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# INTEGRATING NON-COMMUNICABLE DISEASE MANAGEMENT INTO PRIMARY HEALTH CARE.

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## AN ANTHOLOGY OF COUNTRY CASES

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*Moving NCD Care Forward*

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# List of Abbreviations

<b>BP</b>	Best Practice
<b>CHW</b>	Community Health Worker
<b>CVD</b>	Cardiovascular Disease
<b>DLI</b>	Disbursement Linked Indicator
<b>EML</b>	Essential Medicine List
<b>ESP</b>	Essential Service Package
<b>GDP</b>	Gross Domestic Product
<b>HPV</b>	Human Papillomavirus
<b>IPF</b>	Investment Project Financing
<b>LMIC(s)</b>	Low- and Middle-Income Countries
<b>MOH</b>	Ministry of Health
<b>NCD</b>	Non-communicable Disease
<b>PAHO</b>	Pan-American Health Organization
<b>PHC</b>	Primary Health Care
<b>PforR</b>	Performance-for-Results
<b>SDG</b>	Sustainable Development Goal
<b>UHC</b>	Universal Health Coverage
<b>WHO</b>	World Health Organization

# Executive Summary

Non-communicable diseases (NCDs) are increasingly placing significant health and economic burdens on low- and middle-income countries (LMICs). Approximately three out of every four deaths globally are attributed to NCDs, with hypertension affecting over a third of adults in LMICs. In response, the United Nations has included the reduction of NCD mortality by one-third by 2030 as one of its Sustainable Development Goals (SDGs).

In an era where the burden of NCDs continues to escalate globally, it has become imperative for nations to explore and adopt effective strategies for prevention and management. Integrating NCD prevention and management into primary health care (PHC) is crucial for providing comprehensive and accessible healthcare services. Primary care serves as the initial point of contact for individuals seeking medical assistance and plays a pivotal role in promoting health, preventing diseases, and managing chronic conditions like cardiovascular diseases, diabetes, cancer, and respiratory illnesses. By embedding NCD services within primary health care settings, individuals receive timely screening, diagnosis, treatment, and ongoing support, leading to improved health outcomes and reduced healthcare costs.

The World Bank has significantly increased its investments in NCD management, particularly over the past decade. Since 1980, the World Bank allocated over \$7 billion to NCD-related projects, with half of this amount dedicated to projects initiated between 2016 and 2020. This surge in investment underscores the growing recognition of the urgent need to address the NCD epidemic. As demand from countries for investments in NCD management is expected to continue rising, it becomes crucial to equip stakeholders with the necessary tools to guide strategic investments.

The aim of this report is to collate real-world examples showcasing the integration of 'best practices' for managing NCDs within PHC systems. This anthology accompanies the 'Non-Communicable Disease System Assessment Tool,' which aims to support World Bank country teams to a) rapidly (~3 months) assess gaps implementation of a set of best practices for NCD prevention and management. Specifically, the tool evaluates health systems against 43 best practices—practical policies, plans, programs or structures—recommended by global consensus panels or proven to be effective in meta-analyses, systematic reviews and Cochrane reviews. These best practices that make up the assessment tool are the foundation of the case studies in this anthology.

Drawing on desk-based review of available data, peer-reviewed and grey literature, and a small set of key informant interviews, the cases in this anthology detail the successes, challenges, and lessons learned from the adoption of these best practices in diverse country contexts.



# INTRODUCTION

## The Rising Tide of NCDs

The prevalence of NCDs has reached alarming levels globally, with a profound impact on health and economic well-being, particularly in LMICs. Recent statistics underscore the magnitude of this issue: approximately three out of every four deaths worldwide are attributed to NCDs, according to the World Health Organization (WHO) [1]. Conditions such as cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases constitute the bulk of NCDs, exerting immense strain on healthcare systems and hindering socio-economic development. The burden of NCDs is disproportionately higher in LMICs, where these diseases are increasingly becoming leading causes of morbidity and mortality. For example, among deaths in LMICs due to cardiovascular disease (CVD), 50 percent were deemed premature (occurring before age 70 years), compared to 20 percent in high-income countries (HICs) [2]. While NCDs were not addressed in the U.N. Millennium Development Goals, these developments have led to their incorporation into Sustainable Development Goal 3.4. This goal aims to decrease premature mortality from NCDs by one-third by the year 2030.

Several key drivers contribute to the surge in NCDs across the globe, with lifestyle factors playing a significant role. Shifts towards more sedentary lifestyles, unhealthy dietary habits, tobacco use, and excessive alcohol consumption are primary contributors to the escalating prevalence of NCDs. These trends are embedded in the fabric of the commercial determinants of health, referring to practices conducted by industry and associated stakeholders that shape the environments in which individuals make health-related choices, often prioritizing profit over public health considerations. Other societal and environmental transitions, such as urbanization, globalization, and the ramifications of climate change, further exacerbate the global NCD burden. Furthermore, population aging is amplifying the prevalence of NCDs, as older adults are more susceptible to chronic conditions.

The health and economic consequences of the rising tide of NCDs are profound and multifaceted, particularly in LMICs. From a health perspective, NCDs impose a heavy toll on individuals and communities, leading to increased morbidity, disability, and premature mortality. Chronic conditions often necessitate lifelong management, placing strains on healthcare systems and diverting resources away from other pressing health priorities. Moreover, the economic impact of NCDs is staggering, with healthcare expenditures skyrocketing and productivity losses mounting due to disability and premature death. The socio-economic implications extend beyond the healthcare sector, affecting individuals, families, and societies at large, perpetuating cycles of poverty and inequality. In LMICs, where resources are already constrained, the burden of NCDs exacerbates existing challenges, posing formidable obstacles to achieving sustainable development goals and economic prosperity.

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[1] World Health Organization (2022(a)). Noncommunicable diseases. World Health Organization, Geneva. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>

[2] Frieden, T.R., & Bloomberg, M.R. (2018). Saving an additional 100 million lives. *The Lancet*, 391(10121):709-712. doi:10.1016/S0140-6736(17)32443-1

## The Landscape of NCD Prevention and Management

In order to confront the rising tide of NCDs, it is crucial to impede its advancement through various stages, encompassing primary, secondary, and tertiary prevention measures. Primary prevention endeavors to avert the onset of diseases by enhancing health behaviors or providing preventive services such as immunization. Subsequently, when a disease manifests, secondary prevention endeavors to manage the disease and mitigate damage to the body. Finally, tertiary prevention offers advanced, albeit more expensive treatments, to restrict further disability after damage has occurred.

Prevention requires a multifaceted approach encompassing robust public policies and strengthened healthcare systems that emphasize primary care. From a public policy perspective, comprehensive strategies are needed to tackle the root causes of NCDs, including unhealthy diets, tobacco use, physical inactivity, and harmful use of alcohol. This entails implementing evidence-based interventions such as taxation on unhealthy products, regulation of food marketing to children, and promotion of environments conducive to physical activity. Robust primary health care (PHC) also plays a crucial role in promoting healthy lifestyles through individual counseling. PHC is crucial for secondary prevention by facilitating timely disease identification, such as through screening, and providing medication, treatments, and counseling for those diagnosed. In terms of tertiary prevention, PHC aids in identifying complications and referring patients to specialized services or hospitals. Nevertheless, managing diseases before they necessitate tertiary prevention is more advantageous for both patients and the healthcare system.

An effective healthcare system must also possess sufficient infrastructure and capacity to support the prevention and management of NCDs. At the heart of a robust healthcare system lies the principle of universal coverage for essential health services, supported by well-maintained clinics equipped with necessary resources. This includes a skilled workforce comprising doctors, nurses, and other healthcare professionals, alongside a reliable supply chain for medications and supplies. Governance structures and health information systems must also be robust and responsive, tailored to incorporate NCD management. Specific equipment for NCD diagnosis and monitoring, such as blood pressure monitors and lab analyzers for blood sugar or cholesterol, is essential. Moreover, essential drug lists should encompass medications for hypertension, diabetes, and other chronic conditions. Healthcare systems should foster well-trained personnel proficient in NCD management guidelines, complemented by interdisciplinary teams including counselors versed in diet, healthy lifestyle promotion, mental health, and disease management. It is imperative for health information systems to accurately capture data on NCDs, compute relevant indicators, and offer decision-making support. Furthermore, providers must be held accountable for adhering to best practices in safe, equitable, and effective NCD management, ensuring quality care delivery across the continuum of prevention, diagnosis, and treatment.

Unfortunately, significant gaps exist in the effective prevention and management of NCDs. From a policy perspective, inadequate adoption and implementation of evidence-based interventions hinder effective NCD prevention efforts, with challenges ranging from industry influence to limited political will.



Similarly, healthcare systems often lack the capacity to provide timely diagnosis, treatment, and ongoing management of NCDs, resulting in poor outcomes. For example, in a meta-analysis of population surveys in 44 LMICs, prevalence of hypertension among adults was 17.5percent based on blood pressure measurements in the sample. Of that group, 73.6percent had been screened (blood pressure taken previously), 39.2percent were diagnosed with hypertension, 29.9percent received treatment, and only 10.3percent had achieved blood pressure control [3]. Insufficient infrastructure, workforce shortages, and inequitable access to healthcare services exacerbate these challenges, impeding progress in NCD prevention and management. Addressing these gaps requires concerted efforts from policymakers, healthcare providers, and stakeholders to strengthen public policies, enhance healthcare infrastructure, and prioritize NCD management within healthcare systems to effectively tackle the growing burden of NCDs.

## World Bank Action to Support NCD Integration

The integration of NCDs, particularly into primary care settings, has become a prominent focus in World Bank projects aimed at strengthening healthcare systems. Between 2016 and 2020, there was a significant increase in investment dedicated to addressing NCDs in various projects, averaging \$135 million USD annually in new loan commitments specifically allocated to enhancing prevention and management efforts for these diseases (see *Figure 1*). A substantial portion (48%) of the World Bank's health sector portfolio projects approved between 1980 and 2020 that incorporate NCD-related activities received approval in 2016 or later (see **Appendix A, Figure 1**). These projects were primarily concentrated in middle-income countries across Eastern and Central Europe, Southeast Asia, and Latin America and the Caribbean. More recently, project financing has extended to lower-income countries. In fiscal years 2021 and 2022, the World Bank approved 40 health, nutrition, and population projects, with 19 (48%) of them integrating NCD-related activities. Notably, seven of these projects (36%) were focused on the Sub-Saharan Africa Region [4]. A summary of recent World Bank projects to address NCDs can be found in **Appendix A, Table 1**.

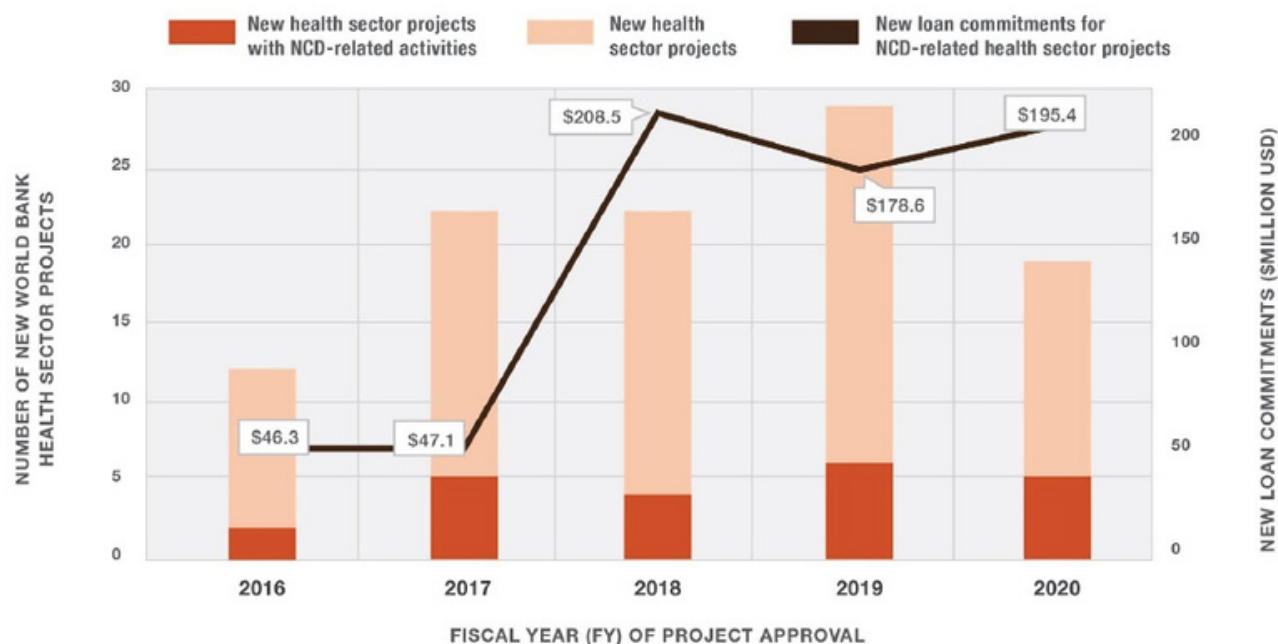
In recognition of this growing demand for action to address NCDs, a team at the World Bank, with support from Access Accelerated, recently developed a rapid assessment tool to determine priority areas for investment in NCD management, particularly within PHC systems. The newly developed assessment tool, 'The Non-Communicable Disease Assessment Tool for Identifying Priorities for Investment,' serves to systematically identify system gaps in how countries manage NCDs [5].

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[3] Geldsetzer, P., Manne-Goehler, J., Ebert, C., et al. (2019). The state of hypertension care in 44 low-income and middle-income countries: a cross-sectional study of nationally representative individual-level data from 1.1 million adults. *The Lancet*, 394(10199):652-662. doi: 10.1016/S0140-6736(19)30955-9

[4] Villar Uribe, M., Feil, C., & Vicencio, J. (2022). Primary Health Care in the World Bank from FY2010-FY2020. Washington: World Bank. Retrieved from <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099607008042216441/idu00081219709dda0446f0b00503a5ac42fd2c8>

[5] Chan, B., Wahnschafft, S., & Xu, M.M. (2024). The Non-Communicable Disease System Assessment Tool for Identifying Priorities for Investment. Washington DC: World Bank.



**Figure 1.** Number and dollar amount of new World Bank health sector projects with NCD-related activities, 2016-2020. Source: World Bank Operational Portal.

## Overview: NCD Assessment Tool

The tool is built on two foundational conceptual frameworks to guide the integration of NCDs into PHC. The first is the WHO Operational Framework for Primary Health Care (see **Appendix B, Figure 1**), which lists 14 strategic and operational levers which define a high-performing health system and the results it intends to achieve [6]. The strategic levers in the framework are high-level policy or governance actions which a ministry of health or oversight body can implement. They include robust universal health coverage, clear plans, an accountability structure that links the ministry's expectations to middle management structures and front-line providers, funding, and policies for discouraging unhealthy behavior.

The second framework used to guide the development of the tool is the Chronic Care Model (see **Appendix B, Figure 2**), which is widely used by countries to guide their efforts in improving the management of NCDs [7]. The framework emphasizes the need for a well-organized approach to delivering services, decision supports, clinical information systems, self-management support for patients and community-focused resources and policies.

[6] United Nations Children's Fund (UNICEF) (2020). Operational framework for primary health care: transforming vision into action. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2020. Licence: CC BY-NC-SA 3.0 IGO. Retrieved from <https://www.who.int/publications/i/item/9789240017832>

[7] Wagner, E.H. (1998). Chronic disease management: what will it take to improve care for chronic illness? *Effective Clinical Practice*, 1:2-4. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/10345255/>



Using these conceptual frameworks, the tool is structured around 43 best practices for the integration of NCDs into PHC (see **Appendix C** for the full list of best practices). These best practices were developed based on a review of consensus documents and guidelines from the WHO, World Bank and other organizations as well as systematic reviews, Cochrane reviews and meta-analyses.

The tool examines health system capacity and infrastructure, work processes and models of care, the policy environment and information systems, and collates existing data on current performance on patient quality measures. By doing so, it equips both the country requesting financing and World Bank task team leaders with an evidence-based approach to determine investment priorities. These priorities can then be integrated into the design of Bank projects aimed at strengthening NCD management within PHC systems. Additionally, the tool facilitates the pooling of existing NCD information in a structured manner, supplementing it with more specific questions asked during interviews and site visits. This comprehensive approach enables a more holistic understanding of the country's NCD management landscape, empowering stakeholders to make informed decisions and drive impactful interventions.

To accompany and support the utility of the rapid assessment tool, this anthology serves to examine the adoption of a select set of best practices for integrating NCDs into PHC in real-world contexts. Additional details on the scope and methodology adopted for the development of the anthology can be found below.

## Overview: An Anthology of Country Cases

Case studies were selected based on the opportunity to synthesize meaningful insights into the successes, challenges, and lessons learned from adopting best practices for NCD prevention and management. Thus, cases were selected based on the availability of published information on the process of best practice adoption available in peer reviewed and/or grey literature. Where possible, these cases were supplemented with a select set of key informant interviews (~1-2 per case) for additional insight into the process of designing, implementing, and/or evaluating identified best practices.

Document review and key informant interviews were guided by the following questions:

- What were the major activities conducted to implement the *[selected best practice(s)]* for improving NCD management in *[selected case setting(s)]*?
- What have been the major successes of this *[selected best practice(s)]* for improving NCD management in *[selected case setting(s)]*?
- What have been the major challenges encountered in implementing *[selected best practice(s)]* for improving NCD management in *[selected case setting(s)]*?
- What have been the relevant lessons learned in implementing *[selected best practice(s)]* for improving NCD management in *[selected case setting(s)]*?

The selected set of country case studies reflect a broad range of best practices for the integration of NCDs into PHC, as well as a diversity of country contexts and populations reached. An overview of each of the case studies, as well as the corresponding best practice(s) (BP)s discussed can be found below:

### **Case 1 Tackling NCD Risk Factors: Salt Reduction Strategy (Argentina)**

This case takes a deep dive into a pioneering country with regard to adopting public policy for preventing NCDs: Argentina. This case offers important insights in terms of opportunities, challenges, and strategies to successfully introducing legislation that directly counters food and beverage industry interests. Specifically, this case will focus on opportunities and challenges of working with the food industry on salt reduction in the case of Argentina, as well as lessons learned passing one of the world's forefront mandatory reformulation laws.

..... **BP2.5** Unhealthy food policies (sugar, salt, trans-fatty acids).

### **Case 2 Improving Delivery Of Essential NCD Medicines: HPV Vaccine Programmes (Rwanda & Bhutan)**

This case explores in detail the experience that two pioneering countries, Rwanda and Bhutan, have had in implementing successful HPV vaccination programmes in low-resource settings. It offers insights on integration of HPV programming into expanded immunization programmes and primary healthcare. It also provides a framework for developing multi-sectoral and multi-stakeholder collaboration. It also explores some of the challenges facing successful HPV vaccination campaigns in terms of access to medicines and vaccine delivery and offers recommendations.

..... **BP8.1** Essential medicines for NCDs available.

..... **BP8.3** Strong supply chain management.

### **Case 3 Integrating Coverage of NCD Medicines: The Essential Service Package (Costa Rica)**

Costa Rica is regarded as one of the leading countries globally to integrate "best practices" NCD management in its essential service package. This case study provides an in-depth assessment and insight of the country's experience, strength, and lessons learned in implementing its NCD integration efforts.

..... **BP2.1** Universal health coverage for NCDs.

..... **BP3.1** Dedicated funding for NCDs.

#### **Case 4 Promoting a Continuum of NCD Care: Diabetes Management (Vietnam)**

Vietnam is a developing country with high growth of economics as well as prevalence of NCDs. This case study focuses on the Vietnam National Target Program of Diabetes, which composes of the health promotion and education, large scale of screenings and diabetes management. This study provides an in-depth analysis of Vietnamese strategies on promoting programs in rural setting and integrating NCD management into healthcare systems, as sending village health workers to families and establishing diabetes preventive, screening and management network including commune clinics, district hospitals, provincial and national hospitals

- ..... **BP5.1** NCDs managed at PHC level.
- ..... **BP5.3** Structured NCD screening program.
- ..... **BP5.8** Services delivered to households.

#### **Case 5 Adopting an Integrated Model of Care: Protecting Vulnerable Populations from NCDs Project (Argentina)**

This case provides a pithy overview of an integrated NCD project, the first precedent of a World Bank project entirely dedicated to NCDs, that adopted a three-pronged approach to improving NCD prevention and management: (1) focus on improving quality and comprehensiveness of services in primary care; (2) addressing NCD risk factors through community-based interventions; and (3) communication activities to increase demand for NCD services.

- ..... **BP5.10** Patient self-management program.
- ..... **BP12.3** Decision support tools for NCDs.
- ..... **BP14.2** Person-oriented charting within PHC.

#### **Case 6 Multi-sectoral Planning for NCDs: Shifting Mental Health Services to Primary Care (Vietnam)**

This case examines how multisectoral planning involving the Ministry of Health and Ministry of Labor, Invalids, and Social Affairs in Vietnam facilitated a community-based program for mental health care that improved access to medicines and rehabilitative services at the community level amongst persons with mental disorders (PWMD). Lessons learned on key enablers of effective multisectoral action are explored.

- ..... **BP4.1** Multi-sectoral planning beyond health.

#### **Case 7 Adopting Population-Based Cancer Prevention and Control: Plan Esperanza (Peru)**

This case examines Plan Esperanza, which was adopted by the Peruvian government in 2012 to (1) promote healthy lifestyles for cancer prevention and (2) strengthen early detection and comprehensive care through all stages of disease progression. The case highlights how a country with relatively low proportion of healthy expenditures in relation to its GDP can create and implement a comprehensive, equitable, and population-based cancer control program.

- ..... **BP1.1** National NCD strategy / plan with targets, activities, timelines.
- ..... **BP3.1** Dedicated funding for NCDs.

## Case 8 Lessons Learned Within the Health Program for Results (Costa Rica)

This case presents a summary of the activities, successes, challenges and lessons learned in the design and implementation of a Performance for Results (PforR) project in Costa Rica, which focused on enhancing UHC in Costa Rica. Given the growing NCD burden in Costa Rica, many of the project activities were highly relevant to improving the prevention and management of NCDs. This case is particularly relevant to understand the promise of PforR as a financing instrument for health sector projects

..... **BP2.1** Universal health coverage for NCDs.

..... **BP5.1** NCDs managed at PHC level.

## Case 9 Expanding Coverage of the Single Digital Health Record (Costa Rica)

This case takes a deep dive into one of the major project activities undergone during the Program for Results for the Strengthening of Universal Health Insurance PforR in Costa Rica: the three-year expansion of the EDUS to all levels of care in Costa Rica – even to areas without electricity or internet connection. The case details the functionality of EDUS, activities undertaken through the PforR to expand coverage, evidence and facilitators of success, challenges encountered, and lessons learned in the expansion of one of the most comprehensive electronic medical records in Latin America

..... **BP11.2** Electronic medical record.

## Case 10 Monitoring Social Determinants of Health (Costa Rica)

This case takes a deep dive into one of the major project activities undergone during the Program for Results for the Strengthening of Universal Health Insurance PforR in Costa Rica: the digitization of the family record system into the Integrated Family Record System (SIFF). This system, which collects socio-economic and health information at the household level, enables early detection of vulnerable populations, identifies groups that require greater attention in terms of prevention, and facilitates referral to other levels of health care or other social services. The case details the activities undertaken through the PforR to digitalize records evidence and facilitators of success, challenges encountered, and lessons learned.

..... **BP5.2** Referrals and coordination with specialists.

..... **BP14.1** NCD surveillance data exists (tracking incidence, prevalence, mortality).





# ARGENTINA

## TACKLING NCD RISK FACTORS: SALT REDUCTION STRATEGY

Simone Wahnschafft & Jaime Bayona Garcia

## KEY MESSAGES

- While voluntary approaches can be helpful first steps, a mandatory approach to industry salt reformulation through legislation is necessary for successful salt reduction and should be a key component of strategies for non-communicable disease (NCD) prevention.
- Argentina is a global leader in salt reformulation policy, as it is one of a handful of countries to adopt a legislative framework for salt reformulation to date. This case discusses key challenges, strategies and lessons learned from the experience of salt reformulation in Argentina.
- Key concerns to be considered in salt reduction policy include navigating the relationship with the private sector, generating contextualized and up-to-date evidence for designing and implementing salt reformulation policy, and aligning policy with action to persuade the public to reduce salt intake.

## INTRODUCTION

High dietary salt intake increases blood pressure and the risk of heart disease and stroke, is a leading driver of cardiovascular diseases (CVD). The World Health Organization (WHO) recommends that people consume no more than five grams (5g) of salt per day but average daily salt intake among adults exceeds this limit in 181 of 187 countries—representing 99.2 percent of the adult population worldwide.<sup>1</sup> High salt intake has serious implications for health around the globe, as it is estimated to account for nearly one of every 10 deaths from CVDs, the leading cause of death worldwide [1]. The vast majority of CVD deaths attributable to excess salt intake occur in low- and middle-income countries (LMICs).

To reduce the global burden of non-communicable diseases (NCDs), the WHO recommends countries aim to reduce salt intake by 30 percent by 2025. The Global Action Plan for the Prevention and Control of NCDs, made salt reduction one of nine global targets for achieving the global goal of a decrease in premature mortality from NCDs [2]. WHO estimates 2.5 million deaths could be prevented each year if global salt consumption were reduced to the recommended limit [3].

To achieve this, the WHO recommends four actions (or ‘best buys’) for cost-effective salt reduction, particularly in low- and middle-income countries (LMICs). Several studies have shown the majority of excess salt intake is from salt added during manufacturing of processed food rather than salt added directly by consumers [4],[5]. Thus, public policy regulating salt in processed food and effectively informing consumers of the health risk from processed food is a key action for countries looking to prevent NCDs. Specifically, the WHO recommends four areas of public policy for salt reduction (see **Box 1**) [6]. Together, these actions constitute a key best practice countries must strive toward to realize meaningful improvements in the preventing and managing NCDs.

### **Box 1. NCD Best Practice: Sodium Reduction Policies.**

Four national policies/actions for reducing population salt consumption:

1. Reformulate food products to contain less salt;
2. Establish supportive environments for lower sodium options;
3. Reduce salt intake through behavior change communication, and
4. Use front-of-package labelling.

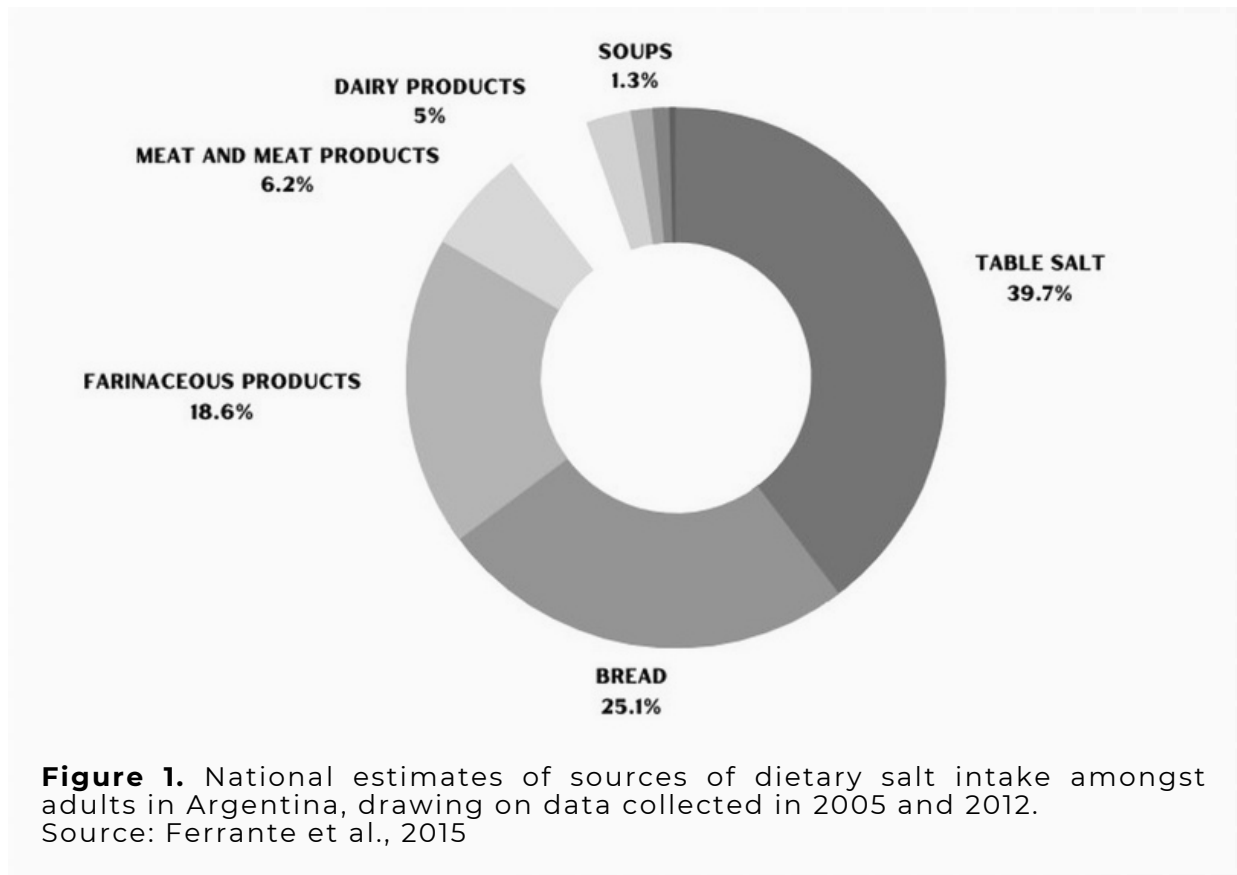
Source: WHO, 2017

The objective of this case study is to highlight the experience of a global leader on adopting best practice policy actions for salt reduction. Argentina is one of two countries in the world (the other is South Africa), to institute mandatory limits for salt reformulation in key products heavily consumed by the population. This case provides an overview of the legislation and complementary action taken to date, emerging evidence of policy impact, key challenges and strategies through the policy design and implementation process, and key lessons learned.

### **SALT REDUCTION ACTION: AGENDA-SETTING**

Salt reduction rose on the national health agenda in Argentina in the early 2000s because of a high burden of hypertension and heart disease. Cardiovascular disease (CVD) is the leading cause of death in Argentina, with 37 percent of CVD deaths attributed to hypertension [7],[8]. In the years before the first national actions on salt reduction, intake among adults was estimated at eleven grams per day (11 g/day)—over twice the WHO's recommended limit [9].

Several studies led by the Ministry of Health (MOH) between 2006-2009 showed promising potential for salt reduction, particularly through reducing salt in bread. Modeling studies estimated decreasing average daily salt intake by three grams would prevent 17,000 deaths over the course of a decade [10]. Data gathered on major sources of dietary salt at the time found just over 60 percent of total salt intake was attributable to eating processed foods, with approximately 25 percent of salt intake due to bread alone (see **Figure 1**) [11]. At the same time, research focused on consumer acceptance of salt reduction, particularly in bread, found members of "sensory panels" could not detect a 25 percent cut in the amount of salt in bread. That indicated an opportunity to decrease bread's salt content without affecting consumer demand [11].



The National Strategy for the Prevention and Control of Noncommunicable Diseases (NCDs), originally adopted by the MOH in 2009 and updated in 2013, established the National Healthy Argentina Plan, which first formalized Argentina’s national commitment to salt reduction as one important pillar of NCD prevention [12],[13].

## EVOLUTION OF SALT REDUCTION ACTION: FROM INDUSTRY AGREEMENTS TO LEGISLATION

### *Menos sal, mas vida (2009-2011)*

Argentina’s first national program for salt reduction centered on voluntary agreements with over 10,000 bakeries to reduce salt content in their bread. Menos Sal, Más Vida (Less salt, more life), launched in 2009, focused on establishing agreements with bakery associations to reduce the salt content of bread they sold by 25 percent. The change was supported with materials that simplified and incentivized compliance, such as distributing a measuring cup designed to hold the approved salt content for a specified quantity of flour. Posters were designed for bakeries to put up in their stores to tell consumers about the initiative. Other measures for salt reduction in the voluntary agreements included taking saltshakers off tables and adding health warnings to menus and salt sachets [11]. Finally, the program involved a strong public awareness campaign through several forms of media to tell the public about the importance of reducing salt for promoting health.



Drawing on earlier work done by an inter-sectoral body that devised policy on limiting trans-fats in the food supply, the National Sodium Reduction Commission, created in 2010, convened stakeholders from the public sector, the private sector, scientific associations and civil society on salt reduction policy issues. The commission was led by the MOH with collaboration from the Ministry of Agriculture on communication [14]. The commission set up working groups to reach agreements on salt reduction targets in four food groups: (a) meat and meat products; (b) farinaceous products (i.e., cereals, cookies, pizza, and pasta); (c) dairy products; and (d) soup, dressings and preserves [14]. See **Table 1** for a summary of stakeholders involved.

**Table 1.** Summary of stakeholders in the National Sodium Reduction Commission, along with roles and responsibilities for public sector actors.

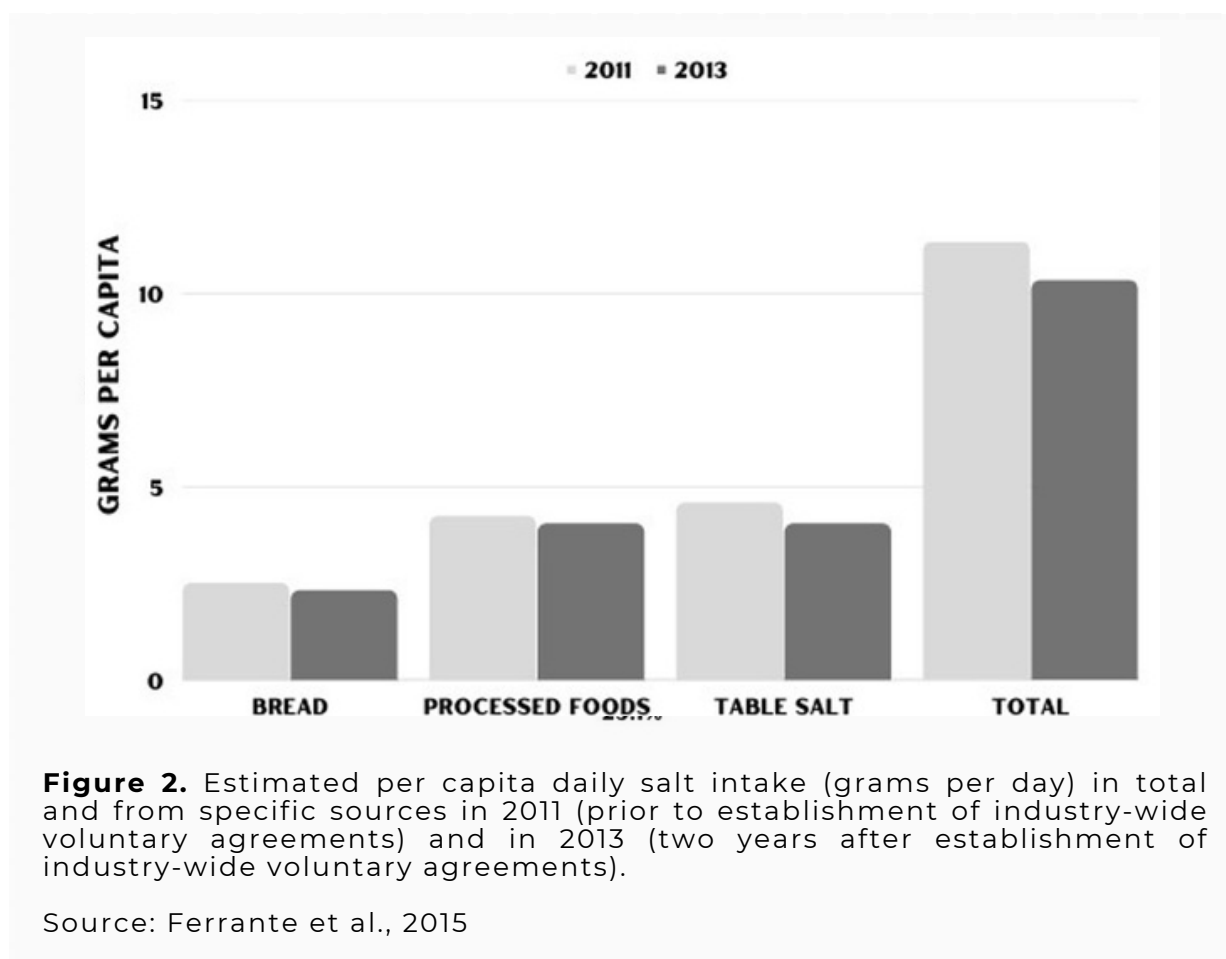
<b>Organization</b>	
<i>Public sector</i>	
Deputy Secretary of Risk Prevention and Control (Ministry of Health) <i>Roles and responsibilities: Recruiting Commission members; Organization and coordination of meetings</i>	
Under-Secretariat for New Technologies (Ministry of Agriculture, Livestock and Fisheries) <i>Roles and responsibilities: Co-led communication activities directed towards the food industry and general public</i>	
National Administration of Medicines, Food, and Technology (ANMAT) <i>Roles and responsibilities: Co-led the design and implementation of salt reduction policy monitoring strategy</i>	
National Institute for Food Products (INAL) <i>Roles and responsibilities: Co-led the design and implementation of salt reduction policy monitoring strategy</i>	
Institute of Industrial Technology (INTI) <i>Roles and responsibilities: Provided technical assistance to SMEs on baseline salt levels and targets for dairy, meats, and grains and oilseeds</i>	
Ministry of Science and Technology <i>Roles and responsibilities: Did not take on active involvement</i>	
Ministry of Social Development <i>Roles and responsibilities: Did not take on active involvement</i>	
<i>Private sector</i>	<i>Civil society</i>
Food Industries Association (COPAL)	Scientific societies
Association of Processed Meat Industries (CAICHA)	Consumer associations
Dairy Industry Association (CIL)	
Association of Small and Medium Dairy Companies (APYMEL)	
Argentinean Meat Industry Association (UNICA)	
Industrial Center of Bakers (CIPA)	
Food companies	

Source: Adapted from Castronuovo et al., 2017.

## Consolidating industry agreements and monitoring voluntary approaches (2011-2013)

Salt reduction policy expanded beyond bakeries in 2011 through agreements with the broader food industry for voluntary, progressive salt reduction. Based on targets set by the National Sodium Reduction Commission, the ministries of health and agriculture signed agreements with the Association of Food Industries (COPAL). They covered four main food groups, setting targets to be reached in two years and four years [11]. Participation in the program was voluntary; those who signed agreed to conduct gradual and progressive salt reduction. In 2013, the MOH reported that 31 companies had joined the initiative and had sought to decrease salt content in just over 400 products [15].

A 2011 household nutrition survey found only modest declines in sodium intake (see **Figure 2**). The average per capita daily salt intake was 12.7 grams for men and 9.8 grams for women, well above the target of 5 grams per day [11]. Evaluations of the agreements with bakeries and broader industry showed relatively high compliance with the targets but also showed voluntary agreement was not enough to achieve the desired reduction result. By the end of 2013, estimates were the combined salt reduction from industry action and shifts in consumer behavior due to awareness campaigns resulted in an overall reduction in population salt intake of 0.92 grams [11].



### *Sodium reduction law and beyond (2013-present day)*

In response, Argentina became the second country in the world to successfully introduce salt reduction legislation. Resolution 26,905 shifted sodium reduction from voluntary targets to mandatory limits. The food industry was given 12 months to comply with the new limits (see **Table 2**), after which sanctions for violating the law were introduced, including fines between 1,000 and one million pesos, confiscation of food not meeting standards and suspensions and/or temporary closures of offending establishments [16].

The limits were fully integrated into the Argentine Food Code in 2017 and a joint resolution was passed in 2018 to update the limits passed in the 2013 law [17].

**Table 2.** Salt reformulation targets adopted in Resolution 26,905 for three food groups: (a) meat and meat products, (b) bread products, and (c) soup, dressings and preserves.

Main category	Sub-category	Maximum value permitted (mg per 100 grams of product)
Meat and meat products	Sausages cooked and raw, including ham, cold cuts and blood sausage	1196
	Dried/cured meats (e.g., salami)	1900
	Chorizos	950
	Burgers	850
	Chicken patties, including chicken nuggets	736
Bread products	Corn crackers	941
	Non-corn crackers	941
	Cookies	1460
	Snacks	950
	Dry sweet cookies	512
	Filled sweet cookies	429
	Baked corn goods	530
	Baked non-corn goods	501
Soups, dressings, and preserves	Frozen baked goods	527
	Stocks and granules	430
	Clear soups	346
	Creamy soups	306
	Instant soups	352

Source: Resolution 26,905 .

Recently, Argentina passed a policy modeled on legislation adopted in Chile in 2016, which will introduce mandatory front-of-package warning labels on packaged food to flag nutrients (including sugar, total fat, saturated fat, sodium, and calories) specified thresholds (see **Figure 3**). In addition, the policy will introduce restrictions on marketing food products to children and will restrict the sales of products with warning labels in school environments [18].



**Figure 3.** Warning labels adopted in 2022 in Argentina under the Promotion of Healthy Eating Law (Ley 27,642). Source: PAHO, 2023

For a timeline of key milestones in salt reformulation in Argentina, see **Figure 4**.



**Figure 4.** Timeline of salt reduction action in Argentina, 2005-2015. Source: Author's contribution

## CHALLENGES ENCOUNTERED IN SALT REDUCTION ACTION

Several challenges were encountered during the process to adopt strengthen salt reduction policy in Argentina:

- No nationally representative nutrition survey was conducted in Argentina between 2005 and the legislation passing in 2013, only some small-scale studies. In addition, the estimates of salt content in food used to set targets were provided by the industry [14]. This lack of clear baseline data on dietary salt sources and salt content complicated both setting targets and monitoring changes in salt content and population intake.
- Salt has several functions in processed food including flavor and preservation, which meant targets had to find a balance between achieving meaningful reductions in salt content without significantly compromising the necessary function of salt in food or affecting consumer acceptance of it. The challenges around the technical aspects of salt reduction and consumer acceptance continue to be cited frequently by the industry to argue against salt reduction [14].
- Reformulating food content requires a significant investment of resources to gather accurate data on the salt content of their products and then to shift production to meet the targets. This investment places a higher burden on small- and medium-sized enterprises (SMEs) than on bigger companies and was a challenge during negotiation to set targets at the national commission [14]. This is a particular challenge in setting salt reformulation targets for foods largely produced by SMEs, such as cheese.
- While partnership with industry was considered important for setting realistic targets and timelines for them, it also posed challenges. At several points during policy design and implementation, the industry was consulted on food groups include and target salt levels. Concerns were raised in the public sector and civil society that involving industry diluted the targets below recommendations from international health organizations [14]. Comparing the targets originally introduced in Resolution 26,905 to the updated regional salt targets, set by the Pan-American Health Organization (PAHO) in 2015, supports those concerns [19]. **Table 3** shows maximum values for most categories in the Argentinian legislation exceed international guidelines.
- Successful salt reduction policy requires robust measuring and monitoring systems to routinely measure salt content in foods and assess compliance. This was challenging in Argentina for several reasons. Before the policy was introduced, relevant laboratories were focused on food safety, not looking for specific nutrients, so investment in training and equipment was required [14]. As well, Argentina's federal system meant the policy had to be implemented, monitored and evaluated by the provinces rather than nationally.



**Table 3.** Salt reformulation limits in Resolution 26,905 compared to updated regional salt reformulation targets published by PAHO in 2015.

Main category	Sub-category	Maximum value permitted (mg per 100 g)	PAHO regional targets by 2025 (mg per 100g)
Meat and meat products	Sausages cooked and raw, including ham, cold cuts and blood sausage	1196	770-800*
	Dried/cured meats (e.g., salami)	1900	1200
	Chorizos	950	500
	Burgers	850	500
	Chicken patties, including chicken nuggets	736	500
Bread products	Corn crackers	941	800
	Non-corn crackers	941	580
	Cookies	1460	200
	Snacks	950	220-670*
	Dry sweet cookies	512	200
	Filled sweet cookies	429	200
	Baked corn goods	530	800
	Baked non-corn goods	501	N/A*
Soups, dressings, and preserves	Frozen baked goods	527	N/A*
	Stocks and granules	430	N/A*
	Clear soups	346	230
	Creamy soups	306	230
	Instant soups	352	230

\*Direct category not identified in PAHO regional targets. Estimates included for broader food category (e.g., estimate range for 'snacks' category in PAHO targets) or written as 'N/A'

Source: Resolution 26,905 .

## STRATEGIES DEVISED FOR MITIGATING CHALLENGES

Several strategies were devised to move forward on salt reduction despite the challenges:

- While there was little nationally representative research available, sub-national studies supported key policy decisions. They included sensory panels indicating high consumer acceptance of bread with reduced salt, enabling early partnerships with bakeries to monitoring and evaluation efforts that revealed the shortcomings in relying on voluntary compliance and supported moving to a legislative approach.
- The success of the voluntary agreements with bakeries was important for expanding to agreements with the broader food industry. The ability of small local bakeries to cut the amount of salt in their bread without significant financial impact provided a strong case that other businesses, particularly those with more resources, could successfully adapt to targeted salt reduction. Demonstrated buy-in from small business owners also win over other food industry stakeholders.

- There was strong political commitment at the MOH to develop the salt reduction policy, but it lacked the technical expertise to set realistic targets and timelines.
- Creating the National Sodium Commission, and through it working groups for specific foods, provided integral information for setting the targets for both the voluntary agreements and subsequent regulations. The working groups also helped guide technical support to SMEs, both for determining baseline salt levels in products and setting reduction targets (overseen by the Institute of Industrial Technology).
- The legislative framework established by the regulation and subsequent resolution allows for ongoing changes to be made in salt reduction targets, for both lowering maximum limits in food groups already covered and bringing new groups under regulation. This allows for gradual increase in the scope and stringency of the regulation to move closer to international guidance over time.

## EVIDENCE OF POLICY SUCCESS

Preliminary evaluation studies found high compliance with the legislation in targeted products and evidence of declining population salt intake. An evaluation of products found in supermarkets in Buenos Aires in 2015 found of the 18 food groups targeted for sodium reduction, 15 (83 percent ) had median sodium values below the established limits [20]. This had increased to 94 percent compliance in 2017-2018 [21]. In the population, between 2011-2015, average daily salt intake fell from 11.2 g/day to 9.2 g/day (-18 percent ), estimated to have prevented over 16,000 deaths [22]. While average daily salt intake is still well above the WHO recommended limit, important progress has been made.

## THE WAY FORWARD: KEY STEPS FOR FUTURE PROGRESS ON SALT REDUCTION

While Argentina's legislation was quite advanced and novel, many steps lie ahead to shift salt intake closer to the recommended WHO limit. Key steps for the future include expanding the scope and stringency of maximum limits in the legislation, strengthening strategies for environments that support lower salt intake, and improving capacity for monitoring and evaluation.

First, as mentioned, current limits in the legislation for several food categories are well above PAHO's 2025 targets for the region and some foods in them (e.g., cheese and dairy products) are not included in the legislation at all. Second, in accordance with best practice for salt reduction, salt reformulation should be accompanied by actions to create a supportive environment for salt reduction. Argentina introduced measures to strengthen supportive environments for salt reduction, such as having restaurants decrease offering table salt and label salty food on menus but these measures have been unevenly implemented and are not monitored for compliance. Finally, additional capacity and expertise is need for robust and consistent monitoring and evaluation of industry compliance with the legislation.

The recent passage of the Promotion of Healthy Eating Law (Regulation 27642) is expected to bolster the salt reformulation law. For instance, adding mandatory warning labels for packaged food with excess salt will provide a strong case for future expansion of the scope and stringency of salt reformulation: products consistently labelled “excess sodium” will be targeted for reformulation. Investment will be needed to build capacity for measuring the content of critical nutrients in packaged food, and for building capacity to monitor compliance and evaluate the effectiveness of the salt reformulation law.

## LESSONS LEARNED AND KEY TAKEAWAYS

**Contextually specific and up-to-date evidence is fundamental to successfully navigate all phases of the policy adoption (e.g., agenda-setting, policy design, implementation, and monitoring and evaluation).**

Salt reformulation is a policy arena with many technical and political challenges, from setting feasible targets and timelines to addressing political concerns over consumer acceptance and fears of negative economic ramifications among businesses. Regularly collecting data on population salt intake, major sources of dietary salt in the population, and salt content in key food groups is crucial for generating buy-in, enabling target-setting, and monitoring policy compliance [23]. Data is also needed to assess consumer acceptance of reduced salt and monitor changes in sales for reformulated products.

**Decision-making must be led by public health evidence.** Ultimately, policy on lowering salt content in food and its consumption must be in the hands of those with a mandate to protect the health of the public. While consultation of industry stakeholders in discussions to decide feasible limits was deemed important in this case, it also demonstrated the limits of industry consultation for achieving regulatory standards aligned with evidence-based recommendations. The increasing availability of international, evidence-based guidance on policy design considerations, such as the PAHO salt reformulation limits, mitigates the need for industry consultation.

**Reformulation should be designed to be a dynamic process.** For both technical and political reasons, salt reformulation needs to be able to evolve. Industry needs time to shift manufacturing processes, some food groups are easier to reformulate than others, and evidence on dietary salt sources and risks continues to evolve. Legislation, therefore should be designed to allow for phased reductions and future expansion of the scope and stringency of targets over time.

**Salt reformulation must be mandatory to achieve meaningful declines in population intake.** Relying on voluntary agreements alone is fraught with compliance problems and lack of standardization. To achieve the recommended reductions in population salt intake and mitigate the huge health and economic burden of CVD, making salt reformulation mandatory is critically important.

**A multi-component approach to salt reduction offers important synergies and is ultimately best practice.** Multiple interventions are needed to decrease population salt intake and improve health outcomes. Argentina’s new law on front-of-package food labelling, for example, which came into force in 2022, is intended to interact with and emphasize other actions for salt reduction taken to date, including behavior change campaigns for the public, creating supportive environments for salt reduction, and the salt reformulation law.



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# **RWANDA & BHUTAN**

## **IMPROVING DELIVERY OF ESSENTIAL MEDICINES FOR NCDS: HPV VACCINE PROGRAMMES**

Rosemary Mamka Anyona

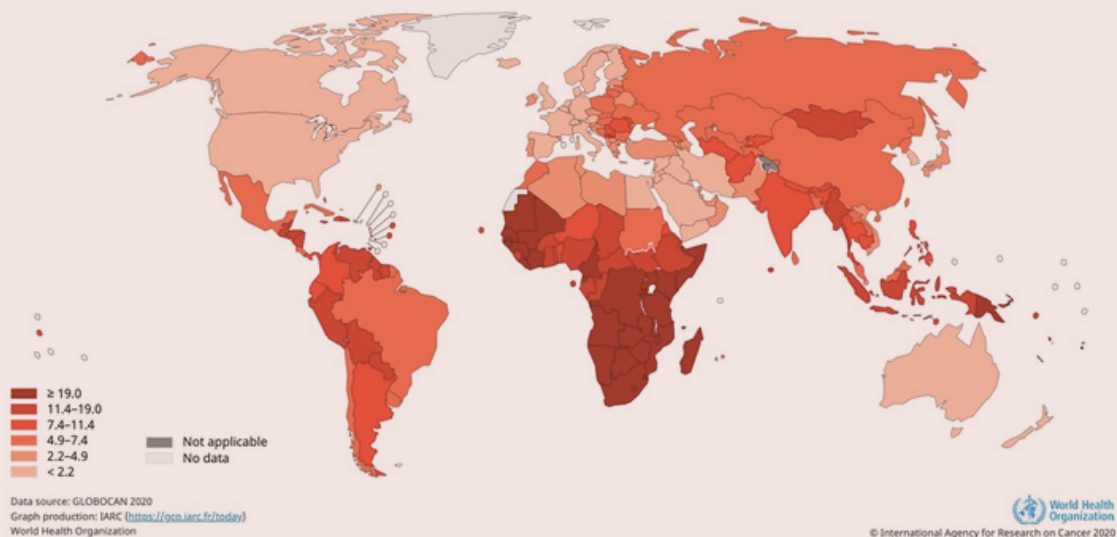
## KEY MESSAGES

- Elimination of cervical cancer through human papillomavirus (HPV) vaccination programs is a public health, equity and development issue, as the people most likely to get it are poor women of child-bearing age in low- and middle-income countries.
- National HPV vaccine programs can be implemented at scale with remarkable success even in low resource settings. Cervical cancer can be eliminated for future generations.
- Delivering HPV vaccinations through school-based programs or as part of national routine immunization programs are both effective models made possible by strong primary health care systems.
- Strong political will and the technical capacity to mobilize a whole-of-society approach to programming are both necessary to ensure success.

## INTRODUCTION

Cervical cancer is a leading cause of mortality among women and a global public health concern. It's estimated there were 604,000 new cases and 342,000 deaths in 2020 (with an age standardized death rate of 13.3 per 100,000 women) [1]. Worldwide, breast cancer is the leading cause of cancer morbidity and mortality among women, but cervical cancer has the highest incidence in 23 countries and is the leading cause of cancer death for women in 36 countries low- and middle-income countries (LMICs).

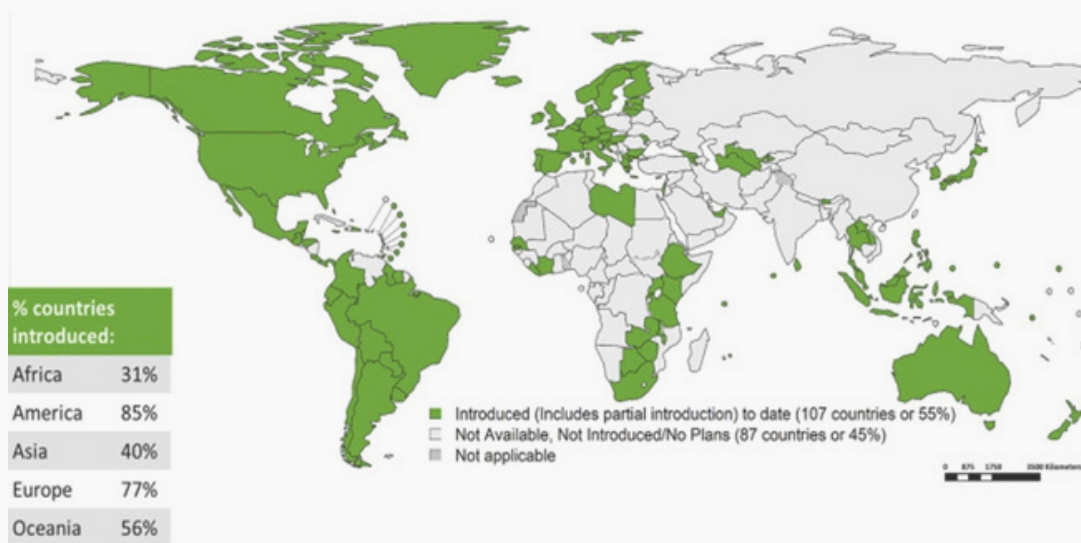
Nearly 90 percent of new cases and deaths worldwide in 2020 occurred in LMICs, with Eastern and Southern Africa suffering the heaviest burden (see **Figure 1**). The inequitable distribution of cervical cancer is an equity and human rights concern, and can be attributed to disparities in organized screening, vaccination programs, and access to adequate treatment facilities. Women living with HIV are 6 times more likely to develop cervical cancer compared to women without HIV [2].



**Figure 1.** Age standardized (World) mortality rates, cervix uteri, all ages.  
Source: IARC, Globocan 2020

Cervical cancer is caused by infection with human papillomavirus (HPV) and is preventable, through HPV vaccination for primary prevention, but also curable when detected early and treated adequately [3]. HPV types 16 and 18 are responsible for about 70 percent of all cervical cancer and 50 percent of all high-grade cases worldwide [2]. However, four vaccines that prevent HPV 16 and 18 infection have been approved by WHO. Furthermore, HPV vaccine is comparatively cheaper than other infectious disease vaccines and implementing a vaccination program for it is easier than screening and treating patients [4].

Distribution of HPV vaccination worldwide is low: in 2020, only 107 (55 percent) countries had introduced it. Also, it is a multi-dose vaccine (two or three doses, depending on age and other factors) and the rate of final doses administered is poor: global coverage of the final dose was estimated at 15 percent as of 2019 (see **Figure 2**). LMICs do better than high-income countries for the first dose but have high drop-out rates. Only 5 (6 percent) countries worldwide have achieved final dose coverage of >90 percent, while 22 countries (21 percent) have achieved >75 percent coverage [5].



**Figure 2.** HPV Vaccination Programs Introduction Worldwide.  
Source: Bruni et al. 2021.

The WHO launched its “global strategy to accelerate the elimination of cervical cancer as a public health problem” in 2020 [3]. It set “90–70–90” targets to be met by 2030: 90 percent of girls fully vaccinated with HPV vaccine by the age of 15 years, 70 percent of women screened with a high-performance test by 35 years of age and again by 45 years of age, and 90 percent of women identified with cervical disease receiving treatment [3].

Rwanda and Bhutan are exemplars of best practice in HPV vaccine programming. Both are small nations with significant resource constraints; Rwanda is one of the world’s least-developed nations. Nevertheless, through strong political will, exemplary engagement of stakeholders in and outside government, and leveraging robust delivery platforms, both countries have had significant success in their cervical cancer elimination efforts.



It's important to note Rwanda and Bhutan led the world in the effectiveness of their COVID-19 vaccination campaigns by using the same strategies and models that made their HPV vaccination campaigns so successful [6],[7].

## **RWANDA'S INNOVATIVE "PUBLIC PRIVATE COMMUNITY" PARTNERSHIP FOR SCHOOL-BASED HPV VACCINATION**

### ***Program overview and success to date***

In 2011, Rwanda became the first African nation to implement a national HPV vaccination program. Rwanda is a landlocked East African country and one of the poorest nations on earth. Its population in 2020 was roughly 13 million, with GDP per capita of \$833.8 in 2021 [8].

Until recently, cervical cancer was the most common cancer among women in Rwanda, where neither cervical cancer screening nor HPV vaccination was available before 2011 [9]. By 2019, incidence of cervical cancer was second to breast cancer but still the leading cause of cancer death in women with a rate of 2.78 per 100,000 [10].

Rwanda's HPV vaccination program was introduced in 2011. By 2018, 1,156,863 girls had received their first dose of vaccine, 98 percent of the eligible target. The overall effectiveness against the HPV types targeted (HPV-6/11/16/18) was 78 percent and 58 percent against other types [11]. Prevalence of both the HPV types targeted and other types decreased significantly, indicating cross-protection [11].

### ***Program development: Establishing a public-private partnership***

The HPV vaccination effort began when Rwanda's First Lady, Jeanette Kagame, approached Merck, which manufactures the WHO approved vaccine Gardasil. This was followed by technical discussions between Merck and Rwanda's Ministry of Health which led to the development of Rwanda's National Strategic Plan for the Prevention, Control, and Management of Cervical Lesions and Cancer in 2010.

A memorandum of understanding was signed between Rwanda and Merck in December 2010 guaranteeing Rwanda three years of vaccinations at no cost and concessional prices for future doses [9]. The work required a whole-of-government approach with the Ministry of Education, the Ministry of Gender and Family Promotion, the Center for Treatment and Research on AIDS, Tuberculosis, Malaria, and other Epidemics, and oncology health workers with the Ministry of Health all included in the working group for the negotiations.

The technical group included multidisciplinary subcommittees on areas such as supply chain and cold chain, school attendance patterns, health-worker capacity requirements, information and awareness raising requirements, tools for data collection and social mobilization.

A key part of Rwanda's success was its innovative and inclusive "public-private community partnership" it created to deliver the vaccine. In addition to sectors of government and Merck, it included local leaders, community health workers and teachers [9].

The multi-phased vaccination strategy began with three-dose vaccination for girls enrolled in primary grade six along with a "catch-up" phase targeting girls in the third year of secondary school to ensure complete coverage of all pre-adolescent and adolescent girls over the program's initial three-year period.

Rwanda's powerful community health workforce was central to the campaign's success. They worked to increase awareness of vaccination benefits and eligibility guidelines. They also traced girls absent on school vaccination day and those not enrolled in school. The first round of doses, given over a two-day campaign in April 2011, achieved 95 percent coverage of the target population [9].

The COVID-19 pandemic which led to the shutdown of schools across the world also affected Rwanda, where the March 2020 vaccination round was missed [12].

## **BHUTAN'S INTEGRATED GENDER-NEUTRAL HPV VACCINE DELIVERY THROUGH THE EXPANDED PROGRAM FOR IMMUNIZATION**

### *Program overview and success to date*

Bhutan was the first LMIC to introduce a national HPV vaccination program. Bhutan is a small landlocked nation in the Himalayas with an estimated population of 770,000. It is a lower-middle income country with a GDP per capita of \$3000 in 2020 [13]. Cervical cancer is the most common cancer in Bhutanese women, causing an estimated 20.5 cases per 100,000 women and 4.7 deaths per 100,000 women in 2019 [14].

Before 2010, HPV vaccination was not part of government policy or services, although Pap testing was introduced in 1999, offered to women who went to health facilities. Screening participation rates have remained low [15].

Bhutan launched a national HPV vaccination program in 2010, offering girls aged 12–18 vaccination against four of the most common and carcinogenic HPV types. Initial coverage sustained at about 90 percent of girls in the target group [11]. Between 2011 and 2018, the prevalence of the targeted HPV types decreased by 93 percent (from 8.3 percent to 1.4 percent) among vaccinated girls and women, and 88 percent in unvaccinated women who benefited from the reduced HPV transmission in the community [11].

## ***Program development: Integrating HPV vaccination into EPI***

The program was initiated when Bhutan's Royal Grand Queen Mother, motivated by the impact on Bhutan's women of cervical cancer, initiated dialogue with the Australian Cervical Cancer Foundation (ACCF) to support cervical cancer prevention efforts [16]. Through the Ministry of Health, ACCF formed a partnership with Merck Sharp & Dohme (MSD) which provided Gardasil free for an initial one-year campaign aimed at girls aged 12–18 years in 2010, to be followed by concessionally priced vaccine between 2011 and 2015 for girls aged 12 years, funded by ACCF through donor grants. Bhutan's government agreed to provide logistics for the campaign and integrate the cost into health planning and budgeting when the agreement ended in 2018. The HPV vaccine program is now funded through the Bhutan Health Trust Fund [17].

To ensure well-organized delivery, the HPV vaccination program was integrated with Bhutan's Expanded Program on Immunization (EPI), which was established in 1979 and delivers vaccinations through an extensive network of hospitals, primary healthcare centers, and outreach clinics. The EPI consistently maintains high coverage for routine immunization and has won awards for its effectiveness [18].

The program was piloted in 21 schools to learn about the acceptability and feasibility of school-based vaccinations and outline a framework for the national campaign. The pilot was led by the Ministry of Health, and supported by ACCF, Program for Appropriate Technology in Health (PATH) which provided educational material, the United Nations Population Fund (UNFPA) and the International Agency for Research on Cancer (IARC) which supported monitoring and evaluation. Vaccine doses were donated by MSD, along with funding for operations [19]. Primary healthcare networks delivered vaccinations to schools, and PHC and community health workers worked with teachers to reach students and out-of-school girls in the target age group [19]. A public-awareness campaign with simple, clear messaging spread the word through newspapers, radio, television and community engagement.

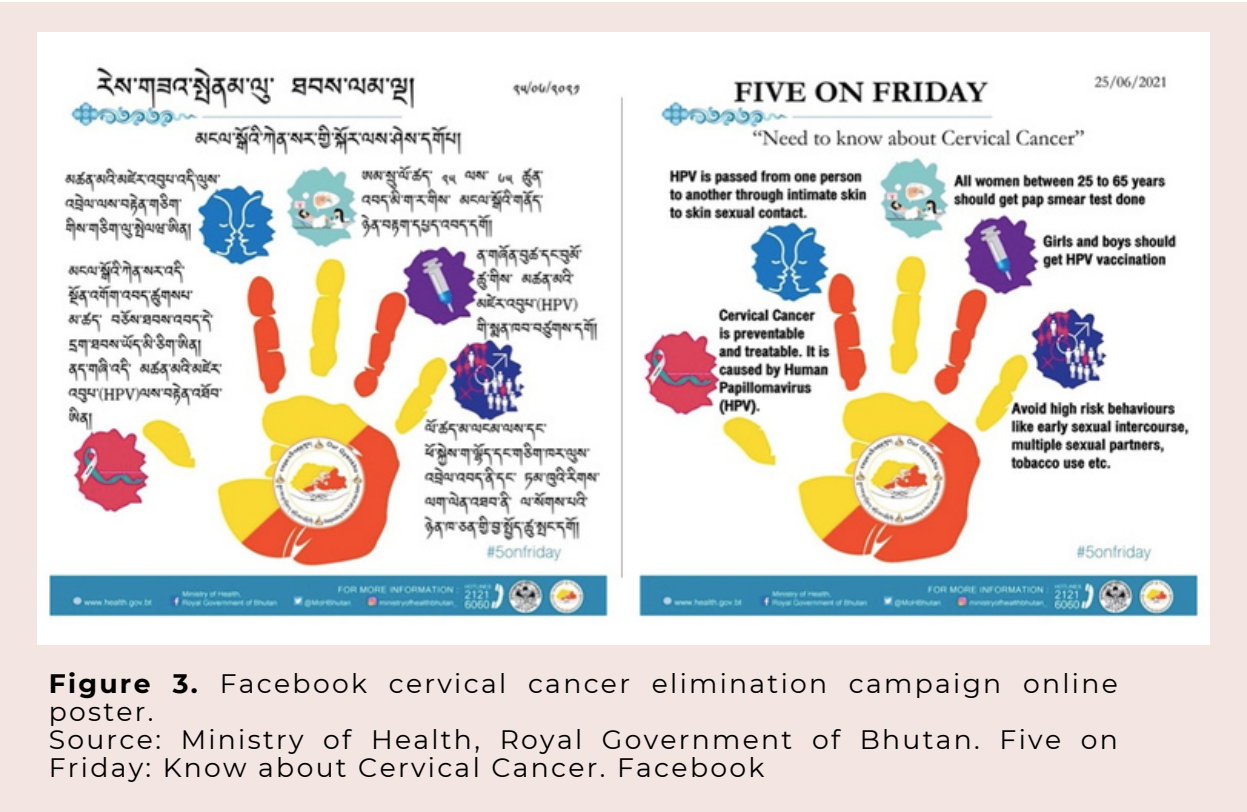
The first round of vaccinations in May 2010 achieved 92 percent estimated coverage for the first dose, and 90 percent for the second and third doses. Coverage has been sustained at about 90 percent since [17]. In 2019, Bhutan introduced a comprehensive cervical cancer elimination program (well ahead of WHO's launch of its global strategy for eliminating cervical cancer). Bhutan's program was a gender-neutral vaccination campaign the first in a LMIC to introduce vaccination for boys (including monks) [17].

## **ENABLERS FOR SUCCESS IN HPV VACCINATION PROGRAMS**

Based on the experiences of Rwanda and Bhutan, the following are key enablers of a successful HPV vaccination program:

- **Leadership, political will and strong governance.** In both Bhutan and Rwanda, a female national figure generated political attention for cervical cancer and engaged partners: in Rwanda, it was the First Lady, in Bhutan, the Queen Mother. Both Bhutan and Rwanda are globally recognized for their commitment to public health: Bhutan received the 2009 Gavi award for outstanding performance on immunization, and Rwanda's government and government officials have received global acclaim for highly effective public health policy.
- **Leveraging strong health systems and established programs.** In Rwanda, the HPV vaccination's success can be attributed to a strong primary healthcare system and exemplary network of community health workers. Rwanda's mobilization of the technical capacity of the immunization, HIV, TB and Malaria programs through the PEPFAR, Global Fund, and Gavi provided a strong platform for HPV vaccination. Bhutan leveraging the EPI infrastructure for HPV vaccine delivery and processes was central to success.
- **Multisectoral and multi-stakeholder partnership.** The successful "public-private-community partnership" in Rwanda was built on strong collaboration with government (including health, education and social welfare), as well as between public and private institutions within strong national ownership; and through including communities in decisions created a successful collaborative framework for the HPV vaccination program. In Bhutan, the partnership included UN agencies (WHO, UNFPA and IARC), and the international NGO PATH. The HPV vaccination program in Rwanda was not without critics. A group of German scientists wrote a letter in the *Lancet* expressing "serious doubts that this arrangement is in the best interest of the people" [20]. The challenge of multiple and foreign interests exerting influence on health policy and planning in LMICs have been well recorded [21]. Any multistakeholder approach is likely to encounter challenges, but strong leadership ensures a country prioritizes its own needs.
- **Effective communication.** An effective communication strategy is necessary for a successful HPV vaccination program. Messaging should be culturally aware and channeled through trusted groups and individuals, from national leaders and religious figures to teachers and healthcare workers. Reaching girls and boys at the right age takes knowledge of their communication patterns, language and imagery. Rwanda pioneered girl-centered communication for HPV vaccination with a partnership between Gavi and Girl Effect, in which trusted "Aunty" figures appear in magazines and radio talk-shows promoting vaccination in a way that is credible and authoritative [22]. **Figure 3** shows a sample of a dual-language online poster used in a Facebook campaign by Bhutan's Ministry of Health, targeted at young girls [23].





**Figure 3.** Facebook cervical cancer elimination campaign online poster.  
 Source: Ministry of Health, Royal Government of Bhutan. Five on Friday: Know about Cervical Cancer. Facebook

**BARRIERS TO SUCCESS IN HPV VACCINATION PROGRAMS**

- **Vaccine hesitancy and misinformation.** This is a growing universal challenge to any vaccination program. In both Rwanda and Bhutan, countering hesitancy and misinformation has taken official communication through formal media as well as personal and community-level messaging. In Bhutan, a media report saying HPV vaccinations were suspended in India forced the government to review safety data and reconfirm the strategy [19]. In Rwanda, girls have been told the vaccine would render them infertile or cause paralysis, while parents fear it could lead to promiscuity [24]. Effective communication has been shown in both countries to counter misinformation and to overcome hesitancy.
- **Initial fixed costs:** Cost-benefit analysis strongly favors offering HPV vaccinations [4], but the initial costs can seem prohibitive and have probably contributed to the low rate of HPV vaccination worldwide. However, both Rwanda and Bhutan have shown successful programs can be established in low-resource settings by using existing infrastructure and programming to reduce costs.

## KEY TAKEAWAYS

- National HPV vaccine programs can be implemented at scale with remarkable success even in low-resource settings; cervical cancer can be eliminated in future generations.
- Administering HPV vaccinations through school-based programs or including them as part of routine immunization programs such as EPI are effective approaches.
- An effective immunization program requires a strong primary healthcare system with a robust community health workforce. Leveraging the community's relationship with health system builds trust.
- Success depends on strong political will and the technical capacity to mobilize a multi-sectoral, whole-of-society approach.
- As vaccine hesitancy spreads, effective, culturally relevant communication is essential for success. Female, national and community champions are a cornerstone of a successful program.
- Gender-neutral vaccination programs are more effective at protecting against the spread of HPV, and can be implemented successfully in low resource settings.
- The World Bank facilitated procurement and delivery of vaccines against COVID-19 and the partnerships, processes and infrastructure developed then can be part of eliminating cervical cancer. The World Bank should consider offering global, regional and national support to Global Action for Cervical Cancer Elimination.
- The people most vulnerable to cervical cancer are poor women of child-bearing age in low- and middle-income countries, which makes eliminating cervical cancer through HPV vaccination programs a public health, equity and development issue.

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# COSTA RICA

## INTEGRATING COVERAGE OF NCD MEDICINES: THE ESSENTIAL SERVICE PACKAGE

Latifat Okara, Rafael Cortez, & Jaime Bayona Garcia

## KEY MESSAGES

- The growing burden of non-communicable disease (NCD) combined with heightened patient, community and provider expectations poses challenges to the affordability of healthcare for households and governments alike.
- Non-communicable diseases require uninterrupted, life-long treatment, which means medicines for them must be both available when needed and affordable, especially for low-income patients.
- The 1990s healthcare reform in Costa Rica, supported by the World Bank, ensured healthcare coverage for at least 90 percent of Costa Ricans, including coverage for non-communicable disease medicines and service packages mainly delivered by the Caja Costarricense de Seguridad Social, but the private sector service has played an increasingly important role in delivering care in the last decade.
- Using team-based models with multiple providers in primary, secondary and tertiary care has been effective in addressing prevention, screening and adherence to therapy for a range of NCDs, and providing one-stop care for the patient.

## INTRODUCTION

Non-communicable diseases (NCDs) are responsible for 71 percent of deaths worldwide [1] but global disparity in equitable access to essential medication for them a significant issue. The importance of access to safe, effective, quality, and affordable medicine is reflected in the United Nations Sustainable Development Goal (SDG) 3.8, as well as in the Universal Health Coverage (UHC) agenda, which recognizes the fundamental importance of protecting patients and their families from financial risk. People living in low- and middle-income countries (LMIC), where 80 percent of NCD-related deaths occur, are disproportionately affected by morbidity and mortality from NCDs. This global challenge will only get worse: the annual worldwide number of deaths from NCDs is projected to increase from 38 million now to 52 million by 2030, (+36.8 percent) [2].

The growing burden of NCDs, in concert with heightened patient, community, and provider expectations, challenges the affordability of healthcare for households and governments alike. As chronic conditions, most NCDs require continuous, life-long treatment, making for sustainable availability and affordability of NCD medicines essential in facilities, especially for low-income patients. When NCD medicines become too expensive, many people forego treatment or access services using personal savings, loans, or selling assets, which is not a sustainable option for most.

Health systems that protect individuals and their households from the economic burden of NCDs are crucial for achieving if the UN's goal of reducing poverty. The World Health Organization (WHO) plan aimed at reducing the number of premature deaths from NCDs by 25 percent includes a specific target for governments to "achieve 80 percent availability of the affordable basic technologies and essential medicines, including generics, to treat major NCDs in both public and private facilities" [3].

The list of basic technologies and essential medicine that the WHO considers the most cost effective (“Best buys”) at the clinical level are listed in **Box 1**. The Independent High-Level Commission on NCDs recommends “governments should ensure that the national UHC benefit package includes NCD services, as well as access to essential medicines and technologies.”[4]. However, national, and sub-national surveys conducted from 2008-2015 using the WHO/ Health Action International (HAI) medicine availability and price methodology have shown poor availability and affordability of medicines to treat a range of NCDs including cardiovascular diseases, diabetes, psychiatric disorders, asthma, and epilepsy, particularly in the public sector [5],[6],[7]. A recently published Lancet series on the economics of NCDs found that catastrophic health expenditures, a standard measure of the burden of healthcare expenditure (i.e., out-of-pocket costs) on a household’s available resources, occur in more than 60 percent of some patient populations with NCDs [8].

### **Box 1. WHO Best buys for managing NCDs in primary care**

- Counselling and multidrug therapy, including glycaemic control for diabetes for people 30 and older with a 10-year risk of fatal or nonfatal cardiovascular events.
- Aspirin therapy for acute myocardial infarction.
- Screening for cervical cancer once, at age 40, followed by removal of any discovered cancerous lesions.
- Early case finding for breast cancer through biennial mammograms (50 to 70 years) and treatment of all stages
- Early detection of colorectal and oral cancer
- Treatment of persistent asthma with inhaled corticosteroids and beta-2 agonists.

Source: WHO Global Status Report on Noncommunicable Diseases 2010

The objective of this case study is to describe the key strategies that have been adopted and implemented in Costa Rica for the integration and coverage of NCD medicines and services into its essential service package (ESP) to reduce high out-of-pocket costs and achieve universal health coverage. The case of Costa Rica is deemed highly relevant, because of decades of institutional stability around financing, universal health coverage and close integration of NCD care for its citizens. The Costa Rican healthcare system also has an impressive degree of national and local intersectoral coordination and of communication between users and health service managers driving improve service.

## **COSTA RICA'S HEALTHCARE SYSTEM: TIMELINE AND MILESTONES**

The health sector in Costa Rica is made up of the Ministry of Health (MoH), the Caja Costarricense de Seguridad Social (CCSS), the National Insurance Institute (INS), the Costa Rican Institute of Water Supply and Sewerage Systems (AyA), the University of Costa Rica, and the municipalities.



Prior to 1941, Costa Rica's citizens obtained healthcare through town or workplace doctors or by paying out-of-pocket [9]. In 1941, the Costa Rican Social Security Fund, also known as the Caja Costarricense de Seguridad Social (CCSS), was established. CCSS is the single publicly funded, integrated purchaser-provider of care insurance and services in Costa Rica.

Health insurance with the CCSS is mandatory for city-dwelling, lower-income workers, and their families. In 1973, Costa Rica began the Programa de Salud Rural, or rural health program, to improve access to primary care. In the same year, primary healthcare became a core component of Costa Rica's healthcare system, focusing on health promotion, sanitation, child health and eradicating infectious disease [10].

CCSS covers 90 percent of the population, and also provides services to the uninsured, introducing groups over time when needed, because health in Costa Rica is a constitutional right. The CCSS is funded by a 15 percent payroll tax, as well as payments from retiree pensions [11]. The 15 percent contribution is 9.25 percent from the employer, 5.5 percent from the employee and 0.25 percent from the national government. Retired people pay 5 percent of their pension and the pension fund 8.75 percent. Tax depends on income level.

Taxes on luxury goods, alcohol, soda, and imported products help to provide free health services to poor households. All CCSS funds are merged into a single pool, which is managed by the central financial administration of CCSS [11].

Costa Ricans were benefitted from these early improvement efforts until 1990, when a measles outbreak overwhelmed the public sector, which failed to meet the public's needs. Extremely long waits led to pressure on employers to finance private clinic visits for their employees. By 1991, government primary healthcare covered only 40 percent of the population [12] and user satisfaction with the quality and timeliness of care was low [11].

In 1995, public health was reformed, changing primary care to include services provided by Equipos Básicos de Atención Integral de Salud—basic comprehensive healthcare teams (EBAIS). These were multidisciplinary teams of healthcare workers with one doctor that focused on accountability, monitoring and community involvement in delivery of primary healthcare. The new model had strong political support and was backed by both private and public funding. It became the central element of the Costa Rican primary healthcare system.

Following the reform, the MOH transferred primary healthcare delivery to the CCSS, which enabled it to integrate promotion and prevention with treatment and rehabilitation. The MOH retained responsibility for disease control, food and drug regulation, environmental sanitation and child nutrition [10].

## **NCDS IN COSTA RICA**

Despite its strong primary healthcare system, Costa Rica, like many countries with emerging economies, has been experiencing an increased burden of NCDs as the population ages. In 2002, WHO Global Burden of Disease data reported that NCDs accounted for 79.8 percent of total deaths in Costa Rica [13].

The leading causes of death in Costa Rica were: ischemic heart disease, stroke, chronic kidney disease, and Alzheimer's disease [13]. Consequently, NCDs went to the top of the government's health agenda.

## **SETTING THE STAGE FOR NCD INTEGRATION IN COSTA RICA**

In 1999, Costa Rica joined the Collaborative Actions for Risk Factor Prevention and Effective Management of Noncommunicable Diseases (CARMEN) network [14]. For the first time, Costa Rica developed a simplified surveillance model for cardiovascular disease (CVD) and associated risk factors, which was carried out in Cartago City. The program included intervention courses for high-risk heart disease groups, clinical support for smoking cessation and forming alliances with local groups for chronic disease prevention through special programs. They included diabetes detection, hypertension and cancer in women. After five years implementing and analyzing pilot areas, Costa Rica replicated the project through a national program called Costa Rica Da Vida al Corazón focused on developing the health sector, health promotion, health services and monitoring bureau.

The national program was intersectoral, involving government (national and local) and communities (schools, hospitals, and churches). It resulted in a better understanding of the prevalence of NCD risk factors in the communities, more trained health workers and better-quality measures in diagnosing diabetes and hypertension. In the same year, Costa Rica started a NCD Policy Observatory under the CARMEN network to boost the country's capacity for developing evidence-based health policy for science-based decision making. Participating in the NCD Policy Observatory allowed Costa Rica to increase its capacity for systematic policy review and analysis.

## **COVERAGE OF NCD MEDICINES IN COSTA RICA: STRATEGIES DEVISED**

### ***Integration of NCD medicines***

The 1990s healthcare reform supported by the World Bank extended healthcare coverage to all family groups in all population centers in the country's marginal rural and urban zones. This allowed the CCSS to include NCD services and drugs in outpatient services and hospitals.

To ensure availability of NCD medicines throughout the country's health system, Costa Rica maintains a national Essential Medicines List (EML), updated and approved at least annually. Deciding which medicines to include is based on technical evidence from the WHO.

In Costa Rica, NCD medicines, as well as medical procedures, are grouped into basic, secondary and tertiary/specialized packages of medicines, maintained at the hospital level. NCD treatment delivery is done through a dynamic referral system that links patients from primary care to required specialty care. Accessing insulin treatment of diabetes mellitus is part of the basic package of medicines delivered at the primary care level, while procedures like amputation are part of the tertiary package, delivered by a specialist in the hospital.

The CCSS handles an actuarial premium that covers medication including all NCD medications and healthcare services for all members of the family, including children under 25 years. Most studies find Costa Rican's Health Areas usually have essential medicines, commodities, basic equipment and diagnostic supplies available according to international standards and guidelines.

### ***Enabling NCD care integration: training, capacity building and information systems***

One of the enabling actions listed in the WHO Package of Essential NCD Interventions for primary healthcare is training the health workforce and strengthening the capacity of health systems, particularly primary care, to address prevention and control of NCDs.

In Costa Rica, integrating NCD care became possible and effective through the EBAIS model. The EBAIS consists of 893 primary care teams, one for every 4,000 people. Each team has a doctor, a nurse, a technical assistant, a medical clerk and a pharmacist. They provide both preventative and curative services at primary care facilities and at patients' homes.

Each insured Costa Rican is entitled to one annual wellness visit—four for patients with chronic conditions. Nurses and doctors work in clinics and provide preventive care, counseling and treatment [10]. Pharmacists work in a pharmacy attached to the clinic primary care to provide medication. Technical assistants, serving as community health workers (CHWs) have a variety of roles, including home visits, disease prevention education, and community-wide health promotion.

Unique electronic health records (EDUS) were key in of patient management. Medical data clerks record all epidemiological data and report on healthcare quality, while physicians offer directed care based on health concerns associated with the client's age.

## **EVIDENCE OF SUCCESS**

The Integrated Health Networks had a positive impact in management of NCDs. In the 12 years following implementation, the population with access to primary healthcare increased by 68 percent, and infant and adult mortality declined by 8 percent and 2 percent, respectively [15],[16]. Additionally, through the 2016 World Bank Program for Results (P148435), the percentage of individuals with Diabetes Type II under optimal control increased from 31 percent in 2014 to 43 percent in 2021. Including NCD care in the basic health package for Costa Ricans has resulted in 98 percent of the population having coverage for the primary care treatment of diabetes and hypertension [17].

## **CHALLENGES ENCOUNTERED AND FORESEEN**

Challenges to maintaining current universal insurance coverage of NCD services and medicines include:

- Financing and higher costs of drugs compared to other countries: Specialized medications are driving up drug costs. According to a report published in *SemanarioUniversidad.com*, “prices of medicines in Costa Rica are as much as 50 percent more expensive than in the rest of Latin America due to the advantages that international labs have, which fix high prices, and also to the power of the companies that distribute the medicines” [18]. Several studies, including one from the Ministry of Economy and Commerce, confirm lack of control over drug pricing enables hoarding and different prices for the same medicines from one pharmacy to the next. Price differences as high as 10 thousand colones (approx. \$17 USD) were reported [18]. Many Costa Ricans resort to getting their medication from Nicaragua where drug prices are considerably lower.
- Aging population: Costa Rica’s aging population includes a significant number of people with expensive, chronic and degenerative diseases. Treating these illnesses increase the cost of hospital stays, outpatient drug regimens and physical therapy.
- Long waiting lists for diagnostic tests, surgery, and specialist care: A CCSS’ evaluation found “a general feeling of dissatisfaction regarding the functioning of the health system, relating as much to its structure, financing, organization and management, as to its results.” [23] Users complain lengthy waiting lists mean many do not receive timely care for acute and potentially fatal conditions, or reasonable attention for more minor illnesses.
- The impact of litigation on healthcare. Lawsuits with many claims for cost-ineffective medications (specifically, financing drugs for rare diseases) is increasing the cost of medicines in the CCSS budget.

## LESSONS LEARNED AND KEY TAKEAWAYS

Costa Rica health management has responded with flexibility to population health changes and new-user demands to achieve universal health coverage goals. Its experience has important lessons for the global health community:

**A combination of geographic empanelment (registering patients with their local primary care centre) and multidisciplinary teams is a strong foundation for measurement and feedback loops in healthcare service delivery.** Costa Rica complemented empanelment with building teams and programs to ensure accountability and population health monitoring. Around the world, community health workers play valued roles. Costa Rica measures and addresses health determinants by linking multi-disciplinary groups with various specialists (even outside the health sector)

**In-depth training of healthcare workers benefits the identification of at-risk populations.** In Costa Rica, technical assistants are unique in their professionalism, in-depth training, and responsibility for community data collection. Adequate training of healthcare workers helps identify cascades of care flaws and allows stronger systems to work on a large scale.

**Financial sustainability is needed for continued NCD care in an aging population.** Although the reformed EBAS model for health was largely effective and efficient, the cost of NCD care has been rising, primarily due to demographic shifts resulting in heightened financial strain. Researchers foresee rising demand for costly health services at the same time as citizens' contributions through taxes shrink. The government can improve the collection of financial resources and mobilize new funding sources by strengthening the MOH's role in planning, funding and delivering healthcare [19].

## CONCLUSION

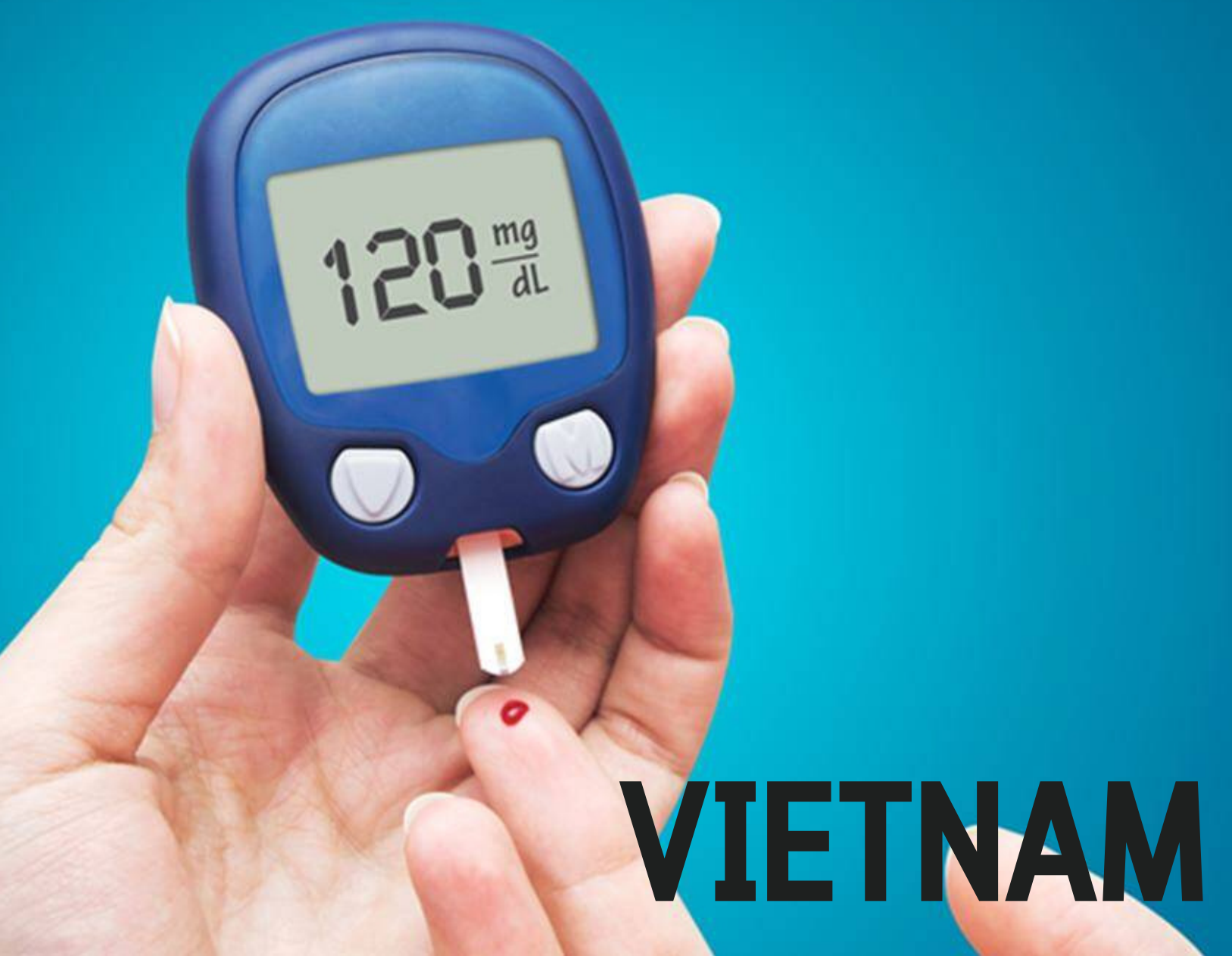
Sustainable health financing levers, access to basic diagnostics and essential medicines, and systematized medical information and referral systems are critical for equitable care for people with and at risk of NCDs. People with NCDs require long-term, proactive, patient-centered, community-based, and sustainable care, equitably delivered through health systems based on primary healthcare [20]. Governments currently developing or reforming their healthcare systems reduce the burden of NCDs must be willing to motivate stakeholders and make resources available to coordinate service delivery at all levels, and eliminate high costs associated with NCD medicines.

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# VIETNAM

## PROMOTING A CONTINUUM OF NCD CARE: DIABETES MANAGEMENT PROGRAM IMPLEMENTATION

Huiying Guo & Thao Vu

## KEY MESSAGES

- Systematic management of diabetes moves through prevention to detection and control. The Vietnam national diabetes screening and control program, implemented in 2009, successfully strengthened the continuum of diabetes management in a lower-middle income country.
- The program comprises (1) Screening: community clinics offer free check-ups, diagnoses and counseling for the population at high risk; (2) Treatment and Management: community clinics and district hospitals provided standard medicine and treatment for diagnosed patients; (3) Control of Complications: district, provincial and endocrinology hospitals worked on the management of diabetes complications.
- This case study discusses important barriers and enablers for the Vietnam National target program on diabetes. Barriers include no digital health system, difficulties in changing lifestyles, a lack of medicine and personnel in commune health centers and lack of a single funding resource.
- Enablers of the program include a high enrollment rate in public health insurance, highly accessible CHCs and village health workers, updated clinical guidelines and training provided by the Ministry of Health (MOH), a three-tiered approach to diabetes management and focusing on supporting primary care.

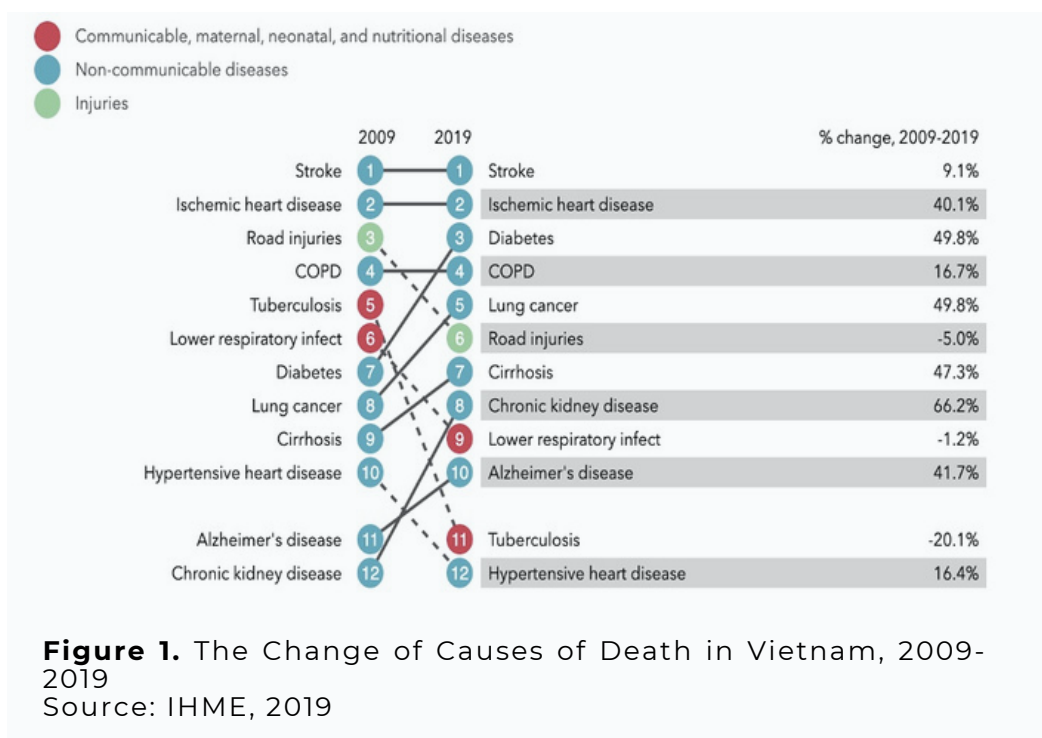
## INTRODUCTION

It is estimated three out of four people with diabetes around the world live in low- and middle-income countries (LMIC) and the disease is expanding quickly [1]. Diabetes patients in low-income countries face particular difficulties getting the information, medical care and medication needed for effective diabetes control, which increases their risk of complications [2]. To reduce the growing burden of diabetes management in LMIC, WHO recommends early detection and feasible, cost-saving interventions. Those include blood glucose control through oral medication and insulin, blood pressure control, foot care and screening for retinopathy and kidney diseases [3]. Offering these interventions in primary, outpatient and community settings is essential for managing diabetes effectively. Evidence shows delivering interventions and keeping diabetic patient registries in primary care settings can improve patients' satisfaction, access to care and use of services, and reduce use of more expensive medical services [4],[5],[6].

This case study focuses on the national program of diabetes management in Vietnam, a systematic continuum of care that includes prevention, diagnosis, treatment and complication control. Specifically, we look at the barriers, strategies and lessons learned in establishing diabetes care in an LMIC context (investment in primary care through the commune health centers (CHCs) was key). We also outline the difficulties Vietnam faces, significant challenges encountered and solutions developed program, evidence of the effect of the program, and other critical takeaways.

## CONTEXT OF THE DIABETES MANAGEMENT PROGRAM: THE SITUATION IN VIETNAM

Between 2002 and 2012, the prevalence of diabetes in Vietnam doubled from 2.7 percent to 5.4 percent. Factors contributing to this increase in Vietnam include shifts in the economic landscape toward a more urban, industrial-based economy. Along with that dietary habits are changing with an increase in meat and fat intake, increased tobacco smoking, an aging of the population and increased prevalence of hypertension [7]. In 2009, diabetes was seventh among the top 10 causes of death in Vietnam, but had moved to third place in 2019 (a 49.8 percent increase) [8]. (see **Figure 1**).



The cost of diabetes care affects the government, patients and families. According to the Vietnam Health Insurance System (VHIS), more than half of diabetes patients have complications. For patients without complications, the annual direct mean medical cost was \$205.7 in 2017. That increased to \$398.1 for patients with complications [9]. Treatment and transportation costs, as well as missed productivity due to illness and hospital stays can bankrupt a family. Diabetes-related expenditures in Vietnam were estimated to be \$162.7 per patient per year in 2015 by the International Diabetes Federation, more than the Vietnamese average monthly salary of \$150 [10].

In 2002, Vietnam started working on a National Target Program for prevention and control of certain social diseases, dangerous epidemics and HIV/AIDS. In 2008 it approved a similar program for diabetes, which aimed to:

- raise diabetes awareness among 50 percent of the population
- reduce the proportion of undiagnosed diabetes and prevalence of pre-diabetes to less than 60 percent;
- create and sustain a national diabetes management model; and
- provide follow-up care to 50 percent of diabetes patients.

During the program's six years, over 1 million people at high risk went to commune health centers for screening and almost 100,000 patients were diagnosed through the program. More than 110,000 consultations were held between providers and patients with diabetes or pre-diabetes each year the program ran.

## ESTABLISHING A DIABETES PREVENTION AND MANAGEMENT CONTINUUM

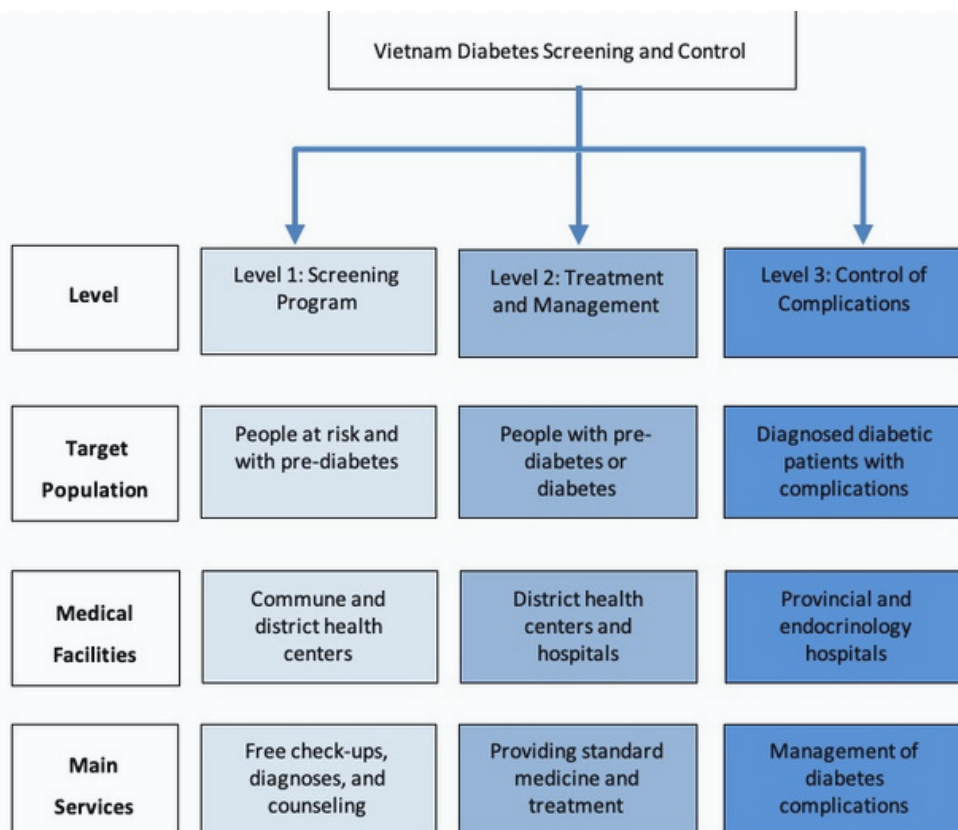
In 2009, the Diabetes Program Executive Board was established to oversee the design of the program. The National Hospital of Endocrinology was home to the board, which was responsible for program administration and coordination and technical and material assistance to the units. In the original program design, each district had a dedicated consultation room or health center to guarantee patients and people with risk factors had access to specialty care. Commune clinics had responsibility for early detection, management and counseling for diabetes patients and people at risk. Primary treatment for diabetes was delivered by district hospitals, patient with complications were to be treated in provincial and national hospitals [11].

The program used a wide range of communication and educational vehicles to spread the word on preventing diabetes in Vietnam's provinces and cities. They included posters, brochures, videotapes, and lectures, a newspaper called HealthLife and community-based prevention seminars. On World Diabetes Prevention Day, health facilities held free medical checkups and shared information. A community-based behavior change communication strategy was trialed in five provinces in 2011-2012. CHC providers talked to the elderly at community events about recognizing, preventing and treating diabetes. According to a 2016 poll in rural Quoc Oai, 77 percent of the population had heard about diabetes in the previous month, and 50 percent had been exposed to messages on NCD risk factors. Most of them had learned about diabetes from TV and radio. The National target program on diabetes contributed to this high awareness of diabetes [12].

The National target program on diabetes provided training for provincial and district authorities in diagnosis, treatment, and communication. Every year, the program collaborated with the Endocrine-Diabetes Association, universities, and communities to host specialized orientation workshops and short-term training courses for healthcare professional. Essential training courses were attended by employees from all provincial diabetes prevention units. All full-time health professionals in communes were trained in diabetes prevention and screening as of 2014. The training and development of grassroots village health workers for NCD prevention was the focus of Vietnam's national plan for the prevention and treatment of NCDs [13].

## IMPLEMENTATION OF THE NATIONAL DIABETES SCREENING AND CONTROL PROGRAM

The National diabetes screening and control program sought to improve early detection and intervention to prevent the onset of complications through activities adopted at three levels (see **Figure 2**). The first level was for people at high risk, or had pre-diabetes or newly-diagnosed diabetes. It offered free check-ups, diagnosis and counseling mostly at CHCs. Level 2 provided standard medicine and treatment for diabetes patients to prevent complications. In level 3 the program worked with provincial and endocrinology hospitals to manage patients' diabetes complications to reduce complication-related disability and deaths.



**Figure 2.** Three Levels of the Vietnam Diabetes Screening and Control Program  
Source: Author's contribution

### Level 1: screening program

The Level 1 program screened over 100 million people with a high risk of diabetes. 16.24 percent of them were diagnosed with pre-diabetes and 7.15 percent with diabetes [14].

The screening program had three main methods for recruiting people at high risk for screening: Local prevention centers sent letters to households with family members aged 45 or above asking them to fill out a self-assessment form; health care providers identified patients as high-risk during medical examinations; and village health workers, the foundation Vietnam's health system, visits households to identifying high-risk patients. The screen was a check of blood glucose levels. Patients with diabetes or pre-diabetes received one-to-one counseling with suggestions for diet and exercise, with treatment plans and medication offered to those with diabetes.

### *Level 2: treatment and management*

A national report published in mid-2014 said 39.5 percent of patients with diabetes were managed through the program. Every three months, patients with diabetes and pre-diabetes were contacted for a consultation and examined and counseled every six months. Fasting blood glucose, blood pressure, weight, and height were noted each visit. As well, treatment plans were reviewed, medication prescribed and diet (including salt intake), physical activity, smoking, and alcohol usage discussed. In 2012, 111,743 consultations were done. In 2013, the number was 119,896 (+7.3 percent ) [14]. These consultations are still offered to diabetic patients at no cost [7].

### *Level 3: control of complications*

The third level of the program developed management and treatment models for provinces. In Thai Binh, Thanh Hoa, Dak Lak, and Binh Thuan, the program collaborated with WHO, the regional International Diabetes Federation (IDF), and provincial hospitals of endocrinology to manage diabetes complications. The Ministry of Health published Decision 3280/QD-BYT in 2011 to guide the diagnosis and management of type 2 diabetes [14].

## **LESSONS LEARNED: ENABLERS AND BARRIERS**

### *Barriers*

**The lack of an integrated digital health system means patient records cannot be shared and overall monitoring is not possible.** With grants from Atlantic Philanthropies Foundation, the MOH set up a surveillance network for diabetes in eight provinces and cities in 2007, but it was not maintained after 2010. A hospital's statistical reporting system that classifies diseases according to ICD 10 will periodically report morbidity and mortality data for diabetes but most CHCs use paper-based medical records, so there are no statistics on it in the community. When patients are sent to district hospitals, the only medical history providers get is what the patient can tell them.



**The difficulty of changing patients' lifestyles and constructing a daily management model affected control of diabetes.** In DaibCara Asia's 2015 study, 86.3 percent of diabetic patients had been prescribed medicine and 91.9 percent had an annual HbA1c evaluation but only 44.6 percent completely followed diet recommendations and 35.2 percent exercise recommendations [7]. One study found most Vietnamese physical activities come from their work, not exercising, while in Thailand the majority of diabetic patients exercise three times a week on average [15]. Evidently, economic development in Vietnam is leading to more sedentary lives and exacerbating diabetes.

**Commune health centers lack essential medicine and enough personnel to provide a full range of treatment for non-communicable disease including diabetes.** A typical CHC has approximately 10 medical providers for over 10,000 residents. A World Bank investigation found 71 percent of CHCs have at least one component service of non-communicable disease management, but only 17 percent of CHCs provide a full range [16]. Another study in northern Vietnam in 2014 found 78 percent of CHCs screened for diabetes, but only 19 percent provide treatment and only 3 percent had diabetic medicine on hand [17]. This lack of medicine and personnel forces patients to seek higher-level care and bear non-medical costs such as transportation and missed work. In 2017, the mean annual transportation and absenteeism costs for diabetic patients in Vietnam were \$24.00 and \$50.60, respectively [18].

**The National target program on diabetes was funded by the central government without social security or local government funding, making it unsustainable in the long term.** It was suspended in 2015 due to a financial crisis in Vietnam's central government; it could not continue without sustainable funding.

## *Enablers*

**Continuity in treatment is key to managing non-communicable conditions and is guaranteed by government financial support.** High enrollment in health insurance and generous coverage largely relieve the financial burden of patients with diabetes. In 2018, 87 percent of Vietnam's population had social health insurance (SHI) [19]. Its annual premium is less than \$30; in 2014 69 percent of enrollees were subsidized by the government [19]. SHI reimburses 80-100 percent for primary care and 40-100 percent for specialized services [9]. Diabetes services provided by district hospitals and CHCs are 100 percent reimbursed. Common medicines for diabetes, like metformin and insulin are fully reimbursed while some expensive drugs like Liraglutide have a 30 percent co-payment.

**Vietnam's successful health education and screening programs are possible because of a network of grassroots health systems consisting of local commune health centers and village health workers.** 11,000 commune health centers are spread across Vietnam, providing diagnoses, treatments and essential medicines. According to a survey by the World Bank in 2015, 98.7 percent of people had financial access to commune health centers, 77.8 percent had geographical access, and 86.3 percent timely access [20].

In addition, 87 percent of the centers had at least one doctor and 96 percent of rural villages had village health workers [20]. Because patients with diabetes tend to be elderly and have limited mobility, having commune health centers nearby keeps their care on track. The workers get their instructions from CHCs, give home visits and are familiar with households' lives, income situation, and wellbeing [21].

**National guidelines are fundamental for program design and personnel training.** Vietnam's MOH published guidelines for diabetes prevention, screening and treatment and co-operated with stakeholders to train providers. The MOH worked with the National Hospital of Endocrinology and universities to update the guidelines every three or four years, and organized training on the changes. Support came from the Institutional Development Fund, which arranged for instructors and from pharmaceutical companies which provided funds for workshops and meetings.

**The National target program took advantage of existing resources and focused on supporting primary care.** In the past patients with diabetes had little access to specialty care, which was mainly offered in specialized hospitals. With the launch of the program, the Executive Board's expert members began training primary care and district hospital staff in caring for diabetes and helped districts establish consulting rooms for it. The district hospitals had equipment and medicine supplies and supported by the specialists became the main centers for treatment. Financial resources were dedicated to CHC screening efforts, with examiners, assistants and technicians directly reimbursed by the program, which also supported community-level statistics gathering.

## CURRENT SITUATION OF THE PROGRAM AND NEW DEVELOPMENTS

There has been no national-level program or funding for diabetes in Vietnam since 2015. Responsibility for running programs for non-communicable diseases rests with subnational governments. The number of health communication and education activities held in neighborhoods dropped significantly during COVID-19. CHCs, still faced with a lack of medicine and professional personnel, continue to screen patients but refer them to district hospitals for detailed check-ups and treatment [22].

In 2019, a care model called a "One-stop CHC" was introduced as a supplementary part of district hospitals. Each has a range of medical devices and a multidisciplinary team including primary care physicians, specialists, nurses, medical assistants, pharmacists, public health workers and imaging technicians. They resemble small hospitals more than traditional CHCs: patients can get a consultation, diagnosis and treatment plan with one visit to the clinic. Specialists at One-stop clinics work with providers at traditional CHCs in the area, to make more specialties available at traditional CHCs. Increasingly diabetic patients are managing their conditions at "one-stop" clinics, getting care closer to home and taking some of the burden off district hospitals.

## KEY TAKEAWAYS

What can we learn from Vietnam's effort to create a a diabetes prevention and management program in an LMIC context:

- Effectively managing diabetes requires access to essential medications and fundamental technology for the early detection, diagnosis, and monitoring of diabetes in primary healthcare centers.
- Routine home visits and education events in the community are essential for increasing public awareness of diabetes and improving efforts to manage it.
- The government must undertake regular updates of national evidence-based guidelines, protocols, and standards for managing diabetes. Funding for training of primary care professionals could be further supported by industry associations, pharmaceutical manufacturers and other medical services/devices companies.
- Long-term financial support for diabetes management should be part of national health insurance schemes and local government funding. Program-based financial resources are not sustainable and undermine continuity of care.
- A referral system based on accepted standards ensures efficient use of healthcare resources at every level and promotes continuity of treatment.
- The different levels of the healthcare system should work together in diabetes management, through actions such as specialty clinics in district hospitals, or “One-stop” CHCs to provide specialist medical services in primary care.
- Having a national diabetes registry is crucial to increase patient adherence to therapy, avoid problems, and evaluate the clinical results of care.

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# ARGENTINA

## ADOPTING AN INTEGRATED MODEL OF CARE FOR NCDS: PROTECTING VULNERABLE POPULATIONS FROM NCDS PROJECT

Cecilia Zanetta & Vanina Camporeale



## KEY MESSAGES

- A well-designed system of results-based incentives can help promote the implementation of an integrated model of NCD care in a decentralized health care system.
- Information technologies can be powerful drivers of change, promoting the adoption of consistent, high-quality NCD services and reporting.
- The implementation of an integrated model of NCD care positively impact the entire public primary health care network.

## INTRODUCTION

Non-communicable diseases (NCDs) have become a leading cause of death worldwide, accounting for an estimated 71 percent of all deaths globally. These chronic diseases, such as cardiovascular disease, cancer, diabetes, and chronic respiratory diseases, are responsible for a significant burden of morbidity and mortality in both developed and developing countries. NCDs are on the rise globally, particularly in low- and middle-income countries (LMICs). There is also a shift towards younger populations [1].

Several risk factors contribute to the development of NCDs, including (i) modifiable factors, such as unhealthy diet, physical inactivity, tobacco use, and harmful use of alcohol; and (ii) non-modifiable factors, such as age, genetic predisposition, and environmental factors.

There is a strong relationship between income and the prevalence of NCDs. People living in LMICs are disproportionately affected by NCDs, due largely to systemic factors such as limited access to healthcare and poor living conditions. In addition, unhealthy behaviors contributing to the high prevalence of NCDs are often influenced by social and economic factors, such as poverty, lack of education, and limited access to healthy food choices and safe environments for physical activity.

From a public health perspective, NCDs are a top priority in Argentina, as they constitute the country's leading cause of death, accounting for 66.2 percent of all deaths in 2020, with hypertension, elevated body mass index (BMI), alcohol abuse, and smoking being the primary risk factors [2].

Argentina's healthcare system is divided into three sectors: public health, social security, and private health. While the overall coordination role rests at the national level, most health care responsibilities are assigned to the provincial level. The public health sector comprises public hospitals and Public Primary Care Clinics (PPCs). PPCs have traditionally focused on maternal-child health interventions and are still to be adapted to servicing the changing needs of the aging vulnerable population.



In 2009, the National Ministry of Health (NMoH) set in motion the implementation of the National Strategy for the Prevention and Control of NCDs. Despite some progress, a significant number of adults remain undiagnosed and, as a result, are not receiving treatment. Even with the availability of free hypertension and diabetes medications, it is estimated that only 57 percent of patients with hypertension and less than 50 percent of patients with diabetes receive treatment [3].

Effective policies and strategies are urgently needed to address the so-called “silent NCD epidemic.” Argentina still faces significant challenges, including changing the existing health care model to improve service delivery at the provincial level to provide vulnerable people with timely access to quality NCD prevention and control services. In addition, addressing modifiable risk factors through targeted interventions, such as promoting healthy diets, encouraging physical activity, and implementing tobacco and sodium control policies, is essential to prevent and manage NCDs and improve public health outcomes.

This Knowledge Brief examines the multifaceted strategy adopted in Argentina to implement an integrated model of NCD care at the provincial level and to reduce the prevalence of risk factors among vulnerable populations. Specifically, it describes the overall project design, the implementation strategy, the main results, and the lessons learned.

## PROJECT DESIGN

### *Conceptual framework*

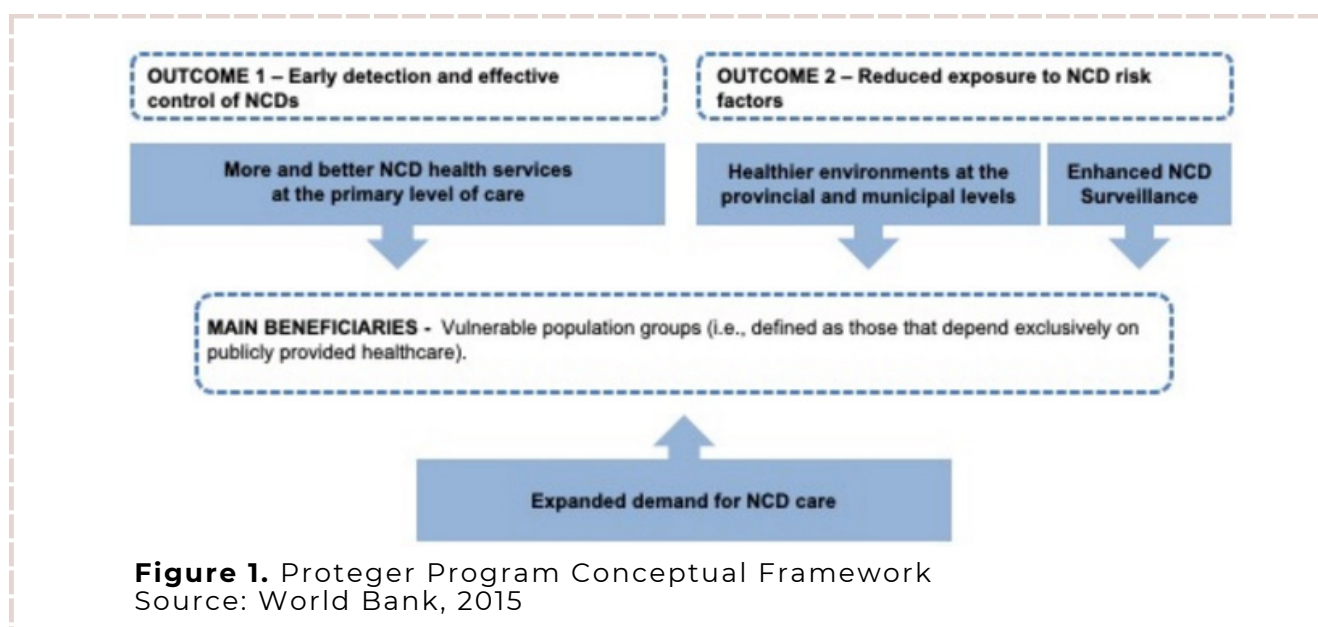
With financial support from the World Bank, the NMoH launched the implementation of the Protecting Vulnerable Populations from NCDs Project (i.e., the Proteger Program) in 2015. With a focus on vulnerable groups, the project’s objectives were: (i) to provide “more” and “better” NCD care; and (ii) to address prevalent NCD risk factors.

The project’s design simultaneously addressed NCD care and underlying risk factors in an integrated manner, reflecting the fact that NCDs share four major risk factors: tobacco use, physical inactivity, excessive alcohol consumption, and unhealthy diets. It mirrored a paradigm shift in the approach toward NCD care, shifting from addressing each NCD separately in a “silo” like manner to addressing them as a cluster of diseases in an integrated manner. The project’s approach toward addressing NCD risk factors was also innovative, as it expanded beyond the orbit of the health sector alone to promote a broader inter-sectoral response.

The Project’s design adopted a multi-pronged approach toward NCDs (see **Figure 1**):

- *NCD care*: The Project sought to expand and improve the quality of NCD care at the primary level (i.e., prevention, detection, monitoring, and treatment) by supporting the adoption and implementation of the NMoH’s Model for NCD Care (Modelo de Atención de Personas con Enfermedades Crónicas - MAPEC) at the provincial level.

- *NCD risk factors*: The Project sought to reduce the prevalence of risk factors underlying NCDs by promoting healthy habits at the provincial and municipal levels. It also supported the strengthening surveillance of NCD risk factors by the NMoH
- *Demand for NCD care*: The Project also supported actions aimed at increasing the demand for NCD care among the target population



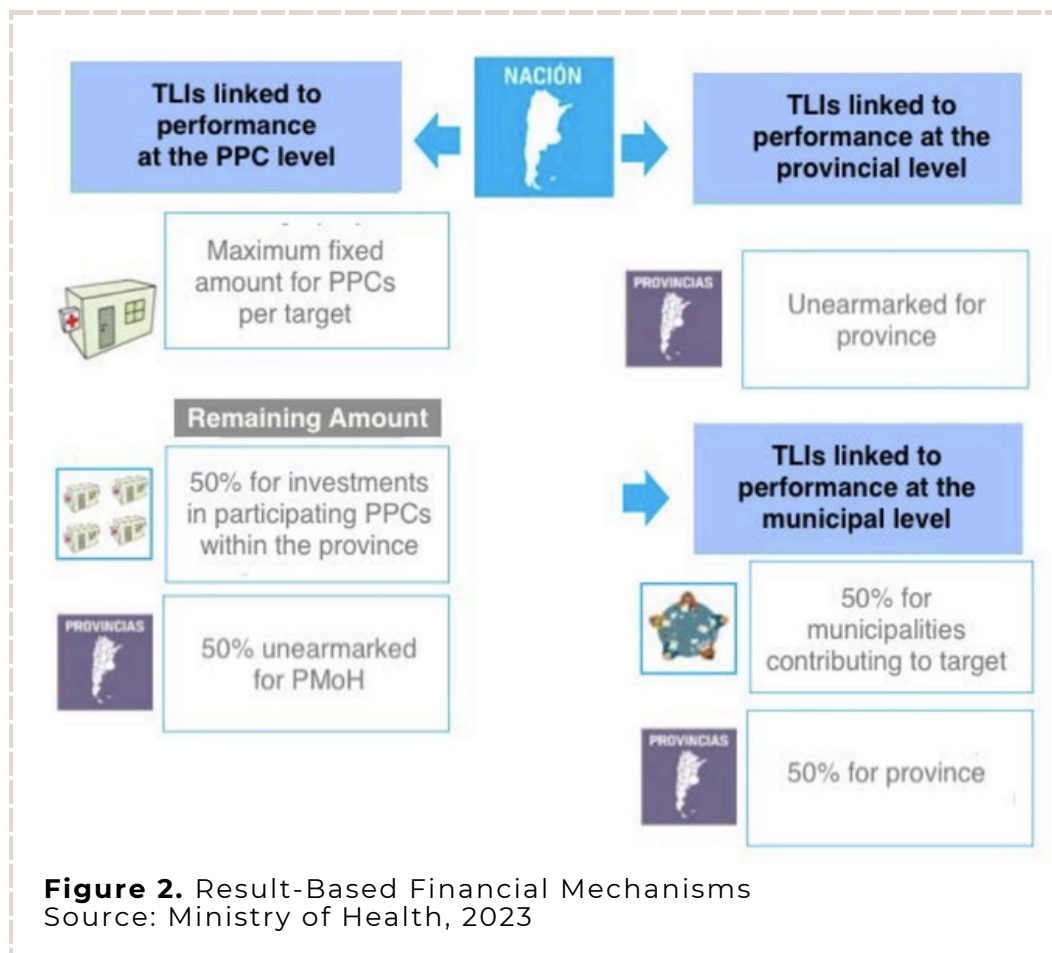
### **Population targeting**

The Project specifically targeted vulnerable population groups, which have higher prevalence of NCDs in terms of risk factors, morbidity, and premature deaths. It did so by focusing on those depending exclusively on the public health system, who do not have formal employment (thus, they lack contributory insurance coverage) and are more likely to be poor. This is an effective targeting mechanism in the case of Argentina, as there is a strong inverse correlation between income level and contributory health insurance coverage, with almost 60 percent of those in the poorest quintile falling into this category [4].

To reach the target population, the project focused on 1,671 PPCs selected for participation by the 24 provincial jurisdictions. These PPCs are responsible for providing health services to an estimated 6,956,925 vulnerable people.

### **Results-based financial incentives**

Given the high level of provincial and municipal autonomy under Argentina's federal system of government, the project relied on a robust system of financial incentives to induce implementation at the provincial, municipal and PPC levels. Specifically, for each line of action, the project included results-based financing in the form of TransferLinked Indicators (TLIs) that provided incentives to the key actors, including: (i) transfers to provinces linked to provincial-level actions; (ii) transfers to provinces and PPCs linked to PPC-level actions; (iii) and transfers to provinces and municipalities for municipal-level actions (see **Figure 2**).



**Figure 2.** Result-Based Financial Mechanisms  
Source: Ministry of Health, 2023

Transfers were subject to the achievement of predetermined targets. Therefore, the implementation of these results-based financial mechanisms required a sophisticated M&E system that included verification and external control mechanisms to verify reported achievements. In this regard, the project was able to capitalize on the M&E systems developed over almost two decades under previous World Bank projects focusing on Argentina's health sector at the provincial level.

The distribution of financial resources transferred to provinces under TLIs followed a pro-poor formula, with 30 percent of the resources being allocated based on population with unsatisfied basic needs and another 30 percent based on the provincial burden of NCD diseases (i.e., hypertension, cholesterol, and diabetes prevalence), the later one also being positively correlated with poverty.

## IMPROVING THE SCOPE AND QUALITY OF NCD CARE

The Project provided support for the implementation of the MAPEC at the provincial level. The MAPEC, in turn, is modeled after the patient-centered model developed by Wagner (1998) to facilitate interaction between proactive patients and healthcare teams trained to provide high-quality, evidence-based care [5]. It brings together essential elements into NCD care at the primary level, including organizational support, clinical support, delivery support systems, clinical information systems, self-management support, and community support.

## **Organizational support**

*At the national level:* The NMoH's Directorate for Health Promotion and Control of NCDs and other relevant national health directorates and technical units provided the necessary clinical and technical inputs in their areas of responsibility.<sup>[1]</sup>

*At the provincial level:* Non-refundable "seed grants" provided incentives to provincial ministries of health (PMoH) to establish provincial NCD units or an equivalent technical unit to oversee the Project's implementation. In addition, provincial implementation teams were set up to provide ongoing technical support to PPCs, including hands-on training and support.

*At the PPC level:* The Project provided financial incentive to both provincial governments and individual PPCs for the adoption of the MAPEC at the PPC level. Progress was closely monitored through the application of a certification instrument.

### Intermediate Outcomes:

- Units responsible for the surveillance, promotion, prevention, and control of NCDs and risk factors are now operational in 24 provinces.
- Sixty-eight percent of participating PPCs were certified as providers of quality NCD care.
- A total of 932 PPCs have at least 10 percent of health staff trained in the implementation of MAPEC.

## **Clinical support**

The Project supported the adoption of clinical guidelines developed by the NMoH, and provided training to primary care clinicians, nurses, and family and community health workers. It also supported the development and adoption of referral mechanisms to keep primary care providers in the loop when patients are referred to a specialist. NCD drugs, as well as medical supplies and equipment were also provided to participating PPCs.

### Intermediate Outcomes:

- 1,035 PPCs are regularly monitoring, controlling, and managing cardiovascular risk; 1,052 PPCs of high blood pressure; 1,056 PPCs of diabetes; and 1,031 PPCs of chronic respiratory diseases.
- 938 PPCs are utilizing NCD clinical guidelines.
- 431 PPCs have implemented a referral/counter-referral system that includes standardized documents for referrals and counter-referrals to and from specialists, including consultation results.
- 925 PPCs have at least 10 percent of their staff trained in strategies to improve the quality of care for prevention, control, and treatment of NCDs and their risk factors.

[1] Relevant units within the NMoH actively participated in the Project, providing the clinical and regulatory inputs in their respective areas of responsibility. These units included various technical areas under the Surveillance, Health Promotion, Health Care Services; National Diabetes and Arterial Hypertension Programs; the National Cancer Institute; the National Directorate of Primary Care and Community Health; and the National Directorate of Information Systems.

## ***Delivery support systems***

The Project supported the adoption of electronic medical records to make sure that providers have centralized, up-to-date information about the patient's status. It also supported the development of tools for programmed patient follow-up, including electronic appointment systems.

### Intermediate Outcomes:

- 446 PPCs have implemented electronic medical records that includes clinical information of patients with diabetes and hypertension.
- 466 PPCs have implemented an electronic appointment system to support programmed care.
- 371 PPCs have implemented an electronic drug prescription repository, so that prescriptions written by medical staff are registered in the patient's electronic medical record.
- 28 PPCs have been linked to the National Health Supplies Monitoring System to help monitor drug management at the national level.

## ***Clinical information systems***

Building upon electronic medical records, the Project supported the implementation of registries of NCD patients and, more importantly, interoperable Electronic Medical Record Systems (EMRSs) to track NCD prevention and management of individual patients as well as population of patients across provincial jurisdictions.<sup>[2]</sup>

### Intermediate Outcomes:

- 1,029 PPCs maintain a registry of patients with high cardiovascular risk; 1,059 PPCs of patients with diabetes; and 1,020 PPCs of patients with chronic respiratory diseases.
- National standards for the development of EMRS at the PPC level were developed, adopted, and are being implemented.
- The EMRS implemented under the Project contain the minimum data set defined by national interoperability standards.
- 455 PPCs have carried out a diagnosis of PPC interoperability and received training on the EMRS implementation.

## ***Self-management support***

The Project supported actions to empower NCD patients to become effective managers of their own health. Training was provided to PPC staff on how to educate patients and support their self-management practice. In addition, self management educational materials were developed.

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[2] The focus was on the organization of patient's clinical data within each PPC based on interoperability standards that simplify and standardize information flows in line with the NMoH's National Digital Health Strategy 2018-2024.



Intermediate Outcomes:

- 803 PPCs provide self-management education to NCD patients.
- 1,058 PPCs are utilizing communication materials (e.g., brochures and posters) for the self-management of NCDs and risk factors.

### ***Community support***

Taking advantage of the financial resources they received under the Project for having achieved expected results, some PPCs chose to implement community programs to support NCD prevention and self-management strategies, such as group exercise classes, cooking classes, and nutrition education.

Intermediate Outcomes:

- 394 PPCs offer intensive programs to promote healthy lifestyles.

## **ADDRESSING NCD RISK FACTORS**

Through results-based financing mechanisms, the Project promoted an integrated, multi-sector approach toward reducing prevalence of NCD risk factors at the municipal and provincial level, including tobacco consumption and exposure to second-hand smoke, sodium consumption, obesity, and sedentary lifestyles. It also supported the strengthening of epidemiological surveillance of NCD risk factors.

### ***Provincial-level actions***

The operation provided financial incentives for the establishment of NCD working tables at the provincial level. These roundtables have been highly instrumental in the formulation of a comprehensive NCD strategy at the provincial level as well as advocating for the enactment of provincial laws and regulations aimed at reducing the prevalence of NCD risk factors, including tobacco control and the promotion of healthy school environments.

Intermediate Outcomes:

- 24 provinces have established a NCD inter-sectoral working table with the participation of government actors, civil associations, and NGOs.
- 21 provinces have implemented actions for tobacco control in line with national legislation, and seven have strengthened their regulatory standards regarding the advertisements and sponsorships for tobacco products.
- 21 provinces have implemented actions to reduce sodium consumption in line with the national legislation.
- 14 provinces have implemented actions to prevent childhood obesity in school environments through legislation or regulations.

## ***Municipal-level actions***

With Project support, 135 municipalities in 18 provinces have implemented actions aimed at creating healthy environments by: (i) expanding opportunities for physical activity; (ii) controlling exposure to second-hand smoking; and (iii) helping reduce sodium intake.

### Intermediate Outcomes:

- 104 municipalities with an estimated population of 1,867,966 vulnerable residents have presented an action plan, carried out communication campaigns, and implemented actions to promote physical activity.
- 79 municipalities with an estimated population of 1,403,941 vulnerable residents have presented an action plan and enacted ordinances for smoke-free environments.
- 78 municipalities with an estimated population of 1,470,277 vulnerable residents have presented an action plan and enacted ordinances for healthy sodium intake.

## ***NCD surveillance***

Continuing the Bank's steadfast support for enhancing health surveillance in Argentina, the Project supported the implementation of series of surveillance instruments.<sup>[3]</sup>

### Intermediate Outcomes:

- The Project supported the implementation of six national NCD surveillance instruments.<sup>[4]</sup>

## **EXPANDING DEMAND FOR NCD CARE**

### ***PPC-level actions***

In addition to expanding the supply of NCD care in terms of both scope and quality, the Project also sought to proactively expand the demand for NCD care. Specifically, it provided financial incentives to PPCs for the enrollment of vulnerable populations through field campaigns by family and community health teams (including digitalized personal identification, address geo-referencing, and an actual contact with the person by PPC staff) as well as detection of NCDs among them.

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[3] The Bank has provided support for the strengthening of Argentina's health surveillance system for over two decades, including the country's first national NCD risk factor survey that was implemented under the Public Health Surveillance and Disease Control Project (AR-PE 55482; 1999; US\$52.5 million; also known as VIGIA).

[4] The surveillance instruments supported by the Project included: the Fourth National Survey of NCD Risk Factors (2018); the World School Health Survey (2018); the Global Youth Tobacco Survey (2018); the Second National Nutrition and Health Survey (2018-2019); the Phone Survey of NCD Risk Factors - VIGITEL I (2019); and VIGITEL II (2021).

### Intermediate Outcomes:

- 431 PPCs had their Areas of Sanitary Responsibility formally defined and digitized.
- 430 PPCs have enrolled and contacted at least half of their service population.

### *Individual incentives*

The Project also provided added incentives to NCD patients to seek regular care by providing free-of-charge NCD medications at their programmed consultations.

## MAIN RESULTS

Relying on robust results-based financial incentives, the Project helped align the actions of key actors at the national, provincial, municipal, and PPC levels (i.e., vertical alignment) to improve both the quality and scope of NCD health services as well as to reduce the prevalence of underlying risk factors among vulnerable population groups.

Through intersectoral roundtables, the Project also helped align and coordinate the advocacy efforts of a wide array of actors (e.g., government actors, private sector representatives, civil associations, and NGOs) within each province under the leadership of PMoHs (i.e., horizontal alignment).

It is important to underscore that the implementation of the MAPEC at the provincial level positively affected the entire public primary health care network. In this regard, particularly notable contributions include the development of delivery support systems and EMRSs, as well as the enrollment of the designated service population by individual PPCs. These elements provide a solid foundation for expanding access to routine preventive, control, and treatment to vulnerable groups, as well as enhancing accountability at the PPC level.

### *Health outcomes in participating PPCs*

As a result of the successful implementation of the MAPEC in participating PPCs, the operation has contributed to the early detection and effective control of NCDs among vulnerable population groups. This is reflected in the substantial proportion of NCD patients in participating PPCs whose conditions are under control, including:

- By 2020, the percentage of vulnerable patients regularly monitored for hypertension with an arterial pressure lower than 140/90 (i.e., the threshold between elevated and high blood pressure) reached 40.5 percent. <sup>[5]</sup>

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[5] This percentage dropped to 32 percent in 2021 due to the negative impact of the pandemic on PPC attendance.

- By 2020, the percentage of vulnerable patients regularly monitored for diabetes had a HbA1c lower than 9 percent reached 47.3 percent.<sup>[6]</sup>

### **Health outcomes at the national level**

While improvements in national NCD health outcomes observed during the Project's lifetime cannot be fully attributed to this Project, it undoubtedly has contributed to their positive evolution. Specifically:

#### *Prevalence of NCD risk factors:*

- Tobacco use among vulnerable groups decreased from 33 percent to 24.2 percent during the Project's lifetime.
- There was also a significant decline in sodium consumption among vulnerable groups, from 29 percent to 19.9 percent.

#### *NCD mortality:*

- Overall, the country's premature mortality due to NCDs declined from 20.8 percent in 2015 to 19.7 percent in 2020.<sup>[7]</sup>
- The mortality rate for NCD-related causes has also decreased between the 2014-2020 period, except for diabetes.

## **ECONOMIC IMPACTS**

The Project's economic impact has been highly positive, resulting in both direct and indirect benefits. Direct economic benefits resulted from savings in the health system resulting from avoided hospitalizations, medical consultations, and treatment for the population exposed to risk factors and lower (non-medical) expenses paid by the families for care and services for family members with NCDs. Indirect benefits resulted from avoided productivity losses in the labor market resulting from fewer premature deaths and disabilities.

Results from an economic analysis indicate that the actions carried out during the Project's lifetime helped prevent 1,015 deaths and approximately 37,004 disability-adjusted life years.<sup>[8]</sup>

Taking into consideration the Project's costs and economic benefits, the Project's yielded an estimated Internal Economic Rate of Return of 54.1 percent and a Net Present Value of US\$74 million.<sup>[9]</sup>

## **LESSONS LEARNED**

Important lessons have emerged from the implementation of this Project that can be of use for the design of interventions focusing on NCDs and risk factors as well as primary health care in general.

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[6] This percentage dropped slightly to 46 percent in 2021 due to the negative impact of the pandemic on PPC attendance.

[7] Probability of dying between the age 30 to 70 due to cardiovascular diseases, cancer, diabetes, or respiratory diseases. Data from the PanAmerican Health Organization.

[8] The disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death

[9] Based on an 8 percent annual discount rate and the Project's seven-year implementation period (2016-2022).

**A clear understanding of the problem is a prerequisite for a robust Project design.** This Project's design reflected the importance of approaching NCDs and the underlying risk factors in a joint, integrated (as opposed to vertical, silo-like) manner.

**A well-designed system of incentives can help promote cooperation in a federal, decentralized health care system.** The Project's robust set of results-based financial incentives helped induce provinces, municipalities, and PPCs to align their actions with the strategic priorities of the NMoH, promoting the adoption of the MAPEC in all provinces and the homogenization of standards of NCD care throughout the country. These financial incentives also helped foster inter-sectoral cooperation within provinces to address the challenges posed by NCD risk factors.

**Results-based financial incentives require the support of a robust M&E framework.** A solid M&E is critical to ensure the efficacy of the incentives. It is important to note the degree of complexity of these systems goes hand in hand with the implementing agency's institutional capacity. In the case of this Project, the high level of sophistication reflected in these systems was developed incrementally over almost two decades.

**External control mechanisms are necessary to verify reported achievements.** This project included several control mechanisms, such as the application of certification instruments at the PPC level, and the auditing of reported TLI achievements by an external third party. In some cases, these were multiple layers of control mechanisms, such as the certification of individual PPCs' capacity to provide quality NCD services, and certification achievements reported by provinces being, in turn, externally verified.

**Information technologies can be powerful drivers of change.** Another factor that facilitated the adoption of homogenous NCDs practices among PPCs was the implementation of computerized delivery support systems to improve case management and the continuous and programmed care of NCD patients at the PPC level (i.e., systems for appointments, referral and counter-referral of patients, prescription depositories, etc.).

**Standardized, interoperable EMRSs constitute important building blocks for the development of more comprehensive health information systems.** The EMRSs implemented under the Project provided a window of opportunity to introduce homogeneous reporting protocols in the 24 provinces.

**Actions carried out under this project positively impacted the entire public primary health care network.** Delivery support systems, health information systems, and the enrollment of the designated service population by individual PPCs provide a critical cornerstone for expanding access to primary care among vulnerable groups.



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# VIETNAM

## MULTI-SECTORAL PLANNING FOR NCDS: SHIFTING MENTAL HEALTH SERVICES TO PRIMARY CARE

Thao Vu & Jaime Bayona Garcia

## KEY MESSAGES

- To ensure people with mental disorders (PWMD) wellbeing and productivity, the problems that exacerbate their condition must be addressed. A health strategy built upon a multi-sectoral approach is a key driver to resolve those issues imbedded in socioeconomic inequality.
- Vietnam has a long history of institutionalizing people with severe mental illness. This case examines how the multisectoral planning involving the Ministry of Health (MOH) and the Ministry of Labor, Invalids and Social Affairs (MOLISA) facilitates the community-based program for mental health care that gives PWMD better access to medicine and rehabilitative services while remaining in the care of their community and family.
- Key factors that influence the effectiveness of the programs include (1) commitment of national government and its international partners, (2) established policies, (3) the needs of family and people with mental disorders, (4) regional leadership, (5) infrastructure quality, and (6) staff quality..

## INTRODUCTION

Mental health conditions affect all aspects of life. Globally, one out of eight people is affected by a mental disorder. The two most common disorders—depression and anxiety—can cost governments up to \$1 trillion annually. However, government spending on addressing mental health remains low [1]. COVID-19 increased attention on mental health as widespread isolation policies and fear of infection affected people worldwide [2].

Despite increases in mental illness and need for care, most low- and middle-income countries (LMICs) do not have adequate infrastructure, human resources, or medicine to deliver mental health services. Where services are available, access is not evenly distributed, putting people from vulnerable groups or low socioeconomic at risk of not getting care. In addition, stigma and discrimination toward mental disorders may prevent people seeking care [3].

Recently, the Western Pacific Regional Office of the WHO suggested that the new regional framework for tackling mental health issues should be "about us, by us, for us, and for our future generations." The framework goal is to shift mental health from being treated as a disease, hidden in psychiatric institutions, to being cared for in the community through expanded community services [4]. The framework considers three strategies to bring about this shift:

- Refocusing: meeting the needs of community facilitated by change agents
- Transforming: having a trained health workforce in the community
- Embedding: making care of mental health a norm

Vietnam is one of few countries in the low- and middle income bracket that has a long-standing system of treating people with mental disorders. It did so through transforming— having a workforce in the community to provide material, mental and rehabilitative support. In 2011, the Prime Minister approved a program called “Community-based social support and rehabilitation for people with mental health illness and mood disorders” through Decree 1215/QD-TTg. Its goal is to stabilize the lives of people with mental health issues, integrate them back into the community and prevent the illness get worse [5].

## CONTEXT OF COMMUNITY-BASED MENTAL HEALTH CARE IN VIETNAM

### *Origin in institutional care: severe mental health as social disruptions*

In Vietnam, mental disorders are equated with schizophrenia, considered incurable madness; many believe people with schizophrenia are dangerous [6]. As well, schizophrenia is episodic and can lead to disability requiring long-term care (which can overload hospitals and be a financial burden on patients’ families). For all these reasons, schizophrenia was considered a high priority when the Government of Vietnam (government) was planning managing mental health in the community [7].

Schizophrenia and depression are the two most treated disorders in hospitals [8],[9]. The most recent data (2020) for national mental health control show the rate of additional people with schizophrenia receiving care was 202 per 100,000 people, up from 173.3 per 100,000 in 2019. (This could result from better identification of cases, not necessarily an increase [10]. The hospitalization of people with severe mental illness is closely linked to the French colonial period (1887-1954).<sup>4</sup> Under French colonization, people were affected by the trauma of colonization, which increased the visibility of mental illness [11]. Such visibility forced the colonial government to open an official asylum for those with severe mental illnesses--more for confinement than for treatment [11]. Since its independence and reunification in 1975, Vietnam has been trying to break away from that care model.

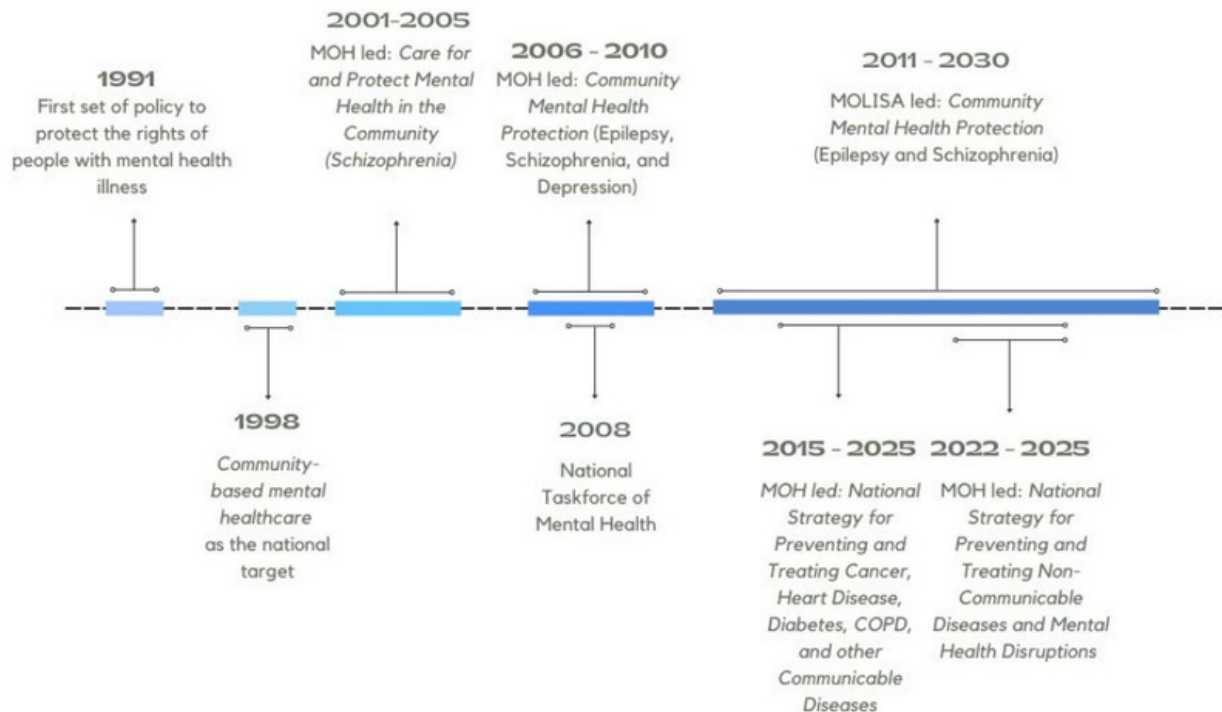
Mental health management in Vietnam has evolved since to provide medical treatments and social support to patients. One of the factors that led to the continued effort from the government to advance medical psychiatry are socialist ideals, which view mental illness as a national burden, preventing individuals from fully contributing to the economic productivity of the country [11].

## EVOLVING INTO A COMMUNITY-BASED CARE: MENTAL HEALTH IN NATIONAL STRATEGIES

In 1991, the government created the first policies to protect the rights of people with mental illnesses [12]. There are still no laws around mental health in Vietnam, but there have been efforts to improve services. In 1998, the community-based model for mental health management was established as a national target [13] and a program of community-based mental health care started in 2006 and developed in three phases. In 2011, it became a multi-sectoral collaboration between the Ministry of Labor, Invalids, and Social Affairs and the Ministry of Health.

Starting in 2015, the government integrated mental health care into its national strategies for non-communicable diseases, but mental health was not priority [14]. In 2022, the strategy specifically mentioned mental health and expanded the scope of mental health care to include other common mental disorders which it termed “mental health disruptions” [15]. Each program created by the government fits into changes in the national health’s priorities (**Figure 1**).

## THE EVOLUTION OF MENTAL HEALTH MANAGEMENT IN VIETNAM



**Figure 1.** Timeline of the mental health management in Vietnam  
Source: Author’s contribution

Under the Community mental health protection program, Vietnam’s mental health services are provided through facilities managed by MoH and MOLISA, including:

- The central level: national psychiatric hospitals, national institute of mental health, national institute of forensic psychiatry
- The provincial level: mental hospitals and psychiatric departments
- The district level: outpatient clinics
- The community level: national community mental health care facilities

MOLISA manages social protection centers and social work centers for delivering rehabilitative services and financial support to family. At the community level, MOLISA and MOH collaborate on training program for healthcare workers working with people with mental disorders.



## POLICY WINDOW FOR CONTINUED FUTURE COMMITMENT

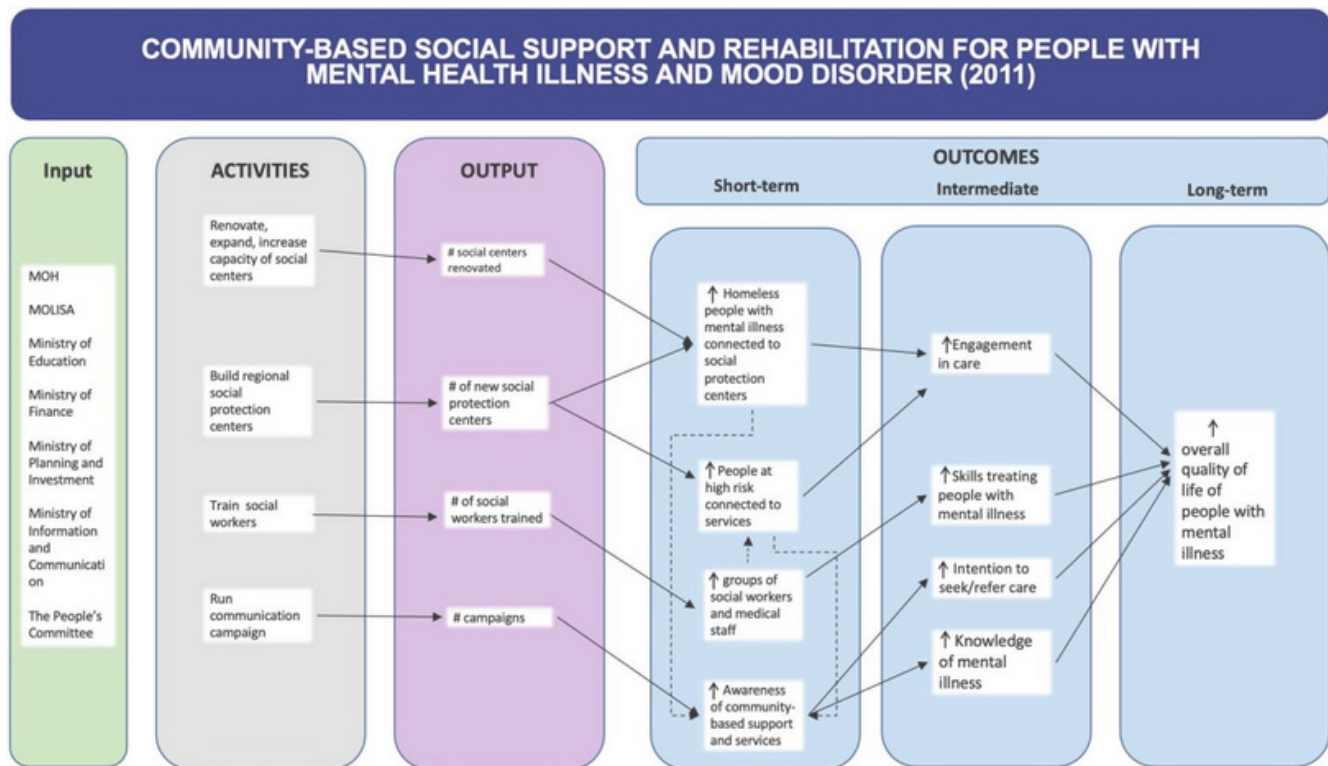
As mentioned, there has been increased attention to mental health care throughout the Western Pacific Region in recent years. The WHO Western Pacific Mental Health Action Plan, published in 2013, recommends a whole-of-government approach to prioritized conditions [16].

It recommends ministries of health work with their colleagues in other departments to redirect funding for schizophrenia and bipolar disorders toward community-based services. It also recommends integrating mental health into general healthcare and linking hospitals to community mental health resources [17].

## COMMUNITY-BASED MENTAL HEALTH CARE IN VIETNAM: AN OVERVIEW

The program's objective was to mobilize families and the communities of those with mental health issues to provide material, mental, and rehabilitative support. The program delineated four aims to increase rehabilitative services and support for people with mental illness and/or mood disorders (**Figure 2**). The goals were:

- Connect 90percentof people with mental illness who had committed dangerous acts affecting their families or communities, or who were homeless, to social protection centers for rehabilitation.
- Ensure counseling, psychotherapy, and other social services to 90percentof people with mental illness and people with mood disorders (who are at high risk of developing mental illness).



**Figure 2.** Logic Model of the Community-Based Social Support and Rehabilitation for People with Mental Health Illness and Mood Disorder outlining key stakeholders, main activities, and expected outcomes

Source: Author's contribution

- Distribute information on community-based support and rehabilitation to 100percentof families of people identified with mental illness and to 70percentof people with mental disorders.
- Form groups of social workers, staff, collaborators, and medical staff to assist and rehabilitate people in communities where the number of people with mental illness and mood disorders is high

The program was led by MOLISA collaborating with the ministries of health, education, finance, planning and investment. The Ministry of Information and Communication provided support for a communication campaign. The People’s Committee—local authorities responsible for carrying out policies and law—were local contact points in cities and villages, responsible for carrying out local programs.

The program was mainly coordinated between MOLISA and MOH, with the former responsible for planning and implementing communication activities to raise awareness and for collecting information about people with mental illness or mood disorders. MOLISA was also responsible for building legal frameworks and physical infrastructure to provide social assistance and rehabilitation. The MOH was responsible for integrating research and professional guidance in treatment and rehabilitation in both the community and social protection establishments. It also had responsibility for building the capacity of medical staff and their collaborators in mental health care.

The program’s main activities focused on building the structures and the human capital needed to provide services and support. The government committed to supporting local communities to renovate, expand, and increase the capacity of social protection centers so that each one could meet the needs of 300-500 people with mental illnesses. MOLISA built at least three regional social protection centers. Further, centers for preventive and curative services for mood disorders were piloted.

The human capital for the social centers and health communes was created by training social workers and supporting educators on developing mental-health content. Family members were trained in skills, care, and rehabilitative methods for people with mental illness.

Finally, the plan included a communication strategy to improve knowledge on integrating people with mental illness back into the community, focusing on the roles of families, communities, and the society.

## PROGRAM SUCCESS

MOLISA’s work to make the shift to community care for mental illness happen included renovating social protection centers, working with the MOH to build curriculum for training staff and organizing communication campaigns to raise awareness in communities.

People with schizophrenia and epilepsy received monthly financial support through the program. Those without caregivers and or income were registered at social centers to receive treatment and rehabilitation.

People with very severe illness were managed individually in community social centers. Those who earned less than a living wage got medical insurance and educational support to advance careers. Social centers were built nationwide with rehabilitation and treatment services, linking socioeconomically disadvantaged patients with outreach, consultation, care, and skills development for career advancement.

To achieve these results, MOLISA changed the legal framework that underpinned the structure of social protection centers to simplify the process of registering people and expanding the scope of work of the centers. Most social centers prioritized treating and providing support to those with schizophrenia and epilepsy (which is considered a mental illness in Vietnam), but social centers offering services for people with mood disorders were piloted in some provinces to increase early diagnosis of people with mental disorders to prevent illness aggravation. The social centers also organized social, arts and sports events to improve the wellbeing of residents.

In 2015, 10,000 health care workers and social workers were trained in mental health management or substance abuse case management. The training was based on the WHO's Mental Health Gap Action System (mhGAP-IG) tailored to Vietnam and a guide to mental, neurological and substance abuse for non-specialized health settings [18]. Managers at social centers were trained on changes in their scope of work, and families learned about taking care of their loved ones at home.

## **PROGRAM ENABLERS AND BARRIERS**

Widespread support helped the program achieve significant milestones. When international and regional organizations spoke of the need to address mental health, the government recognized the needs to improve and reform mental health care at the community level. The many multilateral organizations involved (workplaces, healthcare organizations, etc.) and NGOs (social work support, outreach to vulnerable groups, etc.) also helped. At the community level, leadership from local People's committees enhanced support from the provinces, districts, and villages. Furthermore, at the interpersonal level, family members of people with mental illness were interested in cooperating. Finally, the collaboration between the MOLISA and the MOH led to improved spaces and increased of medical capacity at social centers and community health centers [9].

The program encountered many systemic and practical barriers. Its narrow focus on schizophrenia and epilepsy meant it was not meeting the needs of patients with mood disorders such as depression. Even among those admitted for treatment, stigma, lack of laws protecting those with mental illnesses and a shortage of qualified mental health workers resulted in recorded cases of patients being mistreated at the social and community health centers that were supposed to be treating them [7].

Lack of funding was another serious barrier to providing high-quality care. Reports from the provinces frequently said lack of money meant salaries and incentives were too low to persuade people to work in the centers. Furthermore, while the program expanded and renovated some centers, there were not enough of them to meet the high demand for services and those there were did not enough have staff to help link patients with the community.

Another problem was that despite training to work with mental illness, social workers said they lacked knowledge of mental health care, which meant workers with experience had to help out. And human resource problems were not limited to the community health and social centers. There were not enough doctors at either district or provincial hospitals, so severely ill people did not always get the care they needed. The failure to systematically organize preventive care or early intervention for mental illness and mood disorders likely added strains on the system and might have contributed to the generally low knowledge of mental health knowledge and literacy in the community, which caused many to avoid care in the first place for fear of stigma and discrimination.

Finally, the collaboration between the MOH and the MOLISA, which was supposed to be the backbone of the program, was weak. Although Decree 1215/QD-TTg, explicitly mentioned the need for them to work together, there was no specific protocol leading to the lack of collaboration between the ministries when it came to planning preventive programs and services.

To understand the interplay of these enablers and barriers, we have used the Consolidated Framework for Implementation Research (CFIR) from the field of implementation science (**Table 1**) [19]. The framework centers around five domains that drive implementation effectiveness: (1) intervention characteristics, (2) outer setting, (3) inner setting, (4) individual characteristics, and (5) process.

**Table 1.** Summary of enablers and barriers as informed by the CFIR framework

DOMAIN	FACTORS	ENABLERS	BARRIERS
<b>Intervention Characteristics</b>	Complexity of Intervention	<ul style="list-style-type: none"> <li>Nationwide</li> </ul>	<ul style="list-style-type: none"> <li>Narrow in scope, only focuses on schizophrenia and epilepsy</li> </ul>
<b>Outer Setting</b>	Patients Needs and Resources	<ul style="list-style-type: none"> <li>Real need from people for financial, service access, social integration</li> </ul>	<ul style="list-style-type: none"> <li>Stigma and discrimination</li> </ul>
	External Policies	<ul style="list-style-type: none"> <li>Prime Minister's decision</li> <li>International agenda</li> <li>Social Protection Legal Change</li> </ul>	<ul style="list-style-type: none"> <li>Lack of protocol delineating collaboration steps between MoH and MOLISA</li> <li>Lack of laws around mental health</li> </ul>
<b>Inner Setting</b>	Readiness for Implementation	<ul style="list-style-type: none"> <li>Social and healthcare workers were invested in carrying out the intervention</li> </ul>	
	Available Resources		<ul style="list-style-type: none"> <li>Lacking vehicles to reach people in mountainous/hard-to-reach areas</li> </ul>
	Organizational Incentives and Rewards		<ul style="list-style-type: none"> <li>Lacking due to lack of financial resources</li> </ul>
<b>Characteristic of Individuals</b>	Self-Efficacy		<ul style="list-style-type: none"> <li>Social workers reported lacking knowledge, requiring the assistance of mental health specialty workers</li> </ul>
<b>Process</b>	Planning	<ul style="list-style-type: none"> <li>Developed plan locally</li> </ul>	
	Engaging		<ul style="list-style-type: none"> <li>Varied across the country. Leadership commitment at each locale determined the engagement of staff.</li> </ul>

Source: Author's contribution

## STRATEGIES FOR THE FUTURE

Plans for overcoming these barriers include recruiting and training more staff and adapting the centers so they are better suited to providing mental health care. Financial incentives for staff working on and contributing to the project are to be improved. At the same time, the program's scope will expand: people with mood disorders and children with autism will be eligible for care, while work to promote mental health through prevention and early intervention programs will be added. Finally, there will be work on strengthening partnerships with community organizations to deliver mental health services where the people are [15].

## LESSONS LEARNED

**The project succeeded at integrating mental health services into primary care, supported by strong community partnerships and reliable governance.** Although the scope and reach of services needs to be broadened, the goal of moving people with severe mental illness from institutions into the community has been largely successful. The success arrived with changes in the legal framework regarding the definition of what social work entails and how medical practices can leverage social workers to reach people in need of care. The most important policy achieved was that which makes it easier to register people into the system for receiving support. Overall, the project succeeded at providing (1) access to treatment for patients with schizophrenia and epilepsy, especially those from remote areas and those from low socioeconomic backgrounds; (2) opportunities for rehabilitation and reintegration into the community; and (3) increased public awareness of mental illness.

**A whole-of-government approach, including involvement of health workers (MOH) and non-health workers (MOLISA) and commitment and support from regional partners (WHO) was crucial for success.** However, due to the initial overemphasis on mental health issues as an illness, the government approached mental health problems narrowly, focusing only on schizophrenia and epilepsy, leaving out people suffering other mental health issues. The program also had to compete for funding with other non-communicable diseases (diabetes, hypertension, COPD and cancer), which led to a lower budget and less attention. Rather than putting these concerns against each other to compete for funding, the government should refocus primary care targets to improving the well-being of people throughout their lives.

**In top-down systems like Vietnam, strategies need to outline specific protocols to ensure meaningful cooperation between ministries and any other partners.** From this case, due to the lack of protocol, activities between the MoH and the MOLISA were siloed and not truly collaborative. As a result, although the work did address the social and medical aspects of mental disorders, the outcomes reflect patchwork progress rather than comprehensive change. An information system sharing information between the sectors can inform such cross-sectoral prevention programs.



**The foundation of a community-based program's success is the work of frontline social and health workers.** If the system wants to improve mental health in its citizens, it must make its employees' jobs manageable and rewarding. In Vietnam's mental health program, frontline staff felt overworked and underpaid. There was little motivation to retrain for their changing jobs, which contributed to a lack of qualified human resources and increased stress. Adequate pay and adequate levels of staff are necessary for running an effective program.

**Although awareness of mental illness has increased, stigma and discrimination toward it remains and needs actions.** Stigma causes people to avoid care, turns families and communities away from people in need, and causes potential workers to refrain from entering the psychiatry workforce. Laws must be created to protect the rights of people with mental disorders.

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# PERU

## ADOPTING POPULATION-BASED CANCER PREVENTION AND CONTROL: PLAN ESPERANZA

Bomy Yun & Tatiana Vidaurre

## KEY MESSAGES

- A national cancer control plan with equitable access as a central tenet enables the needs of the most vulnerable in society to be addressed.
- Strong political support, decentralization of services, the presence of an autonomous technical institution specializing in cancer control, and an all-of-society approach in the national cancer control agenda are some of the key attributes contributing to the success of Plan Esperanza.
- Protected and dedicated funding and outcomes-based budgeting are key to the long-term financial sustainability of national cancer control programs.

## INTRODUCTION

In the past 20 years, the burden of non-communicable diseases (NCDs) has greatly increased in Latin America, including from rising cancer-related morbidity and mortality. Cancer rates are rising around the world: in 2020, 19.3 million cases of cancer were diagnosed, a number estimated to reach 28.9 million by 2040 [1]. In Latin America and the Caribbean the shift is due to improved standards of living, accompanied by sedentary lifestyles, unhealthy diets and increased tobacco and alcohol use. Environmental pollution, urbanization and an aging population are also factors.

Responding to rising cancer rates is complicated by insufficient funding and inadequate distribution of health care personnel, services and equipment. As well, large segments of the population lack of access to care, particularly those who are socioeconomically disadvantaged, reside in rural areas or represent ethnic minorities [2].

## CONTEXT OF CANCER CARE IN PERU

Since 2000, cancer has been the second leading cause of death in Peru [3], [4] with 16.6 percent of deaths attributed to cancer in 2016 [1],[3]. In adults aged 50 and older, stomach and lung cancer were the most common causes of cancer deaths [3].

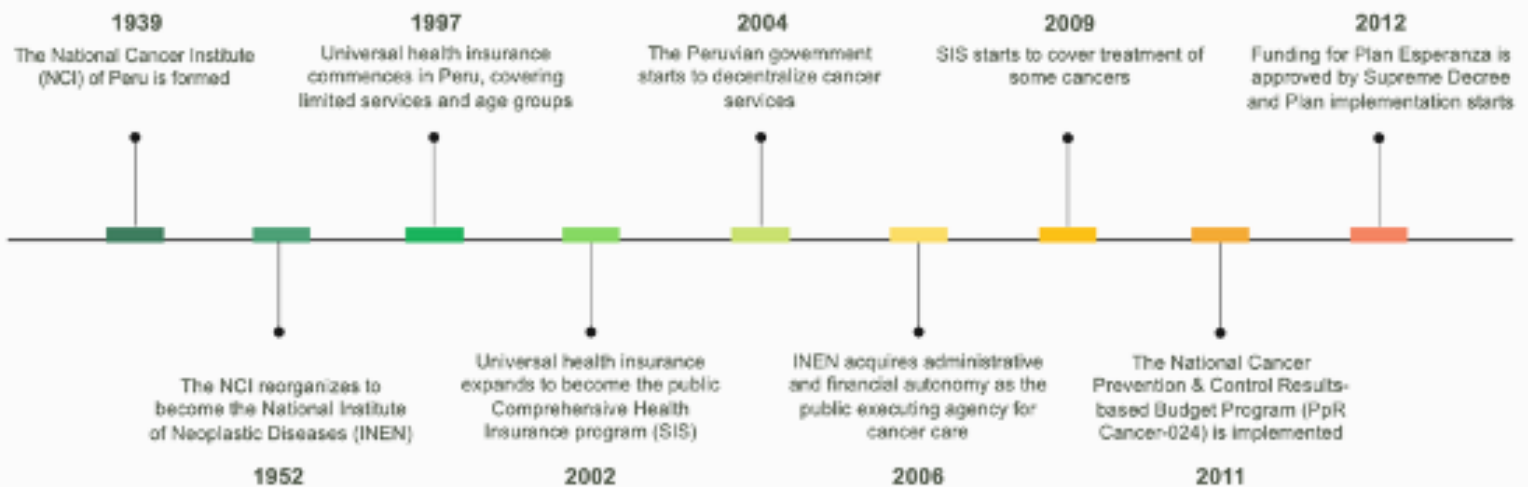
Among Peruvian women, cervical and breast cancer had the highest incidence in 2012, and among men that year, stomach cancer and leukemia led [1],[5]. The distribution of cancer-related health services throughout the country has long been unequal, concentrated around Lima, the capital. Poor access to primary and secondary preventive care has led to the majority of cases being detected in advanced stages [5].

Universal health insurance was introduced in Peru in 1997, starting with a subsidized program for school children, followed by a program covering pregnant women and younger children [6].

The two merged to become the Comprehensive Health Insurance program (SIS) in 2002 [6]. SIS was approved to cover treatment of cervical, breast, colon, stomach and prostate cancer in 2009, and joined with the National Institute of Neoplastic Diseases (INEN) (responsible for cancer prevention and control programs) to ensure universal cancer coverage.

Since 2011, the Peruvian government has prioritized resources for cancer-related care. In 2012, it established Plan Esperanza, a national comprehensive cancer care plan that improved access to cancer services for all, but ensured care for 12 million poor and extremely poor people was a priority [6]. The plan enabled access to the full spectrum of cancer care, from promotion, prevention and early detection to comprehensive and timely treatment, for patients with any type of cancer and at any stage [7].

This knowledge brief focuses on Peru’s experience to highlight how a country with a relatively low proportion of health expenditures in relation to its GDP can create and implement a comprehensive and equitable population-based cancer-control program. For a summary of key milestones in the evolution of cancer care in Peru, see **Figure 1**.



**Figure 1.** Timeline of cancer care in Peru. Source: Author’s contribution.

## OVERVIEW OF PLAN ESPERANZA

In 2012, the Peruvian government approved implementation and funding of Plan Esperanza [8]. On the preventive side, the plan focused on promoting healthy lifestyles. At the same time, comprehensive care and treatment were to be strengthened from early detection and staging through recuperative and palliative care, primarily by increasing health professional capacity and expanding and improving access to oncology services throughout the country [8].



Working jointly with the Ministry of Health, INEN had strong backing from the Peruvian Government to carry out the objectives of Plan Esperanza. This institutional arrangement was key in the plan's success. Implementers of Plan Esperanza received technical advice and support from the U.S. National Cancer Institute, the Latin American Cancer Institute's Network, and the Pan American Health Organization. Numerous other international collaborations helped to mobilize INEN's policies for cancer prevention and control [9].

## **PLAN ESPERANZA: KEY CONCEPTS AND ACTIVITIES**

### ***Decentralized services as a central construct***

In 2004, the Peruvian government began to decentralize cancer services [4], [10]. By 2011, the majority of cancer care services were provided by INEN in Lima and by regional cancer care centers, one in the north, one in the south [8]. For Plan Esperanza to be effective, however, services (including prevention) needed to be further decentralized to be accessible regardless of socioeconomic status or urban or rural residence. One cancer prevention center was established in each region and specialized treatment services for secondary care were offered at five regional institutes and hospitals, based on the vulnerability and needs of the population. High-complexity cancer services at a tertiary and quaternary levels of care were established in Lima, with infrastructure and equipment capacity to support referrals and transfers [8].

Between the years 2011 and 2012, with technical support from INEN across 25 regions in the country, over 7,000 establishments had the opportunity to budget and allocate resources for cancer prevention and health promotion, as well as early detection of the five most common cancers – stomach, breast, cervix, prostate and lung [11]. Additionally, through decentralization, regional capacity for cancer services increased via operationalization of 35 facilities in ten regions of Peru by 2015 [6].

By publicly funding cancer care through SIS and decentralizing, Plan Esperanza enabled equitable access to comprehensive cancer prevention and control services for the general population. Basic and specialized prevention was essentially free of charge for the entire population. By addressing critical financial barriers to care for large segments of the population, SIS effectively increased use of cancer services and substantially reduced the burden of cancer in the country [8].

### ***Cancer services in primary care settings***

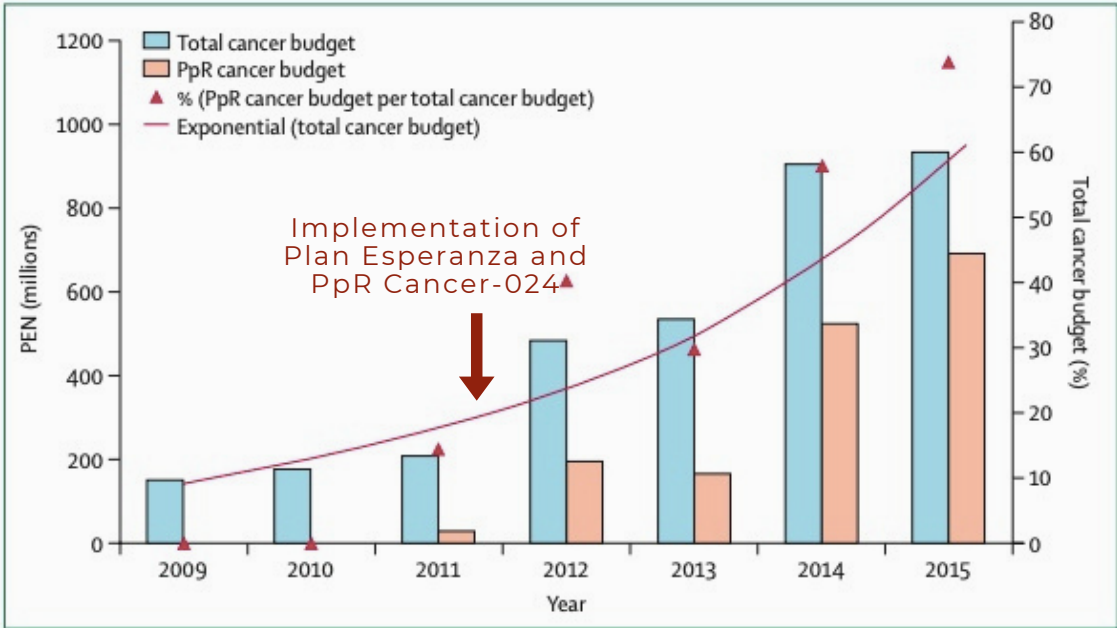
Another Plan Esperanza innovation was establishing 'preventoriums' in community and primary care settings. These programs offered health promotion and preventive activities, screening for early detection, and basic cancer treatment for excision of premalignant gynecological lesions and skin lesions less than 2cm in size.

They also referred patients to secondary and tertiary care as appropriate [8]. INEN played a key role in the setting up the preventoriums through a cooperation agreement and by leading training for health professionals and non-health personnel employed at the preventoriums [8].

Specialized services provided at higher levels of care included blood tests, radiology and biopsies for final cancer diagnosis and staging, cancer treatment services, such as radiotherapy, surgery and chemotherapy, and palliative care. The myriad cancer services across the spectrum of cancer care were embedded throughout the health care system, which is another means through which Plan Esperanza expanded its reach to people.

**Increasing financing at the national level**

In 2011, Peru’s national budget for cancer prevention was approximately US \$10 million; it increased to nearly US \$30 million in 2012 when Plan Esperanza’s was implemented. All told, between the years 2009 and 2015, the total cancer budget in Peru increased more than sixfold, from PEN152 million to PEN936 million, representing an average annual growth of 35.4 percent (shown in **Figure 2** below)[8]. A portion of those increases went to the national cancer control budget, allowing for full financial coverage of ten types of cancer and improved access and universal coverage for the poorest of the population [8]. This marked increase in budgetary allocation at the national level reflected high political will to prioritize cancer care.



**Figure 2.** National public budget for cancer care in Peru for the years 2009 to 2015. Source: Adapted from Vidaurre et al., 2017.

Another important aspect of Plan Esperanza's financing was the Intangible Health Solidarity Fund (FISSAL), which financed services associated with the seven types of cancer that were the greatest disease burden (breast, cervical, colon, stomach, prostate, leukemia and lymphoma) as well as treatment of high-cost diseases. FISSAL dedicated and protected public funding from out-of-pocket expenses to patients and their families [6]. Even if in some years there was pressure to find funding in the national budget for other needs, the budget allocated to FISSAL could not be touched. This was vital to ensure comprehensive cancer service provision remained at the top of the agenda.

Not only did establishing SIS enable universal coverage of cancer services, it also increased the National Cancer Prevention and Control Results-based Budget Program (PpR Cancer-024). This management tool enabled a significant increase in the budget for cancer prevention and control at a national level [14]. After Plan Esperanza was introduced, out-of-pocket expenses for patients decreased from 58.10 percent in 2009 to 6.10 percent in 2016 and the population receiving coverage for cancer care through SIS increased from 17.2 percent in 2009 to 70.2 percent in 2016 [14].

### *Evidence-based and outcomes-driven cancer control*

In its first three years (2012-2015), Plan Esperanza demonstrated remarkable results. The plan was far reaching; the number of interventions for health promotion and primary and secondary cancer prevention delivered to individuals and families throughout Peru are shown in **Table 1**.

**Table 1a.** Plan Esperanza outcomes, 2012-2015: Number of interventions delivered for health promotion and primary prevention

	Events
Community-based prevention counselling	36 485 636
People (aged 18–59 years) for breast, cervix, gastric, prostate, and lung cancer	23 052 855
Women (aged >18 years) for cervix cancer	4 296 963
Women (aged >18 years) for breast cancer	3 874 717
People (aged 18–64 years) for gastric cancer	1 780 957
Men (aged 18–69 years) for prostate cancer	923 861
Students (aged 10–17 years) for tobacco control or lung cancer	733 788
People (aged 18–59 years) for lung cancer	1 505 532
People (aged 18–59 years) for colorectal and liver cancer	316 963
Councils contacted by INEN Cancer Prevention Center	82 832
Families with awareness counselling	170 120
Communities counselled regarding healthy living and prevention of common cancers	185 132
Health educational institutions counselled on cancer prevention	11 169
Municipalities engaged in cancer prevention	1 124

**Table 1b.** Plan Esperanza outcomes, 2012-2015: Number of interventions delivered for secondary prevention

	Events
People attending screening and early detection programmes	5 171 202
Bilateral mammography for women aged 40–59 years	161 439
Abnormal cytology screening by colposcopy	119 681
Cervix cancer screening by colposcopy for women aged 21–65 years	36 116
Digital rectal exam for prostate cancer	110 781
Prostate-specific antigen measurement	125 979
Preventive health medical exam	107 951
Upper gastrointestinal endoscopy for people aged 45–65 years	131 539

Source: Vidaurre et al., 2017.

To assess Plan Esperanza’s impact, it is helpful to understand the degree of cancer-related disability and death averted in the population by its interventions. While this information is not available in the literature, Plan Esperanza and FISSAL have data on it. **Table 2** shows a clear increase in early diagnosis of breast, cervical, colon, stomach and prostate cancer in the plan’s first three years. This resulted from the combination of concerted efforts to expand preventive screening and introducing coverage for cancer treatment at any stage. For each type of cancer listed in the table below, the proportion of cancers detected in early stages (Stage 1 and 2) exceeds those detected in late stages (3 and 4) post-implementation of the Plan. These are significant trends because in many cancers early diagnosis accompanied by timely treatment improves prognosis.

**Table 2.** New cancer cases by clinical stage in Peru, from the population covered by SIS in 2010-2012 vs. 2012-2015.

	Stage I and II		Stage III and IV	
	2010-12	2012-15	2010-12	2012-15
Breast cancer	42.24%	46.77%	57.76%	53.23%
Prostate cancer	11.91%	23.36%	88.10%	76.64%
Colon cancer	21.80%	39.06%	78.20%	60.99%
Cervical cancer	62.34%	62.95%	37.66%	37.05%
Gastric cancer	16.67%	33.56%	83.32%	66.44%
Total	24.87%	49.20%	75.13%	50.80%

Source: Vidaurre et al., 2017.

INEN contributed to developing high-quality, evidence-based cancer control and care across the country in a variety of ways. They included helping organize health services, developing primary, community and advanced oncology services and standards for service delivery, informing clinical practice guidelines, and setting up peer consultation and specialist referrals [8]. Coupled with increased public insurance coverage and protected budgets, this led to more people receiving high quality of cancer care and better outcomes.

Plan Esperanza overwhelmingly demonstrated that alleviating economic and geographic barriers to cancer preventive services and treatment improved outcomes, both in cancer-related morbidity and mortality. As mentioned, Plan Esperanza used a budgeting tool named PpR Cancer-024.

In 2014, the Peruvian Ministry of Health commissioned an evaluation of Plan Esperanza called the integrated mission of the Program of Action for Cancer Therapy (imPACT). The imPACT review endorsed and validated Plan Esperanza's cancer control strategy and recognized its comprehensive, interdisciplinary and cross-sectoral approach to cancer control in Peru [8].

### *An all-of-society approach*

Public awareness campaigns on the importance of healthy living and cancer screening were part of Plan Esperanza's rollout. They included messages against smoking and encouraging moderate alcohol consumption, responsible sexual behavior, healthy eating, exercise and precautions against ultraviolet radiation. Hygiene and sanitary measures related to preventing and controlling cancer were also promoted, and regulations related to food, air and water safety were put in place [5]. A survey on cancer control in 2013 and 2014 showed positive changes in attitudes and behavior around cancer in Peru after Plan Esperanza was launched [8].

Other INEN effort to educate the public and break down barriers to cancer care included developing a user-friendly, patient-centered online system, to reduce social, cultural and educational barriers to browsing its programs and increase compliance with cancer treatment [8]. Another INEN initiative that spread across the country was called 'Tell me everything... about cancer.' It promoted healthy, active lifestyles to make cancer prevention a part of daily living and corrected misconceptions about cancer [8]. The 'INEN is with you' program aimed to improve quality of life by bringing services closer to patients and delivering dignified care [15]. NutrINEN offered monthly nutritional talks for patients and the public [15].

Various civil society groups played a role in identifying and addressing stigma in cancer care and driving discourse that informed public policies on access [12]. One was Club de La Mama, a national breast cancer awareness and survivor group, founded in 2006 by Dr. Tatiana Vidaurre, a medical oncologist who spearheaded the implementation of Plan Esperanza. Club de La Mama did impactful work supporting breast cancer patients and families in education, counseling, navigating the health and survivorship [16],[17]. Social communication and mobilization strategies spread awareness of cancer prevention and care and Plan Esperanza's services, including a concert introducing the official song of Plan Esperanza; World Cancer Day celebrations; screening prison inmates and extramural cancer prevention campaigns [15].



## CHALLENGES

Despite Plan Esperanza's exceptional achievements, there were challenges encountered that continue to be addressed today.

- Widespread implementation of mammography and other radiographic services was a challenge in part because the strong private radiology sector resisted the introduction of public services [18].
- Scaling up other technologic innovations and treatments, including radiation therapy, was a challenge in some regions that lacked robust health infrastructure, especially in rural areas [18].
- There were also difficulties with the wider expansion of regional facilities because of complex political dynamics and the long-term need for financial investment [18].

## PLAN ESPERANZA TODAY

Plan Esperanza is frequently cited as a model national cancer control plan. However, the plan's detailed agenda ended in 2016. With a long string of political crises in Peru since 2017, it is unclear whether cancer control remains a national priority. Publicly shared data and literature on Plan Esperanza's performance since 2016 is lacking.

## LESSONS LEARNED AND KEY TAKEAWAYS

This knowledge brief shows Plan Esperanza was a successful and financially sustainable model of population-based cancer prevention and control. Its successes from its implementation through 2016 are attributable to the following factors:

**Strong political support at the highest level of the national government.** Plan Esperanza had strong backing from the Peruvian Government and the cancer control agenda was prioritized by the ministries of health and finance. Political leaders expressed active and vocal support for the plan, raising public awareness and contributing to its national momentum.

**A comprehensive and equitable population-based national cancer control plan, supported by protected public funding and serving the most vulnerable.** One of the central tenets of Plan Esperanza was equitable access. Its design addressed fundamental barriers to care for the most vulnerable in the population, including economic, geographic, social and knowledge barriers. The protected funding ensured access to cancer care was tantamount to a human right.

**Decentralized cancer care across the country and the availability of cancer services at all levels of care.** While highly specialized treatments and quaternary services were provided at INEN, regional cancer institutes and facilities were able to provide secondary and tertiary services, and community and primary health centers expanded health promotion and screening. This allowed individuals and families to receive cancer-related care in their region or communities, reducing barriers and improving efficiencies in administration.

**The presence of a technical institution, INEN, with autonomous administrative, technical, and financial control, specializing in cancer.** The Ministry of Health and INEN were jointly responsible for the implementation of Plan Esperanza, and INEN received strong political support for its mandate to achieve the plan's objectives. This arrangement, combined with INEN's technical strength and autonomy, drove the successful implementation and financing of the Plan.

**Mobilization of 'all of society' in the cancer prevention and control agenda.** Plan Esperanza's rollout was accompanied by the active participation of civil society to encourage commitment at a societal level to combat cancer.

**An evidence-based and outcomes-driven plan with robust performance indicators for ongoing monitoring and evaluation.** Plan Esperanza's technical specifications and clinical guidelines were rooted in evidence-based practices. Its routine monitoring involved assessment based on short-, medium-, and long-term key performance indicators that rigorously measured performance against objectives.

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# **COSTA RICA**

## **LESSONS LEARNED WITHIN THE HEALTH PROGRAM FOR RESULTS**

**Micaela Mussini, Ana Maria Lara, Ana Lucia Rosado Valenzuela, Ashley Sheffel, & Laura Di Giorgio**

## KEY MESSAGES

- The Program for Results (PforR) is one of the three financial instruments available at the World Bank, which differs from other instruments by focusing on the achievement of specific results.
- Costa Rica was one of the first countries in the Latin-America and the Caribbean region to choose this type of financing, through the "Program for Results for the Strengthening of Universal Health Insurance in Costa Rica", approved in 2016 and still under implementation.
- The choice of the PforR instrument to support the implementation of the Strategic Agenda for the Strengthening of Health Insurance by the Costa Rican Social Security Fund, seen in retrospect, was a wise decision. The analysis of the reasons for success serves as a basis for the implementation of this instrument by other countries.
- The PforR in Costa Rica promoted the achievement of critical and complex results and reforms to the health sector, such as the implementation of integrated healthcare networks, the digitalization of the health system through the Unique Digital Health Record (EDUS, for its name in Spanish), and the reduction of waiting lists, among others.
- The continuation of the reforms initiated by the health PforR In Costa Rica will be of great importance to continue achieving the potential gains in efficiency and quality of care that they imply.

## INTRODUCTION

The Program for Results (PforR) is one of the three lending instruments that the World Bank offers to its client countries, complementing Investment Project Financing (IPF) and Development Policy Financing (DPF) operations. This type of financing began to be offered by the World Bank in 2012. The instrument characteristics are oriented to the financing of programs in which governments try to improve the use of general public expenditures or their performance using their own processes and institutions. PforRs focus on the achievement of specific results and not on inputs or processes, aiming to promote the sustainable development of countries and improve the efficiency and effectiveness of expenditures.

Costa Rica was one of the first countries in Latin American and the Caribbean to choose this type of financing to support the implementation of the Strategic Agenda for the Strengthening of Health Insurance by the Costa Rican Social Security Fund (CCSS). The Program for Results "Strengthening Universal Health Insurance in Costa Rica" was approved by the World Bank Board of Directors in February 2016 with an original duration of six years, with the objective of improving the availability and quality of the universal health insurance system, as well as improve institutional efficiency of the CCSS [1].



This knowledge brief, part of a broader series of knowledge briefs developed by the World Bank, seeks to describe the main reasons for success, challenges and key lessons learned during the design and implementation of the health PforR in Costa Rica, with the aim of offering a roadmap for other countries interested in implementing similar programs.

## BACKGROUND

The CCSS is the administrator of Costa Rica's public health insurance system and is the largest health care provider in the country. Apart from a small set of health services that cover work injuries, the CCSS is the sole public provider of health services at all levels of care and is also responsible for collecting and pooling public health insurance revenues. Costa Rica's health insurance model provides truly universal coverage and has numerous strengths. The public health insurance provides health services to the entire population, as the percentage of the population with formal insurance is around 95 percent. CCSS services are used by the majority of the population at substantially high rates in all income groups [2].

In Costa Rica, all public services are provided by the CCSS, opening great opportunities for efficiency gains in the public sector. Despite its strengths, around 2016, the system was experiencing multiple public health challenges that drove the need to promote various changes in order to respond to these in a financially sustainable way [2].

An evaluation conducted by the CCSS between 2014-2016 identified three priority areas that needed to be addressed. First, health-care delivery had not fully adapted to the changing needs of the Costa Rican population, given its ageing and the increase in prevalence of noncommunicable diseases (NCDs). Second, the CCSS required more effective institutional capacity to manage an increasingly complex system faced with new needs. Third, there was a need to improve and modernize financial management within the CCSS in order to allocate resources more efficiently and equitably, i.e., based on the needs of the population rather than on historical values [1].

In this context, to improve efficiency, equity and quality of care, the CCSS decided to present a comprehensive program through its Strategic Agenda for the Strengthening of the Health Insurance (SASHI). This agenda included three priority areas: (i) strengthening the health care model to better integrate primary health care (PHC) with secondary level care in a given catchment area and network of providers in order to improve prevention, early diagnosis, and timely management of NCDs and ensure more efficient use of health care resources; (ii) enhancing the institutional management of the CCSS while increasing accountability and responsiveness to users; and (iii) adopting international best practices relevant to Costa Rica to improve financial management of the public health insurance (Seguro de Salud) [1].

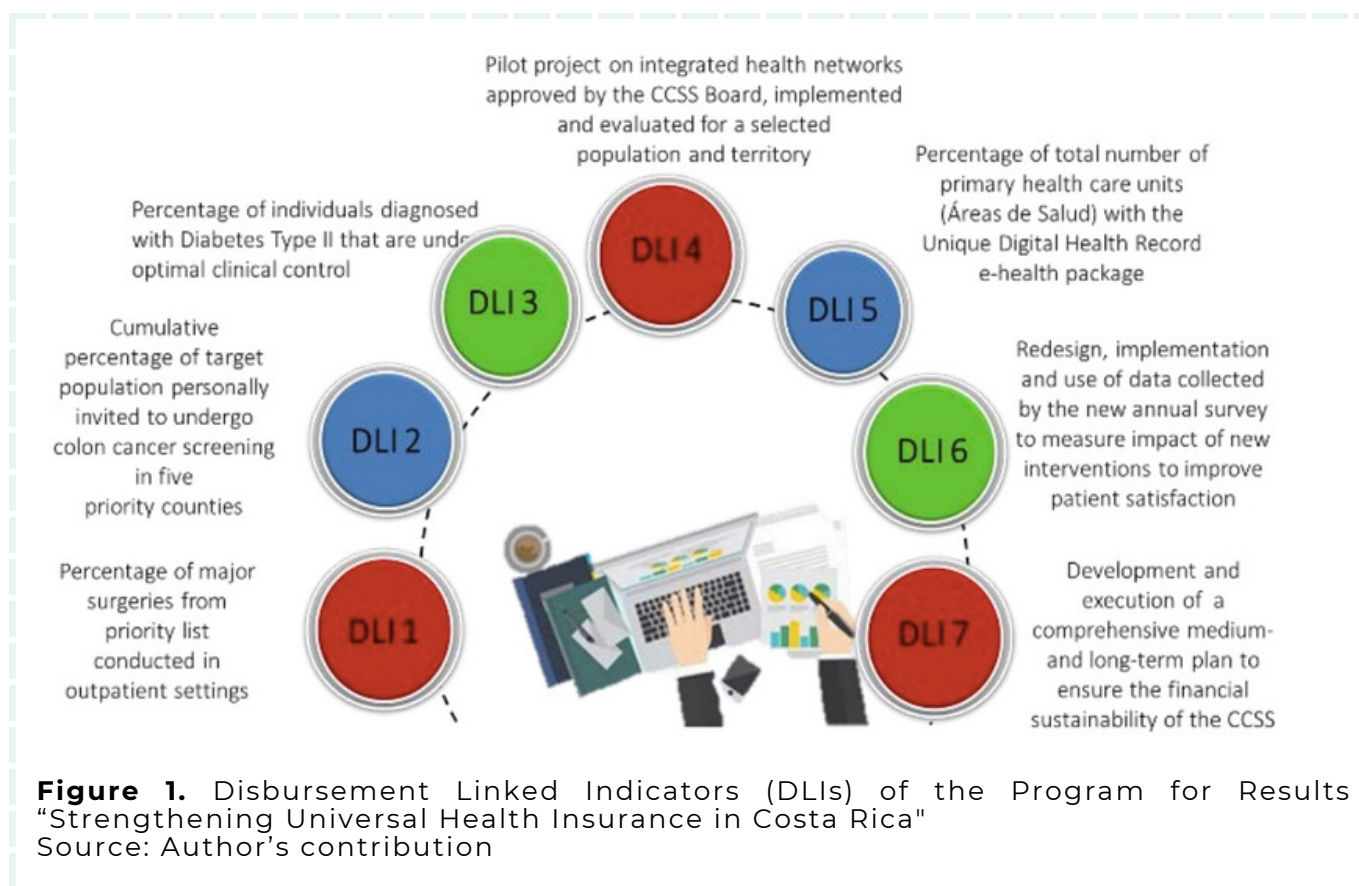
The PforR in Costa Rica was born to support the implementation of SASHI, originally during the six years of the program included in the period 2016-2022 [1]. The PforR was restructured in 2022 to add twenty more months to implementation, due to delays caused by the COVID-19 health emergency and a data cyberattack suffered by the CCSS in May 2022 [3].

## CHARACTERISTICS OF THE PROGRAM FOR RESULTS

In general terms, the PforRs offered by the World Bank have the following characteristics:

- financing the expenditures of specific development PforR Programs;
- disbursing on the basis of the achievement of key results (including prior results) under such PforR Programs;
- using and, as appropriate, strengthening the PforR Program Systems to provide assurance that PforR Program funds are used appropriately and that environmental and social impacts are adequately addressed by such PforR Programs; and
- strengthening, where appropriate, the institutional capacity necessary for such PforR Programs to achieve their intended results [3].

PforRs have defined expenditures, activities and results that seek to promote the sustainable development of countries by adjusting to their own systems. PforR funding is disbursed against the achievement and verification of results specified as disbursement linked indicators (DLIs) (see **Figure 1**). Such disbursements do not depend on or are attributable to individual transactions or expenditures, which greatly differentiates PforR from other types of financial instruments offered by the World Bank, such as the IPF, which disburses against specific eligible expenditures. To allow the program to begin its implementation, the Bank and the client country may agree to disburse a portion of the PforR funding funds as an advance for DLIs that have not yet been achieved [4].



In the specific case of the Costa Rica health PforR, the development objectives of the project are to contribute to: (i) improving the timeliness and quality of health services; and (ii) enhancing the institutional efficiency of the CCSS. Based on these development objectives, the PforR has 7 DLIs (see Figure 1). In turn, each DLI consists of between two and three sub-indicators. Thus, each time the target associated with a sub-indicator is reached and a verification report by an independent verification institution has been completed, the country is able to request disbursement to the Bank of the amount associated to the subindicator [1].

## IMPLEMENTATION OF THE PROGRAM FOR RESULTS

In operational terms, the CCSS was defined as the implementer of the health PforR, as it is the only implementing agency of the SASHI. In accordance with the characteristics of the financing instrument, the PforR was implemented using the institutional arrangements of the CCSS, in line with SASHI's guidelines and priorities. The CCSS Board of Directors, which is the highest hierarchical body of the institution, is in charge of overseeing the overall implementation of SASHI, while selected management members of the institution support implementation of the Program in different areas. In addition, within the CCSS a project implementation unit composed of CCSS staff was constituted for the general coordination of the PforR. Since the loan agreement was signed between the World Bank and the Ministry of Finance, a subsidiary implementation agreement was signed between the Ministry of Finance and the CCSS to safeguard the flow of funds and the implementation of PforR activities [1].

## EVIDENCE OF SUCCESS

The PforR has achieved substantial and critical reforms that contributed to the positive transformation of the CCSS' service delivery. Some of the great achievements referenced in the DLIs are the following:

- **Unique Digital Health Record (EDUS):** In just three years, the EDUS was installed at all levels of care, covering even remote areas without electricity or internet connectivity in the country. Costa Rica has one of the most comprehensive electronic health records in Latin America, becoming a cornerstone innovation to guarantee the right to universal health coverage, and improve quality, effectiveness and efficiency of health services.
- **The Integrated Family Record System (SIFF):** The digitization of family records towards the Integrated Family Record System (SIFF) has extended the benefits of having family records to the direct users of the tool, to the management and operation of the CCSS, as well as to institutions of social interest in the country for the monitoring of vulnerable populations. The integration of data collection through electronic tablets has allowed the georeferencing of the country's homes, an important step towards generating integrated information on communities' epidemiological profile and risk map. This may, in addition, facilitate the management of future epidemics and natural disasters.

- **Ambulatory Surgeries:** The CCSS progressively increased the percentage of major ambulatory surgeries to more than 43 percent of all major surgeries performed. With the increase in major outpatient surgeries, Costa Rica was able to reduce patients' time in waiting lists for other major surgeries by 60 percent, improving one of the main issues affecting Costa Ricans.
- **Satisfaction surveys:** The satisfaction surveys implemented by the CCSS make visible and improve the perception of its users regarding hospitalization and outpatient services. These surveys have already been successfully applied for five consecutive years, even during the peak of the COVID-19 pandemic. The implementation of these surveys has increased staff interest in learning about users' perception of services provided. The services provided by the different health units can be improved and compared based on quality dimensions. Improvement plans are developed focused on patients' priorities, and the information on satisfaction, particularly of indigenous populations, are made visible.
- **Preventive and health promotion activities:** The PforR promoted preventive and health promotion activities that allowed the improvement in the control rates of noncommunicable diseases. For example, a massive colorectal cancer screening program was implemented in five priority cantons, the percentage of individuals diagnosed with type 2 diabetes with optimal clinical control increased from 39percent(2014) to 45.7percent(2021), and the percentage of individuals diagnosed with hypertension under optimal clinical control increased from 62percent(2013) to 65.7percent(2020).
- **Integrated Healthcare Networks:** The implementation of an Integrated Healthcare Services Network model began as a pilot in the Huetar Atlantica Region, resulting in more coordinated and better-quality services, as well as a better use of resources. This model is based on the strengthening of the first level of care and its integration with specialized care to the extent and form that the needs of the population require. The positive results of the implementation of the integrated healthcare network are reflected in the CCSS' initiative to extend the implementation of the model to the rest of the country.

Added to these specific successes, the CCSS staff in charge of planning, implementing, and achieving the DLIs recognizes that the PforR served as a catalyzer for achieving the already planned improvements in the institution and boosted the political will to achieve them. For example, through initial discussions with the World Bank and its team of health experts, priority issues were identified for improving CCSS services and positioning them within the institutional agenda. In turn, joint monitoring and active communication between the two parties has been a great incentive to address barriers in the implementation and timely compliance of DLIs. Some of the staff in charge of the interventions covered by the PforR even refer to the fact that without the arrival of the PforR, these great institutional advances would not have been possible.

## FACILITATORS

**Existence of a comprehensive strategic program owned by the implementing institution.** The CCSS developed and had full ownership of the comprehensive program designed to improve the health insurance model that was supported by the PforR, the SASHI. In this sense, there was a commitment from the implementing agency – the CCSS – to achieve the indicators agreed in the PforR, since there was prior agreement at the institutional level on the importance of the implementation of the reforms to be pursued.

**Emphasis on results.** The CCSS sought, through SASHI, to shift the emphasis from the program inputs to its outcomes and risk management. The fact that the funding provided by the PforR works in practice as an additional operating budget for the CCSS, by disbursing only against achieved results, provides the necessary incentives to achieve them. This, in turn, contributed to improved accountability and a cultural shift in the organization itself.

**Existence of robust national systems.** The PforR allowed the government to use its own national systems in implementing the PforR in support of SASHI. The World Bank assessments – technical, fiduciary, and environmental and social – conducted during the PforR preparation confirmed the capacity of the national systems to successfully implement the operation.

**Technical assistance by the World Bank and global expertise.** The PforR was accompanied by technical assistance provided by the World Bank, as well as exchanges with experts from other countries, to support the design and implementation of complex strategic reforms. The combination of financial incentives with adhoc technical assistance provided by the Bank has made it possible to overcome technical challenges encountered along the way to achieve the program's objectives.

## CHALLENGES ENCOUNTERED AND SOLUTIONS APPLIED

**Difficulties in allocating budget and identifying accomplishment of process indicators.** The emphasis on results implied that compliance with a DLI did not necessarily reflect the implementation of all key processes for the institutionalization of certain changes.

**Difficulty in accessing data.** There were policy challenges in sharing CCSS data with the World Bank. This retained the progress of the technical advice provided in the context of the PforR and the achievement of certain relevant reforms related to the improvement in the institutional efficiency of the CCSS. It is relevant for future commitments with the CCSS to work proactively with the institution and/or the Ministry of Health to improve the governance of health data to ensure data protection, which would make entities feel comfortable sharing data with the Bank.



## THE WAY FORWARD

As mentioned above, the PforR in Costa Rica initiated very relevant reforms in the health sector of Costa Rica. Among these, the implementation of integrated healthcare networks and the reform in the methodology for the allocation of resources to hospitals and health centers within the CCSS, both being implemented initially as a pilot through the PforR. The continuation of these reforms will be of great importance to continue achieving their potential benefits and enormous efficiency gains and quality of care.

The PforR also promoted a cultural shift among CCSS' management and staff, towards focusing results and the need to measure and act upon them. This continues to inform the institution about the planned reforms, and at the same time, has allowed to facilitate new agreements and achieve better communication with the Ministry of Finance, an indispensable partner to guarantee the continuity of the changes promoted by the PforR, once it reaches an end.

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# COSTA RICA

## EXPANDING COVERAGE OF THE SINGLE DIGITAL HEALTH RECORD

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## KEY MESSAGES

- Costa Rica has one of the most comprehensive electronic health records in Latin America, becoming a cornerstone and innovator in guaranteeing the right to universal health coverage and improving the quality, effectiveness, and efficiency of health services.
- In just three years, the Single Digital Health Record was installed at all levels of care, covering even remote areas of the country without electricity or internet connectivity.
- Strong political and institutional commitment, the proper execution of a strategic plan focused on the user and local needs, were some of the facilitators of the project's success.
- Challenges faced included resistance to change, implementation lag, and some connectivity and information systems failures.
- Digital innovation will define future plans by integrating predictive medicine and assisted intelligence with the use of data from the record for the improvement of services and people's health.

## INTRODUCTION

Electronic health records are patient-centered records that provide immediate and secure information in digital format on patients' own health data to authorized users [1]. They are an essential tool of health information and communication technologies (ICT) with the greatest potential to guarantee and catalyze the right to universal health coverage by improving the quality and efficiency of health services. In Costa Rica, the Single Digital Health Record (EDUS, for its name in Spanish, Expediente Digital Único en Salud) was promoted with the objectives of strengthening the guarantee of the right to life and health, advancing towards universality in access to quality medical services, the opportunity to have a digital health record, reducing equity gaps, and promoting the interoperability of information within the system [2].

In just 15 years, the Costa Rican Social Security Fund (CCSS, for its name in Spanish, Caja Costarricense de Seguro Social) has managed to implement one of the most widely distributed and comprehensive electronic health records in Latin America [3]. Its distribution covers the entire CCSS system, from community care to the third level of care. It includes, of course, the medical and clinical history of patients, but it also contains vital information for improving people's health, such as social determinants.

The expansion of EDUS, specifically at the first level of care, was driven through the Program for Results (PforR), a financial instrument of the World Bank that incentivizes the achievement of strategic objectives and goals of programs in which governments seek to improve the use of public expenditures or improve their performance using their own processes and institutions.

In Costa Rica, this program ran from 2016-2023 for the Strengthening of Universal Health Insurance. Its initial objectives included modernizing and strengthening the primary health care network, improving the quality of services, increasing population coverage, and making the network more capable of prevention, early diagnosis, and control of diseases relevant to the local, national, and regional epidemiological profile. In addition, the objective was also to improve the institutional and financial efficiency of the CCSS [4].

The EDUS has become a vital tool for the provision of health services and the clinical and administrative management of the CCSS [5]. Its reach has been so extensive that the digital medical record incorporates 99 percent of total health services care and its mobile application version, available to patients, has more than 5.6 million downloads, being the most downloaded application in the "Health and Wellness" category in the country [6]. In 2019, EDUS was awarded by the United Nations (UN) with the United Nations Public Service Award, recognized by the CCSS for its ability to digitally transform and better manage health [7].

The success of this project was possible thanks to the adequate use of several facilitators that allowed its proper development, but at the same time, of a great effort to overcome the barriers and challenges encountered along the way in a project that achieved a total paradigm shift in its execution. This knowledge report, part of a broader series of knowledge reports developed by the World Bank, seeks to describe the main reasons for success, the challenges and the main lessons learned during the EDUS implementation initiative, with the objective of providing a roadmap for other countries interested in implementing similar programs.

## BACKGROUND

Costa Rica has a long history of early adoption of ICT solutions to improve health services [8].[9]. But it was not until 2008 that, based on these previous experiences, the first isolated developments of EDUS began.(8) Subsequently, in 2013, the implementation of a digital health record became a matter of national interest when "Law 9162" was published, establishing the bases and financial and strategic guidelines to develop and implement the EDUS nationwide and at all levels of care in a maximum time frame of five years. To comply with this, the Board of Directors established this mandate as an institutional priority and created an Executive Unit for the implementation, direction and administration of the project [8]. Finally, in 2015, the implementation of the EDUS at the first level of care of the CCSS begins. A year and a half later, implementation began at the second and third levels of care.

## THE EDUS SYSTEM

EDUS was conceived as more than an electronic record, it is a "repository of patient data in digital format, which is securely stored and exchanged and can be accessed by multiple authorized users" [2].

This comprehensive system integrates clinical (e.g., information derived from consultations and hospitalizations), social (such as demographic and economic data of families) and administrative (containing appointments for medical consultations) information, and supports the delivery of health services with the inclusion of care support services such as radiology, pathology, laboratory and pharmacy. It also has a component with information on community care and the social determinants of each Costa Rican family (e.g., housing characteristics, location, and basic services). This social information collected by the EDUS is transferred to the National Information System and Single Registry of Beneficiaries of the State, providing them with about 80 percent of the total information they store [10]. Also, it not only stores, but also allows the management of medical agendas and appointments for consultations or support services. In addition, it brings patients closer by offering them web and telephone appointment requests at "905-MiSalud", and electronic access to their personal records through the cell phone application, which provides the essentials for the individual to become empowered and play an active role in their health status [8].

## **EDUS PLANNING AND EXPANSION**

### ***Strategic planning***

The implementation strategy was defined in stages, taking into account the complexity of the structure of the levels of care, the willingness of local users, and the infrastructure and resources available in the health areas [8]. Likewise, we started with the centers and areas where there was greater interest, resources and infrastructure for implementation. By showing how some areas already had this technology, the demand for implementation in the less interested centers and areas was encouraged. We started with the first level of care with the Basic Health Teams (EBAIS, for its name in Spanish, Equipos Básicos de Atención Integral de Salud) and continued with the second and third level hospitals, completing the implementation of the three levels in only three years.

Being an ICT required technological equipment such as computers and tablets, as well as the necessary infrastructure to provide electricity and internet. These inputs were negotiated with the local directors and were provided with the budget designated to the EDUS implementation initiative. As for software, the CCSS made the decision to develop its own computer system so that the EDUS would be aligned with local needs [10].

### ***Implementation***

Implementation at the institutional level was carried out once the clinical component had been approved. Regional directors oversaw implementation, and those responsible for implementation in the Executing Unit made periodic visits to the centers where the EDUS was being implemented. These visits allowed for on-site monitoring to learn about the needs and problems on the front line, as well as for adaptation to the local context of each center [11]. For example, in indigenous communities, training was provided by local personnel who were familiar with the needs of their population.



## EDUS PLANNING AND EXPANSION

At the beginning of the PforR, in 2016, EDUS coverage at the first level of care was at 50%, and with the momentum of the program, it was possible to install a functional EDUS in 100percentof the health areas, including the most remote areas or vulnerable populations such as indigenous communities or low socioeconomic level [11]. In addition, following this support from the World Bank, functional coverage was achieved in the 29 hospitals of the CCSS, complying with the time stipulated by Law 9162 [12].

EDUS is a recognized brand in the country, generating an increasing satisfaction among its users. Health care providers recognize the digital health record as an indispensable tool in their activities, adding value to their patient care and as a method to generate more homogenized, simple and agile processes that improve the management and quality of health care services [10],[13]. Thanks to EDUS, more than 90percentof patients reported that their care was better or the same when using a computer, and the majority said that they considered their data to be more secure in digital format than in physical format [13].

## FACILITATORS

Many elements coexisted that were catalysts for the successful implementation of the EDUS.

**Political and institutional will with a legal framework.** This project was declared of national interest and an institutional priority for the CCSS. Therefore, it received the full support and accompaniment of the Board of Directors of the CCSS and the executive presidency of the institution. At the same time, there was a solid legal framework that included Law 9162, Regulation 8954 on EDUS, Law 8968 on personal data protection, and the publication of decrees by the CCSS Board of Directors. All this worked as an important catalyst to achieve implementation before the compliance deadline written in the law.

**User-centered design.** From the beginning of the conceptualization of the EDUS, it was clear that value had to be offered to the end user, patients and providers interacting with the platform, which is why the EDUS software was designed from scratch. (10) The added value for patients was generated by facilitating their interaction with the health system through telephone and web appointments, and the mobile application with access to their clinical and pharmacotherapeutic information. For health care providers, the added value was through access to updated information for decision making.

**Strategy and implementation adapted to local needs.** The Executing Unit and senior executives of the CCSS monitored and accompanied the process, but implementation was decentralized to the health areas through regional managers and with the support and formation of Change Management Networks. This decentralization allowed for adequate communication in the field to adapt actions to local needs.

**Change Management Component.** The system's officers and users recognize the change management component as fundamental in overcoming implementation challenges. The change management methodology included components of leadership, training, communication, and sustainability of the project over time. These elements are not only transcendental for its implementation, but also for the evolution of the EDUS project with the integration of new adaptations and additions that are generated to the system. Its operation was established through the detection of leaders in the local communities where the EDUS would be implemented. These leaders served as change managers, who, in turn, formed Change Management Networks in each of the regional divisions until they covered the entire national territory [10],[14].

**Training.** Training was provided to change managers and CCSS staff. A very successful component was peer-to-peer training, whereby users in the same role or profession trained their counterparts in other health areas. This made communication and learning easier and less resistant, as there was an equal balance of power among the professionals themselves.

**Inter-sectoral collaborations beyond the CCSS.** An important part in the development of the EDUS was the collaboration with other agents and institutions outside the CCSS for a proper diversification of activities. Among them were the College of Physicians, which implemented ethics courses on EDUS implementation, the Costa Rican Electricity Institute (ICE, for its name in Spanish, Instituto Costarricense de Electricidad) to provide electrical and fiber optic infrastructure in places without access. As well as the Ministry of Science and Technology through the provision of 4000 tablets, and other academic institutions, trade groups, and private and governmental institutions [10],[15].

**Financing.** The EDUS project had solid financial backing designated exclusively for its development and implementation. Investment funds came from the CCSS and the World Bank through the PforR. From 2013 to 2017 the total investment made for the EDUS exceeded 11.4 billion colons (approximately 19.7 million USD) [8].

**Being a PforR objective.** The expansion of EDUS at the first level of care was one of the indicators promoted through the PforR, by common agreement between the CCSS and the World Bank. This ensured that the actions established were effective in achieving the projected goals.

## CHALLENGES ENCOUNTERED AND SOLUTIONS APPLIED

The transformation generated barriers and challenges during implementation. In most cases there was adequate execution of strategies to mitigate these development challenges.

**Infrastructure.** Infrastructure was one of the biggest challenges for the expansion of the EDUS in the primary health care areas. The two major challenges were the lack of access to internet and electricity. In 2012, only 28percentof EBAlSS had internet [8]. The solution to this was to visit each center to identify needs and design specific plans for each case. This was done with the support of a multidisciplinary team of CCSS engineers, health personnel, and ICE staff. Once these designs were approved, ICE oversaw implementation. These actions even allowed the reduction of the digital divide in the country.

**Resistance to change.** The transformation process generated resistance among health service providers and health guilds due to fear of change in the way of working, ignorance of the use of technological equipment, or negative attitudes to the transformation process [16]. To deal with this, the team of change managers worked with these resistant users to show them the benefits of EDUS and introduced them to training programs [14]. At the same time, to mitigate resistance from the unions, strategic alliances were made with the unions (nurses, physicians, microbiologists, etc.) that generated optimal communication between both parties to represent all interests. Another strategy that helped to reduce resistance was to generate changes in the provision of health services (for example, by temporarily reducing the number of consultations regularly offered during the working day) to promote and facilitate familiarization with the EDUS.

**Standardization of clinical information.** When choosing to create its own software system, one of the biggest challenges was to standardize the clinical information to be included in the system, especially at the third level of care where complexity is greater. For example, one challenge was deciding which clinical recommendation guideline to use for the classification of medical emergencies, as hospitals were using different guidelines. This challenge of standardization of clinical information still prevails, but the progress that has been made has been achieved through communication and work with the technical and clinical teams at the central level to include evidence from internationally recognized clinical guidelines.

**Implementation lag.** Not all facilities progressed at the same pace of expansion. There were some health areas that lagged in implementation for various reasons. To accelerate this process, the Executing Unit identified and accompanied these lagging areas. In addition, healthy competition was promoted through the publication of a list of EDUS coverage in the different health areas. The directors of the different health areas could compare themselves with other areas and know the level at which they were doing against their peers [10],[14]. Although the COVID-19 pandemic, because it occurred after EDUS implementation, did not have a major impact on EDUS, it did promote the implementation of the electronic passbook, with COVID-19 vaccination, through the EDUS mobile app.

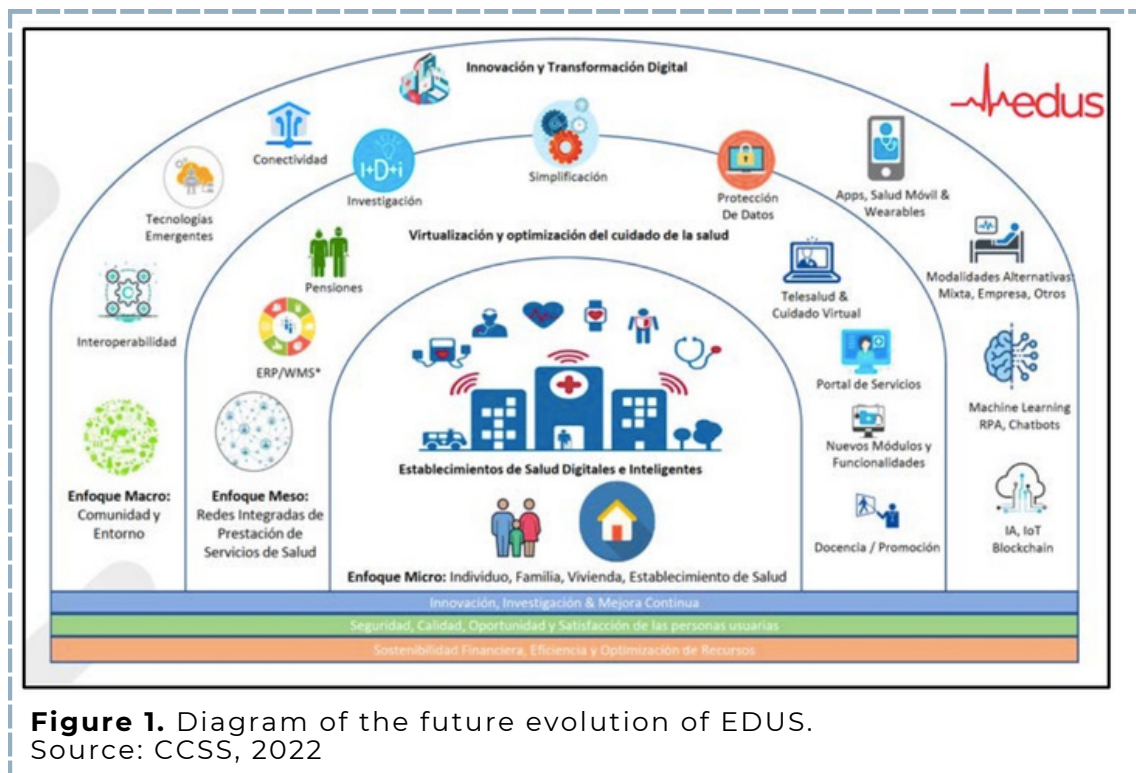
**Information security aspects.** Despite internal security barriers, EDUS suffered a cyber-attack in May 2022, leaving the system dysfunctional for more than two months. This generated a paralysis in the activities of the CCSS, leading them to return to paper files for a few months. Fortunately, the disconnection protected the EDUS data and information. To respond to this, the Security Unit within the Information and Communications Technology Department implemented the protocols established for these events, such as the application of antivirus and server cleaning. Subsequently, the medical management required a security certification for each health facility's equipment.

**System failures and slowness.** In an interim check conducted in 2018, about 30percentof EBAIS officials reported unstable internet connections and almost 70percentmentioned having a system failure in the last 6 months [8]. Likewise, other evaluations reported that the system sustained connection problems and slow operation [11]. The main solution to this was to monitor and control the service managed by the Directorate of Information Technologies and Communications. At the same time, an "EDUS disconnected" program was implemented, which allowed computers that interrupted their Internet connection to temporarily save the information so that when they were reconnected they could update their information in the system [8].

**Equity and access.** As mentioned earlier, there were many rural and remote regions without access to internet or electricity. The EDUS implementation team worked closely with the change management networks in these disadvantaged health areas and generated collaborations with ICE to make the necessary infrastructure adaptations for the EDUS. These included the installation of satellite antennas, electrical cabling, and even solar panels. On the other hand, through the networks of change managers in the EBAIS, it was possible to provide training adapted to the language of indigenous communities for their access and use of the EDUS [10].

## THE WAY FORWARD

The EDUS is in the process of being certified by the Electronic Medical Record Adoption Model (EMRAM) of the Healthcare Information and Management Systems Society (HIMSS), which facilitates the adoption of the digital environment in hospitals until they achieve complete elimination of paper (see **Figure 1**) [10],[14].



**Figure 1.** Diagram of the future evolution of EDUS. Source: CCSS, 2022

On the other hand, the objective of implementing and making the EDUS functional at the three levels of care has been achieved, but there is still a need to develop activities that allow it to be "intelligent" in addition to being digital. In the 2018 mid-term evaluations, it was noted that there was still no consensus on the impact of the EDUS to the improvement of the quality of health services. To this end, the institution's strategic portfolio includes the Strategic Program for Digital and Intelligent Health Facilities, a series of projects to generate innovation in healthcare facilities and improve the quality and efficiency of services using the data produced by EDUS [17]. Also, the Directorate of Innovation and Digital Health is being integrated, which will be in charge of the development of digital innovation to advance analytical and predictive medicine, the use of the genome, telemedicine, and machine learning. One of the first projects to be implemented is data science and data mining for Diabetes Mellitus type 2 [18]. The goal of these projects is to provide predictive models based on the data contained in EDUS. With these models, health professionals could know the risk of their patients developing diabetes mellitus, and thus, propose proactive actions to prevent the disease [19].

The EDUS system was successfully implemented in each of the CCSS health centers, from the EBAIS to the most specialized hospitals. The lessons learned from this successful program can be found in **Box 1**. The great ability of the CCSS to adapt to a major change in service delivery through the implementation of EDUS can serve as a reference for other countries that would like to implement, or are in the process of implementing, a similar project.

### **Box 1. Lessons learned**

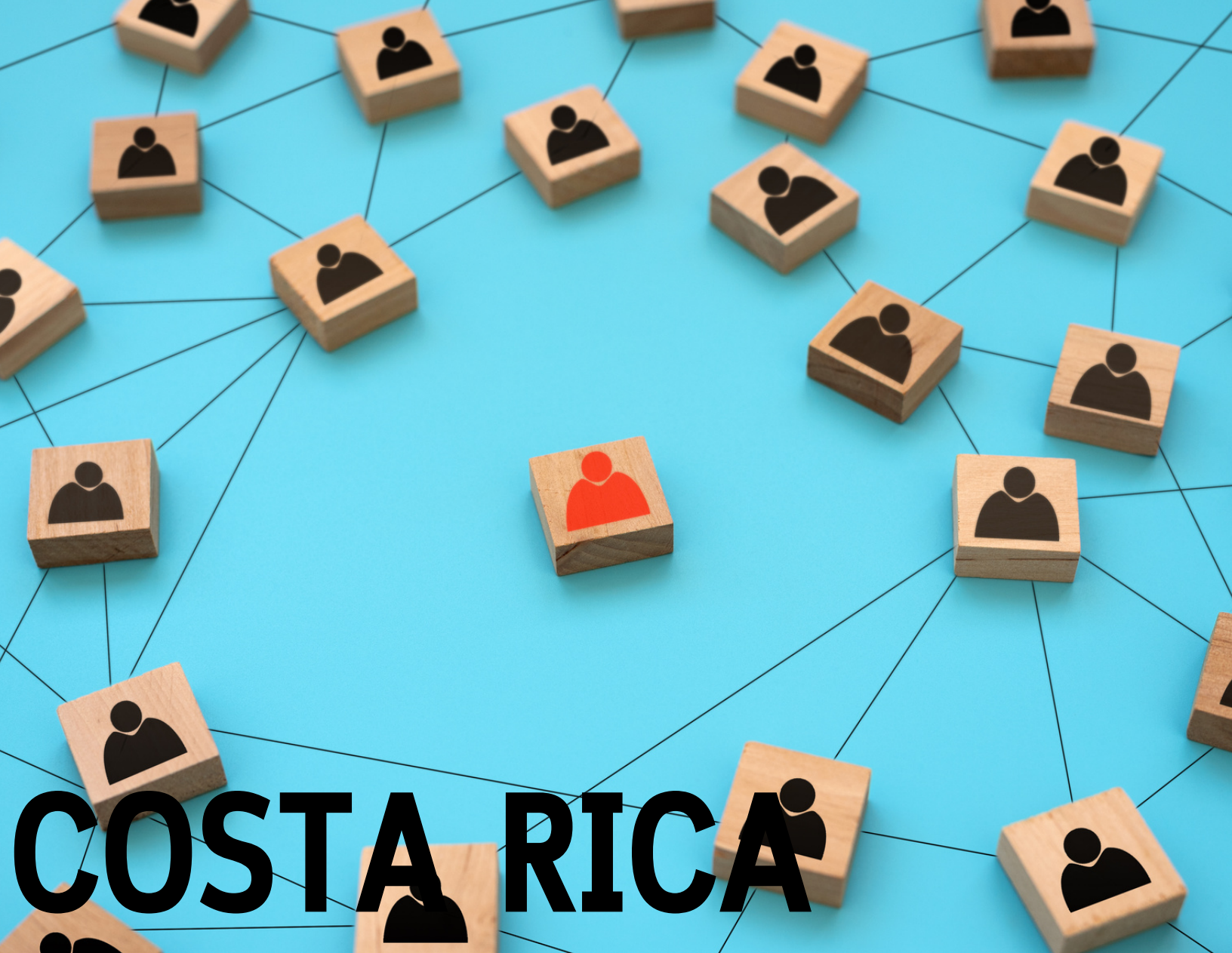
- Generate interest in decision-makers, preferably with a solid legal framework to back it up.
- Develop a strategic plan at the national or institutional level and gradually implement it based on the local perspective to adapt it to the diversity of all regions of the country.
- Include programs and training focused on change management to reduce resistance.
- Promoting healthy competition catalyzes implementation to cover the last mile.
- The integration of key stakeholders in the process and the generation of alliances with other sectors is fundamental for success.
- The process and expected results should be evaluated with a view to further improvement.

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# COSTA RICA

## MONITORING SOCIAL DETERMINANTS OF HEALTH

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## KEY MESSAGES

- The family record, historically implemented at the primary health care level in Costa Rica, collects socioeconomic and health information and has become a key tool in the multi-sectoral strategy to address challenges that threaten the health of the population.
- Recently, the digitization of family records into the Integrated Family Record System has boosted the benefits to the direct users of the tool, to the operation and administration of the Costa Rican Social Security Fund, as well as to institutions of social interest in the country for the priority follow-up of vulnerable populations.
- The integration of data collection through electronic tablets has allowed the georeferencing of the country's homes, an important step that will generate information on the concentration of epidemiological profiles and risk maps by communities and will facilitate the management of future epidemics and natural disasters.
- This project was implemented quickly and achieved a high level of coverage in housing digitization prior to the COVID-19 pandemic. Barriers to implementation have been addressed through teamwork and institutional support and commitment.

## INTRODUCTION

In a period of 7 years, Costa Rica achieved the digitalization and automation of the Family Record (Ficha Familiar), an instrument of the first level of care that provides socioeconomic and health information of households and families in the country, and that had been recorded on paper for almost four decades [1]. This technological tool, now called Integrated Family Record System (SIFF, for its name in Spanish, Sistema Integrado de Ficha Familiar), promotes the strengthening of Costa Rica's Universal Health Insurance by providing real-time information on the health of Costa Ricans. This allows to know the socio-demographic characteristics of the population and its distribution in the national territory. It detects social and health risk factors in families, and thus allows early detection of vulnerable users, identifies groups that require greater attention in terms of prevention, and facilitates their expeditious and safe referral to other levels of health care or other social services. At the same time, in operational terms, it made information records much more efficient by reducing paperwork and simplifying procedures, facilitating the monitoring of data quality.

SIFF's digital transformation was driven through the Program for Results (PforR), a World Bank financial instrument that incentivizes the achievement of strategic objectives and goals of programs in which governments seek to improve the use of public expenditures or improve their performance using their own processes and institutions. In Costa Rica, this program ran from 2016-2023 for the Strengthening of Universal Health Insurance. Its initial objectives included modernizing and strengthening the primary health care network, improving the quality of services, increasing population coverage, and making the network more capable of prevention, early diagnosis, and control of diseases relevant to the local, national, and regional epidemiological profile.



In addition, the objective was also to improve the institutional and financial efficiency of the CCSS, the main provider of health services in Costa Rica [2].

The World Bank's support not only made it possible for 100percent of Costa Rican homes to be digitized in the family record information system but has also been an important catalyst for the geo-referencing of more than 60percent of Costa Rican homes to date. This digital transformation success was also possible thanks to the digital transformation ecosystem that the CCSS is experiencing. In addition to a great institutional commitment and will that underpin the necessary resources and transformation management at the institutional level. It is also the result of an enormous effort to overcome the barriers encountered in the implementation of a paradigm shift in the method of collecting information from the family records. This case study seeks to describe the main reasons for success, challenges and key lessons learned during the digitization of the SIFF, with the objective of providing a roadmap for other countries interested in implementing similar programs.

## INTRODUCTION

The identification of the health needs of the Costa Rican population at the community level has been present in Costa Rica for more than thirty years [3]. In the 1990s, rural health care assistants [4] visited their assigned homes and collected indicators on the characteristics of the residences and the people assigned to their sectors, the basis of the family record. The data collected by the assistants served as input for the creation of balance sheets and statistical reports on the population in those territories. The recognition of the relevance of this information, as well as the interest in automating the process, led some health areas at the beginning of the 21st century to create digital files of these databases so that the Technical Assistants in Primary Health Care (ATAP, for its name in Spanish, Asistentes Técnicos de Atención Primaria), the current version of rural health assistants, could fill in the information in the Family Record on their return from field visits [5]. This digitization of information allowed for better data analysis at the local level, but they were isolated databases and lacked computer security.



**Figure 1.** Technical Assistants in Primary Health Care (ATAP) in Community  
Source: CCSS, 2022

## THE INTEGRATED FAMILY RECORD SYSTEM

In 2015, SIFF progressed and was integrated into the Single Digital Health Record (EDUS, for its name in Spanish, Expediente Digital Único en Salud), an institutional repository of patient data in digital format that enabled the security and interoperability of information among the three levels of health care, including that of SIFF. There are currently two ways to enter information into SIFF; the computer version called SIFF Web, and the version for portable tablets known as SIFF Mobile (**Figure 2**). The latter allows the portability and updating of information through an electronic tablet. Its main added value is georeferencing, a mechanism that generates an identification number for each home according to its geographic coordinates. This allows the CCSS to better control and monitor the demographic and epidemiological profiles of the country, in addition to facilitating the location of homes for future visits by the ATAP [7].



The SIFF houses geographic, health, and social determinants of health data. Specifically, housing characteristics (e.g., condition and type of floors and walls), electrical equipment and basic services available, number of inhabitants in the dwelling, and the health status of each family member (e.g., vaccinations given, vital signs, weight, height, disability). The inclusion of these variables was obtained from the family files of the 1990s, and from governmental discussions on socioeconomic indicators of interest to reduce inequity gaps. In turn, a Users' Committee (made up mainly of SIFF coordinators at the national level) annually analyzes institutional needs and the socioeconomic, demographic, and epidemiological context for the updating and inclusion of new variables. This review allows the data collected in SIFF to remain adapted to current needs.



## PLANNING AND IMPLEMENTATION

The beginning of the implementation of SIFF at the national level was titanic since training in the digitalization of family records was carried out with visits to each of the health regions. With the arrival of EDUS, and its political and economic backing, a SIFF Massification Project was established. This included the configuration of connectivity with cellular technology and training for the Regional Directorates (7 decentralized zones that provide local follow-up to the 105 health areas of the CCSS) [9], who were the managers of the implementation in their territories [1]. This SIFF Massification Project was achieved with the donation of 900 tablets and a projected average investment per year of USD 300K to manage the software and mobile connectivity.

The National Nursing Coordination is the technical body responsible for the SIFF program. This Coordination supports the development and validation of regulations and guidelines on regional management of SIFF (e.g., information security and follow-up of vulnerable patients). In addition, it monitors the registration and quality of information, and has a leadership and supervisory role in the activities of the ATAPs.

In field implementation, the ATAPs are the link between the health system and the community. They visit all households in the country, including areas that are geographically difficult to access by horse, boat, or long walks [10]. This has allowed an adequate approach and attention to the indigenous populations. During these home visits, the ATAP carries out health promotion and education activities and, together, records and updates the information in the Mobile SIFF. For their part, the nurses working in the community follow up on the scheduling and supervision of these home visits and provide ongoing training. They also support the ATAPs with the care and referral of the most vulnerable patients and those with significant risk factors.

## PLANNING AND IMPLEMENTATION

Multiple facts demonstrate the success of the digitalization of the SIFF family file. Obviously, one of them is that 100percentof Costa Rican households are currently integrated into the SIFF portal and nearly 64percentare georeferenced. The different variables collected through SIFF allow for a three-level prioritization of the health risk of individuals and families in Costa Rica [11]. This means that, in theory, individuals can be visited in their homes three, two, or once a year according to their level of risk.

In addition, the information collected can be visualized through statistical cubes, which are the predetermined outputs of the data contained in the family files. These cubes can be used at the institutional level for decision making, or by specific areas, such as statistics and epidemiology, for epidemiological surveillance, outbreak management, or emergencies. In due course, georeferencing will allow the CCSS to generate an analysis of the data relating time, place, and person. This will generate information on the concentration of epidemiological profiles and risk maps by communities, as well as facilitate the management of future epidemics and natural disasters

The value of the SIFF data is such that it even provides more updated information than the national population censuses and has allowed other social institutions to benefit from and access the information through the signing of confidentiality and information security agreements. Among them are the Single System of State Beneficiaries (SINIRUBE) and the Mixed Institute of Social Assistance, which use the information to grant economic aid for the country's development.

## FACILITATORS

There are several enablers that together have driven SIFF's digitization strategy.

**The expansion of the Single Digital Health Record (EDUS).** The SIFF is integrated into the EDUS, and as such, the growth strategy and implementation of this tool catalyzed the expansion of digital family records. Therefore, the necessary funding and resources, as well as the creation of infrastructure for internet connectivity, training and change management implemented in the EDUS, enhanced the digitization of the SIFF.

**A solid primary care system and its Ficha Familiar as a historical instrument.** The various health promotion and prevention activities implemented for decades in community care in Costa Rica allow the digital introduction of the SIFF to be facilitated [12],[13]. In turn, the health care providers who now interact with the SIFF already knew the components to be collected within the Family Record, so the training and coaching focused exclusively on the use of the digital tool with computers and tablets, and not on the explanation of the SIFF content.

**The ATAP as a local and reliable agent.** The historical existence of the ATAPs, as well as their close relationship of trust with the families, and their extensive knowledge of the communities they serve (an essential aspect in the care of indigenous populations), has made the collection of information more efficient [10]. This element was key when the CCSS digital system suffered a cyberattack in 2022, since the close relationship of the ATAPs with Costa Rican families made it possible to communicate the new security elements contained in the SIFF so that people could once again trust the system.

**Committed and empowered nursing staff.** The National Nursing Coordination and its organizational distribution at the regional level positioned the nursing staff as leaders in the implementation of the SIFF and the accompaniment of the ATAPs.

**Political will and commitment.** The potential of the data contained in the SIFF has allowed the political will for the project to grow. The potential of the information for decision making and strategic plans of the CCSS has been better appreciated [14].

**SIFF publicity campaign.** the CCSS informed the population about the change to digitalization of the SIFF and the added value this had for their health through communication campaigns. This facilitated the acceptability of the use of the mobile SIFF in households.

**Being an objective of the PforR.** The housing data entry and georeferencing in the SIFF were part of the indicators promoted through the PforR, by common agreement between the CCSS and the World Bank. This ensured that the actions established were effective in achieving the projected goals and allowed the CCSS to commit and act swiftly to meet the objectives.

## CHALLENGES ENCOUNTERED AND SOLUTIONS APPLIED

At the same time, several challenges have also been encountered along the way that hinder effective implementation.

**Human resources gap.** The number of ATAP and nursing personnel at the first level of care per 10,000 inhabitants is below what is needed to cover the population demand. Although the SIFF allows for stratification of families according to vulnerability risk, the limitation in the number of ATAPs available in the country restricts home visits to once a year, instead of two or three visits according to the degree of vulnerability risk stratification. Despite this, the basic health care team provides closer follow-up to these individuals by having them identified in the SIFF [15]. Likewise, the CCSS is assessing the human resources needs at the first level of care. Based on these diagnoses, the CCSS intends to increase the number of health personnel available to meet current needs.

**Balance in the management of ATAP activities.** One of the main challenges has been the balance in time management between data collection and follow-up of health promotion and prevention activities carried out by the ATAPs. For example, it is difficult to schedule the duration of home visits because there is variability in the number of family members to be followed up in the homes. Another example responds to epidemiological emergencies, such as the response to the care of imported measles cases during 2019, which paused data collection activities in the SIFF. Fortunately, the accompaniment and support to the ATAPs by the nursing staff has achieved a more effective balance between the management of their activities.

**Technological advances and computer equipment failures.** Rapid technological advances have caused portable tablets to become obsolete. In addition, there have also been casualties in these devices due to breakdowns in accidents or loss of the devices. To meet these challenges, a second purchase of tablets is being planned. Likewise, the CCSS is creating physical forms compatible with the SIFF Mobile. These forms will be used to collect the information on paper in the event of any device cancellations. Together, the regional chiefs, EDUS staff and the nursing coordination maintain constant communication and attend to failures in SIFF through a WhatsApp group.

**Attention through contracts with third parties.** Six health areas were not included in the first supply of electronic tablets because they are served by contracts with third parties through purchases of health services made by the CCSS. The fact that these areas do not have SIFF Mobile (tablets) has prevented the georeferencing of 180,000 families. Fortunately, this will soon be resolved with the supply of devices to these areas through the purchase of new equipment.

**Resistance to digitalization.** At the beginning, the ATAPs that did not know how to use computers or tablets showed fear and resistance to their use. This was gradually reduced through training on the tool and the change management component (interventions implemented in the EDUS expansion to facilitate the digital transformation process).

**COVID-19 pandemic.** Social distancing restrictions, as well as actions to address the COVID-19 pandemic (COVID-19 vaccination) paused for two and a half years the home visit activities of the ATAPs, including georeferencing of households. Recently, in February 2023, the Medical Management of the CCSS instructed to resume home visits and related activities.

## CHALLENGES ENCOUNTERED AND SOLUTIONS APPLIED

The CCSS will continue to advance in the georeferencing of the country's housing. This will be achieved with the provision of tablets to areas served by third parties through the requirement to be made in 2023. In total, about 1,600 tablets will be purchased, about double the first donation. This surplus of devices will cover the replacement of devices due to damage or loss.

In addition to providing continuity in the quality assurance of information, efforts will also be made to integrate facilities not currently explored by SIFF, such as schools, nursing homes and community homes.

The future sustainability of the SIFF appears to be promising due to the richness of the universe of data it contains. This system will continue to prosper through the creation of the CCSS's Directorate of Innovation and Digital Health, which will implement projects to improve the use of the data contained in the institution's digital ecosystem. The potential for using SIFF data is much greater than what is currently used. Therefore, the creation of dashboards, heat maps and other analysis methods that take advantage of georeferencing to visualize, manage and improve the offer of prevention and care services of the CCSS is envisioned.

The family record is a fundamental tool for improving the health of Costa Ricans and the provision of CCSS services and can serve as an example for other countries (see **Box 1**). Its digital transformation has benefited the efficiency of data collection and analysis, as well as the creation of an accurate diagnosis and timely follow-up of the main determinants of health in communities. Its future development, together with the potential of georeferencing, will provide further inputs to continue improving the health of the population and reducing inequity gaps in Costa Rica.

## Box 1. Lessons learned

- Institutional backing and political will are necessary to generate investment, a regulatory framework and economic resources that transcend political cycles for the sustainability of the project over time.
- Leadership and commitment to data collection in the field are indispensable to transform primary care.
- The training of health personnel is vital for the proper implementation of the tool. • The population must be involved in the process and must be informed about the benefits of the project to be implemented.
- From the beginning it is necessary to guarantee the security of the databases and the information contained in the system.
- The SIFF was one of the objectives and indicators linked to disbursement within the World Bank's Program for Results, which allowed the sector to focus its efforts and actions to meet the goals within the established timeframe.

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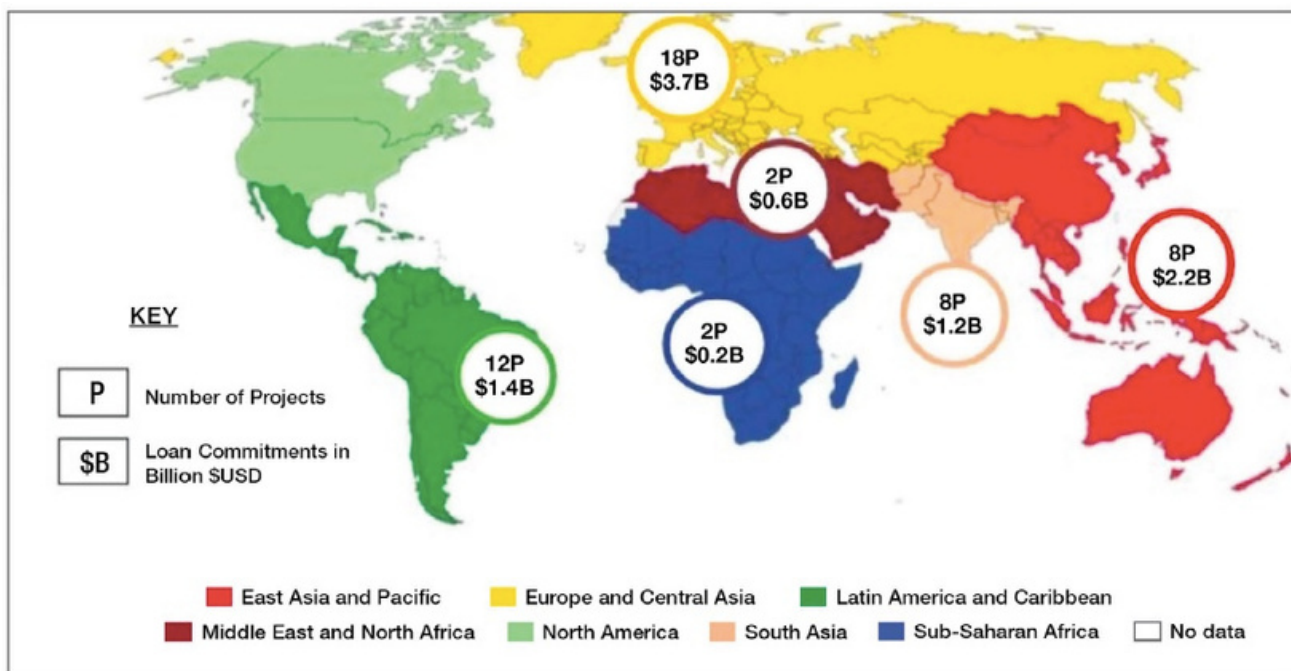
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# APPENDICES

# Appendix A. World Bank NCD Projects




**Figure A1.** Number and dollar amount of new World Bank health sector projects with NCD-related activities, 2016-2020. Source: World Bank Operational Portal.


# Appendix A. World Bank NCD Projects

**Table A1.** Examples of Recent World Bank NCD Projects  
Source: Chan et al., 2024


NUMBER	TITLE	COUNTRY	TYPE	STATUS	NCD TOPIC
P173168	Primary Health Care Investment Program	Ghana	PforR	Active (2022-)	Disbursements linked to hypertension screening.
P175023	Disease Prevention and Control Project	Armenia	IPF	Active (2021-)	Improve screening for hypertension, diabetes, cervical cancer.
P167598	PHC Quality Improvement Program	Kyrgyz Republic	PforR	Active (2019-)	Disbursement based on provision of A1c test for diabetes, drug coverage for diabetes, hypertension, anemia, online NCD training modules, NCD practice guideline development.
P152799	Health System Strengthening and Support Project	Türkiye	IPF	Active (2016-)	Improve cervical, breast and colon cancer screening.
P144892	Moldova Health Transformation Project	Moldova	PforR	Closed (2014-22)	Disbursement based on hypertension patients attaining BP control, increased availability of anti-hypertension drugs.
P133187	Additional Financing to Health System Improvement Project	Uzbekistan	PforR	Closed	Improved health promotion, NCD surveillance, practice guidelines and physician training on NCDs
P163721	Primary Health Care System Strengthening Project	Sri Lanka	PforR	Active (2018-)	Disbursements linked to cervical cancer screening, screening and follow-up of high cardiovascular risk patients, provision of mental health counselling.
P166783	Health System Strengthening Project	St. Lucia	IPF	Active (2018-)	Performance-based financing for screening and treatment for hypertension and diabetes.
P148435	Strengthening Universal Health Insurance	Costa Rica	PforR	Active (2016-)	Disbursements linked to treatment to target for diabetes and hypertension, colon cancer screening.
P133193	Protecting Vulnerable People Against Non-Communicable Diseases	Argentina	IPF	Active (2015-22)	Increase number of PHC facilities providing NCD services, colon cancer screening, school obesity programs, regulations on tobacco marketing, sodium reduction policies.
P148017	Health Sector Support	Morocco	PforR	Active (2016-)	Disbursements linked to diagnosis and treatment of diabetes and hypertension.
P164382	Health System Strengthening Program	Samoa	PforR	Active (2020-2027)	Disbursements linked to treatment of diabetes and hypertension according to protocols, and attainment of control of disease; screening for cardiovascular disease; participation of children in school health promotion activities.




Sub-Saharan Africa




Europe and Central Asia




South Asia



Latin America and the Caribbean



Middle East and North Africa

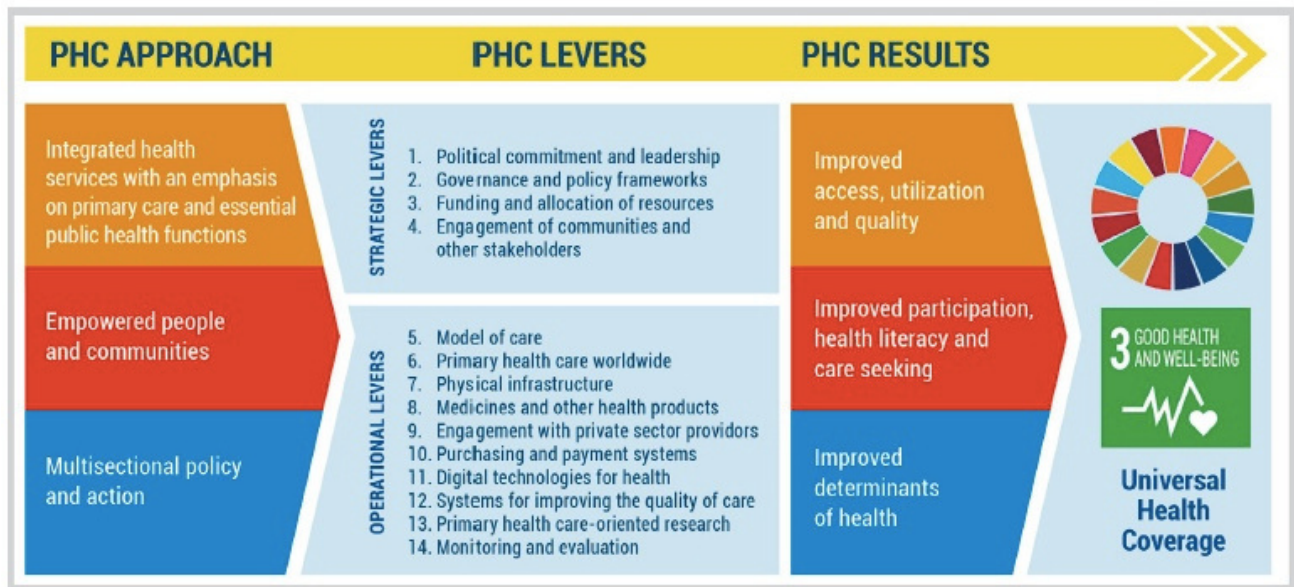


East Asia and Pacific

PforR: Program for Results. IPF: Investment Project Financing.

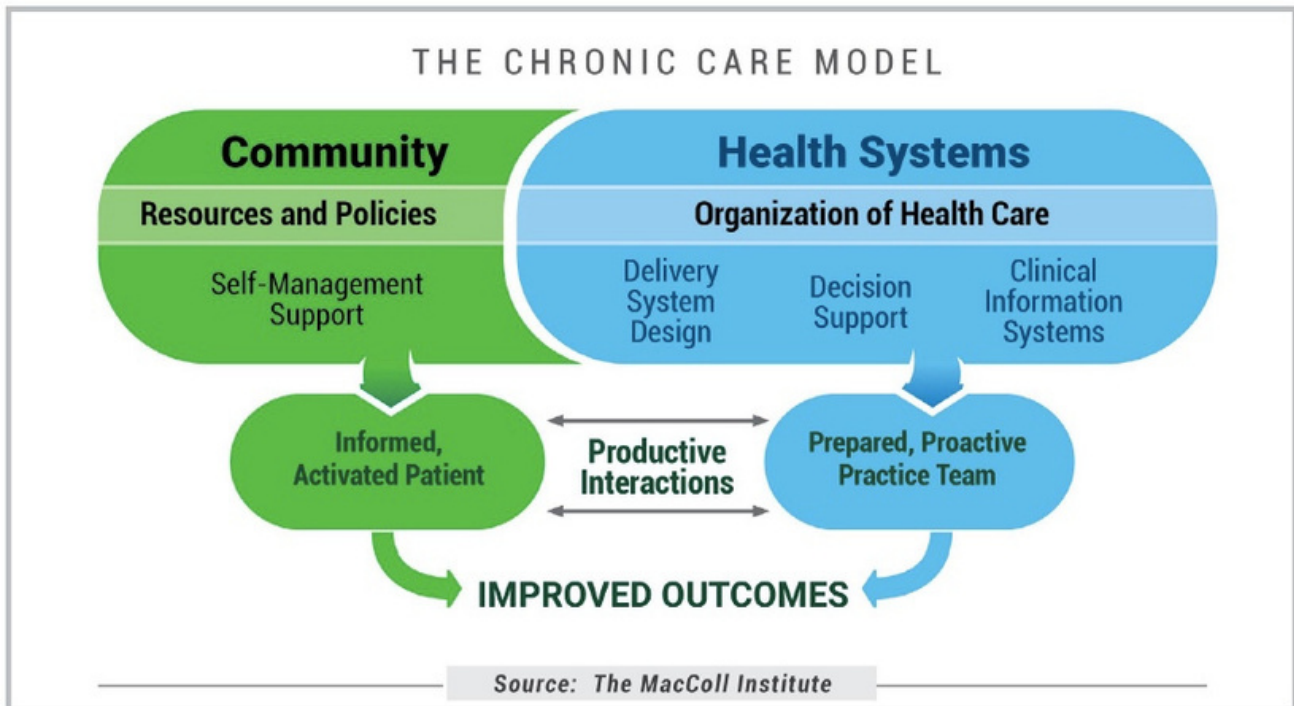


# Appendix B. NCD Assessment Tool Conceptual Frameworks



**Figure B1.** WHO Operational Framework for Primary Health Care.  
Source: UNICEF, 2020

# Appendix B. NCD Assessment Tool Conceptual Frameworks



**Figure B2.** WHO Operational Framework for Primary Health Care.



# Appendix C. NCD Best Practices

**Table C1.** List of Best Practices for NCD Management in PHC  
Source: Chan et al., 2024

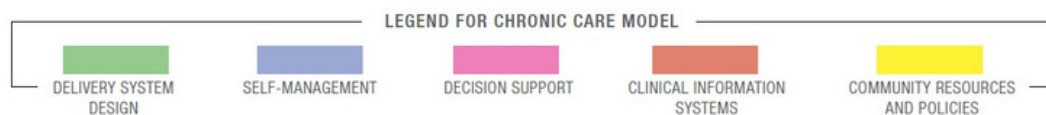
LEVER IN WHO OPERATIONAL FRAMEWORK FOR PHC		BEST PRACTICES FOR NCD MANAGEMENT	BRIEF DESCRIPTION
S T R A T E G I C  L E V E R S	L1. Political commitment and leadership	BP1.1 National NCD strategy / plan with targets, activities, timelines.	There is a national strategy or plan for NCDs with time-bound targets, indicators, actions, defined roles and monitoring of progress.
	L2. Governance and policy frameworks	BP2.1 Universal health coverage for NCDs.	There is universal health coverage for NCD services in primary and specialty care, with elimination of financial barriers to access.
		BP2.2 Accountability mechanisms.	Accountability mechanisms exist with expectations for quality and consequences if not met. Mechanism may be managerial or supervisory; financial (incentives); contractual; community-based.
		BP2.3 Tobacco policies.	There are tobacco taxes, indoor smoking bans, standardized packaging or graphic warnings; and advertising bans.
		BP2.4 Alcohol policies.	There are alcohol excise taxes; advertising or marketing bans; and restrictions on physical availability of alcohol.
		BP2.5 Unhealthy food policies (sugar, salt, trans-fatty acids)	There are policies on unhealthy foods, including taxes, front-of-package labeling, limits or bans on content, and restrictions on unhealthy foods in schools and hospitals.
	L3. Funding, resource allocation	BP3.1 Dedicated funding for NCDs.	There are sufficient funds budgeted by the government for NCD-related services. Revenues from taxes on unhealthy substances may be reinvested in health promotion.
	L4. Engagement of communities and stakeholders	BP4.1 Multisectoral planning beyond health.	There is a planning body including sectors outside of health that considers policies and activities to promote prevention and treatment of NCDs.
		BP4.2 Stakeholder engagement in planning and execution.	Stakeholders, including civil society groups, non-governmental organizations, professional associations, patient advocacy groups, private sector and donors have a role in planning and execution of activities to improve NCD management.
		BP4.3 Healthy lifestyle public awareness campaigns.	There is a community-wide public education and awareness campaign for healthy lifestyle and behavior change, using print, radio, TV, social media, community events and engages community organizations.



# Appendix C. NCD Best Practices

**Table C1.** List of Best Practices for NCD Management in PHC (Cont)

LEVER IN WHO OPERATIONAL FRAMEWORK FOR PHC		BEST PRACTICES FOR NCD MANAGEMENT	BRIEF DESCRIPTION	
O P E R A T I O N A L L E V E R S	L5. Models of Care	BP5.1	NCDs managed at PHC level.	Most NCD services for screening, treatment, counselling are provided at the PHC level.
		BP5.2	Referrals and coordination with specialists.	PHC can access specialty NCD services, through referrals, outreach clinics or shared care models. There is reliable communication between PHC and specialists and specialist gatekeeping.
		BP5.3	Structured NCD screening program.	There is a structured, consistent screening process using a mix of evidence-based interventions (opportunistic, reminder, mail-in, outreach, incentives).
		BP5.4	Appointment scheduling system.	Patient visits are scheduled conveniently for patients with little or no waits and sufficient time reserved for complete NCD follow-up.
		BP5.5	Recall process for patient follow-up.	There is a standard recall system to track patients due or overdue for follow-up and remind them to return.
		BP5.6	Standardized, efficient process for each visit.	Visits for NCD care are carefully planned to ensure all recommended practices are implemented, in a convenient manner for patients.
		BP5.7	Intensive management of high-risk patients.	High-risk patients with poor control of their disease are identified and seen more frequently or provided with case management.
		BP5.8	Services delivered to households.	PHC staff visit households to provide NCD services for disabled, marginalized or remote populations. Patients may also be served with home monitoring technologies.
		BP5.9	Patient education programs.	There are patient education programs on living with NCDs and having a healthy lifestyle for individuals or groups, using multiple formats, geared for low literacy.
		BP5.10	Patient self-management program.	Patient self-management support programs are offered by certified staff to coach patients on managing their condition and developing confidence to make life changes.
		BP5.11	Peer support programs.	Programs link patients with non-professional peers who have experience living with disease and offer on-going self-management support and encouragement.

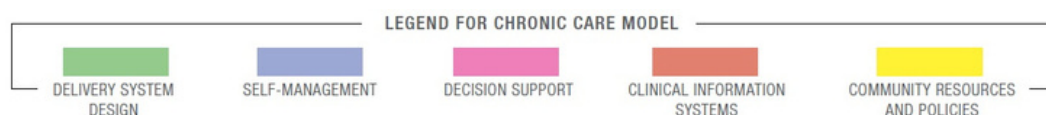




# Appendix C. NCD Best Practices

**Table C1.** List of Best Practices for NCD Management in PHC (Cont)

LEVER IN WHO OPERATIONAL FRAMEWORK FOR PHC		BEST PRACTICES FOR NCD MANAGEMENT		BRIEF DESCRIPTION
O P E R A T I O N A L  L E V E R S	L6. Primary healthcare workforce	BP6.1	Adequate supply and mix of skilled health professionals.	The supply of health professionals is comparable to peer countries; PHC team has staff with varied skills (e.g. health education, foot care, mental health); staff are licensed.
		BP6.2	Advanced models for maintaining competence.	There are advanced models for maintaining staff skills for managing NCDs (e.g. continuing education courses, mandatory recertification, problem-based or case-based learning).
		BP6.3	Advanced task-shifting.	Tasks such as drug management, foot care and counselling are delegated to non-physician providers.
	L7. Physical infrastructure	BP7.1	Availability of PHC facilities providing NCD care.	NCD services are provided in facilities which are conveniently located for patients.
		BP7.2	Equipment for NCD services at PHC level available.	PHC facilities have equipment required for managing common NCDs, as recommended in WHO guidelines.
		BP7.3	Equipment for specialty NCD services available.	Hospitals and specialty facilities have equipment for managing complications or complex stages of NCDs, such as heart attacks, strokes, cancer treatment or kidney failure.
	L8. Medicines and other health products	BP8.1	Essential medicines for NCDs available.	Drugs for diabetes, hypertension and other NCDs are covered by the defined benefits package of UHC and are in stock.
		BP8.2	Essential diagnostic tests available.	Essential NCD services are available at the primary care level.
		BP8.3	Strong supply chain management.	Measures are in place for effective management of the supply chain for medicines and other health products.
	L9. Engagement with private sector providers	BP9.1	See BP 4.2 above on stakeholder engagement.	(Engagement with private sector partners is included in BP4.2 on stakeholder engagement.)
L10. Purchasing and payment	BP10.1	Stable, predictable funding to PHC sites.	Clinics and providers receive stable, predictable funding.	



# Appendix C. NCD Best Practices

**Table C1.** List of Best Practices for NCD Management in PHC (Cont)

LEVER IN WHO OPERATIONAL FRAMEWORK FOR PHC		BEST PRACTICES FOR NCD MANAGEMENT	BRIEF DESCRIPTION	
O P E R A T I O N A L L E V E R S	L11. Digital technologies	BP11.1	Basic computer and internet.	Clinics have access to basic technologies, including computers, internet service and personnel with basic computer literacy.
		BP11.2	Electronic medical record	Clinics use computers for documentation, archiving and retrieval of information, accessing results and reports, prescribing, referrals, decision support, shared care.
		BP12.1	Practice guidelines for NCDs exist.	There are current practice guidelines for major NCDs and lifestyle education, which follow international standards on evaluating evidence and are tailored to the country's resources.
	L12. Systems for improving the quality of care	BP12.2	Standards and inspection for equipment, facilities.	Standards exist for equipment, supplies, infrastructure and workplace policies, with a basic quality assurance/inspection program to ensure standards are met.
		BP12.3	Decision support tools for NCD.	Decision support tools for NCD management (protocols, flowsheets, algorithms etc.) remind providers of what actions to take and are widely used.
		BP12.4	Quality improvement (QI) teams, QI training, demonstrated improvements	PHC facilities have QI teams, training, mentorship and quality leaders. Some teams can show improvements and use of QI tools.
	L13. PHC - oriented research	BP13.1	Network for NCD research	NCD researchers are publishing studies on topics of interest to policy makers and providers, and are supported by long-term funding, training and mentorship.
	L14. Monitoring and Evaluation	BP14.1	NCD surveillance data exists (tracking incidence, prevalence, mortality)	Data are available on incidence and prevalence of different NCDs. Cause-specific mortality data is reliable.
		BP14.2	Person-oriented charting within PHC	Each patient has a chart containing all their data kept at their primary health care site.
		BP14.3	Centralized NCD registries	Centralized, standardized, population-based registries exist for key NCDs (e.g. cancer, diabetes, hypertension) and contain clinical data from each encounter.
		BP14.4	Reporting on quality indicators	Quality indicators for NCDs are reported in a timely fashion at multiple levels (facility, regional, national), over time, by facility. Reports are used widely for decision-making.

