

ANNEX 3. TECHNICAL ASSESSMENT

A. Program's Strategic Relevance and Technical Soundness of the Approach

1. **The Program Development Objective directly contributes to the health sector goals of Colombia's PND for 2018-2022 and to the strategic vision of the MSPS.** The goal of the proposed operation of improving quality and efficiency in the delivery of health care services and, consequently, contribute to strengthening the financial sustainability of the Colombian health system is directly aligned with the health sector goals of the country's PND for the 2018-2022 period. In fact, the objectives of this PforR mirrors the title of the Government's health sector program that it supports: "Health for all with quality and efficiency, sustainable by all." Furthermore, the Program goals and the strategic vision of the MSPS, which contains five areas: (a) long-term perspective; (b) quality; (c) public health; (d) human resources for health; and (e) financial sustainability.

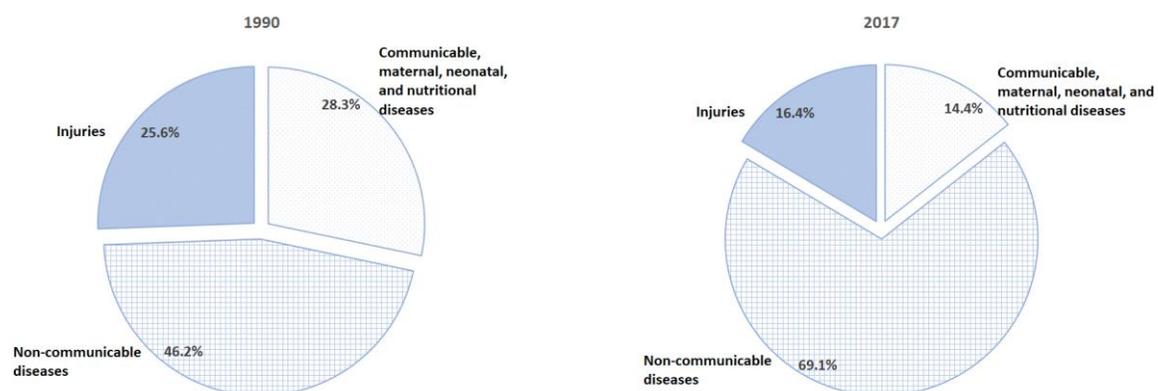
2. **The Program is aligned with the WBG's twin goals of eliminating extreme poverty and boosting shared prosperity by assisting Colombia to accelerate progress towards the achievement of UHC.** It is also closely aligned with the SDGs which stress the importance of achieving UHC and financial protection. The proposed Program is consistent with the Priority Directions of the Health, Nutrition and Population Global Practice 2016-2020 and aligned with the WBG's Human Capital Project, which calls for countries to make greater investments in health and education to improve the productive capacities of their populations.

3. **The Program also responds to the difficult economic and social context generated by the oil shock of 2015-2016 and that was exacerbated by the commitments of the peace process and the massive migration from Venezuela.** The economic slow-down produced by the oil shock of the middle of the decade contributed to the deterioration of the fiscal imbalance of the central Government. This already difficult scenario is made more complex by the pressures from post-conflict spending commitments – which according to Government estimates may cost approximately 0.7 percent of the GDP per year – and by the spending related to the important migration flows from Venezuela. This influx of Venezuelan migrants and returning Colombians who had migrated to Venezuela in the 1970's is generating important fiscal and economic pressures and placing a significant burden on institutions, service provision systems, particularly in receiving areas. Contrary to traditional migratory processes, the current inflow, which increased markedly in 2018, is characterized by a very rapid arrival of people and a relatively high proportion of individuals in conditions of socio-economic vulnerability.¹ The demands for health, housing, education and water and basic sanitation services have increased rapidly and are concentrated in areas characterized by pre-existing deficits in service provision. In addition, due to the growth of vulnerable populations, the demand for social protection services in receiving areas tends to exceed existing capacities. The short-term fiscal impact of the migratory process is challenging. It is estimated that, in 2018 alone, between 0.26 percent and 0.41 percent of GDP would be required to provide access to services to the returnees and eligible migrants at a level similar to that provided to the local population. In addition, in the medium term, infrastructure investments would be necessary to expand the network of services in receiving areas, particularly in education, health and water and sanitation. This implies that additional fiscal consolidation measures over the 2020-2022 period will be necessary, including targeted expenditure containment and rationalization, as well as efficiency-enhancing measures.

¹ As of October 31, 2019, there were 1.63 million Venezuelans in Colombia, including about 719 thousand regular migrants.

4. **The country's demographic and epidemiological transition is generating a rapid increase in the prevalence of chronic or NCDs, which contribute to the growing concern regarding the financial sustainability of the health system and make evident the importance of quality and efficiency improvements.** As the Colombian population ages (demographic transition) and is increasingly exposed to health risks factors such as poor dieting, smoking, drinking and sedentary habits, NCDs have become the main causes of death and disability (a phenomenon known as epidemiological transition), increasing from 46 percent of total years of DALYs lost in 1990 to 69 percent in 2017 (Figure A3-1 below). Approximately 78 percent of all deaths that occurred in Colombia in 2017 were caused by NCDs. Because NCDs are more expensive and difficult to control, they represent an economic and organizational challenge to the health system. In this sense, measures aimed at improving the (technical and allocative) efficiency of the system and the quality of health services are critical to ensure better health outcomes and financial sustainability in a context of population aging and high prevalence of chronic diseases.

Figure A3-1. Burden of Disease by Main Causes (% of DALYs). Colombia, 1990 and 2017

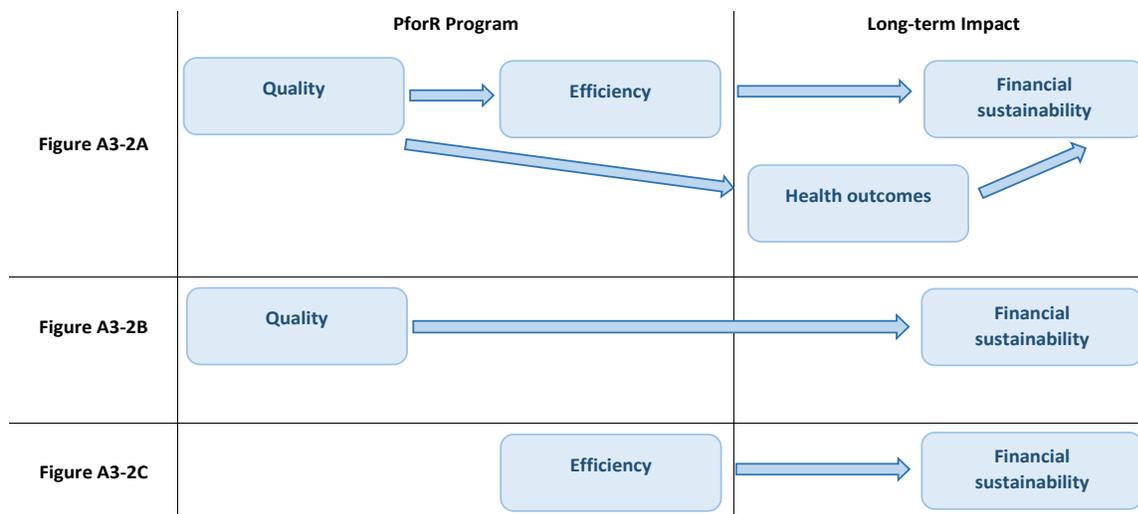


Source: Global Burden of Disease Study 2017. Institute for Health Metrics and Evaluation, 2018.

5. **A low-quality health system is a high-cost health system: quality and efficiency are intrinsically related, and both contribute to the health system's long-term financial sustainability.** First, low-quality of care can be costly in terms of human suffering and loss. Poor quality causes 10 to 15 percent of total deaths in low- and middle-income countries each year. It is estimated that between 5.7 and 8.4 million deaths and more than 130 million adverse events occur each year from poor quality of care in these countries (Crossing the Global Quality Chasm. Improving Health Care Worldwide. US National Academy of Sciences, 2018). In the United States, by some estimates, medical errors account for more deaths annually than road accidents and breast cancer combined. In Colombia, it is calculated that approximately 22,000 deaths (65 percent of all deaths attributable to the health care system) are due to poor quality of care. Second, low-quality of care generates waste. A poor-quality health system is technically and allocative inefficient. The need for corrective services, ineffective care and avoidable hospital admissions are major sources of inefficiency. Approximately 15 percent of hospital expenditure in high-income countries is used to correct preventable complications of care and patient harm. Up to 20 percent of health resources are used in ways that generate very few health improvements. In the United States, 30 percent prescriptions for antibiotics are unnecessary, posing risk to patients, wasting resources and contributing to the global problem of antimicrobial resistance. A study for Colombia estimated that avoidable hospitalization represented almost 22 percent of all discharges in 2009. This result reflects the fact that a timely and effective primary care can reduce and even eliminate the need for hospital admission for several diseases

and health problems, thus indicating an inefficient allocation of resources. These connections between quality, efficiency and financial sustainability are summarized in Figure A3-2 below.

Figure A3-2. Relationship Between Quality, Efficiency and Financial Sustainability



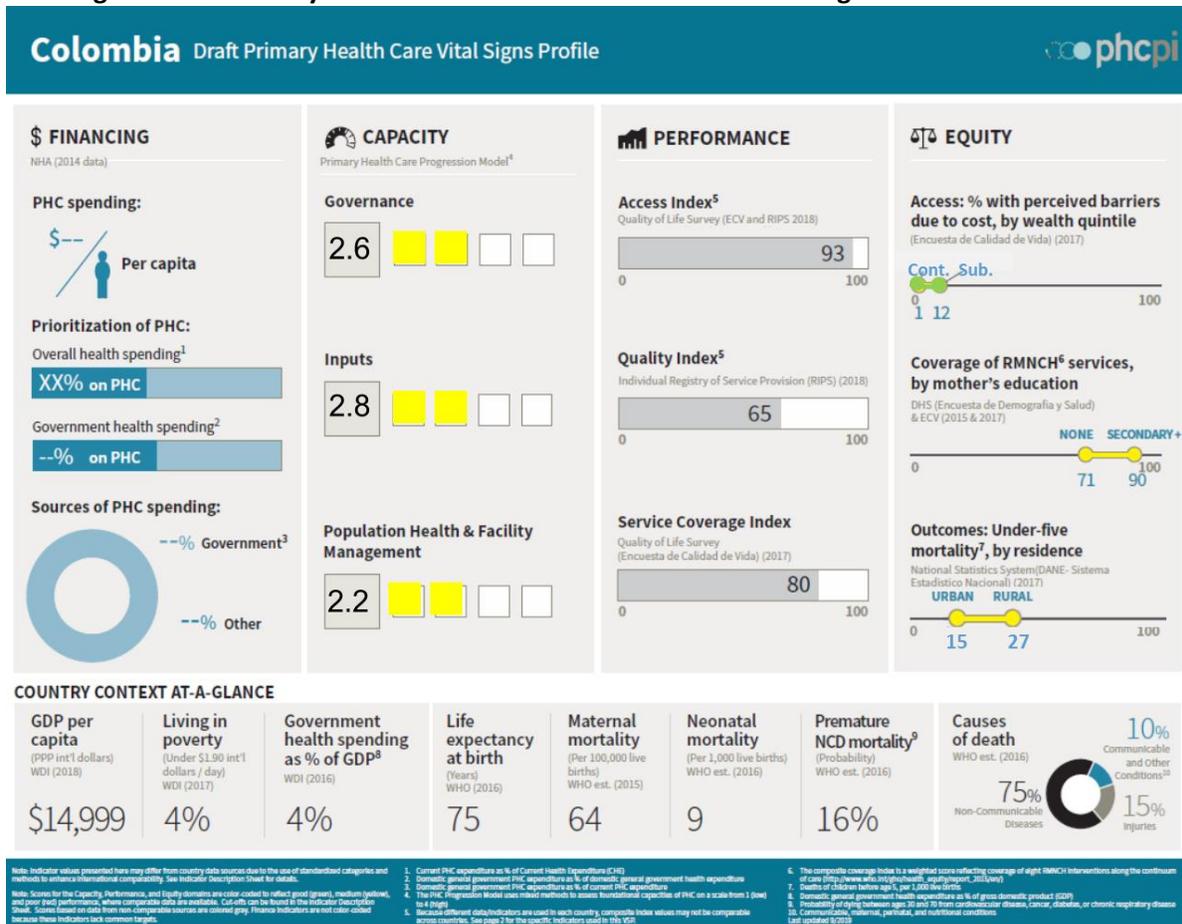
6. **International comparisons show poor quality of care in Colombia when compared to the median of OECD countries.** This problem is compounded by large variations between the public and the private sector, and the urban and rural divide. Pockets of excellence in quality of care evidenced by high levels of sophistication in continuous quality improvement and quality measurement co-exist with a majority of moderate to low-quality health care facilities, with little capacity for continuous quality improvement. However, most components of a comprehensive strategy to improve quality of care are only partially implemented: policies, standards, quality measurement, accountability and human resources, and capacity for continuous quality improvement are only partially addressing quality deficiencies in the sector.

7. **Finally, preliminary findings from the PHCPI exercise suggest that Colombia has achieved high levels of access to PHC but not commensurate results in effective coverage, pointing to two bottlenecks to system performance: the quality of care delivered and the equitable distribution of this care across the population.** Less than 5 percent of the Colombian population reports facing cost or distance barriers to access care when in need and more than 92 percent receive care from a general practitioner within 48 hours of requesting an appointment; these results point to much higher levels of access than in other countries where similar measures are available. Despite the importance of NCDs in Colombia's epidemiological profile, effective care coverage for these illnesses is the largest bottleneck to effective service coverage in Colombia: over 30 percent of the population has uncontrolled hypertension and 50 percent of diabetics have uncontrolled blood sugar levels. The bottlenecks to the delivery of high-quality PHC services lie primarily in the lack of comprehensiveness of the services offered (particularly NCD services) in the first level; in the low adherence of health workers to clinical guidelines and in the lack of continuity of care.

8. The PHCPI methodology has been used, between July and September 2019, to assess the performance of the PHC System of Colombia. The assessment aims to identify strengths and weaknesses in the system with the purpose of developing plans to maintain high performance or defining

improvement strategies where bottlenecks are identified. The methodology uses quantitative and qualitative analysis to assess 4 pillars of the PHC system: Financing for PHC, System Capacity, System Performance and Equity.

Figure A3-3. Primary Health Care Performance Initiative Vital Signs Profile for Colombia



9. Preliminary findings (see Figure A3-3) suggest that Colombia has achieved high levels of access to PHC but not commensurate results in effective coverage, pointing to two bottlenecks to system performance: the quality of care delivered and the equitable distribution of this care across the population. Less than 5 percent of the Colombian population reports facing cost or distance barriers to access care when in need (*Encuesta de Calidad de Vida*, ECV, 2017) and more than 92 percent receive care from a General Practitioner within 48 hours of requesting an appointment (RIPS 2018); these results point to much higher levels of access than in other countries where similar measures are available. Although 75 percent of mortality in Colombia can be attributed to NCDs (WHO, 2016), effective care coverage for these illnesses is the largest bottleneck to effective service coverage in Colombia: over 30 percent of the population has uncontrolled hypertension (Quality Observatory 2018) and 50 percent of diabetics have uncontrolled blood sugar levels (RIPS 2018). Coverage for essential infectious disease services and maternal and child health services are delivered to 85 percent or more of the population displaying important achievements but room for continuous efforts.

10. Bottlenecks to the delivery of high-quality PHC services lie primarily in the comprehensiveness of services offered in first level and low complexity facilities (particularly NCD services), health worker

adherence to clinical guidelines and the continuity of care. Although 45 percent of PHC facilities are licensed to provide a set of essential maternal and child health services, nearly a quarter (26 percent), provide a set of essential services for infectious disease care and even fewer (19 percent) are licensed to provide specific services for NCDs care. Adherence to clinical guidelines in Colombia was measured as the percentage of persons that received a service according to recommendations and findings show important bottlenecks: nearly 35 percent of pregnant women do not receive HIV counseling and testing (Quality of Care Observatory, 2018), 49 percent of women aged 20 to 69 do not receive cervical cancer screening according to guidelines and 33 percent of women aged 50 to 69 do not receive a mammogram according to guidelines (Report for resolution 4505, 2018). Continuity of care measured as continuity in vaccinations and Tuberculosis care also indicates areas for improvement; with a DPT3 dropout rate of over 7 percent (Expanded Immunization Program 2018) and in 2016 a TB treatment success rate of only 60 percent (Emerging, reemerging and neglected disease program, 2016).

11. Compounding bottlenecks to quality of care, preliminary results for Colombia show moderate yet important differences in equity of PHC across income groups, levels of education and rurality. Although there have been great achievements in ensuring access to care for all in Colombia, results show that 12 percent of persons affiliated to the subsidized health insurance regime (poor or informal workers) face financial barriers to access health care when in need as compared to 1 percent of persons affiliated to the contributory regime (formal workers and their families) (*Encuesta de Calidad de Vida, ECV 2017*). Similarly, the analysis shows differences higher coverage rates of maternal and child health services for persons with secondary school education (90 percent) as compared to persons with primary school or no education (71 percent) (Demographic and Health Survey, DHS 2015 and ECV 2017). Finally, there analysis also finds differences in under five mortality rates between urban and rural areas (15 versus 27 deaths per 1,000 live births) (National Department of Statistics, *Departamento Administrativo Nacional de Estadística, DANE 2018*).

12. Preliminary results of the qualitative progression model assessment for PHCPI, suggest that although the system's capacity to deliver care has many achievements, bottlenecks related to the system's ability to adjust to the population's changing epidemiological and demographic profile can be found across the three domains of system capacity. Findings of strengths and weaknesses of the system's capacity are closely aligned with findings related to the system's performance. Results related to the governance of the PHC System show that Colombia has been able to define strong policies and plans for the health sector overall but not ones specifically targeting PHC. Strong health system policies and plans have resulted in the availability of a strong system for quality monitoring, strong systems for birth and death registries as well as the good availability, for most of the country, of inputs necessary for service delivery (medicines, equipment, human resources, etc.). Although the PHC system has been able to recruit trained facility managers and has established the bases for patient management through empanelment as defined in the national health policies, facilities and sub-national administrators, continue to struggle with their ability to define local priorities for service provision, ensure community participation and use available data for local decision-making. The inability to garner available data and citizen participation, hence, limits the system's ability to respond to local priorities and needs.

B. Program Goals and Results Chain

13. **The pursuit of the operation's goal of improving quality and efficiency in the delivery of health care services will be monitored and evaluated by three main sets of indicators related to:**

- (a) the early detection of breast cancer²;
- (b) the performance of public hospitals; and
- (c) the price of medicines.

14. **Breast cancer is the most important type of cancer in women.** It impacts 2.1 million women each year and causes the greatest number of cancer-related deaths among women. In Colombia, breast cancer is responsible for almost 2 percent of the disease burden in women and more than 3 percent of all female deaths (14 percent of all cancer deaths in women). Early detection is critical for improving breast cancer outcomes and survival. There are two early detection strategies for breast cancer: early diagnosis and screening. Early diagnosis seeks to increase the proportion of breast cancers identified at an early stage, allowing for more effective treatment to be used and reducing the risks of death from breast cancer. Early diagnosis requires providing timely access to cancer treatment by reducing barriers to care and/or improving access to effective diagnosis services. Screening consists of testing women to identify cancers before any symptoms appear. Various methods have been evaluated as breast cancer screening tools, including mammography, clinical breast exam and breast self-exam. Screening can contribute to early diagnosis. It is important to note that because screening requires substantial investment and recurrent costs, health systems must ensure that resources are available to sustain it and maintain quality.

15. **The WBG's recently concluded quality assessment of health care in Colombia has found that the effectiveness measures for NCDs care show poor results.** In the case of breast cancer, only 30 percent of women between the ages of 50 and 69 were screened for breast cancer using mammography in the past two years, while the rates of breast cancer screening with mammography in OECD countries range from 42 percent in Hungary to 84 percent in Finland. Furthermore, many evidence-based practices for cancer screening are not well implemented and variations in quality are common.

16. **Public hospitals are vital to the provision of health care in remote areas of the country where geographic, financial and administrative barriers still impact access to such services.** Geographic and financial barriers mostly affect people in remote areas, where communication is difficult, and mobilization is expensive. As these areas are unattractive to private insurers and providers, and therefore not well-suited to Colombia's managed competition model, public hospitals play a vital role in the provision of health services. In this sense, remote and isolated parts of the country require different organizational and supply structures to address the needs of these populations more appropriately. This is becoming evident, for example, in post-conflict and migration areas, where the singular needs of local communities – e.g. those related to mental health issues and to the health needs of ex-combatants, displaced and migrant families – require a vertically integrated model of care that is unlikely to be fulfilled by non-public providers.

² The evolution of breast cancer is identified through five broader stages (from stage 0 to stage IV) that are further subdivided. Stage II breast cancer indicates a slightly more advanced form of the disease. At this stage, the cancer cells have spread beyond the original location and into the surrounding breast tissue, and the tumor is larger than in stage I. However, stage II means the cancer has not spread to a distant part of the body. In stage IIA one of the following is true: (a) here is no tumor within the breast, but cancer has spread to the axillary (underarm) lymph nodes; (b) the tumor in the breast is 2 cm or smaller and cancer has spread to the axillary lymph nodes; or (c) the tumor in the breast measures 2 cm to 5 cm but cancer has not spread to the axillary lymph nodes.

17. **The introduction and use of new technologies, particularly medicines, represent an important cost to the system and, as such, a potentially large source of inefficiency.** The cost of medicines represented, on average, approximately 21 percent of the SGSSS total health spending between 2007 and 2017. Until the early 2010s, Colombia did not have a framework to regulate pharmaceutical. This meant that the prices paid by EPSs were de facto unregulated, leading to unreasonable price hikes and cost escalation, which drained public resources and had an important impact on the financial sustainability of the health system. The continued growth of pharmaceutical spending reached an estimated peak of almost 25 percent of total health spending in 2013 and led to the elaboration of a CONPES document on National Pharmaceutical Policy (CONPES 155 of 2012).³ Since then, Colombia has introduced several measures to improve and strengthen its pharmaceutical policies. However, results in terms of access to medicines and total spending have been mixed and the country still needs to further develop its capacity to supervise and monitor pharmaceutical services. While advances have occurred in the pharmaceutical sector, Colombia still lacks the tools to evaluate the effectiveness and economic and budgetary implications generated by the introduction of medical devices into the health system, as well as their appropriate use.

18. **The proposed Program aims to achieve its PDO by addressing institutional constraints that hinder quality of care and efficiency in the health sector.** Theories of change for each results area are presented in Figure 1 of the main text.

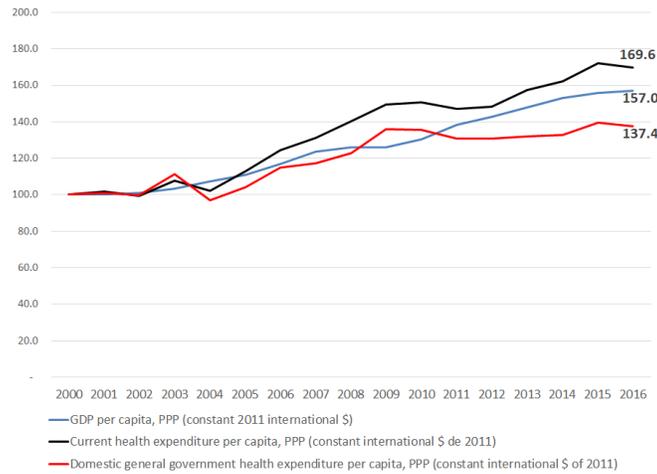
C. Program Expenditure Framework

19. **Colombia's levels of health spending are not high, particularly when compared with the OECD.** Total current health spending is only 5.9 percent of GDP, while the OECD average is 12.6 percent and the Latin American average is 8.5 percent (2016 data). This implies that the OECD countries spend on health, on average, six times more per person than Colombia (the average GDP per capita of the OECD is approximately three times Colombia's).

20. **However, per capita health spending has been growing faster than income per capita.** Figure A3-4 shows that per capita (total) health spending has grown faster than income per capita since the year 2000. The figure also shows that Government spending has not grown as fast and, in fact, has essentially leveled-off during the second half of the series.

³ CONPES is the country's highest national planning authority and acts as an advisory body to the Government in all aspects related to economic and social development. CONPES' policy principles and recommendations are submitted in a document for Council's approval.

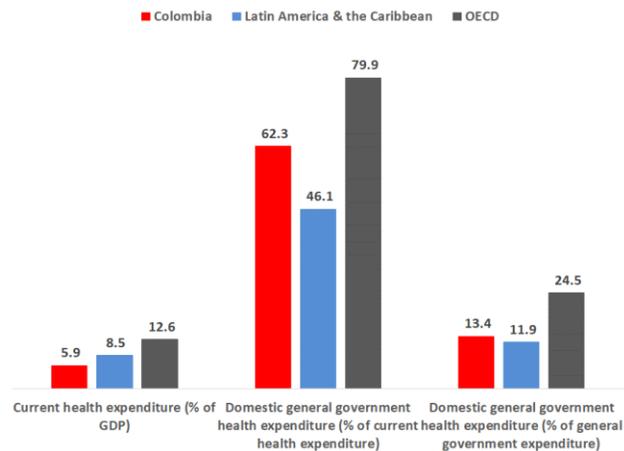
**Figure A3-4. Per capita Spending Trend in Relation to GDP per capita. Colombia, 2000-2016
(2000 = 100)**



Source: WB, World Development Indicators

21. In Colombia, the Government has a larger participation in the financing of the health sector than the Latin American average. But still less than the pattern observed in the OECD. As shown in Figure A3-5, the Government is responsible for approximately 62 percent of total current health spending in Colombia, while the Latin American average is 46 percent. The OECD average, however, is almost 80 percent. The figure also shows that health spending consumes a slightly larger share of total Government spending than the Latin American average (but again, this share is significantly smaller than the OECD average).

Figure A3-5. Selected Summary Health Spending Data. Colombia, Latin America and the Caribbean and OECD, 2016



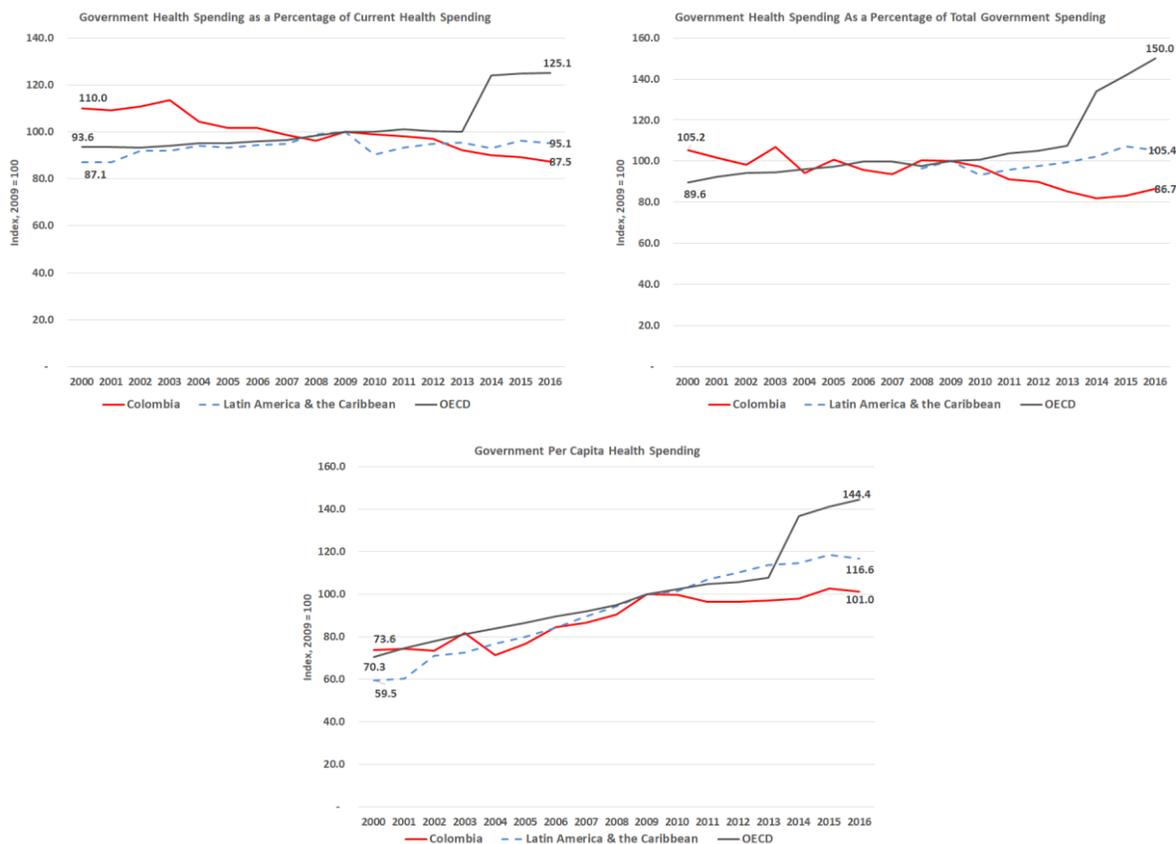
Source: WB, World Development Indicators

22. The data presented in the last two figures indicate that private spending has been the largest driver of health spending growth since 2000. Unfortunately, this tendency is reflected in the growth of out-of-pocket spending, which has grown more than 52 percent between 2000 and 2016. It must be noted, however, that at 20 percent of current health spending, out-of-pocket spending is significantly

lower than the Latin American average (37 percent in 2016), but more than 40 percent higher than the OECD average (13.9 percent of current health expenditure in 2016).

23. In this sense, perhaps the most striking pattern observed in recent years is the important negative trend in Government health spending, particularly since 2009. Figure A3-6 shows that public sector health spending trend has either grown significantly less than the Latin American and OECD averages or declined. While there are many factors that may explain this phenomenon, two elements have certainly contributed to it: the first one is the beginning of the regulation pharmaceutical prices. As noted earlier, until the early 2010s, Colombia did not have a framework to regulate pharmaceutical prices. This meant that the prices paid by EPSs were de facto unregulated, leading to unreasonable price hikes and cost escalation, which drained public resources and had an important impact on the financial sustainability of the health system. This result shows the importance and potential impact of efficiency measures on the sustainability of the health system. The second element that helps explain the observed pattern of public sector health spending is the increased effort of the Government in controlling its spending.

Figure A3-6. Trends in Government Health Spending. Colombia, Latin America and the Caribbean and OECD, 2000-2016



Source: WB, World Development Indicators.

24. **Program Boundaries.** The PforR will support specific results under the objectives I, III, V and VI of the Government program for health established in the PND 2018 – 2022, and objective II of the PND’s pact for women, which relate to improving quality and efficiency in the SGSSS, to ultimately contribute to

improvements in population health, especially in women's health. The Program will focus its support in the health sector stewardship and managerial function of the MSPS and will support the development of policies and regulations related with the improvement of the mandatory insurance scheme to achieve the expected results during the three-year 2020-2022 period. Furthermore, the proposed PforR will be structured around two results areas; Results area 1: improve the quality of health care services; and Results area 2: improve efficiency in the health system. The link among the Government program and the PforR result areas is described in Table 2 of the main text.

25. **Expenditure Framework.** The total public resources assigned in the PND for the health sector objectives amount to COP 119,0 trillion (approximately USD 35 billion) for the period 2019 – 2022, organized in five budgetary programs that involve current expenditures and investments. The expenditure framework for the PforR would marginally finance current expenditures under the SGSSS' health insurance (*aseguramiento en salud*) budget line related to the subsidized regime for three years, 2020 to 2022, to cover expenditures related with the management of the scheme. The Government amount associated with this expenditure is estimated at 10 percent of the total amount assigned to the subsidized regime (which corresponds to USD 1,955 million; 99 percent of the expenditure framework). This is aligned with provision established under Law 1438 of 2011 that defines 10 percent as the maximum proportion of the UPC that EPSs could assign to administrative expenditures. In addition, the PforR's expenditure framework would include a portion of personnel salaries for three years (2020 – 2022) needed to implement the proposed interventions. The Government amount associated with this expenditure is estimated at 50 percent of the total amount assigned to personnel salaries (which corresponds to USD 28 million; 1 percent of the expenditure framework); personnel salaries are assigned proportionally to the total amount assigned to the subsidized insurance regime out of the total amount assigned to the Government program's health sector objectives as shown in Table A3-1. IBRD financing is USD 150 million, with additional financing of USD 37.6 million from the GCFF.

26. It is important to highlight that the portion assigned to the subsidized regime (99 percent of the expenditure framework) consists of transfers related to a predetermined UPC, multiplied by the insured population duly documented in the BDUA. The purpose of this UPC is to finance the provision of health insurance to the population, which ADRES transfers to the EPSs; the insurance providers. In addition, the expenditure framework includes MSPS personnel salaries needed for the execution of the Program-related activities (1 percent of the expenditure framework). No procurable items, consultancies or technical assistant are included in the Program expenditure framework.

27. **The funding for the Program is adequate, sustainable and aligned with the intended results under the Program's Result Framework.** The activities and expenditures under the Program will be funded from the budget assigned by the MHCP to the MSPS. This budget has been analyzed and has been found to be fully budgeted and executed over the years, since it pays for the UPC of those affiliated to the SGSSS. The MSPS is constitutionally mandated to pay for those affiliated to the subsidized regime. In its sentence T-760 of 2008, the Colombian Constitutional Court ordered the MSPS to equalize the benefit plans of the subsidized regime to the contributive scheme.

Table A3-1. Estimated Three-Year Budget of the Program

PROGRAM: Health for All, with Quality and Efficiency							Total		Expenditure Framework 10% assigned for management costs & 50% for salaries	
SUBPROGRAM: Insurance and Management of the SGSSS							2020 - 2022		2020 - 2022	
Concept	2020		2021		2022		2020 - 2022		2020 - 2022	
	COP\$ Billion	US\$ Million	COP\$ Billion	US\$ Million						
CURRENT EXPENDITURES										
Health Insurance (Laws: 100, 1993; 1122, 2007; 1393, 2010; 1438, 2011 and 1607, 2012)	21,307	6,267	22,134	6,510	22,998	6,764	66,439	19,541	6,644	1,955
Current Expenditure	19,878	5,847	20,649	6,073	21,455	6,310	61,983	18,230	6,198	1,826
Current special funds	1,429	420	1,485	437	1,543	454	4,456	1,311	440	129
Salaries	62	18	64	19	66	19	191	56	96	28
	21,369	6,285	22,198	6,529	23,064	6,783	66,630	19,597	6,740	1,983

Note: The Health Insurance's budget line (SGSSS) comprises of two items that differs in the source of the funds: (i) Current Expenditures from the GoC general revenues and (ii) Current Special Funds, earmarked taxes for the health sector.

Source: Own calculations based on MHCP 2019 budget and MSPS projections on the insured population under the subsidized regime for years 2020 to 2022.

28. **The Program will be implemented by the MSPS which will provide overall oversight of Program execution through.** The MSPS is responsible for overall stewardship of the health system; as so, develops norms, standards and guidelines needed by the health insurance agencies and services providers and gives technical assistant to apply them. The MSPS also regulates quality standards and the accreditation system for EPSs and IPSs. The MSPS establishes the regime for EPSs and IPSs to purchase, supply and extend the provision of health care services. In addition, the MSPS will be responsible for high level coordination with the other actors involved with Program implementation. The role of these other institutions is described in Table A3-2 below.

Table A3-2. Role and Responsibilities of Entities linked with the PforR's DLIs

#	DLI	RESPONSIBILITIES OF PARTICIPANT ENTITIES LINKED WITH PROGRAM DLIs		
		MSPS	ADRES	EPSs
1	Updated regulation for certification and accreditation for EPSs and IPSs to improve quality of care, including environmental management standards and disaster readiness.	MSPS will update the certification of health care facilities standards and the accreditation standards for EPSs and low complexity hospitals, will conduct the consultation process, and will approve and publish in the official journal the final standards.		EPSs will comply with the accreditation standards regulated by the MSPS.
2	Incentives in payment systems to achieve better quality of care and efficiency.	MSPS will design an ex-post financial incentive for the EPSs to promote the earlier detection of breast cancer. MSPS will issue a new regulation for the ex-post adjustment to the UPC and will publish it in the official journal. MSPS will monitor the implementation through the nominal clinical registry (CAC). MSPS will summon technical and institutional working groups with national and international experts and representatives of key stakeholders to propose a new	ADRES will apply the ex-post adjustment to the UPC according to the results informed by the nominal clinical registry (CAC) and will transfer the adjusted UPC to the EPSs.	EPSs, as insurance companies, will implement the necessary actions in terms of better quality of care related with early detection of breast cancer to get the ex-post incentives (linked to the UPC).

#	DLI	RESPONSIBILITIES OF PARTICIPANT ENTITIES LINKED WITH PROGRAM DLIs		
		MSPS	ADRES	EPSs
		risk adjustment methodology for the UPC. MSPS will publish the technical document on the MSOS website.		
3	Efficiency gains in pharmaceutical expenditure as a consequence of policy and regulatory changes in the pharmaceutical market.	MSPS will design a new methodology for price regulation of medicines and publish the administrative act for public consultation. MSPS will design a new methodology for setting the entry price of high cost medicines and publish it in the official journal. MSPS will calculate the savings according to the drug price report in the SISMED.	ADRES will apply the regulation when transfers payments to the EPSs.	EPSs, as insurance companies, will receive the UPC related to the enrolled population, for the provision of the health insurance.
4	Number of eligible migrants affiliated to health insurance scheme.	MSPS will design a new affiliation mechanism for migrants from Venezuela that are regularly registered (PEP). This mechanism will be issued by Ministerial Decree as a PforR prior action. MSPS will communicate the new mechanism to EPSs and ETs and will monitor the enrollment of new migrants.	ADRES is responsible for maintaining the consolidated database for enrollees to the SGSSS and will verify and inform the enrollment of new migrants.	EPSs will be the insurance companies in charge of enrolling the eligible migrants.

D. Economic Justification of the Program

29. **The economic analysis of the Program was conducted using a CBA to determine if its economic rationale is sound.** CBA expresses costs but also benefits in monetary terms, adjusted for the time value of money and it's mainly used to determine the soundness and rationality of investment/decision (justification/feasibility) and allows for comparison with other projects. The CBA proposed here follows four main steps: (a) Identification of Program's interventions to be analyzed, which in this case are related to DLIs; (b) Identifications of costs related to each intervention (here the loan flow); (c) Temporal projection of resources relevant to impact and interventions; and (d) Estimation of the difference between the NPV of both costs and benefits, also called the net benefits of the program. In these projects a CBA translates the health gains achieved by a program or intervention into monetary terms. The standard economic approach for quantifying the benefit of better health in monetary terms is based on the concept of the "value of statistical life" (or life-year).

30. **The benefits and costs accounted for in this program were modeled using a macro-fiscal, systemic and demographic scenario.** The proposed framework projects a scenario of the Colombian context initially for the length of the project (3 years) but also in a period of 12 years, from 2019-2030, which includes projections of macroeconomic, demographic, systemic and epidemiological (burden of

disease) variables, given that demographic and macroeconomic trends influence the results and comparability of an economic evaluation, (e.g. monetization of health benefits). Official estimations for middle term fiscal projections,⁴ (from MHCP and the Central Bank) of macroeconomic variables such as inflation, exchange rate and GDP growth were utilized, whereas demographic projections, such as population growth and life expectancy, were taken from DANE.⁵ Lastly, health system-related and epidemiological variables were modeled using official information disclosed by the MSPS and international sources such as the Global Burden of Disease – Institute for Health Metrics (GBD-IHME) and the WBG Data Repository. Available evidence suggested the nature, magnitude and trend of the modeled effects. The nature of the health system in Colombia (decentralized and built around insurance) does not allow for a direct measurement of typical health care interventions, but rather through policy and regulatory interventions.

31. **For the CBA, two general type of benefits are applied.** The first one is derived from the reduction of burden of disease. Some of the interventions supported by the program have been proved to reduce disease burden (expressed in DALYs) due to combined reductions in both mortality and morbidity. A DALY is defined as one lost year of "healthy" life, and the sum of these DALYs across the population represents the burden of disease, which functions as the measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability. DALYs are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with health conditions or its consequences. DLI 1 and the first and third DLRs of DLI 2 comprise actions that can potentially reduce the burden of disease and therefore were modeled in the evaluation.

32. **The second type of economic benefit is monetary, through expected reduction in total costs for the whole system.** There are expected monetary benefits from cost reductions of interventions supported by the program, which are to be measured through the second DLR of DLI 2, DLI 3 and DL4. The first one has the potential of reducing overall costs in the system by spreading more effectively the risk across users in systems, which has been consistently linked to cost reduction and more efficiency on insurance-based systems (with either explicit or implicit benefit packages) and improved resource pooling. DLI 3 states a specific goal of cost reduction, which is to be achieved by the third year of the program and is explicitly stated in the design of the indicator (see Annex 2). DL4 creates savings by introducing risk adjustment and resource pooling from the enrolment of migrants into the SGSSS, as opposed to the basic (and limited to emergencies) fee-for-service coverage currently provided to migrants.

Assumptions of the analysis

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

- i. **Temporal horizon.** For simplicity, the benefits and costs were modelled for the length of the project (3 years). The program will only disburse from 2020 through 2022, but both monetary and health impacts of the program are expected to continue after the closing of the operation, for which a period of 12 years (2019-2030) was also modelled.
- ii. **Benefits.** As stated, the program contemplates direct and indirect monetary benefits;
 - (a) **DALYS:** The benefits from reductions of DALYs are accounted for the project duration (3 years) and of the extended projection (2030). The monetary value of a DALY is typically equivalent to the value of the country's annual GDP per capita. In this case, the value for

⁴ See https://www.minhacienda.gov.co/webcenter/portal/SaladePrensa/pages_DetalleNoticia?documentId=WCC_CLUSTER-115802

⁵ See <https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/proyecciones-de-poblacion>

2019 is USD 6,786. Reductions in DALYs from DLI 1 were estimated after computing the joint impact in the country's global burden of a list of 26 diagnostics subject to improvements in quality care (particularly in PHC), and then modelling 3 scenarios of improvement, assuming a global positive effect of the intervention (as reduction in burden)⁶. Approximately 14.2 percent of total health-care related GBD was found to be sensitive to reductions. The health care related GBD comprises NCDs and Communicable diseases, as well as maternal conditions, and together represent 86 percent of the total disease burden of 2017. Finally, scenarios with positive effects were applied to 11.9 percent of total disease burden.

For DLI 2, the effects of the intervention were estimated to the total burden attributed to breast cancer, which is rather small (0.104 percent in 2017); different ranges of conservative effects were estimated (1 percent, 2 percent and 3 percent)⁷.

- (b) **Monetary:** Three DLIs have the potential of achieving monetary benefits in terms of averted costs or savings. For the second DLI of DLI 2 (UPC design), an alternative comparative scenario for system expenditure was built (all counterfactual), where the percapita value is kept unaltered, correcting for age structure (to account for age effect in costs). Three scenarios with conservative effects in terms of deviation of the cost per capita were modelled (0.5 percent, 1 percent and 2 percent), following international evidence⁸. Here the potential benefits are very large, due to the volume of resources tied up to the UPC. For DLI 3, an explicit goal of savings (COP 800 billion) has been agreed upon, which comes from the PND 2018-2022 (DNP). The stipulated value of the savings has been duly converted to dollars and discounted. The savings from DLI 4 (SGSSS enrolment of migrants) have been computed as the present value of the difference between the average annual value of the UPC-S for the coverage goal of DLI 4 (see Annex 2) and an estimated per capita annual value of emergency services provided to migrants in the current scheme (source MSPS and DNP).
- iii. **Discount rate.** The discount rate should account for inflation and the general opportunity cost for investments in a typical scenario. Monetary benefits and benefits derived from health effects are usually discounted at the same rate, although national guidelines from OECD countries vary.⁹ In this evaluation, at the baseline, a 4 percent real discount rate is utilized, although different rates of discount are used in the sensitivity analysis.
- iv. **Coverage of the system.** The projections for system coverage come from official estimates of the MSPS for both contributory and subsidized regimes for the length of the project. Including coverage of exception regimes (e.g. teachers, Army, etc.), the system would reach approximately 98 percent of population of the country. From then on and until the end of the extended scenario (2030), the model assumes a progressive increase of the coverage until 99 percent is reached, not accounting for non-enrolled populations from specific population groups (such as indigenous, migrants, outlaws etc.).
- v. **Disbursements.** The analysis considers that the funds will be released evenly according to the disbursement table available in Annex 2. It is expected that the total disbursements will be completed in 2022.

⁶ See GBD (2018) "Measuring performance on the health care access and quality index" and WHO OECD WB (2018) "Delivering quality in health care".

⁷ Many positive effects of screening in reduction of disease burden have been documented. See Rashidian et al (2017), Ekwueme et al 2017.

⁸ See Wrathall & Belnap (2017) and Nghiem et al (2017).

⁹ Attema et al 2018. Discounting in economic evaluations. *PharmacoEconomics* (2018) 36:745–758. <https://doi.org/10.1007/s40273-018-0672-z>

- (a) **Macro variables.** The analysis uses the economic growth rate of 2.1 percent, a conservative scenario adopted by the MHCP in its long-term estimations, as well as an average inflation rate (end of year) of 3 percent. Population projections from the DANE – updated from the 2018 Census – show a declining population growth towards 2030 and a life expectancy of 79.6 years at the end of period.
- vi. **NPV calculations.** The NPV is calculated for the reductions in DALYs until 2022, although impacts from program implementation are expected to go beyond the disbursement period (2030). At baseline scenario, the NPV have been estimated using different values (see Table A3-3). Monetary benefits from DALY's are discounted at a lower value than monetary flows, as reflected in the sensitivity analysis, according to standard international practice.

34. **The results show that the program is highly cost-effective. In the base scenario, reductions in DALYs derived from the program are expected reach 16.4 thousand DALYs, which could be translated into a NPV of benefits close to USD 200 million** The program is highly cost-effective, since it widely exceeds the threshold set for this category¹⁰, achieving unusually high internal rates of return. This result can be explained by the relatively low amount of investment required to generate a high impact in a system like the Colombian one, where the provision and risk management are delegated to private actors and the interventions are often focused on regulation, but with a very high expected marginal return, and the potential to achieve large impacts.

Table A3-3. Results CBA with scenarios

Concept	Base SC	Low Sc	High Sc
NPV Costs (USD millions)	170.2	164.4	176.4
NPV Benefits (USD millions)	383.2	273.2	552.5
NET BENEFIT	213.0	108.8	376.1
INTERNAL RATE OF RETURN	1.9	1.3	2.9
TOTAL DALY'S SAVED	16,033.7	9,964.5	20,155.3
BENEFIT COST RATIO	2.3	1.7	3.1
TOTAL DALY'S DISCOUNTED VALUE	98.3	58.0	130.2
TOTAL DISCOUNTED MONETARY SAVINGS	285	215	422
Total DALY (as % of base year 2017)	0.15%	0.1%	0.18%

35. **Sensitivity analysis.** The sensitivity analysis increases the confidence range by estimating the vulnerability of the program to high variability of key assumptions. Three scenarios were modeled in the analysis using a different set of effects for DLI-related interventions, except for DLI 3, where the savings goal is explicitly set. Given the relatively stability observed in terms of GDP growth and inflation, these variables were not included in the modeling of alternative scenarios. The program maintains a high cost-effectiveness, even with extreme low impact in terms of cost reduction and disease burden (low scenario).

¹⁰ The threshold for cost-effectiveness as the cost of the intervention per DALY averted less than three times the country's annual GDP per capita (WHO 2002).

Table A3-4. Sensitivity analysis scenarios

Concept	Base SC	Low Sc	High Sc
Discount rate savings	6.00%	8.00%	4.00%
Discount rate enrolment DLI 4	3.00%	4.00%	2.00%
Discount rate DALY'S	3.00%	4.00%	2.00%
DALY REDUCTIONS			
<i>IPS and EPS Accreditation Manual</i>			
Annual reduction in DALY's	0.80%	0.50%	1.00%
<i>Breast cancer detected at stage IIA or lower</i>			
Annual reduction in DALY's breast cancer	2.00%	1.00%	3.00%
MONETARY REDUCTIONS			
<i>UPC risk adjustment methodology</i>			
Per capita cost reduction	1.00%	0.50%	2.00%

E. Technical Risks and Mitigation Measures

36. **Technical Design Risks:** The technical design risk is rated as low. The operation will support an ongoing Program that does not contemplate radical design changes to the system. In order to comply with the indicators, several regulatory changes are expected to be implemented by the MSPS, which has shown technical proficiency to conduct these tasks, and also benefits from the political legitimacy resulting from their inclusion in the PND.

37. **Institutional capacity for implementation and sustainability risks.** This risk is rated as Substantial. As mentioned above, the PforR will support an ongoing Government program and no institutional changes are expected from this operation. However, the proposed program will be the first PforR operation in Colombia; moving from an input-based model to a PforR represents a significant change in accountability and exposes the MSPS to the risk (albeit marginal) of not receiving funding if the DLI targets are not achieved. In addition, ADRES is a rather new entity created in 2015, and although the cycle of health resources has improved, and transaction costs have been reduced from its creation, the exposure to political and fiscal risks is higher than other entities, such as the MSPS.

38. **Other Risk related to Venezuelan migration is rated as Substantial,** due to its pressure on the financial sustainability of the health system and on the delivery of health services.

39. **To mitigate these risks, an implementation support and capacity building plan will be elaborated.** A Program Coordinator will be appointed to ensure the day-to-day implementation of the relevant milestones related to the DLIs, and a team of key staff will be designated as focal point in the relevant departments of MPSP and ADRES to ensure timely coordination for the activities to support the achievement of the DLI targets. In addition (as mentioned in Section III, D. Program implementation – Capacity Building, from the main text), implementation support will be provided as well as key capacity building activities through: (a) the implementation support budget; (b) the WBG initiatives already mentioned such as PHCPI and *SaluDerecho*; (c) the use of WBG-managed trust fund resources such as Access Accelerated in the area of pharmaceuticals; and (d) the use of EFO, such as the one that is being developed with UnitedHealth Group for the methodological assessment and revision of the UPC. Resources from the SPF are supporting TA for training and other capacity development efforts to strengthen the sector's ability to address some of the challenges related to the Venezuelan migration.