialist doctor from the secondary and tertiary health care level. It is expected that through this model, we will be able to reduce preventable disabilities such as cerebral palsy and other developmental delays caused due to jaundice in newborns, identify children with developmental difficulties early on through community visits, begin early intervention for them, and provide long-term well-coordinated care using a combination of health care providers at the PHC level (nurses & physicians) and virtual specialists using telemedicine. Children with developmental delays and other health conditions and their families will be able to avail of services closer to their homes reducing the time, distance, and money spent to access care and improve the quality of life of the child.



## Program Evaluation: Study objectives

In December 2022 a qualitative evaluation study was conducted. The purpose of this study was to learn about the progress of the project, the acceptability of the system, the usefulness of the system in providing care for children with disabilities, as well as barriers and facilitators to implementation.

## Methods and Approach

The study used a case-study approach using program monitoring data and in-depth qualitative interviews with health system stakeholders. The case study approach used in-depth interviews to document perceptions of key stakeholders across the multiple hierarchies of the health system – combining interviews with ministry officials, eHealth center stakeholders, specialist facilities (tertiary and secondary level facilities), family doctors, and patients. The program monitoring data was used to progress against planned targets, and identify heterogeneities in process outcomes across geographies, case types, and individual health providers.

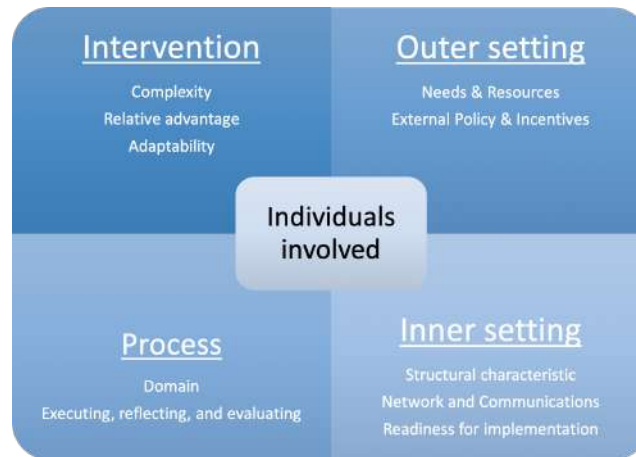
The study was initially planned to be completed in all three regions of program operations - Nookat, Suzac, and Batken. However, due to the conflict in Batken which escalated in the period between September to November, and safety concerns with the study team's travel, we were unable to conduct the study with stakeholders in the Batken region.

Thus, to meet these objectives, we met with key stakeholders from two FMCs (Nookat and Suzak), two FGPs, a tertiary hospital (National Mother and Child Hospital), the Center for Health Development, and eHealth Center. We conducted semi-structured interviews with key stakeholders of the program. We interviewed a total of n = 26 stakeholders that included - 17 family doctors, 2 directors of FMCs, 3 specialists' doctors, 3 members of CHD, and one member at the eHealth center. The interviews were meant to discuss the perceptions around the program, how useful family doctors find the Telemed KG platform, and the challenges they faced. We also enquired about their expectations of the program, and suggestions for the technology and implementation of the program. Lastly, we collected qualitative data regarding their experience with patients, capacity building (training) sessions, and managing their routine work.

We planned to interview families of patients and community members to understand how the Telemed KG platform was benefiting the community, the institutional barriers and enablers of the program, the status of infrastructure, and any context-specific challenges. However, due to prevalent stigmas around disability, most family members and community leaders declined to participate in the survey. We were able to interact with three patients' families to understand their experience of seeking and receiving care before and after the Telemed KG program was made accessible. We wanted to understand how the program was directly impacting the lives of children with disabilities and infection. However, the team faced challenges in completing interviews with patients. The patients we were able to contact were not allowed by their families to participate in interviews due to personal concerns. The ones we were able to meet only agreed to do short interviews.

The data analysis was guided by the Consolidated Framework for Implementation Research (CFIR) & the theory of change. The CFIR provides constructs arranged across 5 domains that can provide a practical guide for systematically assessing potential barriers and facilitators in preparation for implementing innovation. This framework will look to evaluate health system preparedness, the efficacy of service delivery, acceptability among providers and clients, usefulness of institutional support, and challenges and barriers to utilization at different levels of the health system hierarchy.

The CFIR provides a menu of constructs that have been associated with effective implementation. The CFIR provides a menu of constructs arranged across 5 domains that can be used in a range of applications.



*Consolidated Framework for Implementation Research with constructs used in the study*

It is a practical theory-based guide for systematically assessing potential barriers and facilitators to guide the tailoring of implementation strategies and adaptations for the innovation being implemented and/or explain outcomes. For this study we have included four constructs (Intervention, Outer setting, Inner setting & Process), and excluded codes within these constructs that were not reflected in the responses (see diagram above).

## Findings

### Intervention

Domain	Key Findings
Complexity	<p>Currently, the intervention is perceived to be a pilot. The program is expected to cater to multiple diseases covering a larger population. The platform would ideally be used to provide health services for multiple health problems across the country in the near future.</p> <p>The intervention is perceived to be complex due to the various stakeholders that need to coordinate in its implementation. The program is guided by the goals set by the Ministry of Health, and coordinated by the CHD. Furthermore, it requires the continuous cooperation of family doctors and nurses to screen and identify cases of HIV, Neonatal Jaundice, and Cerebral palsy.</p> <p>The protocols are perceived to be lengthy and complicated for many family doctors. This complexity in the quantity and type of information required needs to be simplified. One of the solutions identified is to simplify protocols for family doctors.</p>
Relative advantage	<p>Compared to in-person visits, Telemed KG is perceived to be useful by most stakeholders as it saves money for patients since they don't have to travel to hospitals. It helps save time for patients and is considered convenient for both patients and doctors. The application is expected to reduce the amount of money and travel that families have to incur in getting specialized treatment. Traveling in Kyrgyzstan is difficult due to its mountainous terrain, in southern regions during winter, access is further constrained due to blocked roads and snow. (For example, travel time from Batken to Bishkek is 20 hours by road). Members from CHD feel that they are able to help many children who would have otherwise not received appropriate care.</p> <p>Telemed KG makes it easier for patients' families to get a second opinion and consider future treatment plans. Costs of meeting a specialist doctor within or outside the country are saved as travel is minimized, and there is more knowledge about the tests to be conducted, and what kind of treatment they should seek. However, certain aspects of treatment still require in-person visits (massages for cerebral palsy, tests, infant warmers &amp; phototherapy for Neonatal Jaundice)</p> <p>Telemedicine has already been prevalent in the country before the introduction of Telemed KG. Telemedicine services were initiated by private players, that offered consultations with doctors from Europe, Turkey, India, etc. However, their services were available in urban areas like Bishkek and a few in Osh, and are perceived to be expensive - making them inaccessible for people residing in rural and remote regions.</p> <p>The main reason for the patients' family opting for Telemed KG was to get advice from specialist doctors in Bishkek. The clients received recommendations from doctors in Bishkek for regular exercises, and tests to be conducted. The recommendations were perceived to be helpful as children showed improvements (Improved motor skills, ability to sit up for short durations, movement in fingers, etc.) and appropriate for health issues that do not need hospitalization but need care.</p>

Adaptability	<p>The platform’s adaptability is currently constrained by the available funding, legislation, and providers onboarded on the platform. While the Telemed KG platform is envisaged to serve the entire population, the current protocols have been perceived to be effective in identifying developmental delays and infection among children.</p> <p>Referral pathways within the health system have to include secondary facilities. The program has to evolve to ensure that cases are identified based on severity - family doctors should only refer to cases they cannot manage, and patients should be referred to specialists from secondary facilities in Osh first, and then to specialists in Bishkek.</p> <p>The application has also evolved since its initial version. Initially, some of the protocols were lengthy, and not translated accurately. Due to this, there have been several instances where the family doctors could not use the application properly leading to consultations being very long. In subsequent versions, the protocols have been refined which has improved the quality of consultation and data entry. Furthermore, the application has been able to incorporate new features – such as an appointment module - which has allowed family doctors to schedule consultations as per specialist doctor’s availability making the process of receiving consultations more efficient.</p> <p>The ability to complete consultations asynchronously is also seen as an advantage since the number of specialist doctors providing consultations is very few. In other telemedicine initiatives, family doctors and patients had to wait to connect with a specialist doctor over call. However, with Telemed KG, specialist doctors can respond at their convenience. The protocols allow for sharing detailed notes on patient history, symptoms, and reports which allows the specialist doctor to provide a prescription even if they are not able to speak to the patient’s family.</p>
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## Outer Setting

Domain	Key Findings
Needs and Resources	<p>There are very few specialist doctors at tertiary facilities in Bishkek – however, all the cases are currently managed by them. This leads to long waiting times for patients - sometimes spanning over a week. Respondents shared that legislative support in the form of a decree from the Ministry can help relax these constraints by mobilizing specialist doctors across secondary facilities in Osh and Batken regions. The addition of specialist doctors from secondary facilities is perceived to facilitate early identification and diagnosis, reduce waiting time for patients, and reduce the load for specialists in tertiary facilities. It will also help strengthen referral linkages.</p> <p>There is a need to invite more Family doctors, to cover more population. Primarily to ensure we can increase the registration of children and improve screening. Enrolling more family doctors will increase the coverage of the program, but is also felt that it will help motivate and increase participation by the current family doctors who are part of the program.</p> <p>The delivery of this intervention requires rigorous capacity building for multiple stakeholders, across multiple institutions. The CHD works closely with MoH and tertiary facilities to implement the program. It serves as a nodal agency to coordinate specialist doctors, development of the application and clinical protocols, facilitate capacity building,</p>

	<p>and assist in developing a policy framework. The CHD needs the techno-managerial capacity to draft guidelines and provide a conducive environment for the delivery of Telemed KG. This includes the capacity to create and review clinical protocols, and training modules, assign roles and responsibilities and engage leaders, donors, and other change agents. The eHealth center requires the technical capacity to develop, manage, and maintain the technology required for the upkeep of telemedicine platforms.</p>
<p>External Policy and Incentives</p>	<p>Respondents have highlighted the need for policy measures that clearly define roles, objectives, financing, and overall operationalization of telemedicine and other digital health platforms. Policy reform will also allow for improved sustainability and scaling the intervention across other regions.</p> <p>Legislative support in the form of e-health policy to improve the development of telemedicine programs and integrate different digital products (national health ID) to ensure information exchange is currently lacking. There is a need for legislative support in the form of e-health policy to improve the development of telemedicine programs and integrate different digital products (national health ID) to ensure information exchange. Legislation will help define responsibilities and liabilities for the eHealth center.</p> <p>Most public health initiatives in Kyrgyzstan require a steady flow of funding to finance operations. In the past, projects were alive as long as funding was available and died out once funding dries up. The situation with Telemed KG is similar, there is a need for funding to ensure the sustainability of operations in the future. The survival of the project is completely dependent on the funding available.</p> <p>There are many external factors that create challenges for the growth of the project. Despite a decree from the president to promote telemedicine, unstable political conditions such as frequent changes in leadership, lack of robust policies, and shifting priorities make it difficult to reach milestones.</p> <p>The formalization of a reimbursement mechanism is considered to be a vital incentive for master trainers for conducting training, and for specialist doctors and family doctors to enroll and manage more patients over telemedicine. Currently, doctors are not paid separately for conducting teleconsultation. Family doctors and specialist doctors have revealed that they have low salaries, and high workload – and conducting telemedicine is an addition to their current workload which already takes a lot of their time.</p>

## Process

Domain	Key Findings
<p>Planning</p>	<p>The focus of the intervention was to improve the status of primary healthcare services. Secondly, the Ministry’s focus is to improve the status of child health in the country. The government of Kyrgyzstan has identified telemedicine as an important tool for providing health services, the president has laid out a goal of 50 FMCs and hospitals to implement telemedicine in the coming two years.</p>



	<p>However, there is no formal roadmap or policy framework which clearly outlines the scope, roles, responsibilities, or milestones to achieve the same. Currently, the MoH and CHD are working together to institute a law on telemedicine – which will form the basis of setting up telemedicine guidelines for the country. The law has not been able to be drafted, since the MoH wants to separate the guidelines for telemedicine from medical guidelines to ensure safety of patients and health providers. If the telemedicine guidelines follow the same standards as in-person consultation then the liability and risk for doctors are perceived to be greater – which may deter health providers from conducting teleconsultation<sup>1</sup>.</p> <p>Lack of financing (funding) makes it difficult to introduce more protocols, and cover more locations. Scaling up, and intervention refinement is considerably constrained by the lack of funds. The program is envisaged to involve as many governments supported doctors and facilities as possible, in developing protocols and increasing uptake in the communities.</p> <p>Currently, the e-Health Center lacks processes (protocols) and systems to ensure the upkeep and future development of telemedicine and other digital platforms. There is a need to establish protocols for quality assurance, development, and timely implementation, and train staff members to execute them.</p>
<p>Executing, reflecting, and evaluating</p>	<p>Neonatal jaundice and cerebral palsy protocols have been used the most, and have been successful in helping family doctors to identify and diagnose patients. However, there is insufficient data to assess the effectiveness of HIV protocols, as the number of cases resolved is still low in the intervention area to gauge the true potential of impact possible.</p> <p>For family doctors, the primary concern is not being able to get responses for cases registered. There is a lot of delay in receiving a resolution for patients. Due to a long waiting time, patients are sent to other facilities.</p> <p>Currently, very few protocols are being used. These clinical protocols pertain to rare diseases, due to which there is very little engagement with patients. There is a need felt to include more protocols such as anemia, diabetes, malnutrition, etc. to enroll more patients. The current protocols are for very rare diseases, which restricts the use of the platform. As more protocols for common diseases are added, traction on the platform will increase.</p> <p>Handholding and guidance from Intelhealth’s program manager have been perceived to be very useful. The training sessions and the constant support provided afterward has helped family doctors and specialists to navigate through the platform easily. The current level of support allows them to speak to Intelhealth’s program managers in case they need any help navigating through the application.</p>

<sup>1</sup> Since the evaluation study was conducted, the Government has successfully passed regulations legalizing telemedicine in the country in November 2023.

## Inner Setting

Domain	Key Findings
Structural characteristic	<p>Many of the family doctors had devices with an older version of Android, which did not support the smooth functioning of the application. There was a lot of data loss, incomplete registrations, and consultations were interrupted due to the lack of compatibility with devices. Eventually, tablets were distributed by UNICEF which has helped overcome this problem, especially in the Batken region. The state has also supported installing WiFi across family doctor clinics so that information can be exchanged across family and specialist doctors without any hindrance.</p>
Network and Communications	<p>The application allows for sharing detailed medical notes, which is found to be useful in arriving at accurate diagnoses and treatment plans. However, there have been cases where family doctors are unable to provide accurate information – either due to gaps in communication with the patient’s family or lack of training on the family doctors’ part. In many cases, the information provided is incomplete, and specialist doctors have asked for more information or reports to arrive at the final diagnosis and treatment plan.</p> <p>Some issues were also identified due to gaps in the translation of protocols. Additionally, family doctors in the southern region are more fluent in the Kyrgyz language than Russian due to which they may refrain from answering some questions in the protocols. This was particularly observed in the cases of cerebral palsy. As per specialist doctors, family doctors can easily fill in information pertaining to general information – but certain questions that are specific (relating to neurological information) were difficult to comprehend. Due to a lack of information regarding cerebral palsy, family doctors often run into the problem of how to convey information to the patient’s family or enquire about tests, symptoms, and medical history.</p>
Readiness for implementation	<p>Currently, the program is in the pilot phase, due to which some of the major hospitals of other regions have not yet been involved. There is a need to orient other family doctors and specialists to participate in managing consultations. The platform however is ready to onboard more doctors even in its current system, given they are trained.</p> <p>There is a need to improve the clinical capacity of family doctors to ensure improved quality of teleconsultations. Most family doctors are not well informed about the diseases pertaining to the current protocols. This makes it difficult for them to probe patients, or interpret the questions asked in the clinical protocols. Furthermore, family doctors fulfill a more generalist role but may have been trained in another specialty. Future training should also focus on bringing all the family doctors to the same level of clinical knowledge so that the clinical protocols can be used more effectively, and they are able to convey the suggestions made by specialist doctors.</p> <p>Adoption of technology was initially slow among end users (family doctors). Even now, doctors are not able to use the application with 100% accuracy. This is probably due to resistance to change - family doctors may seem to perform well during training - but they</p>

	forget once they start registering new cases. There are multiple cases for the same individual registered - incorrect data being filled and troubleshooting problems. However, over a period of time, the family doctors feel they have become more familiar with the application, and are more confident in using the platform.
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## Recommendations

This report highlights important experiences, barriers and facilitators and potential impact of a telemedicine program to improve care for children with disabilities. Key recommendations are presented below,

### Improving quality of program operations and delivery

- The findings from the study were significant to understand the challenges faced when implementing such a novel intervention. The findings from this study will be incorporated to improve the programs overall functioning including workplans, standard operating procedures, software features, training & capacity building.

### Developing a policy framework for the implementation of telemedicine

- The implementation of telemedicine services in the region requires a robust policy framework that outlines the roles and responsibilities of all stakeholders and institutions involved. A policy framework will allow the development of guidelines that will clarify the incentives and liabilities for all stakeholders. The purpose of these guidelines is to give practical advice to doctors so that all services and models of care used by doctors and health workers are encouraged to consider the use of telemedicine as a part of normal practice. These guidelines will assist the medical practitioner in pursuing a sound course of action to provide effective and safe medical care founded on current information, available resources, and patient needs to ensure patient and provider safety.

*Family doctor in Nookat FMC*



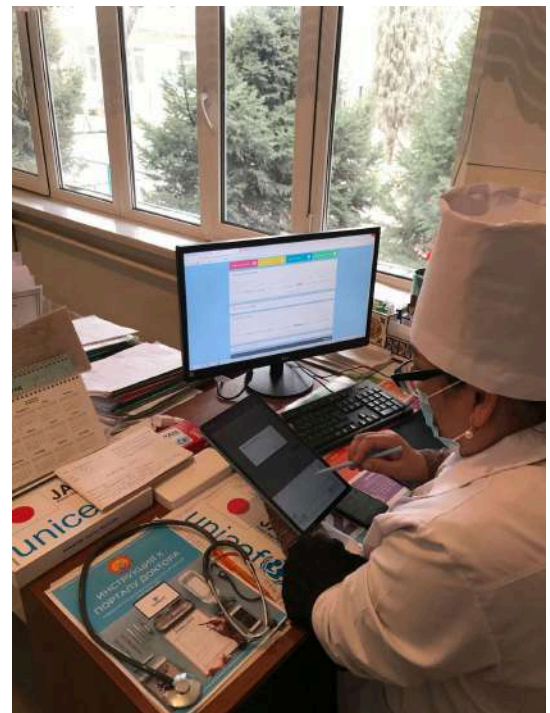
- Telemedicine policy will help realize the full potential of the technology for health care delivery. It provides norms and protocols relating to the physician-patient relationship; issues of liability and negligence; evaluation, management, and treatment; informed consent; continuity of care; referrals for emergency services; medical records; privacy and security of the patient records and exchange of information; prescribing; and reimbursement; health education and counseling.

## Investing in telemedicine

- Securing stable financing of the program is vital to its operation and sustainability. The government should seek to make separate budgetary provisions for the development and management of telemedicine initiatives. Most telemedicine initiatives in the country are at the mercy of available funding, without a constant flux of funds the incentive to develop and maintain the necessary infrastructure is diminished. The lack of stable financing can cause future planning to be compromised, and make it difficult for stakeholders to establish long-term goals. In the absence of stable financing of such an initiative, the gains made from the project are lost, and scaling up initiatives becomes difficult.
- Sustaining a telemedicine platform requires investing in infrastructure and human resources.
  - Access to broadband internet. In rural health facilities, providers may have difficulty connecting to or obtaining affordable and reliable broadband service. Setting up WiFi, providing power back up and due maintenance of such infrastructure is necessary.
  - Access to technical support staff. Technical support staff members can help answer questions about the platform. To help with efficiency, technical support staff may be shared across collaborating organizations.
  - Staff training: Regular capacity-building sessions, and on field support must be extended to doctors to use the platform. This should include regular refresher training on using the platform, induction trainings when new protocols and features are rolled out. Furthermore, facilities should consider whether workflow changes may be required and train accordingly.

## Providing incentives for specialist and family doctors

- Considering the current workload of health providers, resolving teleconsultations is an added responsibility to their work. Since the number of specialists in the platform is very low, doctors in tertiary facilities work longer to provide remote prescriptions. In the absence of financial or nonfinancial incentives, it is unlikely that doctors will be able to prioritize teleconsultations. Some form of reimbursement mechanism needs to exist to compensate doctors for viewing and consulting with patients over the Telemed KG platform.
- For family doctors an incentive structure has to be established to screen, identify and enroll patients on the platform. Family doctors have to be incentivized to mobilize communities and increase the uptake of Telemed KGs services.



*Health Specialist in Osh Interregional Children Hospital, introduced to the TeleMedKG platform after the training, April 2022*

## Increasing the scope of health services provided

- It is recommended that more protocols are added to the platform to increase the engagement of patients on the application. It would be beneficial to include more protocols targeted toward health issues that are

more common. During the interviews, health providers suggested including protocols for malnutrition among children, anemia, diabetes, hypertension, fever, and other common ailments would allow them to use the application more regularly in the community. There are many health problems for which patients would like to consult with specialist doctors, and it also serves as a learning opportunity for family doctors.

### **Interoperability**

- Stakeholders in CHD and tertiary facilities expressed the need to integrate Telemed KG with other digital health platforms – especially the National Health ID. Integration of various digital health platforms will help consolidate efforts across currently disjointed projects, ease administration and coordination of health services, and serve as a common database to track patients and their medical history. In the future, such integration will contribute to better planning for the delivery of health services.

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