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Health care needs in the Bogotá-Region

Necesidades en atención en salud para Bogotá-Región

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| Abstract |

Introduction: The Bogotá-Region is an area where demographic trends and epidemiological profiles change constantly; these specific conditions determine health needs.

Objective: To establish the demographic and epidemiological profile of the Bogotá-Region, its relationship with institutional response and opportunities for the development of a university hospital.

Materials and methods: A literature review of information related to demographics, epidemiological profile and some features of health service delivery in the Bogotá-Region was conducted through a systematic search in search engines and databases.

Results: The Bogotá-Region has particular characteristics such as aging population and the transition in its disease profile; these characteristics have an influence on the delivery of health services, so it is imperative to improve and adapt care to respond to these priority needs.

Conclusions: The Bogotá-Region is an area with significant population concentration in Colombia, so health care of its inhabitants must be managed considering the demographic and epidemiological profile, so that a structured response can be generated, in which the creation of a university hospital, center of excellence in health, is a priority.

Keywords: Healthcare Disparities; Needs Assessment; Demographic transition (MeSH).

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| Resumen |

Introducción. Bogotá-Región es un área en la que su población presenta cambios en las tendencias demográficas y el perfil epidemiológico; estas condiciones específicas condicionan las necesidades en salud.

Objetivo. Establecer el perfil demográfico-epidemiológico para Bogotá-Región, su relación con la respuesta institucional y las oportunidades para el desarrollo de un hospital universitario.

Materiales y métodos. Se realizó revisión de la literatura por medio de una búsqueda sistemática en motores de búsqueda y bases de datos de información sobre la demografía, el perfil epidemiológico y algunas características de la prestación del servicio de salud en Bogotá-Región.

Resultados. Bogotá-Región presenta unas características particulares como el envejecimiento de su población y la transición en su perfil de morbilidad; estas características influencian la prestación del servicio de salud, por lo que es imperativo mejorar y adecuar la atención para dar respuesta ante estas necesidades prioritarias.

Conclusiones. Bogotá-Región constituye una zona de concentración poblacional importante en Colombia, por lo que se debe gestionar la atención de la salud de sus habitantes teniendo en consideración la composición demográfica y el perfil epidemiológico, de tal manera que se genere una respuesta estructurada en la que sea prioritario el hospital universitario como centro de excelencia en salud.

Palabras clave: Perfil de salud; Demografía; Sistemas de Información en salud (DeCS).

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Introduction

The response to health needs is based on different care strategies, on the search for instruments that help overcoming situations of inequality in access to health services and deficits in service quality, and on the establishment of intra- and intersectoral collaboration and cooperation agreements to raise levels of life quality for the population.

This is an unresolved task that affects the capital of Colombia and the area known as Bogotá-Region, a geopolitical concept that has gained recognition and relevance in favor of social

development. Given the growing importance of this region, taking this area as a reference, from various perspectives and institutional actors, has been considered to solve problems such as transportation, urbanization, economic competitiveness and, of course, health care, according to demographic changes and epidemiological profiles (1,3).

In order to assess the opportunities for the development of a university hospital in such territory, this investigation seeks to rethink the demographic and epidemiological profile of Bogotá and its surrounding areas based on a systematic literature search for understanding the health needs of the population covered in this geographical area and, thus, support decision-making in public policy.

Materials and methods

Relevant information was sought in gray literature references such as websites of agencies responsible for the administration of health in Colombia like the Ministry of Health and Social Protection, the District Department of Health, the Department of Health of Cundinamarca, among others. Similarly, a review of published information from national studies and studies related to health needs identification and description of the health situation in Bogotá-Region was done.

Search in databases was extended to five years in PubMed, SciELO and search engines like Google Scholar; the following were used as search terms: Bogotá, Health Care Needs Assessment, Epidemiologic Measurements Methodologic, and necesidades en salud. The search strategies used were: ((“Healthcare Disparities/methods”[Mesh] OR “Healthcare Disparities/organization and administration”[Mesh] OR “Healthcare Disparities/statistics and numerical data”[Mesh] OR “Healthcare Disparities/trends”[Mesh] OR “Healthcare Disparities/utilization”[Mesh])) AND (“Needs Assessment/statistics and numerical data”[Mesh] OR “Needs Assessment/trends”[Mesh])AND “Bogota” in Pubmed; [Necesidades en salud en Bogotá, Colombia] in SciELO, and [health care needs assessment in Bogotá] in Google Scholar.

The texts included in this research were chosen because of their relevance and significance for understanding the epidemiological and demographic profile of the Bogotá-Region and the health needs related to this region.

After obtaining the results of a systematic search of the literature, the sequence to screen and select studies that were used here are summarized in Figure 1; this process was conducted by an epidemiologist and a public health specialist.

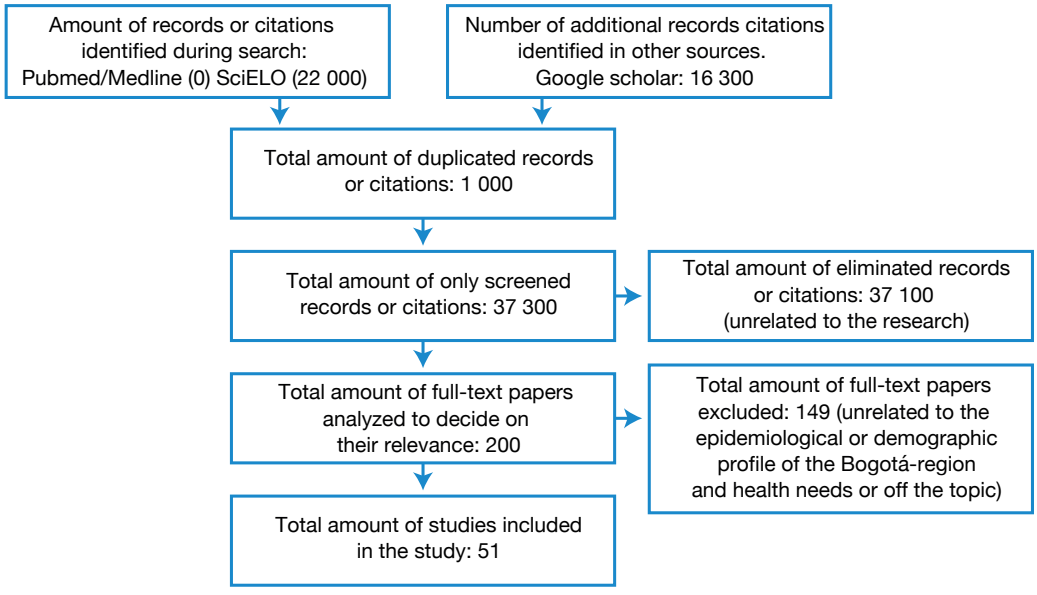

Figure 1. Flowchart for screening and selection of evidence. Source: Own elaboration based on the data obtained in the study.

Results

Describing the population is the first step to understand the demographic profile. Bogotá, D.C. has more than seven million inhabitants distributed in 20 localities (4), and some of them, like Kennedy and Suba, have more residents than some major cities such as Cartagena, Cúcuta and Bucaramanga, being only surpassed by Barranquilla, Cali and Medellin (5). Regarding health coverage, the distribution of the status of health system affiliation is shown below (Table 1).

Cundinamarca shows that the population affiliated to the subsidized scheme comprise a similar proportion to the coverage of the contributory scheme; meanwhile, in Bogotá, D.C, a highest percentage of population related to the contributory scheme is notorious (7,8).

Table 1. Coverage of the General Social Security System regarding Health in the Bogotá-Region. 2010-2011.

Membership scheme	Bogotá, D.C.		Cundinamarca	
	Number of people	Population %	Number of people	Population %
Contributory scheme	5 156 073	66.8%	1 004 842	51.5
Subsidized scheme	1 319 709	21.1%	931 360	47.8
Special Scheme (Armed Forces, Teachers)	206 185	2.8%	13 157	0.7
Without affiliation (Associated)	888 000	8.9%		
Does not know	29 455	0.4%		

Source: Own elaboration based on (18).

Although, the current growth rate of population has declined globally, during the 1993-2005 period, Bogotá grew at a rate of 1.95%, while surrounding municipalities did at a rate of 3.67% (4). In Bogotá, D.C. fertility decline has been notorious in recent years, going from an overall rate of 2.3 children per woman in 1998 to 1.93 in 2005-2010.

Growth projections in the Bogotá-Region, according to the National Administrative Department of Statistics (DANE by its acronym in Spanish), show that the capital will have 8 380 810 inhabitants in 2020 while Cundinamarca will have 2 887 005, generating a more intense contact between these two groups, particularly in the urban edge; therefore, interventions planned, in an attempt to improve quality of life, should be made taking into account a population in the Bogotá-Region of 11 267 806 inhabitants (9,10).

Another relevant fact is related to population dynamics, since the period 2005-2010 (4) shows a proportion of people by age of 26% under age 15, 68% between ages 15 and 64 and 6% over age 64. However, this situation is changing as the median age has increased over the years, reflecting the structure of a society whose population is globally increasing in years; this phenomenon also affects the surrounding region of Bogotá (11). Therefore, and although population is relatively young, in the long-term, there is a trend towards aging (1), as forecast by DANE (12) (Table 2).

Table 2. Proportion of senior population and aging index in Colombia and Bogotá-Region.2012.

Department	Total population	Population> 59 years	Population <15 years	Proportion of senior population *	Aging index **
Colombia	46 581 823	4.792 957	12 922 990	10.29	0.371
Bogotá D.C.	7 571 345	779 534	1 812 485	10.30	0.43
Cundinamarca	2 557 623	271 138	710 353	10.6	0.38

* Proportion of senior population = senior population/total population.

** Aging index = senior population/young population.

Source: Own elaboration based on (18).

Another issue that cannot be overlooked is the displacement of population: in 2011, Bogotá, D.C. received 320 518 out of

3 775 416 displaced people in Colombia during that year (13), most of them without prior affiliation to social security (14).

Epidemiological profile of the Bogotá-Region

The country still has a high proportion of deaths that could have been prevented, particularly among young men, related to external causes (violence and accidents) and, among women, to cardiovascular complications, especially in women older than 45 (15). Conventional health indicators are presented in Table 3 (16,17) which shows a comparison between the city and the country, as well as Cundinamarca.

Table 3. Health indicators in Colombia, Bogotá and Cundinamarca.

Indicator	Colombia	Bogotá	Cundinamarca
Maternal mortality ratio at 42 days (per 100 000 live births) 2011	68.82	42.05	59.55
Infant mortality rate (per 1 000 live births) 2011-adjusted	17.78	12.88	13.88
Mortality rate <5 years (per 1 000 live births) 2011	14.81	13.77	14.29
Percentage of low weight at birth	9.05	13.29	10.75
Chronic malnutrition in N<5 years (%) 2010	13.20	16.30	13.10
Congenital syphilis rate (per 1 000 live births) 2011	3.02	1.58	0.85

Source: Own elaboration based on (16).

While overall indicators of the Bogotá-Region are slightly better than those of Colombia, they still persist in intermediate levels of health compared with other countries.

The three leading causes of death in the Bogotá-Region are presented in Table 4, which also shows that there are differences regarding sex in cardiocerebrovascular diseases, making them the first and second leading causes of death in the capital, contrary to Cundinamarca, where they are the third leading cause of death, being more prevalent lower respiratory tract diseases (5) (18).

Table 4. Causes of death in the Bogotá-Region. 2013.

Cause	Bogotá				Cundinamarca			
	Men	Women	Total	% of the total	Men	Women	Total	% of the total
Ischemic heart disease	2 266	1 979	4 245	15.01	1 134	951	2 085	20
Cerebrovascular diseases	793	1 130	1 923	6.80	315	415	730	7
Chronic lower respiratory diseases	837	922	1 759	6.22	464	344	808	8

Source: Own elaboration based on (9,10).

Regarding morbidity, the Bogotá-Region shows a complex combination since chronic diseases are highly prevalent. The prevalence of emerging and reemerging infectious diseases (19,20) is also relevant; nevertheless, it is important to note that the burden of disease related to infectious diseases, when comparing data of 2005, 2011 and 2012, has receded in relation to non-infectious diseases (1) (Table 5).

Injuries related to external causes

The magnitude and severity of health issues related to road safety and reflected on injuries associated with vehicular traffic —evident in increased mortality rates—, years of life lost and resulting disabilities, constitute a major public health problem which has recently been positioned in the agenda of the World Health Organization (21-25). In the capital, although the number of deaths caused by traffic accidents

has decreased, figures remain high (26) and are very important in relation to motorcyclists and pedestrians (27).

Table 5. General morbidity according to the Individual Records of Service Delivery in the Bogotá-Region. 2011-2012.

Reason for consultation	Years			
Main diagnosis	2011	%	2012	%
Undefined	30 817 843	25.60	4 202 4511	27.70
C21 Factors influencing health status and contact with health services	23 418 172	19.50	26 886 851	17.70
C11 Digestive diseases	9 433 129	7.80	12 306 974	8.10
C18 Symptoms, signs and abnormal clinical and laboratory findings unclassified elsewhere	8 940 777	7.40	10 858 294	7.20
C09 Circulatory system diseases	6 236 175	5.20	7 991 072	5.30
C10 Respiratory system diseases	6 546 225	5.40	7 965 777	5.20

Source: Own elaboration based on (19,20).

In connection with homicide, the prevalence rate reported in Bogotá D.C. during 2013 was 14.5 per 100 000 inhabitants, which represents a better indicator compared to countries like Mexico (19.5 homicides per 100 000 inhabitants) and Panama (15.37 homicides per 100,000 inhabitants) although, this figure is still far from countries such as Chile (2.8 homicides per 100 000 inhabitants) and Argentina (5.5 homicides per 100 000 inhabitants) (28-29).

Regarding industrial accidents, it is estimated that 31% of all events in the country happen in Bogotá, D.C. and 5% in Cundinamarca, and between 6% and 15% end in death of the worker (30).

Disability

DANE estimates that 5.6% (411 812 people) of the total population in Bogotá are disabled (1); the District Department of Health has a record of almost 200 000, who are between 65 and 69 years of age, and about 60% of them are women (31,32). A similar situation is seen in Cundinamarca (33), where it is noteworthy that aging population comes along with an increase in the prevalence of disability, which is important when offering services that meet these needs.

Institutional response to the health needs of the population in the Bogotá-Region

A study conducted in 2007 to determine the equity in access to health services showed that 18.4% of the population in the contributory scheme and 26.8% of the subsidized scheme do not have proper access to health services (34); this is confirmed by another study by García-Ubaque & Quintero-Matallana (35), in which not only economic but also geographical, cultural and administrative factors constitute a barrier to access services, particularly among the displaced population (36).

In addition, faults are reported in the continuous process of health care, being the most relevant abuse and inhumanity to approach sick patients, the inconsistency in the databases of the health institutions administrators, barriers in appointment scheduling and delivery of drugs or clinical exams, treatments administered far from housing sites and the delay in starting priority and high-cost treatment (37).

According to a report by the Ombudsman Office regarding judicial protection of fundamental rights during 2010 and 2011 in the country, those related to health ranked second and represent between 23.3% and 26.14% of the total complaints received, in these periods respectively (38).

The Superintendency of Health conducted an investigation to determine the trends and motivations that users of the health system in Colombia had for complaining before this control body during 2012 and 2013. These results showed that Bogotá D.C. has the highest participation regarding complaints against the health system with 32% of the national total and Cundinamarca recorded 4%. After a calculation based on affiliates, Bogotá has a rate of 61.5 complaints per 10 000 affiliates and Cundinamarca 28.7 complaints per 10 000 affiliates (39), which indicated that in the capital, despite having a very large range of health services, there are still difficulties for users to receive adequate health services.

Similarly, it is relevant to note that the difficulties for accessing health services are growing in relation to specialized and highly complex activities, in which a user may wait in average 15 days, and more days for some services considered critical such as geriatrics and internal medicine, as well as in complementary areas such as physical medicine and mental health (39).

It is worth mentioning that only 38% of the institutions recognized for their excellence in health in Colombia are located in the Bogotá-Region and that this number is the same as that seen in cities which have a third of the population in this area such as Medellín; in addition, the six institutions from Bogotá in this ranking are private, which is a wake-up call for the public sector to develop and strengthen institutions with potential to become centers of excellence in health as those included in the classification of 2014 published in Revista América de Economía on this subject (40).

Another point of particular interest to be evaluated is the opportunity to strengthen the issue of transplants, as the figures indicate that more than 3 000 people are on waiting lists in Colombia and probably half of them will die before the procedure because of the shortage of organs. In the case of Bogotá, it is estimated that there are 20.8 donors per 1 000 000 inhabitants, a figure higher than the national average, but, according to figures from the District Department of Health, in the last year, only 436 transplants were performed (342 kidney, 70 liver and 24 heart) (41,42).

Discussion

From an epidemiological perspective, there is evidence of a so-called health transition as a result of the demographic transition that has inherent changes in the profile of morbidity (43). Thus, the population in the Capital District shows a greater life expectancy at birth and tends to have a higher rate of aging; similarly, the epidemiological pattern shows increased incidence and prevalence of chronic and external-cause diseases, with persistence of infectious and communicable diseases, which undoubtedly affects health claims.

Regarding the health protection of the inhabitants of the Bogotá-Region, unlike most of the country, it is evident that the highest proportion of the population is affiliated to the contributory scheme (6).

According to the results, there are still barriers to access health services and poor quality in their delivery; these circumstances lead to postulate the need to move towards the establishment of centers of excellence in health, which, according to Castaño-Yepes (44) correspond to institutions that bring together a group of health professionals dedicated to specific procedures, either diagnostic or therapeutic, and are intended to meet a large amount of cases in order to achieve continuous improvement, so that their

learning curve can be accelerated and sustained, making it hard to competitors to overtake.

In Bogotá D.C., moving towards these type of institutions has an important role, not only in health care but in the scientific and economic development of the city region (45-49). Regarding this issue, some hospitals similar to university hospitals, such as Fundación Santa Fe, Fundación Cardioinfantil, Hospital San Ignacio and Instituto Roosevelt have made progress (40,50,51).

Consequently, when rethinking and reflecting on the demographic and epidemiological profile of the Bogotá-Region, it is possible to see that this is an area with a marked aging population pattern, which is an important factor regarding the increase in the prevalence of chronic non-communicable diseases, since they require comprehensive care from all levels of care from the regional health system, which cannot be achieved if such specialized care is concentrated in certain micro-zones of Bogotá. In turn, there are road safety issues at the local level, represented by the high rate of accidents of motorcyclists and persistent insecurity problems related to violence, which have made it difficult to lower the incidence of homicides and personal injuries compared to other regions of Latin America.

Conclusions

Despite political interventions, problems in access to health services and inadequate quality persist in the Bogotá-region, which have become inherent characteristics of the health system in this area. For this reason, the ideas described and discussed above become a key element to rethink the way how health needs are met in the Bogotá-Region. A possible answer is the creation of a university hospital, and in particular of the university hospital of Universidad Nacional de Colombia due to its public character and its connection to the most important higher education institution in Colombia.

Conflict of interest

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To our Alma Mater, Universidad Nacional de Colombia.

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