

Evaluation of a primary health care strategy implemented in a market-oriented health system: the case of Bogota, Colombia

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Dedicated to my beloved parents Carmen and Rafael

Your unconditional love will always
be deeply embedded in my soul

Abstract

Introduction: Despite Colombia having adopted a health system based on an insurance market, Bogota in 2004, as part of a left-wing government (elected for first time in the city), decided to implement a Primary Health Care (PHC) strategy to improve quality of life, level of population health and reduce health inequities. The PHC strategy has been implemented through the Home Health program by three consecutive governments over the last eight years in the context of continuous political tension stemming from differences between national and district health policies.

This thesis is an attempt to provide a better understanding of the overall experience of implementing a PHC strategy in the context of a market-oriented health care system. The research aimed to evaluate results of the PHC strategy through the intervention of the Home Health program and to identify factors that have enabled or limited the on-going PHC implementation process in Bogota.

Methods: This study used a combination of quantitative and qualitative methods. A descriptive analysis was performed to assess direct results of the PHC strategy in terms of progress in the Home Health program coverage and increases in health personnel ratios reaching out to poor and vulnerable groups in Bogota. A cross-sectional analysis was carried out to evaluate qualities of the delivery of PHC services through the attainment of PHC essential dimensions in the network of first-level public health care facilities. An ecological analysis was performed to estimate the contribution of the PHC strategy, through the Home Health program, to improve child health outcomes and to reduce health inequalities. A qualitative multiple case study was conducted to identify contextual factors that have enabled or limited the on-going PHC implementation process in Bogota.

Results: The descriptive analysis showed a notable initial increase and rapid expansion in the development of the PHC strategy between 2004 and 2007, followed by a period of slower growth and stagnation between 2007 and 2010. The cross-sectional analysis suggested that the Home Health program could be helping to improve the performance of first-level public health care facilities. Ratings assigned to PHC dimensions by different participants pointed out the need to strengthen family focus, community orientation, financial resources distribution, and accessibility. The ecological analysis showed that localities with high PHC coverage had a lower risk of under-five mortality, infant mortality and acute malnutrition as well as a higher probability of being vaccinated

than low PHC coverage localities. The belonging to a high-coverage locality was significantly associated with risk reductions of under-five mortality (13.8%) and infant mortality by pneumonia (37.5%) as well as increases in the probability of being vaccinated for DPT (4.9%). Concentration curves and concentration indices indicated inequality reductions in all child indicators between 2003 and 2007. In 2007 (period after implementation), the PHC strategy was associated with a reduction in the effect of the inequality that affected disadvantaged localities in under-five mortality (24%), infant mortality rate (19%), acute malnutrition (7%) and DPT vaccination coverage (20%).

The main facilitators of the results achieved so far by the PHC strategy were all related to the commitment and good will of actors at different levels. Long-term political commitment, support by local mayors and hospital managers, organized communities historically active in the process of social participation, as well as extramural work carried out by community health workers and health care teams were highly valued. Barriers to the implementation included the structure of the national health system itself, lack of a stable funding source, unsatisfactory working conditions, lack of competencies among health workers regarding family focus and community orientation, and limited involvement of institutions outside the health sector in generating intersectoral responses and promoting community participation.

Conclusion: Despite adverse contextual conditions and limitations imposed by the Colombian health system itself, Bogota's initiative of a PHC strategy has helped to improve the performance of first-level public health care facilities in the essential dimensions of PHC and has also contributed to improvement of child health outcomes and reduction of health inequalities associated with socioeconomic and living conditions.

Significant efforts are required to overcome the market approach of the national health system. Structural changes to social policies at the national and district level are needed if the PHC strategy is expected to achieve its full potential. Specific interventions must be designed to have well-trained and motivated human resources, as well as to establish available and stable financial resources for the PHC strategy.

Keywords: primary health care, outcomes assessment, health services evaluation, population health, health equity, health policy implementation, Bogota.

Resumen

Introducción: Una de las estrategias asumidas por los últimos tres gobiernos distritales de Bogotá para lograr el mejoramiento de la calidad de vida y las condiciones de salud de la población ha sido la Atención Primaria de Salud (APS). La estrategia empezó a implementarse desde el año 2004 a través del programa Salud a su Casa (SASC) en la red de hospitales públicos de primer nivel adscritos a la Secretaría Distrital de Salud. La implementación de la estrategia de APS se ha dado en un contexto de tensión permanente generado por las diferencias entre el enfoque y contenido de las políticas sociales y de salud del nivel nacional y distrital y en el marco de las limitaciones impuestas por la lógica financiera del sistema de salud Colombiano el cual se basa en mercados de aseguramiento y prestación de servicios.

El presente estudio tuvo como objetivo analizar la experiencia de APS en desarrollo en Bogotá y evaluar los resultados en salud y equidad alcanzados hasta el momento -a través de la intervención del programa SASC-, así como identificar los factores contextuales que han favorecido o limitado su implementación.

Métodos: El estudio uso una combinación de métodos cuantitativos y cualitativos para responder a las preguntas de investigación planteadas. Se realizó un análisis descriptivo para evaluar el progreso de la estrategia de APS en términos del aumento de las coberturas de caracterización del programa SASC y el incremento del recurso humano en salud por población objeto de la estrategia. Se condujo un análisis de corte transversal para evaluar el desempeño de los atributos de la APS en la red de servicios públicos de primer nivel. Se llevó a cabo un análisis ecológico para estimar la contribución de la estrategia de APS a través de la intervención del programa SASC en el mejoramiento de los resultados en salud y la disminución de inequidades en salud en un conjunto de indicadores de salud infantil. Se realizó un estudio cualitativo multicaso para identificar los factores del contexto que han favorecido y limitado el desarrollo, apropiación y continuidad de la APS en Bogotá.

Resultados: Los resultados del análisis descriptivo mostraron un periodo de rápida expansión entre los años 2004 y 2007, caracterizado por incrementos permanentes en las coberturas de caracterización y aumentos en la cantidad de recurso humano en salud, seguido por un período de estancamiento y menor crecimiento entre los años 2007 y 2010. Los resultados del análisis de corte transversal sugirieron que el programa SASC podría estar contribuyendo en el mejoramiento del desempeño de los atributos de APS en la red

pública de primer nivel en Bogotá. Los atributos en los que aún se evidencian debilidades y en los cuales deberían considerarse posibles ajustes o correctivos son enfoque familiar y comunitario, distribución de recursos financieros y accesibilidad. El análisis ecológico mostro que los indicadores de salud infantil mejoraron significativamente en las localidades con mayor desarrollo y cobertura de la estrategia de APS. De esta manera, la pertenencia al grupo de localidades de alta cobertura estuvo significativamente asociada con reducciones de riesgo del 13.8% en la mortalidad en menores de 5 años y 37.5% en la mortalidad infantil por neumonía; así como con el incremento del 4.9% en la probabilidad de estar vacunado por DPT. Las curvas y los índices de concentración indicaron una disminución de la inequidad entre el 2003 y el 2007 en todos los indicadores de salud infantil analizados. En el 2007 (después de 3 años de implementación) la estrategia de APS mostro estar significativamente asociada con reducciones de inequidad en los indicadores de mortalidad en menores de 5 años (24%), mortalidad infantil (19%), desnutrición aguda (7%) y vacunación por DPT (20%).

Los factores que han facilitado la implementación de la estrategia de APS estuvieron todos relacionados con el compromiso y la buena voluntad de los actores en diferentes niveles. La voluntad política por parte de los alcaldes para dar continuidad a la estrategia, el compromiso de las alcaldías locales y los niveles directivos de los hospitales para la destinación/consecución de recursos financieros, el dinamismo y sentido de pertenencia de los promotores de salud, el trabajo extramural de los equipos básicos de salud y la participación y compromiso de las comunidades históricamente activas, tuvieron un impacto positivo en el desarrollo de la estrategia. De otra parte las barreras identificadas incluyeron: la lógica económica y de sostenibilidad financiera del sistema de salud, la fragmentación y segmentación en la contratación y prestación de servicios, la falta de una fuente estable de recursos, la falta de competencias en salud familiar y comunitaria por parte del recurso humano, la debilidad/inexistencia de los programas de capacitación, las condiciones de trabajo insatisfactorias que enfrenta el personal de salud, la dificultad para generar respuestas intersectoriales y la instrumentalización de la participación social por parte de las instituciones.

Conclusión: Los hallazgos del presente estudio sugieren que a pesar de las condiciones adversas del contexto y de las limitaciones estructurales impuestas por un sistema de salud basado en el mercado, la estrategia de APS implementada en Bogotá, ha ayudado a mejorar el desempeño de la red pública de primer nivel y ha contribuido en el mejoramiento de los indicadores de salud infantil y la reducción de las inequidades en salud asociadas a condiciones socioeconómicas.

Es importante considerar que para cumplir los objetivos propuestos en el diseño de la estrategia de APS y lograr su máximo potencial, se requieren cambios estructurales en las políticas sociales y el sistema de salud, así como intervenciones específicas que permitan establecer una fuente de recursos estable, mejorar las condiciones laborales del recurso humano y fortalecer los procesos de capacitación y desarrollo de competencias.

Palabras clave: Atención primaria de salud, evaluación de resultados de salud, evaluación de servicios de salud, salud de la población, equidad en salud, implementación de políticas de salud, Bogotá.

Original Papers

This thesis is based on the following four papers, referred to as Papers I-IV:

- I. Mosquera P, Hernández J, Vega R, Martínez J, San Sebastián M. Performance evaluation of the essential dimensions of the primary health care services in six localities of Bogota–Colombia: a cross-sectional study. *BMC Health Serv Res.* 2013 Aug 15;13(1):315.
- II. Mosquera P, Hernández J, Vega R, Martínez J, Labonte R, Sanders D, San Sebastián M. Primary health care contribution to improve health outcomes in Bogota-Colombia: a longitudinal ecological analysis. *BMC Fam Pract.* 2012 Aug 16;13(1):84.
- III. Mosquera P, Hernández J, Vega R, Martínez J, Labonte R, Sanders D, San Sebastián M. The impact of primary health care in reducing inequalities in child health outcomes, Bogota-Colombia: an ecological analysis. *Int J Equity Health.* 2012 Nov 13;11(1):66.
- IV. Mosquera P, Hernández J, Vega R, Labonte R, Sanders D, Dahlblom K, San Sebastián M. Challenges of implementing a Primary Health Care strategy in a context of a market-oriented health care system: the experience of Bogota, Colombia. *Int J Health Plann Manage.* 2013 Nov 19. doi: 10.1002/hpm.2228.

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Abbreviations

ADD	Acute Diarrheal Disease
CATPCA	Categorical Principal Component Analysis
CHSPR	Centre for Health Services and Policy Research
CI	Concentration Index
CIP	Collective Intervention Plan
CPHC	Comprehensive Primary Health Care
DANE	National Administrative Department of Statistics (Departamento Administrativo Nacional de Estadísticas in Spanish)
DHS	District Health Secretariat
DPT	Diphtheria, Pertussis and Tetanus
FGD	Focus Group Discussion
GPI	Global Performance Index
GSSSH	General System of Social Security in Health
IMF	International Monetary Fund
IMR	Infant Mortality Rate
NHS	National Health System
PC	Primary Care
PCA	Principal Component Analysis
PCAT	Primary Care Assessment Tools
PHC	Primary Health Care
PHCI	Primary Health Care Index
PI	Principal Investigator
PSHQL	Promotional Strategy of Health and Quality of Life
QLI	Quality of Life Index
SPHC	Selective Primary Health Care
UHC	Universal Health Coverage
WHO	World Health Organization

The researcher

A graduate degree in psychology from my hometown, Neiva, prepared me to reflect on and understand personal development and increased my awareness of others, but soon afterwards I took a different route professionally. During my first job as coordinator of promotion and prevention activities in a regional level public health institution, I had to attend epidemiological surveillance committees in which cases of child and infant mortality were discussed. After a few meetings, I discovered a pattern that captured my attention: the mortality cases discussed in those meetings were concentrated among poor and vulnerable groups.

Confronting inequity had a profound effect on my life: It made me realize that I wanted to dedicate my life to contribute to a more equitable distribution of health care but also challenged me to be a lifelong learner. This purpose led me back to the university where I started a specialization in the field of epidemiology focusing on how to measure and monitor health inequalities. In my constant search for answers on how to address inequalities, I ended up moving to Bogota and started a Master's program in social policies where for the first time I heard about the Primary Health Care (PHC) strategy.

Thinking about the connection between PHC and health equity, I started working as a research assistant on a project funded by the District Health Secretariat aiming to analyze the experience of PHC in Bogota. As part of this research, I developed my master's thesis, which focused on the reduction of inequalities by the PHC strategy. After my master's degree, I joined the second stage of Bogota's PHC project as co-investigator and at the same time, I was hired by two universities as a PHC and epidemiology expert where I divided my time between planning and implementing my own research projects and lecturing epidemiology and biostatistics to undergraduate students and PHC and public health to master's programs in the medical and nursing schools.

The project on Bogota's PHC experience was one of the five chosen among 57 proposals competing in the Latin American region for funds and training support offered by the global project: "Revitalizing health for all: learning from comprehensive primary health care experiences" supported by the Teasdale-Corti Canadian Global Health Research Partnership Program. The agenda of the global project was to provide evidence on the impact of comprehensive primary health initiatives and to build a sustainable research environment on comprehensive primary health care (CPHC).

Once our project became part of the global initiative, we applied to get the remaining funds needed to conduct the research as it was planned. Colciencias

(the Department of Science and Technology of Colombia) granted part of the project and the remaining funds came from the District Health Secretariat. The project and the opportunity to start my PhD in Umeå came together when during the first regional meeting of the Teasdale-Corti project I met Miguel, my main supervisor, and so we set out the task of writing my research proposal.

The PhD process has been a wonderful experience and an opportunity to learn from the world around me and from the people that were kind enough to share their knowledge and work with me. During this journey, I tested not only my ability to do academic work, but also my ability and will to learn. Through this process I acquired new knowledge by trying and using methods in social epidemiology, qualitative methodology, health system and policy research and I also improved my skills to critically read and analyze, to write and to discuss, as well as to communicate research.

To participate in a global project initiative was perhaps one of the most enriching experiences that allowed me (as a PhD student and as part of a research team) to share ideas and experiences from my own academic work and also to learn from other participants' experiences to get a broader perspective on CPHC, health systems and policy research.

One of the major challenges but also strengths of the research process that contributed a lot to my learning process was the alliance between researchers and research users. This experience required from us, as a team, the generation of skills to transmit and communicate messages and knowledge to research users, as well as to make us more open to receive feedback from them during the entire process. Continuous communication with research users also helped us to better understand their needs and to target our work on relevant issues pertinent to the context and to those who were in charge of implementing policies.

As part of the PhD training I had the opportunity to participate in different workshops, courses, two summer schools and international conferences and trainings. Within the global project, I also had the opportunity to attend two trainings (one week each) and I was designated as the responsible person to present the results of our research team in all regional and international meetings, as well as to participate in discussions to identify cross-cutting issues together with research teams from other regions around the world.

Both the PhD training and the experience to be part of a global research project have been a great opportunity to gain more knowledge and experience in a multicultural setting and helped me to have a better understanding of challenges ahead from a global perspective.

Introduction

Primary Health Care (PHC) has been considered as an effective strategy to improve health outcomes and reduce health inequities. Its contribution is through the reduction of problems of access and utilization of health services, the implementation of comprehensive interventions through sectoral and inter-sectoral collaborations, the support of people's empowerment, and the promotion of social mobilization and community participation (1-3).

In Colombia, a simplified and limited conception of PHC was introduced in the official health plans in the 1980s within the old National Health System (NHS). However, in 1993, the previous NHS was reformed into the current General System of Social Security in Health (GSSSH) and by creating a health system based on an insurance market with different public-private provider combinations, principles of PHC were undermined (4).

Despite Colombia having adopted a health system based on neoliberal market principles (5), Bogota in 2004, as part of a left-wing government (elected for first time in the city), decided to return to the PHC principles and restore them as the core of the health system (6,7). This initiative was possible due to local level decentralization of the Colombian health system.

Consequently, the PHC strategy was one of the main strategies put in place to improve quality of life, level of population health, and reduce health inequities. This emerged as a purely local effort (led by the Mayor of the city and the District Health Secretariat, and supported by the public health care network and the community) without receiving neither political nor technical support by the national health system and within a context of constraints imposed by the insurance market rationality.

This thesis is an attempt to provide a better understanding of the overall experience of implementing a PHC strategy in the context of a market-oriented health care system. The research project aimed to evaluate the results achieved so far by the strategy in Bogota and to inform stakeholders about the challenges ahead.

The first part of the thesis presents an overview of PHC, its concept, approach, transitions and contributions to health (Chapter 1). Then, Colombia's and Bogota's policy framework are introduced through a brief explanation of the national health system structure and Bogota's initiative to implement social and health policies based in a rights approach (Chapter 2). After this contextualization, the rationale of the study is described (Chapter 3).

The second part of the thesis focuses on the research process, the general and specific objectives (Chapter 4), the conceptual framework used to guide the analysis and to structure the results of the thesis (Chapter 5), the study context and a brief description of PHC and the Home Health program in Bogota (Chapter 6), the methods and ethical considerations carried out (Chapter 7), and then the main findings that emerged from the research (Chapter 8).

Finally, the third part reflects on the main findings of the study (Chapter 9) and the thesis ends with conclusions, recommendations (Chapter 10) and a short description about the current health scenario in Colombia (Chapter 11).

Chapter 1 | Primary health care: an overview

This chapter describes changes and adaptations of the PHC approach over the years, and presents an outline of the statements in the original declaration, the move to a selective PHC approach and the return to the original ideals through the World Health Organization (WHO) “call-back to Alma-Ata”. This chapter also points out briefly the evidence that supports the PHC contributions to improvements in the population’s health and essential dimensions that allow the organization and provision of primary care services delivery.

1.1 Alma-Ata definition of PHC

PHC was proclaimed in the 1978 Alma Ata Declaration as the strategy to achieve “*Health for all by the year 2000*”. The declaration located health as a tool for socioeconomic development and stated a set of values and principles that constitute a wide concept of health rooted in a right-based approach that promotes universal coverage health systems with an emphasis on health equity (see Box 1) (8).

Box 1 Definition of PHC and Health in the Alma-Ata Declaration:

Primary Health care is “*essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individual and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community*”.

Health is defined as the “*state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*”. Health was understood as a fundamental human right and “*the attainment of the highest possible level of health was stated as one of the most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector*” (8).

Source: WHO 1978

The Alma-Ata declaration is a ten-point statement calling for action. Its key messages are: recognition of health as a phenomenon determined by socio-economic conditions; confirmation of government's responsibility on population health and the need of inter-sectoral responses to reduce inequalities between and within groups and countries; community participation for planning and implementation of health care interventions as right and duty; and the PHC approach as an strategy to reorganize service delivery and health systems to make them more responsive to local needs (8-10).

Important contributions of the Alma-Ata Declaration to health systems' organization and provision are: 1) identification of primary care as the first level of contact of individuals, families and communities with the national health system, with the function of bringing health care as close as possible to where people live and work; 2) statement of essential elements (longitudinality, comprehensiveness, family focus, community orientation) to guide the provision and delivery of health care (further explanation of these elements is presented in section 1.5 of this chapter); 3) inclusion of the intercultural perspective into health systems, which suggest that technical and managerial methods used to service delivery must keep the cultural patterns of the community, as well as to incorporate traditional medicines; and 4) the promotion of inter-sectoral action that requires processes ranging from advice and collaborative work to work led by the health sector, where other sectors and communities take part in the policy planning process (2, 3, 9, 10).

1.2 PHC approaches

1.2.1 Selective PHC

The feasibility of PHC as it was expressed in Alma-Ata quickly began to be criticized for its amplitude, high cost, quantity of trained personnel required, unrealistic timetable, and ambiguous goals (9-11). A new approach of PHC promoted by the Rockefeller Foundation, the World Bank and UNICEF appeared in 1979. During the conference "Health and Population in Development" held at the Bellagio Conference Center in Italy, the Selective PHC (SPHC) approach was introduced as an attainable alternative to address some of the most important health challenges of developing countries (9-11).

This new framework aimed to target specific areas of health and choose a flexible package of limited low-cost and high-impact interventions to respond to local needs. According to Walsh and Warren, this selective primary health care compared to other approaches demonstrated to be the most cost-effective form of medical intervention (12).

One of the most recognized examples of SPHC interventions was the GOBI program, which included growth monitoring, oral rehydration, breastfeeding, and immunization. This program was subsequently expanded and became known as GOBI-FFF including three additional interventions: food supplements, female literacy and family planning (9,10). These kinds of programs appeared easy to finance in a context of scarce resources and also easy to monitor and evaluate since reporting could be done more rapidly (9,10).

1.2.2 Comprehensive PHC

The supporters of the PHC approach expressed in Alma-Ata argued that the selective model resembled vertical programs; it could not adequately address social determinants of health and did not reflect a real commitment to social health equity (9,10). Therefore, the holistic original idea of primary health care began to be considered as the comprehensive PHC (CPHC) approach.

CPHC has been defined as the effective combination of promotive, preventive, curative, and rehabilitative services (13). As an interactive model based on the principles and values of the Alma-Ata declaration, comprehensive primary health care is rooted in a rights-based approach, encourages individuals and communities to be more involved in decisions about their health and its management, and includes inter-sectoral actions to respond to community needs (13). The comprehensive approach has also been enriched by the health promotion approach (14,15) and adopts special emphasis on addressing social determinants of health while incorporating a broad notion of social equity and advocating for universal coverage health systems.

The definition of *comprehensiveness of PHC* inclusively attempts to achieve the following broadly stated outcomes (16):

- To increase equity in access to health care and other services/resources essential to health;
- To reduce vulnerabilities through increases in community empowerment (capacities);
- To decrease exposures to risk through changes in social and environmental determinants of health;
- To improve participatory mechanisms and opportunities and political capabilities of marginalized population groups;
- To increase inter-sectoral policy actions on social and economic determinants of health that involve the health sector; and
- To improve health outcomes and reduce health inequities in the population.

1.2.3 The debate: comprehensive vs selective PHC

The debate between supporters of comprehensive vs selective primary health care approaches has evolved for more than two decades mainly around three topics: the meaning of primary health care, ways of implementing it, and financing mechanisms to ensure its sustainability. A related question to the financing issue is whether primary health care is cheaper than traditional health interventions or if it demands a greater investment (9-11).

The supporters of the comprehensive approach kept arguing that the shift towards a selective approach, after only one year of the Alma-Ata declaration, made the transformative potential of comprehensive primary health care remain largely unexploited (10).

Although disease-specific interventions are recognized as necessary and despite that selective primary health care has been lauded as having contributed greatly to improvements in global health, a revitalization of the tenets of Alma-Ata's primary health care has also been highlighted as needed to improve populations' health status and to reduce inequalities (2, 10, 17-20).

1.3 The call back to primary health care

The persistence of neoliberalism reforms forcing drastic reductions in funds for health care in developing countries, the transition from an international to a global public health framework, and the challenges of achieving the Millennium Development Goals were some of the contextual factors that brought to the health agenda the need to rethink the promise of Alma-Ata (9, 10).

Some other challenges of a changing global health context that justified the "call back" to primary health care were: growing demand of people for more equitable, inclusive, and fair health systems; the growing burden of non-communicable diseases coexisting with re-emerging infectious diseases; and high levels of health inequalities still existing between and within countries (3, 21, 22).

Thus, in 2008 WHO, motivated by the 30th anniversary of the Alma-Ata Conference, promoted an initiative to retrieve the values and comprehensive approach to health system organization, as first expressed in the Alma-Ata declaration. The World Health Report 2008, "Primary Health Care (Now More Than Ever)", reviewed the experience of PHC in the last thirty years and reinstated PHC as a strategy capable of responding to the challenges of a changing world and to meet people's expectations for better performance of the health systems (3).

This renewed sense of PHC opened a window of opportunity for comprehensive primary health care to “come back”. PHC was once again on the agenda with a core position that located it as a strategy to transform and organize health systems, leaving behind the idea of a program of basic health care or as a set of medical interventions.

The return to PHC has come with a set of health system reforms aimed to face current health challenges. The proposed reforms aim to contribute to health equity by moving towards universal access and social health protection; to reorganize health services around people’s needs and expectations; to integrate public-health actions with primary care; and to promote leadership and community participation (3).

1.4 PHC contributions to improve health outcomes and to reduce health inequalities

The beneficial impact of primary health care on population health has been extensively described. Scientific evidence from different settings have suggested that PHC helps to prevent disease and death and it is associated with a more equitable distribution of health resources among social groups (2, 3, 9-11, 16, 23). The Commission on Social Determinants of Health has stated that health care services with universal coverage and focused on PHC could help to generate locally appropriate interventions across a range of social determinants by promoting community participation and inter-sectoral actions (22).

Several studies have found that health systems based on PHC principles ensure a high level of satisfaction among users, increases in social participation and lower costs for the health system (3, 23, 24). Literature reviews have found that PHC is significantly associated with decreases in infant, child and overall mortality rates and increases in life expectancy, which in turn are related to reducing health disparities measured by income level, geographic location and race/ethnicity (23, 16).

Some global health analysts have highlighted important successes in low- and middle-income countries. For example Mozambique, Cuba, and Nicaragua in the 1980s greatly improved their population health indices through the expansion of primary health care coverage. In the 1990s, Sri Lanka, China, Kerala state in India, Costa Rica and Brazil confirmed the striking success of PHC reforms through notable improvements in social development and health (10).

Barbara Starfield suggested that a PHC approach benefits population health through mechanisms like better access to needed services (making special

focus on socially deprived groups), changes in the organization and delivery of services that improve the quality of care, a greater focus on prevention and early management of health problems (23, 24). The beneficial effects of PHC on peoples' health can be related, at least in part, to the cumulative effect of key primary care (PC) essential dimensions or service delivery characteristics. These characteristics include the focus on the person rather than on the management of particular diseases, the continuity and longitudinality of care services and the role of primary care in reducing unnecessary and potentially harmful specialist care (23, 24).

1.5 Essential dimensions of primary care service delivery

As we noted earlier, the effects of PHC on population health have been positively associated to the adequacy of the primary care (PC) organization and its characteristics for service delivery (23-26).

PC services are people-oriented, serve as the first and on-going point of contact with the health care system and are planned and implemented using knowledge about families, communities and culture of the population served (23-26).

These characteristics for service provision make primary care services an appropriate platform to develop and implement PHC interventions that contribute to sustainable health and social development of communities (25, 26).

Based on Starfield's proposals (24, 25), the essential characteristics/dimensions of primary care are as follows:

- **First contact or gatekeeping:** the extent to which primary care serves as the entry point to other levels of care (in non-emergency situations);
- **Accessibility:** the ability to use primary care services without financial, organizational, geographical and/or structural barriers;
- **Longitudinality:** continuity of attention (person-centred) over time with a stable provider of services;
- **Comprehensiveness:** the extent to which all essential services needed to provide for the majority of the population's health needs are offered at primary care facilities;
- **Coordination:** the extent to which primary care facilitates patients' care between levels and with other important social services and sectors;
- **Family focus:** the extent to which primary care considers the patient within the wider context, which includes the family environment, and the encouragement of participation and support of the family; and

- **Community orientation:** how well primary care responds to community needs, encourages community participation and involves the population in the design processes of interventions.

Inter-sectoral action and community participation must be understood as central elements of the community orientation. Those elements are expected to result from PHC interventions, but they are also necessary conditions for its implementation. Community involvement makes the health system more responsive to local health needs and inter-sectoral work helps to address social determinants of health. Both are necessary elements to achieve economic and social development, as well as to improve quality of life of the population (25).

During the 1990s a set of Primary Care Assessment Tools (PCAT) to measure attainment of primary care dimensions (26,27) were developed and validated by Starfield. Since then, PCAT experiences have taken place in many countries (Canada, Spain, South Korea, China, Brazil and other countries in Latin America), and versions in different languages have been adapted and tested. These tests indicated cross-cultural reliability of the instruments for assessing how well primary care is performing (26-38).

Recent experiences on evaluating the performance of primary health services of the Brazilian Family Health program have included a new dimension labelled professional training. This dimension was included to assess if people involved in providing primary care receive the necessary training (34-36). In Colombia, the dimension of personal training has also been included and the evaluation tool was further expanded with the inclusion of a dimension aimed to evaluate financial resources distribution. This dimension is oriented towards the exploration of whether the allocation of financial resources within the health facilities takes into account health needs and socio-economic differences of the population served (37,38).

Chapter 2 | **The Colombian health system and the PHC strategy in Bogota**

This chapter sets the scene of the study. It begins by describing the structure of the General System of Social Security in Health (GSSSH) and its main problems and then it presents Bogota's health policy and the PHC strategy as an attempt to overcome problems of the national health system.

2.1 The general system of social security in health

In the mid-1980s, Colombia began to implement fiscal, political, and institutional decentralization reforms aimed at transferring functions and responsibilities from the national level to the departmental/district and municipal/locality levels (5). Then, in the early 1990s, the national level decided to develop an economic, social and health neoliberal, market-oriented policy (4, 39). The influence of the World Bank and the International Monetary Fund (IMF) resulted in a series of structural reforms in all sectors (privatization of state assets, deregulation of economic markets, lower corporate and individual taxes, more user pay for public services, government deficit reduction and trade and financial liberalization) (39-41).

The wave of structural reforms led the health sector to the Act 100/1993 by which the old National Health System was reformed into the current GSSSH (42). The reform was based on guidelines and recommendations set by the Washington Consensus. These guidelines advocated cost recovery and user fees, separation of purchaser and provider functions, and privatization of public hospitals (43, 44).

With this reform, the health system was oriented towards neoliberal-market rationality (39-41). The reform aimed to reach efficiency through a reduction of the state's role as health care provider, decentralization of health services administration, and the privatization of health institutions combined with labour market flexibility (39-41).

The GSSSH is based on an insurance market with different public-private provider combinations. It is organized around functions and responsibilities

rather than population groups and financed through a combination of payroll contributions and general taxation (5). Figure 1 presents the GSSSH structure.

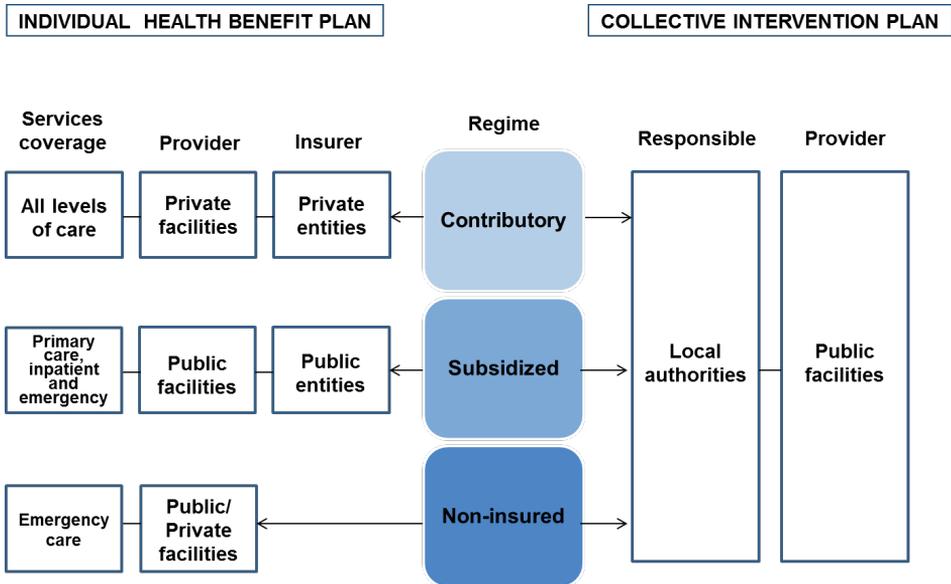
The system separates individual health services (e.g., diagnosis, treatment and rehabilitation of diseases - inpatient and outpatient care) from public health actions (e.g., programs that provide health education and national campaigns for prevention, early diagnosis, and control of diseases) (40). Individual health services are the responsibility of insurance companies and are provided through an individual health benefit plan (insurance-package) that is outsourced to a mix of public-private providers (5). Public health actions are the responsibility of local governmental health authorities and are provided through a Collective Intervention Plan (CIP—Plan de Intervenciones Colectivas in Spanish) (40). Local health authorities provide services included in the CIP through contracts between Health Secretariats and public hospitals (5).

This system also divides the population for attention according to their ability to pay by creating two types of regimes. The contributory regime, funded by payroll contributions where formal employees and independent workers contribute a proportion of their incomes; and the subsidized regime, funded by general tax revenue, where poor people—depending on their poverty status—receive partial or full insurance coverage (5, 40). The identification of the recipient population for the subsidized regime is done under the local authority's jurisdiction and performed by applying a tool known as “Beneficiaries Selection System”, designed with the purpose of targeting the population with unmet basic needs.

Insurance companies from the contributory regime collect funds from the enrollees and outsource the provision of care through contracts mainly with private care providers. Insurance companies from the subsidized regime receive funds from national transfers made by local health authorities and outsource the provision of care through contracts mostly with public health care providers (5, 40). Individuals from both the contributory and subsidized regimes choose their insurer and health care providers from the insurers' network, and they receive a health benefits package (5, 40). The contributory regime package covers the contributor's and his/her family's health services in all levels of care. The subsidized one covers services of the enrolled person in primary care and some of the inpatient and emergency care (40).

Due to existing budgetary restrictions, the subsidized regime does not reach the entire potential beneficiary population. The population still uninsured is able to use public facilities to receive emergency care and these services are funded by the central government for those classified as poor. In 2010 the system began a gradual process to equalize the coverage of the two regimes and it is currently trying to reach universal coverage (5, 40).

Figure 1. GSSSH structure and operation



Source: Mosquera et al., 2013. (Paper IV)

This reform process has left aside state actions on broader determinants of health and lessens PHC principles stated in the 1978 Alma-Ata Declaration. The resulting model has been a mix of managed care and health care assistance, predominantly curative, focused on the prevention of individual risk and with weak family orientation and lack of community participation and inter-sectoral action (4).

2.2 Main problems of the Colombian health system

The GSSSH has not been able to materialize its promises of universality, efficiency, and better quality (45-51). The market approach, the public-private combinations of providers and insurers, and the regulated competition scheme have resulted in a highly segmented and fragmented health care system (45). The individual health services do not maintain connection with public health actions, making it difficult to define any strategy for comprehensive care in the health system (45).

The fragmentation of care and the notion that health services are an asset that must be bought in the market have resulted in an overall deterioration of the public health organization. This is reflected in the stagnation of some health

indicators and wider disparities in access to services and health outcomes (45-51). The division of management and provision of services involve a large number of intermediaries (mostly private) opening opportunities to increase the level of corruption and deviation of funds.

Guidelines for actors within the system are not clear enough and lack articulation, which in turn make it more complicated to guarantee the continuity of service delivery. The stewardship function of the state has been weakened and as a result, the insurance-market is not properly regulated. Public hospitals continuously face the demands of health care market competition, with the hope that it would make them more efficient, reducing costs and getting better quality. However, these goals have not been feasible given the complexity of the system and in contrast, many hospitals have ended in bankruptcy and some are still trying to subsist facing a huge budgetary crisis (45).

Although today nine out of ten Colombians have insurance coverage, it does not guarantee the quality of services they are accessing. Users claim that the system is costly and inefficient (52) and the health benefit plan is confusing and limited (46-48). Community participation in the health system is shaped by institutional interests and increasingly concentrated in the defence of contractual rights. In other words, the system promotes the transformation of citizens into consumers, who behave as individuals acting in a market without common goals (45).

The system has not yet developed an information system that provides the possibility to monitor integrated actions. This limitation allows neither to plan nor to implement actions. Human resources are limited, most of them face difficult working conditions, turnover is high and some practitioners do not adequately perform. Universities have focused on the training of managers and medical specialties; and health workers receive little teamwork training and are not competent for public health actions (53).

2.3 Bogota's social and health policy

In 2004, a centre-left wing government was elected for first time in Bogota. This government decided to formulate policies with a right to health based approach, rooted in the values and principles of solidarity and social justice. The main goals of the policies were to increase social investment, improve the population's quality of life, and reduce health inequalities (4, 54, 55).

Due to the level of national decentralization and that the city administratively has the level of autonomy of a department, the Bogota government could launch a set of policies with an opposite approach to the national dominant

neoliberal framework. A wide range of new programs and interventions, such as food and housing subsidies, school placement allocation, and employment generation projects were put in place.

The Bogota District Health Secretariat as the highest health authority put in place two strategies: i) the PHC strategy with a comprehensive approach and ii) the Promotional Strategy of Health and Quality of Life (PSHQL - Estrategia Promocional de Calidad de Vida y Salud in Spanish) (4, 6, 7). The main purpose for the inclusion of these two strategies was to overcome problems of the GSSSH by facilitating the achievement of universal health coverage in Bogota and ensuring access to health services, especially for poor and vulnerable groups and the uninsured population (4, 6, 7). It was also assumed that both strategies were complementary to strengthen actions on the social determinants of health and that the PSHQL would support PHC in promoting community participation and inter-sectoral work.

PHC was the core strategy in the health policy. It was designed as the strategic model to reorient health care delivery to ensure comprehensiveness of services, as well as to strengthen public health activities and the public health care network (6, 7). The PHC strategy reinstated the principles articulated in the 1978 Alma-Ata Declaration through a comprehensive approach. Essential elements of the strategy included a right to health based approach rooted in community participation, empowerment of social groups and inter-sectoral work (4, 54, 55). Operationally, the core of the PHC strategy was the Home Health (Salud a su Casa) program, which was based on multidisciplinary health care teams working on bringing the health sector as close as possible to the community.

The PSHQL was conceived as a public management approach. It aimed to improve quality of life of the population through the articulation of health sector activities with other social sector actions (e.g., habitat and environment). This strategy organized public health actions into four categories: 1) activities revolving around daily life (families, neighbourhoods, schools and workplaces); 2) interventions through the life course (from childhood to old age); 3) activities to address transversalities (gender, equity, and diversity); and 4) projects to develop community autonomy.

PHC and the PSHQL were implemented in parallel, PHC as the core of the health policy and guiding structurally the work of the whole health sector headed by the district health secretariat; and the PSHQL as the management approach of public health actions contained in the collective intervention plan and led by the department of public health within the DHS.

Chapter 3 | Study justification

Colombia, like many Latin American countries, has a health care system characterized by a fragmented structure where models of public, private and social insurance co-exist with a market-oriented health service provision. The mixture of all these features together poses further challenges with respect to the integration and stewardship of health providers (56, 57), complicating any attempt of PHC implementation (16).

In this regard, it is widely accepted that the implementation of health policies, and specifically PHC approaches are shaped by socioeconomic, political and cultural factors, as well as by power relations and political processes (16, 58).

For the last eight years Bogota has been implementing the PHC strategy through the Home Health program. This period of three consecutive governments has faced constant tension stemming from differences between national and district health policies, in addition to constraints imposed by a market-driven health system. The city government has been strongly criticized for its political approach and the PHC strategy considered as a duplicating effort and a substitute of the insurers' role.

Consequently, the analysis of the achievements reached by the PHC strategy, as well as the identification of the challenges ahead for its sustainability, have been one of the priorities for both the DHS and policy-makers (especially those interested in facilitating the expansion and development of the strategy). That is the reason why in 2008 (four years after the implementation of the PHC strategy in Bogota) the DHS, in agreement with a research group at Javeriana University, began a process aimed at analyzing the strategy and its short-term achievements.

The short-term results evaluation showed that PHC –as implemented in Bogota– seemed to have contributed to improving access to health care services, to facilitate the integration of individual and collective actions and to promote inter-sectoral work and community participation. This analysis also indicated better health outcomes and inequality reductions in the city. The evaluation therefore concluded that PHC could be a feasible option able to address the fragmentation and segmentation of the health care system (4, 37, 55, 59).

Although the research in this early stage showed positive findings, the information produced was not conclusive. Little attention was paid to analyzing the processes, actors, institutional context, and the exercise of power involved in the development of PHC at the local level. Meanwhile, an electoral process posed the threat of the following government displacing the strategy. The interest of the DHS in providing conclusive evidence on achievements reached by the strategy therefore became more imperative.

At the end of this stage of research (2008), a series of workshops with the participation of decision makers, managers, practitioners, and communities were conducted to discuss the way forward. The conclusion was that a second stage of research was needed and that the most important questions reflecting the stakeholders' priorities were:

- Has the PHC strategy helped to improve the performance of the network of first-level public health care facilities in Bogota?
- What PHC dimensions need to be improved?
- What are the results of the PHC implementation on health outcomes and health equity?
- What are the main challenges of the PHC approach in order to achieve better health outcomes and health equity?

There was also a consensus that the new evidence produced could help decision makers, managers, practitioners, and communities to identify areas in which further support was required. Furthermore, it could contribute to the political agency necessary to draw attention to the PHC strategy at the district government.

In the last eight years, other regions in Colombia have also decided to prioritize PHC in their health policy agendas. In 2011, the national government launched a new law adopting the PHC strategy through the organization of basic health care teams, establishment of integrated networks of health services, and promotion of inter-sectoral action and community participation (60). Considering this national initiative, further description and exploration regarding the implementation and results of the Bogota experience were relevant and timely.

This research was conceived and developed in a participatory manner actively involving strategic actors. The process was carried out in close collaboration with the DHS and was directed at closing the gap between research knowledge generation and its use. During the research process other national and international actors (Colciencias, Teasdale-Corti Global Health Research Partnership Program) were also linked to the research initiative, based on the common interest to contribute to the international debate regarding the need to strengthen the PHC strategy and its values.

Chapter 4 | Objectives

4.1 General objective

The study aims to evaluate the results of the PHC strategy through the intervention of the Home Health program and to identify factors that have enabled or limited the on-going PHC implementation process in Bogota.

The findings of this study aim to provide a better understanding of the PHC impact and the overall experience of the implementation process in Bogota. This will also inform the District Health Secretariat about the dimensions in need of improvement, challenges ahead to make the strategy sustainable, as well as to provide “real time” knowledge that could help the future process of scaling up the PHC strategy to the national level.

4.2 Specific objectives

1. To assess the direct results of the PHC strategy in terms of progress in the Home Health program coverage and increases in health personnel ratios reaching out to poor and vulnerable groups in Bogota (Paper II).
2. To evaluate qualities of the delivery of PHC services through the attainment of PHC essential dimensions in the network of first-level public health care facilities in Bogota (Paper I).
3. To analyze the contribution of the PHC strategy, through the Home Health program, to improve child health outcomes and to reduce health inequalities in Bogota (Papers II and III).
4. To identify contextual factors that limited and enabled the implementation process and the PHC strategy’s ability to produce results in Bogota (Paper IV).

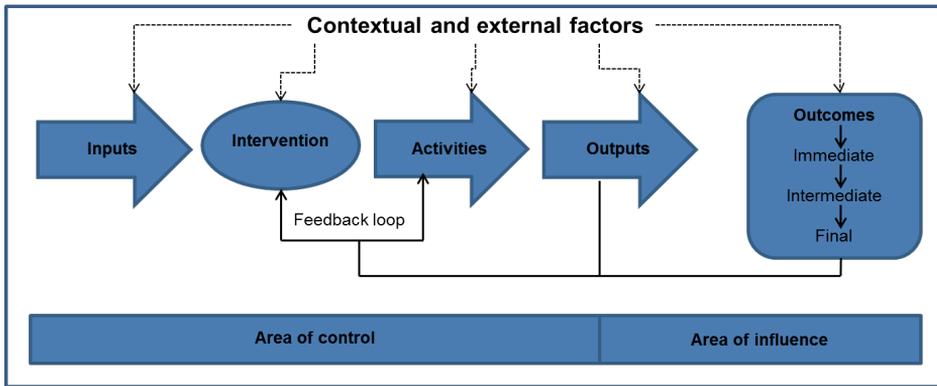
Chapter 5 | Theoretical framework

Bogota's PHC strategy is a complex and context-dependent intervention that involves several social processes and a great number of stakeholders. This study thus required an approach that allowed critical reflection on the elements and rationales of the actors, as well as on the influence of contextual factors. Consequently, to evaluate the results of the PHC strategy in Bogota and to identify enablers and barriers to its implementation, this thesis has used the results-based logic model for Primary Health Care interventions as a framework (61, 62).

Conceptually, a logic model is a graphical illustration of how a program or intervention is expected to produce desired outcomes. Understanding the underlying logic of an intervention, from the beginning to the end, allows evaluators and implementers to better understand complex interventions. It also helps to guide evaluation designs and illuminate the selection of measurable indicators to be used in implementation and impact analyses. In addition, a logic model is useful to identify indicators of whether the intervention successfully implemented key activities, delivered services as planned, and attained the outcomes of interest (63). In the published literature a mounting number of evaluators and researchers have used and developed logic models to describe particular health interventions and to guide their evaluation efforts (63).

The results-based logic model for Primary Health Care interventions was developed by The Centre for Health Services and Policy Research (CHSPR) in Canada to provide a common framework to guide performance measurement, monitoring and evaluation of PHC interventions. The results-based logic model goes beyond the "input→black box→output" paradigm to one that considers inputs, activities, outputs, initial, intermediate and final outcomes, feedback loop processes, flows and areas of control and influence (61, 62).

In addition, to show interrelationships among intervention components and results, the results-based logic model recognizes the influence of external contextual factors on the intervention's ability to produce results (61). Figure 2 shows the components of the results-based logic model.

Figure 2. Components of the results-based logic model

Source: Author's elaboration - Adapted from Watson et al., 2004 (61).

The application of the results-based logic model gives high value to participatory approaches to design and carry out evaluation processes including stakeholders, providers and communities that facilitates the understanding of the influence of contextual factors. In addition, including stakeholders serves to identify areas for intervention refinement, mid-course corrections, and/or need for technical assistance to support on-going implementation (61-63).

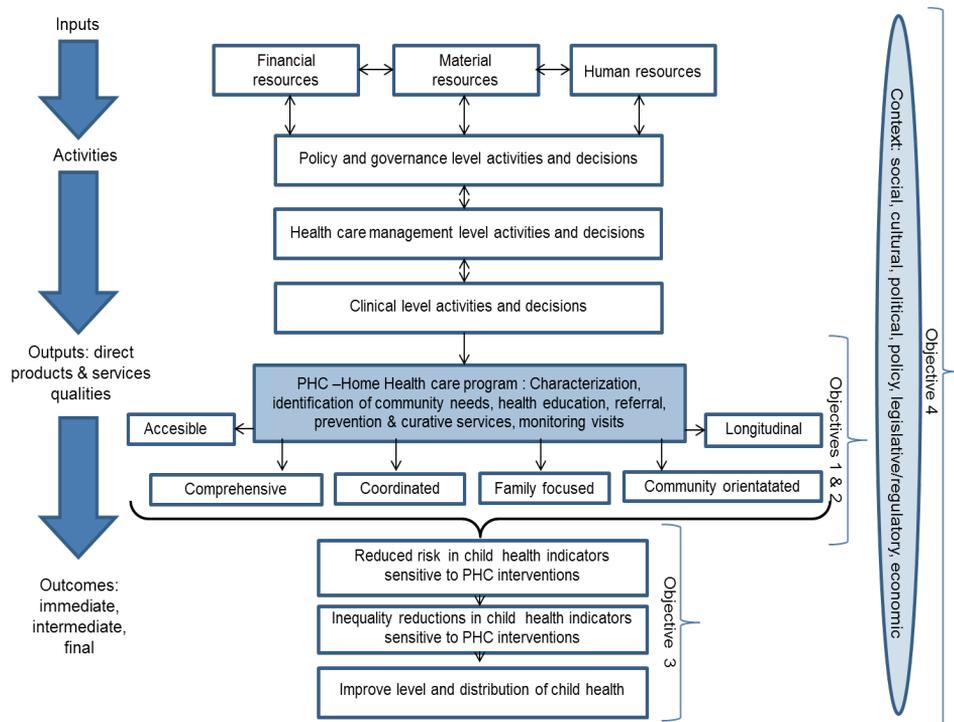
Figure 3 shows components from the original results-based logic model for Primary Health Care interventions taken as the framework for this research and presents a scheme of the research objectives linked to each of the components.

In the results-based logic model for Primary Health Care interventions, contextual factors influencing the PHC intervention include social, cultural, political, policy, legislative/regulatory, economic and physical environments (right side of the Figure). The PHC inputs could be human, material or financial resources used to perform activities, produce outputs and achieve results. PHC activities are actions/procedures executed in order to produce specific outputs. These activities can be categorized into three types: 1) policy/governance, 2) health care management, and 3) clinical-level activities (61, 62).

PHC outputs are direct products or services delivered as a result of PHC activities. PHC services include promotion, prevention, curative, rehabilitative, palliative and supportive services offered to individuals or populations. These outputs can be described in terms of quantities (number of services delivered) or qualities (e.g., responsiveness: the degree to which services are person-focused, effective, comprehensive, continuous, coordinated and community-oriented) (61, 62).

According to the framework, PHC outcomes can be immediate, intermediate or final. Immediate outcomes are those most attributable to outputs and for which the PHC workforce and stakeholders can reasonably assume control, responsibility and accountability. The four immediate outcomes for PHC interventions are: 1) an increase of knowledge about health and health care among the population; 2) a reduction of risk, duration and effects of acute and episodic conditions; 3) a decrease in risk and effects of chronic health conditions; and 4) improvement of work conditions of the PHC workforce. Intermediate outcomes include areas in which PHC services are expected to have an impact but for which stakeholders have a lesser degree of control or responsibility. These outcomes include: 1) appropriateness of provider and place; 2) health care system efficiency, acceptability or satisfaction; and 3) health care system equity. Final outcomes are ultimate impacts and include areas which receive strong contextual influences; therefore, PHC services are expected to have a much lower degree of control over them. Final outcomes include: 1) a sustainable and accountable health care system; 2) improvement and/or maintenance of function, resilience and health for individuals; and 3) improved population-level health and wellness (61, 62).

Figure 3. Components of the results-based logic model applied in the evaluation of the PHC strategy in Bogota, Colombia



Source: Author's elaboration - Adapted from Watson et al., 2004 (61).

On using the results-based logic model to evaluate an intervention, it is important to identify the information about contexts, inputs, activities and outputs necessary to understand the current and evolving state of the PHC intervention. Collaborative work throughout the whole process involving stakeholders, practitioners and communities is important to identify external forces and contextual factors influencing the intervention and its results.

A next step is to define evaluation questions, and then methods, indicators and information systems that will provide the necessary data. Sophisticated evaluation methods (e.g., multivariate analysis) are necessary to account for externalities that simultaneously influence outcomes. The evaluation process itself requires close observation to detect whether activities are being undertaken as planned and whether these interventions have the intended effects.

A last step in the process is to provide information about evaluation results to inform stakeholders about future policy, health care management and clinical plans, decisions, actions and further evaluations.

The intervention to be analyzed in this research is the PHC strategy implemented in Bogota through the Home Health program. In this case, the analysis focused on three aspects of the logic model: 1) outputs, 2) outcomes, and 3) the contextual factors.

Inputs to the PHC strategy and activities developed by the Home Health program are described in Chapter 6 Section 6.2 (the PHC strategy and the Home Health program). Relevant outputs were measured in terms of direct products (increase in Home Health program coverage and personnel ratios per population – objective 1) and qualities (responsiveness of services through the attainment of primary care essential dimensions – objective 2). Such aspects have been considered in the literature as important measures of primary care supply, and have been associated with better health outcomes and better provision of promotion and preventive services (23, 25).

Outcomes were measured through a set of selected child health indicators identified in the literature as sensitive to PHC interventions (objective 3) (64, 65). Those were evaluated in terms of risk reduction in acute/episodic conditions (immediate outcomes) and decreases of health inequalities (intermediate outcome), which in turn reflect improvements of population-level health status (final outcomes).

The influence of contextual and external factors was analyzed through the identification of structural barriers, as well as factors that have facilitated or limited the implementation process and the PHC strategy ability to achieve the goals proposed (objective 4).

Chapter 6 | Context

6.1 Study setting

6.1.1 Colombia

Colombia, located in north-western South America, is a middle-income country with over 46 million inhabitants. Colombia is one of the most urbanized countries in Latin America; nearly 75% of the population lives in urban areas (66). Colombia is the fourth largest economy in Latin America and the third largest in South America (67).

Geographically and administratively, Colombia is divided into 32 departments and four districts (Bogota, Barranquilla, Santa Marta and Cartagena), which are treated as departments. Departments are subdivided into municipalities and districts into localities. Each department has a local government with a governor and assembly directly elected to four-year terms and each municipality is headed by a mayor and a council.

Figure 4. Location of Colombia (in white) in South America



Source: Proimagenes Colombia – Comission Filmica.

In 2012, the National Administrative Department of Statistics (DANE) reported that 32.7% of Colombians were living below the poverty line and 10.4% in extreme poverty (68). Wealth is relatively unevenly distributed among the population, which makes Colombia one of the most unequal countries in Latin America with a Gini index of 53.9 (69). Poverty is especially concentrated in rural areas where 46.8% of the population is considered as poor and 22.8% as extremely poor. Population in Colombia is classified by social strata^a, which is a socioeconomic measure that classifies population by groups from 1 to 6, 1 being the lowest and 6 the highest. According to this measure 63.5% of the Colombian population belongs to strata 1 and 2, the two lowest socioeconomic groups (70).

Life expectancy at birth for Colombians is 74.79 years, 71.55 years for males and 78.23 years for females. The birth rate is 17.23 births/1000 population and population growth is 1.12% annually. In 2010, the infant mortality rate was 15.92 deaths/1000 live births, child mortality was 17.10 deaths/1000 live births and maternal mortality rate was 92 deaths/100,000 live births (66).

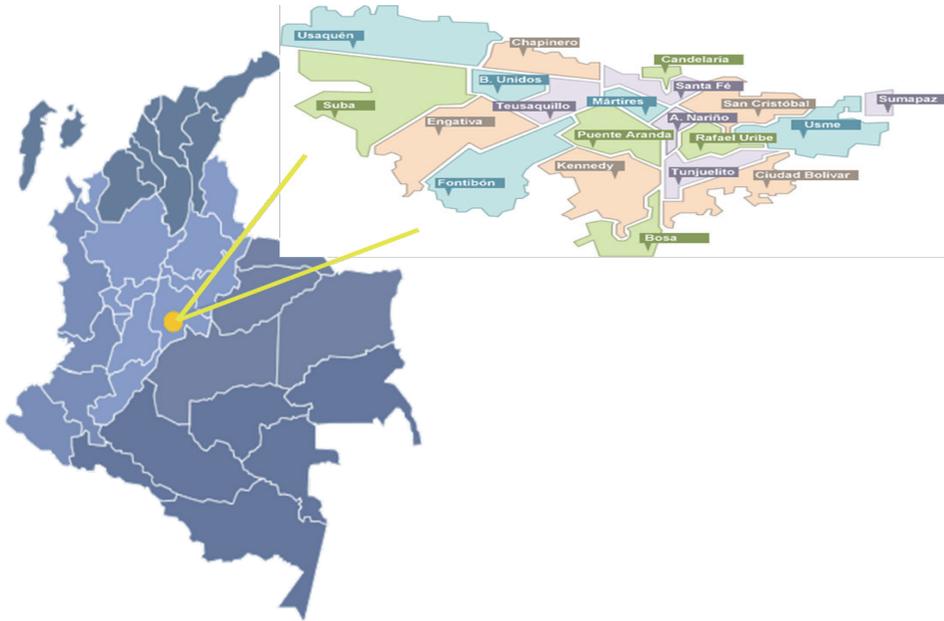
6.1.2 Bogota

Bogota is located in central-western Colombia and is the capital and the largest city in the country with 7,571,345 inhabitants (2012). It is the main economic and industrial centre of Colombia. The capital district is divided geographically and administratively into 20 localities, 19 urban and 1 rural. Bogota, as the rest of the country, has experienced an acceleration of the urbanization process due to industrialization, especially because of complex political conflict and violence, which has led people from rural areas to a forced displacement to urban areas. Over 99% of Bogota's population lives in urban localities (71, 72).

As the capital of the country, Bogota is an independent district, which means that administratively the city acts as a department (it assumes regional planning, management and financial responsibilities). The Mayor and the District Council, both elected by popular vote, head the city's government. Each of the 20 localities is led by a local mayor who is designated by the Mayor from a list of three candidates nominated by Local Administrative Assemblies at each locality. These Assemblies are elected every three years and are made up to seven or more members called "ediles" (72).

a Strata classify socioeconomic groups from 1 to 6, 1 being the lowest and 6 the highest. Factors used to determine this classification are related to external characteristics of houses and their environment (presence of a house, size of facade, material of which the facade and roof are made, sidewalk, porch or garage). This classification determines taxes and the amount charged for housing public services (gas, water and electricity), as well as access to health services and social programs among others.

Figure 5. Bogota and its localities



Source: Observatorio Ambiental – Alcaldía mayor de Bogotá.

The provision of health services in Bogotá is organized by localities and those are in turn grouped into four networks of health services (north, south, east central and south western). The District Health Secretariat is the highest health authority and the health secretary is designated by Bogotá's Mayor.

Internal displacement has created an increase of the misery belts in Bogotá's surroundings; however, the level of poverty is much lower than in the rest of Colombia. In 2011, DANE reported that 13.1% of Bogotá's population was living below the poverty line and 2% in extreme poverty (71). The Gini coefficient for Bogotá is slightly lower than the Colombian one, 52.2; and, according to strata classification, 51.2% of Bogotá's population belong to strata 1 and 2 (72).

Life expectancy at birth in Bogotá is slightly higher than the national one (78.31 years for females and 72.56 for males). In 2007, the infant mortality rate was 14.24 deaths/1000 live births, under-five mortality was 31.14 deaths/100,000 children under five and maternal mortality rate was 45.8 deaths/100,000 live births (73).

6.2 The PHC strategy and the Home Health program

6.2.1 The PHC strategy – inputs and activities

The designed PHC strategy set out the deployment of a series of actions and changes over years in all localities. On following the classification of activities proposed by the results-based model (61), the activities planned by the PHC strategy at the policy level were (4):

1. Changes in the service provision policy and adjustment of contracts and audit processes: implementation of the Home Health program, assignment of families and individuals to basic health care teams, identification of community needs and design/implementation of specific interventions/services to address community needs were some of the new contractual clauses established by the DHS for insurers and providers.
2. Identification of funding sources for the implementation of the Home Health program: Strengthening of existing and creation of new PHC centres in remote areas as well as the conformation of basic health care teams were the most important activities to ensure the progress of the strategy. DHS got approval from the Ministry of Health to use a portion of the resources allocated from the nation to the district to fund infrastructure. Financial resources for a certain number of basic health care teams in each locality were supposed to be allocated from the DHS to public hospitals through the CIP. These funds were intended to cover full-time salaries for two community health workers and the environmental technician and part-time salaries for the nurse and the physician. The strategy assumed that hospitals would finance the rest of the professionals' working time to guarantee a full health care team per micro-territory.
3. The adjustment of information systems: Development of tools to identify community needs at the household level and creation of PHC online software to integrate information from different sources (medical records, characterization surveys, social services) were the main strategies. These were aimed to strengthen coordination (referral and counter-referral within and outside the health sector) and to facilitate collaborative work between the health care sector and other social sectors.
4. Capacity building and human resource development: a training program that ran during the first year of the PHC implementation was put in place. The professionals involved with PHC at public hospitals were trained to serve as multipliers through short courses and diploma courses offered by national and international universities. Also the DHS, in agreement with the National

Apprenticeship Service (Servicio Nacional de Aprendizaje (SENA) in Spanish), initiated a technical program to train community health workers and improve their skills in public health and health promotion strategies.

5. **Articulation of the health sector with other social sectors and promotion of community participation:** This strategy was supposed to be addressed by both the PSHQL and PHC. The basic health care teams would promote and create opportunities for community organization and mobilization and would identify community needs. The PSHQL would use as an input the needs identified by the basic health care teams and then would promote the design of inter-sectoral responses involving communities.

For its part, the activities planned to be executed at the health care management and clinical level all addressed three aspects: implementation of the Home Health program; necessary adjustments to improve access and use of services; and integration of activities from basic health care teams, with the provision of individual services and public health programs (4).

Several immediate activities were enhanced by the new service provision policy. Opening hours were expanded after 18:00 and weekends, and new strategies for users to get appointments (by phone during and out of office hours by the Internet) were introduced. Furthermore, automatic appointment scheduling for patients with chronic diseases was implemented; charge fees for services offered to children under five, people over 65 and people with severe disability were eliminated. Also, the portfolio of services was expanded and mobile care units to reach distant populations were introduced (4, 55).

6.2.2 The Home Health program – the operating core

The implementation of the Home Health program was the core activity from the operational point of view. The program works in the network of first-level facilities and public hospitals operating under the authority of the Bogota District Health Secretariat (DHS). The program is based on the conformation of multidisciplinary basic health care teams, comprised by a physician, a nurse, two community health workers, and an environmental technician who either provides intra- or extramural services (4,6,55,74). Twelve hundred families are assigned to each team in a geographically defined catchment area (micro-territories). Basic health care teams are supported by an expanded team (one for each locality) consisting of a dental hygienist, a dentist, a physiotherapist, a psychologist, and an environmental engineer (74).



Images 1 and 2. Home Health care teams

The program seeks to stimulate demand for primary health care services, to facilitate access to social services and to design programs and interventions targeted to meet families/community needs and priorities. The program's intervention began by prioritizing poor people classified as belonging to social strata 1 and 2, with the aim of gradual expansion to other strata. (4,6,55,74).

Community health care workers and environmental technicians conduct a survey at neighbourhood and household levels with the aim of characterizing individuals, families and environmental health conditions in each micro territory. Once the surveys are completed, people receive health education and when necessary they are referred to social services and to their usual health care providers to receive health care services (4). The first-level care facilities (where the physician and nurse of the Home Health care are usually located) act as a gatekeeper to specialist care, provided at any of the public hospitals within the network of services. The first-level care facilities are supposed to refer and then receive back users and offer them continuous, comprehensive, and coordinated care (6).

Individuals characterized by the Home Health program are easier assigned to appointments in health care centres and hospitals. They also have easier access to social programs, such as community kitchens, housing subsidies and education grants for children who have left school. Priority cases (e.g., high risk pregnant women, disabled people) in addition receive monitoring visits at home by a physician and/or nurse from the Home Health care team (4).

Population needs are identified by using the information collected in the characterization surveys. Then, identified needs are prioritized and health care teams design specific action plans and with the support of the PSHQL, an inter-sectoral response is promoted to provide a proper answer to the community situation. As part of the Home Health program, communities receive support for social mobilization and education to strengthen and enforce the right to health (4).



Images 3 and 4. Members of Home Health care teams applying the characterization survey

6.2.3 The implementation process

All mentioned activities at the policy level began to be developed in August 2004. The Health Secretary created a PHC coordination group and located it at the highest hierarchical level within the structure of the DHS. The coordination group comprised officials representing all operative departments at the health secretariat (e.g., public health, service provision, information and systems, strategic planning, human resources). Their main goal was to plan the strategic steps by which PHC would permeate the operation of the whole DHS and therefore the work of the health care networks in Bogota. This coordination group initially reported directly to the Health Secretary (2004-2005) so the group had the capacity and autonomy to change all policies and guidelines. Thus, health care management activities and the Home Health program began to be implemented at the locality level in late September 2004 (75).

Shortly after, the district government began to face strong criticism to its approach and the PHC strategy was accused of being costly and duplicate efforts. Consequently, the Health Secretary was removed from the position and a new one with a completely different background was assigned. The PHC coordination group went down a rung from the initial hierarchical position. It then became a dependency of the sub-secretary (2006-2007) where it still retained its central position but also began to reduce its management capabilities (75).

In 2007, the PHC coordination group was again relocated, going down another rung and becoming part of the Department of Public Health. The coordination team began to fade and most of officials who formed it returned to their initial departments. This new relocation coincided with the fact that the Health Secretary decided that the conceptual and management approach of the PSHQL was politically less controversial and therefore more appropriate to guide the work of the DHS (75).



Image 5. The health secretary and members of the coordination group planning the first stage of the Home Health program

As a result of this relocation, the PHC strategy and the Home Health program were relegated to the activities concerned within the "families" setting of the PSHQL strategy. All guidelines both within the DHS structure and those for hospitals were switched to PSHQL. In 2008, the coordination group ended and consequently officials who had remained in the weakened PHC coordination group returned to their customary departments. This resulted in a "knowledge-power" struggle within departments between the officials in favour of maintaining PHC and those supporting the change of guidelines to the PSHQL. The guidelines issued from the DHS to hospitals became ambiguous and contradictory. For example, the Public Health department restricted the budget to the Home Health program and increased sources for hospitals to incorporate the PSHQL in strategic platforms. Meanwhile, the Department of Service Provision in their contracts and audit process did not include the PSHQL as mandatory but instead asked hospitals to increase the number of basic health care teams (75).

In addition to the reduction of the PHC scope, the stewardship of the DHS for monitoring the implementation of the strategy could not transcend divisions and fragmentation imposed by the national rationality of the health system. So the PHC strategy was implemented exclusively in the network of public health care facilities and in the insurance companies from the subsidized regime. The strategy never reached insurers and providers at the contributory regime since those were mainly private institutions and they were regulated directly by the Ministry of Health at the national level (75).

By 2010, the Home Health program had been implemented in all 20 Bogota localities and had achieved 40.36% coverage (1,497,750 people) of the population in strata 1 and 2 through the establishment of 358 basic health care teams. Due to the limitation in its operation in the public health care facilities and the subsidized insurers, the Home Health care program was not able to

integrate their activities at the community level on the one hand, with the individual services provided at the contributory regime in private facilities on the other. As a consequence, their capacity to effectively facilitate access to poor and vulnerable groups was diminished (75).

In summary, despite that the District Health policy and Bogota's Health Secretariat designed and theoretically formulated a comprehensive primary health care model, the implementation of the strategy in reality evolved differently from what was originally planned. Recent studies on the PHC experience in Bogota have suggested that in the last years, the operationalization of the strategy has been reduced to only interventions offered by the Home Health program in connection with public health actions developed through the settings of daily life (75, 76).

The studies have also claimed that the model implemented might have been strongly influenced by contextual factors, which transformed its original comprehensive scope into a "hybrid and segmented primary health care model" (75, 76). The model has been described as hybrid because it combined elements from different PHC approaches.

The model can be considered selective since it operates exclusively from first-level health care facilities, and since it only offers cost-effective services included in vertical programs and individual health benefit plans. Moreover, it operates under a managed-care model that focuses on traditional basic biomedical/individual interventions. However, the model is also comprehensive since it keeps the spirit of Alma-Ata, through the promotion of community participation and inter-sectoral actions. These base intervention on multidisciplinary health care teams that include community health care workers. In addition, services are delivered at intra- and extramural levels, and multidisciplinary teams focus on the provision of health education, prevention and health promotion activities. The PHC model has also been described as partly segmented because to some extent, it reproduces the segmentation and fragmentation of the Colombian health system (75, 76).

Chapter 7 | Methodology

7.1 The research strategy

In this study, we used a combination of quantitative and qualitative methods to answer our research questions. The assumption underlying that decision was that both methods were complementary and offered different perspectives. We focused on the experience of Bogota as being an innovative initiative within the country that offered the opportunity to understand better challenges to implement a PHC strategy, in the context of a market-oriented health care system.

The first three objectives of the thesis have been addressed by using quantitative methods (descriptive analysis, cross-sectional analysis, and ecological analysis). Through these methods we evaluated the results of the PHC strategy in terms of outputs and outcomes. The fourth and last objective was addressed by using qualitative methods. This analysis intended to provide a “thick description” of what has occurred in the PHC implementation and aimed at identifying contextual factors that have enabled or limited the on-going implementation process. A summary of the study methods is presented in Table 1.

Quantitative and qualitative data were collected in parallel during July 2010 to April 2011. To collect the quantitative data, the first step was to build a list of necessary information and then to identify its availability in public sources. If unavailable, we proceeded to contact the respective institutions and requested the information. Meanwhile, we collected the data from surveillance systems at the DHS and applied the cross-sectional survey to assess the performance of PHC dimensions at locality level.

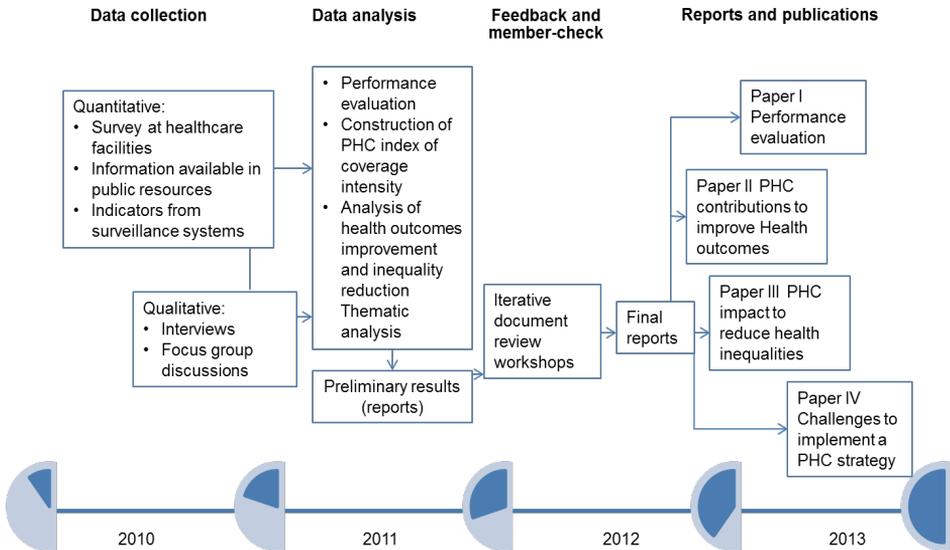
To collect the qualitative data, we started by mapping all actors working at locality level and then we contacted them to present the research project and to explore their willingness to participate. Once participants were identified, we proceeded to conduct the interviews and focus group discussions.

Once all the information was collected the entire research team focused on conducting the analysis, shape preliminary results and conclusions. A written

Table 1. Summary of study methods

Objective	Methodological approach	Units of analysis and data collected	Analytical methods
To assess direct results of the PHC strategy in terms of progress in the Home Health program coverage and increases in health personnel ratios reaching out to poor and vulnerable groups in Bogota	Quantitative Descriptive analysis	16 of 20 localities Data of coverage of characterization to the Home Health program, physicians, nurses, and community health workers per targeted population from 2004 to 2010	<ul style="list-style-type: none"> • Principal component analysis • Trend analysis
To evaluate qualities of the delivery of PHC products and services through the attainment of PHC essential dimensions in the network of first-level public health care facilities in Bogota	Quantitative Cross-sectional analysis	6 localities 3,030 users, 175 professionals and 75 decision makers surveyed. Rapid assessment method validated in Brazil used to evaluate the attainment of PHC essential dimensions	<ul style="list-style-type: none"> • Categorical principal component analysis • Principal component analysis
To analyze the contribution of the PHC strategy, through the Home Health program, to improve child health outcomes and to reduce health inequalities in Bogota	Quantitative Ecological analysis	16 of 20 localities Data of selected health outcomes, PHC coverage and socioeconomic status from 2003 and 2007 (1 year before and 3 years after the PHC implementation)	<ul style="list-style-type: none"> • Multivariate analysis (Poisson regression models) • Concentration curves and concentration indices • Decomposition analysis
To identify contextual factors that limited and enabled the implementation process and the PHC strategy's ability to produce results in Bogota	Qualitative Multiple case study	7 localities 18 semi-structured interviews with key informants 14 focus group discussions with staff members of the Home Health program and community members	<ul style="list-style-type: none"> • Thematic analysis guided by Walt and Gilson's policy analysis framework

document with preliminary findings and conclusions was sent to relevant stakeholders at each level (e.g., Home Health Care team coordinators and managers at the hospital level and officials at the DHS) and iterative rounds of feedback were done. A revised version of findings and conclusions was then presented to study participants in a series of member-check workshops. Participants critically analyzed the findings and commented on them. Meanwhile, the research team was able to confirm that the interpretation of the results reflected participants' views and experiences. Discrepancies about the interpretation of the findings were discussed and clarified and final conclusions were then structured. Reports first in Spanish were delivered to the DHS, hospitals involved and funders to comply with established contracts. Later, research papers in English and Spanish were published. The timeline of the research process is shown in Figure 6.

Figure 6. Timeline of the research process

7.2 The research team and my role on it

The overall project analyzing Bogota's PHC experience was conducted by a multidisciplinary team that comprised eight professionals. The principal investigator (PI) was a medical doctor with a PhD degree and more than ten years of experience conducting research in the public health field. The researchers (three) were professionals in medicine and human and social sciences, all of them with a master's degree in public health or similar and at least three years' experience in research. The research assistants (three) were professionals in health and social sciences, all of them enrolled in the 2nd year of a master's program. The team also included a PhD in statistics who advised the quantitative analysis.

The PI and two researchers (including the author of this thesis) conceived the study before the research team was conformed. Prior to the beginning of the study, the research assistants were given two weeks training by the PI and the researchers with lectures, discussions and demonstrations on techniques and methods to be used during the research process.

For the data collection, the research team was supported by two officials at the DHS and seven staff members at the hospital level (one designated by each

locality and hospital participating in the study). This support-team helped the researchers get access to the information within the surveillance systems at hospitals and to identify key informants for interviews and focus groups.

The PI coordinated the overall project. The responsibilities to coordinate different components of the research were divided as follows: the quantitative part was my responsibility and coordination of the application of the survey and the qualitative portion of the study were the responsibility of the other two researchers. The three of us were supported by the research assistants.

As I was developing my PhD training as part of the project and consequently using the information collected, it was decided that I should be part of the data collection and analysis of all components. Thus, I was responsible for: 1) collecting and analyzing the quantitative data together with the statistical advisor; 2) supporting the coordinator of the survey in training and supervising the interviewers applying the questionnaires at facility level, analyzing information from three of the six localities included in the study and writing reports for those localities, as well as to write the report combining the results from the six localities; and 3) conducting interviews and focus groups in three of the seven localities included in the multiple case study, writing the reports for those localities, as well as to participate in writing the report combining the results from the seven localities. Together with the PI and one of the researchers, we conducted the triangulation of the quantitative and qualitative data. We also wrote a final analysis describing Bogota's experience and the implemented PHC model.

The data collected by the overall project was used for this thesis with the authorization of the postgraduate programs in Health Administration and Public Health at Pontificia Universidad Javeriana.

7.3 Data collection

To fulfil the *first objective* (progress in the Home Health coverage and increases in personnel ratios), a data set that comprised observations of the following four variables were collected for the period 2004-2010 in all Bogota's localities: 1) coverage of characterization of the Home Health program, 2) physicians per targeted population, 3) nurses per targeted population, and 4) community health workers per targeted population.

The data of coverage of characterization to the Home Health program was provided by the Public Health department at the DHS. The health personnel ratio was calculated by full-time equivalents for each type of personnel. The estimation of the population target of the program (strata 1 and 2) was calcu-

lated by retrospective projections with the information from the District Secretariat for planning in 2002, 2009 and 2010. This was complemented with data from the 2005 population census from the National Administrative Statistics Department.

Sixteen out of 20 localities were included in this analysis. Four localities were excluded because three did not have a population in strata 1 and 2, and the other lacked socioeconomic information necessary for further steps in the analysis (improvements of health outcomes and inequity reduction). Data collection was conducted between July and December 2010.

For the **second objective** (assessing the attainment of PHC essential dimensions), a cross-sectional analysis was conducted. This was done by comparing the perception of participants (users, professionals, health managers) in public health facilities where the Home Health program was implemented, with participants in private health facilities not implementing the program.

Six localities from three networks of health services were selected. These were chosen for their large and diverse population (approximately three million people - 43% of the total population of Bogota, and 68% of the total population classified as strata 1 and 2 belong to these six localities), because of their role as early adopters of the Home Health program, and because of their receptivity and acceptance of the research proposal.

The attainment of essential dimensions was evaluated through the application of the rapid assessment methodology validated by Almeida, Macinko et al. in Brazil (34-36). This methodology evaluates the performance of PHC essential dimensions proposed by Starfield (gatekeeping, accessibility, longitudinality, comprehensiveness, coordination, family focus, and community orientation) (24, 25).

The sample frame consisted of all public and private health care facilities located in the six localities and registered at the Health Secretariat. All 50 public health care facilities identified were included in the survey. Private facilities were geo-referenced to identify their proximity to the public health facilities and make the characteristics of the populations comparable. All (n=71) private facilities located in the same area of influence as the public facilities were invited to participate and 46 (65%) agreed to be involved in the study.

A sample of users within health care facilities was calculated by using a stratified probability procedure according to the place in which the user received the services (public or private). A target sample size was set at 3,000 users, comprising 1,500 at public facilities and 1,500 at private facilities. A sample of

professionals and health managers was selected at random from the employee records of each facility. The sample set of professionals and health managers were 98 and 50 respectively (49 professionals and 25 health managers in each type of facility). The final sample size comprised 3,030 users (1,519 at public facilities and 1,511 at private facilities), 175 professionals (86 at public and 89 at private facilities), and 75 health managers (40 at public and 35 at private facilities), which was greater than the calculated sample size.

The rapid assessment methodology used four instruments to obtain the perspectives of the following categories of participants at the facility level: users (adults and adult caregivers accompanying children/elderly/disabled), professionals, and health managers. The instrument (questionnaire) contained a core set of about 90 to 100 questions. The participants interviewed responded to each question using a scale with values ranging from 0 (*never*) to 5 (*always*). Instruments were administered by a group of trained facilitators through direct interview at waiting rooms and offices of each health facility. The instruments were administered during five consecutive days in each facility, except weekends and holidays between August and December 2010. (More details about the sampling procedure and instruments applied in this study can be found in Mosquera et al., 2013, Paper I.)

For the ***third objective*** (PHC contribution to the improvement of health outcomes and to reducing health inequalities), two ecological analyses using data from secondary sources were conducted. The analyses included sixteen localities and used data from 2003 and 2007 (one year before and three years after the PHC implementation). The data collection was conducted between July and December 2010.

The selected health outcomes included those identified in the literature as sensitive to monitoring PHC implementation and health inequalities and for which information was available (64,65):

1. Infant mortality rate (IMR);
2. Under-five mortality rate;
3. Prevalence of acute malnutrition in children under five years of age;
4. Vaccination coverage for diphtheria, pertussis and tetanus (DPT) in children under one year old;
5. Infant mortality rate resulting from acute diarrheal disease (ADD) and pneumonia; and
6. Prevalence of exclusive breastfeeding among infants under six months.

The data were collected from the National Vital Statistics System, the Feeding and Nutrition epidemiological surveillance systems and the Rapid Immunization Coverage Monitoring Registry at the DHS. Data were used with the authorization of the Public Health department at the DHS. (For analysis of inequalities reduction only the first four indicators in the list were included.)

The variable related to PHC coverage was PHC index of coverage intensity (an explanation of the construction of this index is presented in the data analysis section – first objective). The variable used to capture the socioeconomic status and living standards was the Quality of Life Index (QLI). The QLI combined 12 variables of access to physical assets organized into four categories:

1. Education and human capital: education of the household head, average education of members aged 12 years or more; young people aged 12–18 years who attended secondary school or university; and children aged 5–11 years who attended primary school;
2. Housing quality: material of walls and floors;
3. Access and quality of services: access to health care, water supply and sanitation, kitchen equipment, and refuse collection; and
4. Household size and composition: number of children under six years of age and number of people per room.

In addition to the QLI, the following socioeconomic indicators were used as control variables for the analysis of the PHC contribution to improve health outcomes and as social determinants for the analysis of the PHC contribution to reduce health inequalities:

- Population below the poverty line
- Household dependency ratio
- Proportion of consumption reduced due to lack of money
- Sewerage coverage
- Insurance coverage to the contributory and subsidized regimes

All these indicators were taken from the District Quality of Life survey 2003 and 2007, publicly available sources of the National Administrative Statistics Department (77).

To fulfil the *fourth objective* (enablers and barriers to PHC implementation), a qualitative multiple case study was conducted. The analysis was carried out in seven localities distributed among four geographic health service networks. These were chosen as representative cases because of their large and

diverse population (these localities have approximately four million inhabitants that include 57% of Bogota's population and 80% of the inhabitants belonging to the lowest two strata), and because they were pioneers and quick to join the initiative to implement the Home Health program. The data collection took place between September 2010 and April 2011.

Identification of key informants was based on purposive sampling; the selection of participants took into consideration the roles of each individual selected as a key informant within health institutions and communities. Semi-structured interviews and focus group discussions (FGDs) were used to collect information. Two guides (one for interviews and another for FGDs) including open-ended questions were developed with the aim to explore factors limiting or facilitating PHC implementation. The field work was conducted by a team of five people (one of them the author of this thesis). Interviews and FGDs were tape-recorded, transcribed and were used as key texts for analysis. In each locality two decision-makers were interviewed and two FGDs were held (one with people from the community, another with those working in the Home Health program). Four additional interviews took place with DHS staff. In total 18 semi-structured interviews with key informants and 14 focus group discussions were done.

7.4 Data analysis

The first step in data analysis was the construction of a PHC index of coverage intensity (PHCI) to describe the trends of the Home Health program coverage (*first objective*). Principal component analysis was carried out to combine the four variables mentioned earlier (coverage of characterization of the Home Health program and health personnel ratios).

A PHCI for each year were calculated by each locality and for Bogota. Scores of the PHCI for each year were standardized (transformed linearly giving values from 0 to 100). According to the PHCI behaviour, the localities were classified into two groups: the first composed those localities where the PHCI declined or became stagnant over time (low coverage/group 1); and the second comprised localities that showed a consistent increase of the PHCI over time (high coverage/group 2). The groups were used for health outcomes and health equity analysis. Trends of the PHC coverage intensity were plotted using line graphs.

For cross-sectional analysis assessing the attainment of PHC essential dimensions (*second objective*), data analysis included a socio-demographic characterization of the population sampled according to the type of facility (public

or private), calculation of indices for each primary care dimension by type of facility and participant (users, professionals, and health managers) and the calculation of a global performance index (GPI).

Scores of each question within the instruments were grouped according to the corresponding primary care dimension (access, comprehensiveness, etc.) and then a dimension index was created by using categorical principal component analysis (CATPCA). The resulting indices were then combined to obtain the global performance index (total PHC score), which was calculated using principal components analysis (PCA).

For interpretation of the indices, scores were transformed linearly giving values from 0 to 100 (using a formula to standardize scores: $\text{score minimum} / \text{score maximum} - \text{score minimum} \times 100$). A frequency distribution analysis was carried out to find three separate cut-off points. The bottom 10% of the sample values—corresponding to scores less than 40—was considered a critical performance. Scores rated between 10% and 50% of the sample—values greater than 40 but less than 70—were considered an intermediate performance, and scores greater than 70 were considered as a good performance.

The evaluation of PHC contributions to the improvement of health outcomes and to reduce inequalities (*third objective*) was conducted through ecological analysis. The analysis of health outcomes improvement was conducted through a multivariate analysis that assessed the associations between the selected health outcomes and the PHCI groups (low and high coverage), while controlling for socioeconomic variables. A Poisson regression model for each year (2003 year before and 2007 third year after the implementation) was developed separately and rate ratios (RR) adjusted for socioeconomic variables were calculated. Then, in order to assess changes in health outcomes between groups over the years, a panel Poisson regression model was used. In this model, each year was included as a panel and the difference among the groups was compared.

To describe possible changes in the magnitude of socioeconomic inequalities in child health outcomes related to PHC implementation, concentration curves and concentration indices were calculated in the two periods observed. For each child health outcome, two curves corresponding to the years of analysis were displayed. For interpretation of the concentration curves, the curves of each year were compared with the line of 45 degrees (line of equality). The concentration index (CI), which is directly related to the concentration curve, was calculated by applying the method proposed by Fuller and Lury (78) to compute CI from grouped data.

To assess the contribution of the PHC intervention, we conducted a decomposition analysis on data from 2007. The method proposed by Wagstaff et al. (79) was used to decompose the socioeconomic inequality in child health outcomes into its determinants. In this study, the variables considered as social determinants of child health outcomes were the PHC Index (PHCI), percentage of sewerage coverage and percentage of insurance coverage of the health system. (Further details on the methods used for this analysis can be found in Mosquera et al., 2012, Paper III.)

For the qualitative analysis (*fourth objective*) Walt and Gilson's policy analysis framework (82,83) was used as a guide. This framework recognizes that four interlinked elements –context, process, actors, and policy content– have an important influence on the health policy process. The assumption is that actors influence the policy-making process, but they themselves are also influenced by contextual circumstances of their life and work. The context itself is constructed by numerous heterogeneous factors (politics, history, culture, etc.) and all three, actors-process-context, leave an imprint on policy content (82,83).

A thematic analysis approach was used to analyze data (81). Transcriptions of recorded interviews and FGDs (in Spanish) were coded with the use of Open Code software (80). The first step for data examination was listing the identified topics, then similar topics were grouped into emergent categories and finally categories were integrated into two themes (factors limiting and factors enabling the implementation process and the PHC ability to produce results). Data analysis was done for each locality separately and then the findings were integrated. Findings within each theme reflect some or all of the elements mentioned by Walt and Gilson's policy analysis framework. To ensure rigour and robustness in the classification of categories and themes, two researchers independently performed all steps of the analysis without any significant difference in the results.

7.5 Ethical considerations

This study was approved by the Ethics Committee of the Department of Post-graduate Programs in Health Administration and Public Health, Pontificia Universidad Javeriana, Bogota. In addition, administrative permission was obtained from the District Health Secretariat in the study areas as required. The study was presented to the boards of all hospitals involved and it was approved by them before field work was initiated.

When assessing the epidemiological data, no personal data was included, only the general information about mortality and attendance of promotion and prevention programs was used. Confidentiality of participants' identity (users,

professionals, and health care managers) during the survey data collection, analysis and presentation of results was maintained throughout the entire process. Oral informed consent was sought from all interviewed and participants of the FGDs after explaining the objectives of the study. All participants were assured of their right to withdraw from the interview or the focus group discussions at any time. Interviews and FGDs were recorded with the permission of participants and recordings and transcripts were stored confidentially.

The results of the study were feedback to hospitals, communities and the District Health Secretariat in all phases of the study. Preliminary findings were presented to study participants in a series of post-study workshops aimed to share the results and to receive feedback. Participants' points of view were discussed and provided insight to clarify results, as well as to shape final analytic conclusions.

Chapter 8 | Findings

This chapter presents the findings of the study. The chapter is organized by themes that reflect outputs and outcomes, as well as contextual factors facilitating or limiting the PHC strategy. The organization of the themes follows the order proposed by the theoretical framework presented in chapter 5 and reflects the overall process of data analysis as detailed in chapter 7. When possible, the description of the results bridges the qualitative and quantitative findings so they are proportioned to a more holistic understanding.

The first theme, “Outputs in terms of direct products”, describes the trends and evolution of the Home Health coverage in Bogota and its localities, while explaining some factors that facilitated and limited the process. The second theme, “Outputs in terms of qualities and service responsiveness”, describes the results of the performance evaluation of the primary care services in six localities of Bogota and highlights critical areas in need of improvement. The third theme is titled “Immediate, intermediate and final outcomes” and presents the contributions of the PHC to the improvement of health outcomes and the reduction of inequalities. Finally, the theme “Barriers to the PHC strategy’s ability to produce results” presents those factors that have influenced negatively the implementation process and points out the challenges ahead.

8.1 Outputs in terms of direct products

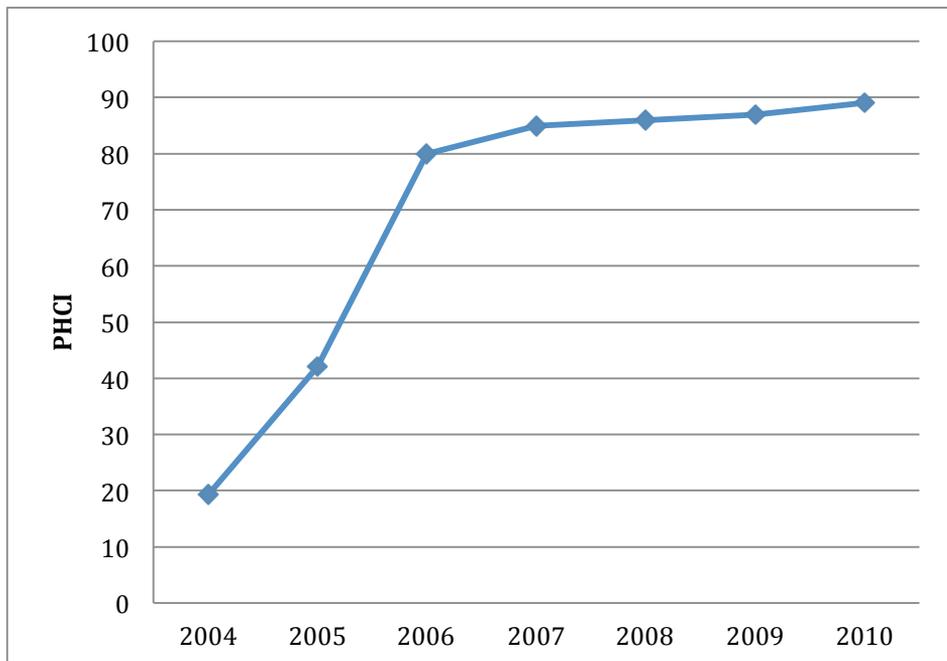
Some of the direct products expected as a result of the PHC strategy implementation were progress in the Home Health program coverage and increases in health personnel ratios reaching out to the poor and vulnerable groups. The PHC Index of coverage intensity allowed us to describe the evolution of the Home Health program during the period 2004–2010. Figure 7 presents the behaviour of the PHCI in Bogota, which showed a notable initial increase and rapid expansion in coverage between 2004 and 2007, followed by a period of slower growth and stagnation between 2007 and 2010.

Although the implementation process slowed over the last three years, the strategy is still working while facing the political tensions and the constraints imposed by the structure of the national health system. In this regard, decision-

makers, DHS staff and members of the Home Health program identified the continuity of the same political party in the district government as an important enabler in keeping the PHC strategy on the district political agenda. Also, the political will of the mayors enabled the policy to be maintained and made all actors at district and local levels understand the PHC principles as a political process not tied to a particular government program. Members of the DHS also mentioned that the political support at district level helped to create the political agency necessary to visualize the PHC strategy at national level. One of the interviewed stated:

[...] the political will and agency of the mayors as well as of the District Health Secretariat has been successful. In 2005–2006 the PHC strategy reached greater visibility at all levels and the approach of the district health policy was accepted by local mayors, hospitals and even stakeholders at the national level. Nowadays no one questions the strategy and the national government is already thinking about scaling up the primary health-care principles to a national level. (Interview – DHS official)

Figure 7. Trends of PHCI in Bogota 2004–2010



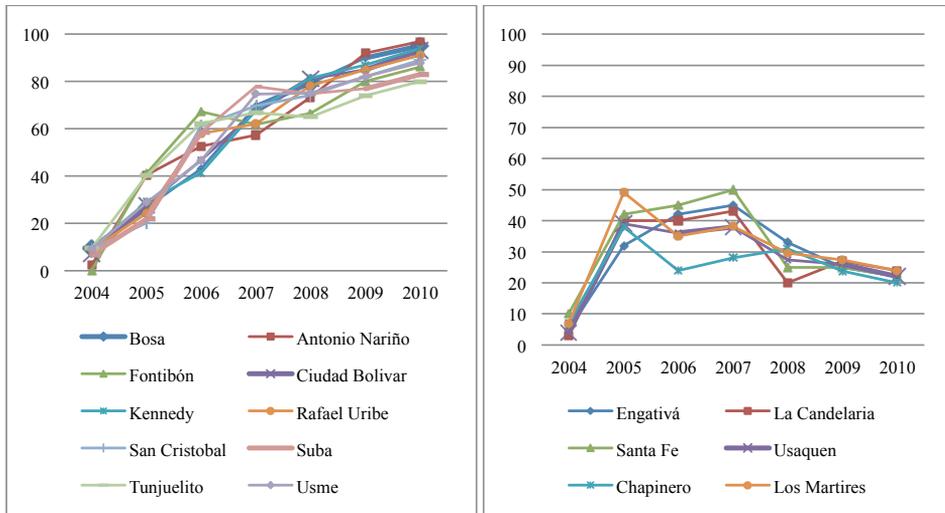
One possible explanation for the shift in the trend of coverage expansion and the slowdown of the implementation process in the last three years was the guideline change by the DHS in 2007. The movement of the PHC strategy, from being in a core position in the district health policy to being relegated to the activities concerned with the daily life setting (families) within the PSHQL strategy, had economic and organizational implications.

Members of the Home Health care teams and health managers linked this change to smaller budgets given to the strategy each year. After the change of guideline, hospitals had to readapt their work to the PSHQL strategy. As a consequence, the PHC strategy focused exclusively on the set of activities performed by the Home Health care teams. A member of one of these teams described it as follows:

After we had gone to all that effort to implement PHC the DHS changed the guidelines, and PHC was not the core anymore, so yes, again, to make changes... we had to adapt quickly to the PSHQL, then we were wondering, what will we keep from the PHC strategy? Well, just the Home Health program, and what does that mean? There is not a real PHC strategy, only one program is not a true PHC. (Focus Group – Hospital staff)

When analyzing the behaviour of the PHC Index disaggregated at locality level, we observed that the deployment of the strategy did not follow the same pace in all localities. Figure 8 shows two different trends: a first group comprised of 10 localities presented a tendency to expand the coverage indicating permanent efforts toward PHC implementation (high coverage); and a second group, comprising the remaining six localities, showed an important increasing coverage in the first years of the PHC implementation and then a drop off (low coverage). This last pattern suggests weakness or problems carrying out the implementation.

Factors explaining the successful coverage expansion of some localities included the special support for and engagement in the PHC strategy of the local mayors and hospital managers. A good example of the commitment from some local mayors was the reallocation of local resources to support the strategy (additional resources to those allocated directly through the Collective Intervention Plan). Another example, at the hospital level, was the decision taken by some managers to formally include and maintain the principles and values of PHC in their strategic platforms, even after the change of guideline by the DHS in 2007. One group of respondents expressed it in this way:

Figure 8. Trends of PHCI by localities 2004-2010 – groups of high and low coverage

[...] having additional resources from the local mayor helped a lot to increase the number of teams and the Home Health coverage. Also the support from the heads [referring to managers], who have understood that PHC goes beyond the Home Health program, helped to transform the organization of the whole hospital... without the support of the heads it would be very complicated for us [referring to the staff] to give the strategy the level of importance required and would be an organizational burden that was not worth it. (Focus Group – Hospital staff)

Managers and staff of the Home Health care program agreed that the involvement of communities that have been historically strong in social participation processes had a marked positive effect. From their point of view, these communities had previously identified their needs, which meant significant help in beginning the process. They had also worked out previously how to gain access to financial resources by cooperating with institutions and health care providers. A Home Health care team member explained it as follows:

[...] and we realize in this locality the community had a huge history in participation. Let's put it in terms of numbers: 17,000 people came to the general citizen meeting [event promoted by Bogota's mayor] and we thought then this locality moves people, and not only because of the PHC strategy but from before. This was a historic fact that allowed the mobilization of the community and they

helped us to identify places within the neighbourhoods to open new community health care centres. The school found a room and the leader of the Community Action Board lent us an office... this is an example of a very strong social mobilization that made our work easier. (Interview – Home Health care team member)



Images 6 and 7. Community mobilization processes in one of the localities with strong tradition of social participation

For its part, the group of localities with low coverage did not manage to find additional resources to support the strategy. Therefore, the expansion in the conformation of the Home Health care teams was limited to what was affordable with the resources allocated through the Collective Intervention Plan. After the guideline change in 2007 the situation worsened. The PHC strategy was removed from the hospitals' strategic platforms. As a consequence of the reductions in the financial resources, health managers took the decision to assign more than 1200 families to physicians and nurses (instead of creating more health care teams to expand the coverage), to reduce the number of hours that they dedicated to the Home Health program and to fulfil their contracted times with other activities.

8.2 Outputs in terms of qualities and services responsiveness

One of the main challenges for the Home Health program was to provide health care according to the essential dimensions of primary care. In line with this, one of the priorities for policymakers was to improve the performance of the health care services in the network of first-level public facilities in Bogota.

The first part of this section presents the results of the comparison carried out between public and private facilities. This helped us to identify possible contributions of the PHC strategy to the improvement of the performance of the

public health care services. The second part of this section focuses on describing what happened in regard to the attainment of the PHC essential dimensions in the public health care facilities where the Home Health program was implemented.

8.2.1 Comparison of the global performance and perceptions on the essential dimensions by type of actor between public and private facilities

The Global Performance Index (GPI) was rated as good (> 70) for all groups of actors without statistically significant differences in both public and private facilities. Only in the group of professionals the GPI was significantly better for those in private facilities (Table 2).

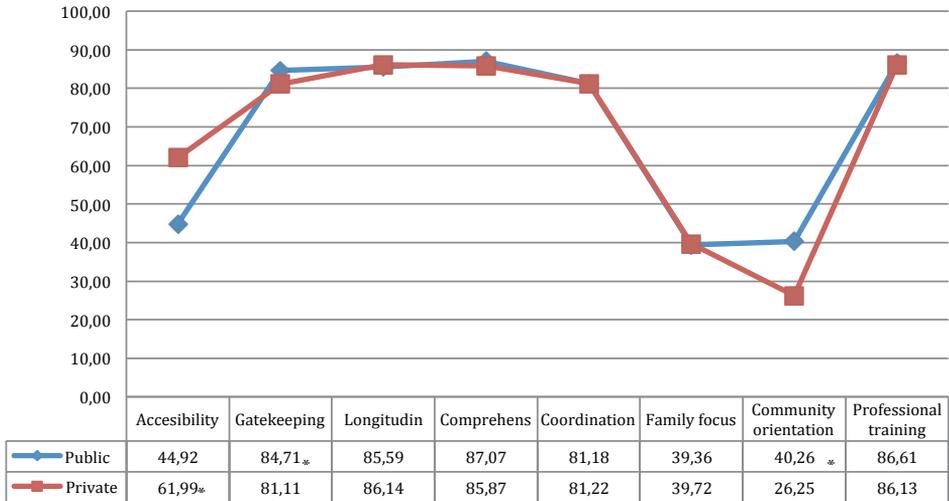
Table 2. Global performance index by type of health care facility - Bogota, 2010

Type of clinic	Users			Professionals			Health managers		
	Mean	IC		Mean	IC		Mean	IC	
Public facilities	70.60	69.38	71.82	68.61	64.24	72.98	81.13	71.35	83.52
Private facilities	70.52	68.77	72.27	77.18*	74.12	80.24	78.00	73.08	82.92

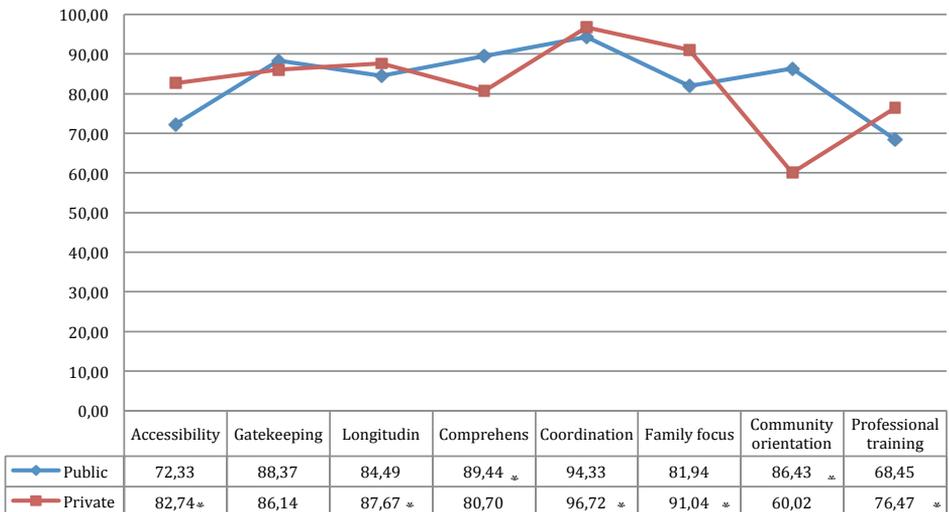
* Difference between public and private statistically significant ($p < 0.05$)

When the GPI was disaggregated by its essential dimensions, it was found that users of both groups scored as critical the performance of family focus and community orientation (although the latter was rated as intermediate by the public health care users). Accessibility was graded as intermediate and all other dimensions were scored as good for both groups (Figure 9). Comparing the perception between public and private users, significant differences favouring public facilities were found in gatekeeping and community orientation. On the other hand, accessibility differences favoured private facilities.

Professionals assigned a good performance to all essential dimensions, except community orientation in private facilities and professional training in public ones, which obtained an intermediate score (Figure 10). Similarly, health managers assigned a good performance to almost all essential dimensions except community orientation in private facilities (intermediate performance), and financial resources distribution, which was scored as critical in both public and private facilities. Health managers' and professionals' scores were generally better than the user ones (Figure 11).

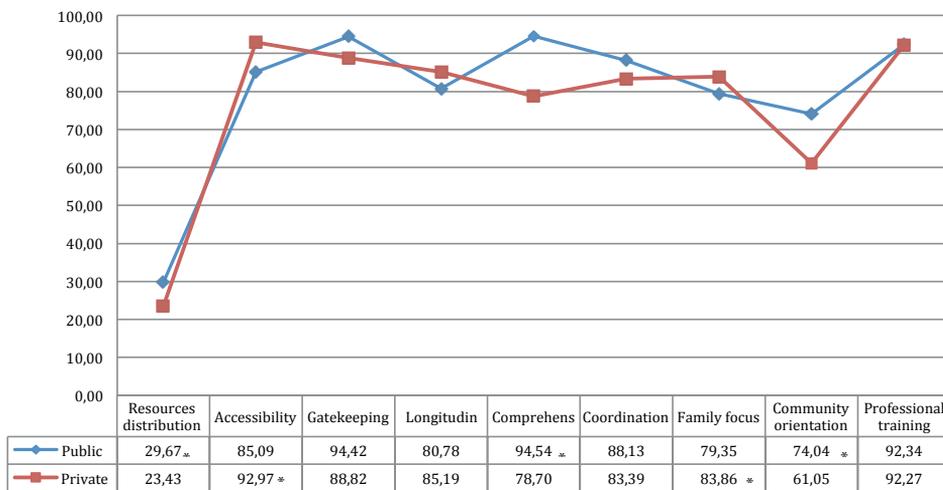
Figure 9. Performance of the PHC essential dimensions – Users

* Difference between public and private statistically significant ($p < 0.05$)

Figure 10. Performance of the PHC essential dimensions – Professionals

* Difference between public and private statistically significant ($p < 0.05$)

Figure 11. Performance of the PHC essential dimensions – Health managers



* Difference between public and private statistically significant ($p < 0.05$)

Among professionals, significant differences in comprehensiveness and community orientation favoured public facilities. In contrast, differences in accessibility, longitudinality, coordination, family focus and professional training favoured private ones. For health managers, significant differences in favour of the public facilities were observed in comprehensiveness, community orientation and financial resources distribution. The significant differences favouring private facilities were in accessibility and family focus.

The three actors coincided on significant differences in community orientation favouring public facilities, and in accessibility favouring private facilities. In general, the differences in most of the essential dimensions seemed to favour the public health facilities, except among professionals, where most of the differences seemed to favour private ones. The analysis of different perceptions together was helpful for identifying the need to strengthen family focus, community orientation, financial resources distribution and accessibility.

8.2.2 Perception of participants in public health facilities where the Home Health program was implemented

Analyzing the scores assigned to the respondents for the items that make up each dimension allowed us to identify positive results as well as critical issues perceived by actors. Items scored as critical and intermediate were especially helpful for identifying areas in need of improvement in the network of public primary care facilities. Table 3 summarizes critical items by type of participant and dimension.

Table 3. Items with critical scores by PHC dimension and type of actor

Dimension	Actor	Critical items (scores < 40)
Accessibility	Users	<ul style="list-style-type: none"> • Proximity of the health care facilities • Waiting times (more than 24 hours to get an appointment) • Phone availability to get appointments during office hours and out of office hours • Availability of services after 18:00 hours and during week-ends • Drugs supply
Longitudinality	Users, professionals and health managers	<ul style="list-style-type: none"> • Users are always attended by the same health care professional • User have a formal mechanisms to inform health care professionals when they cannot get the prescribed medicaments or monitoring appointments
Coordination	Users, professionals and health managers	<ul style="list-style-type: none"> • Professionals at the health care facility have information about the results of users' visits to the specialists. • Professionals at the Home health care team have available information to monitor processes with social service institutions • Specialist gives to users a written report about the interventions executed and results of the visit
Family focus	Users	<ul style="list-style-type: none"> • [During appointments] health professionals ask about general conditions and living situation of the users' family • Professionals provide information and/or speak to other family members about users' health condition • Professionals involve users' family when discuss about possible treatments • Health professionals use tools of family approach to describe users family in the medical records (genogram, ecomap)
Community orientation	Users	<ul style="list-style-type: none"> • Health professionals known needs and common health problems of the community served • Basic health care teams provide health services in schools and workplaces • Health care teams works with teams from other institutions to implement actions that improve the living conditions of the community • Community has the opportunity to participate in health decision making process • Community has the opportunity to attend institutional (accountability) meetings
Professional training	Professionals	<ul style="list-style-type: none"> • Health care teams are trained to act in accordance with the cultural diversity of the community • Health care teams participate in programs of continuing education that include training in PHC • Induction process include specific training on PHC • In the agenda of re-training processes there is special courses on PHC
Financial resource distribution	Health managers	<ul style="list-style-type: none"> • [within the health care institution] The allocation of resources to different interventions take into account: <ul style="list-style-type: none"> – Socioeconomic characteristics of the population served – Community needs – Vulnerable groups needs • The Health care institution design special programs/interventions in response to vulnerable populations needs

In analyzing the scores assigned to each item within the dimension of accessibility, we observed that users recognized some of the interventions for the reduction of organizational, geographic and economic barriers to accessing services (e.g. automatic appointment scheduling for patients with chronic diseases; elimination of charge fees for services offered to priority groups).



Images 8 and 9. Home Health care teams performing monitoring visits at household level

However, the critical scores assigned to the availability of services indicated that the efforts led by the PHC strategy have not been enough to ensure a really equitable access.

For its part, gatekeeping was the only dimension where all items were rated as good for all actors. Users identified a specific health care facility as their usual provider. Basic health care teams and public health actions were identified as a first point of contact for promotion and preventive activities at household level and in other settings of daily life (school, workplace and neighbourhood).

This finding is consistent with the testimonies of some community members who especially valued the extramural work, commitment and sense of belonging of the Home Health care teams. The teams were, in their opinion, an effective first contact and helped to achieve greater visibility for the health sector within the community. Users described as exceptionally useful the work of, and guidance offered by, community health workers. This is exemplified by the following quotation from a community member:

This commitment that we saw in the staff of the Home Health care teams... They come and get muddy... and community health workers from the Home Health program came to our houses, and asked, what happened? Did you know the son of your neighbour got sick? Come on, you have to be a team, friends, colleagues... and let me help you, I will teach you how to care for your children when they are sick, I'll give you a reference for an appointment at the health care facility. (Focus Group – Community member)

Longitudinality was scored as a good performance for all respondents and most of the items were highly rated. However, in this dimension, users, professionals and health managers agreed to assign a critical score to some items.



Images 10, 11 and 12. After a long journey the health care team reaches the community

Specifically, critical scores were assigned to the continuity of attention by the same health care professional or team, as well as to the availability of mechanisms for monitoring users' treatments.

The comprehensiveness of the services evaluated through the portfolio of services offered by the network of first-level public health care facilities was scored as good for all participants. According to the grade assigned by respondents, the networks of all localities offered a minimum of services. These included consultation by generalist physician, nurses, nutritionist and optometrist, dental and oral hygiene services, respiratory therapy services, laboratory sampling, drug supply, emergency services, hospitalization and diagnostic imaging.

The scores assigned to some items showed that most of the users were able to identify a set of new services included within the portfolios as part of the PHC strategy: for example, friendly sexual and reproductive health services for adolescents, mental health services (psychology and psychiatry), gynecological and pediatric consultation, and alternative medicine services. However, other activities such as counselling for tobacco use and alcohol consumption were less visible and therefore were graded as intermediate. This was also the case for education on the prevention of intimate partner violence and domestic violence.

Two aspects of coordination were evaluated through items related to referral and counter-referral processes: 1) between different levels of care, and 2) between health sector activities and other social services. Most of the items about the referral process were graded as good. However, the three actors agreed to assign a critical score to those items that refer to the counter-referral processes both within the health system and between health care and other social services.

Family focus and community orientation were the dimensions with the lowest scores awarded by users. Findings suggest that the family focus approach was probably not clearly implemented by professionals and therefore not perceived by users. According to users' perceptions, health professionals did not take into account their family context when addressing their problems/situation. It thus seems likely that treatment and monitoring plans did not fit with individual and family needs.

The situation with community orientation is similar, where users perceived that health professionals did not know the problems affecting their communities and therefore the responses designed were not adequate to meet community needs.

The previous findings could be related to the results of professional training. This dimension was scored as intermediate by professionals. This reflects somehow an overall dissatisfaction with the training provided for new employees at health facilities, as well as with the lack of ongoing education opportunities.

These findings are consistent with information provided by some members of the Home Health teams, who claimed that budget constraints gradually reduced the investment in training programs by the DHS and public hospitals. To this problem should be added the increased focus on individual and clinical approaches by universities. This left the development of skills for community work to be undertaken by the DHS and the health care institutions. A staff member of the DHS expressed the problem in this way:

Universities do not train students to do community work, training has a clinical and individual approach, and so it is very hard... if they came already trained by the university then it would be easier for them to work; if universities were involved with the strategy, the training process would not only be the responsibility of hospitals and the DHS [...] and hospitals do not have money for ongoing training processes, so when new people come to work they just read these booklets and interpret them on their own and then begin to do what they can. (Interview – DHS official)

The financial resources distribution evaluated exclusively on health managers obtained a critical score. This finding indicated two problems: first, the lack of resources to operate the strategy; and second, the lack of autonomy from health managers to allocate resources according to the socio-economic characteristics of the population served and specific community needs.

When we explored with the DHS staff and the Home Health team members, two barriers or limitations to achieving the essential dimensions of the PHC strategy were identified by participants in focus groups. The participants brought up the lack of a stable source of resources as one barrier, and as another, the segmentation and fragmentation of care and service provision originating from the different insurance schemes of the GSSSH. One respondent from a Home Health care team expressed the problem as follows:

I believe the health insurance scheme and the segmentation in contracts are critical issues. What did we start to see with the Home Health care teams? In the same house, the father was enrolled with one regime and the mother with another; one of them was not capitated with us, so what could we do to ensure access? Well, tell the mother you have the right to get the appointment but you, mister cannot come to my hospital because your insurer doesn't have any contract with me... another example, I found a pregnant woman and she came to receive antenatal care but I could not do the HIV test because the insurer does not include that test in the contract, so the pregnant woman had to go from here to Simon Bolivar [Hospital one hour away] where the insurer was contracted to do the HIV test. What kind of comprehensive services could we offer this way? How could we ensure continuity of care? (Focus Group – Hospital staff)

8.3 Outcomes in terms of improvements in the level and distribution of child health

The set of selected health outcomes to measure the PHC contribution to the improvement of child health included two groups of indicators: 1) infant and child mortality, and 2) prevention and early detection of illness. The first part of this section presents the outcomes improvement and inequality reduction on child mortality indicators. The second part presents the outcomes improvement and inequality reduction on indicators of prevention and early detection of illness.

8.3.1 Relative changes and inequality reductions after PHC implementation – mortality indicators

As mentioned in the methods section, the analysis of the contribution of the PHC to health outcomes improvement was conducted through multivariate analysis that compared risk ratios between the groups of high and low PHC coverage over time.

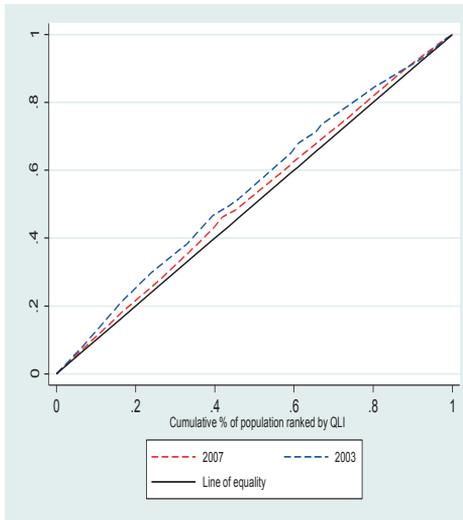
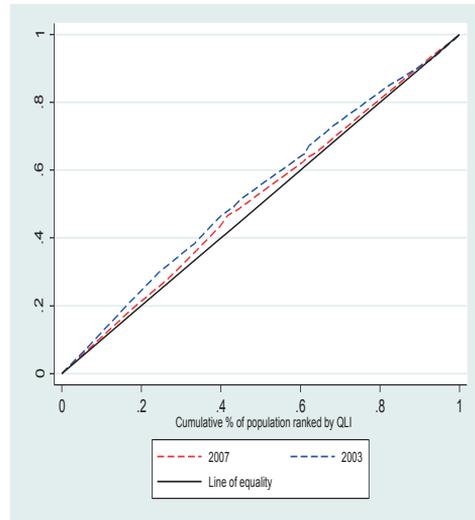
Table 4 shows risk reductions between 2003 and 2007 in the under-five mortality rate, IMR and infant mortality rate by pneumonia. The table also shows that the belonging to the high-coverage group in 2003 was already a protective factor that over time helped to decrease the risk of under-five mortality (13.8%) and Infant mortality rate by pneumonia (37.5%).

For the IMR indicator, the belonging to the group of high PHC coverage in 2003 represented 6.7% more risk of death, while in 2007 it became a protective factor that reduced the risk of death by 4.9%. However, change over time was not statistically significant. On the other hand, infant mortality by ADD did not show any risk reduction associated with the belonging to the high-coverage group.

Table 4. Relative changes between 2003 and 2007 in mortality indicators

Variables	2003			2007			Relative change 2007/2003		
	RR‡	[95% IC]		RR‡	[95% IC]		RR‡	[95% IC]	
Under-5 Mortality rate									
Low coverage	1			1			1		
High coverage	0.915	0.773	1.084	0.88	0.765	1.011	0.862*	0.780	0.953
Infant Mortality rate									
Low coverage	1			1			1		
High coverage	1.067	0.892	1.277	0.95	0.819	1.104	0.968	0.870	1.078
Infant Mortality rate by ADD									
Low coverage	1			1			1		
High coverage	1.367	0.2721	6.866	2.05	0.290	14.50	1.078	0.353	3.294
Infant Mortality rate by pneumonia									
Low coverage	1			1			1		
High coverage	0.957	0.474	1.932	0.63	0.314	1.262	0.625*	0.400	0.976

Source: Mosquera et al., 2012 (Paper II). * Statistically significant ($p < 0.05$). ‡ After adjusting for QLL, insurance coverage and sewerage coverage

Figure 12. Concentration curve IMR 2003-2007**Figure 13.** Concentration curve under-5 mortality rate 2003-2007

Source: Mosquera et al., 2012. (Paper III)

For the inequality analysis we focused only on under-five mortality and IMR because mortality by ADD and pneumonia are included in the IMR. Figures 12 and 13 show how the concentration curves lie above the main diagonal, thus indicating that localities with lower QLI have a greater proportion of infant and under-five deaths than those with higher QLI. Comparing the two curves (2003–2007) a decrease in inequality in 2007 can be seen, three years after the PHC implementation. The negative values of CI and the positive values of the variation between the two periods (Table 5) confirm what was shown by the concentration curves.

Table 5. Concentration Indices of mortality indicators 2003–2007

Variables	CI 2003	Standard Error	CI 2007	Standard Error	Change 2007-2003
Under-5 mortality rate*	-0.073	0.014	-0.032	0.014	0.041
Infant Mortality Rate*	-0.087	0.014	-0.038	0.015	0.049

Source: Mosquera et al., 2012. (Paper III). * Statistically significant ($p < 0.05$).

Table 6 presents results of the decomposition analysis carried out on data from 2007 for these two indicators. The columns under the heading “contributions to C” present both the absolute and relative contributions of each determinant.

As can be seen in the table, the PHCI made absolute contributions in the opposite direction to the overall concentration index of under-five mortality (0.008) and IMR (0.007). This indicates that the PHC had a reduction effect on the inequality that affected the disadvantaged localities by -24% and -19% respectively.

Just a small part of the inequality in child mortality to the advantage of the better-off segment of the population was explained by the determinants analyzed in this study. Most of the inequality remained explained by the residual component (90.25% in IMR and 94.22% in under-five mortality), indicating that other variables or factors (not included in this analysis) could be part of the explanation of the inequality reductions. (A more comprehensive description of the results of this analysis could be found in Mosquera et al., 2012. Paper III.)

Table 6. Decomposition analysis of CI in mortality indicators 2007

Variables	Coefficients	Elasticities	Concentration indices	Contributions to C	
				Absolute	Relative (%)
Under-5 mortality rate					
PHCI	-0.144	-0.330	-0.024	0.008	-24.52
insurance coverage	-0.008	-0.019	0.102	-0.002	6.25
sewerage coverage	0.016	0.054	0.003	0.000	-0.47
Residual				-0.030	94.22
Total				-0.032	
Infant mortality rate					
PHCI	-0.061	-0.310	-0.024	0.007	-19.08
insurance coverage	-0.007	-0.038	0.102	-0.004	10.06
sewerage coverage	0.006	0.043	0.003	0.000	-0.31
Residual				-0.035	90.25
Total				-0.038	

Source: Mosquera et al., 2012. (Paper III)

8.3.2 Relative changes and inequality reductions after PHC implementation – indicators of prevention and early detection

As presented in Table 7, the indicator of acute malnutrition in children under five years of age presented a risk reduction of 5.5% between 2003 and 2007. This reduction was significantly associated with the belonging to the high-coverage group.

For its part, the vaccination coverage for DPT showed a probability increase. Thus, the belonging to the group of high coverage in 2003 represented 12.1% less chance of being vaccinated, while in 2007 the belonging to the same group became a protective factor that increased the probability by 5.1%. Changes over time in this indicator showed a statistically significant increase of 4.9%.

Regarding the prevalence of exclusive breastfeeding among infants under six months, the belonging to the high-coverage group was not a protective factor either in 2003 or in 2007.

Table 7. Relative changes between 2003 and 2007 in prevention and early detection indicators

Variables	2003		2007		Relative change 2007/2003	
	RR‡	[95% CI]	RR‡	[95% CI]	RR‡	[95% CI]
Acute malnutrition in children under -5 years						
Low coverage	1		1		1	
High coverage	0.866*	0.795 0.944	0.723*	0.662 0.790	0.945	0.894 1.000
Prevalence of exclusive breastfeeding						
Low coverage	1		1		1	
High coverage	0.954	0.903 1.007	0.961	0.921 1.003	0.968	0.935 1.004
Vaccination coverage for DPT						
Low coverage	1		1		1	
High coverage	0.879*	0.859 0.900	1.05*	1.030 1.072	1.049*	1.034 1.063

Source: Mosquera et al., 2012 (Paper II). * Statistically significant ($p < 0.05$). ‡ After adjusting for QLI, insurance coverage and sewerage coverage

For the inequality analysis, the prevalence of exclusive breastfeeding was not taken into account since it did not show any significative change over time in relation to the implementation of the Home Health program. With regard to acute malnutrition, Figure 14 shows that in 2003 the concentration curve lay above the main diagonal, which indicated that the level of acute malnutrition accumulated faster amongst the localities with lower living conditions than

amongst the better-off. This inequality was reduced in 2007 when the curve shifted close to the line of equality.

For DPT vaccination, the concentration curve of 2003 lay below the main diagonal, indicating that localities with better living conditions had a greater coverage than those with lower QLI. In 2007, the inequality was reduced and the curve approached the diagonal line of 45 degrees, which indicates a situation of better equity (Figure 15). As shown in Table 8, the CIs and the variations observed in them between the two periods confirm what was explained in the interpretation of the concentration curves.

Figure 14. Concentration curve acute malnutrition 2003-2007

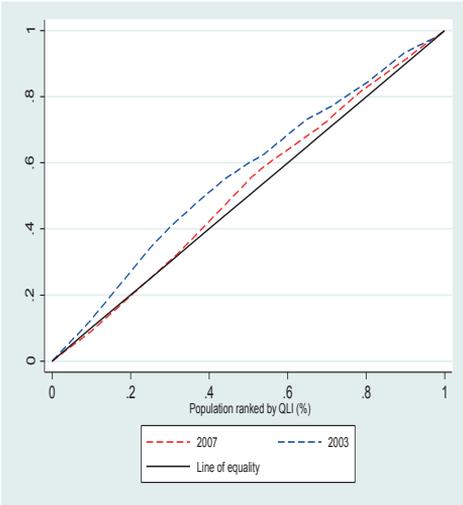
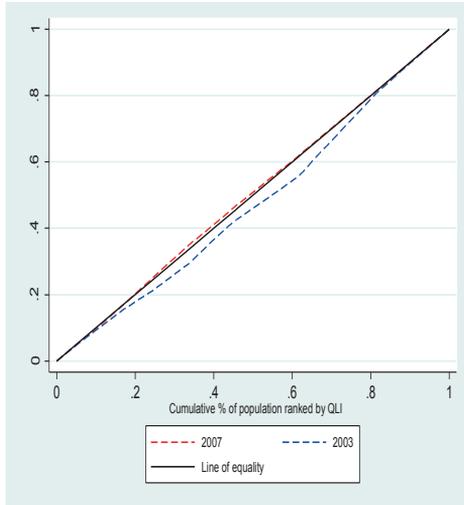


Figure 15. Concentration curve DPT vaccination 2003-2007



Source: Mosquera et al., 2012. (Paper III)

Table 8. Concentration Indices of prevention and early detection indicators 2003–2007

Variables	CI 2003	Standard Error	CI 2007	Standard Error	Change 2007-2003
Acute malnutrition children under -5*	-0.128	0.005	-0.034	0.007	0.094
Vaccination coverage for DPT *±	0.050	0.004	-0.007	0.003	-0.057

Source: Mosquera et al., 2012. (Paper III). * Statistically significant ($p < 0.05$). ± Signs of values of the CI are opposite because this is a favorable condition of health.

Table 9. Decomposition analysis of CI for prevention and early detection indicators 2007

Variables	Coefficients	Elasticities	Concentration indices	Contributions to C	
				Absolute	Relative (%)
Acute malnutrition in children under 5 years					
PHCI	-0.008	-0.106	-0.024	0.002	-7.28
insurance coverage	-0.009	-0.124	0.102	-0.013	37.05
sewerage coverage	0.115	2.188	0.003	0.006	-17.58
Residual				-0.030	87.81
Total				-0.034	
Vaccination coverage for DPT					
PHCI	0.081	0.063	-0.024	-0.001	20.90
insurance coverage	-0.012	-0.009	0.102	-0.001	13.48
sewerage coverage	0.131	0.147	0.003	0.000	-5.68
Residual				-0.005	71.30
Total				-0.007	

Source: Mosquera et al., 2012. (Paper III)

Table 9 presents the results of the decomposition analysis carried out on data from 2007 for these two indicators. The PHCI made absolute contributions in the opposite direction to the overall CI of acute malnutrition (0.002), indicating a reduction effect of -7% in favour of disadvantaged localities.

The interpretation of PHC contributions to vaccination coverage is slightly different. In this case, the overall CI of vaccinations in 2007 had a negative value (CI -0.007), indicating the inequality was favouring disadvantaged localities. The negative value of the PHC contribution (-0.001) to the negative overall CI indicates that 20% of the inequality favouring the poorer localities was explained by the distribution of this variable.

Similarly to the mortality indicators, just a small part of the inequality in the indicators of prevention and early detection was explained by inequalities in insurance and sewerage coverage. Most of the inequality remains explained by the residual component. (A more detailed analysis of the results can be found in Mosquera et al., 2012. Paper III.)

When we explored with the participants what factors had enabled the outcomes improvement and the inequality reductions achieved so far, they agreed to

identify three main key factors: the continuous political will in keeping the PHC strategy on the agenda, the permanent effort by the health secretariat to maintain the strategy implementation as a priority and the extramural work carried out by the Home Health care teams. According to the respondents, these factors created the needed conditions to boost processes at local and community levels and their continuity was important in order to succeed in the attainment of goals. A member of one of the health care teams expressed it as follows:

The political will, the permanent guidance by the DHS, as well as the work of the Home Health care teams I think, are the most important factors that have facilitated the implementation and the achievement of results. [...] because, yes, this requires continuous efforts, for a long time, not just the eight years of Lucho and Samuel [referring to the last two city mayors], the strategy needs to keep the continuity and in some ways it also depends on the approaches and regulations adopted by the governments and its institutions. (Focus Group – Hospital staff)



Images 13 and 14. Home Health care team performing promotion and prevention activities (grow monitoring and immunization) at household level



Images 15 and 16. Home Health care teams performing health education activities at community level

8.4 Contextual factors influencing the implementation process and the PHC strategy's ability to produce results

A set of barriers affecting the ongoing process of PHC implementation, and therefore limiting the achievement of the goals, were identified by the different actors during interviews and focus group discussions. The identification of those barriers was helpful for elucidating some of the main challenges ahead for the continuity and stability of the strategy.

Perhaps one of the most important barriers identified by both DHS staff and Home Health care teams was the fragmentation and segmentation of the GSSSH. These two structural characteristics, of the national health system in addition to the market approach, have as a consequence the intensifying competition among providers and insurers over the acquisition of financial resources. As a result, the focus on solving community needs was left aside.

The reduction of the state role in dimensions like financing, service provision and stewardship, in addition to the scattered distribution of functions and actions among the actors within the GSSSH, were also claimed to be factors limiting the scope of the designed district health policy. This ended up reducing the PHC implementation to the first-level public health care facilities. One participant commented:

The PHC strategy does not fit into the system in which it has to work, and this is related to the way the system is organized, with its rationality... insurers, providers, hospitals and institutions have to fight to find resources and survive within the market. So the implementation of the PHC strategy is tied to selling services and to gaining resources... we lose our sense of direction [referring to the goals of the implementation process] because we are not working to solve community needs, but to achieve financial sustainability. (Focus Group – Hospital staff)

Another important barrier identified by the staff at the management level was the difficult financial situation faced by hospitals in the last several years. This prevented many of them from providing the supposed fraction of funds to finance some of the working time of professionals within the health care teams. This funds contribution by the hospitals to the PHC strategy had been included within the planning – creating a gap – and would have been assumed to come from the sales of services.

In 2007, the central role of PHC strategy in the district health policy was superseded by PSHQL strategy and since then the allocated budget of the

program has been reduced every year. On the other hand, as a consequence of this shift, local mayors were less willing to keep providing financial support for the local execution of the program. An example of this view was expressed in the following quotation:

The budget is a real issue; if a hospital is in crisis, the money goes to the priorities and the decision would be to fire most of the people working in public health programs and minimize the money invested in the PHC strategy... And unfortunately we have to talk about resources, about money, and when you have money you can do many things, but when the budget becomes smaller and the DHS starts to cut resources, we have to cut activities and fire people. (Interview – Hospital manager)

Besides the lack of stable resources and the financial crisis faced by hospitals, the constraints imposed by the national policy of labour market deregulation and flexibility were added to the list of barriers. The health workforce faced unsatisfactory working conditions, employees neither had permanent contracts nor social security, salaries were low and workload was excessive. These circumstances were demotivating and employees often felt mistreated.

Problems affecting the health workforce were in turn reflected in a high turnover. The rapid change of personnel was also typical at the higher levels (managers and coordinators) and had a considerable deteriorating effect in the organizational climate. The following quotes from some respondents illustrate the point:

These forms of contracts have maltreated people and if people are not motivated to work, then they don't do their best. Sometimes when the contract ends the hospitals leave people waiting one, two and up to six months to renew a contract. Then when you find a chance to work in other places, you go away and we have a high turnover: between 80 and 85 % of the people change between January and June each year. (Focus Group – Hospital staff)

Besides the poor labour conditions, hospitals hire professionals to work on more than one project, only one person for three and four projects; another example, the hospital gets a contract for a product to be completed in 12 months but they hired me just for four months, so the overwork creates schizophrenia in people. (Focus Group – Hospital staff)

Training and skills development was one of the elements of the program that soon fell prey to the financial constraints. At the beginning, the DHS and the hospitals organized training and oversaw skills development. Nevertheless, the budget dedicated to this rapidly diminished and through the frequent change of personnel, those well trained were lost to other jobs. The words of a DHS staff member on this:

Universities do not train students to do community work, training has a clinical and individual approach, and so it is very hard... if they came already trained by the university then it would be easier for them to work; if universities were involved with the strategy, the training process would not be only the responsibility of hospitals and the DHS, and what to say about the high turnover of health human resources... look, people trained in 2006 with international teachers who are no longer at hospitals, and the hospitals do not have money for ongoing training processes, so when new people come to work they just read these booklets and interpret them on their own and then begin to do what they can. (Interview – DHS official)

On the other hand, coordination problems hindered inter-sectoral action. Even though the process was initially perceived as going in the right direction, over time the commitment of actors/institutions coming from outside the health care sector began to be weakened. In some cases this might have been a consequence of a lack of human resources, which makes some institutions unable to participate in the discussions chaired by the hospitals. In some other cases it was perhaps that some institutions perceived the process as duplicating actions and did not give enough importance to the need for joint action. The negative effect of this coordination problem was reflected in a lack of comprehensive responses to solve community needs. One member of the Home Health care team said:

All started with the goodwill of people, but those people somehow represent institutions. We started holding some meetings, but were unable to continue them, because it was infertile ground for achieving what we wanted; some institutions do not want to be involved so even if people wanted to, they could not because they depend on institutions and we did not find support from some institutions. (Interview – Home Health care team member)

The instrumental community participation was another factor limiting the PHC strategy ability to produce results. Some representatives of Home Health care teams recognized a tendency of communities and individuals to be seduced by leaders and political parties with the promise of gaining private benefits.

We do not need to tell lies, the community leader realizes he can get a job for his son, or a new business for his family, help to build a house for his daughter or just shirts, jackets or lunch... then some institutions take advantage of this situation and keep the leader happy and he in turn calms down people in the community and this way the community won't come to claim their rights. (Interview – Home Health care team member)

Meanwhile people in the community claimed there was a division between the spaces where local needs and possible solutions were discussed and the spaces where the decision-making process was carried out. The lack of linkages between these two spaces made the community perceive their role as insignificant and their spaces as being awarded attention only when they could justify the decisions that politicians were to execute anyway. One member of the community had this to say about this issue:

We realize there were two tables [agendas] in the process. In one, sectors and institutions identified problems and generated responses, and in the other, the community talked about their problems, but where were the decisions taken? And what could the community do? We did not see results in this process, so we started to stand aside... We did some analysis, we must not be a genius because it is obvious, institutions have used us, so, please come and sign to confirm you agree... agree with what? With what has already been decided? With what is already tied up? So, it is something that discourages the community. (Focus Group – Community member)

Chapter 9 | Discussion

The overall findings of this research suggest that the PHC strategy through the intervention of the Home Health program could be helping to improve the performance of first-level public health care facilities, improve population health outcomes and reduce inequalities associated with socio-economic and living conditions.

Similar to other studies, our results could suggest that some interventions offered and triggered by the PHC strategy and the Home Health program, such as health education, access to health services, referral to and inclusion in social programs, design of inter-sectoral responses and promotion of social participation, are helpful for the achievement of better health and health equity (23, 25).

The study also found a slowdown and stagnation in the Home Health coverage after 2007, with different coverage levels in the localities. This finding suggests that although there was a general guideline issued at the district level, the level of importance given to the PHC strategy and its placement within the institutional structure was primarily a local decision. The slowdown of the coverage expansion and the different dynamics of implementation at locality level could also be a reflection of some structural barriers that might be influencing the implementation process as well as the PHC ability to produce results.

The discussion section aims to reflect on the implications of the main findings of the study. This section is organized around two topics: the first one, “Contributions of the PHC strategy in Bogota”, is dedicated to an analysis of the results (outputs and outcomes) achieved so far and the extent to which the desired changes have been occurring; the second one, “Ongoing challenges”, focuses on the contextual factors identified, highlighting those that seemed to work as facilitators as well as those that represent the main limitations of the PCH implementation. The end of this section presents methodological considerations, along with the strengths and limitations of the study.

9.1 Contributions of the PHC strategy in Bogota

9.1.1 How well did essential dimensions of primary care perform?

The transformation of conventional health care delivery into people-centred primary care is an expected result of the materialization of PHC principles and values into a health system. Indeed, one of the subset reforms proposed by the WHO in 2008 was a call to reorganize health services around people's needs and expectations, which makes the service delivery socially relevant and more responsive, while producing better outcomes (3).

The findings of our study showed that the network of public health care facilities where the PHC strategy was implemented performed well in most of the essential PHC dimensions. According to users' and health managers' experience, the global performance of the public and private facilities was similarly good. In some dimensions public health care facilities even performed better than the private ones.

This result could be interpreted as positive considering that the Colombian public health care sector has been marginalized in terms of investments over the last ten years. Public hospitals have also been facing financial crises (84), and the private sector has been historically perceived as performing better (85, 86).

Our finding is consistent with results from other research. Specifically, it has been reported that service delivery according to the PHC dimensions performs better in areas in which PHC interventions have been implemented (25, 34–36). Nevertheless our interpretation needs to be taken with caution and the ongoing debate on the topic of public vs private performance should not be disregarded. Recent research concerning this issue in low and middle income countries have pointed out that both, public and private health providers have its strengths and weaknesses and therefore being a private health provider does not necessarily mean to be more efficient, accountable or medically effective (87). Consequently further monitoring of the performance of the essential dimensions of the primary care services in Bogota will be needed to confirm the findings of this study and to validate our interpretation.

Although the overall performance of the public health care facilities was rated as good, the dimensions of accessibility, family focus, community orientation and financial resources distribution were identified as areas in need of improvement. The results of our analysis are consistent with Brazilian findings, where the lowest-rated dimensions of its Family Health program were accessibility, family focus and community orientation (34, 36, 88, 89).

The fragmentation and segmentation of the Colombian health system emerges as one of the main explanations for these results. In the GSSSH, members of a family may belong to different affiliation regimes (contributory or subsidized) and therefore they have different coverage in their benefit plan, as well as different providers according to the insurance company they are enrolled with (90). Thus, it is difficult for users to perceive improvement in either accessibility or the family approach.

Moreover, the investments of the district government and the efforts of the Health Secretariat and the public health care network to improve accessibility have not been sufficient to overcome the consequences of two decades of privatization of the health care system in Colombia (51, 91–94). This highlights the need to maintain the interventions already implemented. It also calls for the design of new interventions to face the great challenge of resolving geographic and economic barriers and make organizational changes. Some of the greatest efforts must be made to strengthen the infrastructure, reduce the waiting times and paperwork needed to access services and get prescribed medicines and to reduce the fragmentation of the service provision.

In addition to the previous explanations, the low performance of family focus and community orientation could also be explained by the focus on individual curative services in the educational programs at universities and technological institutes (4, 53). Continuous efforts to strengthen training and retraining processes must be implemented at all levels. Furthermore, structural changes in the health education policy must be carried out to include competencies related to the provision of family- and community-oriented services in curriculums at medical, nurse and public health schools.

The critical performance score assigned to the financial resources distribution reflects the impossibility of health managers moving towards autonomy in the distribution of resources. This hinders the possibility of creating programs adapted to the socio-economic differences of the populations served. Resolving this issue requires structural changes in the health system structure itself, as well as establishing an adequate source of financial funding for the strategy. This would ensure the possibility of offering comprehensive services that respond to the population's needs.

9.1.2 To what extent were changes in health outcomes and equity in health occurring?

Interventions based on PHC principles and values have shown their potential to strengthen important components of the health system, which makes the achievement of better health results and greater equity in health easier and

faster (2, 3, 9–11, 16, 23). The analyses presented here suggest that even in an adverse context – such as that imposed by the market rationality of the Colombian health system – the PHC strategy was able to contribute to the improvement of health outcomes and to the reduction of health inequalities.

Our results are consistent with national and international evidence that has shown associations between the implementation of PHC interventions, health improvements (4, 18, 23, 25, 62, 95–105), reduction of disparities analyzed by socio-economic status, ethnicity and geographical location (102–113).

In Latin America, reductions ranging from 13% to 52% on different health indicators such as IMR, infant mortality rate due to ADD, post-neonatal mortality, under-five mortality rate and child mortality due to acute malnutrition (95–97, 102–104) have been attributed to PHC interventions. In other low- and middle-income countries in Africa and Asia, reductions ranging from 20% to 65% in the IMR and decreases between 10% and 32% of acute malnutrition in children under five have been described as a result of strengthening PHC interventions, such as antenatal care, immunization and the provision of potable drinking water (98, 100). Also, different studies in low- and middle-income countries have shown significant correlations between increases in PHC coverage and availability of immunization (97, 98, 102) and increases in the prevalence of exclusive breastfeeding. Together, this suggests that access to preventive programs for maternal and child care are enhanced by PHC interventions (99, 101).

In reviewing the impact of primary health care on inequality reductions, the evidence suggests that the focus on solving community needs and the promotion of social participation in socially disadvantaged areas by the PHC approach has been able to reduce the gaps in access and utilization of health services (23, 103). Other characteristics of the primary care service delivery such as coordination, longitudinality and comprehensiveness have also shown an important effect on reducing the probability of death in socially disadvantaged areas (106–109, 112, 113). Some countries have identified that the expansion of PHC programs has reduced inter-regional inequalities in infant mortality (102) and disparities in under-five mortality rates (104).

When comparing our results with the available evidence, it is noticeable that the magnitude of the effects found in our research belongs to the lower end of the range of contributions observed in other contexts. A list of possible explanations could include the fact that in the present analysis only data for the third year after the implementation of PHC were included and a longer period of time would have been required to demonstrate a greater effect. This could also be partly explained because the IMR and under-five mortality rates

had already experienced a significant decline years before the PHC implementation. This decline could be a function of a wide range of social interventions (e.g. economic and nutritional subsidies, improvements in water and sanitation, increased sewerage coverage) that could affect those health outcomes. These interventions could make a greater contribution to improving health status and to reducing disparities, and then the scale of declines would become less sensitive to the interventions associated with PHC reforms.

On the other hand, the indicators analyzed were mostly evenly distributed in 2007 (their concentration index values were very close to zero) and consequently reductions in inequalities that could be attributable to the PHC intervention were small. Furthermore, it is also important to note that despite the general decline in poverty and the overall economic growth in Bogota, inequalities in living conditions at locality levels have not changed substantially. That is the case of some localities where the PHC strategy has been more extensively implemented and where simultaneously poverty levels have worsened and health insurance coverage has decreased (114, 115). Consequently, the pace of expansion of the PHC strategy might not have been sufficient to offset the increased vulnerability faced in some localities.

Similarly, it is known that the presence of basic health care teams and the increase of professional ratios (variables included in the PHCI) are not, per se, guarantees of better access, use and quality of health services (23). This is an important argument to consider, as it is known that in the Colombian health system still persists many economic and administrative barriers (e.g. co-payments, excessive paperwork to access services and delayed care) (4, 45, 94, 114, 116), which may hinder the potential of the PHC strategy to impact on health outcomes and health equity.

9.2 Ongoing challenges

9.2.1 What seems to have facilitated the process?

The main enablers identified in our study to facilitate the implementation process were all related to the goodwill and commitment of actors at different levels. The main enablers were the continuous engagement by the district government, the support of the local mayors and hospital managers, the sense of belonging of the Home Health care teams and the involvement of organized communities committed to the process of social participation. These positive attitudes made a difference as they contributed not only to successfully implement the strategy, but to create the necessary agency to visualize the role of the health sector and to keep the PHC implementation on the agenda.

The change in the orientation of the district policies and the commitment of the last two district mayors generated a new policy environment in Bogota. This change had a positive impact on the attitudes and vision of institutions and communities and allowed the PHC strategy to find fertile ground on which to be implemented. Other factors that facilitated the continuity of the PHC implementation were the economic support from local mayors, and the persistence and leadership of the hospital managers in obtaining additional funds to expand the Home Health program coverage.

The active involvement of communities with long trajectories of social participation in some localities served as the backbone to the Home Health care teams' work. This involvement has contributed positively to creating opportunities for both people and the health sector to identify community health needs and act on them. The collaborative work between the community and the health sector has also strengthened the agency necessary to maintain the PHC implementation on the local political agenda.

Successful experiences of implementing PHC reforms in low- and middle-income countries have highlighted as key factors for their accomplishment the political will and the government commitment to meet the population's health needs. The active participation of organized communities has also been found to be an important factor (10, 50, 117). The WHO has also highlighted the importance of the policymakers' commitment and their role as facilitators in achieving the goals of PHC reforms (2). Research has shown how modifications in legislation and policies adopted by governments and health authorities act as enablers to generate shared goals and facilitate collaborative work in the PHC (118). Historical analysis has also shown how organized communities and people's organizations can effectively pressure the state into action towards realizing the right to health (117).

An enabler that deserves special recognition is the extramural work by community health workers and the basic health care teams. Communities especially valued the commitment and sense of belonging shown by these workers. This has contributed to the visualization of the health sector within the community, and consequently has generated political support for continuation of the strategy.

The beneficial effect of interventions by community health workers is well-acknowledged. They can positively influence community development, through improvements in access to health services, providing health education, and undertaking actions that lead to improved health outcomes which in turn reduce costs to the health system (119). Our findings support and provide further evidence for one of the long-established axioms to the success of

community work, which is that the worker is an instrument and his/her qualities and skills are far more important than the programs or services the worker might offer (120, 121).

Bearing in mind that the commitment and will of the workforce is one of the most important enablers of PHC implementation, incentives to retain and motivate staff must be incorporated in the list of interventions needed to guarantee the sustainability of the strategy. Schemes combining financial and non-financial incentives have been recommended as effective strategies to get a better motivated, more satisfied and better performing workforce (122,123).

9.2.2 What are the challenges and barriers to overcome?

The implementation of the PHC has encountered structural barriers that might explain the slowdown and stagnation in the expansion of coverage after 2007 and that also may have limited the ability for the strategy to produce better results. The promise to achieve universal health coverage in Bogota through the PHC strategy and to ensure access to quality health services, especially for poor and vulnerable groups, has been partially achieved. At least users in subsidized regimes and uninsured people now have better access and some continuity in the services. However, the set of barriers identified in this study constitute a set of challenges that must be overcome if the PHC is to achieve its full potential.

The core barriers recognized by the key actors were the structure of the GSSSH itself, the overall rationale of the social policies based on neoliberal principles oriented to economic growth, the educational and labour policies, the participation system and the lack of a stable funding source.

Those barriers were in turn expressed in some problems that weakened the implementation process and that could keep preventing the potential of PHC from obtaining better results. For example, the labour market flexibilization in the national policies generated unsatisfactory working conditions causing work overload and high turnover. This affected the process by disturbing, stagnating and/or reversing advances. The national educational policies for the health workforce, focused on individual and curative training, left aside the development of competencies in family focus and community orientation. This limits the provision of services that really respond to people's needs. A consequence of the neoliberal approach on the national health policy was that the role of the state was reduced, which decreased the stewardship of the DHS. This in turn affected the capacity of the DHS to extend the PHC implementation to the network of private health care facilities and to the insurance companies of the contributive regime. Also, the reduction in the stewardship role limited the DHS to promoting the involvement of the private sector and

institutions outside the health sector to develop inter-sectoral responses. The representative participation system and the lack of clear mechanisms for accountability in the social policies made community participation remain shaped according to the rules of the institutions and/or dominated by the individual interests, which prevented community empowerment (4, 57).

Perhaps the most significant barrier to the PHC implementation was the structure of the GSSSH based on a market rationality that mainly seeks profitability through the sale of health care services. This feature set a framework in which the establishment of a PHC strategy with a comprehensive approach was limited and reduced to some extent, to a program underpinned mainly by the activities performed by health care teams and community health workers (4, 57). The difficulties in implementing and ensuring PHC sustainability in a fragmented and segmented health system such as the one in Colombia have been described in a literature review conducted in South America (124). This review, as well as other studies, showed that in contexts where the health system has social insurance schemes with public-private combinations co-existing within a market oriented health service provision, the PHC is limited to vertical intervention programs, or temporary and isolated strategies (4, 16, 124, 125).

The lack of a stable source of funding was also an important structural barrier. The PHC strategy did not include in its planning full funding for the health care teams. This meant that hospitals had to look for additional resources even when they were facing a financial crisis. In addition, the imperative of profitability that is embedded in the planning process of all Colombian public institutions worsened the situation. Public hospitals had to compete in the market to get resources and to be financially sustainable, which oriented their activities to the selling of individual services rather than delivering public health interventions such as PHC. The importance of ensuring adequate resources to meet desired PHC goals and to support health care teams requires special attention, if the implementation and sustainability of PHC reforms are to succeed (2, 126–128).

In addition to the funding problem, the human resources were also dealing with unsatisfactory conditions. These included poor working conditions, temporary contracts, low wages, work overload, weak or inexistent training and capacity-building programs and a lack of economic and intrinsic incentives. This in turn generated a high turnover rate. Issues affecting the workforce deserve special attention since, as mentioned in the previous section, most of the enablers of the continuity and sustainability of the strategy relied on the goodwill and commitment of people. Unsatisfactory working conditions have been commonly reported as one of the major barriers to implementing health system reforms and collaborative PHC work. They often cause people to lose

their motivation and commitment and undermine their engagement with the process. To this regard, WHO has recommended changes in remuneration systems, introduction of incentive initiatives and action plans to improve human resources management through supportive supervision and ongoing training (2, 3, 126, 129).

The difficulty of involving all actors at local level and the lack of promotion of community participation were also limiting factors to the development of comprehensive responses. As per findings in other studies, insufficient communication between actors and different dynamics in institutions outside the health sector are the main factors limiting inter-sectoral work. There is a large literature on inter-sectoral action for health, or what more recently has been described as a Health in all policies (HiAP) approach. Similar to those found in our research, the main challenges for HiAP are to successfully place health criteria on the agendas of policymakers and to convince other sectors to make health-related decisions. Possible ways to address these issues include the design of policies based on shared aims and the integration of impact assessment procedures across different sectors, to facilitate mutual gains and inter-sectoral collaboration (130–132).

9.3 Methodological considerations

The main strengths of this study are the combination of rigorous quantitative and qualitative methods for data collection and analysis, the relevant range of stakeholders involved throughout the research process and the use of a comprehensive framework that allowed reflection on the influence of contextual factors on the intervention evaluated.

Results obtained in the qualitative analysis were complementary to the quantitative findings and helped to explain them to some extent. Thus, the findings derived from one methodological approach seemed to validate those from the other (133). The complementarity of the quanti-quali findings as well as the accuracy of the interpretations, were confirmed through an iterative round of consultations with relevant stakeholders. Also, a final series of member-check workshops, to enhance both the credibility and validity of the study (134), were conducted.

The research team in this study represented the multidisciplinary fields of human and social sciences, epidemiology and biostatistics. All contributed with their specific competence to the planning of the study, interpretation of the findings and reviewing drafts of different papers. This increased the credibility of this work. Our long-term engagement over the five years – the two stages of the project – enhanced our understanding of the PHC implementation



Images 17 and 18. Member-check workshops with institutions and communities

process. Moreover, the opportunity to be part of the Teasdale-Corti Global Health Research Partnership Program allowed us to learn from international participants. This also gave us the opportunity to present and discuss our findings with research teams around the world, which thereby increased the trustworthiness of our conclusions.

Although generalizability was not the intention, since local context is of vital importance to understand the processes when implementing a public health strategy, the experience analyzed in this study can be transferable when planning and evaluating similar interventions.

Although several measures were taken in order to enhance the research's trustworthiness in both the quantitative and qualitative analysis, some aspects could have affected the validity of the findings. First of all, our results are subject to the usual caution about interpretation of cross-sectional results and the limitations of ecological analysis, which do not provide conclusive evidence of causality.

Regarding the performance evaluation, it is important to note that the study included only the perceptions of those attending health care facilities, therefore the ratings of some PHC dimensions, especially *accessibility* and *gate-keeping* could be overestimated (135). The cross-sectional design does not permit to know whether the performance of the dimensions had improved over time and, if so, whether the improvements had occurred due to the implementation of the Home Health program.

We are aware that the study results are not necessarily generalizable to different localities to those six included in this analysis. The rate response of 65% of the private health facilities could mean a lack of representation of the population in this group, and this might have also influenced the dimensions' scores.

Other limitations to this analysis include the partial comparability of the users, because those attending the public health care facilities had a lower socio-economic status than those attending the private ones. Also, the use of CAT-PCA and PCA, where a weight is assigned to the different items, could have led to an overestimation or underestimation of the ratings. Another problem could be the determination of cut-off points to discriminate between critical, intermediate and good performance scores, this categories were made to facilitate the communication of the results to the users, however this may have altered the perception over some of the assessed dimensions. The adaptation of the Brazilian methodology, the scale of indices and the psychometric properties of the instruments were not assessed and validated, which may reduce the reliability of the results.

With regard to the analysis of the health outcomes improvement and inequality reductions, the unavailability of information on a disaggregated level lower than localities (e.g. micro-territories, families or individuals) prevented us from determining with certainty whether the improvements in health outcomes occurred in the targeted population. It also limited our possibilities of assessing whether the reductions in disparities were in favour of the vulnerable population reached by the Home Health program in the locality.

The lack of information about population size in each strata before 2009 led us to carry out retro-projections that are only an estimate of the population size. This could again under- or overestimate the variables that make up the PHCI and therefore could affect the measurement of the coverage intensity and the classification of groups.

Other important limitations were the few sources of information available for gathering data and the periodicity of the existing socio-economic information, which is collected only every four years. These reduced the possibility of including more observation periods, limiting a better appreciation of the possible effect of PHC in improving health outcomes and reducing disparities. Indeed, measuring the results of the strategy only three years after its implementation might not be sufficient to measure its true impact.

The complexity and influence of many social determinants on the health outcomes studied would require the inclusion of additional variables: first, variables that allow a better understanding of the PHC contributions (e.g. health education at facilities, home visits by community health workers, reference to social services); and second, latent unmeasured variables recognized as determinants of the inequalities in the health outcomes analyzed (e.g. coverage of social programs, mother's age, mother's educational level and duration of breastfeeding, among others). Such variables are important to be included

since they could confound the apparent relationship between the belonging to a high PHC coverage locality, the health outcomes improvements and the inequality reductions (64).

With regard to the qualitative analysis, it is important to bear in mind that the number of cases (seven localities) included in the analysis may have limited the scope for exploring enablers and barriers. Different factors affecting other localities might emerge if other localities were included. Also, in relation to the same issue, the inclusion of those localities that showed a will to participate may have introduced some sampling bias. We tried to mitigate this potential threat to validity by including localities belonging to the four health service networks as well as some representatives from both high- and low-coverage groups.

Another limitation could be that the diversity of experiences and views from the different individuals and groups of stakeholders had to be reduced to a list of barriers and enablers. Thus, some very valid experiences of the PHC implementation process may have been overlooked.

Further research should include representative data on individual Home Health users and non-users and additional variables that allow a disaggregation of the evolution of macro and micro social indicators. Such research with a potentially extended list of variables could be helpful to disentangle which elements of the PHC strategy really contribute to improvements in health outcomes and reductions of inequalities.

Chapter 10 | Conclusions and recommendations

This study contributes to the ongoing discussions regarding the need to strengthen the PHC strategy at district level and provides timely evidence to inform future plans to scale it up at national level. The results of our study also support the existing evidence showing the benefits of PHC interventions for the population's health and provide information about the obstacles to the advancement and implementation of the PHC.

Overall, this study has shown that the promotion of a PHC strategy through the Home Health program:

- Might have helped to improve the performance of the first-level public health care facilities network in the essential dimensions of the PHC.
- Has contributed to decreasing the risk of under-five mortality and IMR by pneumonia and to increasing the probability of being vaccinated for DPT in high PHC coverage localities.
- Has contributed to reducing the disparities associated with socio-economic and living conditions in under-five mortality, IMR, acute malnutrition and vaccination coverage for DPT.

The findings suggest that, even in the adverse context of a market-oriented health care system, it is possible that governments committed to the goals of improving populations' health and reducing health inequalities could obtain good results when PHC is prioritized in their agenda.

A factor that deserves special recognition in the achievement of the goals proposed by the PHC strategy in Bogota is the commitment to serve the communities by the basic health care teams, and particularly the extramural work carried out by the community health workers.

Significant efforts are still required to overcome the economic and financial rationality of the Colombian health system. The structural barriers identified in our study remain as a set of challenges that also point out the need for structural changes to the social policies at national and district level, if the implementation of PHC is to be successful. Some of the necessary changes include:

General policy changes:

- The development of economic, health and social policies rooted in a human rights approach, focused on transforming the social determinants of health and aimed at improving quality of life.
- The development of social redistributive policies with universal coverage, based on participatory approaches, including inter-sectoral responses and efficient accountability methods.
- The alignment of education, labour and other social policies with the health policy to facilitate the PHC strategy to develop its full potential to effectively orient the health system and to achieve the expected results.
- The strengthening of the state's role as guarantor of social rights by increasing its stewardship function.

Changes related to the PHC implementation in Bogota:

- PHC strategy must return to its core position within the health policy agenda and its implementation must be extended to all health service providers, and not just to the network of first-level public health care facilities.
- The strategy needs a stable funding of resources to ensure the sustainability and expansion of the Home Health program coverage.
- Mechanisms to ensure compliance with the actions and the provision of services according to the primary care essential dimensions should be included as mandatory in the contract clauses between health authorities, insurance companies and health providers.
- The individual curative focus of the training and retraining programs for the health workforce must be changed to one that ensures the development of competencies for family- and community-oriented services.
- Mechanisms to bridge the community needs identified within the programs and plans by institutions at local level must be strengthened through accountability tools.
- Information systems should be improved so as to connect the public health surveillance data, the clinical-individual care information, and the family and individual characterization by the Home Health program, with the data collected in other social institutions and welfare programs. The information must be available for follow-up interventions in different sectors.
- Community participation promoted by institutions should respect people's autonomy and the community must be allowed to be involved in the decision-making processes.

Chapter 11 | PHC in Colombia, where are we heading?

Universal Health Coverage (UHC) is an important policy for Colombia and has become a very important goal since the topic has risen to the forefront of the global agenda in the past few years. The UHC in Colombia is conceived in terms of insurance coverage and the subsidized regime has been its pillar strategy. However, due to the financial limitations the country has not been able to materialize its promise of universality. The supply-side constraints remain an important obstacle to achieving substantial reductions in inequalities in access to quality services, especially for the subsidized regime users (136).

The PHC strategy in Bogota showed some positive progress in reducing the barriers in access and in the quality of services for subsidized regime users and the non-insured population, indicating the capacity of the strategy to ensure the right to health and achieve universal coverage. However, PHC has been neglected on the national agenda since the GSSSH was implemented in 1993.

In 2011, a window of opportunity was opened when Act 1438 enacted a health reform aimed at strengthening the GSSSH including, as one of the components, the primary health care strategy. The reform, however, did not include any structural change to the organization of the health system or its financial rationality, which in turn suggested that the PHC strategy would have to be implemented within the context of the insurance market (137). Supporters of the PHC criticized the scope of the reform and argued that the real potential of the PHC strategy to reorganize the health system had been ignored once again.

The barriers identified in Bogota and other experiences across the country were discussed in different public debates organized by the Ministry of Health, in order to collect useful information for designing the regulatory decrees (guidelines) needed to operationalize the mentioned reform. For two years the country expected the decrees to be issued, but instead, a new reform aimed at redefining the GSSSH was launched in 2013 (138).

This new reform initiative has unfortunately left aside the topics included in Act 1438 and concentrated mainly on reorganizing the management and administration of the financial resources and on creating procedures for monitoring and controlling the service provision. In this current scenario, the future of the PHC in Colombia is not clear. Citizens and health workers have strongly rejected the content of the new reform and are mobilizing national strikes to stop the ongoing process. Social movements keep defending the ideal of a structural change to the health system.

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