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Report No: PAD2230

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF
US$80 MILLION

TO THE

REPUBLIC OF CHILE

FOR A

CHILE - HEALTH SECTOR SUPPORT PROJECT

May 12, 2017

Health, Nutrition & Population Global Practice
Latin American and the Caribbean Region

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CURRENCY EQUIVALENTS

Exchange Rate Effective May 11, 2017

Currency Unit =	Chilean Peso
CLP$679.07 =	US$1

FISCAL YEAR
January 1 - December 31

ABBREVIATIONS AND ACRONYMS

AUGE	Universal Access with Explicit Guarantees - *Acceso Universal de Garantías Explícitas*
BOD	Burden of Disease
CENABAST	National Supply Center - *Centro Nacional de Abastecimiento*
CORFO	Production Development Corporation – *Corporación de Fomento*
CPS	Country Partnership Strategy
CMUs	Case Management Units
DEIS	Department of Statistics and Information on Health Care - *Departamento de Estadísticas e Información de Salud*
DIGERA	Health Care Network Division - *División General de Redes Asistenciales*
DIPLAS	Division of Health Planning - *División de Planificación Sanitaria*
DIPRECE	Division for Prevention and Disease Control - *División de Prevención y Control de Enfermedades*
DIPRES	Budget Directorate – *Dirección de Presupuestos*
DIVAP	Primary Health Care Division - *División de Atención Primaria*
DLI	Disbursement - Linked Indicators
DM II	Diabetes Mellitus Type II
DRGs	Diagnosis-related groups
EEP	Eligible Expenditure Programs
EMP	Environmental Management Plan
FM	Financial Management
FONASA	National Public Health Insurance Fund - *Fondo Nacional de Salud*
GDP	Gross Domestic Product
GOC	Government of Chile
HCDs	Health Care Districts
HNP	Health, Nutrition and Population
HTA	Hypertension
ICTs	Information and Communication Technologies
IPF	Investment Project Financing
IPP	Indigenous Peoples Plan

ISAPRES	Health Insurance Institutions - *Instituciones de Salud Previsional*
LAC	Latin America and the Caribbean
MLE	Free Choice Modality – *Modalidad de Libre Elección*
MOH	Ministry of Health
MOF	Ministry of Finance
NCDs	Non-communicable Diseases
OECD	Organization for Economic Co-operation and Development
OOP	Out-of-pocket
PER	Public Expenditure Review
PHC	Primary Health Care
PHCPI	Primary Health Care Performance Initiative
OM	Operational Manual
PPSD	Project Procurement Strategy Development
PRAPS	Primary Health Care Reinforcement Programs – *Programas de Reforzamiento de Atención Primaria*
PCMU	Project Coordination and Monitoring Unit
PSCV	Cardiovascular Health Program - *Programa de Salud Cardiovascular*
RBF	Results-based Financing
SEREMI	Regional Ministerial Secretariats - *Secretarias Regionales Ministeriales*
SIGFE	Information System for Public Financial Management- *Sistema de Información para la Gestión Financiera del Estado*
SHI	Social Health Insurance
TA	Technical Assistance
TIC	Division of Information Technologies - *División de Tecnologías de Información*
UHC	Universal Health Coverage
WB	World Bank

Regional Vice President:	Jorge Familiar
Country Director:	Alberto Rodriguez
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Task Team Leader:	Luis Orlando Perez

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[ ] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[ ] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
08-Jun-2017	31-Dec-2022	B - Partial Assessment

Bank/IFC Collaboration
No

Proposed Development Objective(s)

The objectives of the Project are to: (i) improve the efficiency of the public health care sector; and (ii) improve the quality of Non-Communicable Diseases-related health care services.

Components

Component Name	Cost (US$, millions)
Improving the efficiency of public health service delivery networks with a focus on its better integration	61.90
Optimizing the procurement and logistics of drugs and medical supplies in the public sector	12.90
Technical Assistance, Coordination and Monitoring	5.00

Organizations

Borrower :	Ministry of Finance
Implementing Agency :	Ministry of Health

Safeguards Deferral

Will the review of safeguards be deferred?

[ ] Yes [ ] No

PROJECT FINANCING DATA (IN USD MILLION)

[ ] Counterpart Funding	[✓] IBRD	[ ] IDA Credit [ ] Crisis Response Window [ ] Regional Projects Window	[ ] IDA Grant [ ] Crisis Response Window [ ] Regional Projects Window	[ ] Trust Funds	[ ] Parallel Financing

Total Project Cost:	Total Financing:	Financing Gap:
80.00	80.00	0.00
	Of Which Bank Financing (IBRD/IDA):	
	80.00	

Financing (in US$, millions)

Financing Source	Amount
International Bank for Reconstruction and Development	80.00
Total	**80.00**

Expected Disbursements (in US$, millions)

Fiscal Year	2017	2018	2019	2020	2021	2022	2023
Annual	0.00	16.00	8.70	14.60	13.60	13.60	13.50
Cumulative	0.00	16.00	24.70	39.30	52.90	66.50	80.00

INSTITUTIONAL DATA

Practice Area (Lead)

Health, Nutrition & Population

Contributing Practice Areas

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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

COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36		✓
Pest Management OP 4.09		✓
Physical Cultural Resources OP/BP 4.11		✓
Indigenous Peoples OP/BP 4.10	✓	
Involuntary Resettlement OP/BP 4.12		✓
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description
Section I.A.1.(a) of Schedule 2 to the Loan Agreement
The Borrower, through MOH shall: (i) maintain within the MOH (in particular within the following units: DIGERA, DIPLAS, DIPRECE, DIVAP, DEIS and TIC); and (ii) cause CENABAST, FONASA and the Health Care Districts to maintain at all times during the implementation of the Project, staff in adequate numbers and with experience and qualifications, all satisfactory to the Bank, for purposes of assisting the MOH in the overall coordination and implementation of the Project, including fiduciary responsibilities.

Sections and Description
Section I.A.1.(b) of Schedule 2 to the Loan Agreement

The Borrower, through MOH, shall create and thereafter operate and maintain at all times during Project implementation, a unit – PCMU – with functions and responsibilities acceptable to the Bank, including the responsibility to coordinate and monitor the implementation of the Project; and (ii) ensure at all times during Project implementation that the PCMU is staffed with health specialist, monitoring and evaluation and fiduciary specialists and other personnel in number and with qualifications and experience acceptable to the Bank, as further detailed in the Operational Manual.

Conditions

Type	Description
Effectiveness	Article IV 4.01 (a) The Operational Manual has been adopted by the Borrower, through MOH, in form and substance satisfactory to the Bank.
Effectiveness	Article IV 4.01 (b) The PCMU has been created in form and substance satisfactory to the Bank.
Disbursement	Schedule 2, Section IV, B1(a) For payments made prior to the date of this Agreement, except that withdrawals up to an aggregate amount not to exceed $15,000,000 may be made for payments made prior to this date, but in no case more than 12 months before the date of this Agreement, for Eligible Expenditures under Category (1) provided that the DLIs 0.R1, 0R2 and 0.R3 (as set forth in Schedule 4 to this Agreement) have been satisfactorily met within the timeline for each said DLI (as set forth in said Schedule), as provided in paragraph (c) below and in accordance with the applicable provisions of this Agreement.
Disbursement	Schedule 2, Section IV, B1(b) For payments made under Category (1) – Eligible Expenditures Programs - no withdrawal shall be made, unless: (i) the Borrower, through MOH, has furnished evidence to the Bank, in form and substance satisfactory to the Bank, of EEPs incurred, as presented in the corresponding EEPs Spending Report; and (ii) the Bank has determined, on the basis of the evidence furnished by the Borrower, through MOH, and the Bank's own review of the supporting documentation, that the DLIs have been satisfactorily met within the timeline for each DLI (as set forth in Schedule 4 to the Agreement), in form and substance satisfactory to the Bank, as further elaborated in the Operational Manual and in the Additional Instructions.

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Luis Orlando Perez	Team Leader(ADM Responsible)	Health	GHN04
Selene del Rocio La Vera	Procurement Specialist(ADM Responsible)	Procurement	GGO04
Lucas Carrer	Financial Management Specialist	Financial	GGO22
Catarina Isabel Portelo	Counsel	Counsel	LEGLE
Daniela Paula Romero	Team Member	Health	GHN04
German Nicolas Freire	Safeguards Specialist	Social	GSU04
Jeremy Henri Maurice Veillard	Team Member	Health	GHNGE
Maria Gabriela Moreno Zevallos	Team Member	Program Asistant	GHN04
Maria Virginia Hormazabal	Team Member	Financial - Dibursement	WFALA
Marvin Ploetz	Team Member	Health	GHN04
Patricia De la Fuente Hoyes	Team Member	Financial	OPSPF
Raul Tolmos	Environmental Specialist	Environment	GEN04
Rory Narvaez	Safeguards Specialist	Environment	GSU04

Extended Team

Name	Title	Organization	Location
Jorge Gosis	Sr. Health specialist		Buenos Aires,Argentina
Oscar Lopez	IT health specialist		Buenos Aires,Argentina

CHILE
CHILE - HEALTH SECTOR SUPPORT PROJECT

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I. STRATEGIC CONTEXT

A. Country Context

1. Since the 1990s, Chile has exhibited high levels of economic growth and has been able to reduce poverty substantially. In 2010, it became a full member of the Organization for Economic Co-operation and Development (OECD). Chile is an upper middle-income country (MIC), with the highest Gross Domestic Product (GDP) per capita in Latin America. The average household net-adjusted per-capita income is US$11,039 per year (compared to an OECD average of US$23,047 per year). Chile has seen a substantial reduction in moderate poverty and an increase in shared prosperity over the last decade. In 2013, only 6.8% of the population lived with US$4 or less per day, a third of the rate observed a decade ago. Inequalities- as measured by the Gini index - have also decreased: from 0.55 in 2000 to 0.50 in 2015, which is still above LAC's already high Gini average rate of 0.48 and OECD's rate of 0.32 in 2014.

2. Chile was able to reach high economic growth after the international crisis of 2009. During this period, economic growth was mainly driven by domestic demand and capital investment. Nonetheless, economic growth started slowing down in 2014, owing to the less favorable external context (i.e. decreasing prices for copper, the end of a mining investment project cycle) and uncertainty surrounding the timing of the reform agenda of the Government of Chile (GOC). GDP growth decreased from 5.5% in 2012 to 1.9% in 2014. These reforms are part of a broad agenda of the GOC to improve the quality of public services and reduce inequalities. The agenda includes: a tax reform, approved in 2014, in part to finance an education reform; a labor reform already enacted; changes in the pension system; and an announced constitutional reform. Chile and its economy are highly vulnerable to climate change (e.g. through wildfires during hot spells) and in 2015 the country entered the top 10 of the countries most affected by climate change according to the Global Climate Risk Index[1].

3. Chile has now reached the advanced stages of demographic transition and is quickly becoming an aging society. Chile has the highest life expectancy and the second highest median age in Latin America by 2015[2]. The share of the population over age 65 has increased from 6% in 1990 to 11% in 2015. The decline in the proportion of the working-age population has implications for public finances. International experience from comparable OECD countries shows the increased demand for health services as the population ages. Such a pattern could threaten the fiscal sustainability of the health sector unless changes are made to improve the efficiency and effectiveness of services delivered to patients with non-communicable diseases (NCDs), who now constitute the bulk of the burden of disease.

4. Public spending in the health sector as a percentage of GDP increased from 3.3 to 4.6% during the period 2000-2015 (which represents an average annual 2.4% increase in the percentage itself) mainly due to the introduction and expansion of a guaranteed health benefit package[3]. Health was the third fastest growing budget category during that period and accounted for 18.3% of total public spending in 2015. Yet, public

[1] Kreft, S./ Eckstein, D./ Melchior, I. (2017): Global Climate Risk Index 2017. Available at: https://germanwatch.org/en/download/16411.pdf
[2] UN World Population Prospects 2012 Revision.
[3] The "Universal Access with Explicit Guarantees" (AUGE) benefit package guarantees the coverage of 80 diseases by FONASA and sets upper limits on: (i) waiting times and (ii) out-of-pocket payments for treatment. Coverage for other services is not guaranteed, but FONASA devotes more than 50% of its budget to finance non-AUGE services.

(as well as total) health expenditure in Chile are lower than the OECD average. OECD governments spend about 7% of their GDP on health, compared to 4.6% in Chile. In view of increasing health expenditure and an overall aging population, the objective for the health sector is to both improve the efficiency of public spending while minimizing the impact of budget constraints on the most vulnerable part of the population.

B. Sectoral and Institutional Context

5. Chile relies on social health insurance (SHI) to provide nearly Universal Health Coverage (UHC) to its 17.4 million inhabitants. The MOH defines the policies and exercises stewardship of the health sector. The National Public Health Insurance Fund (FONASA) covers 78% of the population, including the poorest segment of the population. It mostly provides health services through public health care providers: the public hospital network and municipal primary care facilities. The group of for-profit private insurers, so-called Health Insurance Institutions (ISAPREs), cover about 17% of the population, mainly the middle and high income population, and provide services almost exclusively through private providers. Approximately 4% of the population are insured through other welfare systems (e.g. police or armed forces) and a small number of Chileans does not have any health insurance, but can receive emergency care from public providers.

6. The public provision of health services is highly decentralized. The MOH's health services network is composed of 29 decentralized Health Care Districts[4] (HCDs), to whom all public hospitals[5] and municipal primary health care facilities report. Health Care Districts are responsible for the coordination, planning, management and development of the corresponding geographical health care network[6]. Each of the 346 Municipalities[7] owns its own primary health care network providing health care for NCDs and other conditions.

7. Chile has enjoyed substantial improvements in main health outcomes over the last decades (see Table 1). However, the burden of disease in Chile has evolved from being dominated by maternal, child health and communicable diseases to being dominated by chronic conditions and NCDs. Diseases of the circulatory system and malignant tumors (cancer) alone accounted for 54% of female deaths and 51% of male deaths in 2012.

[4]Health Care Districts are state entities endowed with legal personality and their own property for the fulfillment of their purposes. The official legal denomination in Spanish is "Servicios de Salud".
[5]Several of the largest hospitals are also decentralized.
[6]Law 19.937 on Health Authority and Health Services Regulations (Decree 140 of 2004)
[7]Chilean municipalities are constitutionally autonomous authorities responsible for local administration. As a consequence, PHC staff do not fall under the same civil servant regime as MOH, but they are municipal civil servants.

Table 1. Health Outcome Indicators[8]

Indicator	Result	Indicator	Result
Infant Mortality Rate x 1,000	7.41	% of births attended by a skilled health professional	99.83
Under 5 Mortality Rate x 1,000	8.64	HIV Mortality Rate x100,000	2.62
Maternal Mortality Rate x 100,000	22.14	TB Mortality Rate x100,000	0.8

8. Chile's outcomes still lag behind the average OECD ones. Life expectancy (79.1 years at birth) is lower than the OECD average of 80.0 years at birth. Chile has low health care utilization levels as indicated by a low rate of doctor consultations and low screening and survival rates for certain cancers such as breast, cervical and colorectal cancer. Waiting times for select types of surgery are long compared to other OECD countries. The proportion of adults who smoke daily (29.8%) is higher than the OECD average of 21.1%, and the obesity rate among adults (25.1%) is higher than the OECD average of 17.8%. The combination of current low utilization rates, yet long waiting times and a high prevalence of risk factors is challenging for a health care system requiring better care integration[9] in the face of the growing burden of NCDs.

9. The challenge of addressing the burden of disease related to NCDs is prioritized by the GOC in its 2011-20 National Health Strategy (Government program), where three of nine strategic objectives are related to NCDs (objectives 2, 3 and 4)[10]. This priority is also recognized in the Government Program 2014-2018[11]. Since 2011, Chile has implemented long-term public health policies aimed at reducing the burden of disease from NCDs, by promoting active lifestyles and the consumption of healthier foods (e.g. through better food labeling and regulations enforcing reduced salt and trans fat contents in processed foods).

10. The MOH is also implementing targeted interventions at the primary health care level and to provide secondary prevention and appropriate treatment to NCD patients for a better management of their conditions. One MOH program provides metabolic patients (i.e. hyperlipidemia) with statins[12], but many metabolic patients are not in the MOH databases and are hence left out. The percentage of patients having their condition under control varies largely among HCDs (from 22.3% to 51.8%)[13]. For NCD patients with complex health needs (i.e. patients with Advanced Disease, Complex Co-morbid Conditions, Complex Psychosocial Issues -little social and family support and/or low income-, Frail Elderly) and those patients at the risk of becoming frail and complex, neither primary health care centers nor hospitals offer yet an adequate model of care meeting the evolving patient needs. Few HCDs have achieved an integrated care model that allows for a better coordination of health care services.

[8]Basic Health Indicators, IBS, DEIS, MINSAL, Chile 2014 and Basic Health Indicators, IBS, DEIS, MINSAL, Chile 2014
[9]Care integration: While there is no universally accepted definition, care integration refers to the i) delivery of care in the appropriate care setting and ii) coordination and continuity of care across care settings, in particular for NCD patients (World Bank, 2015: The State of Health Care Integration in Estonia. Summary Report, World Bank). Care integration initiatives usually have multiple components, with disease and case management interventions being key common elements.
[10] Ministry of Health. National Health Strategy for the Decade 2010-2020. Santiago, Chile; 2011.
[11] Government Program Michelle Bachelet 2014-2018, page 87.
[12] Statins are the preferred treatment drug for hyperlipidemia.
[13]Basic Health Indicators, Chilean MOH, 2014 with data from 2013.

11. The rise in public spending on health care during the last five years has been mainly driven by an increase in drug expenditures and payments to physicians engaged in dual practice. Drug expenditures have been growing substantially for the last ten years due to decentralized purchases of drug and medical supplies by public hospitals and municipalities. Based on a panel of drugs studied by the national pharmaceutical procurement agency (CENABAST)[14], drugs purchased directly by providers were substantially more expensive than comparable ones procured by CENABAST (50% more for hospitals and 33% more for Primary Health Care (PHC) facilities).

12. A recent Public Expenditure Review (PER) commissioned by the GOC to the World Bank[15] found a relatively high level of efficiency in Chile's publicly funded health system - with substantial variations across the 29 Health Care Districts - and identified: (i) drugs and medical supply; (ii) productivity and efficiency in hospital care; and (iii) PHC as focus areas for short- to mid-term efficiency gains. On average, Chile's health care system would reduce premature mortality from treatable causes by 8-13%, if all HCDs operated at the level of efficiency of the best performing HCDs. Efficiency scores at the district level are positively associated with greater investments in primary health care and negatively associated with both longer than expected lengths of hospital stays and a higher proportion of spending on private services by FONASA beneficiaries through the free choice modality[16].

13. The existence of efficiency gaps reveals that the managerial capability at the HCDs, hospital and municipal levels is not yet homogeneous. For the public system to achieve the marginal efficiency gains identified by the PER, such capabilities need to be improved and decision makers at all three levels need to be trained in and supported with the use of data and both performance management and clinical management instruments. Management instruments are also essential to promote changes in the NCD care model, aimed at improving care integration and avoiding the unnecessary use of hospital services. In 2015, 52.34 % of inpatients in the public hospital network were suffering from NCDs and related medical complications. Among NCDs patients, those with diabetes, hypertension and chronic kidney failure (and their complications) caused almost 30 % of all inpatient stays[17].

14. A World Bank (WB) study of the incentive mechanisms in the health system[18] had identified fragmented information systems and related governance issues also as sources of remaining inefficiencies. The high level of fragmentation of the information system and the limited availability of granular information for planning and performance management limit the capacity of the MOH to strategically manage the decentralized health care system. The different ownership of health care providers poses a challenge to the governance of the health system and exacerbates the lack of scale in the centralized procurement of drugs and medical supplies. Figure 1 in Annex 1 provides greater detail about the root causes of health system inefficiencies.

15. In order to achieve efficiency gains in the short to mid-term and improve the fiscal sustainability of the health sector, the proposed Project will focus on the main factors amenable to change and identified in the studies mentioned above. More specifically, it will target the development and implementation of

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[14]CENABAST is a decentralized MOH entity.
[15] Report No: 106334-CL
[16]This modality allows FONASA insurees to use private providers by paying a higher coinsurance rate.
[17] Sample of hospital admission data from the biggest 62 hospitals analyzed by the WB team during Project preparation.
[18]WB. Optimización del Sistema de salud de Chile. Análisis de los Sistemas de Incentivos y Opciones de Política, June 2011.

new models of care better integrating care levels (particularly required to reduce avoidable admissions related to NCDs) and aim at achieving efficiency gains in the pharmaceutical and hospital sectors. The proposed Project will also promote better sector governance by strengthening the capacity of the MOH to design, plan and deliver more integrated care focused on improving the efficiency and quality of health services for NCD patients that are high users of health services. The proposed Project will focus on a subset of related priorities included in the 2011-20 National Health Strategy and the Government Program 2014-2018, which will serve as the policy and operational framework for the proposed Project.

C. Higher Level Objectives to which the Project Contributes

16. The proposed Project is fully aligned with the World Bank Group's CPS[19], discussed by the Executive Directors on January 11, 2011, the Program and Learning Review[20] for the period FY11 – FY16, and the Systematic Country Diagnostic, scheduled to be delivered to the Board in FY17, that will inform the new Country Partnership Framework (CPF) for FY18-FY23. The CPS focuses on: (i) Public Sector Modernization; (ii) Job Creation and Equity Improvement; and (iii) Promoting Sustainable Investment. The proposed Project will directly contribute to the CPS result area of "boosting the efficiency of resources in the public sector, especially in the health sector" by improving the quality of public health spending. To this aim, the proposed Project will set the groundwork for the public provision of quality services for highly prevalent NCDs linked to the progressive population aging. The proposed Project will also improve the efficiency of pharmaceutical procurement and the public service delivery system at large, through better management, organization and control functions. The SCD identifies priority areas that enhance both equity and productivity and one of its priorities is to improve health financing to ensure equitable access to affordable health insurance and improve efficiency in health outcomes. In addition, the proposed Project will contribute to the WBG goals of ending extreme poverty and boosting shared prosperity by improving the efficiency and hence increasing the sustainability of the public health sector, on which the poorest and most vulnerable population groups (insured by FONASA) rely for their health care. As a result, the proposed Project will contribute to the WB Health, Nutrition and Population (HNP) Global Practice goal of ending preventable deaths and reducing disabilities among the poorest 40% of the population.

17. The proposed Project will contribute to the following four Higher Level Objectives: (i) improving MOH governance mechanisms and the relationship with other public actors, including the MOF; (ii) redirecting MOH investments to areas where efficiency gains can be reached in a relatively short period of time, boosting health sector transformation across different policy cycles; (iii) ensuring a higher level of accountability and transparency needed for health sector transformation; and (iv) improving the health of NCD patients and particularly of those with complex needs. Lastly, the proposed Project is expected to have climate co-benefits by reducing the demand for more intensive therapies through better disease prevention and management. Primary health care and disease prevention can be seen as forms of climate mitigation[21], as they reduce the need for energy-intensive health care services and hence the climate footprint of the health sector. Based on these findings, climate co-benefits are estimated to equal 20% of the proposed Project amount. See Annex 4 for a detailed description of co-benefit estimation.

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[19] Report No: 57989-CL.
[20] Report No. 94271-CL.
[21] WHO 2008. Healthy Hospitals Healthy Planet Healthy People: Addressing climate change in health care settings. A discussion draft paper published by the World Health Organization and Health Care without Harm.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

18. The project objectives are to: (i) improve the efficiency of the public health care sector; and (ii) improve the quality of Non Communicable Diseases-related health care services.

B. Project Beneficiaries

19. The primary Project beneficiaries will be FONASA insurees suffering from select NCDs: hypertension, diabetes, asthma, chronic obstructive pulmonary disease (COPD), and those at risk of the most prevalent cancers (cervix, breast and colonic cancer). The entire Chilean population covered by FONASA including individuals from low income groups will benefit from improved health risk stratification instruments developed by the MOH, which will allow for better health care services to be provided to those at risk. Several sub-population groups will in particular benefit from better integrated health care services: (i) chronic NCDs patients with complex health needs, because the Project will boost the creation of targeted care units to better meet their care needs in an integrated way; (ii) women, because they are typically over-represented in the category of patients with complex needs and because they are most affected by the highly prevalent cancers targeted by the program; and (iii) rural and remote populations including indigenous people, because the promotion of telemedicine as part of enhanced care integration will improve the access to specialized care and care management programs for isolated populations.

C. PDO-Level Results Indicators

PDO (i)

- Percentage of public hospitals reporting inpatient services based on Diagnosis-Related Groups (DRGs) [22]
- Accumulated savings through the central procurement of medicines and medical supplies as a percentage of the amount of all centrally procured items

PDO (ii)

- Percentage of population diagnosed with hypercholesterolemia under follow up and treatment
- Cervical cancer screening rate

III. PROJECT DESCRIPTION

A. Project Components

20. The Project will have three components:

21. **Component 1. Improving the efficiency of public health service delivery networks with a focus on its better integration.** (US$61.9 million total cost; US$61.9 million of IBRD financing). This component will

[22] Diagnosis-Related Groups (DRGs) are a classification system that assigns any inpatient stay to said diagnosis-related groups for the purposes of analyzing and paying for hospital production.

support implementation of activities for the achievement of Strategic Objectives 2, 4 and 5 linked to NCDs; Strategic Objective 7, Strengthening the health sector; and Strategic Objective 8, referring specifically to Access and Quality of Health Care of the National Health Strategy (see detailed description in Annex 1). The activities under the component support the achievement of PDOs (i) and (ii). The component will have two subcomponents. The first will focus on improving the integration between levels of health care services working on NCDs, while the second will focus on managerial measures that need to be implemented at the hospital level to close current performance gaps and improve the efficiency of hospital care delivery. Better integrated and more efficient service delivery networks reduce the health sector's reliance on resource-intensive yet unnecessary hospital care (as measured by the intermediate results indicators on avoidable hospital (re)admissions or the DLI on the use of telemedicine). As a positive side effect, these interventions hence lower greenhouse gas emissions and mitigate the sector's climate impact. See Annex 4 for a detailed description of co-benefit estimation.

22. **Subcomponent 1.A. Improving the integration of public health care services for patients with non-communicable diseases and chronic conditions.** (US$43.3 million total cost; US$43.3 million of IBRD financing). This subcomponent will include activities to: (a) develop and implement the strategy for a health risk stratification of patients with NCDs to identify high users at both hospital and PHC facilities levels; (b) establish Case Management Units[23] (CMUs) in hospitals and/or PHC centers according to risk stratification outcomes and train health care staff to better manage the care of chronic fragile patients identified through risk stratification analytics; (c) at the PHC level, the subcomponent will support activities to: (c.i.) use patient health risk stratification analytics to ensure the continuity of care and treatment adherence, preventing the disease progression of NCDs patients and reducing or postponing future use of health care services; (c.ii.) introduce IT innovations and education measures for proactive population health management to improve NCD patient self-management at the early stages of their condition; and (c.iii.) foster screening activities for early cancer detection, with a special focus on highly prevalent cancers among women (cervix, breast, and colon)[24]; (d) expand the use of new processes and instruments to improve the integration of services for NCDs by better coordinating care across different levels, including (d.i.) third level outreach activities; (d.ii.) the strengthening of referral and counter-referrals mechanisms; (d.iii.) the use of telemedicine for virtual specialist consultations; (d.iv.) the use of ICT to monitor and follow up on outpatient care for chronic patients; (d.v.) training activities for medical staff in primary and secondary care; and (d.vi.) building capacity to use information for clinical improvement by benchmarking.

23. This subcomponent will promote synergies with the Primary Health Care Performance Initiative (PHCPI), currently being implemented by the MOH with the support of the WB and PHCPI partners[25]. PHCPI proposes a sharp focus on the measurement of the performance of primary care frontline service delivery and on working with countries to put new knowledge and innovation in practice to strengthen frontline

[23] Case Management Units: Units situated at a Health Care District that are in charge of managing and coordinating the care of NCD patients with complex needs admitted to the hospital, in particular with respect to but not limited to hospital admissions.
[24] This last intervention will ensure better compliance with access to treatment for priority cancers accompanied with wait times guarantees. Treatment to cancer is assured through GES (Explicit Guaranteed of Health)
[25] PHCPI partners are: World Bank, World Health Organization, the Bill and Melinda Gates Foundation with technical support from Ariadne Labs and R4D. The PHCPI brings together country policymakers, health system managers, practitioners, advocates, development partners, researchers and communities to catalyze and accelerate PHC improvement in low- and middle-income countries through better measurement, knowledge-sharing, improvement, and advocacy in order to achieve UHC more quickly, efficiently, and equitably.

service delivery. Performance measurement and improvement activities focus on areas of performance often neglected (such as the organization and management of primary health care services, or population health outreach approaches to improve the health of target populations) both on the supply and on the demand side. The PHCPI will work with the MOH and national experts to improve the international comparability of Chile's performance indicators. This focus on international comparisons, benchmarking and performance improvement will contribute to enhancing the governance of the services network, which is key to creating greater value for the public health sector.

24. **Subcomponent 1.B. Improving managerial capacity at the public hospital level.** (US$18.6 million total cost; US$18.6 million of IBRD financing). This subcomponent will support the introduction of managerial tools aimed at solving current problems in the efficiency of inpatient care at the level of public hospital networks. The 2016 World Bank Public Expenditure Review[26] identified US$236.5 M of annual excess costs related to hospital care, including US$128.6 M for avoidable hospitalizations, US$42.8 M for extended hospital stays, US$55.9 M for readmissions and US$9.2 M for cesarean sections. Activities will include: (a) further expansion of the implementation of a Diagnosis Related Groups (DRG) system for clinical management at public hospitals; and (b) the development of guidelines and training activities aimed at: (b.i.) reducing the average length of stay in acute care and reducing waiting lists for selected procedures; (b.ii.) preventing over-treatment of NCDs in hospitals and reducing low value and inappropriate care; (b.iii.) expanding the use of day surgery, (b.iv.) reducing avoidable hospitalizations and readmission rates for NCD patients and others; (b.v.) improving clinical governance mechanisms to audit high cost medicine prescriptions; and (b.vi.) strengthening the financial monitoring of public hospitals.

25. **Component 2. Optimizing the procurement and logistics of drugs and medical supplies in the public sector** (US$12.9 million total cost; US$12.9 million of IBRD financing). This component will support Strategic Objective 7, strengthening the Health Sector, (specifically its financing) of the National Health Strategy. The activities under the component support the achievement of PDO (i). It will support efficiency gains through the implementation of activities aimed at fostering a better structured and more centralized procurement of drugs for public sector health services. Activities will include: (a) supporting CENABAST in the implementation of advanced procurement mechanisms, including the design and implementation of multi-year framework agreements and other methods that could increase the effectiveness of centralized procurement; (b) the introduction of a standardized nomenclature of medicines; (c) the development and implementation of a real-time stock management information system for public hospitals and PHC facilities; (d) the carrying out of regular audits of logistical processes in the provision of medicines to public health care providers; and (e) the reinforcement of quality controls for medical supplies.

26. Components 1 and 2 will finance payments under Eligible Expenditure Programs (EEPs) of the MOH triggered by the achievement of agreed specific results ("Disbursement-Linked Indicators" or DLIs), which will reimburse a portion of the EEPs. The expenditures included in the EEPs are personnel salaries of the MOHs. Table 1 in Annex 2 shows the link between EEPs, Project activities and DLIs. Funds under Component 1 and 2 will disburse as follows: 80% based on accomplishment of ten regular DLIs and 20% will disburse against three DLI that measure the accomplishment of three key prior actions eligible for retroactive financing (retroactive DLIs) and described in Table 3, Annex 2. The regular DLIs that will be

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measured on an annual basis according to the schedule are shown in Table 2 in Annex 2. Disbursements for all regular DLIs will be proportional to the progress made toward achieving the DLIs' targets following the procedure described in the Disbursement Letter. The list of DLIs and the funds allocated to each of them are shown in Table 2 below.

Table 2. List of Disbursement Linked Indicators for Components 1 and 2

Indicators	US$ in millions	% of total funds
Retroactive DLIs	14.80	20%
DLI 0.R1: Inventory of relevant databases and electronic records for the stratification of beneficiaries has been carried out	5.15	
DLI 0.R2: Adoption of a formal definition by MOH of the concept of chronic NCD patients with complex needs	5.15	
DLI 0.R3: Adoption by CENABAST of a work plan to implement a multi-annual procurement framework and optimize logistic procedures	4.50	
Regular DLIs	60.00	80%
DLI 1. Development of an electronic database of chronic NCD patients with complex needs	6.00	
DLI 2. Number of Health Care Districts that have conducted a patient risk stratification for NCDs	6.00	
DLI 3. Number of CMUs established for chronic NCD patients with complex needs	6.60	
DLI 4. Percentage of chronic NCD patients with complex needs enrolled in a Case Management Program	4.80	
DLI 5. Percentage of NCD patients in MOH's electronic database being assisted by Virtual Consultations	4.80	
DLI 6. Cervical cancer screening rate	4.80	
DLI 7. Number of public hospitals using DRG for clinical management	6.60	
DLI 8. Cumulative number of public health sector staff trained in the proactive management of cases of chronic NCD patients with complex needs.	6.00	
DLI 9. Percentage of selected elective surgeries performed as day surgery in public hospitals	6.00	
DLI 10. Percentage of spending on medicines and medical supplies procured centrally through CENABAST	8.40	

27. **Component 3. Technical Assistance, Coordination and Monitoring** (US$5 million total cost; US$5 million of IBRD financing). This component will provide Technical Assistance (TA) activities to generate missing information needed to risk-stratify patients insured by FONASA, develop management tools and provide training to health managers and staff that are key to support the implementation of Components 1 and 2. It will finance consulting and non-consulting services, operating costs and training. A detailed list of studies considered for the first 18 months of the Project is presented in Annex 1. This component will

also support the Project Coordination and Monitoring Unit (PCMU) responsible for the overall Project coordination and monitoring activities under the direct command of the Minister of Health and its Cabinet.

B. Project Cost and Financing

28. The proposed Investment Project Financing (IPF) will be financed and implemented over a five-year period. The IBRD loan amount is US$80 million. US$75 million of Project funds will support the MOH through the use of RBF mechanisms to better allocate its own resources for programs and activities within the MOH annual implementation plan. In addition, there will be a US$5 million component for Technical Assistance.

Project Components	Project cost	IBRD or IDA Financing	Trust Funds	Counterpart Funding
1- **Component 1.** Improving the efficiency of public health service delivery networks with a focus on its better integration	61.9	61.9		
2- **Component 2**. Optimizing the procurement and logistics of drugs and medical supplies in the public sector	12.9	12.9		
3- **Component 3.** Technical Assistance, Coordination and Monitoring	5	5		
Total Costs				
Total Project Costs	79.8	79.8		
Front End Fees	0.2	0.2		
Total Financing Required	80	80		

C. Lessons Learned and Reflected in the Project Design

29. The existing experience from previous NCD projects[27] shows that population-based preventive interventions, the reorientation of public facilities to provide quality NCD-related care, and patient adherence to control treatments involve important cultural and behavioral changes that require several years to materialize. However, the cycle of World Bank–financed projects provides a relatively short timeframe for the implementation of this type of reform. The proposed Project provides the foundations required to build greater capacity to plan, deliver and manage health care services for NCD-patients with and without complex needs. The rich existing literature on interventions and policies aimed at changing habits of health care professionals shows that education, training, and enablement of providers in the context of team-based approaches are key for successful interventions (the creation of case management units and of a nationwide training program address these aspects). Likewise, the early involvement of providers, frequent updates of providers on the reform process and a careful design & piloting of teaching materials increase the success rate of changing provider incentives (all of which inspire the design of the training and education activities under the Project – see DLI 8). Financial incentives to family physicians by themselves do not appear to influence long-term practice changes[28].

30. Care integration initiatives (see footnote 9 for a definition) have proven their potential to reduce costs and reduce avoidable hospital care. A meta-analysis incorporating 34 systematic reviews and nine additional studies of integrated care interventions concluded that these interventions were associated with a reduction of 19% of avoidable hospital admissions, compared to usual care delivery[29]. An evidence synthesis by the Commonwealth Fund found cost reductions through shorter hospital lengths of stay and fewer avoidable hospital admissions for 15 out of 18 care management programs reviewed[30]. Given that care integration interventions can take many forms and can have various components, certain key elements have been identified to drive successful interventions: care coordination before and after acute care episodes, multidisciplinary care teams (both of which are addressed through the creation of case management units under this Project) patient education and empowerment, and individual care plans (which are being taken care off through the enrollment of patients in Case Management[31] Programs – see DLI 4).

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[27]Uruguay NCD Prevention Project (P050716), among others.

[28] Chauhan, B.F. et al. (2017): Behavior change interventions and policies influencing primary health care professionals' practice—an overview of reviews - Available at: https://implementationscience.biomedcentral.com/articles/10.1186/s13012-016-0538-8 and AHRQ (2014): Designing and Implementing Medicaid Disease and Care Management Programs - Section 4: Selecting Care Management Interventions – Available at: https://www.ahrq.gov/professionals/systems/long-term-care/resources/hcbs/medicaidmgmt/medicaidmgmt4.html

[29] McKinsey (2015): The evidence for integrated care. Available at: http://www.mckinsey.com/~/media/McKinsey/Industries/Healthcare%20Systems%20and%20Services/Our%20Insights/The%20evidence%20for%20integrated%20care/The%20evidence%20for%20integrated%20care.ashx

[30] Commonwealth Fund (2015): Caring for High-Need, High-Cost Patients: What Makes for a Successful Care Management Program? Available at: http://www.commonwealthfund.org/~/media/files/publications/issue-brief/2015/oct/1843_mccarthy_models_care_high_need_high_cost_patients_ib.pdf

[31] Case management is a collaborative process that assesses, plans, implements, coordinates, monitors, and evaluates the options and services required to meet the client's health and human service needs. It is characterized by advocacy, communication, and resource management and promotes quality and cost-effective interventions and outcomes. https://ccmcertification.org/about-us/about-case-management/definition-and-philosophy-case-management.

31. Targets for indicators tracking behavioral and institutional changes should be relatively conservative considering the time needed to implement these changes. In addition, changes in government administrations usually slowdown project implementation. Thus the expected progress and results of activities supported by the Project should take these issues under consideration and the Project will include realistic targets.

32. Project implementation via an implementing agency's internal administrative structure may imply a longer execution period given that strategic decisions are often taken by authorities that are not exclusively dedicated to the Project, therefore contributing to potential delays. Hence, a Coordinating and Monitoring Unit with sufficient political influence will be established. The Project Coordinating and Monitoring Unit will include sufficient personal with exclusive dedication and an adequate political, management and technical profile.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

33. The implementing agency for the proposed Project will be the MOH. Project activities will be implemented by the MOH Undersecretaries of Health Care Networks and Public Health through their technical divisions, in particular the Health Care Network Division (DIGERA), the Primary Health Care Division (DIVAP), the Division of Heath Planning (DIPLAS), the Department of Statistics and Information on Health Care (DEIS) and Division of Prevention and Control (DIPRECE) at the MOH. FONASA, the public buyer of health services to the public health network, and CENABAST, the centralized public purchaser of medicines and medical supplies for the public health network, will work closely in the Project implementation (see Figure 1 of the Annex 2).

34. The DIGERA, DIVAP, DIPLAS, TIC, DEIS, DIPRECE, CENABAST and FONASA will serve as the Technical Units of the Project and will use their own administrative structure and staff. There will be a Project Coordination & Monitoring Unit (PCMU) responsible for overall Project technical assistance, coordination and monitoring, under the direct command of the Minister of Health and its Cabinet. The responsibilities of the PCMU involve the coordination of Project activities and fiduciary aspects related to Project implementation, including those linked to the carrying out of the TA activities, the relationship with the PHCPI, the monitoring of the Results framework and the follow up on DLIs.

35. The PCMU decision making body will be the Coordination Cabinet of the Project comprised by the MOH Chief of Cabinet Advisor, the Health Care Network General Division Advisor, the Public Health Undersecretary Advisor, the Chief of Health Planning of the Public Health Undersecretary and a Permanent Secretary with full time dedication to the Project who will act as the PCMU coordinator. The PCMU will be a small unit staffed with Monitoring and Evaluation specialists, a Health System specialist and a Fiduciary Monitoring specialist, fully assigned to the Project. The PCMU will coordinate Project activities through the Heads of the Technical Units who will be in charge of implementing the Project components. The Project Coordination Cabinet and the Heads of the Technical Units will hold monthly regular meetings to ensure an adequate strategic and operational conduction of the project.

36. Financial Management and procurement arrangements will be led by the Finance and Internal Administration Division of the MOH.

37. All the activities under Component 3 of the proposed Project will be implemented in accordance with the World Bank Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services, issued in July 2016. Retroactive financing will be included for selected project initiation activities developed according to WBG procedures.

B. Results Monitoring and Evaluation

38. Measurement and verification of the progress toward achievement of the Program's objectives will be based on the country's existing monitoring and evaluation systems, which during Project appraisal had been evaluated as of a good quality, especially the MOH's statistical system. The MOH, through the PCMU, will have the primary responsibility for tracking progress related to Project activities, outcomes and results. The PCMU will prepare Project reports including the following information: (i) the compliance with the DLIs; (ii) the updated Procurement Plan; and (iii) progress on the achievement of indicators as defined in the Result Framework. The Project reports will be submitted to the Bank twice a year prior to the respective disbursement requests, but not later than 60 days after the end of the period covered by such report.

39. The proposed Project will strengthen the MOH's capacity to monitor the public health sector performance, program execution and health status of the population. The population stratification strategy will be especially relevant, since it will permit the collection of nominalized health information of each citizen receiving care for NCDs in the public health care network. This strategy will use NCD program indicators for program management and policy decision making. Additionally, the Project will support MOH and FONASA efforts to implement the DRG system to track the performance and production of the public hospital network through a standardized regular reporting mechanism with core indicators.

C. Sustainability

40. The activities to be financed will be sustainable as: (i) their funding is already included in the annual health budget, except for the TA component; (ii) they represent a marginal expenditure for the MOH (less than 0.2% of the MOH annual budget) and the reimbursement of the eligible EEPs for activities in Components 1 and 2 represent on average about 10% of the EEPs' actual budgets; (iii) the focus of health authorities on NCDs at all levels of government will continue to be a priority due to the country's aging and high NCD incidence; and; (iv) these activities are needed to ensure the efficiency and effectiveness of the entire health system. Once the behavioral & organizational changes needed for a successful Project implementation have started (see Risks section below), the inherent organizational inertia of the MOH and its subordinate agencies involved increase the likelihood that the initiated changes persist beyond Project completion.

D. Role of Partners

41. The Primary Health Care Performance Initiative (PHCPI) is a partnership of the World Bank, the World Health Organization and the Bill and Melinda Gates Foundation to catalyze global improvement in primary

health care through better performance measurement and knowledge sharing. As part of this Project, the PHCPI will be providing technical assistance to the MOH to support the development of a national yet internationally comparable scorecard assessing the performance of the primary health care system. This scorecard will be updated every two years and results will be made publicly available on the website of the Initiative. Technical assistance will be supported financially by PHCPI.

42. The Organization for Economic Cooperation and Development (OECD) is an international organization comprising 34 member countries, which works on economic and social issues from macroeconomics to trade, health, social affairs, development and science and innovation. Chile is a full member of the OECD and already engages in several activities, including a forthcoming review of its public health system. In the context of this project, the OECD will provide technical assistance to the GOC by carrying out an external review of the primary health care system, with a focus on three themes: (i) overall performance of the primary health care system from an international standpoint; (ii) efficiency of primary health care delivery at municipality level; and (iii) innovation in new service delivery models to meet the needs of an ageing population. This activity will be coordinated with the Project.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

43. **The Overall Risk is assessed as Substantial.** Although an operation in Chile could be considered as low risk based on the overall country context, the risk of the Project has been rated as substantial because: (a) the proposed Project will be implemented across two government administrations, among which the vision on policy implementation might differ, (b) interventions to improve efficiency in the health sector are in general hard to implement, and (c) the proposed Project interventions require cultural changes of health care providers that are hard to achieve. The proposed strategic actions supported by the Project are necessary to improve the sectoral efficiency and financial sustainability and close the performance gap with respect to health sectors in other OECD countries.

44. Political and Governance risks. The imminent government tranisiton and the Project focus on efficiency issues in the health care sector create a substantial political and governance risk. As a major mitigation measure for this risk, the 2011-20 National Health Strategy - designed and passed before the current administration came into power - serves as the policy and operational framework of the Project. Current MOH activities that serve as preparation for the proposed Project (and are hence eligible for retroactive financing) help to ensure that interventions will be in implementation mode at the time of the government transition. Frequent/extended technical missions during the administration transition will keep up this momentum. The strong international evidence for the effectiveness of the supported changes to achieve the PDO and the necessity to achieve efficiency gains to mitigate a rapid ageing of the population might make continued support for the Project compelling for the new administration as well.

45. Institutional Capacity for Implementation and Sustainability risks. A major challenge is that both hospitals and PHC facilities need to change their service delivery model. This task involves a difficult cultural change, which requires new capabilities of clinicians and managers. Acute conditions are potentially curable within a short period, whereas chronic conditions are incurable or require prolonged treatment and care. Both

the literature[32] and WB experience show that the kind of cultural transformation needed to reorient the model of care towards the management of NCD patients is complex and difficult to implement. This experience is the basis for the substantial rating of the institutional capacity risk and the moderate rating of the technical design risk. Lastly, as Chile's geography is frequently affected by natural disasters, such as earthquakes, tsunamis, volcanic eruptions, landslides, and forest fires, the normal functioning of the health system, and thereby Project implementation, may get interrupted. Mitigation measures for implementation-related risks have already been adopted, including the support from the PHCPI to provide technical assistance for the implementation of the Project. In addition (i) other sectors (e.g. the Budget Directorate of the MOF – DIPRES, the Production Development Corporation -- CORFO, and universities) have been involved to support Project execution in order to effectively hedge the implementation risk; (ii) a detailed implementation plan has been developed; and (iii) the implementation of the Project within the MOH administrative structure will increase the ownership and sustainability of the activities supported by the Project beyond completion.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

46. The economic analysis (see Annex 3) has been conducted in light of the following questions: (i) what is the Project's likely development impact; (ii) is public sector provision or financing the appropriate vehicle to achieve the proposed Project objectives; and (iii) what is the added value of the World Bank?

47. **Expected Development Impact.** On a macro level, the Project includes interventions that help the Chilean health sector to adapt its service delivery model to the new epidemiological and demographic profile of the country. The Project finances interventions that promote a paradigm change in the service delivery model towards a more patient-centered approach and a care provision tailored to the needs of multimorbid, complex and elderly frail patients. The Project will yield three concrete economic benefits: (i) improved health outcomes in the form of reduced cancer mortality rates and reduced NCD-related morbidity rates; (ii) cost savings at the hospital level from reduced avoidable short-term readmissions as well as admissions; and (iii) lower prices paid by the public sector for pharmaceuticals and medical technology (e.g. through joint purchasing, therapeutic reference pricing or international benchmarking via CENABAST).

48. The cost-benefit analysis finds a largely positive net present value, independently of the different scenarios considered. The difference between benefits and costs, the Net Present Value (NPV) of the interventions is largely positive (at least US$18.00 million) and the estimated internal rate of return (IRR) ranges between 17.17% and 32.23% percent, depending on the discount factor used, which clearly shows the positive development impact of the considered Project interventions.

49. **The Rationale for Public Sector Involvement.** In Chile, 78% of the population is currently insured by the national health insurer FONASA and receives health care services from public providers. The proposed Project does not support the introduction of new Government programs, but instead aims at improving the efficiency and quality of existing government programs (i.e. the provision of health care services by

[32] Holman & Lorig, BMJ. 2000 Feb 26; 320(7234): 526–527

public health care providers). The proposed Project will support interventions to help CENABAST act as a strategic purchaser of pharmaceuticals as there is a strong economic rationale for centralized procurement of drugs for public providers. Project activities will also include the promotion of collaborations between the MOH and the budget department at the MOF on budget control and analyses of productive efficiency.

50. **World Bank's Value Added.** Beyond the direct contribution of the proposed health sector investments to Chile's socioeconomic development (i.e. ensuring the efficient use of resources in the public health sector and preparing the country for the continuing epidemiological transition), the added value of the World Bank Group's support consists of its implementation experience and technical expertise in related initiatives as well as it's convening power to bring international experts to the country. The Bank will provide technical support to – among others - conduct a first patient risk stratification, analyze requirements for a better health information system and review public procurement procedures for pharmaceuticals. The World Bank will also continue to help develop the client's institutional capacity during Project implementation via trainings and the sharing of project experiences.

B. Technical

51. Although there have been substantial improvements in health outcomes in recent decades, Chile's outcomes still lag behind the average OECD outcomes in several dimensions, especially related to NCDs and chronic conditions. In addition, the functioning of the health public system shows some degrees of inefficiency and current health results will be difficult to sustain in a fiscally constrained environment. At the same time, an aging population, shifts in the burden of disease toward chronic and non-communicable conditions where quality interventions can increase secondary prevention (and reduce complications), and the inevitable upward pressure on health care costs from technological advances imply that ceteris paribus health expenditures will continue to increase in the future.

52. The MOH program echoes this diagnosis and identifies increased efficiency of service delivery and improved health sector quality (understood as the appropriateness and effectiveness of health services) as priority concerns. As the steward of the decentralized public health sector, the MOH is uniquely positioned to design and implement the changes needed to improve quality and efficiency and, therefore, improve the financial sustainability of the health sector.

53. The proposed Project has many of the critical building blocks required for delivering results. These include: (i) a strong political commitment, which is bolstered by the Result Based Financing mechanism included in the Project design; (ii) good harmonization between the proposed Project and the larger policy framework for health sector reform in Chile, since the Project contributes to the main challenges identified in the National Health Strategy for the Decade 2011-2020; (iii) a technically sound MOH program oriented to addressing the strategic change priorities facing the Chilean health sector, that is, rationalizing the health facility network, improving quality of health care services, and promoting the financial sustainability of the public health sector; (iv) clearly defined interventions which are technically appropriate to improve efficiency and quality in the Chilean context and are supported by emerging international experience in the area; and (v) an agreed set of SMART (Specific, Measurable, Attainable, Relevant, and Time-bound) results indicators to assess and reward Program performance.

C. Financial Management

54. A FM capacity assessment was carried out to determine the capacity of the MOH to properly manage and account for all Project financial proceeds and to produce timely, accurate and reliable financial statements for Bank special purposes. On the basis of the assessment performed, Financial Management arrangements are considered acceptable.

55. Financial Management arrangements will be led by the MOH under its administrative structure, Finance and Internal Administration Division. The proposed Project will benefit from the use of country systems and it will be monitored through the use of Disbursement Linked Indicators (DLIs). It will finance the reimbursement of related eligible expenditure programs (EEPs) under Components 1 and 2 based on the MOH´s payroll expenditures. Loan proceeds will be disbursed in an account held by the General Treasury of the MOF at the Central Bank conditional on: (i) the execution of the EEP; and (ii) the accomplishment of DLI targets.

56. In addition, the MOH will implement component 3 for Technical Assistance (TA) that will comprise consulting and non-consulting services, operating costs and training activities. For this component, the Bank will disburse loan proceeds using the disbursement methods of reimbursement, advance and direct payment. Partial advances may be made to a Designated Account (in US Dollars) at the Central Bank and funds will be converted into local currency (Chilean pesos) and transferred to an Operative Account to be opened by the MOH in the *Banco Estado* to exclusively manage loan funds and process payments for eligible expenses. Project transactions will be mainstreamed in the MOH budget process and chart of accounts. Additionally, project transactions will be subject to the internal control and payment procedures applicable to financed projects which are considered adequate.

57. The MOH follows the Accounting procedures manual for the Public Sector (*Manual de Procedimientos Contables*) issued by the Supreme Audit Institution (*Contraloría General de la República*), as well as regulations and instructions of the National Accounting System (*Normativa del Sistema de Contabilidad General de la Nación*), which describes the financial management operational procedures for public entities.

58. Based on the information gathered during the FM assessment, the proposed Project's FM inherent risk and the control risk will be rated Moderate, and the overall FM risk will also be rated Moderate. The risk will be rated Moderate mainly because (i) the MOH has no prior experience of working with the Bank; (ii) financial information will be based on SIGFE, but also excel spread sheets will complement this information that would require regular reconciliation and; (iii) the MOH´s FM staff will require training on Bank policies and procedures. Annex 2 describes relevant risk mitigation measures.

D. Procurement

59. The implementing agency for the proposed Project will be the MOH. The PCMU will be responsible for overall Project coordination and monitoring, including the coordination of procurement aspects of the Project. A capacity assessment was carried out of the MOH, in order to address the possible procurement risks that the Project could face, and in order to propose mitigation measures for these risks. The overall procurement risk was assessed as Moderate. The key issues and risks identified as potentially affecting

Project implementation include: (i) the lack of clarity of the functions between the technical and administrative areas of the MOH and the PCMU; (ii) the lack of experience in Bank's procedures. The results of the assessment are detailed in Annex 2.

60. As part of the preparation of the proposed Project, the MOH has prepared: (i) a PPSD (Project Procurement Strategy Development); (ii) a detailed procurement plan dated April 26, 2017 covering the first 18 months of the implementation of the Project; and (iii) a detailed Operational Manual acceptable to the Bank.

E. Social (including Safeguards)

61. The proposed Project triggers the World Bank's Policy on Indigenous Peoples (OP 4.10) because Chile has a large indigenous population, scattered across several regions, which will be a potential beneficiary of the Project interventions and fulfill the OP 4.10 criteria. Chilean indigenous peoples have a higher-than-average incidence of NCDs (including indigenous people living in urban areas), and if the Project does not include specific actions targeted at addressing the current gaps, there is a risk that the current gaps in access and quality of services could increase as a result of Project implementation. An Indigenous People Plan (IPP) was prepared by the Borrower and disclosed prior to appraisal.

62. Based on the IPP and the consultation process, the Project proposes key interventions aimed at closing these gaps, including studies to fill-in knowledge gaps; training for health staff on intercultural adequacy; proposals to improve the cost-effectiveness of Primary Health Care and Chronic Diseases adapted to the needs of indigenous people; and proposals to improve the governance, transparency and management of the public health network facilities in regions with high indigenous concentration.

63. The prevalence of NCDs in the indigenous population is growing, as in the rest of the Chilean population, but several studies suggest that the effects of this process are being felt more strongly among indigenous -peoples. Men belonging to indigenous peoples have the highest risk of dying from cardiovascular disease (i.e. 40% higher than non-indigenous men based on a study in 11 health services in Chile[33]). Hypertension (HTA) and Diabetes Mellitus Type II (DM II) have a significant prevalence in indigenous peoples. These pathologies are associated with changes in cultural patterns and lifestyles, as a result of the process of urbanization and other social determinants. In addition, the epidemiological transition of the indigenous population is accompanied by the persistence of communicable diseases such as tuberculosis (TB).

64. The Department of Health and Indigenous Peoples and Interculturality of the MOH considers the Project as an opportunity to progressively implement an adequate approach to NCDs, with a special focus on HTA and DM II, through the strategic reorientation of the Cardiovascular Health Program (*Programa de Salud Cardiovascular - PSCV*), based on updated evidence. In this regard, the IPP was prepared with the aim of improving the socio-cultural relevance and quality of the health care of the indigenous people enrolled in the PSCV, which promotes cost-effective actions at the local level to improve the management and adherence to the treatment of cardiovascular disease. The IPP responds to needs identified by indigenous peoples through a nationwide consultation process carried out by the MOH between 2016 and 2017. This lengthy consultation process involved over 9,000 indigenous persons and over 1,300 representative

[33] Ministerio de Salud Chile (MINSAL) (2016) "Estudio comparado de la situación de salud de los pueblos indígenas en Chile" (En Prensa). Santiago: MINSAL

organizations. The IPP was widely discussed with selected indigenous leaders related to the health sector, and with health care specialists in January 2017, and was disclosed on March 15, 2017, both on the Bank and MOH websites.

65. The proposed Project also contributes to addressing the main gender gaps in Chile. Women are over-represented among patients with complex needs because they are more affected by the highly prevalent cancers targeted by the Project interventions. The proposed Project supports a stratification of the population according to their health risks, which in turn will help identifying women at risk of suffering from breast, cervical and colorectal cancers and implementing actions for an early diagnosis. The proposed Project also supports the strengthening of the health information system which will allow tracking results disaggregated by gender.

F. Environment (including Safeguards)

66. According to OP/BP 4.01 Environmental Assessment, this Project is classified as Category B because some of the Project activities might generate adverse social, environmental, health and safety impacts if not properly and timely assessed and mitigated. The 'Category B' is justified by the fact that the operation and maintenance of existing health centers might generate preventable and manageable environmental, health and safety impacts and risks. OP/BP 4.01 on Environmental Assessment is the only environmental safeguards policy triggered for this Project. Given the well-established national system for environmental, health and safety impact assessment in Chile's health centers, the Project is not expected to generate significant adverse environmental, health and safety impacts.

67. The MOH has prepared a concise Environmental Management Plan (EMP) describing environmental, occupational health and safety regulations applicable to health centers during construction and operation, the Environmental Impact Assessment System (SEIA) and how it applies to health center projects, and the institutional responsibilities and institutional capacities for environmental management in the health sector of the MOH and the Regional Ministerial Secretariats (SEREMI). The EMP was disclosed on March 15, 2017, both on the Bank and MOH websites.

68. Given that technical assistance is part of Component 3, the Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds administered by the Bank will be taken into account by the Client. Therefore, terms of reference for the aforementioned activities will have to include, if needed, screening and mitigation of potential adverse environmental and social impacts and risks.

G. Other Safeguard Policies (if applicable)

N/A

H. World Bank Grievance Redress

69. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the

WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY : Chile
Chile - Public Health Sector Support Project

Project Development Objectives

The objectives of the Project are to: (i) improve the efficiency of the public health care sector; and (ii) improve the quality of Non-Communicable Diseases-related health care services.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Percentage of public hospitals reporting inpatient services based on DRGs.		Percentage	34.00	67.00	Annual	DRG System/ DEIS	FONASA/ DIGERA
Description: Inpatient services include inpatient stays related to elective surgeries, emergency admissions, major ambulatory surgeries and day cases, excluding stays due to psychiatric and geriatric reasons. Public hospitals refers to all hospitals (of high, medium, and low complexity) that report to Health Care Districts. Numerator: Number of public hospitals that report inpatient hospitalizations using DRGs. Denominator: Number of public hospitals that report to Health Care Districts.							
Name: Accumulated savings through the central procurement of medicines		Percentage	32.00	57.00	Annual	CENABAST and MOH	MOH

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
and medical supplies as a percentage of the amount of all centrally procured items.							

Description: The indicator will measure the savings through the central procurement of medicines and medical supplies. These savings will be calculated as follows: The difference in the value of all centrally procured items at the actual prices under central procurement compared to the same basket of items valued at the average weighted prices of the public market (Mercado Público) for the products procured in a decentralized manner The items considered include medical consumables, medicines, and devices health care (inpatient and outpatient) services from Health Care Districts, Hospitals and Special Programs executed by the MOH and hospitals The savings will be reported on an annual accumulated basis since Project start. The indicator will be reported as a percentage in terms of the overall value of centrally procured items.

Numerator: Savings in the central procurement of medicines and medical supplies in a given year according to the above description.

Denominator: Value of all medicines and medical supplies procured centrally valued at the weighted average prices from the public market (Mercado Público) for the products procured in a decentralized manner in a given year.

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Percentage of population diagnosed with hypercholesterolemia under follow up and treatment.		Percentage	6.70	45.00	Annual	DIVAP/ DEIS	MOH

Description: Follow up and treatment of an hypercholesterolemia patients is defined to consist of at least two annual medical consultations and the regular administration of statins.
This indicator will be measured disaggregated by gender
Numerator: Population insured by FONASA enrolled in Primary Health Care with hypercholesterolemia and under follow up and treatment.
Denominator: Population insured by FONASA enrolled in Primary Health Care with hypercholesterolemia.

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Cervical cancer screening rate.		Percentage	57.40	70.00	Annual	Citoexpert / REVICAN/FONASA MLE	MOH
Description: A current MOH protocol foresees a relevant cervical cancer screening test for all women aged 25 – 64 at least once every three years. Numerator: Number of women insured by FONASA between age 25 and 64 with at least one PAP smear or at least one Human Papillovirus (HPV) test during the measuring period of three years. Denominator: Number of women between age 25 and 64 insured on average during the measuring period of three years.							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Avoidable hospital admissions.		Number	244.50	200.00	Annual	DIGERA	MOH
Description: Tracer conditions to measure avoidable hospital admissions for this indicator are chronic lower respiratory diseases (ICD10 codes J40-J47), hypertension (ICD10 codes I10-I11, I12.9, I13.0, and I13.9), diabetes mellitus (ICD 10 codes E10.2-E10.6, E11.2-E11.6, E13.2-E13.6, E14.2-E14.6) and other forms of heart disease (ICD10 codes I32.0 and I50). The indicator considers all non-maternal/non-neonatal hospital admissions with one of the tracer conditions as the principal diagnosis code according to ICD-10 and for a patient of age 15 or older in a specified year as avoidable admissions. Admissions to psychiatry departments of hospitals, psychiatric hospitals, and geriatric hospitals are excluded, but admissions to social beds are included (for reporting reasons). Unit of measure: rate per 100,000 population.							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Waiting time for selected surgeries.		Days	393.00	365.00	Annual	DIGERA	MOH
Description: The indicator is calculated as the median waiting time for any elective surgery not included in AUGE conducted in the establishments of the 29 Health Care Districts and published in the National Repository of Waiting Lists managed by the MOH. The indicator compares the median waiting time at baseline with the median waiting time at each year of Project effectiveness.							
Name: Average length of stay in acute hospital care.		Days	6.41	5.00	Annual	DEIS	MOH
Description: The average length of stay refers to the average number of days spent by patients in hospital that can be measured by dividing the total number of days stayed by all inpa-tients in acute care at public hospitals during a year by the number of all admissions to acute care excluding day cases (at public hospitals).							
Name: Development of a master patient index.		Yes/No	N	Y	Annual	DEIS	MOH
Description: The master patient index states an identifier for all individuals that have the right to social health insurance. The identifier is that is unique, anonymous, permanent, ubiquitous, canonical and invariable and is assigned based on an algorithm applied to a Minimum Data Set including basic and permanent characteristics of each individual (name, gender, national ID, etc.). The indicator measures the existence of the master patient index with the basic information about all individuals (i.e. the unique identifier and the Minimum Data Set) and additional information such as their risk profile (in terms of chronic conditions).							
Name: Development of an algorithm to stratify chronic patients according to their		Yes/No	N	Y	One time measurement	DEIS	MOH

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
risks.							
Description: This indicator measures the development of an algorithm making use of the available clinical information from databases at the individual patient level in order to classify chronic patients according to their risk of developing complex needs. The ability of the algorithm to predict the likelihood of a patient developing complex needs is evaluated using standard statistical measures and/or makes use of established indices measuring patient complexity. The algorithm allows the creation of patient lists and their risk profile by assigned health care provider (health center/hospital).							
Name: Avoidable hospital readmissions of chronic patients with complex needs enrolled in case management program.		Text	TBD once the definition of a chronic patient with complex needs has been established .	Baseline TBD.	Annual	DEIS	MOH
Description: An avoidable readmission refers to a readmission to a public hospital within 30 days from a prior hospital. For chronic patients with complex needs enrolled in a case man-agement program, any hospital admission excluding those related to cancer and injuries (identifiable through a primary diagnosis code from ICD-10 from groups C00-C96 (cancer) or S00-T98 (injuries) is being considered. A chronic patient with complex needs is considered to be enrolled in a Case Management Program when a customized care plan has been developed for him. This indicator will start being measured in Y3 of Project implementation, once the Case Management Program is effective.							
Name: Public advertising of purchases made by CENABAST.		Yes/No	N	Y	Annual	CENABAST	MOH

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: Public disclosure on the MOH webpage of the prices for medicines and medical supplies obtained through centralized procurement by CENABAST compared to the ones obtained through direct procurement by hospitals and municipalities.							
Name: Review of the vertical programs under the DIVAP to strenghten centralized drug procurement.		Yes/No	N	Y	One time measurement	DIVAP	MOH
Description: A study of the vertical programs under the DIVAP (PRAPS) will be conducted with the aim of analyzing the programs' advantages and disadvantages with a special focus on which mechanisms can most effectively increase centralized drug procurement.							
Name: User Satisfaction Survey carried out annually and publicly disclosed.		Yes/No	Y	Y	Annual	DIGEDEP	MOH
Description: Annual FONASA user satisfaction survey measuring user perceptions of the reorientation of the care model toward the needs of chronic patients with and without complex needs.							
Name: Strategy to train health care staff regarding the counseling and management of chronic patients with complex needs.		Yes/No	N	Y	Annual	DIGEDEP	MOH
Description: The development of a strategy by the MOH to train health care staff regarding the management of chronic patients with complex needs. The target for Y1 is the development of the training strategy and the content for e-learning modules on obesity, chronic obstructive pulmonary disease, smoking ces-							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
sation and kidney disease as well as the update of the currently available modules related to hypertension and diabetes. The target for Y2 is the development of the strategy and the content for e-learning modules about the Case Management for chronic patients with complex needs. The target for Y3-Y5 is the implementation of the entire strategy (i.e. all the e-learning modules will be available on the MOH e-learning platform).							

Target Values

Project Development Objective Indicators

Indicator Name	Baseline	End Target
Percentage of public hospitals reporting inpatient services based on DRGs.	34.00	67.00
Accumulated savings through the central procurement of medicines and medical supplies as a percentage of the amount of all centrally procured items.	32.00	57.00
Percentage of population diagnosed with hypercholesterolemia under follow up and treatment.	6.70	45.00
Cervical cancer screening rate.	57.40	70.00

Intermediate Results Indicators

Indicator Name	Baseline	End Target
Avoidable hospital admissions.	244.50	200.00
Waiting time for selected surgeries.	393.00	365.00
Average length of stay in acute hospital care.	6.41	5.00
Development of a master patient index.	N	Y
Development of an algorithm to stratify chronic patients according to their risks.	N	Y

Indicator Name	Baseline	End Target
Avoidable hospital readmissions of chronic patients with complex needs enrolled in case management program.	TBD once the definition of a chronic patient with complex needs has been established.	Baseline TBD.
Public advertising of purchases made by CENABAST.	N	Y
Review of the vertical programs under the DIVAP to strenghten centralized drug procurement.	N	Y
User Satisfaction Survey carried out annually and publicly disclosed.	Y	Y
Strategy to train health care staff regarding the counseling and management of chronic patients with complex needs.	N	Y

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY: Chile
Chile - Health Sector Support Project

1. **A recent Public Expenditure Review of the health sector in Chile[34] carried out by the World Bank found that major savings can be derived from improvements in the clinical efficiency and effectiveness as well as in the management of hospital care services.** Rising public spending on health care has been mainly driven by an increase in drug expenditures and hospital payments for contracting of physicians engaged in dual practice. Drug expenditures have grown substantially in the last ten years, with the three highest shares of total public drug expenditures being observed in urban areas. The proportion of total spending on labor has slightly decreased in the last 10 years, but the share of labor expenditures on contracts for private physician services has increased considerably, as well as the share of honoraria paid to physicians. Across the 29 regional health networks, there is a relatively high level of efficiency in Chile's publicly funded health system, but results are unequal: The Public Expenditure Review found that, on average, Chile's health care system could reduce premature mortality from treatable causes of death by 8-13% if all health regions operated efficiently.

2. **Key recommendations proposed by the Public Expenditure Review report include implementing a DRG-based system for sixty-two acute care hospitals; reducing low value and inappropriate care; strictly monitoring the finances of public hospitals; achieving efficiencies through better procurement of medicines and medical equipment; and better managing care for fragile patients with multiple morbidities.** In the realm of primary health care, the remuneration of primary health care workers should be revised to incentivize productivity gains; the amount of directly procured drugs should be reduced by defining targets, to be enforced through contracts between the Ministry and municipalities; and innovations in population health management should be incentivized to reduce avoidable hospital admissions. Finally, the primary recommendation on health human resources is to work with the medical college of physicians of Chile to avoid the excessive dual practice by physicians, which has been one of the key drivers of hospital debts since 2013. While many of this proposed lines of action will be developed by the project, others, like primary health care workers' remuneration or policy dialogue with the medical college of physicians of Chile, will remain in the scope of action of the MOH and the Government of Chile.

3. **With an accelerated ageing of the population, concerns about the fiscal sustainability of the current organization and management of the health sector are justified.** Chile is in the advanced stages of demographic transition and is becoming an ageing society - with fertility rates below replacement level, low mortality rates, and a lower life expectancy compared with most other OECD countries. Life expectancy at birth in Chile grew to 79.1 years, one year less than the OECD average of 80 years. Life expectancy for women is 82.2 years, compared with 76.1 for men[35]. Concerning the Chilean epidemiological profile, as defined by population mortality statistics, Chile is in the beginning of a post transition stage, with mortality being predominantly linked to Non Communicable Diseases (NCDs), mainly cardio-vascular diseases and cancer.

[34] Report No: 106334-CL.
[35] Mortality in Chile, 2002 and 2012. National Institute of Statistics.

4. **NCDs represent a heavy burden of disease for Chile: latest available data show that deaths linked to non-communicable diseases represented 52.1% of the total number of deaths in one year.** Deaths from diseases of the circulatory system together with malignant tumors account for most of the deaths. In 2012 they caused 51% of the deaths for women and 51% of the deaths for men[36].

Table 1. Five highest frequencies of causes of death, 2012, by decreasing order[37]

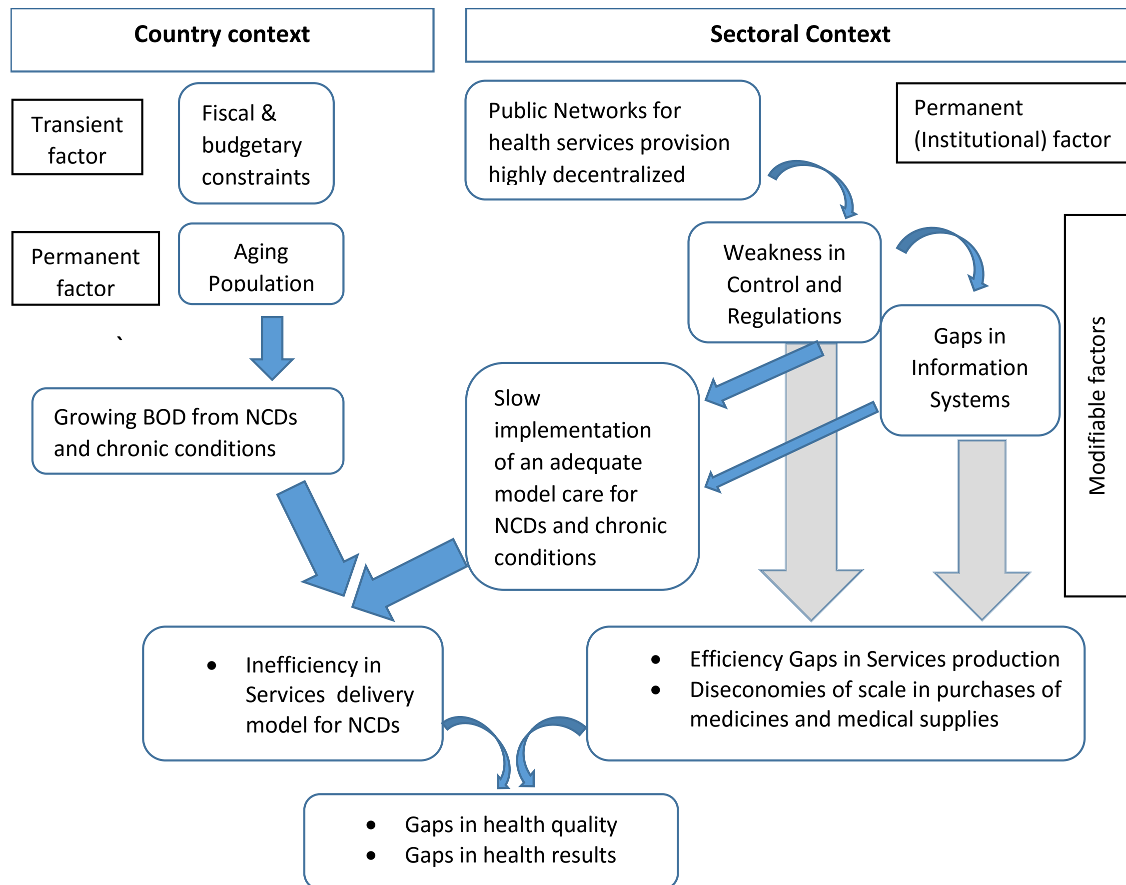
Cause of 76% total female deaths	Mortality rate x 100000 inhabitants	Cause of 80% of the total male deaths	Mortality rate x 100000 inhabitants
Circulatory system	151,9	Circulatory system	159,8
Malignant tumors	133,3	Malignant tumors	146,2
Respiratory system	58,8	External causes	67,2
Digestive system	32,4	Respiratory system	57,2
Endocrine system	29,3	Digestive system	49,6

5. The current fragmentation of the health care delivery public system and current limitations of information systems to support better care integration across primary health care, specialist and inpatient care make it difficult to meet the needs of an increasingly large share of the population with multiple morbidities from NCDs. The main deficit of the health information system is that currently, information is not nominalized, and thereby it is not possible to actively trace the health status of a person, which is a critical need for the case management model of care for NCDs.

6. Efficiency improvements of the public health care network hinge on a more case-oriented management-oriented care model, because of the great number of NCD patients using the health care services. In 2015, 52.34% of inpatients in the public hospital network were suffering from NCDs and related medical complications. Among NCDs patients, those with diabetes, hypertension and chronic kidney failure (and their complications) caused almost 30% of the all inpatient stays[38].

[36] Mortality in Chile, 2002 and 2012. National Institute of Statistics.
[37] Mortality in Chile, 2002 and 2012. National Institute of Statistics.
[38] Sample of hospital admission data from the biggest 62 hospitals analyzed by the WB team during Project preparation.

Figure 1. Main causes of health public sector inefficiencies



7. **While one of the major challenges for the public health sector is to increase its capacity to face the disease burden from NCDs, many of which progress into chronic conditions, the health sector continues to be oriented toward the treatment of acute illnesses.** Health care providers (hospitals and PHC facilities) have not yet changed the way in which they deliver services. However, the high prevalence of NCDs requires new capabilities from clinicians and managers because of the different nature of acute and chronic conditions as well as of their respective treatments. While the former are potentially curable within a short period, the later are incurable or require prolonged treatment and care. There also is a chance that patients go through recurrent episodes or develop acute illnesses associated with their chronic condition.

8. The Project is fully aligned with the National Health Strategy. The proposed Project is focused on a subset of priorities from the 2011-20 National Health Strategy[39] (Government program), which will serve as the policy and operational framework for the proposed operation. The Project is also aligned with the Government Program Priorities for 2014-2018[40] which propose the establishment of medical teams to

[38] National Health Strategy for the decade 2010-2020. Ministry of Health 2011.
[40] Government Program President Michelle Bachelet 2014-2018, page 87.

avoid consequences of chronic. Specifically, the Project will support Strategic Objectives number 2, 4, 5, 7, 8 and 9. Hence, the proposed Investment Project Financing with Results based financing will contribute to the Government Health Sector program and, therefore, health sector reform as a whole, by disbursing funds against the achievement of a subset of its key results. The areas supported by the Project are described in Table 2 below:

Table 2. National Health Strategy for the Decade 2010-2020
Specific areas supported by the project

Strategic Objective 1. Communicable diseases
Strategic Objective 2. Chronic diseases
Increase the survival of people with cardiovascular diseases
Increase the proportion of people with controlled hypertension
Increase the proportion of people with controlled diabetes
Reduce the progression of chronic kidney disease
Reduce cancer mortality rate
Decrease mortality due to chronic respiratory disease
Decrease disability
Strategic Objective 3. Risk Factors
Strategic Objective 4. Life Course
Improve the functional health status of the elderly
Strategic Objective 5. Social Determinants
Decrease the inequity in health outcomes related to social status and by geographical area
Strategic Objective 6. Environment, Food and Work
Strategic Objective 7. Strengthening the Health Sector
Improve health information systems
Increase and improve human resources
Strengthen the financing of the sector
Improve referral mechanism within the health services network
Maintain participation and international cooperation in health
Strategic Objective 8. Access and Quality of Health Care
Shorten waiting lists
Improve the quality of medicines and health technologies
Decrease user dissatisfaction
Strategic Objective 9. Emergencies and Disasters
Maintain approved and updated plans in Comprehensive Risk Management and safe health facilities

9. The general objectives of the IPF will be to: (i) improve the efficiency of the public health care sector; and (ii) improve the quality of non-communicable diseases related health care services.

10. **This operation will support an integrated set of interventions, in specific intervention areas, linked to the National Health Strategy, to maximize synergies and optimize health sector performance**. The figure below presents the Project results chain.

Figure 2. Project: Results Chain

	Inputs	Project Activities	Outputs	Outcomes	Long- Term Goals
	TA, training, changes to performance-based payment	Actions included in the Project, linked to National Strategic Objectives	Government control of deliverables	Conditions for medium & long-term impact	Improved efficiency, quality & governance of the health sector
National Health Strategy		Strategic Objective 2. Chronic diseases and 4. Life Course · Develop a strategy for pro-active case management for NCD chronic patients with complex health needs, across different levels of care · Develop and implement proactive NCD case and disease management units at hospital and primary health care levels · Train clinical staff in primary health care and hospitals to better manage cases of chronic NCD patients with complex health needs · Develop and implement new processes and instruments for better coordination between levels of care including better processes for referrals and counter referrals, especially for NCDs Strategic Objective 5 Social Determinants · Expand the use of telemedicine and other technology to deliver integrated care to monitor NCD patients in order to better reach rural and indigenous populations Strategic Objective 7 Strengthening the Health Sector · Develop MOH Information system to create nominalized registry of chronic NCD patients with complex health needs · Develop MOH Information system to apply methodology of health risk stratification for NCD population on a regular basis · Monitor and report on improvement in quality of care, health outcomes and efficiency gains for NCD target population · Complete an external assessment of the performance of the PHC system · Revise payment systems and incentives in primary health care to improve efficiency and quality of care · Improve performance management at national and district levels for primary health care with greater focus on population health outcomes and patient experience · Support CENABAST in development and implementation of multi-year framework agreements · Develop and implement strategy to reduce the volume of direct procurement of drugs and medical supplies by hospitals and municipalities · Introduce a standardized nomenclature of medicines · Develop and implement a real-time stock management information system for hospitals and primary health care · Implement process to carry out regular audits of logistics processes in the provision of medicines to health care providers · Strengthen quality controls for medical supplies Strategic Objective 8 Access and Quality of Health Care · Expand screening for early detection of breast, cervical and colon cancer · Carry out pre-feasibility study for implementation of digital network for breast cancer diagnosis · Carry out cost-effectiveness study for scaling up HPV vaccine for cervical cancer · Carry out cost-effectiveness study for scaling up colon cancer early detection pilot · Introduce clinical governance mechanisms to assess prescriptions of high cost/risk medicines at hospitals · Expand strategies to reduce the average length of stay in acute care, to reduce waiting lists for selected procedures and to reduce avoidable hospital admissions · Report publicly on hospital performance · Train hospital managers in strategic use of performance information and evidence for performance improvement	Program intermediate indicators	Increase in the percentage of population diagnosed with a hypercholesterolemia under follow up and treatment Percentage of public hospitals reporting inpatient services based on DRGs Increase in percentage of annual savings based on central procurement of medicines and medical supplies Increase in cervical cancer screening rate	Better management of complex patients reduces burden on system and improves sustainability of the sector Efficiency gains and quality improvement achieved through better purchasing of hospital and primary health care services Regional inequalities in health outcomes reduced Greater transparency about performance of hospitals, primary health care and care integration enables sector to reduce unwarranted variation in performance Better national procurement function reduces inefficiencies and allows for better control of cost pressures Better health sectoral governance and budget accountability
Investments				Results	

11. The Project will have three components:

12. **Component 1. Improving the efficiency of public health service delivery networks with a focus on its better integration.** (US$61.9 million total cost; US$61.9 million of IBRD financing). Major efficiency gains can be derived from improvements in the clinical management, quality and effectiveness of health care services, as well as improvements in the use of managerial tools focused on better case and disease management for NCDs and chronic conditions. The processes governing the coordination across the different levels of care are equally critical in order to improve health sector efficiency. This dimension is particularly important in the Chilean public health system given the governance problems stemming from the different ownership of PHC providers and hospitals.

13. This component will support Strategic Objectives 2, 4, 5 and 7 linked to NCDs and Strategic Objective 8 referring to Access and Quality of Health Care of the National Health Strategy. The component will have two subcomponents, the first one will focus on setting the ground to improve the coordination between levels of care working on NCDs; while the second one will focus on other managerial measures that need to be implemented at the hospital level to improve the efficiency of the management of inpatient services, closing performance gaps at hospitals.

14. Subcomponent **1.A. Improving the integration of public health care services for patients with non-communicable diseases and chronic conditions.** (US$43.3 million total cost; US$43.3 million of IBRD financing).This subcomponent will include activities to develop and apply the strategy for a health risk stratification for patients with NCDs to identify high users of health care services at both the hospital and PHC levels; to deliver better case management and care coordination between levels of care for NCD multi morbid chronic patients with complex health needs[41]; and to enhance the early detection of cancer, with a special focus on cancers highly prevalent in females (cervix, breast, and colorectal).

15. The subcomponent will develop CMUs with staff trained to better manage the care of patients with complex health needs identified through a case management strategy for patients suffering from chronic conditions. CMUs will coordinate care for these patients across the different levels of care, and will mainly provide secondary prevention services, supporting the shift in the care paradigm from reactive to proactive and personalized case management. This approach is supported by increasing evidence that such units form part of a more efficient care model and lead to better health care quality.[42,43,44]

16. At the PHC level, supported activities will include the design and implementation of a new model of care for NCD chronic patients, based on health risk stratification to ensure better continuity of care and treatment adherence, prevent disease progression and introduce innovations in proactive population

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[41]Patients with complex health needs are people with NCD multi-morbidities, subject to frailty factors such as older age, unfavorable social conditions (low level of social and family support or low income)

[42]Wagner, Edward H., Brian T. Austin, and Michael Von Korff. "Organizing care for patients with chronic illness." *The Milbank Quarterly* (1996): 511-544.

[43]Ham, C., and D. Singh. "Improving care for people with long term conditions." *A review of UK and international frameworks. Birmingham: University of Birmingham Health Services Management Centre & NHS* (2006).

[44]Papanicolas, I. 2014. "Scoping Review of High Users of Healthcare"; Wodchis, W.P. 2012. "High Cost Users: Driving Value with a Patient-Centered Health System". Presented at MOHLTH High User Discussion Day, Toronto, ON. In Angus and Greenberg. 2014. "Can Better Care for Complex Patients Transform the Health System". Health Care Papers; Osakidetza - Eusko Jaurlaritza (*Gobierno Vasco*). "Estrategia para afrontar el reto de la cronicidad en Euskadi". Julio, 2010.

health management and improve self-management of NCDs patients in the early stages of disease progression. Additionally, other activities will target the improvement of early cancer detection, with a special focus on cancers with a high prevalence in females (breast, cervical and colorectal cancers).

17. To improve the integration of services for NCD and chronic conditions, the Project will expand the use of new care coordination processes and instruments between levels of care (third level outreach, referral and counter referral mechanisms, use of telemedicine for virtual specialist consultations, use of ICT to monitor and follow up on ambulatory care of chronic patients); to support training activities for clinical staff; and to build capacity in the use of information for performance comparisons, benchmarking and learning.

18. This subcomponent will create synergies with the PHCPI, currently implemented by the MOH with the support of the WB and PHCPI partners[45]. PHCPI proposes a sharp focus on the performance measurement of primary care frontline service delivery and on working with countries to put new knowledge and innovation strengthening frontline service delivery in practice. Performance measurement and improvement activities focus on areas of performance often neglected (such as the organization and management of primary health care services, or population health outreach approaches to improve the health status of target populations) both on the supply and on the demand side. The PHCPI will work with the MOH and national experts to improve the international comparability of Chile's performance indicators. This focus on international comparisons, benchmarking and performance improvement will contribute to improved governance of the services network, which is key to sustainable greater value creation for the public health sector.

Table 3. Subcomponent 1.A's DLIs

DLI 0.R1	Inventory of relevant databases and electronic records for the stratification of beneficiaries has been carried out
DLI 0.R2	Adoption of a formal definition by MOH of the concept of chronic NCD patients with complex needs
DLI 1	Development of an electronic database of chronic NCD patients with complex needs
DLI 2	Number of Health Care Districts that have conducted a patient risk stratification for NCDs
DLI 3	Number of CMUs established for chronic NCD patients with complex needs
DLI 4	Percentage of chronic NCD patients with complex needs enrolled in a Case Management Program
DLI 5	Percentage of NCD patients in MOH's electronic database being assisted by Virtual Consultations
DLI 6	Cervical cancer screening rate

[45]PHCPI partners are: World Bank, World Health Organization, the Bill and Melinda Gates Foundation with technical support from Ariadne Labs and R4D. The PHCPI brings together country policymakers, health system managers, practitioners, advocates, development partners, researchers and communities to catalyze and accelerate PHC improvement in low- and middle-income countries through better measurement, knowledge-sharing, improvement, and advocacy in order to achieve UHC more quickly, efficiently, and equitably.

19. **Subcomponent 1.B. Improving managerial capacity at the public hospital level.** (US$18.6 million total cost; US$18.6 million of IBRD financing). This subcomponent will support the introduction of managerial tools aiming at solving current problems in the management of inpatient care at the level of hospital networks. Activities will include expanding the implementation of a Diagnosis Related Groups (DRG)-based system for hospitals for clinical management. A DRG classification system divides possible diagnoses into major body systems and subdivides them into groups (usually there are several hundreds of groups, with the exact number depending on the specific population grouper) for the purpose of analyzing the production function of hospitals, which encompasses thousands of medical procedures for thousands of different medical conditions and reimbursing providers for health care. The Project will support the implementation of DRGs at public hospitals as an analytical tool. An implemented DRG system will allow hospitals to evaluate the services that they produce and to start using their resources strategically in order to optimize their supply of services. The subcomponent will also include the development of guidelines and training activities aimed at: (i) reducing the average length of stay in acute care and reducing waiting lists for selected procedures; (ii) preventing over-treatment in hospitals and reducing low value and inappropriate care; (iii) expanding the use of day surgeries, (iv) reducing avoidable hospitalizations and readmission rates; (v) improving clinical governance mechanisms to audit high cost medicine prescriptions; and (vi) strengthening the strict financial monitoring of public hospitals. All these measures exist to some extent in some hospitals, but they are not implemented on a full scale, which creates inefficiencies. Performance gaps across facilities are widespread and a substantial gap exists between low-performing health service delivery providers and their high performing peers. To gain marginal efficiency in the public system, it will be important to apply these managerial tools throughout the whole network in order to monitor both the implementation and performance in a systematic manner and reduce efficiency and performance gaps over time. As part of the Project, hospital managers will be trained in both the use of managerial tools and the strategic use of information for performance assessment and improvement.

Table 4. Subcomponent 1.B's DLIs

DLI 7	Number of public hospitals using DRG for clinical management
DLI 8	Cumulative number of public health sector staff trained in the proactive management of cases of chronic NCD patients with complex needs.
DLI 9	Percentage of selected elective surgeries performed as day surgery in public hospitals

20. **Component 2**. **Optimizing the procurement and logistics of drugs and medical supplies in the public sector.** (US$12.9 million total cost; US$12.9 million of IBRD financing). Significant efficiency gains and savings can be obtained through a better structured and more centralized procurement of drugs for public sector health services. This component will support the implementation of more advanced procurement mechanisms such as multi-year framework agreements and other methods that could increase the effectiveness of centralized procurement carried out by CENABAST and further drive down drug prices. A key goal will be to reduce the volume of direct procurement of drugs and medical supplies carried out directly by hospitals and municipalities, which will eventually lead to reductions in average prices for drugs purchased with public funds. In addition, the component will support activities to improve logistical processes, like the introduction of a standardized nomenclature of medicines; the development and implementation of a real-time stock management information system for hospitals and PHC; regular audits of logistics processes in the provision of medicines to health care providers and the reinforcement

of quality controls for medical supplies. Details of the planned activities under this component are described below:

(a) Support CENABAST in the design and implementation of multi-year framework agreements
(b) Develop and implement a strategy to reduce the volume of direct procurement of drugs and medical supplies by hospitals and municipalities
(c) Introduce a standardized nomenclature of medicines
(d) Develop and implement a real-time stock management information system for hospitals and primary health care
(e) Carry out regular audits of logistics processes in the provision of medicines to health care providers
(f) Strengthen quality controls for medical supplies

Table 5. Component 2's DLI

DLI 0.R3	Adoption by CENABAST of a work plan to implement a multi-annual procurement framework and optimize logistic procedures
DLI 10	Percentage of spending on medicines and medical supplies procured centrally through CENABAST

21. Components 1 and 2 will finance payments under Eligible Expenditure Programs (EEPs) of the MOH triggered by the achievement of agreed specific results ("Disbursement-Linked Indicators" or DLIs), reimbursing a portion of the EEPs. The expenditures included in the EEPs are personnel salaries of the MOH. Table 1 in Annex 2 shows the link between EEPs, Project activities and DLIs. The annual targets of the funds allocated to each DLI are given in Annex 3.

22. **Component 3. Technical Assistance, Coordination and Monitoring Unit.** (US$5 million total cost; US$5 million of IBRD financing). This component will provide Technical Assistance (TA) activities to generate missing information needed to risk-stratify patients insured by FONASA, develop management tools and provide training to health managers and staff that are key to support the implementation of Components 1 and 2. It will finance consulting and non-consulting services, operating costs and training. For component 1 of the project, TA activities will include, among others: (i) a review of primary health care strategies to better meet the needs of NCD chronic patients with complex needs and associated factors of frailty; (ii) a training workshop on the performance and efficiency of the primary health care sector; (iii) studies of governance and financing of primary health care including a review of the PRAPS; (iv) studies related to the National Cancer Plan; (v) an adaptation and validation study of the survey instrument for Patient Reported Outcomes Measures; (vi) an evaluation of the effects of proactive case management units for NCD chronic patients with complex needs; (vii) an adaptation of curriculum and design of training for management and clinical training in regional health services, hospitals and PHC; (viii) analytical activities related to the introduction of DRGs for analysis and payment of hospital inpatient services; and (ix) studies on payment mechanisms using DRGs. For component 2 of the project, TA activities will include, among others: (i) a review of the provision processes for medicines and medical supplies; (ii) a study on cause of variation in prices for similar drugs procured through CENABAST or directly by hospitals and municipalities; (iii) a study on how to improve the use of multi-annual frameworks for procurement of drugs and medical devices; and (iv) a review of the alignment between clinical practice guidelines and pharmaceutical formularies. This component will also support the Project Coordination and Monitoring

Unit (PCMU) responsible for the overall Project coordination and monitoring activities under the direct command of the Minister of Health and its Cabinet.

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

COUNTRY: Chile
Chile - Health Sector Support Project

Project Institutional and Implementation Arrangements

1. The Project will be financed through an Investment Project Financing (IPF) with Results based financing to support the GOC over a five-year period. The IBRD financing will be US$80 million. The Project will optimize the execution of programs and activities already being undertaken by the MOH, allowing the MOH to strategically reallocate its own current budget resources. Loan funds will support the MOH to better allocate its own resources through the use of RBF mechanisms. In addition, there will be a US$5 million component for Technical Assistance, coordination and Monitoring. The Project will be monitored through the use of Disbursement Linked Indicators (DLIs), and it will be taken into consideration that some percentage of the expenditures under the different programs will already have been executed by the beginning of the Project.

2. Since Project activities need to be carried out by MOH and District Health Services personnel, and supported by logistic services, the Project will finance the reimbursement of related eligible expenditure programs (EEPs). The MOH has preliminarily identified the following EEP: (i) “Program for efficiency and quality Improvement”, based on the MOH payroll. Table 1 shows the link between the EEP, Project activities and DLIs.

Table 1. EEP, Project activities and DLIs

EEP	Component	Project activities	DLI
Personnel Payroll: **Permanent personnel** **Temporary personnel**	**Component 1 “Improving efficiency of public health service delivery networks with a focus on its better integration”** **Subcomponent 1.A. Improving the integration of public health care services for patients with non-communicable**	-Develop and apply the strategy of health risk stratification of patients with NCDs - Improve activities in the health care network to enhance the early detection of cancer, with a special focus cancer types highly prevalent among women (i.e. breast, cervix and colon), supporting the development of the National Cancer Plan. - Establish Case Management Units with staff trained to better manage the care of chronic NCD patients with complex needs - Promote the use of the patient health risk stratification to ensure the continuity of care and treatment adherence at PHC facilities. - Introduce innovations in proactive	DLI 0.R1: Inventory of relevant databases and electronic records for the stratification of beneficiaries has been carried out DLI 0.R2: Adoption of a formal definition by MOH of the concept of chronic NCD patients with complex needs DLI 1: Development of an electronic database of chronic NCD patients with complex needs DLI 2: Number of Health Care Districts that have conducted a patient risk stratification for NCDs

EEP	Component	Project activities	DLI
	diseases and chronic conditions.	population health management, to improve self-management of NCD patients in the early stages; - Improve the network functioning and integration of services for NCDs and chronic conditions, -Promote: third level outreach; referral and counter referral mechanisms; use of telemedicine for virtual specialist consultations; use of ICT to monitor and follow up on ambulatory care of chronic patients.	DLI 3: Number of CMUs established for chronic NCD patients with complex needs DLI 4: Percentage of chronic NCD patients with complex needs enrolled in a Case Management Program DLI 5: Percentage of NCD patients in MOH'S electronic database being assisted by Virtual Consultations DLI 6: Cervical cancer screening rate
	Component 1, "Subcomponent 1.B. Improving managerial capacity at the public hospital level"	-Expand the implementation of a Diagnosis Related Groups (DRG)-based system for acute care hospitals for clinical management, -Expand strategies to reduce the average length of stay in acute care and to reduce waiting lists for selected procedures; -Promote the development of guidelines to prevent over-treatment in hospitals, -Reduce low value and inappropriate care, -Increase the use of day surgeries, -Reduce avoidable hospitalizations and readmission rates, -Reintroduce clinical governance mechanisms to audit high cost medicine prescriptions - Support training activities for medical staff and build capacity to use information for performance benchmarking -Ensure the strict financial monitoring of public hospitals.	DLI 7: Number of public hospitals using DRG for clinical management DLI 8: Cumulative number of public health sector staff trained in the proactive management of cases of chronic NCD patients with complex needs. DLI 9: Percentage of selected elective surgeries performed as day surgery in public hospitals
	Component 2: "Optimizing the procurement and logistics of drugs and	-Support CENABAST in the development and implementation of multi-year framework agreements - design and implement a strategy to reduce the volume of direct	DLI 0.R3 : Adoption by CENABAST of a work plan to implement a multi-annual procurement framework and optimize logistic procedures

EEP	Component	Project activities	DLI
	medical supplies in the public sector”	procurement of drugs and medical supplies by hospitals and municipalities - Introduce a standardized nomenclature of medicines - Develop and implement a real-time stock management information system for hospitals and primary health care - Implement processes to carry out regular audits of logistics processes in the provision of medicines to health care providers - Strengthen quality controls for medical supplies	DLI 10. Percentage of spending on medicines and medical supplies procured centrally through CENABAST

3. The use of the RBF mechanism - that links disbursements to the achievement of key results - will help to keep the focus on the key interventions required to accomplish the Project Development Objectives, while making the level of disbursements easily traceable. Table 2 shows the maximum amount of resources allocated to each regular DLI conditional on achieving its yearly target, jointly with the expected baseline values and targets. There will be a total of ten regular DLIs measured on an annual basis according to the schedule shown in the table. The maximum amount of resources allocated to each DLI is distributed equally in each year, considering only those in which the indicator is expected to be measured. If one or more of the DLIs (other than DLIs 0.R1, 0.R2 and 0.R3) have not been met by the timeline; or the Bank has received evidence of partial compliance of any said DLIs, then the Bank may, in agreement with the Borrower, through the MOH, reduce the maximum amount of the corresponding withdrawal in proportion to the percentage of non-compliance of said DLI, in which case the Borrower shall prepare and furnish to the Bank a satisfactory time-bound action plan to meet such DLI or DLIs. The portion of the allocated amount not disbursed due to non-compliance or partial achievement of any DLI, may be disbursed if the Bank is satisfied that said action plan has been implemented and the respective DLI has been fully achieved, all in form and substance satisfactory to the Bank.

Table 2. Funds allocated to regular DLIs and Targets

<table>
<tr><th rowspan="3">Disbursement Linked Indicators</th><th rowspan="3">Total Financing Allocated to DLI</th><th rowspan="3">As % of Total Financing Amount (excluding retroactive financing)</th><th rowspan="3">DLI Baseline (2015)</th><th colspan="5">Indicative Timeline for DLI Accumulative Target Achievement</th></tr>
<tr><th colspan="5">End of Calendar Year (starting in the calendar year immediately after the calendar year in which Effective Date falls)</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr>
<tr><td colspan="9">Subcomponent 1.A. Improving the integration of public health care services network for patients with non-communicable diseases and chronic conditions.</td></tr>
<tr><td>DLI 1: Development of an electronic database of chronic NCD patients with complex needs</td><td>US$6 million</td><td>10</td><td>----</td><td>Y1*</td><td>Y2*</td><td>Y3*</td><td>----</td><td>----</td></tr>
<tr><td colspan="9">Definition/Description of Achievement: The database of NCD patients with complex needs is functional and can be accessed. It will consolidate basic information (the unique identifier of a patient, the number/type of chronic conditions, the utilization of health care services by the patient etc.) for each patient.
Chronic NCDs patients with complex health needs are people with multimorbidities, subject to frailty factors such as older age or unfavorable social conditions (low level of social and family support or low income). For the proposal, at least patients suffering from the following diseases are being considered: Diabetes, hypertension, chronic obstructive pulmonary disease, kidney disease and complications thereof.
*Operational Definition:
Y1: Analysis of the databases and electronic records of the MOH, FONASA and the MIDESO that contain nominalized information about FONASA's beneficiaries regarding previously defined chronic diseases and medical and social conditions.
Y2: The development and testing of an algorithm to identify chronic patients with complex needs through a patient health risk stratification.
Y3: The electronic data base is operational and accessible at the local level by HCDs and/or public health facilities.
Data Source: TIC/DEIS
Frequency of Measurement: Annual</td></tr>
<tr><td>DLI 2: Number of Health Care Districts that have conducted a patient risk stratification for NCDs</td><td>US$6 million</td><td>10</td><td>0</td><td>--</td><td>---</td><td>4</td><td>6</td><td>8</td></tr>
<tr><td colspan="9">Definition/Description of Achievement: Health Care Districts that have access and uses the algorithm to stratify chronic patients according to their risk (see intermediator indicator above) within their jurisdiction in order to identify complex patients as well as those at the risk of becoming complex and target them through changes in the model of care.
Operational Definition
The number of Health Care Districts that have access and use an electronic database of chronic patients with complex needs and produce a regularly updated nominalized roster of this type of patients under care in the Health Care District.</td></tr>
</table>

Disbursement Linked Indicators	Total Financing Allocated to DLI	As % of Total Financing Amount (excluding retroactive financing)	DLI Baseline (2015)	Indicative Timeline for DLI Accumulative Target Achievement End of Calendar Year (starting in the calendar year immediately after the calendar year in which Effective Date falls)				
				1	2	3	4	5
Data Source: DIGERA **Frequency of Measurement:** Annual								
DLI 3: Number of CMUs established for chronic NCD patients with complex needs	US$6.6 million	11	0	--	6	10	14	18
Definition/Description of Achievement: A case management program has entered into effectiveness based on administrative norm and appropriate resources (both trained labor and equipment) have been made available. **Operational Definition** The hospital, the Primary Health Care center or the Health Care District have a Case Management Unit for chronic patients with complex needs, which is in charge of providing customized care (personalized pathway of care) to each one of the patients and coordinating care between hospital and ambulatory care. A case management unit shall be considered to have been established if that unit has been created through an administrative norm, staffed and equipped. The establishment of a Case Management Unit is a basic condition for enrolling patients in Case Management Programs. **Data Source:** DIGERA **Frequency of Measurement:** Annual								
DLI 4: Percentage of chronic NCD patients with complex needs enrolled in a Case Management Program	US$4.8 million	8	0	---	----	20 %	30%	40%
Definition/Description of Achievement: A chronic patient with complex needs is considered to be enrolled in a Case Management Program when a customized care plan has been developed for him. **Operational Definition** The existence of a care plan for each patient in the roster of chronic patients with complex needs attests to the quality of the work done. Patients being enrolled in Case Management Programs reflect the Case Management Units' functioning. **Numerator:** Number of chronic patients with complex needs in the electronic database enrolled in a Case Management Program from Case Management Units established / Denominator: Number of chronic patients with complex needs in the electronic database from Case Management Units established. **Data Source:** DIGERA **Frequency of Measurement:** Annual								
DLI 5: Percentage of NCD patients in MOH's electronic	US$4.8 million	8	0	---	----	10%	15%	20%

Disbursement Linked Indicators	Total Financing Allocated to DLI	As % of Total Financing Amount (excluding retroactive financing)	DLI Baseline (2015)	Indicative Timeline for DLI Accumulative Target Achievement End of Calendar Year (starting in the calendar year immediately after the calendar year in which Effective Date falls)				
				1	2	3	4	5
database being assisted by Virtual Consultations								
Definition/Description of Achievement: The database of NCD patients referenced under DLI 1 is being actively used to identify patients that receive virtual specialist consultations. **Operational Definition** For the proposal, NCD patients are those suffering from the following diseases: diabetes, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, kidney disease and its complications, and included in the electronic databases for each type of said diseases. Being assisted is defined as patients under follow up with at least one annual virtual consultation. Virtual consultations comprise patient-specialist consultations and specialist- general physician inter-consultations that are carried out through a virtual environment on the web or the phone, rather than meeting in a physical location. **Numerator:** Number of NCD patients in the electronic database being assisted by Virtual Consultations / Denominator: Number of NCD's patients in the electronic database. **Data Source:** DIGERA/DEIS **Frequency of Measurement:** Annual								
DLI 6: Cervical cancer screening rate	US$4.8 million	8	57.4 %	59%	61%	63%	67%	70%
Definition/Description of Achievement: A current MOH protocol foresees a relevant cervical cancer screening test for all women aged 25 – 64 that are insured through FONASA at least once every three years. **Operational Definition** **Numerator**: Number of women insured by FONASA between age 25 and 64 with at least one PAP smear (carried out in public as well as private health care facilities) test during the measuring period of three years. **Denominator:** Average number of women between age 25 and 64 insured by FONASA during the three years measuring period. **Data Source**: Citoexpert / REVICAN/ FONASA MLE database **Frequency of Measurement**: Annual								
Subcomponent 1.B. Improving managerial capacity at the public hospital level								
DLI 7: Number of public hospitals using DRG for clinical management	US$6.6 million	11	62	66	70	81	91	121
Definition/Description of Achievement: DRGs are a classification system that assigns any inpatient stay to groups for the purposes of analysis and payment. All hospitals (of high, medium, and low complexity) that report to Health Care Districts are being considered. DRGs will not be used as a payment mechanism (at least during Project cycle) but as a tool to								

Disbursement Linked Indicators	Total Financing Allocated to DLI	As % of Total Financing Amount (excluding retroactive financing)	DLI Baseline (2015)	Indicative Timeline for DLI Accumulative Target Achievement End of Calendar Year (starting in the calendar year immediately after the calendar year in which Effective Date falls)				
				1	2	3	4	5
improve clinical management. **Operational Definition** Number of MOH hospitals that have introduced DRGs and whose production is evaluated using DRGs by MOH and /or FONASA. **Data Source:** FONASA/MOH-DIGERA **Frequency of Measurement:** Annual								
DLI 8: Cumulative number of public health sector staff trained in the proactive management of cases of chronic NCD patients with complex needs.	US$6 million	10	0	600	1200	1800	2400	3000
Definition/Description of Achievement: The indicator counts the cumulative number of public health staff involved in the case management of chronic patients that have been trained in instruments useful for the proactive management of patient cases for at least 10 hours. **Operational Definition** **Y1:** Cumulative number of public health staff trained in project development areas (NCDs -Diabetes, Hypertension, Kidney Chronic Disease, Obesity, Chronic Obstructive Pulmonary Disease and smoking cessation- IT, Mobile health, telemedicine, case management, health care performance measurement, as well as hospital and/or PHC management) related to the proactive management of cases of chronic NCD patients with complex needs. **Data Source:** DIGEDEP-MOH **Frequency of Measurement:** Annual								
DLI 9: Percentage of selected elective surgeries performed as day surgery in public hospitals	US$6 million	10	48.3 %	51%	54%	57%	60%	64%
Definition/Description of Achievement: The indicator measures the proportion of selected elective surgeries in patients of age 15 and older that are performed as a day surgery in public hospitals. **Operational Definition** Numerator: Elective surgeries are planned surgeries that require general anesthesia and after which the patient is discharged on the day of the surgery. The selected surgeries are hernia repairs (umbilical, inguinal, crural and white line) and laparoscopic cholecystectomies. Denominator: Total of hernia repairs (umbilical, inguinal, crural and white line) and cholecystectomies. **Data Source:** Databases from the DRG system and hospital discharges (in the case of hospitals without DRG implemenation) - DIGERA **Frequency of Measurement:** Annual								

Disbursement Linked Indicators	Total Financing Allocated to DLI	As % of Total Financing Amount (excluding retroactive financing)	DLI Baseline (2015)	Indicative Timeline for DLI Accumulative Target Achievement End of Calendar Year (starting in the calendar year immediately after the calendar year in which Effective Date falls)				
				1	2	3	4	5
Component 2: "Optimizing the procurement and logistics of medicines and medical supplies in the public sector"								
DLI 10: Percentage of spending on medicines and medical supplies procured centrally through CENABAST	US$8.4 million	14	43%	46%	49%	52%	55%	58%
Definition/Description of Achievement: The indicator measures the percentage of spending on medicines and medical supplies procured by HCDs through CENABAST in a given year. The average price of medicines/medical supplies serves as a weighting factor. **Operational Definition** Percentage of total public spending on medical consumables, medicines, and devices for hospital (inpatient and outpatient) services from Health Care Districts in the preceding fiscal year that was carried out through centralized procurement/framework contracts and disclosed on the MOH website in a simplified and standard format. The spending procured by CENABAST considers all items procured by CENABAST with the exception of items under the National Complementary Alimentary Program for children and the elderly (PAC) as well as the Support Program for Newborns (PARN). Given that the average prices of items procured by CENABAST are lower than the prices paid by HCDs under direct procurement and the CENABAST-procured spending will hence be underestimated, all goods procured through CENABAST are reevaluated at the average price level under non-CENABAST procurement in order to derive total spending. Total spending considers all purchases made by HCDs and registered in the SIGFE of FONASA under budget sub-categories 22-04-004-001, 002 and 003 as well as 22- 04-005-001. **Data Source:** CENABAST/SIGFE system at FONASA. **Frequency of Measurement:** Annual								

4. **There will be one retroactive disbursement against EEPs incurred up to 12 months prior to the signature of the Loan Agreement**. This retroactive disbursement—up to 20% of the total amount for Components 1 and 2, US$ 15 million—rewards MOH activities carried out in preparation of this loan. To process this reimbursement, the MOH will need to provide evidence of having accomplished the retroactive DLIs showed in Table 3 below related to the following activities: (i) development of an Inventory of relevant databases and electronic records for the stratification of beneficiaries according to their health risk; (ii) development of an institutional definition of chronic NCD patients with complex needs, detailing chronic pathologies, medical and social conditions and services that define such patients as well as the main points of control for the defined lines of care; and (iii) a CENABAST work plan to implement a multi-annual procurement framework and optimize logistic procedures. Table 3 shows the retroactive DLIs, the indicative timeline for DLI target achievement and the allocated amounts to be paid retroactively.

Table 3. Retroactive DLIs and Total Amounts for Retroactive Financing

Indicator	Indicative Timeline for DLI Target Achievement	Amount (in US$ million)
DLI 0.R1: Inventory of relevant databases and electronic records for the stratification of beneficiaries has been carried out	Prior to the signature of the Loan Agreement	5.15
DLI 0.R2: Adoption of a formal definition by MOH of the concept of chronic NCD patients with complex needs	Prior to the signature of the Loan Agreement	5.15
DLI 0.R3: Adoption by CENABAST of a work plan to implement a multi-annual procurement framework and optimize logistic procedures	Prior to the signature of the Loan Agreement	4.50

Table 4. Operational Definition and supporting documentation for retroactive financing indicators

Indicator	Operational Definition	Supporting documentation
DLI 0.R1: Inventory of relevant databases and electronic records for the stratification of beneficiaries has been carried out	List of databases and electronic records from the MOH, FONASA and the MIDESO that contain nominalized information about FONASA's beneficiaries on predefined chronic diseases and medical and social conditions. This list shall include the formal name of the database, the dataset dictionary and a description of its structure.	Report prepared by the MOH including the list of databases and electronic records for the stratification of beneficiaries, satisfactory to the Bank
DLI 0.R2: Adoption of a formal definition by MOH of the concept of chronic NCD patients with complex needs.	Formal adoption by the MOH of the definition of chronic patients with complex needs which shall include the following initial parameters: (i) Chronic diseases (ii) Medical conditions (i.e. number of hospitalizations per year, drugs	Report prepared by the MOH describing the institutional definition of the concept of chronic patients with complex needs and main points of control for the defined lines of care, satisfactory to the Bank Administrative norm issued by the MOH on the adoption of the

Indicator	Operational Definition	Supporting documentation
	consumption, etc.); and (iii) Social conditions (i.e.: age, housing, familiar support, income, etc.) For each line of care previously defined a detailed description of optimal care and its points of control shall also be provided.	above mentioned definitions.
DLI 0.R3 : Adoption by CENABAST of a work plan to implement multi-annual procurement framework and optimize logistic procedures	The work plan shall detail the activities that CENABAST will carry out each year and key milestones to accomplish the implementation of multi-annual procurement framework and optimize logistic procedure, including procurement process, by the end of the Project.	Report prepared by CENABAST and the MOH including CENABAST work plan to implement multi-annual procurement framework and optimize logistic procedures, satisfactory to the Bank. Administrative norm issued by the CENABAST on the adoption of the above mentioned work plan.

5. **In case that some of these retroactive DLIs are not achieved prior to the signature of the Loan Agreement**, the allocated amount not disbursed due to non-compliance of any said DLI, may: (i) be disbursed at the end of the calendar year immediately after the calendar year in which Effective Date falls, if the Bank is satisfied that the respective DLI has been fully meet, and the MOH has furnished evidence to the Bank, in form and substance satisfactory to the Bank, of EEPs incurred on or after the date of the signature of the Loan Agreement; or (ii) in agreement with the MOH, be reallocated to other DLIs.

6. In the event that the Bank has not approved a full withdrawal by the MOH of the Loan proceeds under Category (1) (as referred to in the Disbursement Letter), the Bank may, by notice to the MOH, cancel the corresponding amount of the Loan at the time of the Closing Date, as further elaborated in the Operational Manual and in the Disbursement Letter.

7. DLI verification mechanism. Some DLIs rely on information which is publicly disclosed and which is generated following sound validation procedures by the MOH. These procedures were reviewed during the appraisal and were found acceptable to the Bank. In the case of the other DLIs, a first verification will be carried out by the PSCU through the review of administrative data and field visits, which will be later complemented through a review carried out by the WB implementation support team. The verification protocols will be detailed in the Disbursement Letter and the Operational Manual.

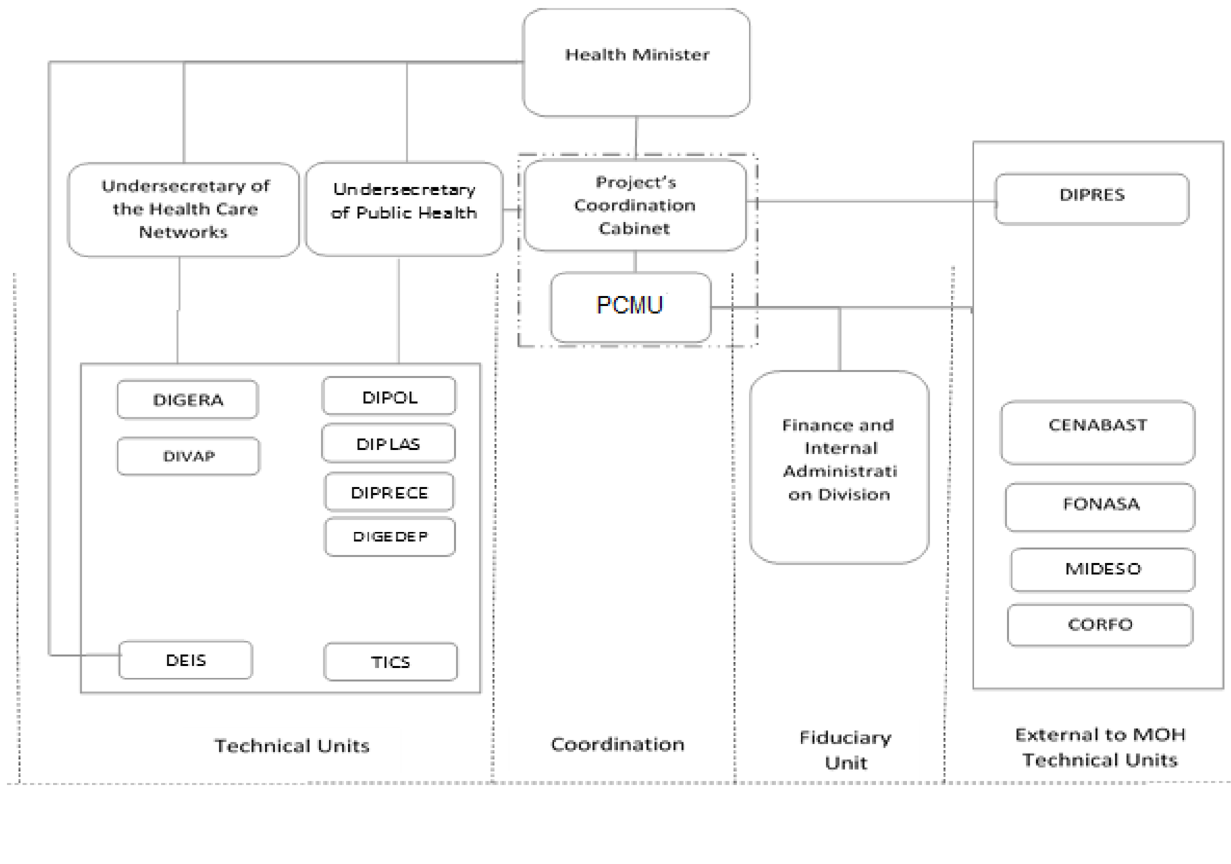
8. The implementing agency for the proposed Project will be the MOH. Project activities will be implemented by the MOH Undersecretaries of Health Care Networks and Public Health through his technical divisions. The main activities of the project will be developed through the Health Care Network Division (DIGERA), the Primary Health Care Division (DIVAP), the Division of Heath Planning (DIPLAS) and Division of Prevention and Control (DIPRECE) at the MOH. FONASA and CENABAST who act as autonomous institution to the MOH will work closely in the project implementation (see Figure 1 of this Annex).

9. The DIGERA, DIVAP, DIPLAS, TIC, DEIS, DIPRECE, CENABAST and FONASA will serve as the Technical Units of the Project and will use their own administrative structure and staff. There will be a Project Coordination & Monitoring Unit (PCMU) responsible for overall Project technical assistance, coordination and monitoring, including fiduciary coordination aspects under the direct command of the Minister of Health and its cabinet. The responsibilities of the PCMU involve the coordination of both Project activities and fiduciary aspects related to Project implementation, including those linked to the carrying out of the TA activities, the relationship with the PHCPI, the monitoring of the Results framework and the follow up on DLIs.

10. The PCMU decision making body will be the Coordination Cabinet of the Project comprised by the MOH Chief of Cabinet Advisor, the Health Care Network General Division Advisor, the Public Health Undersecretary Advisor, the Chief of Health Planning of the Public Health Undersecretary and a Permanent Secretary with full time dedication to the Project who will act as the PCMU coordinator. The PCMU will be a small unit staffed with Monitoring and Evaluation specialists, a Health System Specialists and a Fiduciary Monitoring specialist, fully assigned to the Project. The PCMU will coordinate Project activities through the Heads of the Technical Units which will be in charge of implementing the Project components. The Project Coordination Cabinet and the Heads of the Technical Units will develop regular meeting, at less monthly for ensure an adequate strategic and operational conduction of the project.

11. Financial Management and procurement arrangements will be executed by the Finance and Internal Administration Division of the MOH in coordination with the Fiduciary Monitoring Specialist of the PCMU. Procurement under the MOH is carried out through the electronic portal *"Chile Compra"*, which has been evaluated positively by the World Bank for ensuring transparency in procurement processes. During the preparation stage, a formal procurement and financial management assessment was conducted to ensure that Chilean processes align with WB procedures.

Figure 1. Project Institutional Arrangements



12. All the activities under Component 3 of the Project will be implemented using traditional transaction-based procedures. The disbursement of this component will follow the World Bank Disbursement Guidelines for Investment Projects Financing, dated February, 2017, and further described in the disbursement letter.

Financial Management

13. A FM capacity assessment was carried out to determine the MOH capacity to properly manage and account for all Project proceeds and to produce timely accurate and reliable financial statements for Bank special purposes. On the basis of the assessment performed, Financial Management arrangements will be led by the MOH under its administrative structure, the Finance and Internal Administration Division.

14. The Project will benefit from the use of country systems and it will be monitored through the use of Disbursement Linked Indicators (DLIs). It will finance the reimbursement of related eligible expenditure programs (EEPs) under Components 1 and 2 based on MOH payrolls. Loan proceeds will be disbursed in an account held by the General Treasury of the MOF at the Central Bank conditional on: (i) the execution of the EEP and (ii) the accomplishment of DLI targets.

15. In addition, under component 3 the MOH will implement activities for Technical Assistance that will involve consultant and non-consultant services, operating costs and training. For this component the Bank will disburse loan proceeds using the disbursement methods of reimbursement, advance and direct payment. Partial advances may be made to a Designated Account (in US Dollars) at the Central Bank and funds will be converted into local currency (pesos) and transferred to an Operative Account to be opened by the MOH at the Banco del Estado to exclusively manage Loan funds and process payments for eligible expenses.

16. Project transactions will be mainstreamed in the MOH budget process and chart of accounts. Additionally, project transactions will be subject to the internal control and payment procedures applicable to financed projects which are considered adequate.

17. The MOH follows the accounting procedures manual for the Public Sector (*Manual de Procedimientos Contables*) issued by the Supreme Audit Institution (*Contraloría General de la República*), as well as regulations and instructions of the National Accounting System (*Normativa del Sistema de Contabilidad General de la Nación*), which describes the financial management operational procedures for public entities.

18. Based on the information gathered during the FM assessment process, the inherent FM risk of the Project and the control risk are rated Moderate, and the overall FM risk is also rated Moderate. The risk is rated Moderate mainly because (i) the MOH has no prior experience working with the Bank and was necessary to agree in some specific arrangements, that were described in the Operational Manual; (ii) financial information will be based on SIGFE, but also excel spread sheets will complement this information that would require regular reconciliation; and (iii) the MOH FM staff will require training on Bank policies and procedures.

19. On the basis of the review performed, the Bank´s FM team concludes that the proposed financial management arrangements are acceptable to the Bank. In order to manage the fiduciary risk, the implementation of the following mitigating measures had been agreed: (i) an Operational Manual that includes financial management and disbursement arrangements specific to this Project including content, timing, periodicity, reconciliation and format of the financial information and reports by project negotiation stage; and (ii) training for the FM staff from the MOH on Bank policies and procedures at an early stage of Project execution.

20. Organization and staffing. The Finance and Internal Administration Division of the MOH will be responsible for the daily implementation, follow-up on budgetary issues, accounting information, funding flows and disbursement activities. This Division counts with a Finance and Budget Department that includes offices of accounting, budgeting and treasury. Based on existing capacities, there is no need for additional FM staff at this stage. However, additional training may be required for FM staff assigned to this Project due to a lack of experience with Bank policies and procedures.

21. Programming and budgeting. The preparation of the annual program and budget will follow the regulations and budgetary framework submitted by DIPRES. The MOH will be responsible for the Project budget preparation. The Budget is being operated under the National Integrated Financial Management

System (SIGFE). Once the Project budget has been approved by DIPRES, the commitment and implementation of activities will take place.

22. Accounting and information systems. For purposes of this operation, the MOH will use the governmental financial management integrated system - SIGFE and will produce Project reports in excel spreadsheets on the basis of the information provided by the system. Project transactions will be recorded in SIGFE using current chart accounts (classified by cost categories). Excel spreadsheets will be used to record Project information by main activities and to transform financial information from pesos to U.S dollars.

23. Processes and procedures. The regulatory FM framework in Chile includes: (i) the *Ley Organica de la Administración Financiera del Estado, Decreto ley No 1263 de 1975*; (ii) Accounting procedures manual for the Public Sector (*Manual de Procedimientos Contables*) issued by the Supreme Audit Institution (CGR); (iii) the annual Law of the General Budget of the State; and (iv) the MOF regulations and manuals. However, for Project purposes, specific arrangements, including a detailed description of financial reporting, disbursements and flow of funds, will be reflected in the Operational Manual.

24. Financial reporting. Taking into account considerations made in the accounting and information systems section, Interim unaudited Financial Reports (IFRs) will have to be prepared manually on the basis of the information recorded in SIGFE. IFRs will be issued on a semi-annual basis 45 days after the end of each calendar semester. The core content of IFRs has been agreed on with MOH and further details will be described in the Operational Manual. On an annual basis, the MOH will also prepare Project financial statements and include cumulative figures for the year and as of the end of the year. These financial statements will include explanatory notes in accordance with the requirement to explain important variances and other relevant information not evident in a single transaction.

25. Audit arrangements. The Project's annually audited financial statements are required to be submitted for Bank review, six months after the end of each Recipient's fiscal year. The audit will be based on Terms of Reference (ToRs) acceptable to the Bank in accordance with International Standards on Auditing (ISAs) issued by the International Federation of Accountants (IFAC). The audit will comprise an opinion: i) on the Project's financial statements, and ii) management letter on internal control. The proposed scope comprises all funding and expenditures reported in the Project's annual financial statements, including the Eligible Expenditure Programs (EEPs) under Components 1 and 2, disbursed upon the achievement of each indicator in accordance with the criteria established. This financial audit will provide reasonable assurance that the proceeds of the loan are used for the purposes for which they are granted. Auditors shall certify that the Project's financial statements provide a true and fair view of the activities undertaken.

26. It is expected that the audit will be conducted by the *Contraloría General de la República* (CGR), which is acceptable to the Bank. Nonetheless, this arrangement could be revised from time to time depending on the auditor's performance and the Project needs.

Supervision strategy

27. On a preliminary basis, the WB plans to perform at least two supervision missions per year to the extent possible while also reviewing the annual audit reports and the semester IFRs.

Disbursements

28. For the specified DLIs under Component 1 and 2, loan proceeds will be disbursed based on the achievement of each indicator in accordance with the criteria established following the reimbursement method of disbursement. However, the amount disbursed for the cumulative achievement of the DLIs for the selected period cannot exceed the amount of eligible expenditures executed, based on budget execution reports of preselected budget line items, as reflected in the reports generated by SIGFE. The budget line selected is the salaries budget line. All reimbursements will be deposited at the bank account of the General Treasury of MEF maintained in the Central Bank of Chile. Disbursement arrangements for loan proceeds will be further described in the disbursement letter.

29. For the Technical Assistance under component 3, the Bank will disburse loan proceeds using the disbursement methods of reimbursement, advance and direct payment. For the advance method, loan funds will be deposited in a Designated Account (in US Dollars) held by the MOH at the Central Bank. Funds will be converted into the local currency (pesos) and transferred to an Operative Account to be opened by the MoH in the Banco del Estado to exclusively manage loan funds and process payments for eligible expenses.

30. Partial advances may be made to the DA as long as the aggregate amount advanced does not exceed the ceiling of US$500,000; however, this amount could be revised and modified during Project implementation. Funds deposited into the DA as advances will follow the Bank disbursement policies and procedures, as described in the Legal Agreement and the Disbursement Letter.

Procurement

31. Procurement activities for this Project will be conducted according to the World Bank Procurement Regulations for IPF Borrowers, for Goods, Works, Non-Consulting and Consulting Services (“Procurement Regulations”), issued in July 1, 2016, for the activities to be carried out under Component 3 of the Project.

32. The proposed Project will be for a total amount of US$ 80 million, out of which US$ 75 million will be disbursed against a list of eligible expenditures. This list includes only non-procurable items: only salaries of MOH personnel. The remaining US$ 5 million will be part of a technical assistance component (Component 3), which will comprise the selection and employment of consultants, firms and individuals. The proposed Project will not finance the procurement of goods or works.

Procurement Assessment

33. The implementing agency for the proposed Project will be the MOH. A Project Coordination & Monitoring Unit (PCMU) will be created within the MOH. This PCMU will be responsible for overall Project coordination and monitoring, including the coordination of procurement aspects of the Project. A procurement assessment was carried out to the MOH. The assessment reviewed the MOH’s: (i) organizational structure; (ii) facilities and support capacity; (iii) qualifications and experience requirements of the staff that will work in procurement; (iv) record-keeping and filing systems; (v) procurement planning and monitoring/control systems used; and (v) capacity to meet the Bank’s procurement contract reporting requirements.

34. The Finance and Internal Administration Division of the MOH will be responsible for implementation of the procurement activities of the Project. During the appraisal, it was found that this Unit is adequately staffed and it is composed of four professionals, including the Chief of Purchase Division (Jefe de Unidad de Compras).

35. The MOH has no previous experience working with Bank's procedures. However, the majority of the contracts for consulting firms are expected to be under US$ 500,000 and expected to follow national procurement procedures. Based on the information available at the time of the procurement capacity assessment, the procurement team has assessed the preliminary overall risk as Moderate. The keys issues and risks identified as potentially affecting Project implementation include: (i) the lack of clarity of the functions between the technical and administrative areas of the MOH and the PCMU; (ii) the lack of experience in Bank's procedures.

36. The corrective mitigating measures proposed are:

MITIGATING MEASURES	TIMEFRAME
Finalize the Project Procurement Strategy Development (PPSD)	Completed
Finalize the Procurement Plan for the first 18 months of the Implementation	Completed
Adopt the Operational Manual, in form and substance satisfactory to the Bank	By Effectiveness
Procurement Training for PIU conducted by the Bank	At Project Launch

Procurement Arrangements

37. **Procurement of Consulting Firms**. Consulting services will include Technical Assistance (TA) activities to generate missing information, develop management tools and provide training to health managers and staff that are key to support the implementation of Components 1 and 2 of the Project.

38. National Procurement Arrangements. In accordance with paragraph 5.3 of the Procurement Regulations, when approaching the national market (as specified in the Procurement Plan), the country's own procurement procedures (*ChileCompra*) may be used, in accordance with clauses 5.3 to 5.6 of the Regulations for Borrowers, provided that the bidding documents include Bank's Fraud and Corruption clauses and the provisions of Bank's right to sanction and the Bank's inspection and audit rights.

39. The Bank's Standard Procurement Documents (SPD) shall be used for all contracts subject to international competitive procurement and for contracts larger than US$500,000, and those contracts as specified in the Procurement Plan. For those contracts, the following methods could be used, depending on the nature and complexity on assignments: Quality and Cost Based Section (QCBS), Quality Based Selection (QBS), Least Cost Selection (LCS), Selection under a Fixed Budget (SFB), Selected Based on Consultant's Qualifications (SBCQ) and Single-Source Selection (SSS).

40. Individual **Consultants.** The process for hiring individual consultants, will be carried out according paragraphs 7.34 – 7.39 of the Procurement Regulations.

41. **Training**. The project will finance reasonable costs associated with training and workshops for the implementation of the project, including travel and subsistence costs for training participants, rental of training facilities, preparation and reproduction of training materials, and other costs directly related to training course preparation and implementation (but excluding goods and consultants 'services).

42. **Operating Costs.** The Project will finance reasonable costs associated with recurrent expenditures that will not have been incurred by the implementing agency in the absence of the Project, such as: office supplies, communication and advertising costs, computers and equipment maintenance, per diems for staff, among others.

43. **Project Procurement Strategy Development (PPSD) and Procurement Plan.** A PPSD prepared by the Borrower, describes how procurement in this operation will support the PDO and deliver value for money under a risk-based approach. Procurement services will be implemented based on the mandatory Procurement Prior Review thresholds detailed in Annex I of the WB's Procurement Procedures. Also, during the preparation of the Project, the Borrower, prepared a detailed and comprehensive procurement plan for component 3, based on the PPSD, which provides adequate support market analysis for the selection methods detailed in the procurement plan. The procurement plan includes all contracts for which bid invitations and invitations for proposals are to be issued for the first 18 months of Project implementation. For each contract to be financed by the Loan, the different procurement methods or consultant selection methods, cost estimate, prior review requirements, and time frame will be agreed between the Borrower and the Bank in the Procurement Plan. It will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

44. In accordance with paragraph 5.9 of the "World Bank Procurement Regulations for IPF Borrowers" (July 2016), the Bank Systematic Tracking and Exchanges in Procurement (STEP) system will be used to prepare, clear and update Procurement Plans and conduct all procurement transactions for the Project.

Table 4. Summary of Contracts included in the PPSD

Activity	Cost estimated (US$)	Bank's review	Market approach	Procurement method
CONSULTING FIRMS				
PHC study on NCDs status	140,000	Post	National Open	Competitive Bidding (Chile Compra)
Studies of governance and financing of PHC including review of PRAPS	100,000	Post	National Open	Competitive Bidding (Chile Compra)
Studies pertaining to the National Cancer Plan	100,000	Post	National Open	Competitive Bidding (Chile Compra)

Activity	Cost estimated (US$)	Bank's review	Market approach	Procurement method
Adaptation and validation study of survey instrument for PROMs	50,000	Post	National Open	Competitive Bidding (Chile Compra)
Cost-effectiveness analysis for interventions for high needs high cost patients in context of Chile	100,000	Post	National Open	Competitive Bidding (Chile Compra)
Evaluation of effects of proactive care management units for patients with complex needs	100,000	Post	National Open	Competitive Bidding (Chile Compra)
Adaptation of curriculum and design of training for management and clinical training in regional health services, hospitals and PHC	50,000	Post	National Open/Direct	Competitive Bidding (Chile Compra)/ Direct Contracting
Assessment of main interventions supported under the project	200,000	Post	National Open	Competitive Bidding (Chile Compra)
Analytical activities related to the introduction of DRGs for analysis and payment of hospital inpatient services	200,000	Post	National Open	Competitive Bidding (Chile Compra)
Studies on payment mechanisms using DRGs	100,000	Post	National Open	Competitive Bidding (Chile Compra)
Review of the provision processes for medicines and medical supplies	100,000	Post	National Open	Competitive Bidding (Chile Compra)
Study on variation in prices for similar drugs procured through different processes	25,000	Post	National Open	Competitive Bidding (Chile Compra)
Study on how to improve the use of multi-annual frameworks for procurement of drugs and medical devices	50,000	Post	National Open/Direct	Competitive Bidding (Chile Compra)/ Direct Contracting
INDIVIDUAL CONSULTANTS				
Project Technical Coordinator	200,000	Prior	Direct	Direct Contracting
Technical Support and M&E Specialist	200,000	Prior	Direct	Direct Contracting
Health Services Management Specialist	200,000	Prior	Direct	Direct Contracting

Activity	Cost estimated (US$)	Bank's review	Market approach	Procurement method
Fiduciary Specialist	200,000	Prior	Direct	Direct Contracting
Health Services Management Specialist	200,000	Prior	Direct	Direct Contracting

45. **Operational Manual**. The Borrower has prepared an Operational Manual which provide detailed procurement information for project's implementation, including: (i) the particular methods for the procurement; (ii) a clear definition of responsibilities that will apply to each kind of procurement; (iii) filing procedures; (iv) management of the Procurement Plan.

46. **Frequency of Procurement Supervision.** In addition to prior review supervision to be carried out by the WB office, annual supervision missions will be carried out to visit the field and conduct post review.

Environmental and Social (including safeguards)

Environmental.

47. According to OP/BP 4.01, this Project is classified as Category B because some of the Project activities might generate adverse social, environmental, health and safety impacts if not properly and timely assessed and mitigated. The 'Category B' is justified by the fact that operation and maintenance of existing health centers might generate preventable and manageable environmental, health and safety impacts and risks. OP/BP 4.01 on Environmental Assessment is the only environmental safeguards policy triggered for this Project.

48. Given the well-established national system for environmental, health and safety impact assessments in Chile's health centers, it is not foreseen that this Project might generate significant adverse environmental, health and safety impacts. Increase in efficiency of hospital and health centers management may, or may not, favor effective management of environmental, safety and health risks.

49. Health care centers in Chile are subject to maximum permissible limits for emissions of several air pollutants that may affect air quality during incineration and co-incineration of wastes. Also, health care centers are subject to regulations on storage of hazardous chemical substances. Standards for the management of solid waste generated in health centers are described in the "Waste Management Regulation for Health Care Facilities" ("*Reglamento sobre Manejo de Residuos de Establecimiento de Atención de la Salud*") which classifies wastes into 4 categories: (1) hazardous wastes, (2) radioactive and low intensity wastes, (3) special wastes and (4) solid wastes that can be considered as domestic wastes. These four types of wastes have to be disposed of in authorized facilities. Occupational health regulations applicable to health care centers regulate concentrations of chemical agents in the air, ionizing radiation and non-ionizing radiation. According to the Act 19.300 and its by-laws, a health care center should go through the Environmental Impact Assessment System (SEIA) if it can cause environmental impacts. Once a health care center Project is registered within the SEIA, environmental impacts will be assessed. In the case of health care centers, typical environmental impacts are the generation of atmospheric emissions, noise, solid waste and effluents, impact on traffic, among others. This assessment considers impacts during stages of construction and operation of the health care center. The corresponding Health Regional

Ministerial Secretariats (SEREMI) participate in the environmental impact assessments of a given health care center project by reviewing the information presented and verifying that the project will not generate adverse impacts on population health due to deteriorating sanitary and environmental factors.

50. The MOH prepared a concise Environmental Management Plan (EMP) describing environmental, occupational health and safety regulations applicable to health care centers during both construction and operation, the Environmental Impact Assessment System (SEIA) and how it applies to health care center projects, institutional responsibilities of the MOH and SEREMI and institutional capacities for environmental management in the health sector. Given the technical assistance nature of Project activities under component 3, the Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank will be taken into account by the Client. Therefore, terms of reference for the aforementioned activities will have to include, if needed, screening and mitigation of potential adverse environmental and social impacts and risks. The EMP was disclosed on the March 15, 2017, both on the Bank and MOH websites.

Social.

51. The proposed Project triggers the World Bank's Policy on Indigenous Peoples (OP 4.10) because Chile has a large indigenous population, scattered across several regions, which will be a potential beneficiary of the Project interventions and fulfill the OP 4.10 criteria. Chilean indigenous peoples have a higher-than-average incidence of NCDs (including indigenous people living in urban areas), and there is a risk that the current gaps in access may increase as a result of Project implementation, should the Project not include specific actions targeted at them. An Indigenous People Plan (IPP) has been prepared and disclosed prior to appraisal.

52. Proposed key interventions aimed at remediating these gaps include studies to fill-in knowledge gaps; training for health staff on intercultural adequacy; proposals to improve the cost-effectiveness of Primary Health Care and Chronic Diseases adapted to the needs of indigenous people; and proposals to improve the governance, transparency and management of the public health network facilities in regions with high indigenous concentration.

53. The prevalence of NCDs in the indigenous population is growing, as in the rest of the Chilean population, but several studies suggest that the effects of this process are being felt more strongly among indigenous people. Men belonging to indigenous peoples have the highest risk of dying from cardiovascular disease. A study in 11 health services in Chile[46] shows that men from IPs have a 40% higher risk of dying from this disease than non-indigenous men. Hypertension (HTA) and Diabetes Mellitus Type II (DM II) have a significant prevalence in indigenous peoples. These pathologies are associated with changes in cultural patterns and lifestyles, as a result of the process of urbanization and other social determinants. In addition, the epidemiological transition of the indigenous population is accompanied by the persistence of communicable diseases such as tuberculosis (TB).

54. Several factors are identified as contributing to the pervasive incidence of NCD's in indigenous contexts, including social, economic, and environmental determinants; lack of—or deficient development of—a

[46] Ministerio de Salud Chile (MINSAL) (2016) "Estudio comparado de la situación de salud de los pueblos indígenas en Chile" (En Prensa). Santiago: MINSAL

strategic approach at national level for health care provision in culturally specific contexts; and lack of effective strategies of prevention in indigenous contexts, especially in fast changing scenarios (e.g. urban IP).

55. The Department of Health and Indigenous Peoples and Interculturality of the MOH considers the Project an opportunity to progressively implement an adequate approach to NCDs, with a special focus on HTA and DM II, through the strategic reorientation of the Cardiovascular Health Program (*Programa de Salud Cardiovascular - PSCV*), based on updated evidence. In this regard, the IPP was prepared with the aim of improving the socio-cultural relevance and quality of the health care of the indigenous people enrolled in the PSCV, which promotes cost-effective actions at the local level to improve the management and adherence to the treatment of cardiovascular disease. The IPP responds to needs identified by indigenous peoples through a nationwide consultation process carried out by the MOH between 2016 and 2017, which is the umbrella program within which the IPP will work. This lengthy consultation process involved over 9 thousand indigenous persons and over 1,300 representative organizations. However, the IPP was widely discussed with selected indigenous leaders related to the health sector, and with health care specialists in January 2017, and was disclosed on the March 15, 2017, both on the Bank and MOH websites.

56. The IPP will be implemented under the supervision of an Executive Secretariat in charge of the MOH Department of Health, Indigenous Peoples and Interculturality.

57. The Project also contributes to addressing the main gender gaps in Chile. Women are over-represented among patients with complex needs because they are more affected by the highly prevalent cancers targeted by the Project interventions. The Project supports a stratification of the population according to their health risks, which in turn will help identifying women at risk of suffering from breast, cervical and colorectal cancers and implementing actions for an early diagnosis. The Project also supports the strengthening of the health information system which will allow tracking results disaggregated by gender.

Monitoring and Evaluation

58. In order to monitor progress toward achieving the PDO, the Program Results Framework will use the PDO-level Results Indicators. One out of the ten DLIs will serve as PDO-level indicators, while the other DLIs along with other indicators will be Intermediate Results Indicators. The full Results Framework is included in Section VII of this document.

59. The measurement and verification of the progress toward achieving the Program's objectives will be based on the country's existing monitoring and evaluation systems, largely because the proposed operation will contribute to the MOH program by disbursing against the achievement of a subset of its key results. The MOH, through the PCMU, will have the primary responsibility for tracking the progress related to Project activities, outcomes and results. The PCMU will prepare Project reports including the following information: (a) the compliance with the DLIs; (b) the updated Procurement Plan; (c) the advances in the Results Framework. The Project reports will be submitted to the Bank twice a year prior to the respective disbursement requests, but not later than 60 days after the end of the period covered by such report.

60. The proposed Project will strengthen the MOH capacity of monitoring the public health sector performance, program execution and health status of the population. Especially relevant in that sense will be the Population stratification strategy, which will permit the analysis of nominalized health information of each citizen receiving care for NCDs in the public health care network. This strategy will allow authorities to have access to NCD program indicators for program management and policy decision making. Additionally, the project will support MOH and FONASA efforts to implement the DRG system to track public hospital networks performance and production through standardized regular reporting mechanisms with core indicators for performance monitoring. Likewise, the annual FONASA user satisfaction survey, which measures citizen perceptions of the reorientation of the health care model toward the needs of chronic patients with and without complex needs, will contribute to improving the care model.

61. The Bank will provide implementation support based on the detailed Implementation Support Plan (Annex 3), whose focus will be on the timely implementation of the agreed Program Action Plan, provision of necessary technical support, conducting of fiduciary reviews, and monitoring and evaluation activities. These will be done as part of regular implementation support visits and through reviews of data and documents, discussions with MOH counterparts and relevant implementation actors (hospitals, PHC facilities, municipalities, CENABAST, CORFO and DIPRES), and visits to hospitals and PHC facilities implementing Project activities, as needed. With regard to monitoring and evaluation, the Bank will pay particular attention to reviewing the monitoring data and verification documentation for the Project results and DLIs submitted by the MOH, retaining the right to make the final decision, for disbursement purposes, on whether the agreed DLIs have been achieved.

Role of Partners

62. The Primary Health Care Performance Initiative is a partnership of the World Bank, the World Health Organization and the Bill and Melinda Gates Foundation that brings together policy-makers, health system managers, practitioners, advocates and other partners to catalyze global improvement in primary health care through better performance measurement and knowledge sharing. As part of this Project, the Primary Health Care Performance Initiative will be providing technical assistance to the GOC to support the development of a national scorecard assessing the performance of the primary health care system in a way that is internationally comparable. This scorecard will be updated every two years and results will be made publicly available on the website of the Initiative. Technical assistance will be supported financially by the PHCPI and provided to the GOC for up to US$25,000 a year, including expert time and coverage of travels to Chile for PHCPI international experts and consultants.

63. The Organization for Economic Cooperation and Development (OECD) is an international organization comprising 34 member countries, which works on economic and social issues from macroeconomics to trade, health, social affairs, development, science and innovation. The OECD engages in collaborative activities with member countries and non-members to undertake research and policy analyses, develop data and statistics and establish guidelines and standards to assist in policy formulation in these areas. Chile is a full member of the OECD and already engages in several activities, including a forthcoming review of its public health system. In the context of this project, the OECD will provide technical assistance to the GOC by carrying out together with the World Bank an external review of the primary

health care system, with a focus on three themes: overall performance of the primary health care system from an international standpoint; efficiency of primary health care delivery at the municipality level; and innovation in new service delivery models to meet the needs of an ageing population. The external review will be released during a launch event organized in Chile by the MOH, the OECD and the World Bank and gathering national and international experts. It is anticipated that the external review will be carried out and launched during the first year of Project implementation.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY: Chile
Chile - Health Sector Support Project

Strategy and Approach for Implementation Support

1. Supporting the MOH of Chile in the implementation of the Project is a core element of the proposed Project. The Project will support key aspects of the Government Heath Strategy 2011-2020, and the borrower is responsible for the Program's overall implementation, including its technical aspects. However, the results-based financing approach in particular will require strong support from the World Bank during Project implementation to ensure the achievement of results and mitigate risks related to implementation.

2. The implementation support under the proposed Project includes technical and fiduciary support, including safeguards. The World Bank will provide continuous technical support to the Government's implementation of the components one and two of this proposed Project. Technical assistance will be provided to the central authorities and HCDs and supervised by the World Bank team through Component 3 of the proposed Project, as is explained in the Main Text, combined with resources from other donors, through the PHCPI.

3. The World Bank team will also maintain a sector-level dialogue about the MOH program related to NCDs in other areas not supported specifically by the Project, especially in Public Health, drawing on international expertise, as needed. The Bank implementation support will focus on:

   (a) Review implementation progress and achievement of Project results and DLIs;
   (b) Provide technical support to the client for implementation of the Program Action Plan, the achievement of DLIs and other results;
   (c) Monitor systems performance to ensure their continuing adequacy including the review of monitoring reports, audit reports, and field visits;
   (d) Provide support for resolving emerging Project implementation issues;
   (e) Monitor changes in risks and compliance with legal agreements.

4. The WB task team will be primarily responsible for:

   (a) Monitoring and evaluation: Providing technical support to build capacities for DLI monitoring and verification protocols. The Bank task team will routinely monitor progress towards DLI achievement based on the agreed monitoring and reporting arrangements, including the Program progress reports and the DLI Verification Protocols. Upon achievement or partial achievement of a DLI, the MOH will provide the Bank task team with evidence as per the Verification Protocol. Following the Bank's review of the complete documentation, including any additional information considered necessary and requested from the MOH or other agencies to verify achievement of the DLI, the Bank will send an official communication to the MOH and MOF as to the achievement

of the DLI(s) and the level of Program financing proceeds available for disbursement against each particular DLI.

(b) Social: In relation to social aspects, the team will focus on three main areas: a) internal and external resistances to changes foreseen by the Program; b) social inclusion and equity in access to health care services, with a focus on indigenous and rural population; and c) social accountability of the health care system.

(c) Environmental: In relation to environment, the team will focus on monitoring the use of the "Waste Management Regulation for Health Care Facilities" in those hospitals and PHC facilities implementing Project activities and ensuring that technical assistance activities under the Project take into account recommendations of the Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank.

(d) Procurement support will be provided regarding the procurement aspects of the technical assistance under Component 3 of the proposed Project, but, additionally the WB procurement experts, as part of the technical staff of the Project, will provide support to CENABAST activities, through a close supervision of the processes to improve the procurement of medicines and medical supply.

(e) The World Bank team will carry out supervision missions at least twice a year, complemented by more frequent and/or extended technical missions by individual staff, as needed, especially during the beginning of implementation and during Government administration transition. During implementation support missions, the task team will review overall implementation progress, covering sectoral (technical), financial management and procurement aspects, as well as reporting on results monitoring and verification of the achievement of DLIs. They will also monitor risks, updating the risk assessment as needed.

(f) A mid-term review will be conducted to take stock of the performance under the Project. It will be carried out approximately half-way through implementation of the proposed Project. The mid-term review will assess progress towards achieving the individual DLIs, as well as towards the Project Development Indicators and Project Development Objective. Based on the assessment of progress at the mid-point of the program, recommendations for amendments to the Project will be considered by both the Government counterparts and the World Bank management team. The mid-term review will also review overall Project implementation arrangements, making adjustments as necessary.

(g) As the Bank implementation support team members (technical, fiduciary, environmental and social systems, and fraud and anticorruption), are not based in the Chile Country Office, but elsewhere in the LAC region, an adequate budgeting for the implementation support will be necessary. This will contribute to ensuring timely and effective implementation support to the MOH and the HCDs.

Implementation Support Plan and Resource Requirements

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	Support capacity of the MOH for DLIs monitoring and verification Timely implementation of Program Action Plan	M&E, Technical, IT, fiduciary	42 staff weeks	
12-48 months	Implementation of Program Action Plan	Technical, IT, M&E Fiduciary, social and environmental	36 staff weeks	
Other	Capacity building toward sustainability	Technical, IT, M&E Fiduciary and social	14 staff weeks	

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments

Partners

Name	Institution/Country	Role

ANNEX 4: ECONOMIC ANALYSIS

CHILE: Public Health Sector Support Project (P161018)

Economic Analysis of the Project

The Development Impact of the Project

1. The single biggest challenge for the service delivery side of the Chilean public health system is adapting to the increased disease burden related to chronic conditions. The health sector is currently still oriented towards managing acute care episodes. Health care providers (hospitals and PHC facilities) need to change the way in which they deliver services. In particular, care integration across different care levels is weak. At the same time, current practices drug and medical equipment procurement practices of public providers and municipalities offer room for great efficiency savings.

2. These are two crucial areas for improvement as identified in the recently conducted (June 2016) Public Expenditure Review (PER) of the public Chilean health system. Apart from identifying these two areas for improvement, the PER made a set of related short-term policy recommendations. The interventions supported by the proposed Project are in line with these recommendations that hold the highest potential for short-term efficiency gains yet have positive long-term effects. As part of the process, the analysis and methodological approach to estimating cost savings used in the PER were vetted by both the MOH and MOF. This economic analysis builds on some of the analytics done as part of the PER, given the close thematic links with the Project. In particular, the PER analyzed the cost effectiveness of available interventions (also of those included under the proposed Project). Hence this economic analysis focuses on the cost benefit analysis of the Project and does not include a major cost-effectiveness discussion.

3. There is need for a structural reform of the health care system in Chile. Due to the accelerated ageing of the population, concerns about the fiscal sustainability of the current organization and management of the health sector are justified. Chile is in the advanced stages of demographic transition and is becoming an aging society, with mortality predominantly linked to Non Communicable Diseases (NCDs), mainly cardio-vascular diseases and cancer.

4. On a macro level, the Project includes interventions that help the Chilean health sector to adapt its service delivery model to the new epidemiological and demographic profile of the country. The Project finances interventions that promote a paradigm change in the service delivery model towards a more patient-centered approach. Modern health systems allow for a care provision tailored to the needs of multimorbid, complex and elderly frail patients. By supporting a patient risk stratification and the establishment of CMUs for complex and frail patients at some hospitals, the Project will contribute to preparing the Chilean health system for the future as the country is undergoing its epidemiological transition. Tailoring the service delivery system to the different existing patient profiles will also result in major social benefits, as there is strong evidence from the international literature on how such interventions improve patient experience and the quality of public health care provision as perceived by patients.

5. Apart from its broader impact on the service delivery model, the Project will yield three concrete economic benefits: First of all, improved health outcomes in the form of reduced cancer mortality rates

as well as reduced NCD-related morbidity rates[47]. The second benefit comes in the form of cost savings at the hospital level from reduced avoidable short-term readmissions as well as admissions. Both the incidence of avoidable admissions and readmissions can be considered as a measure of poor care integration. In a well-integrated system, patients receive the necessary care for many conditions in the ambulatory care sector (mainly in primary health care) such that they do not get admitted to a hospital in the first place. Likewise, readmissions can be prevented through better and timelier follow-up consultations in ambulatory care. Thirdly, a major benefit from the Project will be lower prices paid by the public sector for pharmaceuticals and medical technology (e.g. through joint purchasing, therapeutic reference pricing or international benchmarking via CENABAST).

6. The primary beneficiaries of the Project will be (fragile elderly) multi-morbid chronic publicly insured patients due to the creation of special units for these patients. Likewise, patients at risk of breast, cervix and colon cancer and covered by the public insurer FONASA are major beneficiaries of the Project thanks to increased cancer screening rates. To some extent, all chronic patients covered by FONASA will benefit from improved health risk identification tools developed by the MoH, because these tools are the basis for a better provision of health care services to those at risk. The overall international evidence is that case management interventions – independently of their exact design and the diseases mainly targeted - improve health outcomes successfully.

7. Climate Change Co-Benefits. Following the recommended methodology, the climate change co-benefits assessment was conducted by determining which DLIs directly reward achievements that directly contribute to the mitigation of climate change in Chile. While in particular DLIs 3 and 6 (and to a lesser extent DLIs 1 and 2) finance outcomes that will lead to less reliance of the Chilean health sector on resource-intensive hospitals and hence to fewer greenhouse gas emissions, the assessment only considers DLIs 4, 5 and 9 as having substantial climate change co-benefits. As a result, the co-benefits are estimated to equal 20% of the Project amount.

Costs and Benefits Considered in the Analysis

8. For the purpose of the cost-benefit analysis at hand, only the first two benefits mentioned: i) reduced cancer-mortality and ii) cost savings from better care integration will be monetized. The expected lower prices for drugs through the increased use of centralized procurement are not modeled as an explicit benefit in the analysis. It is assumed that the achieved savings will be used for a better and more comprehensive provision of medicines to chronic patients. Proper medication management of chronic patients as well as comprehensive discharge planning in the case of an acute episode are key components of the successful management of chronic diseases. For instance, one of the Project indicators measures the aspired increase in the percentage of population diagnosed with a metabolic disease under statin treatment. The analysis also abstracts from benefits of the decreased morbidity burden from NCDs due to better care integration and the initiation of some case management programs.

[47]The interventions targeted at reducing cancer mortality through increased screening rates will also reduce cancer-related morbidity, just as improved quality of care in NCD treatment in general will not only reduce NCD-related morbidity but also lower mortality. For the ease of exposition here, increased cancer screening will be considered as a means of reducing mortality, while Project activities focused at improving the quality of care for NCDs will be reflected as measures to primarily decrease morbidity.

9. The benefits of the Project interventions are proxied assuming that the targets of key PDIs/Intermediate Results Indicators will be met as a result of the Project. Namely, i) increases in colon/cervix/breast cancer screening rates will be achieved which translate into lower mortality rates; ii) reductions of avoidable readmissions due to high utilization multi-morbid chronic patients enrolled in case management programs; and iii) reductions of avoidable hospital admissions for stroke, HTN, and Ketoacidosis.

10. The estimation of potential savings from reduced avoidable admissions and readmissions related to specific medical diagnoses builds on the work done for the PER which in turn builds on established OECD protocols to identify avoidable hospital admissions and readmissions. The monetary value of an admission for a given condition can be approximated by considering the average DRG rate for each condition[48]. The excess costs from avoidable admissions can be calculated from the number of hospital discharges due to health problems that, according to the literature, should be addressed at the primary care level and, if well managed, should not lead to hospital admissions. The conditions used in the context of the cost-benefit analysis of this Project are: Diabetic ketoacidosis and hypertension[49]. The discharges can be monetized using the average DRG rate for each condition. The PER estimated that approximately 40% of these costs could be reduced by strengthening the primary care level.

Specification and assumptions of the cost-benefit analysis

11. As revealed by OECD studies and reiterated by the PER, Chile has low screening and survival rates for certain cancers such as breast, cervical and colorectal (cervical cancer only affects women, breast cancer almost exclusively affects women and colorectal cancer is frequent for both sexes). Table 1 states the number of deaths due to the mentioned cancer types for Chile. In this context, saving lives through extended cancer screening practices is one of the major contributions of the Project. Valuating the lives saved is not straightforward. Quantitative measures of the value of life and health are controversial and empirical research that sheds light on valuation principles based on what individuals are willing to pay for health comes up with differing estimates for the value of a life year (VLY) and the value of a statistical life (VSL). In particular, there is an economic as well as an intrinsic or social value of any year of life. As Table 1 shows, improved cancer screening will mainly save the lives of older persons. Taking into account that the economic value of any VLY may be limited, the monetary value of a life saved is considered to be worth 2 years of the average GDP per capita. This valuation is very conservative and is in line with the lowest valuation measures from the literature.

[48] DRG data is available from pilot hospitals in the country (that already use DRGs). The cost from readmission rates can be generated from the costs of hospital readmissions observed in the fourteen pilot hospitals and then projected to the set of 62 more important FONASA hospitals.
[49] Cost data for stroke admissions – the other tracer condition considered for the Project Indicator – was not available.

Table 1. Number of Deaths by Types of Cancer and the Average Age at Death – Chilean National Data from 2013

Type of Cancer	Number of Deaths in 2013	Female Deaths	Avg. Age at Death	Avg. Female Age at Death
Colon Cancer	1,631	876	70.0	71.4
Rectal Cancer	467	219	68.6	68.7
Breast Cancer	1,403	1,389	64.8	64.7
Cervical Cancer	560	560	61.9	61.9

Source: MOH of Chile, Department of Statistics and Health Information.

12. Table 2 states the detailed assumptions that are used to estimate the economic benefits expected from Project implementation, considering (i) the monetary value of premature cancer deaths being prevented and; (ii) cost savings in the health system as a result of fewer hospitalizations. As discussed, the assumed obtained targets for the Project indicators are in line with the Results Framework. Table 2 also states the way in which (i) the increased screening rates will translate into reduced mortality; and (ii) improved care integration will reduce avoidable admissions and readmissions both for the baseline and the low effectiveness scenario.

Table 2. Assumptions to Estimate the Benefits from Improved Care Integration/Increased Cancer Screening Rates

Improved Cancer Screening	5-Year Increase in Cervical/Breast Cancer Screening Rates	44.4% (From 55 to 75% coverage, and from 64 to 80% coverage)
	5-Year Increase in Colorectal Cancer Screening Rates	15% (From 0 to 15% coverage)
	5-Year Reduction in Cervical/Breast Cancer Mortality	22.2% (Baseline) / 14.8% (Low Effectiveness)
	5-Year Reduction in Colorectal Cancer Mortality	7.5% (Baseline) / 5.0% (Low Effectiveness)
Improved Care Integration	5-Year Reduction in Tracer-Related Avoidable Admissions	20% (Baseline) / 15% (Low Effectiveness)
	5-Year Reduction in Readmissions for Multi-Morbid Patients in CM program	20% (Baseline) / 15% (Low Effectiveness)
	Percentage of Readmissions that CM Target Group of Multi-Morbid Patients Accounts for	25%

(a) **Period of time considered.** The costs of the Project occur from 2017 to 2021. Due to the delay with which benefits start materializing, benefits accruing until 2026 (so over a period of 10 years) are considered in the analysis. At the same time, these benefits are expected to persist for even longer. However, benefits accruing after the reference period of 10 years for the analysis are not considered in the analysis due to the increasing uncertainty about the counterfactual scenario in the absence of the Project. Benefits from reduced mortality will start accruing in the first Project year, hospital care cost savings will start accruing towards the end of the second Project year.

(b) **Basic discount rate**. In order to make the costs and benefits occurring at very different points in time during (and after) the Project comparable, they need to be discounted taking into account both inflation and the time value of money (TVM). The TVM reflects the fact that money that is available today can be invested to yield a positive return and is therefore more valuable than the same amount of money received in the future. Nevertheless, the choice of the TVM discount rate (especially in longer-term and public investment contexts) is to some extent subjective. A higher rate implies a higher relative valuation of the Project costs, given that benefits that do not start accruing immediately are discounted more heavily, whereas a lower rate implies a lower relative valuation of the costs. Therefore, costs and benefits are discounted at 7% to account for inflation (2%) and the time value of money (TVM) (5%). A higher discount rate of 12% (reflecting a 10% discount rate accounting for the TVM) is also applied to verify the sensitivity[50] of the results to this assumption. A sensitivity analysis with respect to inflation is not conducted, given that the expected benefits are real cost savings/monetized benefits of premature deaths prevented measured in real terms, being unaffected by inflation anyways.

(c) **Beneficiary population.** The most immediate beneficiaries are multi-morbid chronic and elderly fragile patients as well as those at an elevated risk of the considered cancers. However, in principle all chronic patients constitute the main target population.

(d) **Expected disbursements of investments.** When discounting the financial costs of the Project, it is assumed that the funds provided by the Bank are disbursed according to the planned disbursement schedule (see Project Financing Data).

13. Table 3 shows for the baseline scenario and the high TVM (the logics is the same for the other scenario/TVM combinations considered), the net benefits of the Project start out being negative at the beginning of the Project, steadily increase and turn positive after year 3. The majority of economic benefits is due to saved lives from better cancer treatment.

[50] The estimated benefits are sensitive to a higher TVM, since it decreases the present value of the more distant benefits from gains in human capital. The related reforms are long-term oriented, and it takes some time until benefits materialize.

Table 3. Annual Project Costs and Benefits (in million USD) throughout the Reference Period of the Analysis - Baseline Scenario and a High TVM

Benefits / Costs	Year										Total
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Savings in Health Care Provision	0.0	1.3	4.0	6.6	8.8	8.8	8.8	8.8	8.8	8.8	65.0
Premature Deaths Prevented	3.2	6.6	10.3	14.3	18.5	18.7	19.0	19.3	19.6	9.9	139.4
(A) Economic Benefits	3.2	7.9	14.3	21.0	27.3	27.6	27.9	28.1	28.4	18.7	204.4
PV of Economic Benefits	**2.9**	**6.6**	**10.7**	**14.3**	**16.9**	**15.6**	**14.3**	**13.1**	**12.1**	**7.2**	**113.7**
(B) Project Costs	23.9	20.0	16.0	12.0	8.0	0.0	0.0	0.0	0.0	0.0	79.8
PV of Project Costs	**21.4**	**15.9**	**11.4**	**7.6**	**4.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**60.8**
Net Present Value	**-18.5**	**-9.3**	**-0.6**	**6.7**	**12.4**	**15.6**	**14.3**	**13.1**	**12.1**	**7.2**	**53.0**

Source: Based on authors' calculations.

Financial Summary Measures for the Expected Benefits from Better Care Integration and Cancer Screening

14. Table 4 presents the NPV and the estimated IRR of the considered interventions. The sum of costs and benefits (i.e. the NPV of the interventions) is largely positive (at least $18.0 million USD) and the estimated IRR ranges between 17.17 and 32.23 percent, depending on the effectiveness scenario employed, which clearly shows the positive development impact of the considered Project interventions.

Table 4. Net Present Value (in million USD) and Internal Rate of Return of the Project for Different Effectiveness Scenarios

TVM Discount Factor	Baseline Effectiveness		Low Effectiveness	
	NPV	IRR*	NPV	IRR*
5%	82.8	32.23%	36.6	17.17 %
10%	53.0		18.0	

Source: Based on authors' calculations. *Net of inflation

A Remark on the Fiscal Sustainability of the Project and the MOH Budget Impact

15. Given that the Project will optimize the execution of programs and activities already being part of the MOH budget and only strategically reallocate current budget resources, the funds from the Loan will not be additional to the MOH budget, except for the Technical Assistance worth $5 Million USD. Hence, the funds represent a "marginal" expenditure for the MOH, namely less than 0.2% of the annual budget.

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ANNEX 5: MAP

CHILE: Public Health Sector Support Project (P161018)

IBRD 33386R

PACIFIC OCEAN

ATLANTIC OCEAN

REGIONS OF CHILE

- I. TARAPACÁ
- II. ANTOFAGASTA
- III. ATACAMA
- IV. COQUIMBO
- V. VALPARAÍSO
- RM. REGIÓN METROPOLITANA DE SANTIAGO
- VI. LIBERTADOR GENERAL BERNADO O'HIGGINS
- VII. MAULE
- VIII. BIO BÍO
- IX. LA ARAUCANÍA
- X. LOS LAGOS
- XI. AISÉN DEL GENERAL CARLOS IBÁÑEZ DEL CAMPO
- XII. MAGALLANES Y DE LA ANTÁRTICA CHILENA
- XIV. LOS RÌOS*
- XV. ARICA-PARINACOTA*

* Regions approved by cabinet and parliament, will become effective on October, 2007.

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CHILE

- SELECTED CITIES AND TOWNS
- REGION CAPITALS
- NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- REGION BOUNDARIES
- INTERNATIONAL BOUNDARIES

FALKLAND ISLANDS (ISLAS MALVINAS)
A DISPUTE CONCERNING SOVEREIGNTY OVER THE ISLANDS EXISTS BETWEEN ARGENTINA WHICH CLAIMS THIS SOVEREIGNTY AND THE U.K. WHICH ADMINISTERS THE ISLANDS.

JUNE 2007