

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Strengthening the Capacity for Diagnosis and Validation of Digital Health Tools in Latin America and the Caribbean
▪ TC Number:	RG-T3733
▪ Team Leader/Members:	Tejerina, Luis R. (SCL/SCL) Team Leader; Almeida Oleas, Natalia (LEG/SGO); Bagolle, Alexandre (SCL/SPH); Bermudez Plaza, Neili Carolina (SCL/SPH); Nelson, Jennifer A (SCL/SPH); Park, Mihwa (SCL/SPH)
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	15 Jun 2020.
▪ Beneficiary:	All borrowing member states
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC Strategic Development Program for Social Development(SOC)
▪ IDB Funding Requested:	US\$400,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	September 2020
▪ Types of consultants:	Firms
▪ Prepared by Unit:	SCL/SPH-Social Protection & Health
▪ Unit of Disbursement Responsibility:	SCL-Social Sector
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Social inclusion and equality

II. Objectives and Justification of the TC

- 2.1 The objective of the operation is to strengthen regional knowledge regarding the implementation of digital health tools such as health information exchange platforms, electronic medical record systems at the primary level of care and train personnel from the countries of the region in the efficient use of digital health.
- 2.2 In terms of health, only 11 countries in the region have legislation that defines and validates electronic medical records, and only 14 of the 26 analyzed have a digital health strategy. Regarding the digitization of health services themselves, the region has limitations related to the lack of financing resources to implement electronic information systems. Although 53% of the countries have digital health strategies, many of them have not yet reached the formulation and implementation phases of the corresponding projects (Agudelo, et al., 2020). The only country that can claim to have made progress in the implementation of a national Electronic health Record is Uruguay.
- 2.3 The digitalization of the health sector, if well done, can bring many benefits in terms of quality and efficiency of the health sector. For example, a well-implemented electronic

health record has demonstrated quality improvements and cost reductions by improving adherence to clinical guidelines, reducing unnecessary duplication of examinations, errors, and time spent transcribing information and adverse effects of medication, and provide essential information for patient care (Nelson et al, 2019). Since 2017, the Social Protection and Health (SPH) Division of the Bank has been developing and implementing a strategy to develop tools and processes to facilitate and improve the design of digital projects in the health sector. These tools have already been implemented in ten countries and the results have been used for the design of projects and have positioned the Bank as an important technical partner in this area. Tools developed include a Maturity model for Electronic Health Record Systems (EHR-S), a methodology for strategic planning and selection of critical investments (the Future State/Critical Success Factors method) a guide for the development of telehealth models, a series of learning materials on digital health and a normative map for digital health (under RG-T3153 and RG-T3566). Existing tools however have focused more on helping countries build national strategies for the implementation of digital health that are consistent with health strategies of its member countries.

- 2.4 A necessary next step for the Bank is to work on developing tools for the implementation of specific components of digital transformation in health. Experience has shown that lack of understanding of good practices for implementation of digital health projects is one of the factors behind execution delays and problems. Important issues that need further understanding are how to identify all the relevant gaps for the implementation of a national platform such as a Health Information Exchange. Health information Exchanges, are in many cases the backbone of the development of Electronic Health Records and their implementation requires an analysis that goes beyond technology and needs to include an understanding of the legal context, human resources, infrastructure, existing systems and local culture. Another key tool is the Electronic Medical Record at the primary care level, which face similar implementation barriers, but have in addition to deal with high costs of development or licensing for the relatively small scale (and therefore capacity to pay) of small clinics. A practical approach to strengthen the capacity of implementation of our region is the development of digital public goods. Digital public goods are resources that systematize and document knowledge from countries that have had good experiences in the implementation of digital health with relatively low-cost models to use the knowledge in other countries.
- 2.5 Israel's health system is one of the most efficient in the world. Its cost-effective solutions are adapted worldwide and in 2018, it was ranked sixth in the world in Health Care Efficiency. While most OECD countries have been grappling with rapidly rising health costs, Israel has contained growth in health care costs to less than half the average for OECD countries over the past decade. Health care spending in Israel absorbed 7.5% of GDP in 2019 – the eighth lowest among OECD countries. Healthcare spending in Israel is also low in absolute terms, while in Israel spending on health for every person is an average of 2,780 dollars, in the OECD countries the spending sum per person totals approx. 4,000 dollars per annum¹. At the same time, Israel has also built a high-quality health care system based on quality primary health care. Israel's health statistics present the high quality of its health system in a variety of dimensions: the life expectancy in Israel totals 82.6 years while the average life

¹ <https://www.oecd-ilibrary.org/sites/4dd50c09-en/index.html?itemId=/content/publication/4dd50c09-en>

expectancy in OECD is only 80.7 years. Furthermore, in the OECD – 9.1% of the patients who were admitted to hospital following a heart attack will die within 30 days, as opposed to the rate in Israel, which totals at just 7.5% of the patients. Other indicators for the quality of healthcare in Israel reflect health behaviors. The percentage of alcohol consumption is the lowest among the countries of the organization. The number of smokers has dropped by one point and it is presently one percent lower than the average in the OECD countries. The rate of obesity among adults in Israel is also lower than average in OECD countries.

- 2.6 Factors contributing to system efficiency include regulated competition among the health plans, tight regulatory controls on the supply of hospital beds, accessible and professional primary care, and a well-developed digital health infrastructure. The Israeli health care system has also demonstrated a remarkable capacity to innovate, improve, establish goals, be tenacious and prioritize. Medical teams in primary care health clinics allow patients access to a broad range of health expertise and support in a one-stop-shop, offering care that helps avoid expensive hospitalization. For example, though Israel has the same rate of diabetes – 6.5% of the adult population – as many other OECD countries, it has the second lowest rate of hospitalization for poorly controlled diabetes. The result is a less hospital-dominated model of care with the share of hospital expenditure out of total health expenditure decreasing over the last 20 years.
- 2.7 Another factor contributing to Israel's efficiency is the use of digital technology. It was one of the first countries to start integrating electronic health records in clinics across the country, back in the early 1990s. The building blocks of Israel's digital health strategy are collecting clinical information at every point of care using EMRs and sharing the information between all healthcare organizations using a national Health Information Exchange (HIE).
- 2.8 One example of a unique project that helped in the collection of information at the point of care is CliniKal. CliniKal is a lightweight EMR project based on open source platform (misspelled intentionally since Kal in Hebrew means lightweight). The system was created to face the challenge of getting the small niche clinics like addiction treatment clinics, vaccination clinics etc in the Israeli health-system to use an EMR. The open source methodology was part of the Ministry of Health (MOH) strategy to achieve a basic level of customization and localization. This in turn promoted the development of a secondary market of CliniKal without being dependent on the MOH to keep on developing and maintaining the solution.
- 2.9 Another digital health infrastructure project initiated by the MOH is the national HIE network. To accelerate the interoperability, integration and care continuum in the Israeli healthcare system, the Ministry of Health in Israel deployed a national HIE over 6 years ago as part of its digital health strategy. The Israeli HIE network connects over 40 hospitals and 4 HMO, serving a population of over 8,000,000. The national HIE network allows doctors at every point of care nationwide, whether in an outpatient department, inpatient department or community clinic and regardless of ownership, to gain access to much of the patient's medical data history. Today in more than 33% of patients' admissions to the ER or inpatient departments nationwide, the doctors check the HIE for complementary medical information and thus saving lives, time and costs of redundant medical testing. One of the byproducts of the national HIE network is a very robust data connection of the MOH to all health organizations in Israel which is used for collecting clinical registries' data or monitoring the healthcare system in times of emergency like a pandemic outbreak.

- 2.10 The implementation of the national HIE project required successfully tackling many challenges in different areas such as regulation, privacy, technological architecture, financial incentives, terminology, onboarding policy, and more. The technological solution that the MOH chose for the national HIE network has a one of a kind architecture that manifests the complexity of these challenges and the flexibility and sensitivity needed for such infrastructure. The concept comprises of a distributed architecture with no central repository, an integrated EMR agent and a terminology conversion engine. This solution is also highly focused on patient privacy protection.
- 2.11 Israel also created in 2016 an institution dedicated to sharing experiences and knowledge with other countries. Healthcare Israel was created by Israel's Ministry of Health to share Israeli healthcare technology and innovation, the policies and regulations required to move them forward, the training and expertise needed to implement them. Since 2016, governments and healthcare leaders from China, Italy, Ethiopia, Germany, India, Denmark, Singapore, Poland, The Netherlands, Brazil, Liberia and Zambia have made partnerships and deals with Israel's health organizations and companies by working with Health care Israel.
- 2.12 The project aims to learn from the Israeli experience by learning to assess gaps and develop roadmaps for the implementation of HIE and primary care EMRs and by providing training on digital health based on the Israeli model to countries in the region.
- 2.13 **Strategic Alignment.** This TC is consistent with the Second Update to the Institutional Strategy (UIS) (AB-3190-2) and is strategically aligned with the development challenge of: Productivity and Innovation and Social Inclusion and Equality by increasing efficiency and quality of public health in the region. The TC is also aligned with the cross-cutting theme of: Institutional Capacity and Rule of Law by empowering management skills of public institutions through the use of digital health tools. The TC is also aligned to the Corporate Results Framework (GN-2727-12) through the indicator #2 "Beneficiaries receiving health services" and the indicator #26 "Agencies with strengthened digital technology and managerial capacity", since this technical cooperation supports the development of studies to improve the use of technology for management of healthcare systems. Furthermore, the TC is aligned with the objectives of the IDB Integrated Strategy for Climate Change Adaptation and Mitigation (GN-2609-1) per policy GN- 2819-1, and OC-SDP for Social development aims (GN-2819-1).

III. Description of activities/components and budget

- 3.1 **Component I: Assessment and proposal for a Health Information exchange and an Open source EMR for primary care.** This component will fund the development of a roadmap for the implementation of a HIE that will be used as a template for countries in the region that want to follow this path. The HIE proposal will be based on Suriname. The goal will be to enable sharing of medical information between healthcare providers. The report will explore the current status of the health information technology infrastructure in Suriname as well as a review and recommendations on: (a) Architecture: a high level (HL) national HIE architecture considerations and alternatives, Interoperability recommendations with other local and national Health Information Technology (HIT) solutions, (b) Project management: HL project's KPIs definition, HL HIE project Risk Analysis (technological, clinical, political, financial, HR etc.), HL project timeline plan (by phases), HL overall budget (Human resources, IT, hardware, etc.), (c) Implementation: HL recommendations regarding: Processes, user's scenarios and roles, Scope of participating health organizations, Shared clinical

domains, Main features, (d) Terminology: Text exchange vs. coded information exchange considerations, Coded information terminology conversion approach alternatives, (e) Incentives: Organizations onboarding policy (voluntary, incentivized, mandatory), (f) Regulation, Ethics & Privacy: HIE use case scenarios considerations and restrictions (treatment\research\public health\PHR, etc.), Opt-in\Opt-out patient onboarding policy, Confidential information treatment considerations², (g) Cyber security: HL HIE Cyber security considerations and alternatives (Application, Data protection, Network etc.), (h) Digital policy: Promoting health policy objectives, HIE goals and pathways (as derived from the Digital health strategy or as defined independently). Suriname was chosen as a candidate to develop this product because it is currently in the design stage of an HIE for the country. Suriname has currently a GDP per capita of US\$6200 and the health system is composed of private and public providers that include approximately 250 primary care providers and 5 hospitals that would be connected through the HIE.

- 3.2 Regarding the EMR for primary care, the product will thoroughly explore the opportunity to implement the Israeli, open source based, EMR (Electronic Medical Record) solution (AKA CliniKal) tentatively in Guyana by means of an on-site Proof of Concept (POC) aiming to achieve the specific KPIs defined by the Guyanese ministry of health. The contractor will conduct the POC for a limited number of weeks and for limited number of users in one organization. The system will be installed on the cloud and the system language will be in English. Prior to the on-site POC kickoff the contractor will perform (a) gap analysis (b) minor modification to system accordingly (c) remote and on-site training to the Guyana POC team on the modified CliniKal version. During the POC, remote technical support will be supplied. Guyana's percapita GDP is approximately US\$5,000. The public sector has approximately 109 health centers throughout the country that would be eligible for the POC. Guyana was considered because it is at a very early stage of development in terms of digital health, therefore there is less risk of disrupting the use of an existing information system or plans to scale one up. Change will be less disruptive and the POC will be more useful compared to other cases in which there is already a system (partial or complete) already working. The same criteria would be used to select an alternative country for the exercise.
- 3.3 Tools for the digital toolkit for implementation of digital health projects will be developed under each product so that the experiences become models for other countries. Dissemination of the tools and products will be done through the Social Digital webpage (former +Digital) and our partnership with the Pan-American health Organization which have been our main channels of dissemination³.
- 3.4 **Component II: Training course of health informatics and a study on the HIE implementation in Israel.** The objective the training course will be to conduct an online digital health training for decision-makers and technical leaders from Health ministries and hospitals in Latin American and the Caribbean countries. The training will take place as a weekly virtual session for a period of about 12 weeks. The contractor will provide a detailed syllabus for such training led by experienced experts and including the following topics: (a) Introduction to Israel's digital health strategy and deep-dive to the SPRINT methodology; (b) EMR\EHR at every point of care and

² This section will include the analysis of data protection policies in the country.

³ The Social Digital webpage had 31,000 visits in the last 4 months and the time spent is higher than the Bank's average by 50%.

Personal Health Record (PHR); (c) Acquaintance with Israeli digital health startups and innovation eco-system; (d) Building the national data backbone using a Health Information Exchange Platform; (e) Practical models for promoting health care innovation; (f) Implementing tele-medicine systems and solutions; (g) Explore the healthcare cybersecurity innovation world; (h) Use of open source solutions in healthcare and Israel's national light-weight EMR study case; (i) Challenges and opportunities in health Big Data research; and (j) Hospital network management platforms.

- 3.5 The study will describe the process of implementing a national Health Information Exchange (HIE) platform in Israel. This case study document will serve as a reference to LAC countries interested in implementing HIE platform on a national scale. The contractor will submit a document describing the challenges and dilemmas that the leaders of the national HIE initiative in Israel faced and the solutions they selected to tackle them. The case study document will refer to following aspects: (a) Background information on the Israeli healthcare eco-system; (b) The Israeli digital health strategy and initiative; (c) National HIE, the care continuum challenge and the conceptual solution (d) Solution architecture, alternatives and considerations; (e) Cyber Security, risks and mitigations (f) Implementation methodology and Leading managerial forums (g) Terminology conversion challenges and solutions; (h) Organizations onboarding incentives considerations; (i) Ethical dilemmas in implementing HIE and their resolution; and (j) The future roadmap for HIE.
- 3.6 The total cost of this TC will be US\$400,000 which will be financed by the OC Strategic Development Program for Social Development (SOC). The execution and disbursement period will be 24 months.

Indicative Budget (US\$)

Activity/Component	IDB/SOC	Counterpart Funding	Total Funding
Component I. Assessment and proposal for a Health Information exchange and POC for Open source EMR for primary care	300,000	0	300,000
Component II. Training course of health informatics and studies on HIE and Open Source EMR	100,000	0	100,000
Total	400,000	0	400,000

IV. Executing agency and execution structure

- 4.1 The Technical Cooperation will be executed by the Bank due to its regional character and because the logistics for execution will depend on direct contact between the Bank and the Government of Israel. In addition, sustainability of the project will not be affected by the Bank being the executing unit as it is expected that the Bank itself will disseminate and implement the learnings from this TC in future projects and will further coordinate directly with beneficiary institutions.
- 4.2 All activities to be executed under this TC have been included in the Procurement Plan (see Annex III) and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-28 for logistics and other related services. According to Policy GN-2765-4 and Guidelines 1155-3, the

Single Source Method shall include clearance by OCSU staff prior to RFP issuance. The technical cooperation will seek the single source hiring of healthcare Israel for the implementation of the activities under the technical cooperation. Being an institution built by the Ministry of Health of Israel for this explicit purpose, Healthcare Israel has exceptional experience in the sharing of knowledge on the Israeli system and its digital technology with other countries as listed in paragraph 2.10 and a broad knowledge of the Government level process of design and implementation of the tools that will be developed under this technical cooperation. The focal point for monitoring and evaluation will be Luis Tejerina (SCL/SCL).

- 4.3 All knowledge products derived from this Technical Cooperation will be Bank's intellectual property. Knowledge products will be published through the Bank's web page and other means accounted for in the indicative budget.
- 4.4 All the products financed by this TC will include toolkits, guides and manuals that will be usable and replicable for all the countries in the region. If activities in one of the participating countries are required, the team will obtain the country's no objection before the start of the activities.

V. Major issues

- 5.1 Among the risks identified is the risk that the language barriers might be a problem for the implementation of the EMR product, since it will involve continuous coordination with the country selected. For this, the country selected will be English speaking to facilitate the implementation of the studies. Another risk identified is that the implementation of the EMR study in particular or other studies are delayed due to the current pandemic. The execution of the technical cooperation will minimize the time needed from authorities from the countries in which the studies are performed and will maximize flexibility in terms of scheduling meetings.

VI. Exceptions to Bank policy

- 6.1 There are no exceptions to the Bank policy.

VII. Environmental and Social Strategy

- 7.1 According to the Environmental and Safeguards Compliance Policy (OP-703), Indigenous Peoples (OP-765), and Gender Equality (OP-270). The TC will not finance infrastructure or civil works. The proposed interventions are expected to cause minimal to no negative impacts. This TC is classified as category "C", see [SPF](#) and [SSF](#).

Required Annexes:

[Results Matrix - RG-T3733](#)

[Terms of Reference - RG-T3733](#)

[Procurement Plan - RG-T3733](#)