



EXECUTIVE SUMMARY:

PROPOSAL FOR ADAPTING THE HEALTHCARE PATHWAY FOR MATERNAL – PERINATAL CARE BY LEVERAGING TELEHEALTH AND EVALUATING ITS IMPACT AND IMPLICATIONS

Local Health System Sustainability Project

Task Order I, USAID Integrated Health Systems IDIQ

Local Health System Sustainability Project

The Local Health System Sustainability Project (LHSS) under the USAID Integrated Health Systems IDIQ helps low- and middle-income countries transition to sustainable, self-financed health systems as a means to support access to universal health coverage. The project works with partner countries and local stakeholders to reduce financial barriers to care and treatment, ensure equitable access to essential health services for all people, and improve the quality of health services. Led by Abt Associates, the five-year, \$209 million project will build local capacity to sustain strong health system performance, supporting countries on their journey to self-reliance and prosperity.

Submitted to: Scott Stewart, COR
Office of Health Systems
Bureau for Global Health

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CONTENTS

- 1. Introduction 4**
- 2. Design methodology and key inputs 5**
- 3. Telehealth MVP proposal 8**
- 4. Impact, capabilities and funding 10**
- 5. Key conclusions..... 13**
- 6. Sustainability..... 14**
- 7. Structure of the Deliverable..... 15**

LIST OF FIGURES

Figure 1: Design Principles of the Telehealth Proposal for the RIAMP5

Figure 2: Roadmap for Telehealth Implementation in the RIAMP..... 7

Figure 3: Proposed Telehealth MVP and its Functionalities in the RIAMP 8

Figure 4: Estimation of the Impact of Implementing Telehealth in the RIAMP10

Figure 5: Investment Estimation for the 1st Year of Implementation12

ACRONYMS

LHSS	Local Health System Sustainability Project
USAID	United States Agency for International Development
MOH	Colombian Ministry of Health
RIAS	Healthcare Pathway
RIAMP	Healthcare Pathway for Maternal – Perinatal Care
MVP	Minimum Viable Product
SMS	Short Message Service

I. INTRODUCTION

The Local Health System Sustainability Project (LHSS) 2024 vision for Colombia is to generate technical, operative, and management capabilities within the healthcare sector to strengthen governance and promote funding, access to healthcare services, and emergency responses to positively impact the quality of life of the Venezuelan migrant population and receptor communities. In Year 3, LHSS supported the Colombian Ministry of Health (MOH) in strengthening mechanisms to increase access to adequate and high-quality healthcare services by elaborating a proposal for adapting services within the Healthcare Pathway for Maternal – Perinatal Care (RIAMP, by its Spanish acronym) to be provided through a telehealth modality and evaluating its impact on the healthcare system.

LHSS completed fieldwork activities at three public and mixed primary healthcare providers (ESE Hospital San Rafael in Andes, Antioquia; ESE Hospital La Estrella in La Estrella, Antioquia, and IPS Hospital Armando Pabón Lopez in Manaure, La Guajira) to obtain an understanding of the status quo of primary healthcare provision in Colombia. Over a period of four weeks, LHSS completed on-site visits and conducted interviews with health professionals, patients, and administrative staff. LHSS' costing model for healthcare providers for two healthcare pathways, including the RIAMP, was an input of this initiative.

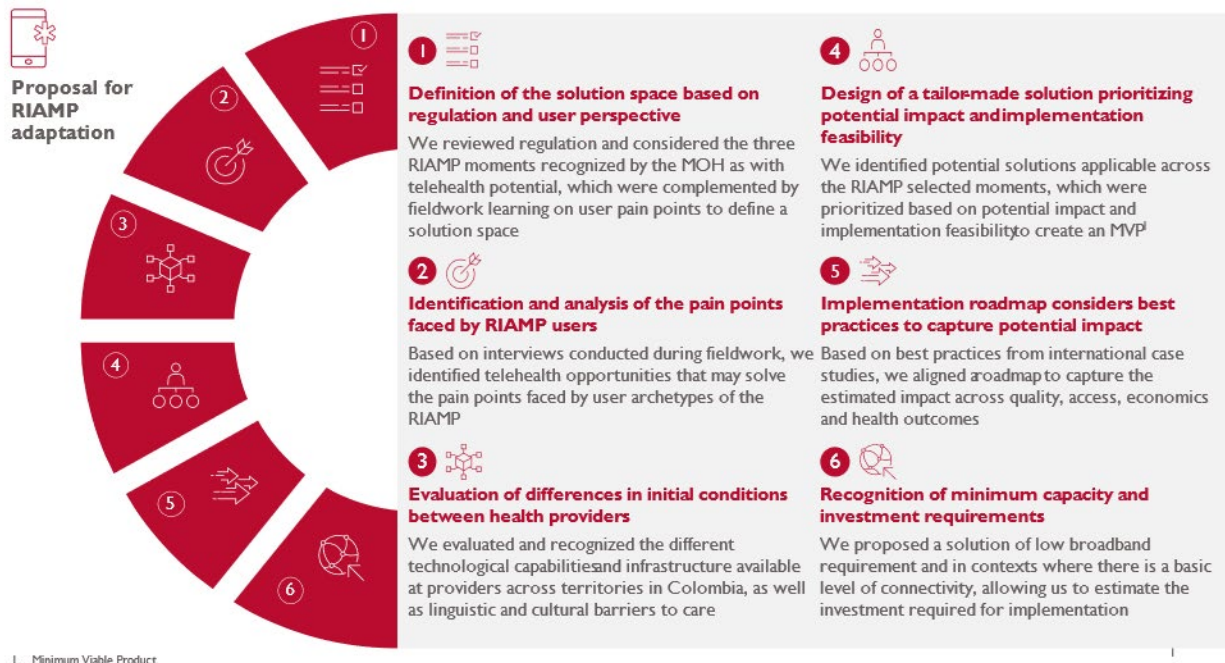
Additionally, LHSS consulted with telehealth experts from Colombia and abroad to learn from other telehealth experiences and validate findings.

2. DESIGN METHODOLOGY AND KEY INPUTS

To elaborate the proposal, LHSS identified six design principles to develop, as shown in Figure 1.

1. Definition of the solution space based on regulation and user perspective
2. Identification and analysis of barriers experienced by RIAMP users
3. Evaluation of differences in initial conditions between healthcare providers
4. Design of a tailor-made solution prioritizing potential impact and implementation feasibility
5. Implementation of a roadmap that considers best practices to capture potential impact
6. Recognition of minimum capabilities needed and investment requirements

Figure 1: Design Principles of the Telehealth Proposal for the RIAMP



Key learnings and implications from principles 1-4 are highlighted below, as they were key inputs for the definition of a minimal viable product (MVP) for telehealth in Colombia.

Definition of the solution space based on regulation and user perspective. By reviewing the regulatory framework for telehealth in Colombia, particularly MOH COVID-19 guidelines for RIAMP provision, three aspects of the RIAMP with potential for telehealth capabilities were identified: (i) preconception care; (ii) prenatal care; (iii) maternity preparation courses. In addition, based on user interviews regarding barriers and the feasibility of resolving or alleviating them with telehealth, two additional parts of the RIAMP were considered: (iv) dental care and (v) nutritional care. These five sections were identified as the solution space for the telehealth proposal.

Identification and analysis of barriers of RIAMP users. The fieldwork phase provided relevant insights on how users, patients, and health professionals perceive RIAMP services in Colombia as well as

their experiences with telehealth, particularly during the outbreak of COVID-19. From a user perspective, eleven key barriers impacting three archetypes were identified:

- **User Archetype 1** faced language and cultural barriers and low connectivity,
- **User Archetype 2** had limited information on the services provided and aspired for better quality and personalized care,
- **User Archetype 3** highlighted slow and tedious paperwork when dealing with their insurer, and lack of innovation in access to services

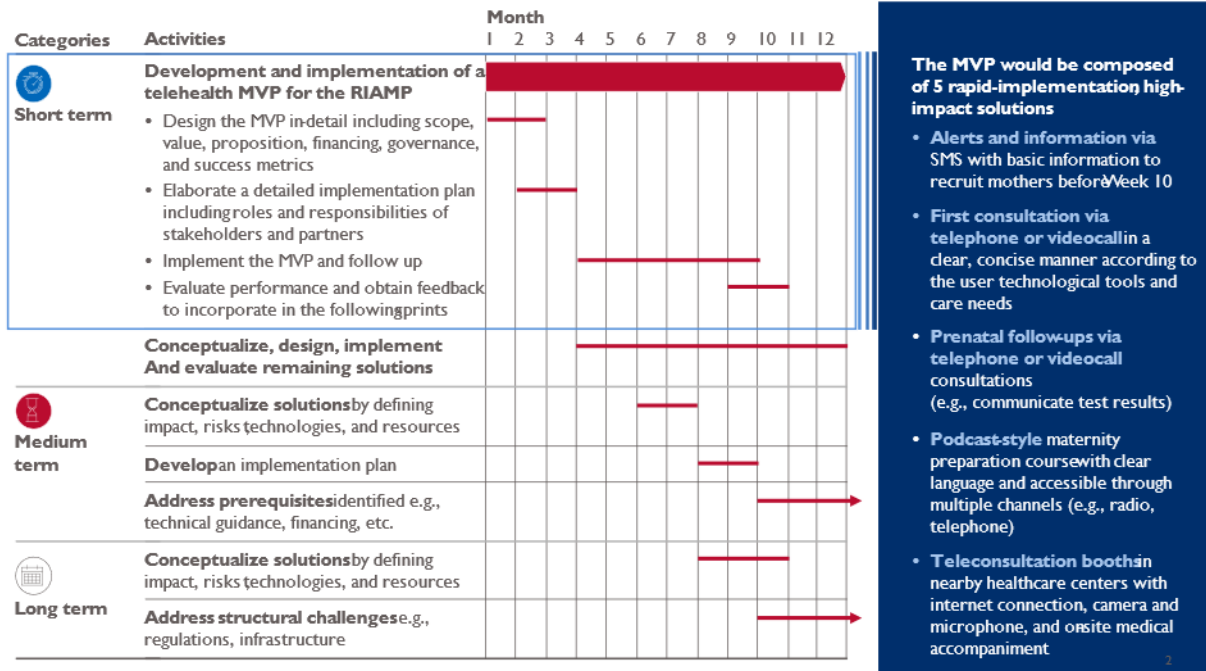
From a health professional perspective, another eleven key barriers and three professional archetypes were identified. Health Professional Archetypes differ mainly in their willingness to adopt a telehealth modality to provide care

- Professional Archetype 1 used telehealth only during the recent pandemic and found transition difficult and rushed,
- Professional Archetype 2 used telehealth on limited occasions and does not feel comfortable practicing medicine without physical contact with the patient,
- Professional Archetype 3 used telehealth actively and perceives it as an advantageous tool to improve quality and access

Evaluation of differences in initial conditions between healthcare providers. LHSS evaluated and recognized different technological capabilities and infrastructural availability at primary healthcare providers across Colombian territories, as well as linguistic and cultural barriers to care. Three provider archetypes were identified, which differ mainly in their existing infrastructure and the level of connectivity that is available. These archetypes are Urban, Intermediate Cities, and Rural or rural scattered. Connectivity, understood as both telephone signal and internet access, stood out from all other capabilities needed for telehealth as a prerequisite for implementation. Based on 10 interviews with administrative staff related to technology and service delivery, eleven recommend actions to facilitate telehealth implementation were shared, including, for example, investments to strengthen technological infrastructure and staff trainings to help them adapt to new technologies.

Design of a tailor-made solution prioritizing potential impact and implementation feasibility. To identify potential telehealth solutions, two analyses were completed: (i) an AS-IS journey map for all three user archetypes to understand their emotions and main difficulties navigating the RIAMP within the solution space; and (ii) a TO-BE journey map for these archetypes to define aspirations and ideate potential telehealth solutions for each of the five selected aspects of the RIAMP, categorized based on their implementation horizon. As a result, 37 potential telehealth solutions were identified: 15 for the short term (e.g., text messages related to healthy lifestyles), 11 for the medium term (e.g., 24/7 hotlines to solve questions about the RIAMP), and 11 for the long term (e.g., implementation of telemonitoring devices for patients). As shown in Figure 2, an implementation roadmap for the next twelve months was created, which proposed to advance structural and remedial telehealth solutions simultaneously, and prioritized proof of concept with an MVP composed of five high-impact, rapid-implementation solutions.

Figure 2: Roadmap for Telehealth Implementation in the RIAMP



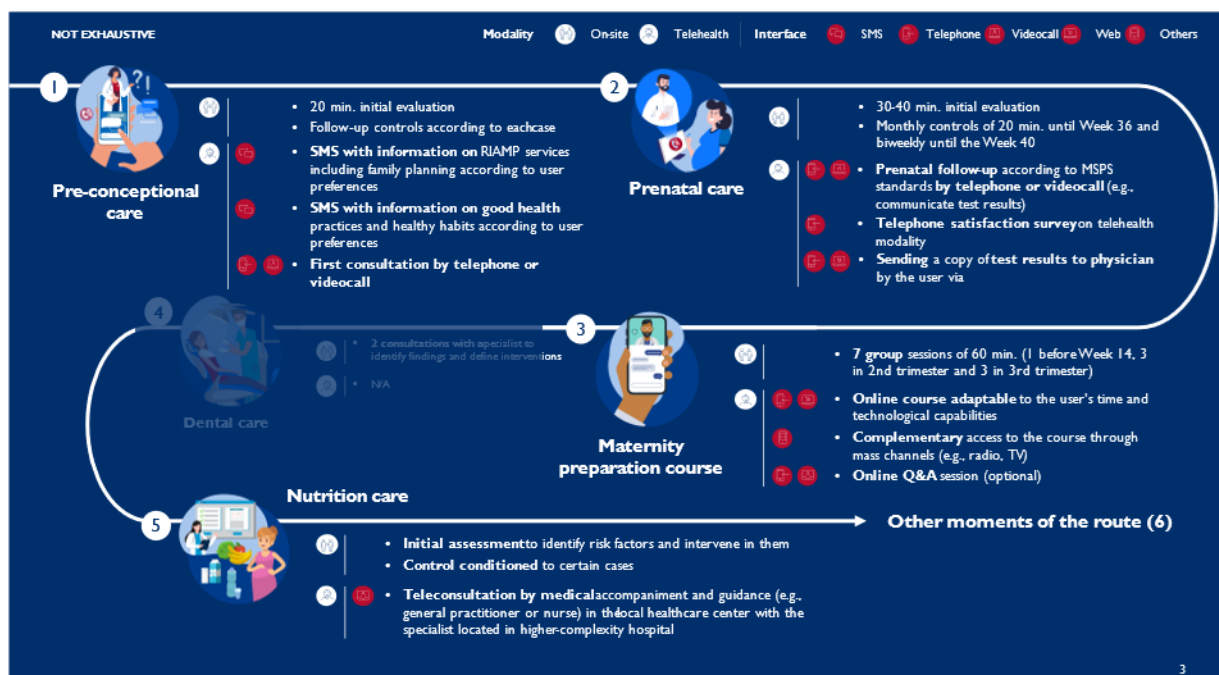
3. TELEHEALTH MVP PROPOSAL

The Minimum Viable Product (MVP) proposed is a tailor-made solution that prioritizes potential impact and implementation feasibility that includes five telehealth solutions along four aspects within the RIAMP. These include:

- A mobile health strategy for preconception care with alerts and information via SMS and basic information to enroll mothers before Week 10
- First preconception care consultation via telephone or videocall conducted in a clear, concise manner and according to the user's technological tools and care needs
- Prenatal care follow-ups via telephone or videocall to complement on-site consultations
- Podcast-style maternity preparation virtual courses that offer clear, structured, and comprehensive information and are accessible through multiple channels (e.g., web-based platforms, radio, telephone, TV)
- Telehealth booths at primary healthcare centers for consultations with specialists located in hospitals of a higher complexity; with a stable internet connection, camera, and microphone, as well as medical guidance provided by a general practitioner, a registered nurse, or another healthcare professional

As shown in Figure 3, the proposal maintains the current RIAMP services provided on-site and complements them with additional RIAMP services provided through the telehealth modality. It prioritizes five solutions that incorporate ten new functionalities along four parts of the services: (1) preconception care, (2) prenatal care, (3) maternity preparation courses, and (5) nutrition care. Dental care was not included given that telehealth was not applicable for its activities.

Figure 3: Proposed Telehealth MVP and its Functionalities in the RIAMP



LHSS created a deep dive into these five prioritized solutions. These include an aspirational journey for the user, a high-level perspective on impact and features, and an assessment of technology, funding, human resources requirements, a sustainability approach for long-term feasibility, risk mitigation, and potential partnerships. Key findings are summarized below.

- For a **mobile health strategy**, it is important to consider the language and content that is used to avoid misinterpretations or cultural offenses. In addition, the patient should have the ability to decide at any time what type of information they want to receive. Potential alliances could be found within the telecommunication sector for low-cost messaging services.
- For **first preconception care consultations via telephone**, specific guidelines should be implemented for the script to be leveraged according to rigorous medical standards. It is important that the patient's privacy is always respected when calling, and their identities are confirmed before the service is started.
- For **pregnancy care telephone follow-ups**, it should be considered whether the patient is eligible for the modality based on a medical assessment and MOH guidelines that need to be previously established. Based on benchmark research, LHSS found that for this strategy, training and coaching medical staff is key to success.
- For the **podcast-style maternity preparation virtual courses**, LHSS highlights the possibility of expanding to mass channels of communication (e.g., radio, local TV) and covering other relevant topics (e.g., newborn care).
- For **telehealth booths at primary healthcare centers for consultations with specialists**, LHSS identified significant costs of hardware and infrastructure that need to be financed. Internet access and multimedia capabilities are essential for the provision of the service.

4. IMPACT, CAPABILITIES AND FUNDING

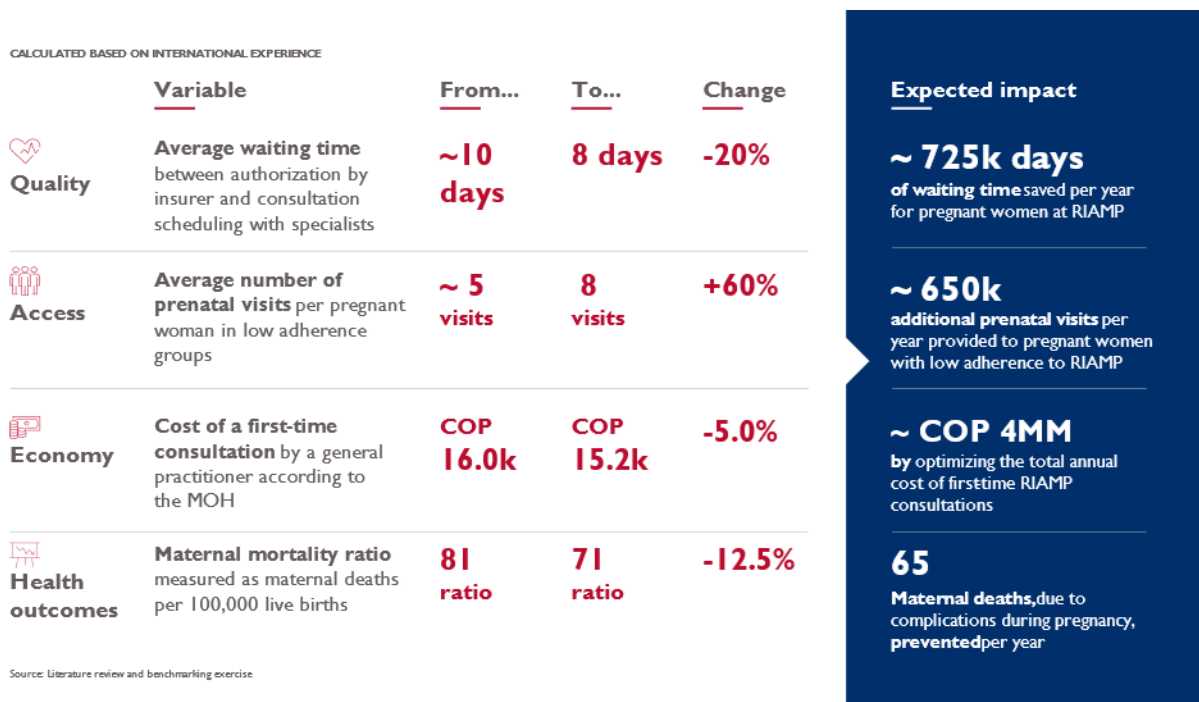
For implementation, LHSS reviewed over 20 case studies of telehealth implementation around the globe to identify best practices and benchmark impact potential.

Some of the best practices highlighted were:

- Ensuring access to a stable internet connection is a prerequisite for the implementation of a successful telehealth model
- Informing the patient about teleconsultation protocol and how it is part of the comprehensive healthcare system ensures a minimum understanding
- Local medical staff accompanying the patient during the teleconsultation improves communication and understanding between the physician in a remote location, and the patient in a nearby healthcare center
- Leveraging the technologies that emerged during the COVID-19 pandemic helps users acclimate to the use of the telehealth modality
- Monitoring user satisfaction through surveys on how medical staff and patients perceive the quality of the interaction is key to evaluate potential improvements

LHSS leveraged impact experiences from other countries and aligned the implementation proposal to the existing infrastructure and capabilities of Colombia to evaluate possible impact accordingly. Potential impact was estimated across four dimensions: quality, access, economy, and results. Leveraging 12 international case studies of telehealth implementation, LHSS obtained more than 20 referenced data points on impact (e.g., 3.5% more primary care visits in Israel because of telehealth implementation).

Figure 4: Estimation of the Impact of Implementing Telehealth in the RIAMP



As shown in Figure 4, LHSS estimated that the implementation of the telehealth modality in the RIAMP in Colombia could:

- For the quality dimension, save pregnant women roughly 725,000 days of waiting to schedule a consultation with a specialist (e.g., nutritionist)
- For the access dimension, increase roughly 650,000 additional prenatal visits per year
- For the economics dimension, optimize around COP 4 billion in costs related to on-site first-time consults
- For the health outcomes dimension, prevent up to 65 maternal deaths per year because of adequate risk profiling to identify potential complications during labor

Additionally, LHSS identified seven minimum capabilities required for telehealth implementation:

- Guaranteed connectivity through at least two different means (e.g., phone service, internet service)
- Adequate infrastructure that recognizes user's necessities and provides a safe and adequate space
- Strengthened support of key players within local communities
- Detailed script for teleconsultations under rigorous medical standards
- Empowerment of the medical staff with technological tools and training as needed
- Financial long-term sustainability
- Analysis of local regulation to secure appropriate guidelines

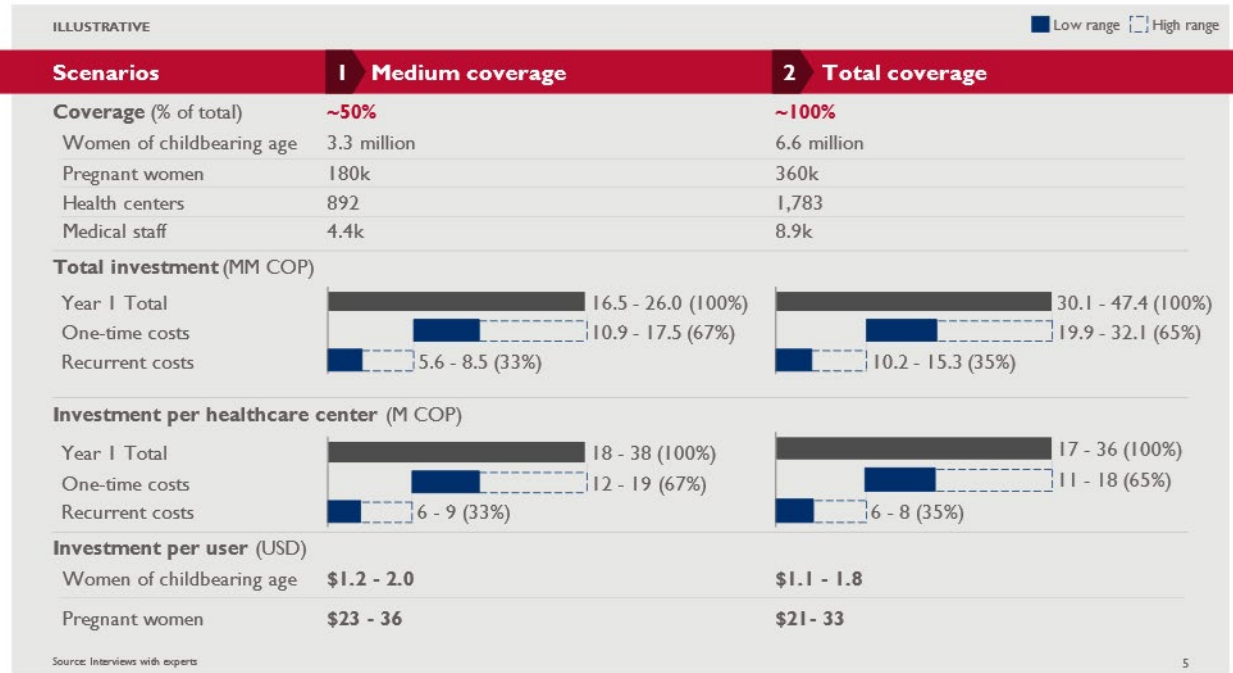
To estimate the amount of funding needed to implement telehealth in Colombia, LHSS identified seven main cost drivers, which were identified and divided into:

- One-time payments: training, hardware, and network infrastructure
- Recurrent payments: connectivity, centralized IT support team, maintenance, and software

For an initial estimation of the needed funding, LHSS proposed two scenarios based on the level of coverage of users and different price ranges. Coverage was calculated considering the number of women at a childbearing age that are part of the subsidized¹ regime in Colombia (roughly 6.5 million), the number of healthcare centers available in the country (roughly 1,800), and the number of doctors to offer the telehealth modality (five per healthcare center). Price ranges were defined by considering different market prices for hardware and connectivity services, among others. Discounts were applied to reflect economies of scale.

¹ The Subsidized Regime is the mechanism through which the poorest population in the country, without the ability to pay, has access to health services through a subsidy offered by the government.

Figure 5: Investment Estimation for the 1st Year of Implementation



As shown in Figure 5, for Scenario 1, where 50% of women of child-bearing age within the subsidized regime are covered, LHSS estimated:

- Total investment for the first year of implementation to be from COP 16.5 to 26.0 billion, equivalent to USD 4.0 to 6.3 million (exchange rate 1 USD: COP 4,100), where one-time costs represent 67% of the total and recurrent costs represent 33% of the total
- Investment per woman of child-bearing age to be from USD 1.2 to 2.0

Similarly, for Scenario 2 where 100% of women of child-bearing age within the subsidized regime are covered LHSS estimated:

- Total investment for the first year of implementation to be from COP 30.1 to 47.4 billion, equivalent to USD 7.3 to 11.6 million (exchange rate used 1 USD: COP 4,099.6), where one-time costs represent 65% of the total and recurrent costs represent 35% of the total
- Investment per woman of child-bearing age to be from USD 1.1 to 1.8

5. KEY CONCLUSIONS

LHSS identified and developed six design principles: (i) definition of the solution space based on regulation and user perspective, (ii) identification and analysis of barriers experienced by RIAMP users, (iii) evaluation of differences in initial conditions between healthcare providers, (iv) design of a tailor-made solution prioritizing potential impact and implementation feasibility, (v) implementation of a roadmap considering best practices to capture potential impact, and (vi) recognition of minimum capabilities needed and investment requirements.

Five moments within the RIAMP composed the solution space: (i) preconception care, (ii) prenatal care, (iii) maternity preparation courses, (iv) dental care, and (v) nutritional care based on MOH guidelines and regulation, users' perspective on barriers, and feasibility to resolve or alleviate barriers with telehealth. Through fieldwork interviews LHSS identified 22 barriers (e.g., significant travel costs to the facility, lack of information on RIAMP services) as well as six user and healthcare professional archetypes. In addition, administrative staff shared 11 recommended actions (e.g., investment in infrastructure) for telehealth implementation. The elaboration of AS-IS and TO-BE journey maps for each user archetype led to 37 potential solutions. By prioritizing impact and feasibility, an MVP was defined around five solutions: (i) mobile health strategy for preconception care, (ii) preconception care telephone consultations, (iii) prenatal care telephone follow-ups, (iv) maternity preparation e-courses, and (v) telehealth booths for guided consultations with specialists.

Based on international cases studies, LHSS estimated the impact of telehealth implementation on four dimensions: quality, access, economics, and health outcomes (e.g., 725,000 days of waiting time saved for scheduling a consultation with a specialist). Minimum capabilities required for implementation were identified, such as guaranteed connectivity through at least two different means (e.g., phone service and internet service). LHSS also estimated the funding needed for one-time costs (e.g., hardware, and infrastructure) and recurrent costs (e.g., maintenance, software). Finally, LHSS estimated a USD 1.20 to 2.00 investment per user is needed to implement telehealth in the RIAMP to cover 6.5 million women of childbearing age within the subsidized healthcare regime in Colombia.

6. SUSTAINABILITY

After the field work phase, LHSS prioritized regular review sessions on partial outputs with the MOH technical team through the design process. Officials from key MOH teams such as the Directorate of Promotion and Prevention and the Directorate of Provision of Services and Primary Care were in attendance. Thus, the MOH was able to provide comments and feedback on the proposal in a timely manner, facilitating their inclusion. The representatives of the Office of Information Technology and Communication were also able to participate in some of the sessions to provide their perspective based on the overall MOH technological strategy. The deliverable was also shared in an executive meeting with the Vice Minister of Public Health and Provision of Services.

Moving forward, the proposal has been used to jump-start internal discussions at the MOH on the potential implementation strategy – including the potential development of a pilot program following the sharing of the telehealth MVP proposal.

7. STRUCTURE OF THE DELIVERABLE

Section	Page	Content
Objectives and context	1 - 3	Introduction
	4	Context
	5	Objectives
	6	Work plan and sources of knowledge
Introduction to the methodological process	7 - 9	Steps to evaluate and identify healthcare services within the RIAMP that could be susceptible to the use of telehealth
Introduction to the six design principles	10 - 11	Six design principles identified for the proposal
1. Definition of the solution space	12 - 13	Theoretical reference for the preliminary selection of the solution space
	14 - 15	Definition of the solution space that considers the regulatory framework, the user's perspective, and the feasibility of using telehealth
2. Identification and analysis of barriers	16 - 17	Overview of the status of telehealth adoption by providers in Colombia
	18 - 20	User perspective on RIAMP and telehealth in general. 11 barriers and three user archetypes are identified.
	21 - 23	Health professional perspective on RIAMP and telehealth in general. 11 barriers and three user archetypes are identified.
3. Evaluation of differences in initial conditions between territories	24 - 25	Different technological and infrastructure realities between providers and their users
	26	Technology staff's perspective on RIAMP care and telehealth in general
4. Design of a tailor-made solution that prioritizes potential impact and	27 - 28	Methodological summary
	29 - 31	AS-IS journey map for the three user archetypes
	32 - 34	TO-BE journey map for the three user archetypes
	35 - 36	Compilation of 37 unique RIAMP solutions by time horizon

Section	Page	Content
feasibility of implementation	37	Implementation roadmap prioritizing five solutions within a Minimum Viable Product (MVP)
	38	Functionalities introduced by the five telehealth solutions selected at the four points along the journey
	39 - 40	User experience map for each of the five proposed solutions
	41 - 47	Detailed analysis of the implementation of each of the five proposed solutions
5. Implementation that considers best practices to take advantage of opportunities for impact	48 - 49	Methodological summary
	50 - 52	Impact assessment on four dimensions of telehealth (quality, access, economics, and outcomes) in 12 international cases
	53	Evaluation of the potential impact of the implementation of a telehealth strategy in Colombia
	54 - 55	Ten best practices and lessons learned from the study of eight international experiences
	56 - 63	Study of eight international experiences to identify best practices and success factors
6. Recognition of minimum capacity and investment requirements	64 - 65	Methodological summary
	66	Seven minimum capabilities required for telehealth implementation
	67 - 69	Evaluation of the minimum investment required for different hedging scenarios