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Report No: PAD5275

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF US$ 50 MILLION

TO THE

PROVINCE OF BUENOS AIRES

FOR A

STRENGTHENING THE DIGITAL HEALTH AGENDA IN THE PROVINCE OF BUENOS AIRES PROJECT

June 7, 2023

Health, Nutrition & Population Global Practice
Latin America And Caribbean Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective: May 3, 2023)

Currency Unit =	Argentine Pesos (ARS)
ARS 1 =	US$0.0047
US$1 =	ARS 218.50

Regional Vice President: Carlos Felipe Jaramillo

Country Director: Marianne Fay

Regional Director: Luis Benveniste

Practice Manager: Michele Gragnolati

Task Team Leader(s): Maria Eugenia Bonilla-Chacin, Vanina Camporeale

ABBREVIATIONS AND ACRONYMS

AMBA	Buenos Aires Metropolitan Area (*Área Metropolitana Buenos Aires*)
CDSS	Clinical Decision Support System
COVID	Coronavirus disease
EMRs	Electronic Medical Records
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
GRS	World Bank's Grievance Redress Service
ICT	Information and Communication Technology
IFR	Interim Financial Report
IHR	Integrated Health Record (*Historia de Salud Integral*)
IMF	International Monetary Fund
MOH	Ministry of Health
NCDs	Noncommunicable diseases
PBA	Province of Buenos Aires
PDGCSP	Provincial Directorate of General Coordination of Special Projects (*Dirección Provincial de Coordinación General de Proyectos Especiales*)
PDMOBF	Provincial Directorate of Multilateral Organizations and Bilateral Financing (*Dirección Provincial de Organismos Multilaterales y Financiamiento Bilateral*)
PDO	Project Development Objective
PHC	Primary Health Care
PMOH	Provincial Ministry of Health (*Ministerio de Salud de la Provincia de Buenos Aires*)
PMTF	Provincial Ministry of Treasury and Finance (*Ministerio de Hacienda y Finanzas*)
POM	Project Operational Manual
PPSD	Project Procurement Strategy for Development
SEP	Stakeholder Engagement Plan
SOEs	Statement of Expenditures

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Argentina	Strengthening the Digital Health Agenda in the Province of Buenos Aires	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P179534	Investment Project Financing	Moderate

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
05-Jul-2023	30-Apr-2027

Bank/IFC Collaboration

No

Proposed Development Objective(s)

Increase access to health services and improve coordination and continuity of care in the public healthcare network of the Province of Buenos Aires.

Components

Component Name	Cost (US$, millions)
Strengthening the Implementation of Electronic Medical Records (EMRs) / Integrated Health Record (IHR) in public health facilities	39.10
Developing and Implementing Virtual Tools for Health Provision and Communication	10.60
Project Management	0.30

Organizations

Borrower:	Province of Buenos Aires
Implementing Agency:	Provincial Directorate of Multilateral Organizations and Bilateral Financing

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	50.00
Total Financing	50.00
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	50.00

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2023	2024	2025	2026	2027	2028
Annual	0.00	13.50	18.50	14.00	3.95	0.05
Cumulative	0.00	13.50	32.00	46.00	49.95	50.00

INSTITUTIONAL DATA

Practice Area (Lead)

Health, Nutrition & Population

Contributing Practice Areas

Digital Development, Governance

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
10. Overall	Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Not Currently Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

1. Section I.A of Schedule 2 to the Loan Agreement (Institutional Arrangements)

The Borrower, through PDMOBF, shall: (a) operate and maintain, throughout Project implementation, a Project management team with functions and responsibilities acceptable to the Bank, including, but not limited to: (i) procurement, financial management, and disbursement functions for the Project; (ii) environmental and risk management responsibilities; (iii) technical, environmental, and social implementation in coordination with PMOH; and (b) staff said team with a coordinator, technical experts, and other personnel, all in number and with qualifications acceptable to the Bank.

Sections and Description

2. Section I.B of Schedule 2 to the Loan Agreement (Project Operational Manual)

The Borrower shall carry out the Project in accordance with the provisions of the Project Operational Manual, acceptable to the Bank, which shall include, inter alia: (a) the detailed description of all Project implementation activities, their sequencing and prospective timetable and benchmark in relation thereto; (b) the institutional arrangements for the Project, including the roles and responsibilities of PDMOBF and PMOH; (c) the Project's administrative, financial, accounting, auditing, procurement, and disbursement procedures; (d) the procedures for the monitoring, evaluation, and reporting of the Project; (e) the eligibility criteria and the detailed procedures for the selection of the Participating Municipalities, including the model forms of the Addendum Participation Agreements and the Participation Agreements; and (f) Personal Data collection and processing in accordance with applicable national law and good international practice.

Sections and Description

3. Section I.C.1 of Schedule 2 to the Loan Agreement (Addendum Participation Agreements)

For purposes of implementing Part 1.1 of the Project, the Borrower, through PMOH, shall enter into an Addendum Participation Agreement to the existing Framework Agreement with each Participating Municipality under terms and conditions acceptable to the Bank, which shall consist of, inter alia, the obligation of each of the Participating Municipalities referred to under Part 1.1 of the Project: (a) to establish, or assign to, and after that maintain a team responsible for implementation of the activities defined in such Addendum Participation Agreement; (b) to comply with the technical requirements set forth in the applicable environmental and social instruments, assuming the obligations derived from those, in accordance with their terms and those of this Agreement, the ESCP, and the POM, as applicable; (c) to comply with Project indicators; and (d) to take or permit to be taken all actions to enable the Borrower to comply with its obligations referred to in this Agreement.

Sections and Description

4. Section I.C.2 of Schedule 2 to the Loan Agreement (Participation Agreements)

For purposes of implementing Part 1.2 of the Project, and prior to adding to the Project any of the municipalities referred to in Part 1.2. of the Project, the Borrower, through PMOH, shall carry out adequate assessments which shall conclude that the electronic medical records and the data storage strategies of each of those municipalities comply with the technical requirements, quality and national cybersecurity standards set forth in the POM. After concluding such assessments in a satisfactory manner, the Borrower, through PMOH, shall enter into a Participation Agreement with each Participating Municipality under terms and conditions acceptable to the Bank, including those provisions set forth in the POM and the ESCP.

Sections and Description

5. Section I.C.3 of Schedule 2 to the Loan Agreement (Addendum Participation Agreements and Participation Agreements)

The Borrower, through PMOH, shall exercise its rights and carry out its obligations under each Addendum Participation Agreement and Participation Agreement, as applicable, in such a manner as to protect the interest of the Borrower and the Bank and to accomplish the purposes of the Loan. Except as the Bank shall otherwise agree, the Borrower through PMOH, shall not assign, amend, terminate, abrogate, waive, or fail to enforce any Addendum Participation Agreement and/or Participation Agreement, or any provision thereof, that affects Project implementation.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	Section 4.01. The Borrower, through DPOMFB, has adopted the Project Operational Manual (POM) in form and substance acceptable to the Bank.
Type	Financing source	Description
Disbursement	IBRD/IDA	Schedule 2 section III B.1. No withdrawal shall be made for payments made prior to the Signature Date, except those withdrawals up to an aggregate amount not to exceed US$10,000,000 may be made for payments made twelve (12) months prior to the Signature Date, for Eligible Expenditures.

I. STRATEGIC CONTEXT

A. Country Context

1. **With a gross domestic product (GDP) of US$614 billion, Argentina was the third-largest economy in Latin America in 2022.** The country has 2.8 million square kilometers, and its population of about 46 million inhabitants[1] is highly urbanized, with 92 percent living in cities. Argentina is a federal state; its 23 provinces and the Autonomous City of Buenos Aires preserve their autonomy under the national government. The Province of Buenos Aires constitutes 38 percent of the national population and generates close to 33 percent of Argentina's GDP.[2]

2. **The middle class has historically been large and strong, with social indicators generally above the regional average; however, persistent social inequalities, economic volatility, and underinvestment have limited the country's development.** The rate of urban poverty reached 39.2 percent in the second semester of 2022, and 8.1 percent of Argentines live in extreme poverty. Childhood poverty, for those under 15 years old, is at 54.2 percent. The high frequency of economic crises in recent decades—the economy has been in recession during 21 of the past 50 years—has resulted in an average annual growth rate of 1.8 percent, well below the world average of 3.6 percent and the regional average of 3.2 percent.[3]

3. **The economy recovered from the Coronavirus Disease (COVID) crisis at a fast pace, reaching pre-pandemic activity levels by mid-2021.** Argentina's economy grew by 10.4 percent in 2021 and 5.2 percent in 2022, the largest increase in GDP since the 2010-2011 biennium, after the global financial crisis. Higher commodity prices and trading partners' growth, notably Brazil's, combined with public investment led to a robust growth recovery in 2021 and the beginning of 2022. However, since 2022 increasing macro imbalances and a more turbulent global context, started to slow down the pace of GDP growth. The Government of Argentina has concluded the process of restructuring its debt in foreign currency (both local and external) with private creditors, significantly improving the maturity profile for the next five to eight years.

4. **In March 2022, Argentine authorities reached an agreement with the International Monetary Fund (IMF), on an Extended Fund Facility program for 30 months and an amount of US$44 billion, to address the economy's macroeconomic imbalances and set the basis for sustainable growth.** This amount covers the remaining obligations under the 2018 SBA (US$40.5 billion) and provided a small net financing support for reserves accumulation (US$4.5 billion). The program sets a gradual fiscal consolidation path toward a zero primary deficit in 2025 (from 3 percent in 2021 to 2.5 percent of GDP in 2022, 1.9 percent in 2023, and 0.9 percent in 2024), a reduction of monetary financing of the deficit (eliminated by 2024), and the framework for monetary policy involving positive real interest rates, as part of a strategy to fight inflation.

5. **The Executive Board of the IMF completed the fourth review of Argentina's Extended Fund Facility, allowing for an immediate disbursement of about US$5.4 billion in early April 2023.** Despite this, Argentina's

[1] https://www.censo.gob.ar

[2] The latest publication for provincial GDP figures by INDEC is for the year 2004. However, more recent updates by both private estimates and provincial statistics reflects a similar figure.

[3] Note that these numbers correspond to the Argentine national poverty rate. The "Indigence Line" or national severe poverty line is a threshold that establishes whether households have sufficient income to cover the Basic Food Basket. Households that do not exceed the indigence line are considered indigent. The "Poverty Line" extends the threshold to also include other basic non-food consumption. In both cases, household incomes are those collected by the Permanent Household Survey (EPH). Using the upper middle-income poverty rate threshold of US$6.85 per day, in 2021 14 percent of the population was living in poverty (World Bank. Macro Poverty Outlook, 2022).

macro-fiscal situation remains challenging. According to the IMF statement, prudent macroeconomic management in the second half of 2022 supported stability and helped secure program targets through end-2022 with some margin. Nevertheless, capital controls and deficit monetization continue to cause a large gap between the official and parallel exchange rates and limit foreign reserve accumulation. Inflation accelerated to historically high levels (104 percent year-over-year, as of March 2023), denting purchasing power. A severe drought is strongly affecting agricultural production in 2023, reducing exports and fiscal revenues while limiting the capacity of the Central Bank to accumulate international reserves. While the fiscal target for end-2022 has been met, the impact of the drought on fiscal revenue, among other factors, has caused the government to miss the original target by the end of March 2023.

6. **In this context, the government is increasing efforts toward a gradual macroeconomic stabilization program that contains a broad set of economic policies.** To reduce the monetary financing of the fiscal deficit and the associated persistent and high inflation, the government has adopted measures to reduce the cost of subsidies and improve their targeting, especially in the costly energy sector. In addition, it is taking steps to improve the ability of the customs administration to supervise and control the over invoicing of trade and other related distortions. In addition to addressing the urgent need for reserve accumulation, these measures should help pave the way for the eventual easing of foreign exchange controls.

7. **Finally, Argentina is also at high-risk of climate-related hazards.** Floods are the most frequent climate-related hazard representing 52 percent of the total natural hazards in the country. Approximately 14.2 million people live in flood-prone areas, with most of the exposed population located in the Greater Buenos Aires, Pampas, and Gran Chaco regions, accounting for 65 percent of the population.[4] Argentina suffers an average of US$1.08 billion each year in direct asset losses and US$3 billion in welfare losses due to floods.[5] From 2000 to 2011, flooding events affected 5.5 million people. The country is also vulnerable to wildfires, storms, landslides, droughts, and extreme temperatures.[6] Droughts have affected agricultural production in the country, impacting crops like wheat; and heatwaves have become more frequent, affecting mainly urban populations due to the heat island effect. Indeed, projected climate patterns show a temperature increase of 1.6°C by the 2050s, and by 3.3°C by the end of the century under a high emissions scenario, worsening climate extremes.[7] Overall, Argentina ranks among the ten emerging economies most vulnerable to climate change.[8]

[4] Ministerio de Salud, Argentina. Clima y Salud en Argentina: Diagnóstico de situación 2019. Extracted from: https://bancos.salud.gob.ar/recurso/clima-y-salud-en-la-argentina-diagnostico-de-situacion-2019

[5] Hallegatte, Stephane; Vogt-Schilb, Adrien; Bangalore, Mook; Rozenberg, Julie. 2017. Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. Climate Change and Development. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/25335; Hallegatte, Stephane; Rentschler, Jun; Rozenberg, Julie. 2019. Lifelines: The Resilient Infrastructure Opportunity. Sustainable Infrastructure. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/31805.

[6] Emergency Events Database, https://www.emdat.be/.

[7] https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15850-World Bank_Argentina%20Country%20Profile-WEB%20%281%29.pdf

[8] World Bank (2018). ARGENTINA: Escaping crises, sustaining growth, sharing prosperity. Extracted from: *https://documents1.worldbank.org/curated/en/696121537806645724/pdf/Argentina-Escaping-Crises-Sustaining-Growth-Sharing-Prosperity.pdf*

B. Sectoral and Institutional Context

8. **There are large geographic variations in population density and in unmet basic needs[9] in the Province of Buenos Aires (PBA).** Its population is unevenly distributed across 135 municipalities (Figure 1). About 80 percent of the population lives in only 33 of them, the majority located in the north-east of the province, around the city of Buenos Aires. In these municipalities, the percentage of population with unmet basic needs is relatively high (Figure 2).

Figure 1: Population Density per square kilometer

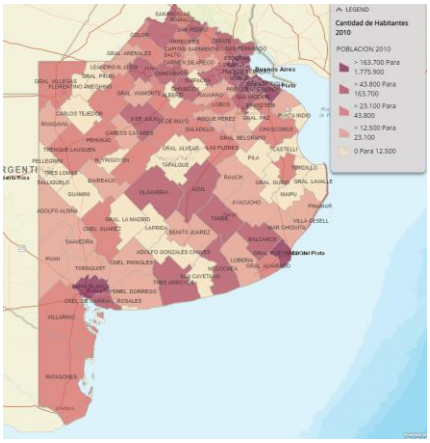
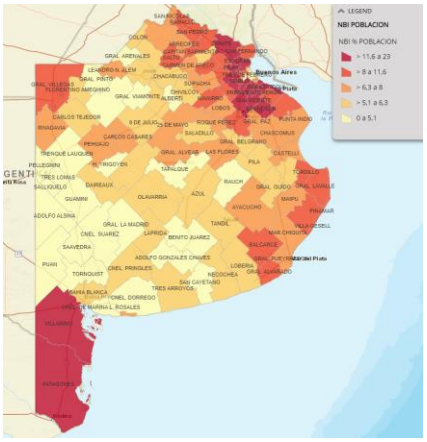


Figure 2: Population with Unmet Basic Needs (%)



Source: Provincial Directorate of Statistics based on population census 2010
https://www.arcgis.com/apps/MapSeries/index.html?appid=395440ebad024747acb54ff692374718

9. **Reflecting this large variability, health outcomes in the province are highly unequal, despite large improvements over time.** Infant mortality rate and life expectancy at birth in the province have been improving steadily and remain close to Argentina's averages (Figure 3). However, both infant and overall mortality rates vary substantially across municipalities (Figure 4). In poor rural municipalities, infant and maternal mortality remain high relative to other areas, mainly due to limited access to health services.[10] Nonetheless, chronic noncommunicable diseases (NCDs) are the main causes of death and disability in the province, disproportionately affecting the poor people. In 2019, cardiovascular diseases and tumors represented 50 percent of the deaths in the province.[11] Adults living in the urban poor areas lose more years to premature mortality (years of life lost) than other adults living in the province, years lost mainly to NCDs such as cardiovascular diseases.[12]

[9] In this document, Unmet Basic Needs (UBN) is used as a proxy for poverty since poverty indicators are only available for urban conglomerates. Households with UBN are defined as those with at least one of the following deprivation indicators: an inconvenient type of dwelling; no toilet or with a toilet without water discharge; with more than three people per room; have at least one child of school age who does not attend school; have four or more people per employed member, whose head has not completed the third primary school grade. Source: http://www.estadistica.ec.gba.gov.ar/dpe/Estadistica/ANUARIO%202021/Definiciones/Definiciones.html

[10] ASIS Report 2022. Report prepared by the Provincial Ministry of Health *"Análisis de Situación de Salud de la Población en la Provincia de Buenos Aires",* https://www.ms.gba.gov.ar/sitios/media/files/2022/07/INFORME-ASIS-PBA-baja-resolucion.pdf Latest access on October 3rd, 2022.

[11] Calculations based on official data published by Dirección de Estadísticas e Información de la Salud (DEIS). Data can be found at: http://deis.msal.gov.ar/estadisticasvitales/

[12] ASIS Report 2022 Report prepared by the Provincial Ministry of Health *"Análisis de Situación de Salud de la Población en la Provincia de Buenos Aires",* https://www.ms.gba.gov.ar/sitios/media/files/2022/07/INFORME-ASIS-PBA-baja-resolucion.pdf Latest access on October 3rd, 2022.

Figure 3: Infant Mortality Rate and Life Expectancy. 1990-2020. Argentina and PBA.

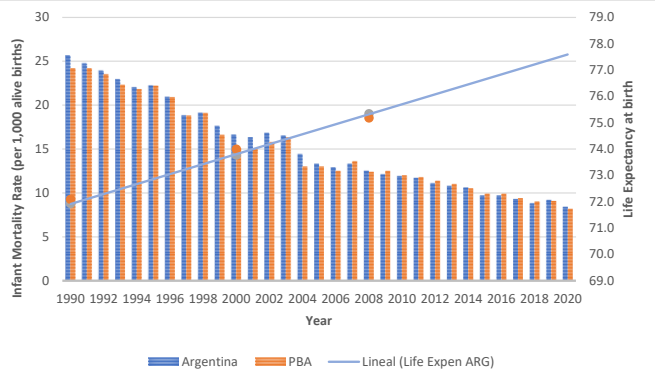
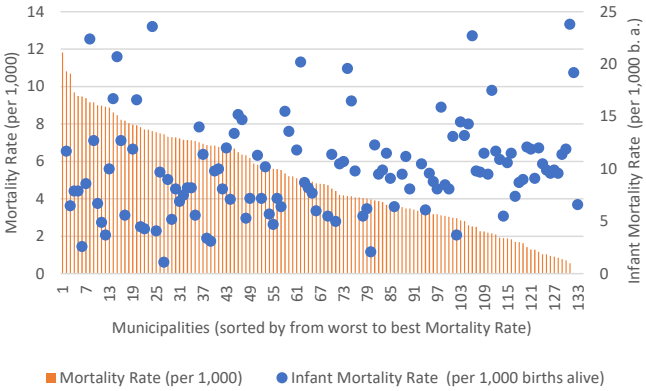


Figure 4: Infant Mortality Rate and Mortality Rate in PBA Municipalities.



Source: National Directorate of Health Statistics and Information (DEIS), National Institute of Statistics and Census (INDEC). Demographic Analysis Program for data on Life Expectancy. PMOH, Health Information Directorate (DIS) for data at municipal level. Note: Mortality rates refer to 2016, latest year available

10. **Improving health outcomes in the province requires improving access to quality health services, particularly for those residents who rely exclusively on the public delivery network and are thus more likely to be poor.** Access to health insurance in Argentina is linked to participation in the formal labor market. About 59 percent of the population in the province has social or private health insurance and receives health services from private providers. The rest of the population only has access to public health facilities; this population is not engaged in formal employment and is thus more likely to be poor. Indeed, in each municipality, the share of the population with exclusive public coverage increases with the share of the population with unmet basic needs; this coverage varies from 10 to 80 percent of the population.

11. **People that rely exclusively on the public system have lower coverage of essential health services, particularly for NCD-related services, than people with social or private insurance.** The percentage of adults in the province that have received NCD screening and control services tends to be lower among those with exclusive coverage from the public health delivery network (Table 1).

Table 1: Screening and Control Services for NCDs in the PBA by type of health insurance coverage, 2018

	Only Public Coverage	Insured
High blood pressure control test in adults aged 18 and above	29.6%	34.9%
High blood glucose control test in adults aged 18 and above	69.0%	84.0%
Women aged 50-70 receiving a mammogram	29.5%	53.0%
Women aged 25-65 with cervical cancer screening in the last two years	64.8%	77.1%
Received any treatment for controlling high blood pressure	30.2%	57.1%
Received any treatment for controlling cholesterol	28.6%	49.5%
Received any treatment for controlling diabetes or high blood glucose	49.9%	49.5%

Source: Estimates based on analysis of the Fourth National Risk Factors Survey, 2018

12. **There are also gender differences in coverage of essential services in the PBA; although women are more likely to receive screening services for NCDs than men, they are less likely to receive related treatments to help them control these diseases[13] (Table 2).** In the case of specific cancers that mainly affect women, cervical and breast cancers, the coverage of screening and management services remains low, particularly for those relying exclusively in the public delivery network (Table 1).

Table 2: Screening and Control Services for NCDs in the PBA by sex, 2018

	Men	Women
High blood pressure control test in adults aged 18 and above	31.1%	35.4%
High blood glucose control test in adults aged 18 and above	74.8%	84.0%
Received any treatment for controlling high blood pressure	52.3%	48.2%
Received any treatment for controlling cholesterol	50.5%	41.2%
Received any treatment for controlling diabetes or high blood glucose	56.1%	44.3%

Source: Estimates based on analysis of the National Risk Factors Survey, 2018

13. **This lower coverage of essential services in the province denotes not only problems with access to services, but also lack of coordination and continuity of care that results in poor quality health services**. For instance, a large share of patients that have been diagnosed with chronic conditions, such as diabetes and hypertension, do not receive treatment (Table 1). Additionally, according to the Fourth National Risk Factor Survey, in 2018 most diabetics did not receive the needed diagnostic exams to avoid future complications (i.e., diabetic retinopathy, diabetic foot); only 31 percent of diabetics in the province received a foot exam, 45 percent an eye exam, and 20 percent some education about diabetes. These percentages are likely to be lower among those exclusively covered by the public delivery network as is the case in the country. In addition, women with diabetes in the province are less likely than men to receive the needed controls for avoiding complications (Table 2). Only 23 percent of women with diabetes received a foot exam, 39 percent an eye exam, and 15 percent

[13] Women are less likely to receive treatments compared to men, conditional on having similar health insurance coverage. The results are not included due to the estimates' lack of precision.

education on diabetes. In contrast, 41 percent of men with diabetes received the foot exam, 52 percent the eye exam, and 25 percent education. According to medical protocols, these exams should be performed at least once a year. The low percentage of diabetics that receive these exams suggests lack of access to specialists, lack of an effective two-way referral system, or both. An effective two-way referral system enables communication between physicians at the same or different levels of care, guaranteeing optimal quality of care.

14. **Improving the quality of health services in the PBA is challenging since the fragmentation of the public health sector limits coordination and continuity of care**. The public service delivery network, the main provider of health care for households without health insurance, is decentralized. Primary Health Care (PHC) facilities are the responsibility of the municipalities, while hospital care is a provincial responsibility. This has generated challenges in the development of a well-functioning and integrated health network that can ensure the continuity of care for all patients. For instance, referrals and counter-referrals remain mostly informal and based on physicians/health personnel relationships with the referral center. Some municipalities, with provincial support, have tried to formalize their health networks, but often these networks do not extend beyond the municipality, generating inefficiencies, difficult access to specialist services, and poor quality of care. Additionally, the health management and information systems in the province mirror the sector's fragmentation and do not effectively contribute to better coordination and the formation of integrated networks. The different health information systems do not fully interact across levels of government, levels of care, or subsystems; the records often belong to different jurisdictions. In addition, different health programs have created a multitude of management and information systems that often duplicate efforts, are not interconnected, or cannot be easily accessed, while some remain paper based.

15. **For the public health delivery system to be able to provide quality services, health professionals and health services need to be coordinated across levels of care, among different health professionals, and among services (e.g., laboratory and diagnostic imaging). There should also be continuity of care for the same patient across services and through time.**[14] This is particularly the case for patients with NCDs, who require coordinated and continuous care for long periods to ensure disease management and avoid complications. The continuity and coordination of services in the province are particularly weakened by fragmented information systems that limit the sharing of patient's information across providers, between patients and providers, and across levels of care (referrals from PHCs to hospitals as well as counter-referrals are limited).

16. **The lack of coordination and continuity often results in ineffective care, including discontinuation of treatments and medical errors; as well as gaps and duplications that generate waste (e.g., lab tests, diagnostics).** One example of this is that of cervical cancer care, where Argentina's age-standardized five-year survival rate (53 percent) is among the lowest in Latin America and the Caribbean.[15] In the PBA, about 35 percent of women aged 25 to 65 years with exclusive public health coverage had not received screening for cervical cancer in the last two years.[16] Among those that have received one, many do not obtain the results or receive treatment in a timely

[14] According to WHO, care coordination is "a proactive approach to bringing together care professionals and providers to meet the needs of service users, to ensure that they receive integrated, person-focused care across various settings; and continuity of care refers to "the extent to which a series of discrete health care events is experienced by people as coherent and interconnected over time and consistent with their health needs and preferences". See: http://apps.who.int/iris/bitstream/handle/10665/274628/9789241514033-eng.pdf?ua=1

[15] Five-year net survival refers to the cumulative probability of cancer patients surviving five years after diagnosis, after correction for the risk of death from other causes, which varies widely between countries, over time, by age and sex. See https://www.oecd-ilibrary.org/docserver/6089164f-en.pdf?expires=1666012293&id=id&accname=guest&checksum=2DA0F128E24EE3737BC90C18E7946349

[16] World Bank calculation based on Encuesta Nacional de Factores de Riesgo (2018)

manner. According to a research study carried out in one of the most vulnerable areas of the PBA, the Florencio Varela Municipality, the main reason provided for abandoning treatment was related to the organization of the health system, mostly linked to delays in receiving results.[17] Women that were screened in a PHC facility were more likely to abandon treatment than those that received the test in a hospital, suggesting weaknesses in the coordination and continuity of care. Women also mentioned lack of time for treatment linked to housework and the care of children. Similarly, in the case of breast cancer, according to the Provincial Cancer Institute (*Instituto Provincial del Cancer, IPC*) women with this condition with exclusive public coverage, on average wait 31 days to receive the medication for their treatment. Women with breast cancer currently have no choice but to take their paper prescriptions to the local drug bank and/or make frequent calls to the drug bank to check if the drug is ready for pickup.

17. **Timely access to specialist care is particularly challenging in the province.** Most physician specialists practice in large urban centers, often providing services in large hospitals. Thus, access to these services for those located outside these urban areas is difficult. The lack of an integrated provincial health network, with integrated information systems, often generates barriers to even accessing a nearby referral service if the service is provided by a health facility from a different municipality from the one where the patient resides. This is because the provider of origin does not have access to the consultation schedule for the referral provider; they often do not even have information about where the service can be provided outside the municipality. This lack of a fully integrated provincial network limits opportune treatment, since patients are frequently left to figure out for themselves where to find a particular specialist service, or they must wait for services that could be provided in a timely manner in a nearby provider of a different municipality or province.

18. **In these cases, telemedicine can help deliver more cost-effective health services, improving patient outcomes and reducing the cost of care**. Telemedicine can be defined as using telecommunications technologies to support the delivery of all kinds of medical, diagnostic, and treatment-related services.[18] For example, this includes conducting diagnostic tests, closely monitoring a patient's progress after treatment or therapy, and facilitating access to specialists that are in a different location.

19. **Climate change is posing additional threats to the provincial health system.** Effects of climate change in the Metropolitan Area of Buenos Aires (AMBA)[19] are noticeable, in the form of increased cases and risks of flash or surface flooding, heatwaves, and wind gusts accompanied by precipitation. Annual average precipitation in AMBA has increased by 29 percent between 1961-1970 and 2011-2014. Rainfall intensity and the number of days with extreme rainfall levels (over 30 mm per event) have also increased over time. Floods are expected to cause at least US$700 million in economic losses every year in Argentina, with AMBA accounting for 35 percent of all these losses.[20] Mean annual temperature in the project location is projected to increase by 0.5°C to 1°C in medium

[17] The research study took place in the municipality of Florencia Varela with a total population of 426 thousand inhabitants. This municipality exhibits one of the higher cervical cancer death rates area (16 per 100,000 women in 2009–2011), more than twice the national rate (7.2 per 100,000 women in the same period). The municipality has 36 centers of primary health care (PHC), a General Hospital with a laboratory cytology and pathology, and a cervical pathology service and a diagnosis and treatment center in one of the PHCs. Screening, diagnosis and treatment are free of charge.
Available at: https://iris.paho.org/bitstream/handle/10665.2/8665/v34n6a10.pdf?sequence=1&isAllowed=y

[18] See: *https://www.fcc.gov/general/telehealth-telemedicine-and-telecare-whats-what*

[19] AMBA includes the City of Buenos Aires as well as 40 municipalities of the PBA that are close to the City of Buenos Aires. This area is home to more than 14.8 million of Argentineans.

[20] *https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15850-World Bank_Argentina%20Country%20Profile-WEB%20%281%29.pdf*

term.[21] An increase of 2 to 15 days in the year with heatwaves is to be expected. These changes in extreme temperature may induce heat stress among the Project's target population, increasing mortality and morbidity for the most vulnerable, especially the elderly, children, and pregnant women. Projected increases in seasonal rainfall, total runoff, and the proportion of rainfall in heavy events will have profound implications for flooding. These increases in rainfall and flooding may encourage the growth and survival of vectors and moderately increase the prevalence of dengue and chikungunya fever among the Project's target audience. Indeed, in early April 2023, the Provincial Ministry of Health (PMOH) alerted about a large dengue outbreak[22] as almost 1200 cases were reported. Some cases of chikungunya fever were also reported (217 autochthonous cases, out of 314 cases). Populations living around irrigated areas are nearly six times more at risk. Finally, these extreme weather events also lead to increasing damages to health care facilities, sometimes disabling them completely at times when their services are most needed. These events cause severe disruptions to access and continuity of care, by limiting the mobility of healthcare workers and patients, and damaging equipment, infrastructure, and paper-based health records.

20. **In this context of increase in frequency and severity of extreme weather events, the province needs to better adapt health services to prepare and protect the population, while ensuring access and continuity of care.** To reduce the risks of disruptions in health care services, a critical action is to ensure health records and patient data are not lost and can still be accessible during extreme weather events, and that services are still available to allow for continued support under these situations. In addition, digital health and communication technologies can play a critical role in collecting data, monitoring disease patterns, generating early risk assessments, warning vulnerable populations of potential risks from climatic and geophysical hazards, initiating investigation and control activities and can facilitate the delivery of care and medical services to remote or resource-limited areas during disasters and provide a platform for community data sharing and raising awareness of such risks.[23]

Province of Buenos Aires Digital Health Agenda

21. **To address these challenges the Provincial Government developed a Five-Year Health Plan 2023-2027,[24] aimed at guaranteeing the right to health, as well as the 2022-2027 Provincial Digital Health Agenda (*Programa Salud Digital Bonaerense*), which serves as an anchor to the Plan.[25]** The Health Plan aims at developing a comprehensive and integrated public health care network to ensure timely access and continuity of care for patients, even during climate related events. The Plan recognizes the role of the management and information system as a key enabling factor to enhance health processes and ultimately achieve better health outcomes. As stated by the World Health Organization, "an information system integrated within the institutional workflow has

[21] https://www.argentina.gob.ar/sites/default/files/pnaymcc_-_version_integral_con_medidas_-_28.11.2022.pdf
[22] For more details, see:
https://www.gba.gob.ar/saludprovincia/noticias/dengue_y_chikungunya_salud_alerta_sobre_casos_y_pide_intensificar_los
[23] Hania Rahimi-Ardabili, Farah Magrabi, Enrico Coiera, Digital health for climate change mitigation and response: a scoping review, Journal of the American Medical Informatics Association, Volume 29, Issue 12, December 2022, Pages 2140–2152, *https://doi.org/10.1093/jamia/ocac134*
[24] *Plan Provincial de Salud. Líneas Estratégicas e Indicadores para el Monitoreo de las Políticas de Gobierno en Salud de la Provincia de Buenos Aires.* Mayo 2022. Also known as "Plan 6x6".
[25] *Plan Estratégico. Implementación del Programa Salud Digital Bonaerense 2022-2027.*
https://www.ms.gba.gov.ar/sitios/saluddigitalbonaerense/files/2022/11/Resumen-del-Plan-Estrategico-de-Implementaci%C3%B3n-del-Programa-Salud-Digital-Bonaerense-2022-2027.pdf

the potential to promote better disease management, improve quality of care, prevent complications, decrease health expenditure, and inform policies".[26]

22. **The Digital Health Agenda aims at improving access, coordination, and continuity of care, including during climate related emergencies in the public health delivery network through the inclusion of information and communication technology (ICT)**.[27] The strategy seeks to implement an interoperable digital health ecosystem in the province that includes: (i) electronic medical records[28] (EMRs) at the point of care; (ii) digital medical imaging, laboratory, and pharmacy; (iii) a telemedicine[29] management platform; and (iv) a Citizen's Web Portal.[30] The ecosystem will enable the secure exchange of timely clinical data across providers, contributing to the coordination and the continuity of care throughout the public health network. The program seeks to guarantee the integration of health information systems, the strengthening of coordination and continuity of care, including during extreme weather situations, access to services, and the overall improvement of health care processes. To ensure the implementation of the digital agenda, the province will provide the necessary equipment, will offer training courses for the use of digital tools, will improve connectivity across health facilities, and will update information systems to include new functionalities. The strategy will allow health facilities to systematically store and access high quality data and avoid duplicate registries and paper records. The system will also streamline administrative processes. Finally, the digital agenda will help patients avoid repeating health studies, access appointments electronically, and access specialist care that otherwise would be very difficult, particularly under extreme weather situations, such as heatwaves, for those most vulnerable.

23. **The Government of the PBA has requested World Bank support for the gradual implementation of the Digital Health Agenda**. In 2022, a pilot program, financed with government's resources, expanded EMRs in 6 municipalities covering 221 municipal health facilities and 37 provincial hospitals.[31] The proposed Project will support the expansion of EMRs in another 30 municipalities, contributing to achieving the medium-term goal of 810 health facilities with EMRs implemented by 2027 and covering about 55 percent of the total yearly health consultations. Since most municipalities do not have their own EMR development or software service agreement, the provincial government offers an open-source solution: the Integrated Health Record (IHR).[32] The IHR will

[26] Global strategy on digital health 2020-2025. Geneva: World Health Organization;2021. License: CC BY-NC-SA 3.0 IGO.
[27] https://www.ms.gba.gov.ar/sitios/saluddigitalbonaerense/institucional/salud-digital-bonaerense/
[28] According to the Office of the National Coordinator for Health Information Technology "The EMR represents the ability to easily share medical information among stakeholders and to have a patient's information follow him or her through the various modalities of care engaged by that individual." See *https://www.healthit.gov/buzz-blog/electronic-health-and-medical-records/emr-vs-ehr-difference*
[29] Telemedicine can be defined as using telecommunications technologies to support the delivery of all kinds of medical, diagnostic and treatment-related services usually by doctors. For example, this includes conducting diagnostic tests, closely monitoring a patient's progress after treatment or therapy and facilitating access to specialists that are not located in the same place as the patient. See: https://www.fcc.gov/general/telehealth-telemedicine-and-telecare-whats-what
[30] *Portal de la Ciudadanía en Salud PBA.* Agenda Digital en Salud. Ministerio de Salud. Provincia de Buenos Aires. Argentina. The Web Portal was initially developed for the reporting of symptoms and visualization of vaccination appointments against COVID. See https://vacunatepba.gba.gob.ar/# A formal registration from the user is needed to access the Citizen Portal at *https*://sso.gba.gob.ar/web/login/SALUD
[31] Boletin Mensual Programa Salud Digital Bonaerense available at https://www.ms.gba.gov.ar/sitios/saluddigitalbonaerense/files/2023/02/Bolet%C3%ADn-N%C2%B0-8-DICIEMBRE-2022-.pdf. The 6 municipalities that already started the EMRs implementation are: Berisso, Admiral Brown, Moreno, Mercedes, San Nicolás and Quilmes
[32] The IHR was initially developed by the National Ministry of Health jointly with the Universidad Nacional del Centro from PBA. The IHR is a platform that allows the integration of different EMRs and other services and sources of information (e.g., identification of patients, schedules, etc.) thus playing the role of an EHR (Electronic Health Record) that shows a holistic picture of a patient's health and allows data exchange between providers' EMRs. A complete description of IHR and related technical documents can be found here: *https://www.argentina.gob.ar/salud/digital/hsi* and *https://hsi.pladema.net/*

provide ambulatory and hospitalization modules that will play the role of EMRs. This strategy provides a critical push for wider EMR adoption in health facilities but does not close the door for the implementation of other solutions available in the market.[33] The geographical and functional IHR expansion keeps creating an open ecosystem of systems, components, and modules that will allow cooperation and data exchange between IHR core components and other systems. The Project will also provide technical assistance to five additional municipalities that already implemented other EMR solutions, to align these solutions with interoperability standards. In this way, there will be a total of 35 municipalities participating in the project. These municipalities were selected to cover a large share of vulnerable population (see Annex II for more details).

24. **The support will build on the lessons learned from the implementation of two World Bank financed projects**. The Supporting Effective Universal Health Coverage in Argentina (P163345) and Protecting Vulnerable People against Noncommunicable Diseases Project (P133193) have financed the strengthening of management and information systems, supporting the development of regulations, guidelines, and infrastructure at national and provincial level. The proposed Project also complements the preparation of a new Program for Results with the national government, the Program for Effective Universal Health Coverage and National Health System Integration (P179595), as it will support the national Ministry of Health (MOH) in strengthening the National Digital Health Network to continue developing standards, dictionaries, and regulations for ICT.[34] The National Interoperability Bus – a central structure for information exchange – as well as standards, dictionaries and regulations are key to implement EMRs and telemedicine solutions at the provincial level.

25. **IHR and other health personal data are stored in the provincial cloud, which complies with the national cybersecurity standards; the province is also part of the National Digital Health Network,[35] adopting national interoperability standards.** The Bank has assessed these national standards in the Digital Inclusion and Innovation in Public Services Project (P174946) and in Strengthening Data Infrastructure to Close the Digital Gap in Argentina Project (P178609) and found them acceptable. In the province, the Digital Government Sub-secretariat (*Subsecretaría de Gobierno Digital*)[36] is the authority responsible for the cybersecurity program. Following cybersecurity policies, the provincial government created the Computer Security Incident Response Team (CSIRT),[37] a group of experts dedicated to developing, preventing, and reacting against any information system security incidents. In addition, as the province is part of the National Digital Health Network, it uses the national infrastructure for health record indexes, reference registries, and patient identification.[38] To transfer relevant information to and from both IHR and other EMR systems, the province relies on the National Interoperability Bus.

[33] The strategy is being implemented following national interoperability standards, see below for more details.
[34] For a detailed list of activities to strengthen the Nation Digital Health Network, see at: https://www.argentina.gob.ar/salud/digital/red/etapas
[35] The National Digital Health Network (Red Nacional de Salud Digital) aims at ensuring the interoperability of the Health Information Systems throughout the country. The Network is made up of "nodes", which represent independent health information systems, used at provincial, municipal or Health Facilities level. Each "node" has a Patient Identification System and is own data repository. For more details see: https://www.argentina.gob.ar/salud/digital/red
[36] https://www.gba.gob.ar/gobiernodigital https://www.ciberseguridad.gba.gob.ar/
[37] CSIRT-PBA was created by "Resolución 97/19 2019"
[38] See *https://www.*argentina.*gob.ar/salud/digital* for additional details on national infrastructure and interoperability standards.

C. Relevance to Higher Level Objectives

26. **The proposed Project is aligned with national and provincial governments' strategies to advance a digital health transformation to support the country's progress toward universal health coverage and promote efficient, effective, and quality health service delivery**. The project will support the digital health agenda and its main objectives of extending EMRs and developing telemedicine interventions in the province. Both objectives ultimately aim at improving access to health services and service delivery processes that contribute to the quality and efficiency of provincial health services.

27. **The Project contributes to the World Bank Group's twin goals of reducing poverty and promoting shared prosperity and is aligned with its Global Crisis Response Framework (GCRF), underpinned by its Green, Resilient, and Inclusive Development Agenda.** It contributes to the twin goals by improving access and quality of health services for the population not covered by health insurance in the province, where 6 million people live in poverty (about 57 percent of Argentina's poor people). The Project is also aligned with three of the four pillars of the Global Crisis Response Framework and is also aligned with the Latin America and the Caribbean Climate Roadmap. In line with pillar 2 of the GCRF, Protecting People and Preserving Jobs, the Project supports the provision of quality essential health services to the population with exclusive public health coverage (i.e., not covered by social security or private health insurance). In line with pillar 3 of the GCRF of Strengthening Resilience as well as with the Latin America and the Caribbean Climate Roadmap, it includes investments aimed at increasing the climate resilience of health services and vulnerable populations. These investments include the digitalization of clinical records, supporting the provision of remote health services through telemedicine tools, and supporting the identification of patients most at risk in case of an impending extreme climate event, as detailed in the Argentina Country Climate and Development Report.[39] Finally, in line with pillar 4 of the GCRF, Strengthening Policies, Institutions and Investments, it supports the well-functioning of the health system using digital tools to improve access and the coordination and continuity of care which are essential to ensure the effectiveness of health services.

28. **The proposed Project is aligned with World Bank Group FY19-22 Country Partnership Framework (CPF)[40] for the Argentine Republic discussed by the Executive Directors on April 25, 2019, and revised by the Performance and Learning Review (PLR)[41] on May 24, 2022; this PLR extended the CPF to Fiscal Year 2024**. It supports Focus Area 2, "Strengthening Service Delivery to Protect the Poor and Vulnerable". Specifically, it will contribute to Objective 4, "improving access to basic service delivery in vulnerable areas" by: (i) extending EMRs and thus improving access and continuity of care; (ii) increasing access to remote specialist consultations through the telemedicine pilot; and (iii) increasing access to information and basic consultations through teleconsultations and a web-portal. Additionally, the Project contributes to Objective 5, "improving human capital of vulnerable populations", by strengthening access and quality of essential services needed to protect and build human capital. Finally, the Project is well aligned with Objective 6 of this policy area, "improving governance and transparency", by extending and integrating health information systems in the province.

[39] https://openknowledge.worldbank.org/entities/publication/0208826f-8ca9-5fa1-8e94-0eadd09ef29c
[40] Report No. 131971-AR, World Bank.
[41] Report No. 170668-AR, World Bank.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

29. The proposed Project's Development Objective (PDO) is to increase access to health services and improve coordination and continuity of care in the public healthcare network of the Province of Buenos Aires.

PDO Level Indicators

30. The proposed PDO level indicators are:

(a) Percentage of consultations properly registered in the IHR, by gender.
(b) Percentage of women 25 to 64 years old with positive cervical cancer screening that have received a colposcopy or have a scheduled colposcopy consultation within a three-month period.
(c) Percentage of diabetics that received an eye fundus exam through the tele-ophthalmology strategy.

B. Project Components

31. **The Project has three components:** (i) Strengthening the Implementation of Electronic Medical Records/ Integrated Health Record (IHR); (ii) Developing and Implementing Virtual Tools for Health Provision and Communication; and (iii) Project Management.

32. **Component 1: Strengthening the Implementation of Electronic Medical Records (EMRs)/ Integrated Health Records (IHRs) (US$39.14 million).** The implementation of this component will improve integration, coordination, and continuity of care. Health professionals will have relevant clinical data (including laboratory results, medical diagnostic imaging, and prescribed medication) readily and securely accessible for clinical informed decision-making. The implementation of this component will also help protect the patient's information from destruction caused by extreme events linked to climate change or other situations (e.g., flooding, pests). Since digitalized records can be accessible regardless of location, the care for patients displaced by climate-related or other adverse events will not be disrupted. Additionally, electronic records facilitate the identification of patients at risk and allow the health system to better prepare them in case of an impending adverse event (e.g., patients at higher risk in case of a heatwave, such as the elderly or those with heart conditions). As climate change impacts become more severe and frequent in the province, this component will directly support the capacity of health facilities in providing care without disruptions. This component is divided into the following three subcomponents:

33. ***Subcomponent 1.1. Adopting IHR in public health facilities of municipalities and provincial hospitals (US$34.35 million)****:* Under the umbrella of the Digital Health Agenda, this component will expand the utilization of IHR in PHC facilities in 30 municipalities in the province and in public provincial hospitals. The implementation will be scaled-up at municipal level in three phases between 2023-2026 (Figure A2.1). Within each municipality, five PHC facilities will be initially selected for IHR implementation. By the end of the Project, there will be 150 PHC facilities with IHR implemented. The IHR implementation in provincial hospitals is also planned as a gradual process, starting in 13 hospitals during the first year, for a total of 40 provincial hospitals by the end of the Project.

Data storage is centralized in the provincial cloud, supported by the Strategic Plan for the Modernization of the Public Administration of the Province of Buenos Aires,[42] which complies with the national cybersecurity standards.

34. This subcomponent will directly support the continuity of care during adverse climate or other events, and thus it is aligned with Pillar 3 of the GCRF. Digitalization of health records and their storage in a cloud facilitates access to health records in the event of a climate disaster (e.g., flooding). There are also backup systems in place that prevent data loss. Digitalization will also reduce the need to rely on paper records, saving printing paper. Since EMRs improve coordination and continuity of care, it is also closely aligned with Pillar 2 of the GCRF.

35. ***Specifically, subcomponent 1.1 will finance goods, consultancy services, non-consultancy services, and training for, inter alia, the following:***

(a) Equipment: This will include, inter alia, computers, printers, tablets, barcode readers and television screens. All equipment procured will have an Energy Star type efficiency label,[43] since there is no energy efficiency label for computers in Argentina. Good practices for the use of low consumption equipment will also be followed. This equipment will be distributed, inter alia, in health facilities' admissions, medical offices, and diagnostic imaging, laboratory, and pharmacy areas.
(b) Connectivity: Network adaptations or high-range wireless network using Wi-Fi 6 technology to assure connectivity in provincial hospitals.[44]
(c) Training: of health workers on the use of IHR; this training will also support the change management process.[45]
(d) Human resources: Provincial implementation team.

36. ***Subcomponent 1.2: Promoting interoperability across health information systems of municipalities (US$1.19 million).*** For five municipalities that developed their own EMR or have a software service agreement, this component will finance consultancy services to support the development of the normative framework and technical solutions in ensuring the adoption of basic information system's quality and interoperability standards.[46] The EMRs in these municipalities and their data storage strategies must comply with quality and cybersecurity standards, which will be evaluated prior to implementation. The interoperability adaptation will only take place once the information system's quality and cybersecurity standards are compliant with those of the province. This subcomponent, by supporting the interoperability of existing EMRs with the rest of the provincial information systems, will support the continuity of care during adverse climates or other events, by allowing providers to access patient data remotely even when physical access to health records is not possible, and thus it is aligned with Pillar 3 of the GCRF. Since EMRs improve coordination and continuity of care, this subcomponent is also closely aligned with Pillar 2 of the GCRF.

37. **Specifically, this subcomponent will finance consultancy services for the following activities**:

(a) Technical Assistance: specialized professionals to provide technical assistance.
(b) Development of ICT solutions: including those needed for the interoperability of the EMRs with IHR.

[42] See https://www.gba.gob.ar/gobiernodigital and https://www.gba.gob.ar/gobiernodigital/nube_provincial for further details.
[43] The Best Available Technology for energy efficiency in this type of electronic equipment within the project location.
[44] Connectivity in municipal health facilities should be provided by the Municipality and is a pre-condition to implement IHR. This condition is signed in the Framework Agreement (Convenio) between the Municipality and the Province.
[45] Please see Annex 1 for a detailed description of the training format.
[46] Such as SNOMED CT (Systematized Nomenclature of Medicine – Clinical Terms), Fast Healthcare Interoperability Resources (FHIR), HL7 data, functional and quality standards, and clinical exchange documents through the National Interoperability Bus.

38. **The 35 municipalities (30 under subcomponent 1.1 and 5 under subcomponent 1.2) were selected to include a large share of the vulnerable population.** About 40 percent of people with exclusive public health coverage in the province live in these 35 municipalities (2.8 million people).[47] These municipalities also concentrate a higher percentage of people living with unmet basic needs (9.1 versus 8 percent in the remaining municipalities) who mainly depend on the public sector to access health services. These 35 municipalities are geographically distributed across 11 of the 12 provincial Health Regions (*Regiones Sanitarias*).[48] About 35 percent of the total public health visits and 30 percent of public hospital discharges in the province occur in health facilities located in the municipalities prioritized by the Project.

39. ***Subcomponent 1.3: Expanding IHR functionalities (US$3.60 million).*** This subcomponent will improve IHR functionalities with the development of new modules to integrate different health services and care levels to ensure coordination and information flows. By improving health processes that will eventually improve quality and efficiency, this subcomponent is aligned with Pillar 2 of the GCRF.

40. **Specifically, this subcomponent will finance consultancy services for, inter alia, the following functionalities:**

(a) Integration of IHR with Radiology Information Systems (RIS), Laboratory Information Systems (LIS), and pharmacy.
(b) The organization of a two-way digital referral system, and its integration with the digital appointment booking system.
(c) The development of a Clinical Decision Support System (CDSS) for health facilities. Based on clinical protocols, the CDSS will provide health professionals with automatic alerts and reminders on the patient's care, particularly those with NCDs.
(d) The development of a provincial dashboard. This dashboard will be a data visualization tool showing key performance indicators, consolidating, and organizing them on a single screen.

41. **There is a vast literature that provides evidence on how the digital health interventions financed by Component 1 will support continuity of care in a climate vulnerability context.** Digital health interventions are seen as "*a potential contributor to healthcare climate change adaptation and mitigation, through improved access to healthcare, reduced inefficiencies, reduced costs, and increased portability of patient information*".[49] Subcomponent 1.1 - adoption of IHR- and subcomponent 1.2 - promotion of interoperability across health information systems -will allow the instant access, availability, and portability of patient's health records. In a disaster setting, these features are essential to the continuity of care and management of ongoing health conditions for displaced populations. Once the Project is implemented, if health facilities need to evacuate due to extreme climate events, health professionals from any other health facilities will be able to access EMRs, and thus to patient medications and e-prescriptions, avoiding the discontinuity of medical treatments. Subcomponent 1.3- expansion of IHR functionalities- supports digital access to lab test results and reports, digital appointments, and

[47] Data from the updated roster of *SUMAR* Program. The nominal list of people with exclusive public health coverage maintained by SUMAR Program is verified by an external audit, and monthly updated by cross-checking through Single Registry of Health Insurances (Padron Unico de Obras Sociales).
[48] There is only one region excluded in the expansion of IHR, Region 9, but it is included in Component 2 of this project. This region concentrates less than 2 percent of total health visits of the province, one of the regions with the lowest population density.
[49] See Bhandari, D., Bain, C., Borda, A., Kariotis, T. C., & Reser, D. (2023). Lessons Learned from Natural Disasters around Digital Health Technologies and Delivering Quality Healthcare. International Journal of Environmental Research and Public Health, 20(5), 4542. https://doi.org/10.3390/ijerph20054542

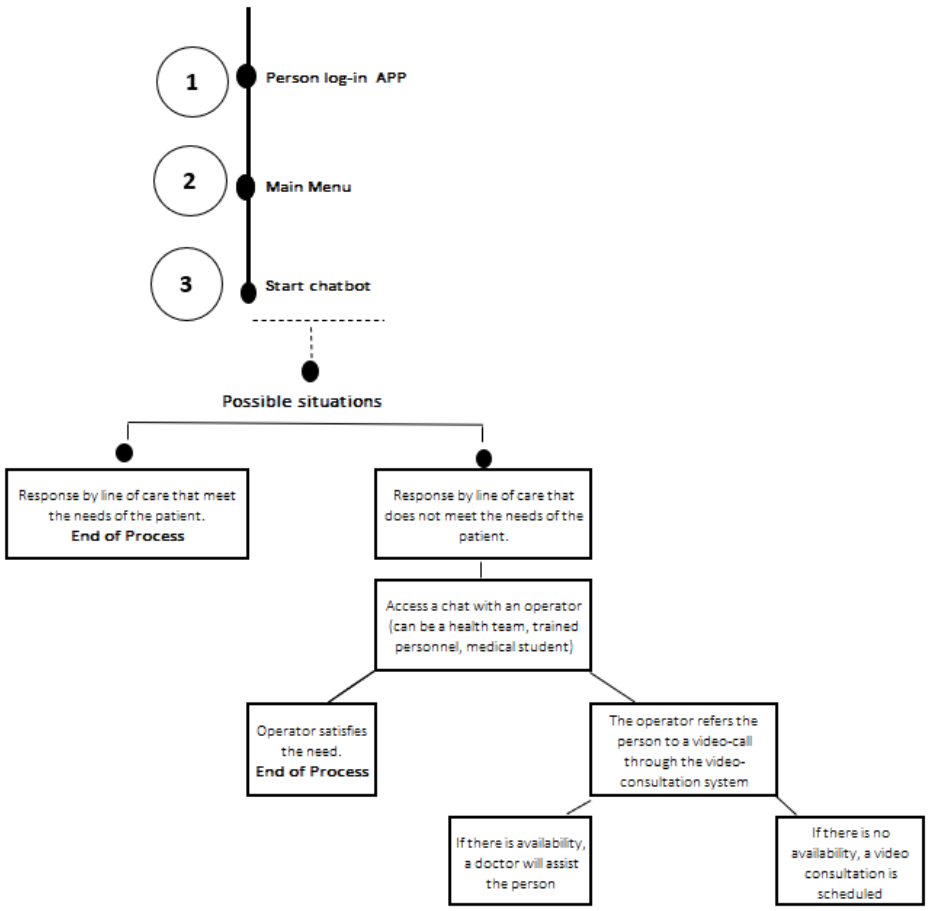
digital referrals. These health interventions will also reduce the environmental impact of the sector by reducing the need for patient travel, contributing both to population and environmental health. Avoiding the need to travel into a health facility reduces the net CO2 emissions of health services. Despite the difficulties of measuring all these impacts, some studies are showing that indeed the reduction in CO2 emissions is significant.[50]

42. **Component 2: Developing and Implementing Virtual Tools for Health Provision and Communication (US$10.59 million).** This component will finance telemedicine solutions aimed at improving access to services, particularly under situations that could pose higher risks to patients in commuting to a health care facility, for example under heatwaves, floodings, and pandemics. Telemedicine is defined as "the use of ICTs to deliver health care at a distance. Key elements of this definition are the use of ICTs, the delivery of clinical services, and the delivery at a distance".[51] Telemedicine can support the provision of health care remotely when it is difficult to physically access services, as was shown during the height of the COVID pandemic.

43. ***Subcomponent 2.1. Enabling a chatbot and implementing a virtual healthcare center (US$4.75 million)***. This subcomponent will support: (i) the development of a chatbot within the Citizen Web Portal[52] to provide information and guidance to citizens on prioritized lines of care. This chatbot will automatically provide recommendations and structured responses related to prioritized lines of care. It will also enable the possibility of interacting with a health worker (operator); (ii) the implementation of a virtual healthcare center, a telemedicine solution that will allow the patient to interact through a chat with trained health workers (operators) who will provide health counseling and risk triage. The operators, following a medical protocol, could also refer patients to a teleconsultation with a doctor of basic specialties (i.e., general medicine, internal medicine, pediatrics and/or gynecology) (Figure 5). Virtual care will not only improve access and timing by eliminating travel and providing care when needed, especially during climate related emergencies where access to a facility might not be possible, but it will also decrease hospital saturation, where patients often go for consultations and non-urgent spontaneous demand that can be resolved at lower levels. Finally, these solutions, particularly (i) and (ii), will provide in-time and reliable information and guidance to the population in case of adverse events such as heat stress, vector-borne diseases, and other epidemics, increasing population resilience to climate and other adverse shocks; therefore, this subcomponent is closely aligned with Pillar 3 of the GCRF. The provision of timely alerts and guidance to the population will reduce the exposure of vulnerable populations to climate related diseases and increase their resilience by advising on potentially dangerous activities (such as performing strenuous work outdoors during heatwaves) and providing knowledge of prevention and treatment options. This subcomponent is also aligned with Pillar 2 of the GCRF, since it improves access to essential health services.

[50] See *https://www.researchsquare.com/article/rs-1262007/v1* for specific example on measuring the reduction on net CO2 emissions due to digital health interventions.
[51] Tiago Cravo Oliveira Hashiguchi. Bringing Health Care to the Patient: An Overview of the Use of Telemedicine in OECD countries. OECD Health Working Paper Nr 116. https://www.oecd.org/els/health-systems/health-working-papers.htm
[52] Portal access uses biometric data and second authenticator factor to increase security. https://sso.gba.gob.ar/web/login/SALUD.

Figure 5: Flowchart telemedicine solution PBA



Source PBA Citizen Web Portal. Provincial Ministry of Health. Working Report, page 9.

44. **Specifically, this subcomponent will finance goods and consultancy services, as follows**:

(a) ICT equipment to implement the telemedicine solution.
(b) Human resources: health workers.
(c) ICT Consultancy services for the development and adaptation of the existing software, clinical protocols and patient pathways to this new healthcare service delivery model. Although there is a National Telehealth Program with its associated regulatory framework, the province needs to enforce regulations to improve adherence to "good practices in telemedicine care."

45. ***Subcomponent 2.2. Implementing a virtual network of PHC facilities with hospital specialists (US$5.84 million).*** Access to medical specialists will be expanded by strengthening the "network" of telemedicine consultations in PHC facilities. Physician specialists related to prioritized lines of care (such as oncology, diabetology, ophthalmology, gastroenterology, gynecology, among others) based in provincial or municipal hospitals will be virtually linked to PHC facilities. The presence of medical specialists is less frequent and difficult to access for those who live in remote areas, and for those that are most vulnerable in situations of extreme heat and other climate-related severe conditions. The virtual network will start as a pilot project in selected localities

in health regions with the lowest population density (Health Regions 1, 2, 8 and 9). These four regions represent 60 percent of the province's total geographic area and are home to about 20 percent of the total population, who are exposed to multiple climate stressors. For the implementation of the pilot, at least one location will be selected from each of these health regions. By improving access to essential health services, this subcomponent is closely aligned with pillar 2 of the GCRF. This activity is the first of its kind and intends to build climate resilience against extreme weather events to ensure business continuity. It does the latter by allowing patients to access services even when physical access is not safe or possible, while it also supports a large-scale transformation of service delivery.

46. **Specifically, this subcomponent will finance goods, training, and consultancies for the following activities**:

(a) ICT equipment: with tools for Telemedicine and consultations among health professionals.
(b) Training: for health professionals in the use of telemedicine.
(c) Software adaptation: for the consultations between health professionals.
(d) Human Resources: health workers

47. **The implementation of telemedicine solutions and virtual networks financed by the Project ensures continuity of care under climate-related disasters**. For instance, in flood-affected areas where health facilities are disrupted, telehealth can provide care continuation. Telemedicine can also be used to provide a preliminary assessment of the need for transport to an emergency room. That was the case during Hurricane Florence, where telemedicine solutions reduced transport for up to 35 percent of potential patients who will have otherwise gone to a hospital.[53] The usefulness of telemedicine in the immediate aftermath of disasters is also evident in the case of the provision of prescription refills.

48. **Component 3: Project Management (US$0.27 million).** This component will support the strengthening of the Executing Agency and Sub-executing Agency in everything related to their functions for implementing the Project**.** This component will finance consultancy services for Project management, including monitoring and evaluation. It will also finance financial and independent technical audits if needed, environmental and social management, and the Project's other operating costs. This component provides institutional strengthening support to the Provincial Ministry of Treasury and Finance (PMTF) and the PMOH and thus it is closely aligned with Pillar 4 of the GCRF. Also support the National Ministry of Economy (MECON) in it's the Strategic Evaluation of the Project.

49. **This Project has a strong focus on gender.** An analysis was conducted during Project preparation on gender disaggregated measures of utilization of key health services, particularly those related to screening and control of NCDs (

[53] See Vo, A.H.; Brooks, G.B.; Bourdeau, M.; Farr, R.; Raimer, B.G. University of Texas Medical Branch telemedicine disaster response and recovery: Lessons learned from hurricane Ike. Telemed. J. E-Health 2010, 16, 627–633.

50. Table 1 and

51. Table 2). Reducing identified gender gaps in coverage will be key under the Project and will be reflected in the Project's activities. For instance, the effort to implement EMRs in the province will support health providers in better identifying patients that will need screening services and thus can improve the screening rates among men. The EMRs will also improve coordination and continuity of care and thereby improve timely access to diagnostic tests results and better access to specialists for the continuation of treatment for patients. Additionally, the telemedicine pilot (Component 2, subcomponent 2.2) will also improve access to ophthalmologists for diabetes patients and will help decrease the gender gap in coverage. A particular effort will be made to ensure opportune access to care for women with cervical and breast cancer. By fostering early diagnosis and integrated health care within the public health system, the Project will contribute to addressing some of the barriers for cervical cancer screening and early diagnosis. To this end, activities to be supported (within Component 1) include the expansion of EMRs at health facilities, their linkages with the scheduling system, and the implementation of an electronic referral and counter referral system to ensure that women with a positive cervical cancer screening obtain a timely scheduled consultation for a colposcopy. In addition, the web portal targets women's specific needs during implementation. Similarly, the Project will ensure opportune access to medicines for women with breast cancer. Through the Project, while a doctor prescribes a drug treatment for women with breast cancer, the provincial drug bank will receive that prescription electronically (Component 1, through its three subcomponents). Once the relevant medicines arrive at the drug bank, through the Citizen Web Portal (Component 2, subcomponent 2.1), the patient will receive a message indicating that the medicine is available for pick up. Currently, women have to take their paper prescription to the provincial drug bank and must call and check if the drug is available. On average, it takes about 31 days from the moment the medication is prescribed to the moment the patient picks it up. Through the Project's activities, it is expected that this waiting time will be reduced, on average, to 20 days.

52. **All records containing personal data are in the provincial cloud, which complies with the national cybersecurity standards; the province is also part of the National Digital Health Network, adopting national interoperability standards.** The Bank has assessed these national standards in the Digital Inclusion and Innovation in Public Services Project (P174946) and in Strengthening Data Infrastructure to Close the Digital Gap in Argentina Project (P178609) and found them acceptable. In the case of municipalities with their own EMR, no activity will be financed if data use and storage do not conform with national regulations. In addition, personal data privacy is regulated by law 25,326 at federal level and law 14214 at provincial level which regulates access to information. Law 25,326,[54] the Personal Data Protection Law, also follows international standards and has been considered as granting adequate protection by the European Commission.

C. Project Beneficiaries

53. **The Project will directly benefit 6.5 million people exclusively covered by the public health system living in the PBA, 48 percent of them are women**. The direct beneficiaries are about 41 percent of the province's population.

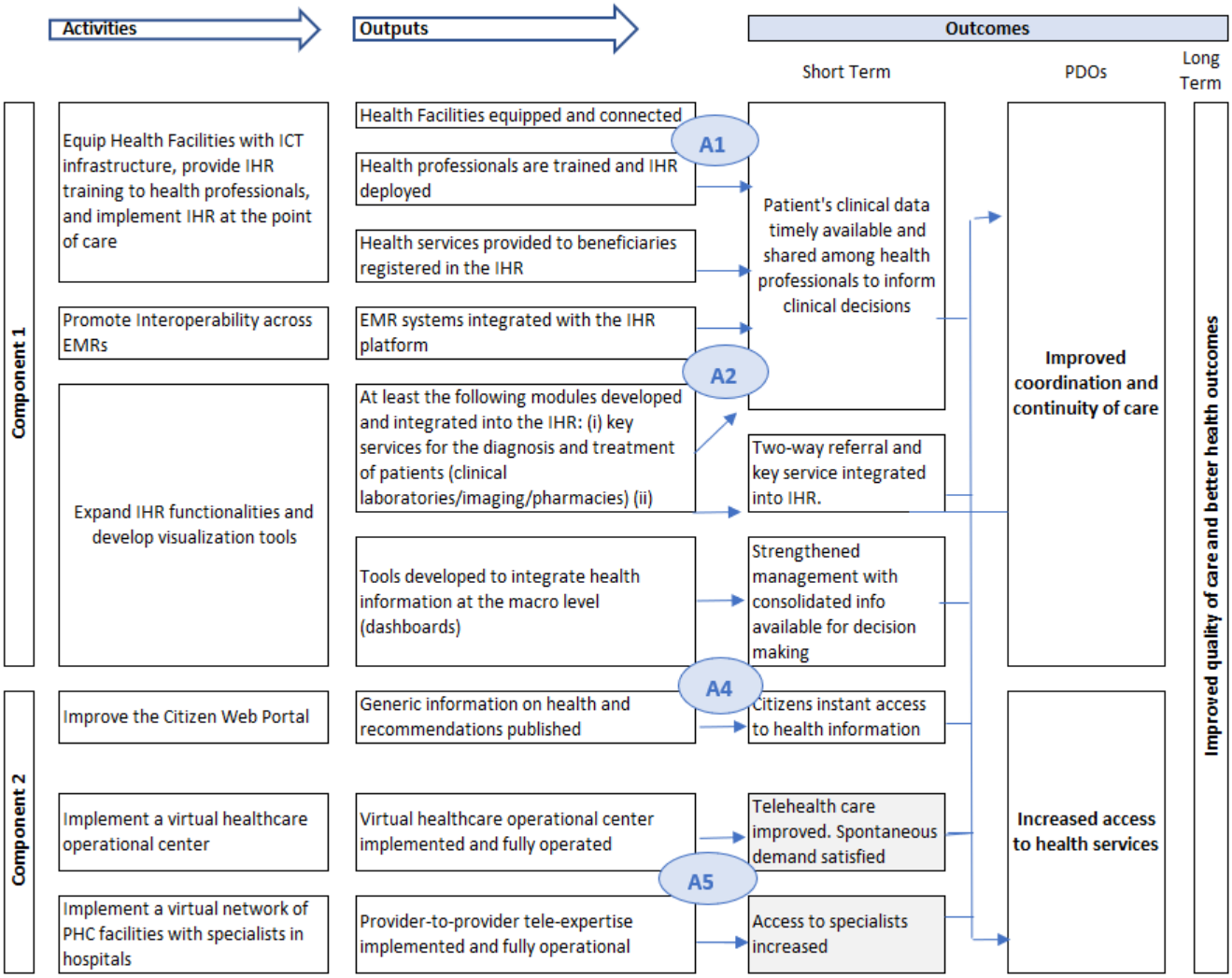
54. **The Project will indirectly benefit healthcare workers in health facilities** who will have access to improved ICT infrastructure, equipment, and training to adopt new professional digital tools. Furthermore,

[54] In its article 44, Law 25326 indicates that the rules included in most chapters (I to IV) and in Article 32 are of public order and applicable in all the national territory.

because the IHR is open-source technology, the improvement and expansion of its functionalities can be adapted and adopted by other provinces implementing IHR.

D. Results Chain

Figure 6: Theory of Change



Critical assumptions

- ***A1.*** *Connectivity is working and IHR system is adjusted and adapted to the core workflows and processes of the Health Facility, and health professionals are using the IHR system daily.*
- ***A2.*** *Global and national standards and regulations are adopted, and provincial legal framework are developed to ensure interoperability of EMR systems. Municipalities comply with the cybersecurity policies set by the province.*
- ***A3.*** *Health Facilities involved in the process of two-way digital referral do have EMRs in place and clinical data is accessible, available in times of need to the providers, and can be easily shared among them.*
- ***A4.*** *Citizens have access to the Citizen Web Portal.*
- ***A5.*** *Telemedicine is regulated and recognized as an official health service. Clinical protocols and patient pathways are*

adapted to implement telemedicine, Standard Operating Procedures (SOPs) that delineate access to and storage of patient data, including recordings from audio/video consultations and data from connected medical devices used in remote patient monitoring are established.

E. Rationale for Bank Involvement and Role of Partners

55. **The proposed Project is aligned with the global agenda on digital health.** The Project will address two of the major reasons for the lack of coordination in health systems: different health information systems that operate in parallel, and the lack of interoperable EMRs at health facilities. As part of this Project, a close coordination with the Pan American Health Organization (PAHO) and other Multilateral Development Institutions (MDIs), such as the Inter-American Development Bank (IDB) and Development Bank of Latin America (CAF) is envisioned, to coordinate activities in line with the WHO Global Strategy on Digital Health 2020-2025.[55]

56. **The Bank has supported the digital health agenda in Argentina for many years**. The Bank's added value is its extensive experience in supporting the strengthening of health information systems globally and in Argentina, both with lending and analytical work. Specifically, at the national level, World Bank supported investment projects have endorsed key activities for the interoperability of the national health information systems, including reference registries, standard clinical terminology and standard vocabularies, and document structure. Through analytical work the World Bank supported selected provinces in key activities to strengthen the implementation of EMRs in PHCs and the geo-referencing of beneficiaries, among others. This long-term engagement, both at the national and provincial level, ensures that the Bank support is relevant and will effectively respond to the needs of the provincial government. During Project implementation the Bank will share international experiences on digital health. The team will benefit from resources from the World Bank HNP Digital Health Flagship Program, including the Digital Health Community of Practice, digital health training and case studies, checklists/good practice notes and technical assistance in highly specialized areas with dedicated resources.

57. **In addition to the digital health agenda, the Bank has vast experience in supporting digital transformation worldwide and in Argentina; nonetheless, this is the first project entirely focused on supporting a digital health transformation in Latin America.** The World Bank has financed digital development projects that tackle a range of digital economy topics: data infrastructure, digital finance, digital public platforms and skills, and market competition. These projects have supported digital transformation through investments in broadband to improve connectivity and data infrastructure, regulatory reforms, and capacity building for sector oversight. Particularly, the Project implementation will benefit from the World Bank data governance and cybersecurity partnership with the World Bank Digital Development global practice. The Project will benefit from expertise gained through the ongoing World Bank engagement supporting digital inclusion and innovation in Argentina.[56] This will also promote harmonization of practice and sector coordination across the region, leveraging existing capacity to deliver a project, and maximize synergies between sectors. In Latin America several projects that have supported health systems' strengthening have also partially supported a digital health transformation. Nevertheless, this is the first project in the region to be fully focused on that transformation.

[55] Global strategy on digital health 2020-2025. Geneva: World Health Organization;2021. License: CC BY-NC-SA 3.0 IGO.
[56] Argentina Unleashing Productive Innovation Project (P106752), already closed, Digital Inclusion and Innovation in Public Services in Argentina Project (P174946) and Strengthening Data Infrastructure to Close the Digital Gap in Argentina Project (178609).

58. **The proposed Project's activities will be complementary to those supported by the World Bank and the Inter-American Development Bank under the National Strategy for Digital Health 2018/2024.**[57] While MoH supports the development of the National Digital Health Network to promote an integrated model of care and the enabling e-health governance infrastructure for health information systems; the provincial government, through the Project, will support investments for digital data entry at the health facilities (EMRs) and the adoption of appropriate information and communication technology (ICT equipment, and software), and the supporting change management to accompany the digital transformation.

F. Lessons Learned and Reflected in the Project Design

59. **The Project builds on the lessons learned from the implementation of the Supporting Effective Universal Health Coverage in Argentina (P163345) and Protecting Vulnerable People against Noncommunicable Diseases Project (P133193).** While activities to support the implementation and adoption of basic interoperability standards and e-health governance are expected to be supported by the national government, other activities related to the adoption of appropriate ICT, point of care software, and the supporting change management processes require investments from the province's own resources and provincial ownership in close cooperation with the National Strategy.

60. **The Project's design benefits from the World Bank's global experience in the implementation of digital health interventions.** The Project builds on best practices on the implementation of EMRs in PHC settings; ensuring the interoperability between systems, while keeping the EMR market open; capacity building for EMR utilization, and setting up technical and legal environments for the implementation of telemedicine. In particular, the open market strategy to implement the PHC EMRs builds on positive examples from Kazakhstan, Serbia, and Bosnia and Herzegovina. The key determinants for the creation of the technical and legal environment for the telemedicine implementation build on the consolidated experience from East and West Africa regions, as well as from Kazakhstan.

61. **The Project also builds upon lessons learned from previous and ongoing World Bank financed digital transformation projects in Argentina.** Best practices from other contexts in integrated digital government approach - including in the areas of data governance, data infrastructure, data protection, cybersecurity, among others – have been incorporated and adapted to the needs of Argentina.

62. **The organizational changes required for the digital transformation agenda will require technical support from the PMOH and the World Bank.** The digital transformation supported by the Project is demanding both technically and institutionally and needs to be implemented in a gradual manner. The implementation of the Project will require substantial technical assistance from the PMOH to municipalities and health facilities. The Project will provide capacity building support for the implementation of the EMRs and for the change management process. Finally, the Project implementation will also require intense policy dialogue and technical support from the World Bank.

63. **A flexible design is important to adapt the Project activities to a changing environment.** Specific lessons reflected in the design include a focus on: (i) provincial priorities and ownership; (ii) a strong regulatory environment and safeguards for citizens; (iii) a flexible program that adjusts according to the institutional and

[57] MoH Resolution N° 189/2018 - Resolution N° 680/2018 - Standards; MoH Resolution N° 115/2019 – National Interoperability Network; MoH Resolution N° 2524/2019 – Guideline for Unique Health Identifier.

information technology capacities of different municipalities; and (iv) strong but lean implementation arrangements with effective monitoring.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

64. **The PMTF will implement the Project through the Provincial Directorate of Multilateral Organizations and Bilateral Financing (PDMOBF) that reports to the Undersecretary of Finance**. The PDMOBF will be responsible for overall project coordination and will provide fiduciary and administrative support on financial management, procurement, environmental and social issues, and monitoring and evaluation activities.

65. **The PDMOBF will work in coordination with the PMOH, which will be responsible for technical aspects of project implementation and will also carry out the bulk of procurement activities**. This will be done through the Undersecretariat of Information Management, Lifelong Learning and Control (*Subsecretaría de Gestión de la Información, Educación Permanente y Fiscalización*) which will be responsible for the technical coordination of the Project. This unit will coordinate the technical planning of the activities with the Provincial Directorate of Statistics and Digital Health (*Dirección Provincial de Estadística y Salud Digital*) and project implementation with the Provincial Directorate of Health System Strengthening under the Undersecretariat of Attention and Integral Care (*Subsecretaría de Atención y Cuidados Integrales*), and the Provincial Directorate of General Coordination of Special Projects (PDGCSP), under the Technical, Administrative and Legal Undersecretariat (*Subsecretaría Técnica, Administrativa y Legal*).

66. **The participation of municipalities will be governed by an Addendum Participation Agreement to the existing Framework Agreement signed with the PMOH, to cover the duration of the Project period.** To ensure successful implementation, the province requests municipalities to sign a framework agreement for a minimum of a three-year period. The agreement makes explicit the rights and responsibilities of both parties before and during the implementation phases.

67. **The PDMOBF will be responsible for the overall fiduciary aspects,** including the Project's budget formulation and execution; managing the Designated Account and requesting disbursements from the loan and documenting expenditures to the World Bank; maintaining the Project's accounting records and preparation of interim financial reporting and project annual financial statements required by the World Bank; and complying with the Project's external auditing arrangements. It is expected that some activities will be supported by the PMOH through the PDGCSP. The PDMOBF will coordinate and oversee all Project activities, including those implemented by the PDGCSP. The PDMOBF will be responsible for overall Project fiduciary arrangements. In addition, the PDMOBF will coordinate and supervise all procurement activities, prepare annual Procurement and Implementation Plans; ensure compliance with World Bank Procurement Regulations; manage procurement following the Procurement Plan; oversee technical inputs; and liaise with the World Bank and monitor and report on progress.

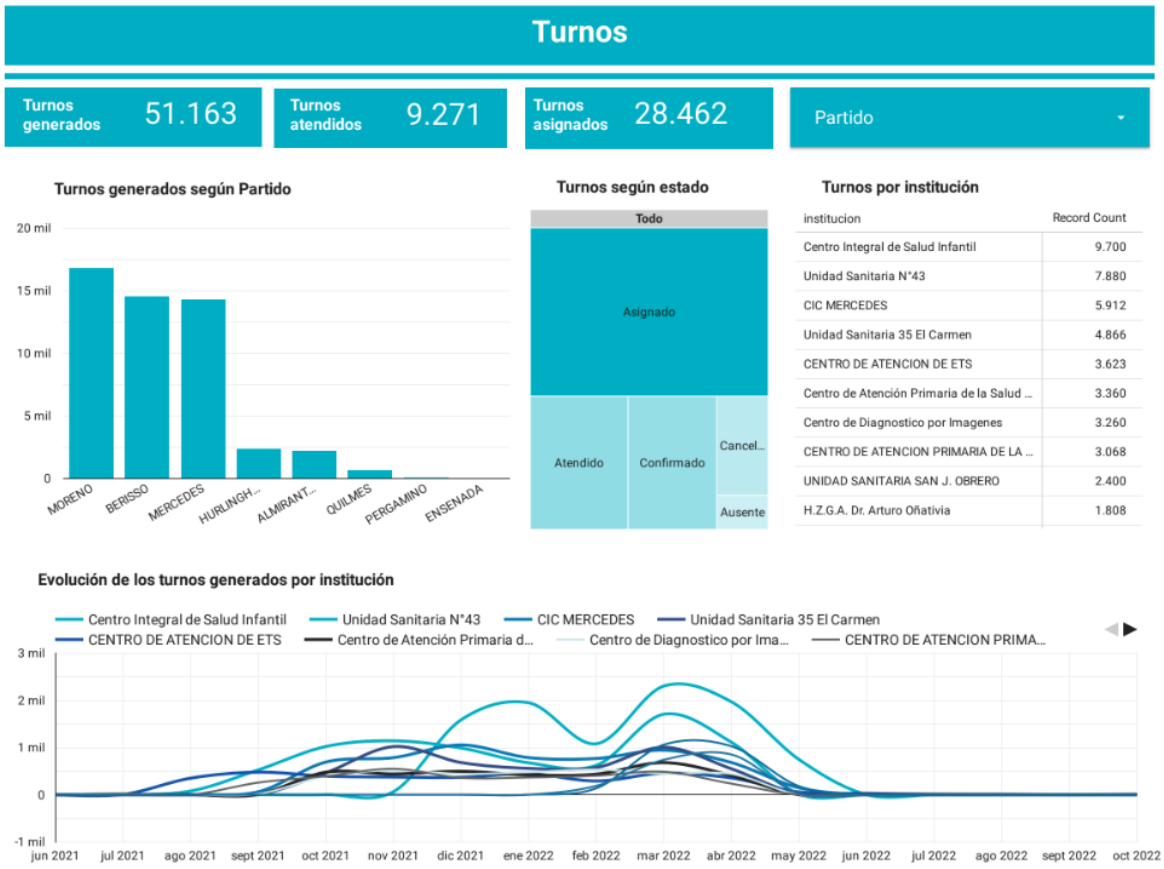
68. **The technical teams of the PMTF and the PMOH are jointly responsible for environmental and social management of the Project.** The PDMOBF will be responsible for ensuring compliance with the actions and measures established in the environmental and social documents of the Project, including follow-up and monitoring of environmental and social management. The PMOH, through the Provincial Directorate of Health System Strengthening and the Provincial Directorate of Statistics and Digital Health will be responsible for the

design, planning and implementation of the actions and measures foreseen in the environmental and social management of the Project.

B. Results Monitoring and Evaluation Arrangements

69. **Project results will be monitored and evaluated using tools already in place to assess the implementation of the digital agenda**. As part of the digitalization plan, a dashboard to monitor the adoption of IHR in health facilities of targeted municipalities was created (Figure 77). This dashboard provides information in real time, as it is directly linked to the IHR platform. The dashboard includes a set of performance indicators such as the number of daily consultations registered in IHR, classified by reason for consultation; the number of appointments scheduled, allocated, and realized; the number of patients registered in the Master Patient Index by place of enrollment; among others. All these indicators can be visualized by health facilities and across time. This dashboard is currently used by the implementation team at municipality level in their bi-monthly meeting to identify, jointly with health teams, key barriers to implementation. The Provincial Directorate of Statistics and Digital Health is responsible for managing the tool.

Figure 7: IHR dashboard developed by the government of PBA



Source: Seguimiento de la implementación con equipos implementadores, 2022.
https://drive.google.com/file/d/1xSkvj8V8KCsdKTjFtt9VesoHYoe-e4xx/view

C. Sustainability

70. **The digital health agenda is a priority for the national and provincial governments.** Within the National Health Plan, digital health plays a key role in the first and third pillars of the Plan, "Strengthen stewardship and governance in quality and patient safety for reduce inequities in the health system" and "Implement permanent processes that promote patient safety in health care", respectively. As was discussed in the Sectoral Context, digital health is also a key priority of the provincial government's health plan.

71. **The Project is also aligned with the government's efforts towards universal health coverage**. Interoperable EMRs are key tools to improve quality and efficiency in health care. It is for this reason that the national government has been investing in developing tools, standards, and regulations to foster their implementation at the provincial level. The provinces have also recognized their importance. The provincial government is trying to foster a systematic implementation of interoperable EMRs in both provincial and municipal health facilities. This is important not only for improving quality and efficiency in health care but also to decrease existing inequalities. In this regard, the implementation of EMRs could support provincial efforts in avoiding cross-subsidies between public and social security health services by facilitating public facilities billing for insured patients. Finally, telemedicine interventions have also become important tools to improve access to services and could potentially support quality improvements. As the COVID pandemic highlighted, telemedicine interventions are key to ensuring continuity of health services when access to physical health services is limited. This will become increasingly important as climate related shocks increase.

72. Upon the completion of the Project, the provincial government will need to ensure that municipalities maintain the ICT infrastructure and do the necessary updates. It is expected that the benefits of project's investments outweigh these costs. Once the IHR is widely used, most of the benefits will be perceived by the user and patients (albeit not measured), and the opportunity cost of abandoning it will be high.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

73. **A digital health transformation can improve access, quality, and efficiency in health care.** Much literature exists on the subject, particularly on the implementation of EMRs and telemedicine. The former contributes to improving the quality of health care by reducing diagnostic and medication errors, increasing health professionals' compliance with protocols, and enabling more accurate decision-making.[58] Similarly, the use of ICT facilitates timely access to diagnoses and to medical information, provides greater transparency, and enables more effective patient monitoring and control. Telemedicine interventions can also improve access, quality, timeliness, coordination, and continuation of care. They can also increase knowledge sharing and promote learning among health workers and patients, which allows better care for multimorbid chronic patients and prevent avoidable hospitalizations. Consequently, they improve patient outcomes and save resources.

[58] See BID (2022), Hannele Hyppönena et al. (2014), Campanella et al. (2015), Mark J Dobrow et al. (2019).

74. **These tools can generate efficiency gains in the health system itself** since interoperable EMRs can enable the sharing of patient information among different providers and medical specialists, reducing costs and diagnosis times. For the government, interoperability processes and data management systems can optimize how different health service providers and funders may operate in the same population. This can reduce the costs of care associated with duplicate diagnostic tests, unnecessary admissions, and preventable readmissions, making better use of system's resources, and strengthening epidemiological surveillance.

75. **Cost-benefit analysis:** The Project will provide support to the implementation of the digital health strategy carried out by the PMOH. The Project's supported interventions in the medium to long term are expected to improve access, quality, and efficiency of health services in the province and eventually health outcomes (Annex III). These benefits will be measured as reductions in premature deaths and severe disabilities, reductions in public expenditure on health at municipal level, and in reductions in households' out-of-pocket expenditure on health. The Project has a total estimated budget of US$50 million that will be financed through this operation. The cost-benefit analysis takes into consideration the expected flow of benefits over a 10-year horizon, together with the total capital and annual operations and maintenance costs of the proposed interventions. Costs and benefits are discounted at a rate of 4 percent in the base scenario, and feasibility is assessed with net present value and internal rate of return (see Annex III for details).

76. **The economic analysis estimates Project benefits of US$85.7 million in net present value terms using a 4 percent annual discount rate, and an internal rate of return of 24.9 percent over a 10-year period.** Under a conservative scenario regarding the effectiveness of implementing digital health interventions, the Project will reduce early death and severe disability in the beneficiary municipalities. Furthermore, a reduction in health expenditure is expected for the municipalities and households involved.

77. Table 3 shows the results of the sensitivity analysis including different discount rates and exchange rates.

Table 3: Project Economic Analysis at various discount rates

	4%	6%	12%
Net present value (US$ million)	85.7	68.7	33.4
Internal rate of return	24.9%		

Source: World Bank estimates. April 2023.

78. **Financial Analysis:** For fiscal year 2023, the budget for the PMOH is estimated to be about US$2,153 million. Assuming that over the next ten years the PMOH's budget and spending as share of GDP remain the same, the government will have the sufficient budget to sustain the Project's investment and recurrent costs.

B. Fiduciary

(i) Financial Management

79. **A Financial Management Assessment** was carried out to assess the adequacy of financial management arrangements in place at the PDMOBF, within PMTF. This assessment was conducted by Bank staff from November 2022-March 2023 in accordance with Bank Policy: Investment Project Financing and Bank Directive: Investment Project Financing and the Financial Management Manual for World Bank Financed Investment Operations (effective March 1, 2010, and revised September 7, 2021). The Financial Management Assessment also covered the PMOH through the PDGCSP since it is expected to support some of the proposed Project activities.

80. **The overall conclusion of the Financial Management Assessment is that**: (i) the financial management arrangements for the proposed Project are considered adequate; (ii) the funds flow, disbursements, monitoring, auditing, and supervision arrangements have been designed in a way to respond to the Project's implementation arrangements; and (iii) the residual financial management risk associated with the Project is rated as Moderate. The combined fiduciary risk is rated as Moderate.

81. **The Financial Management Assessment identified the requisite close coordination between the PDMOBF and the PDGCSP for effective Project implementation as a key risk to the achievement of the PDO**. The following financial management risk mitigation measures will be implemented to cope with the identified risk: (i) the Borrower's preparation of a Project Operational Manual (POM) including a section with financial management arrangements acceptable to the World Bank; (ii) specific flow of funds will be used to finance the activities that will be carried out by the PDGCSP; (iii) semi-annual Interim Unaudited Financial Reports (IFRs) will be reviewed by the World Bank; (iv) annual audit of project's financial statements following auditing standards and Terms of Reference (TOR) acceptable to the World Bank; and (v) continued close World Bank support and supervision. The Project's financial management risk rating will be reviewed regularly during Project implementation support.

82. **Overall, public financial management arrangements in the provincial government function well and provide a sound control framework**. The provincial government has well established Budget, Accounting, and Treasury Offices that cover basic public financial management functions and systems such as budgeting,

accounting, and treasury, of which the Project will make extensive use. Current[59] and previous[60] World Bank financed operations with the province have been consistently assessed with satisfactory financial management performance and acceptable audits received on time. Currently, there are no outstanding or unsatisfactory audit reports affecting PDMOBF.

83. **The Project's annual financial statements will be audited by the Court of Accounts,** the provincial audit institution, which is acceptable to conduct financial audits of Bank-financed projects, following acceptable auditing standards and terms of reference acceptable to the Bank. The audit report (and any accompanying Management letter) should be submitted to the Bank no later than six months after the end of each fiscal year.

84. **No withdrawal shall be made for payments made prior to the date of the Legal Agreement,** except that withdrawals up to an aggregate amount not to exceed US$10 million equivalent may be made for payments made up to one year prior to the expected date of the Loan Agreement signing.

(ii) Procurement

85. Procurement will be carried out in accordance with the World Bank's Procurement Regulations for Investment Project Financing (IPF) Borrowers (Procurement Regulations) dated November 2020, for the supply of goods, works, and non-consulting and consulting services. The fiduciary responsibility will be jointly executed by the PMTF, through the PDMOBF, and the PMOH, through the PMOH United Nations Development Program (UNDP) under the supervision of the PDGCSP. PDMOBF will also supervise all the activities and be responsible for preparing the Procurement Plan; the initial procurement plan for the first 18 months of implementation has been prepared. In this context, a procurement capacity assessment of both entities was carried out by the World Bank in November 2022 considering the existing systems, structure, and staff. This assessment concluded that: (i) both entities have experience under multilateral organizations´ financing and the PMTF is currently implementing a Bank-financed Project, (ii) staffing from the PMTF should be strengthened to address the increasing workload that this operation will demand and (iii) close coordination between the two entities is required for an efficient implementation. The "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006, and revised in January 2011 and as of July 1, 2016, apply to this Project. A Project Procurement Strategy for Development (PPSD) has been prepared to identify fit-for-purpose approaches to the procurement processes expected to be conducted within the Project and to ensure that the goods and services are procured in a timely manner and of the quality required to achieve the Project's PDOs. The result of this analysis, capacity assessment, and actions to address the identified procurement risks are detailed in Annex I.

[59] Social Safety Nets for Vulnerable Populations in the Province of Buenos Aires (P170329), Ln 9007 and its Additional Financing Ln 9439, US$150 and US$50 million, with closing date on February 29, 2024 and August 30, 2024, respectively; Salado Integrated River Basin Management Support Project (P161798), Ln 8736, US$300 million, December 30, 2023; Metropolitan Buenos Aires Urban Transformation Project (P159843), Ln 8707 and its Additional Financing Ln 8991, US$30 and US$100 million, with closing date on June 30, 2023 and June 30, 2025, respectively.

[60] AR CRL1 APL1 Buenos Aires Infrastructure (P088032), Ln 7268-AR, US$200 million, closing date December 31, 2013; and AR Buenos Aires Infra Sustainable Investment Dev Project Phase II (P105288), Ln 7472-AR, US$264.1 million, closing date December 31, 2013.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

86. **The environmental and social risk is rated Moderate, considering the nature, scale, and scope of the activities to be implemented under the Project.** The Project does not finance land acquisition or infrastructure. The Project will finance the acquisition of computer equipment and will provide education and training for the generalized use of software and hardware in the health system. No rehabilitation or construction of new infrastructure. The actions and interventions of the Project will be carried out within existing health establishments, and will not intervene in sensitive or protected areas, nor will it carry out actions or generate effects that put biodiversity, or cultural heritage at risk. The overall risks to and potential adverse impacts on the environment are likely to be minimal or negligible. Furthermore, the Project will result in valuable outcomes and recommendations for decision making related to the improvement in health behaviors in beneficiaries. For this, it will require laying internal electrical and computer cables linked to the installation of hardware equipment and health equipment associated with telehealth and the EMRs, that could intervene from administrative areas to laboratories, hospitalization areas, patient waiting rooms, among others, posing potential safety risks for operators, health workers, patients and companions that move through these areas. The risks during installation are injuries from falls, interference with security processes in sensitive areas, for example: X-ray rooms, hospitalization rooms, laboratories, accidental overturning of supplies and waste, risk of electric shock. During operation, if there are no adequate electrical installations and if informal current extension cables are used, there is a risk of electric shocks. The decommissioning through programmed obsolescence of the electronic equipment that forms part of the Project's investments has the potential to generate electronic devices and equipment waste.

87. **The social risk rating is Moderate.** The main social impacts associated with the Project are positive. Scaling up the health information and management systems to expand access to health care services in the Buenos Aires Province promotes the efficient use of the EMRs. Likewise, interoperability standards will ensure the timely flow of information and articulation between health facilities. Despite these benefits, there is a risk of potential exclusion of vulnerable people from the benefits of the Project, including indigenous peoples. The PBA faces situations of structural inequality, worsened by the COVID pandemic, that may be aggravated by the introduction of digital health technologies (principle of 'do no harm'). Hence, when planning, prioritizing and implementing digital health interventions, the Project will need to ensure access for certain population groups, such as digital illiterates or those lacking connectivity (i.e., by maintaining current face to face and telephone administrative interactions, and developing actions through community healthcare workers). Moreover, there are challenges associated with the implementation of the Stakeholder Engagement Plan (SEP) which will be new to the PMOH. However, they do have experience with stakeholder engagement activities and will hire new staff dedicated to this (i.e., communication and participation specialists). Likewise, the PMOH will draw on the existing experience of the PMTF implementing the SEP of ongoing projects. Finally, an Indigenous Peoples Plan is being prepared to

ensure indigenous peoples in the selected municipalities are included in the benefits of the project in an accessible, culturally diverse, and inclusive manner.

88. **Sexual exploitation and abuse and sexual harassment risks are low.** Argentina has a strong legal framework focused on gender-based violence prevention and has a national referral pathway protocol for gender-based violence service provision and active working group. In addition, the Project is not expected to finance infrastructure works requiring labor influx.

89. **Citizen Engagement.** The Project design is citizen oriented. The development of telemedicine and virtual communication tools, such as the virtual healthcare center and the web portal, will facilitate population's access to health consultations and information. A citizen engagement indicator is included in the Results Framework and citizen engagement progress will be tracked with a Beneficiary Feedback Indicator based on the percentage of patient satisfaction with telemedicine interventions and/or the web portal. The PMOH will take that survey input and use the feedback to inform project implementation.

90. **Project Environmental and Social instruments comprise an Environmental and Social Assessment (ESA) that defines two Environmental and Social Management Plans (ESMPs), one associated with personal computer installation and another with electronic waste management, an Indigenous Peoples Plan, the SEP and Labor Management Procedures (LMP).** The ESMP that manages the personal computers installation will identify and manage the potential risks and impacts linked to the laying of computer cables and power supply, to which installers, health personnel, patients and companions will be exposed. It will contain the prevention and mitigation measures, which each establishment must comply with before receiving the computer equipment. The ESMP dedicated to electronic devices and equipment waste will determine the awareness and training processes for health personnel responsible for electronic devices and equipment. It will contain the guidelines so that health establishments can develop an electronic devices and equipment waste recovery program. The SEP identifies the stakeholders, the means to ensure effective Project communication with each group, and indicators to monitor engagement activities. The SEP includes consultations with specific public areas and civil society organizations to ensure that the design of the tools is geared to the needs of vulnerable groups. To secure inclusive development outcomes and an equal share of Project's benefits, the communication messages and materials will be prepared and disseminated in an appropriate manner to warrant proper social inclusion. The SEP also includes a Grievance Mechanism, to incorporate beneficiary feedback, drawing on (and enhancing) existing mechanisms from the Ministry. In addition, the PMOH has a webpage with contact details for information and for citizen feedback and complaints; the Project will monitor this feedback mechanism to ensure that any project-specific issue is managed quickly, responded to, and settled. As explained above, an Indigenous Peoples Plan will be developed to ensure indigenous peoples are included in the benefits of the project. All this information is described in more detail in the Environmental and Social Review Summary, disclosed on the WB website on April 12, 2023.[61] Also on the WB website, the draft versions of the SEP and the Environmental and Social Commitment Plan (ESCP) were disclosed on April 12, and the draft ESA on April 17, 2023. On the PDMOBF website, the draft SEP and ESA were disclosed on April 5 and 12, 2023 respectively.[62] The ESCP will be disclosed in its negotiated versions on both sites. According to this document, the final versions of the ESA (including the two ESMPs), SEP, IPP and LMP are expected to be disclosed by the PDMOBF and the WB within 90 days of Project effectiveness.

[61] https://projects.bancomundial.org/es/projects-operations/document-detail/P179534?type=projects
[62] https://www.gba.gob.ar/hacienda_y_finanzas/organismos_multilaterales_y_financiamiento_bilateral/prestamos_activos/birf

V. GRIEVANCE REDRESS SERVICES

91. ***Grievance Redress.*** Communities and individuals who believe that they are adversely affected by a Project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaints to an independent accountability mechanism. The mechanism houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the accountability mechanism at any time after concerns have been brought directly to the attention of World Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the GRS, please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank's Accountability Mechanism, please visit https://accountability.worldbank.org.

VI. KEY RISKS

92. **The overall risk of the proposed Project is rated Substantial, due to risks associated with the political and governance context, macroeconomic environment, and sector strategies and policies**.

93. **The political and governance risks are Substantial.** The upcoming national elections in October 2023, followed by the provincial elections, could bring changes at different levels of the administration that could affect Project startup and implementation. Additionally, a loan to a subnational government requires a guarantee from the national government, which once approved by the World Bank Board of Executive Directors, needs to be followed by a favorable opinion under the Fiscal Responsibility Law issued by the Secretary of Treasury of Argentina. These risks are mitigated by the strong commitment and consensus of national and provincial stakeholders around the digital health agenda, one of the four central priorities of the National Government as well as a key priority for the PBA. This agenda is particularly relevant for the governance of the provincial health system since PHC is decentralized at municipal level and ICT tools will be key to ensuring the system's integration. In addition, the COVID emergency response highlighted the need for reliable and timely information and options for remote care to be better prepared for shocks. Finally, the risk for the Project startup will be mitigated through strong commitment and efforts from both the national and provincial authorities to expedite the internal administrative procedures to authorize the signature of the Loan Agreement prior to the elections.

94. **The macroeconomic risks are Substantial**. Significant macroeconomic imbalances persist, evidenced by fiscal dominance, high inflation, pressures on exchange rates and high-country risk. Against this background, deteriorating growth prospects could reduce provincial fiscal revenues while the sovereign fiscal consolidation needs may dictate a reduction of transfers to the provinces. Both events could hinder the implementation plan. These risks are mitigated by having the PMTF as an implementing agency, which has a favorable position to ensure that there will be enough resources in the provincial budget for Project implementation. Additionally, exchange rate and foreign exchange management policies may trigger additional import controls, delays in obtaining the permissions to import and pay for them that could affect ICT goods to be procured under components 1 and 2. To mitigate this risk, the Borrower has considered these risks in the Project Procurement Strategy for Development when identifying the procurement approach for the different types of goods to be acquired.

95. **The sector strategies and policies risks are Substantial**. While there is a strong support for the digital agenda from the national and provincial governments, activities supported under the Project involve a broad number of municipal health facilities that will benefit from Project support. Since PHC in the province is decentralized to the municipalities, there is a risk that expanding the use of IHR or the adoption of interoperability standards at municipal health facilities could be hindered by insufficient commitment from local authorities. To mitigate this risk and ensure an early and active engagement, Addendum Participation Agreements to existing framework agreements will be signed between municipalities and the provincial government prior to the beginning of activities to confirm commitment to the Project and its overall objectives, and monitoring by the province during implementation. In addition, the increasing number of cybersecurity incidents and threats add to the sectoral risk. While the PBA follows national cybersecurity standards and data protection regulations,[63] this is not necessarily the case for all municipalities. Risk to cybersecurity will be low in most cases as municipalities will be using the federal IHR and provincial cloud to store data, which meets the national cybersecurity standards. However, in the five municipalities that use their own EMR and cloud to store data, the risk is much higher. To mitigate this risk, the Addendum Participation Agreements will include requirements to ensure interoperability of these EMRs and ensure they meet the provincial data protection standards. The PMTF will verify and certify these municipalities meet the provincial cybersecurity standards.

[63] World Bank. 2021. Argentina - Digital Inclusion and Innovation in Public Services Project (P174946). Washington, D.C.: World Bank Group. https://documents1.worldbank.org/curated/en/814561617415408733/pdf/Argentina-Digital-Inclusion-and-Innovation-in-Public-Services-Project.pdf

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Argentina

Strengthening the Digital Health Agenda in the Province of Buenos Aires

Project Development Objectives(s)

Increase access to health services and improve coordination and continuity of care in the public healthcare network of the Province of Buenos Aires.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Improving coordination and continuity of care.							
Percentage of consultations properly registered in the IHR, by gender. (Percentage)		0.00	1.50	4.00	8.00	14.00	14.00
Percentage of women 25 to 64 years old with positive cervical cancer screening that have received a colposcopy or have a scheduled colposcopy consultation within a three-month period. (Percentage)		0.00	0.00	6.00	12.00	20.00	20.00
Increasing access to healthcare services.							
Percentage of diabetics that received an eye fundus exam		0.00	0.00	5.00	8.00	10.00	15.00

Indicator Name	PBC	Baseline	Intermediate Targets				End Target
			1	2	3	4	
through the tele-ophthalmology strategy. (Percentage)							

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Strengthening the Implementation of Electronic Medical Records (EMRs) / the Integrated Health Record							
Absenteeism in scheduled colposcopy (Percentage)		0.00	45.00	40.00	35.00	30.00	30.00
Municipalities that started implementing IHR (Number)		0.00	10.00	20.00	30.00	30.00	30.00
Primary Health Care (PHC) facilities with adequate ICT equipment (Number)		0.00	30.00	80.00	130.00	150.00	150.00
Hospital facilities with adequate ICT equipment (Number)		0.00	13.00	26.00	40.00	40.00	40.00
PHC facilities that received IHR training (Number)		0.00	30.00	80.00	130.00	150.00	150.00
Hospital facilities that received IHR training (Number)		0.00	13.00	26.00	40.00	40.00	40.00
Health Facilities with IHR implemented and fully operational (Number)		0.00	43.00	106.00	170.00	190.00	190.00
Patients with a consultation properly registered in the IHR, by gender (Number)		0.00	11,621.00	49,441.00	334,114.00	334,114.00	334,114.00

Indicator Name	PBC	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Prioritized functionalities developed (Number)		0.00	1.00	2.00	3.00	5.00	5.00
Selected municipalities with their own EMR solution interoperable with IHR platform (Number)		0.00	0.00	0.00	2.00	4.00	4.00
Percentage of Health Facilities implementing digital two-way referral (Percentage)		0.00	5.00	10.00	15.00	20.00	20.00
Percentage of SUMAR beneficiaries with basic effective coverage, by gender (Percentage)		35.00	36.00	39.00	43.00	43.00	43.00
Percentage of people registered in IHR with self-perceived gender identity (Percentage)		0.00	10.00	20.00	30.00	40.00	40.00
Developing and implementing virtual tools for health provision and communication.							
Stages achieved in the development of the ecosystem for the virtual healthcare operational center. (Number)		0.00	2.00	4.00	5.00	6.00	6.00
Citizen consultations managed through the web portal of the PBA (Number)		0.00	0.00	50,000.00	100,000.00	150,000.00	150,000.00
Average number of days between the prescription of breast cancer medication and the delivery of this medication to women with exclusive public coverage. (Number)		31.00	30.00	25.00	20.00	20.00	20.00
Percentage of people satisfied with the use of the Citizen Web		0.00	0.00	10.00	30.00	50.00	50.00

Indicator Name	PBC	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Portal and telemedicine applications (Percentage)							

Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Percentage of consultations properly registered in the IHR, by gender.	Numerator: number of consultations provided by Health Facilities implementing IHR in municipalities covered by the Project, by gender. The number of consultations refers to the actual number of outpatient and inpatient consultations (excluding dental consultations) in eligible Health Facilities. - Denominator: total number of consultations registered in the Health Facility Performance System (SRES , Sistema de Rendimientos de Establecimientos de Salud),	Annual	IHR records and SRES (Sistema de Rendimientos de Establecimientos de Salud).	IHR records and SRES (Sistema de Rendimientos de Establecimientos de Salud).	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health

	in municipalities covered by the project, by gender. The definition of "Consultations properly registered in the IHR" means that patient's key sociodemographic fields are registered (i.e.,unique identification, health coverage, home address and gender). In addition, fields in the IHR related to "reason for consultation" and/or "problems" and health professional who registered the service are filled.				
Percentage of women 25 to 64 years old with positive cervical cancer screening that have received a colposcopy or have a scheduled colposcopy consultation within a three-month period.	Numerator: adult women 25-64 year old with exclusive public health coverage and positive cervical cancer screening that have received a colposcopy or have a scheduled colposcopy consultation within a three-month period in municipalities implementing IHR under the project. Denominator: adult women 25-64 year old with exclusive public health	Annual	Digital records in IHR, STAM: Screening Information System (*Sistema de información de Tamizaje*) and SUMAR Registry.	Processing of data extracted from IHR, SITAM and SUMAR administrative data sets. The numerator will count those women who are in the denominator and belong to one of the following two categories: (i) women who received a colposcopy within three months of having a	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health.

	coverage and positive cervical cancer screening between December 1 and 31 of each year registered in SITAM/SUMAR performance report in municipalities implementing IHR under the project. A cervical cancer screening is considered positive if: a) there is a positive PAP ASC-H/H-SIL or AGC or AIS/carcinoma result, b) Positive HPV qualitative and a positive PAP ASC-US (Atypical Squamous Cells of Undetermined Significance) resulta and c) a Positive HPV PCR for serotypes 16 and/or 18 result. To be counted as a positive case in the numerator, the women shoud have received a colposcopy or have a scheduled colposcopy consultation “within three month period” of having a positive cervical cancer screening.			positive cervical cancer screening; or (ii) women with a scheduled colposcopy consultation within three months of having a positive cervical cancer screening. Due to nominalized data, it is possible to assign each case to one of these two categories. data will also allow.	

Percentage of diabetics that received an eye fundus exam through the tele-ophthalmology strategy.	Numerator: number of people diagnosed with type 2 diabetes mellitus that received an eye fundus exam, according to recommendations in clinical practice guidelines, through the tele-ophthalmology strategy in selected locations. Denominator: estimation of the prevalence of type 2 diabetes mellitus in people with exclusive public coverage	Annual	IHR records, Population Estimation Provincial Directorate of Statistics - Ministry of Provincial Finance and National Survey of Risk Factors (2018)	Processing of administrative data sets.	Provincial Directorate of Statistics and Digital Health

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Absenteeism in scheduled colposcopy	Denominator: Number of women aged 25 to 64 with positive cervical cancer screening who have scheduled a colposcopy consultation within three-months of positive screening in municipalities implementing IHR under the project	Annual	Digital records in IHR, STAM: Screening Information System (*Sistema de información de Tamizaje*) and SUMAR Registry	Processing of data extracted from IHR, SITAM and SUMAR administrative data sets	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health

	Numerator: among those women in denominator with a scheduled colposcopy, those who actually did not receive the coloscopy service				
Municipalities that started implementing IHR	Number of municipalities implementing IHR. A municipality is considered as "implementing IHR" if implementation of one module of IHR started in at least one Health Facility.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Primary Health Care (PHC) facilities with adequate ICT equipment	Number of primary health care facilities (PHC) with adequate ICT equipment. The PHC facilities refer to those facilities eligible for the IHR implementation.	Annual	Equipement delivery records.	Provincial report	Provincial Directorate of Statistics and Digital Health
Hospital facilities with adequate ICT equipment	Number of eligible hospitals with adequate ICT equipment. Hospitals refer to those eligible facilities selected for IHR implementation. Adequate ICT equipment means having at least a desktop PC with a Windows operating system superior to XP; Memory 8 RAM; Chrome web browser in the	Annual	Equipement delivery records	Provincial report	Provincial Directorate of Statistics and Digital Health

	admission area and at least in one outpatient clinic room				
PHC facilities that received IHR training	Number of eligible PHC facilities that received IHR training. A facility is considered that received training if its staff has been trained in at least one IHR module.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Hospital facilities that received IHR training	Number of eligible hospital facilities that received IHR training. A facility is considered that received training if facility staff has been trained in at least one IHR module.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Health Facilities with IHR implemented and fully operational	Number of eligible Health Facilities with IHR implemented and operational. IHR is considered implemented and operational if at least one IHR module is in used at the facility.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Patients with a consultation properly registered in the IHR, by gender	Number of patients attending Health Facilities implementing IHR financed by the Project in targeted municipalities with at least one consultation properly registered in the IHR, by gender	Annual	IHR Records	IHR records and SRES (Sistema de Rendimientos de Establecimientos de Salud). Although the indicator will not report the exact population roll-out, nor any	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health

				progress per municipality or health facility, it will help understand the changes in the first PDO indicator	
Prioritized functionalities developed	Number of prioritized functionalities developed. Functionalities refer to: Functionality 1 - Integration with RIS system Functionality 2 - Organization of two-way referral system integrated with appointment booking system Functionality 3 - Integration with Laboratory System Functionality 4 - Integration with Pharmacy System Functionality 5 - CDSS and Provincial Dashboard / data science and AI	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Selected municipalities with their own EMR solution interoperable with IHR platform	Number of selected municipalities with their own EMR solution interoperable with the IHR platform. Selected municipalities should comply with cybersecurity standards.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health

Percentage of Health Facilities implementing digital two-way referral	Numerator: Number of Health Facilities implementing IHR with the digital two-way referral. Denominator: Number of Health Facilities implementing IHR within the reference period.	Annual	IHR provincial dashboard	IHR standardized report	Provincial Directorate of Statistics and Digital Health
Percentage of SUMAR beneficiaries with basic effective coverage, by gender	Numerator: People enrolled in SUMAR Program who received at least one health service that provides basic effective coverage (CEB-Cobertura Efectiva Basica), within a 12-month period. Denominator: People enrolled in SUMAR Program within a 12-month period. The project is expected to have an impact on CEB by promoting continuity of care and expanding access to the health system.	Annual	SUMAR Beneficiary roster and SUMAR reporting system (billing dataset)	Processing of administrative data sets. The province plans to develop an interoperability solution between SUMAR reporting system and the IHR.	Provincial Management Unit SUMAR Program
Percentage of people registered in IHR with self-perceived gender identity	Numerator: Number of people registered in IHR with self-perceived gender identity Denominator: Total number of people registered in IHR.	Annual	IHR records	IHR monitoring platform	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health

Stages achieved in the development of the ecosystem for the virtual healthcare operational center.	Stages achieved in the development of the ecosystem for the virtual healthcare operational center: Stage 1- Software development. Stage 2 - Portal. Stage 3 - Access to consultation with teleoperators. Stage 4 - Access to Consultation with Basic Physicians. Stage 5 - Medication prescription access portal funded by the PBA Ministry of Health. Stage 6 - Integration with IHR.	Annual		Report on the transition from testing to production environment for each of the functionalities to be developed.	Digital Health Directorate
Citizen consultations managed through the web portal of the PBA	Total consultations managed by teleoperators or medical professionals through the web portal of the PBA.		Central system of the Directorate of Statistics and Digital Health.	Report on Telemedicine Platform	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health - and Health System Strengthening Unit
Average number of days between the prescription of breast cancer medication and the delivery of this medication to women with exclusive public coverage.	Difference in days between date of medication prescription and date of medication pickup for women with breast cancer	Annual	Provincial Cancer Institute. Drug Bank.	Provincial Cancer Institute Drug Bank Report	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health - and Provincial Cancer

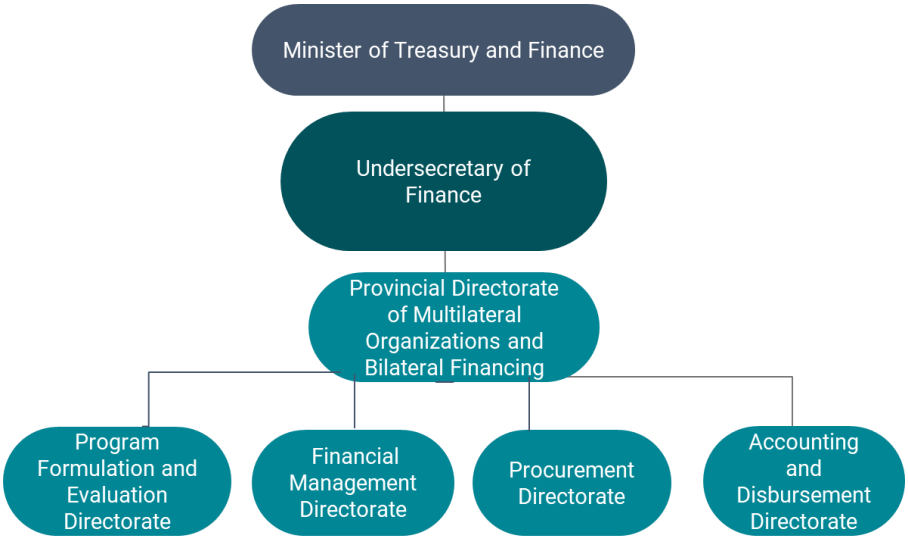
	living in municipalities implementing IHR (Average). Medication prescription for breast cancer refers to those treatment medicines included in the Vademecum approved and financed by the Provincial Cancer Institute.				Institute.
Percentage of people satisfied with the use of the Citizen Web Portal and telemedicine applications	Numerator: Number of people who responded positively to the satisfaction survey declared being satisfied with the use of Citizen Web Portal and Telemedicine applications. Denominator: Number of responses to the satisfaction survey. The satisfaction survey will use a Likert scale to rate the degree of satisfaction	Annual	Telehealth Platform	Satisfaction survey to be randomly implemented at the end of the teleconsultation and/or during the use of the Citizen Web Portal	Directorate of Digital Health - Provincial Directorate of Statistics and Digital Health - and Health System Strengthening Unit

ANNEX I: Implementation Arrangements and Support Plan

Institutional and Implementation Arrangements

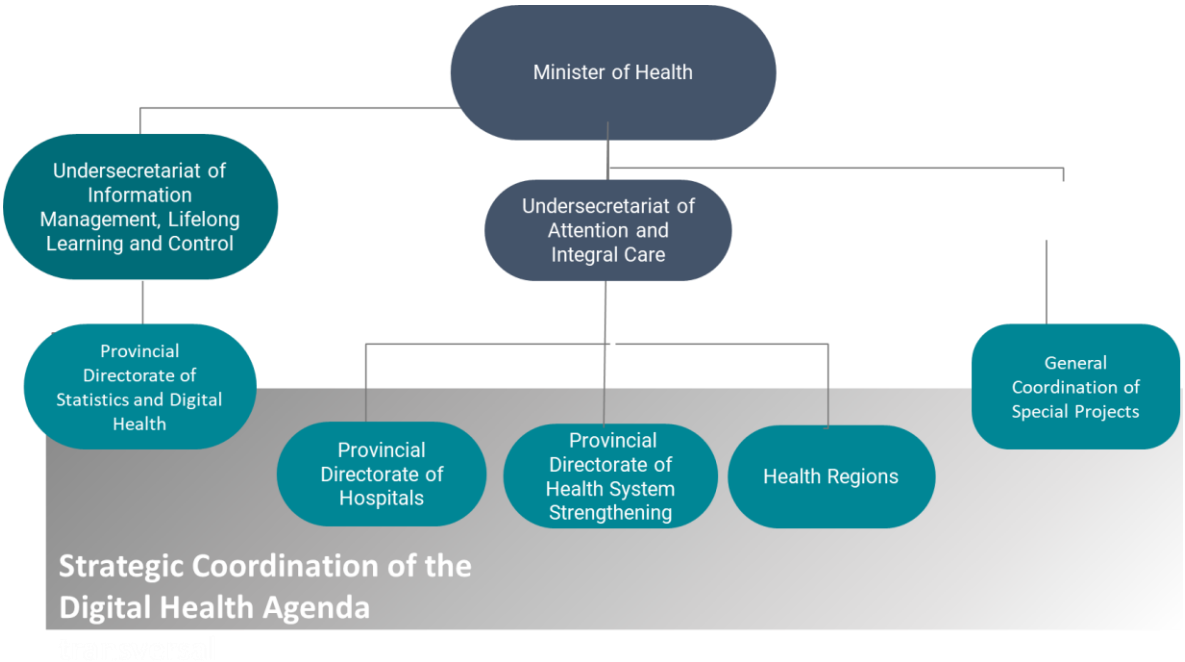
1. **The Ministry of Treasury and Finance (PMTF) will implement the Project through the Provincial Directorate of Multilateral Organizations and Bilateral Financing (PDMOBF) that reports to the Undersecretary of Finance**. The PDMOBF will be responsible for overall project coordination and will provide fiduciary and administrative support on financial management, procurement, environmental and social issues and monitoring and evaluation activities (Figure A8).

Figure A8.1: Implementation Agency Units involved in Project Implementation



2. **The PDMOBF will work in coordination with the PMOH, which will be responsible for technical aspects of the Project implementation and will also carry out the bulk of procurement activities**. This will be done through the Undersecretariat of Information Management, Lifelong Learning and Control (*Subsecretaría de Gestión de la Información, Educación Permanente y Fiscalización*) which will be responsible for the technical coordination of the Project. This Undersecretariat will coordinate the technical planning of the activities with the Provincial Directorate of Statistics and Digital Health (*Dirección Provincial de Estadística y Salud Digital*) and Project implementation with the Provincial Directorate of Health System Strengthening under the Undersecretariat of Attention and Integral Care (*Subsecretaría de Atención y Cuidados Integrales*), and the Provincial Directorate of General Coordination of Special Projects, under the Technical, Administrative and Legal Undersecretariat.

Figure A1.9: Provincial Ministry of Health Organigram



3. **The participation of municipalities will be governed by a Framework Agreement signed with the PMOH, to cover the duration of the Project period.** To ensure successful implementation, the province requests municipalities to sign a framework agreement for a minimum of a three-year period (Box A1.1). The PBA municipalities oversee PHC facilities and thus they have a key role in ensuring the early adoption of IHR/EMRs. The agreement makes explicit the rights and responsibilities of both parties before and during the implementation phases. Since 2021, the Government started implementing IHR basic functionalities in 6 municipalities, and additional 26 municipalities initiated the IHR implementation this year. Under the Project, an Addendum Participation Agreement to the existing framework agreement will be signed with the participating municipalities, these agreements will be adapted to the provisions included in the POM.

Box A1.1: Key roles and responsibilities described in the ongoing Framework Agreements

Provincial Ministry of Health	Municipalities
▪ Provide technological infrastructure services in the Provincial Cloud, complying with security and confidentiality standards. ▪ Maintain IHR and develop improvements such as updates. ▪ Develop a training plan for local teams and accompany the implementation in health facilities selected by the municipality. ▪ Communicate and monitor the indicators of the project's evolution detailed in the agreement. ▪ Financially support local implementation for adequacy/provision of IT infrastructure and connectivity of municipal health facilities. ▪ Develop interoperability solutions with provincial statistical systems, health surveillance system and cost recovery systems. ▪ Provide the municipality with an analytical tool for monitoring the health of the population. ▪ Establish a help desk to provide technological solutions oriented to assist the users of the information system.	▪ Define a team responsible for a) designing an implementation plan; b) monitoring and supervising infrastructure and connectivity; c) supporting EMR implementation, incident reporting and feedback on the use of the system by users. ▪ Design the implementation plan that includes connectivity and infrastructure assessments, health facilities scaling-up plan and deadlines for each phase. ▪ Carry out an assessment of connectivity and equipment in health facilities. ▪ Carry out internal wiring works in the health facilities to guarantee adequate connectivity for the implementation. ▪ Facilitate the adoption of the EMR and change management in daily healthcare service delivery. ▪ Manage users of the system in health facilities under the principles of confidentiality and security established by the Ministry of Health of the Province of Buenos Aires. ▪ Set up a help desk for user assistance. ▪ Report progress status of the project to the provincial team within duly established deadlines. ▪ Calculate indicators requested by the provincial team.

Source: Based on Colaboration agreements for the development of the digital agenda between the Province of Buenos Aires Ministry of Health and the municipality (*Convenio de colaboración para el desarrollo de la agenda digital entre el Ministerio de Salud de la provincia de Buenos Aires y el municipio* (Template)).

4. **The technical teams of the PMTF and the PMOH are jointly responsible for environmental and social management of the Project.** The PDMOBF from the PMTF will be responsible for ensuring compliance with the actions and measures established in the environmental and social documents of the Project, including for follow-up and monitoring of environmental and social management. The Ministry of Health, through the Provincial Directorate of Health System Strengthening and the Provincial Directorate of Statistics and Digital Health will be responsible for the design, planning and implementation of the actions and measures foreseen in the environmental and social management of the Project. Within the Ministry of Health, the Provincial Directorate of Health System Strengthening and the Provincial Directorate of Statistics and Digital Health will work in coordination with other areas of the Ministry, such as the Provincial Directorate of Community Health and the Provincial Program of Health and Indigenous Peoples, the Provincial Directorate of Gender Equity in Health, the Provincial Directorate of Access and Inclusion in Health, the Provincial Directorate Against Violence in the field of Public Health, the Directorate of Environmental Health and the Provincial Directorate of Infrastructure, Auxiliary Services and Medical Technology. Regarding the implementation of measures under the Environmental and Social Standard 2 “Labor and Working Conditions”, it will be the responsibility of the contracting areas of the Ministries of Health and Treasure and Finance. In this sense, each of the Ministries will implement the provisions of Environmental and Social Standard 2 when hiring consultants and contracting firms. Finally, the Ministry of Health will lead the Project's stakeholder engagement activities and handle the Project’s grievance mechanism and will develop those instruments with the support of the PMTF.

Procurement

5. **The overall Project risk for procurement after the proposed mitigating measures is assessed as Moderate**. Procurement will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers (Procurement Regulations), dated November 2020, for the supply of goods, works, and non-consulting and consulting services. The World Bank's Standard Procurement Documents will govern the procurement of World Bank financed Open International Competitive Procurement. For procurement involving National Open Competitive Procurement, the Borrower will use documents agreed with the World Bank.

6. **The World Bank has conducted a capacity assessment of PDMOBF and the Provincial Directorate of General Coordination of Special Projects at the Ministry of Health.** Both entities will be implementing procurement activities and PDMOBF will also have the role of coordinating the project and liaising with the Bank. The assessment concludes that the current staff at both entities has adequate experience implementing multilateral financed projects and particularly PDMOBF has extensive experience in Bank financing. Both entities have also experience on the type of procurement that the operation includes. Nonetheless, the assessment identified risks arising from the increased workload that this project will entail on PDMOBF and the need for coordination between both entities to conduct procurement. Based on the capacity assessment, the following actions are recommended to reduce this risk and facilitate project implementation: a) strengthen the procurement team at PDMOBF with additional support; b) promote a close coordination between both entities to ensure efficient implementation, and c) close support from the Bank for the execution of larger activities.

7. **Both entities have jointly prepared a Project Procurement Strategy for Development to define a fit-for-purpose procurement approach for the procurement activities.** Based on such analysis, the document indicates that no activities with high risk or amount are planned within the project. Procurement is expected to include primarily hardware equipment, software, licenses, installation services, maintenance, support, systems engineering and consultancy services for technical assistance, training design, project administration and monitoring. For the procurement of goods and non-consultant services, the Borrower will generally apply Requests for Bids with the current country thresholds for market approach. The document identified specific market risks and proposed mitigation actions to address them. For consultancy services, a quality-cost selection approach is planned for most activities unless otherwise agreed in the Procurement Plan.

8. **Procurement activities expected to be carried out during the first 18 months of project implementation are detailed in the Procurement Plan prepared as a result of the PPSD.** Part of the activities include consultancy services to assess any cybersecurity risks. The rest of the activities will be added to the Procurement Plan once they are defined by the technical areas and any updates on the Procurement Strategy will be reflected during project implementation as needed.

Financial Management

9. A Financial Management Assessment[64] was carried out to assess the adequacy of financial management arrangements in place at PDMOBF within the PMTF. In addition, the Financial Management Assessment also covered the Provincial Directorate of General Coordination of Special Projects (PDGCSP) within the PMOH, since it is expected to support some of the proposed Project activities. The overall conclusion of the FM Assessment is

[64] The FM Assessment was conducted by Bank staff from November 2022-March 2023 in accordance with Bank Policy: Investment Project Financing and Bank Directive: Investment Project Financing and the Financial Management Manual for World Bank Financed Investment Operations (effective March 1, 2010 and revised September 7, 2021).

that: (i) the FM arrangements for the proposed Project are considered adequate; (ii) the funds flow, disbursements, monitoring, auditing and supervision arrangements have been designed in a way to respond to the Project's implementation arrangements; and (iii) the residual financial management risk associated with the Project is rated as Moderate. The combined fiduciary risk is rated as Moderate.

10. **Detailed Institutional Arrangements for Financial Management & Organization and staffing.** The PMTF, through the Provincial Direction of Multilateral Organizations and Bilateral Financing (PDMOBF) will be responsible for the Project financial management function. PDMOBF will retain the overall Project financial management responsibilities comprising accounting records keeping and preparation of financial reports of project transactions, managing the Designated Account and requesting disbursements from the Loan and documenting expenditures to the Bank, as well as project auditing arrangements. PDMOBF's "*Direccion de Contabilidad y Desembolsos*" (Accounting and Disbursement Directorate) is adequately staffed with qualified professionals who have relevant experience in implementing Bank-financed projects as well as operations from other international financial institutions. Financial management personnel are qualified and capable of undertaking the financial management function of the Project**.** It is expected that no additional financial management staff will be required/hired. As mentioned earlier, some of the proposed Project activities are expected to be implemented by the Provincial Ministry of Health (PMOH) through the PDGCSP that has relevant experience supporting projects financed by multilateral organizations. PDMOBF and PDGCSP's organization charts, roles and responsibilities, financial management functions and procedures will be clearly defined in the POM. PDMOBF will coordinate and oversee all Project activities, including those implemented by the PDGCSP. The PDMOBF will be responsible for overall Project fiduciary arrangements.

11. **Planning and Budgeting**. Project's operations will flow through the province's System of Public Accounts, which operates under the responsibility of the Province's Accountant General and thereby subject to the government-wide budgeting arrangements and control framework. As such, all fund uses are reviewed and approved a priori by the Accountant General's representatives. PBA's budget system is well-suited for the implementation of the proposed operation. The Provincial Government Integrated Financial Information System (*Sistema Integral de Gestión y Administración Financiera* will be used to control the allocated budget. PBA budget control distinguishes various stages in the expenditure process including commitment. The budget structure uses program classification and functional classification of expenses and provides for coding of the source of funding, and type of expenditure. Actual expenditures are compared to budgeted expenditures, with reasonable frequency, and justifications provided for variations relevant to the budget.

12. **Accounting and Financial Reporting.** The UEPEX (External Loans Implementing Units -*Unidades Ejecutoras de Préstamos Externos*)[65] system which is the Federal Government system for accounting and financial reporting of donor-financed operations will be used by PDMOBF. This system is already in place and functioning well. PDMOBF will be responsible for: (i) maintaining the Project's accounts with the Chart of accounts reflecting the Project categories, components and source of funding; and (ii) producing the requisite of semi-annual Interim Unaudited Financial Reports (IFRs) and annual financial statements. Those reports will be prepared on a cash accounting basis using the standard formats agreed with the Bank. The IFR will be submitted to the Bank within forty-five (45) days after the end of the reported period. These reports will be used by PDMOBF to monitor the Project, including comparisons of actual vs. budgeted expenditure. The Chart of accounts, format and content of the IFR and annual financial statements will be included in the POM. There are written policies and procedures

[65] This is Argentina budget execution and recording software for multi-lateral financed operations.

covering all routine accounting and related administrative activities and only authorized persons, may change or establish new accounting principles, policies, or procedures. The accounting function within PDMOBF is adequately staffed with experienced and qualified professionals. PDMOBF will also have access to the Bank's Client Connection system for up-to-date information relating to the disbursement of the proceeds of the Loan.

13. The following financial reports will be presented by PDMOBF to the Bank:

Table A1.1: Reports' Schedule

Report	Due date
Semi-annual unaudited IFRs with sources and uses of funds by semester and cumulative by category, including beginning and ending cash balances	Within forty-five (45) days after the end of each calendar semester
Annual audit report on the Project's financial statements	Within six (6) months after the end of each calendar year (or other period agreed with the Bank)
Special opinions on SOEs and Designated Account	
Management letter identifying any internal control weaknesses and areas for improvement	

14. **Internal controls.** The internal control environment to be used for the Project is anchored in PBA's legal and institutional framework and PDMOBF's operational processes and procedures. These allow for the establishment of roles and responsibilities for financial management, and the proper segregation of duties. The internal controls relevant to the Project include arrangements to provide assurance that: (a) operations are conducted effectively, efficiently, and in accordance with relevant financing agreements; (b) financial and operational reporting is reliable; (c) applicable laws and regulations are complied with; and (d) assets and records are safeguarded. The use of the UEPEX system, with its inbuilt controls that ensure proper authorization of transactions, contributes to the observance of these controls.

15. **External Auditing Arrangements.** PDMOBF will be responsible for the submission of annual audited financial statements to the Bank. The external audit will be performed by the Court of Accounts, PBA's Supreme Audit Institution, which is acceptable to conduct financial audits of Bank-financed projects, following acceptable auditing standards and terms of reference acceptable to the Bank. Audited financial statements should be submitted to the Bank no later than six (6) months after the end of each fiscal year. Auditors should submit (a) an opinion on the project financial statements, including a special opinion of the Project's Statement of Expenditures (SOEs) and the Designated Account; and (b) a Management Letter. Audit terms of reference will be included in the POM. In accordance with the Bank's Access to Information Policy, upon receipt of the annual audited financial statements of the project, they will be made available to the public by the Bank. There are no overdue audit reports and/or outstanding financial management or audit issues affecting PDMOBF at this moment.

16. **Flow of Funds and Disbursement Arrangements.** The following disbursement methods may be used under the loan: (i) Advance, (ii) Reimbursement and (iii) Direct Payment**.** The Project's funds will be managed by PDMOBF through a segregated Designated Account (DA) denominated in the loan currency (US$), which will be opened at the provincial state-owned bank (*Banco de la Provincia de Buenos Aires*, BPBA). This account will receive advances from the Loan account and will be replenished by the Bank as execution progresses. The Designated Account will have a Fixed Ceiling of US$5 million. The frequency for reporting eligible expenditures paid from the Designated Account will be once every three (3) months. Loan funds will be transferred in local currency (ARS) to a single account managed by the Provincial Treasurer to handle payments of eligible expenditures to local

providers as requested by PDMOBF. Those activities to be implemented by PDGCSP will be pre-financed by the PMOH United Nations Development Program (UNDP) and then refunded by the World Bank, adopting the reimbursement method of disbursements. In this regard, PMOH United Nations Development Program (UNDP) will make the payments of the eligible expenditures and then reimbursements will be requested to PDMOBF through the PDGCSP. The Loan funds will be transferred to the Provincial Treasurer's single account using the reimbursement method. UNDP fees and exchange rate losses if any will be not eligible for Bank financing. PDMOBF will document all eligible expenditures to the Bank using Statements of Expenditures (SOEs). At the request of the PBA Government, the Bank will make Direct Payments to vendors based on requests for payments and Records. Reimbursement of eligible expenditures will also be permitted. The Project's Minimum Application Size will be defined in the Disbursement and Financial Information Letter (DFIL). The Project will have a four (4) month Grace Period.

17. The following chart describes the flow of funds process for payments of project eligible expenditures incurred by Project:

Figure A1.3 Flow of funds (eligible expenditures incurred by PDMOBF)

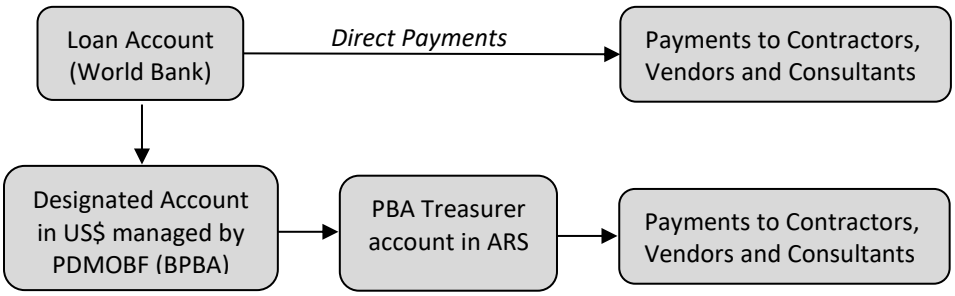
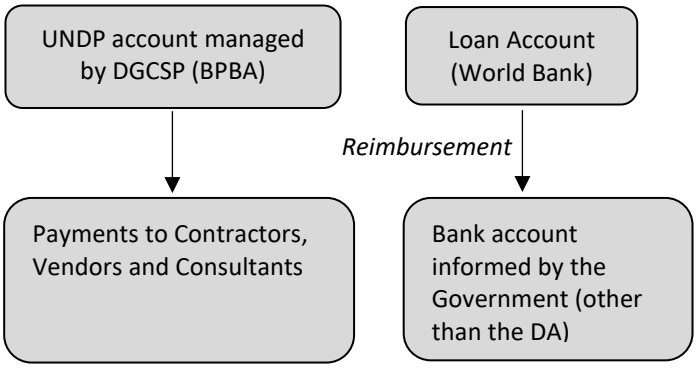


Figure A1.4. Flow of funds (eligible expenditures incurred by PDGCSP)



18. The table below shows the overall arrangements for disbursements.

Table A1.2: Disbursement Arrangements

Retroactive expenditures	Eligible expenditures: ▪ Are paid up to 12 months prior to the date of loan signing (the retroactive period will be defined in the Loan Agreement); and ▪ Do not exceed 20 percent of the loan amount.
Reimbursement of eligible expenditures pre-financed by the Government after the date of loan signing	▪ Reimbursement of eligible expenditures.
Other Disbursement Methods	▪ Advances to a segregated Designated Account in US$ managed by PDMOBF in the state bank of PBA (*Banco de la Provincia* de Buenos Aires) with a proposed ceiling of US$5 million. ▪ Direct Payments to suppliers. The Minimum Application Size for Direct Payment requests will be defined in the DFIL.
Frequency of reporting expenditures paid from the DA	▪ Once every three (3) months.
Supporting documentation	▪ Statement of Expenditures (SOEs). ▪ Records (supplier contracts, invoices and receipts) for Direct Payments.

19. **Retroactive Financing.** The Bank may reimburse the expenditures for payments made up to one year prior to the expected date of the Loan Agreement. These expenditures will not exceed US$10 million equivalent. Such funds will be deposited in a separate bank account (not the Designated Account).

20. **Loan disbursements.** The entire US$50 million loan will be disbursed against one single disbursement category – goods, works, non-consulting services, consulting services, training and operating costs – with the exception of the Front-end Fee of US$125,000.

Financial Management Pending Steps

21. The following steps have been identified to be completed by effectiveness:

Table A1.3: Financial Management Action Plan

Action	Responsible Entity	Completion Date
Preparation and review of the POM financial management section which will include inter alia: a) Administrative procedures b) Chart of accounts c) Format and content of IFR and annual financial statements d) TOR for the external audit	PDMOBF - World Bank	By Effectiveness

Loan Covenant

22. No other than the standard conditions for financial management are applicable to this Project.

23. **Strategy and Approach for Implementation Support**: The strategy for implementation support has been determined based on the nature of the project and its risks to achieving the PDO. It is also based on lessons learned from other Bank-financed health projects in Argentina, including Supporting Effective Universal Health Coverage in Argentina (P163345) and Protecting Vulnerable People against Noncommunicable Diseases Project (P133193).

24. **Operational support**: The Project will require dedicated implementation support as well continuous monitoring to adjust its implementation arrangements to reflect the changing subnational context if needed. Implementation support will include supervising monitoring and evaluation systems, tracking progress of the Project's indicators, monitoring progress on the implementation of Project components, reviewing annual action plans and Addendum Participation Agreements with municipalities, ensuring conformity with the POM, and monitoring Project execution and interim unaudited financial reports. A senior operations officer, a lead economist, and a health specialist, all based in the World Bank country office will provide day-to-day support in all operational aspects, as well as coordination with the Borrower and among Bank team members. The Bank will conduct regular missions, videoconferences, and periodic fiduciary compliance reviews. An MTR will be conducted after approximately 24 months of implementation to review performance in depth and make any adjustments necessary. The World Bank team will conduct at least two implementation support missions per year, desk reviews and field visits as required and assess whether any adjustments are needed to the Project design or implementation.

25. **Technical**. The Bank team will (i) engage and guide the technical and institutional dialogue, based on known national and international best practices; (ii) advise on the design of activities envisaged within Project components, including processes for the preparation of terms of reference, budget, and bidding documents; (c) participate in field visits to advance the dialogue with the Government and review progress; and (d) engage with the Government to enable knowledge transfer and guidance. In addition to the country-based staff, the team will count on the support of a Senior Public Information Systems Specialist, based in Washington D.C.

26. **Procurement**: Implementation will include: (i) the training of staff the PDMOBF of the PMTF, and of the General Coordination of Special Projects, of the Provincial Ministry of Health as well as detailed guidance on the Bank's Procurement Guidelines as needed; (ii) reviewing procurement documents and providing timely feedback; (iii) monitoring procurement progress against a detailed Procurement Plan; and (iii) undertaking procurement post reviews.

27. **Financial Management.** The financial management supervision plan and resources to be allocated thereto have been determined in accordance with the risks identified. Financial management implementation support will include on-site and off-site supervisions. On-site missions will be carried out at least once a year and later calibrated following assessed risk and project performance. Off-site implementation support will comprise: (i) the reviews of IFRs; (ii) the review of audited financial statements and follow up of issues raised by auditors in the Management letter, as appropriate; (iii) follow up on any financial reporting and disbursement issues; and (iv) ongoing guidance to PDMOBF on financial management-related matters as needed. The financial management supervision plan may be adjusted according to project's fiduciary performance and updated risk.

28. **Environmental and Social.** The Bank team will closely supervise the implementation of the social and environmental management instruments. Country office-based environmental and social specialists will conduct supervision and will participate in project implementation support missions and site visits and respond to enquiries from the implementing agency.

29. **Implementation support plan**. The following implementation support plan reflects the preliminary estimates of skill requirements, timing, and resource requirements over the life of the Project. Keeping in mind the need to maintain flexibility over project activities from year to year, the implementation support plan will be reviewed periodically to ensure that it continues to meet the implementation support needs of the Project. The table below indicates the World Bank team's implementation support plan and the required skill mix and team composition.

Table A1.4: Implementation support plan

Skills needed	Staff weeks (annual)	Number of missions	Comments
Task team leaders (Lead Economist, Senior Operations Officer)	16	Semiannual mission, field visits as required	Staff, country office based
Health Specialist	6	Semiannual mission, field visits as required	Staff, country office based
Support technical team (Senior Public Information System Specialist)	6	Semiannual mission, field visits as required	Staff and consultants, HQ and country office based
Procurement specialist	4	Semiannual mission	Staff, country office based
financial management specialist	3	Semiannual mission	Staff, country office-based
Social specialist	4	Semiannual mission, field visits as required	Staff, country office-based
Environmental specialist	4	Semiannual mission, field visits as required	Staff, country office-based

ANNEX II: Sector and Project Design Analysis

1. **This Annex describes the implementation of the PBA digital health agenda and relevant Project's components**. It includes a description of IHR, its expansion strategy, the role of municipalities, and Project's costs by year and activity, allowing a better understanding of the timing of the investments and their link with the Project's goals**.**

2. **The information system is a key enabling factor to facilitate integration and continuation of care, in an efficient and secure manner.** The integration and continuation of care is facilitated when patients and health professionals can share information with other providers, and when patients' medical records can be transferred electronically between health facilities. The Project will expand the implementation of electronic medical records (mainly IHR) at the point of care and its functionalities and will promote interoperability across health information systems of municipalities with their own EMR software.

3. **The IHR Electronical Medical Record allows health professionals to consult, manage, and record all events relevant to the contact of a patient with the health system.** Information referring to a patient's administrative and clinical processes is available in a centralized manner and in a digital format.[66] IHR is an initiative of the Ministry of Health of Argentina developed in close collaboration with the Universidad del Centro. The IHR guarantees that the information is available to authorized health professionals wherever and whenever they require it. Specifically, IHR is:

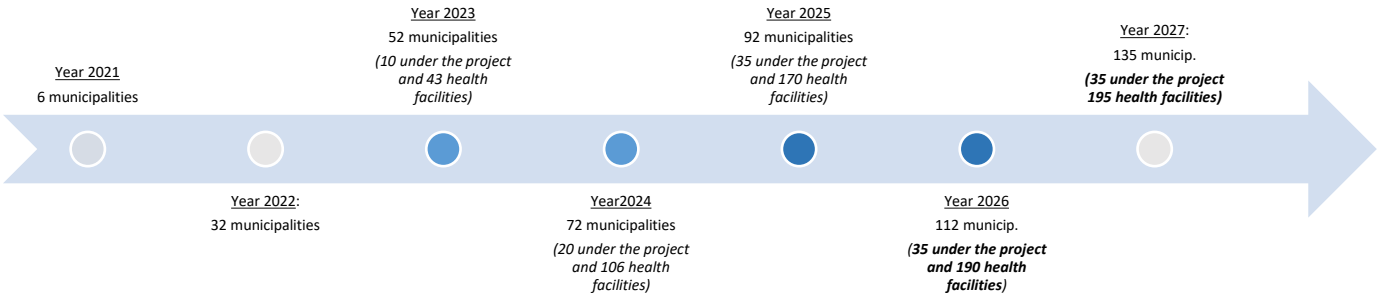
(a) Based on minimum interoperability standards and minimum basic data set that allow information to be shared between different systems, to exchange data, interpret it, and make effective use of it.
(b) An open-source software based on open collaboration, in such a way that users can study, modify, and improve their design.
(c) A collective and constant construction which enables its design to be based on users' workflows, adapting to the characteristics of each place.
(d) Secure, keeping the confidentiality of stored data.
(e) Problem-oriented: that is, a modern model that aims to simplify the synthesis of information, focused on the patient and not on the event.

4. **The PBA has a comprehensive and long-term government Health Plan to support the adoption of EMRs through all health facilities in the province.** This Project will contribute to the Government expansion and interoperability strategy by supporting the Plan implementation in 35 out of 135 municipalities. (Figure .1) The Health Plan's goal is to achieve a gradual scale-up across municipalities without EMRs in place. In 2021, the Government started implementing IHR basic functionalities in six municipalities under a pilot experience. In 2022, additional 26 municipalities initiated the IHR implementation. The scale-up across health facilities within a given municipality is also a gradual process. About five health facilities are initially selected in each municipality, in particular those health facilities that already have connectivity. By the end of the Health Plan, it is expected that about 810 health facilities will have implemented EMRs, covering about 55 percent of the total health visits in a year. Out of the 810 expected by 2027, the Project will start implementing IHR the first year in 43 health facilities (30 PHC facilities and 13 hospitals). The second year additional 50 PHCs and 13 hospitals will be implementing IHR, and another 50 PHC and 14 hospitals during 3rd year of the Project, ending by 2026 with IHR implemented by the

[66] https://www.argentina.gob.ar/salud/digital/hsi

Project in 190 facilities in total (150 PCH facilities and 40 hospitals) plus five additional facilities with their own EMR interoperable with IHR.

Figure A2.1: Project Expansion strategy (cumulative)

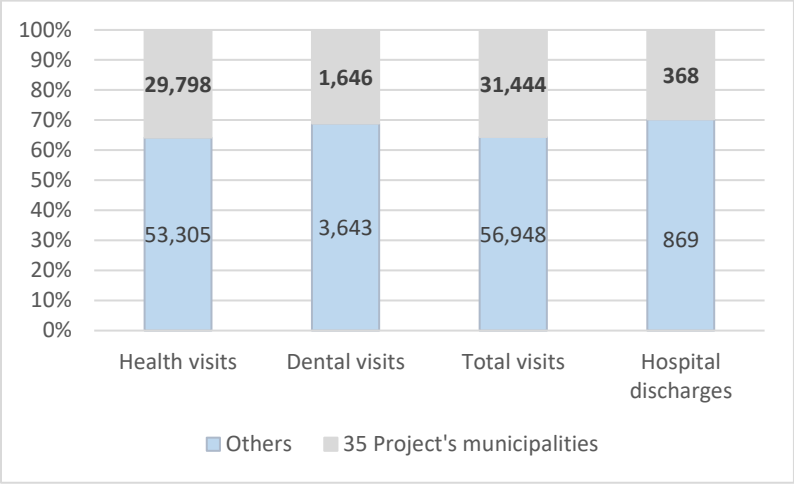


Source: World Bank elaboration based on provincial information about the digital health agenda *https://www.ms.gba.gov.ar/sitios/saluddigitalbonaerense/institucional/salud-digital-bonaerense/*

5. **The 35 municipalities participating in the Project were selected to include a large share of the PBA vulnerable population.** About 40 percent of people with exclusive public health coverage in the PBA live in these 35 municipalities (2.8 million people).[67] These municipalities also concentrate a higher percentage of people living with unmet basic needs (9.1 versus 8 percent in the remaining municipalities) and mainly depends on the public sector to access health services. Figure A2.1 shows that around 35 percent of the total public health visits and 30 percent of public hospital discharges in the province occurred in health facilities located in these municipalities prioritized by the Project. They are geographically distributed across PBA's 11 out of 12 Health Regions (*Regiones Sanitarias*). There is only one region excluded in the expansion of IHR, Region 9. However, this region is included in Component 2 of this Project. It concentrates less than 2 percent of total health visits of the province, being one of the regions with the lowest population density.

[67] Data from the updated roster of SUMAR Program. The nominal list of people with exclusive public health coverage maintained by *SUMAR* Program is verified by an external audit, and monthly updated by cross-checking through Single Registry of Health Insurances *(Padron Unico de Obras Sociales*).

Figure A2.1: Health, dental, and total visits and hospital discharges (in thousands)



Source: Own elaboration based on 2021 data from *"Sistema de Rendimiento. Dirección de Información en Salud Subsecretaría de Gestión de la Información, Educación Permanente y Fiscalización. Ministerio de Salud PBA"*

6. **In a 2020 systematic review on challenges to the adoption of EMRs, the three most frequently reported barriers across studies were: limited access to computers, lack of EMR training, and lack of computer literacy**.[68] To address these barriers under the proposed Project, the PBA will invest 69 percent of the total loan proceeds to procure ICT infrastructure and human resources to train health personnel on the use of IHR tools and to lead the change management process (Table).

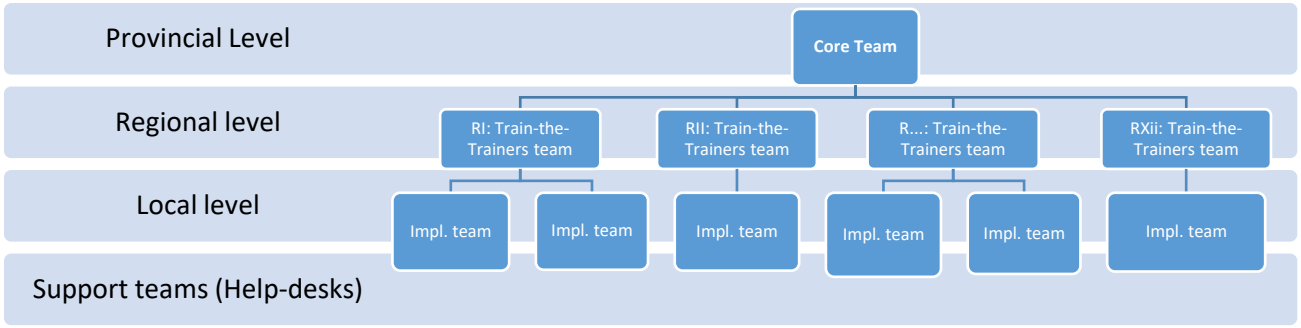
Table A2.1 Main Activities financed by Component 1

Component 1. Subcomponents	2023	2024	2025	2026	Total
1.1 Implementation of HSI	$8,743,392	$10,415,680	$12,052,656	$3,133,272	$34,345,000
1.3 Support EMRs Interoperability	$100,000	$496,080	$593,920		$1,190,000
1.2 Expansion of HSI functionalities	$1,100,000	$1,400,000	$900,000	$200,000	$3,600,000
Total	$9,943,392	$12,311,760	$13,546,576	$3,333,272	$39,135,000

7. **To lead the change management adoption process, a tailored training scheme is being implemented.** The training scheme includes a Core Team, in charge of planning, monitoring the implementation, and coordinating with regional areas and municipalities to ensure that conditions are in place to scale-up IHR geographically and in its functionalities. Under a "Train-the-Trainers program" scheme, people across regional areas will receive a "certified" training program on both, the specific IHR contents and on how to teach this training content to others (Figure A2.2).

[68] Yehualashet, D. E., Seboka, B. T., Tesfa, G. A., Demeke, A. D., & Amede, E. S. (2020). Barriers to the Adoption of Electronic Medical Record System in Ethiopia: A Systematic Review. *Journal of Multidisciplinary Healthcare*, *14*, 2597-2603. https://doi.org/10.2147/JMDH.S327539

Figure A2.2: Train-the-Trainers Program Structure



8. **To monitor the EMR adoption speed, one Project Development Indicator (PDI) will measure the percentage of consultations properly registered in the IHR, by gender**. Consultations properly registered in the IHR is defined as one where that patient's key sociodemographic fields are registered (i.e., unique identification, health coverage, home address and gender). In addition, fields in the IHR related to "reason for consultation" and/or "problems" and health professional who registered the service should also be filled. The baseline value for this PDI is zero since the Project will implement IHR in 30 municipalities and therefore, no consultations will be properly registered in the IHR by the time the Project starts. The Government estimates that, by the end of the Project, around 14 percent of total consultations will be properly registered in the IHR. The target was estimated using previous results from the implementation of the pilot program in PBA municipalities that will not be covered by the Project. The Project will only cover around 5 PHC facilities in each municipality, and therefore will not expect to cover all consultations in the 30 municipalities, but only a portion of them.

9. **The Project will also finance the development, testing, and integration of specific modules into the IHR, adding key functionalities to this open-source tool.** The specific modules are related to services for the diagnosis and treatment of patients (clinical laboratories/medical diagnosis imaging/pharmacies), the digital two-way referral linked to appointment system, a Clinical Decision Support System (CDSS) and a provincial dashboard.

10. **With the integration of diagnostic services into IHR health professionals will be able to electronically order the test to the laboratory or radiology department and track the results "in real time".** The benefits of this integration include the time savings (and faster diagnosis) compared to the manual or paper processing of orders and accessibility of results, the reduction of errors associated with manual processing of orders, the automatic storage of the results into the IHR and the creation of a summary report, the automatic identification of duplicate test orders and thus saving costs, and the security of the information. The health professionals have test results and all other relevant clinical data readily accessible whenever needed for clinical informed- decision-making. With the integration of treatment services, such as the pharmacy management system, health professionals will access medicine and health input stocks from the IHR.

11. **To facilitate the continuation of care, this component will also finance the implementation of two-way digital referrals and its integration with the appointment system, a development that is in an incipient stage**. A two-way referral system is "an organized two-way relationship between a health care provider or physician in a health care facility at one level of the health care system and another health care provider or physician in a health care facility at the same or higher level of care. In a two-way referral system, there ought to be effective

communication between physicians at the same or different levels of care. It is obligatory for the referring physician to refer a patient promptly, in a manner that guarantees efficient, cost-effective, optimal and quality care for the patient. It also requires the physician in the receiving hospital/health care facility to refer the patient back after treatment, to the health care facility or physician that initiated the referral in the first instance, with clear feedback on the observed findings, investigations conducted for the patient and the treatment given to the patient."[69] The dual e-referral system is a key enabler of doing "the right care at the right place". Once the dual e-referral is fully implemented, PHCs facilities will be able to refer patients to higher level care facilities when indicated by protocol. Once the patient is treated in second or third care levels, the hospital will be able to send the patient back to the primary level for follow-up (counter-referral). Key clinical data is available during the referral/counter-referral process, under a secure environment and following international standard protocols to ensure continuity of care. In addition, this component will finance a set of tools to inform decisions at the point of care and to integrate data flows to help the decision-making process at municipality and provincial levels.

12. **The Project will finance the development of CDSS given the importance of this module in the health information ecosystem**. CDSS is defined as "the use of information and communication technologies to provide relevant knowledge and help in the health care of patients."[70] The CDSS will enforce the use of clinical practice guidelines and protocols, promoting standardization, and providers' adherence to best practices. Based on clinical protocols, the CDSS will provide health professionals with automatic alerts and reminders on patient's care, particularly relevant for NCD patients. The actual use of this module in health facilities will require an advanced deployment of EMRs/IHRs implementation, as CDSS' main inputs are clinical data generated by the IHR system itself.

13. **The Project will also finance the development of a provincial dashboard.** This dashboard will be a data visualization tool showing key performance indicators, consolidating, and organizing them on a single screen. The dashboard will be able to pull real-time data from multiple sources, including the EMRs. The aim of the provincial MoH dashboard is to be used as a tool for monitoring and evaluation of PBA health outcomes.

14. **Beyond the adoption of EMRs, the PBA health agenda also prioritizes increasing virtual communications between citizens and the health system – through the Citizen Web Portal – which is supported by Component 2 of the Project** (Table A2.). A PBA MoH report[71] highlights the importance of transforming the health service delivery model by "increasing telemedicine/telehealth tools to manage appointment schedules, to provide capacity building to health personnel, to promote second-opinion consultations, and to provide the population faster access to a health professional." Within this framework, PBA strategy is to expand the Citizen Web Portal "to generate a web space where each citizen can access health information, schedule video consultations, manage consultation shifts and receive notifications through different digital channels."[72] One of the digital channels the Project will support is named "Telemedicine Solution" (TS). The TS includes the implementation of a chatbot to provide information and guidance to citizens on prioritized lines of care, and the implementation of a virtual center to chat with trained health workers (operators) that will provide health counseling. The operators,

[69] Enabulele O, Enabulele JE. A look at the two–way referral system: experience and perception of its handling by medical consultants/specialists among private medical practitioners in Nigeria. Int J Fam Commun Med. 2018;2(3):126-132. DOI: 10.15406/ijfcm.2018.02.00054

[70] Greenes R, editor. Clinical decision support. The road to broad adoption. 2nd ed. 2007

[71] Portal de la Ciudadanía en Salud PBA. Ministerio de Salud. Provincia de Buenos Aires. Documento de Trabajo.

[72] Ibidem. Page 3. Objetivo General.

following a medical protocol, could also recommend a teleconsultation with a doctor of basic specialties (i.e., general medicine, pediatrics, and/or gynecology).

15. **Virtual communication among health providers is also supported by the PBA digital agenda.** Through Component 2, the Project will finance a virtual network pilot to extend access to medical specialists to help PHCs facilities in remote areas to enhance its capacity and create linkages to different specialty practices (Table A2.2). Depending on the need in each line of care, the specialties could include oncology, diabetology, nephrology, ophthalmology, hypertension, gastroenterology, among others. The presence of these types of medical specialties is less frequent and is difficult to access for those people living in remote areas. The network will be initiated as a pilot project in four health areas, those with the lowest population density (*Regiones sanitarias* 1, 2, 8 and 9). These four areas represent 60 percent of the total geographical area of the province and home about 20 percent of total population. At least one municipality from each of these health areas will be selected for the pilot.

Table A2.2 Activities financed by Component 2, by year (US$)

Component 2. Subcomponents	2023	2024	2025	2026	Total
2.1 Enabling chatbot and implementing a virtual healthcare operational center	$2,555,000	$1,315,000	$880,000	$0	$4,750,000
2.2 Implementing a virtual network of PHC facilities with specialists in hospitals.	$500,000	$2,600,000	$2,740,000		$5,840,000
Total	$3,055,000	$3,915,000	$3,620,000		$10,590,000

Source: Own elaboration based on Project profile prepared by the Government of Buenos Aires

ANNEX III: Economic and Financial Evaluation

1. **The economic analysis estimates Project benefits of US$85.7 million in net present value in terms using a 4 percent annual discount rate, and an internal rate of return of 24.9 percent over a 10-year period.** Under a conservative scenario regarding the effectiveness of implementing digital health interventions, the Project will reduce early death and severe disability in the beneficiary municipalities. Furthermore, a reduction in health expenditure is expected for the municipalities and households involved.

2. **For fiscal year 2023, the budget for the MoH is estimated to be about US$2,153 million**. Assuming that over the next ten years the PMOH's budget and spending as share of provincial GDP remain the same, the Government will have a budget large enough to sustain the project's investment and recurrent costs.

3. **This section of the annex summarizes the Project's economic and financial analyses**. The first part describes the existing evidence on the impact of digital health interventions. The second part describes the Project's cost-benefit and fiscal sustainability analysis.

Impact of Digital Health Interventions

4. **The COVID crisis has highlighted the importance of digital health interventions to enhance the quality and efficiency of health care services**. They become even more relevant in low and middle-income countries since they not only need to achieve better health outcomes, but also contain the increase in healthcare costs.

5. **A digital health transformation can improve access, quality, and efficiency of health services.** Much literature exists on the subject, particularly on the implementation of electronic health records (EMRs) and telemedicine. The former contributes to improving the quality of health care by reducing diagnostic and medications errors, increasing health professionals' compliance with protocols, and enabling more accurate decision-making.[73] Similarly, the use of information technologies facilitates timely access to diagnoses and to medical information, provides greater transparency, and enables a more effective patient monitoring and control. Telemedicine interventions can also improve access, quality, timeliness, coordination, and continuation of care. They can also increase knowledge sharing and promote learning among health workers and patients, which allows better care for multimorbid chronic patients and prevent avoidable hospitalizations. Consequently, they improve patient outcomes and save resources.

6. **One of the main benefits of EMR systems for the entire health sector concerns the completeness and quality of information systems.** A literature review on benefits and drawbacks associated with the EMR system implementations reported that EMR systems commonly contribute to higher information availability and accuracy as well as timely access to up-to-date information.[74]

7. **In terms of health care processes, the evidence suggests that correctly implemented EMRs improve the quality and efficiency of health care.** A systematic review of 47 studies concluded that EMRs enhance quality of care, as they are associated with lower medical errors (risk ratio [RR] = 0.46, confidence interval [CI] = 0.38–0.55) and adverse drug effects (RR = 0.66, CI = 0.44–0.99) as well as with higher adherence to clinical guidelines (RR = 1.33, CI = 1.01–1.76).[75] For example, a US study found that compliance with quality diabetes care standards was

[73] See BID (2022), Hannele Hyppönena et al. (2014), Campanella et al. (2015), Mark J Dobrow et al. (2019).
[74] Nguyen, L., E. Bellucci and L.T. Nguyen. 2014. "Electronic Health Records Implementation: An Evaluation of an Information System Impact and Contingency Factors." International journal of medical informatics 83(11): 779–796.
[75] Campanella et al., 2016

higher in EMR-based practices than in paper-based practices: patients in EMR-based practices were 7.2 percentage points (pp) more likely to have a measurement of glycated hemoglobin compared to those in paper-based practices; similarly they were 25.0 pp more likely to receive an eye examination.[76] Other possible quality improvements included the follow-up of test results and better coordination within teams of professionals and among different levels of care.[77]

8. **Evidence on the impact of EMR systems is less strong when it comes to health care outcomes**. The systematic review with meta-analyses[78] assessed the impact of EMR systems on mortality in hospitals and intensive care units and did not find substantial effects of EMR systems on mortality. A qualitative assessment of the 45 studies included in the review showed great heterogeneity in the results, suggesting that the impact on mortality largely depends on the context and disease characteristics. However, evidence on the impact of EMR-related tools on morbidity is more convincing. For example, a literature review on the impact of Clinical Decision Support Systems (CDSSs) linked to EMR systems in terms of both mortality and morbidity. The review confirmed no substantial benefit in terms of mortality but presented a reduction in the relative risk of morbidity in the order of 10 to 18 percent.[79]

9. **Telemedicine can help deliver more cost-effective health services, improving patient outcomes and reducing the cost of care**.[80] Respondents in an OECD (Organization for Economic Cooperation and Development) survey of experts on digital health[81] considered that telemedicine interventions can improve access, quality, timeliness, coordination, and continuation of care. Furthermore, they can increase knowledge sharing and promote learning among health workers and patients, which allows better care for multimorbid chronic patients and prevent avoidable hospitalizations. Consequently, they improve patient outcomes and save resources. They may further increase efficiency and productivity by reducing provider travel time and allowing a higher volume of consultations.

10. **These digital tools can generate efficiency gains in the health system itself**, since interoperable EMRs can enable the sharing of patient information among different providers and medical specialists, reducing costs and diagnosis times. For the Government, interoperability processes and data management systems can optimize the way in which different health service providers and funders may operate in the same population. This can reduce the costs of care associated with duplicate diagnostic tests, unnecessary admissions, and preventable readmissions, making better use of system resources, and strengthening epidemiological surveillance systems. As an example, the Government of Uruguay, a country that extended EMRs in most health facilities, developed a preliminary assessment based on surveys conducted among both directors, healthcare professionals and users of health facilities.[82] The respondents agreed that the implementation of EMRs enhanced the efficiency of care (70

[76] Cebul, R.D., T.E. Love, A.K. Jain et al. 2011. "Electronic Health Records and Quality of Diabetes Care." New England Journal of Medicine 365(9): 825–833.
[77] Nguyen et al., 2014
78 Thompson, G., J.C. O'horo, B.W. Pickering et al. 2015. "Impact of the Electronic Medical Record on Mortality, Length of Stay, and Cost in the Hospital and ICU: A Systematic Review and Meta-analysis." Critical Care Medicine 43(6): 1276–1282.
[79] Moja, L., K.H. Kwag, T. Lytras et al. 2014. "Effectiveness of Computerized Decision Support Systems Linked to Electronic Health Records: A Systematic Review and Meta-analysis." American Journal of Public Health 104(12): e12–e22.
[80] Tiago Cravo Oliveira Hashiguchi, T. C. O. (2020). Bringing health care to the patient: An overview of the use of telemedicine in OECD countries. OECD.
[81] Semi-structured interviews were conducted with digital health experts from Argentina, Australia, Canada, Czech Republic, Denmark, Iceland, Ireland, Lithuania, Mexico, Netherlands, Norway, Slovenia, and Portugal.
[82] Every two years since 2014, Salud.uy has carried out a survey on the use of TICs in healthcare, including the EMR. The survey includes a representative sample of healthcare providers (50), healthcare professionals (600) and users (1000).

percent) and the work processes of their teams (80 percent), and improved the quality of treatment (70 percent). Moreover, directors also mentioned that it has improved patient satisfaction (60 percent), the quality of clinical decisions (60 percent), and has reduced duplicate or unnecessary examinations (between 60 and 80 percent), medical errors (between 60 and 70 percent) and errors in drug dispensing (between 60 and 70 percent).[83]

11. **Investment in comprehensive digital health interventions can lead to substantial savings in healthcare expenditures.** For instance, in Australia these savings have been estimated conservatively at AU$7.6 billion in 2020 alone, representing 3 percent of the nation's total healthcare expenditures. These numbers only reflect direct savings.[84] Evidence on the impact of EMRs is less strong when it comes to health care outcomes. The systematic review with metanalyses by Thompson et al. (2015) assessed the impact of EMRs on mortality in hospitals and intensive care units and did not find substantial effects on mortality. A qualitative assessment of the 45 studies included in the review showed great heterogeneity in the results, suggesting that the impact on mortality largely depends on the context and disease characteristics. However, evidence on the impact of EMR-related tools on morbidity is more convincing. For example, Moja el al. (2014) conducted a literature review on the impact of Clinical Decision Support Systems (CDSSs) linked to EMR systems in terms of both mortality and morbidity. The review confirmed no substantial benefit in terms of mortality but presented a reduction in the relative risk of morbidity in the order of 10 to 18 percent.

Project beneficiaries and expected impact

12. The Project will provide technical support to the implementation of the digital health strategy carried out by the PBA Ministry of Health. The main intervention lines of this digital agenda are:

(a) The expansion of the IHR to 30 new municipalities and, for 5 municipalities with their own EMR, support to ensure their interoperability.
(b) The extension of functionalities of the IHR to improve quality and efficiency in health care processes.
(c) The development of telemedicine tools and virtual access portals.

13. Over time, it is expected that this Project will improve quality and efficiency of health care in the province. The following are the expected benefits of the Project:

(a) Reduction in premature deaths and severe disabilities as a result of more effective diagnosis, timely treatment and better compliance with medication, especially for NCDs.
(b) Reduction in health expenditures in the selected municipalities and in households' out-of-pocket due to a decrease in health care costs, and improved access to health services in remote populations.

14. The Project has a total estimated cost of US$50 million. However, for the purpose of the cost-benefit analysis estimation that go beyond project closing date, the estimates include additional US$12 million of recurrent costs beyond the life of the Project.

[83] Friedmann, Déborah (2022), Implementación de la Historia Clínica Electrónica Nacional de Uruguay. *Banco Interamericano de Desarrollo*.
[84] See Chris Bartlett, Klaus Boehncke, Vanessa Wallace, Andrew Johnstone-Burt (2010) Optimizing E-Health Value Using an Investment Model to Build a Foundation for Program Success. Booz Company.

Cost-benefit analysis

15. **The analysis includes projecting epidemiological trends in the beneficiary municipalities for the period 2023-2032 and then estimating how many disability-adjusted life years might be averted with the project**. The information on premature deaths and disability in the municipalities prioritized for this Project was taken from the open data (dataset) of the Provincial Direction of Statistics and Digital Health of the Ministry of Health of the Province of Buenos Aires.

16. **The economic evaluation relies on the following assumptions**:

(a) **Temporal horizon**. The program will only disburse from 2023 through 2026, but the impacts of the program are expected to continue after the closing of the operation. Benefits are considered for an initial period of 10 years.

(b) **Discount rates**. This evaluation uses a 4 percent real discount rate. However, a sensitivity analysis has been performed with different discount rates (6 and 12 percent) to calculate the net present value and internal rate of return.

(c) **The health impact of the Project** is estimated based on the reduction of the disease burden of the population with public health coverage for the selected municipalities (premature death and severe disability). A conservative effectiveness of the digital health interventions of 4 percent over 10 years is assumed.

(d) **Valuation of premature death and severe disability** used a very simple rule. Each premature death saved is valued at per capita income (using a starting value of US$8,548 for April 2023 plus a growth rate of 1 percent per year). In the case of disability, the analysis valued each disability averted at 70 percent of per capita income.[85]

(e) **The analysis also estimated reductions in health care costs linked to errors and lack of timely diagnostics**. These reductions generate a direct benefit for the selected municipalities in terms of avoided costs associated with duplicate diagnostic tests, unnecessary admissions, and households' savings linked to reductions in out-of-pocket spending. A conservative cost (expenditure) reduction of 5 percent over 10 years was estimated.

(f) The health expenditure information of the selected municipalities and households was obtained from the PMTF.[86, 87] The epidemiological and expenditure data for municipalities and households correspond to 2019. These expenditures were brought to March 2023 using the consumer price index (INDEC).

[85] In US workers with a disability earn 87 cents for every dollar earned by those with no disability (US Census Bureau).
[86] Ministerio de Economía de la Provincia de Buenos Aires (2019). Estimación del Gasto Privado en Salud en la provincia de Buenos Aires.
[87] Ministerio de Economía de la Provincia de Buenos Aires (2019). Evolución Económica- Financiera 2009-2018 de los Municipios de la provincia de Buenos Aires.

Table A3.1: Key Assumptions

Concept	Amount
Discount rate	4%
Sensitivity discount rate 1	6%
Sensitivity discount rate 2	12%
Exchange rate (ARS/US$)	210
Per capita income (US$)	8.548
Out-of-pocket health care spending (US$)	62
Municipal health expenditure in millions (US$)	635

Source: World Bank estimates based on data in April 2023

17. **Table A3.2 displays the baseline data and a projected 10-year scenario based on the effectiveness of the proposed interventions.** By implementing digital health interventions, the Project will make possible a decrease the early death and severe disability. In addition, a reduction in health expenditures is expected for the municipalities and households involved. This is a conservative scenario.

Table A3.2: Preliminary estimation of the Project's expected health impact

	Baseline (2019)	Year 10	Difference
Early deaths	12,695	12,172	-4%
Years of life lost	223,273	214,063	-4%
Disability	46,798	44,867	-4%
Disability-Adjusted Life Years	446,546	428,125	-4%
Municipal health expenditure (US$ million)	181	173	-5%
Out-of-pocket health care expenditure (US$ million)	100	95	-5%

Source: World Bank estimates. April 2023.

18. **Table A3.3 displays the economic costs (including recurrent costs) and benefits expected through the implementation of the Project**. Based on these preliminary calculations, and maintaining the conservative scenario, the net present value of the project's benefits over a 10-year implementation period, using a discount rate of 4 percent, is positive at more than US$85.7 million, which represents an internal rate of return of 24.9 percent.

Table A3.3: Project Costs, Benefits, and Internal Rate of Return

Year	Total benefits	Total costs	Net Present Value
2023	0.0	13.4	-13.4
2024	0.0	16.4	-16.4
2025	1.8	17.0	-15.3
2026	5.1	3.2	1.9
2027	10.0	2.0	8.0
2028	16.4	2.0	14.4
2029	24.3	2.0	22.3
2030	33.8	2.0	31.8
2031	44.9	2.0	42.9
2032	57.4	2.0	55.4
Total	**193.6**	**62.0**	**131.6**
		Net present value	**85.7**
		Internal rate of return	**24.9%**

Source: World Bank calculations. April 2023.

A sensitivity analysis was carried out with different discount rates (6 and 12 percent) for the calculation of the net present value and the internal rate of return. The results are summarized in Table 3.4.

Table A3.4: Project sensitivity economic analysis

	ARS 210 = US$1		
	4%	**6%**	**12%**
Net present value, US$ million	85,7	68,7	33,4
Internal rate of return	24,9%		

Source: World Bank calculations. April 2023.

Fiscal sustainability

19. For fiscal year 2023, the budget for the MoH is estimated to be about US$2.15 million. Assuming that the PMOH's budget and spending remain roughly the same relative to provincial GDP over the next five years, the Government will have a large enough budget to sustain the investment and recurrent costs for the Project.

Table A3.5: Fiscal Impact (in US$ million)

FY	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Cost of project	13.4	16.4	17.0	3.2	2.0	2.0	2.0	2.0	2.0	2.0
MoH annual budget	2,153	2,185	2,218	2,251	2,285	2,319	2,354	2,389	2,425	2,462
Percentage of budget	0.62	0.75	0.77	0.14	0.09	0.09	0.08	0.08	0.08	0.08
Provincial GDP	236,580	240,129	243,731	247,387	251,098	254,864	258,687	262,568	266,506	270,504
Percentage of GDP	0.01	0.0	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: World Bank calculations. April 2023.