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Individual and management factors in public health associated with failures and complications in patients with hemophilia in Colombia

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***Abstract*---**The management of public health in Colombia reflects inequities in health and a great lag in the development of capacities at the national level. The stewardship of the health system presents serious difficulties associated with the decentralization process, as well as institutional weaknesses in the territorial entities as determining factors in the proper functioning of the system. To date, comprehensive health care models with a territorial approach, enshrined in current regulations, have not been implemented to guarantee quality health care for patients with hemophilia and other coagulopathies in Colombia. Orphan diseases such as hemophilia and other coagulopathies, although they have a low prevalence, are chronically debilitating, serious and highly complex to manage, so they require comprehensive approaches that guarantee access, quality, timeliness and efficiency in the management of institutions responsible. In addition, HCV and HIV coinfection is a relevant health problem in these patients. A diagnosis of capacities in public health management at the territorial level is proposed, as well as the identification of sociodemographic and clinical factors such as coverage of care in planning programs or genetic counseling, coverage of recommended management, coverage of multidisciplinary

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treatment, prevalence of HCV and HIV infection, incidence of hemarthrosis (%) in the last 12 months in patients with hemophilia and other coagulopathies, incidence of hemarthrosis and chronic hemophilic arthropathy, among others, in Colombian patients, from January to December 2015.

***Keywords*---**Public health, health system, hemophilia, health management skills.

Introduction

Orphan diseases are diseases of low prevalence, chronically debilitating, serious and with a high level of complexity in their management. Most of them are genetic diseases, others are rare cancers, autoimmune diseases, congenital malformations or infectious diseases, among other categories. Given their low prevalence and diversity, it is difficult to obtain an early diagnosis and practically all health specialties and disciplines are involved in one way or another in their treatment. (MSPS -Colombia, 2016)

In order to guarantee the timely care of patients suffering from orphan diseases, the National Government in Colombia recognized these pathologies as of special interest in Health through Law 1392 of 2010 and proposed the identification of patients in the country. Due to the foregoing, Decree 1954 of 2012 was issued, through which the information system for patients with orphan diseases was implemented. The first hemophilia report made in 2015 to the High Cost Account showed that the population with this pathology, present throughout the national territory, were mostly men, under 20 years of age, classified according to their disease stage as severe. (Cuenta de Alto Costo - Ministerio de Salud y Protección Social, 2015).

Hemophilia infection with HCV and HIV contracted from factor concentrates during the 1970s and early 1980s is a relevant health concern in patients with inherited bleeding disorders. A significant number of patients have been infected with HCV and HIV through the administration of factor concentrates from blood lots, cryoprecipitate or fresh frozen plasma, and numerous cases have been reported in Spain and Latin America. (Alter HJ, 2008). In this regard, international statistics indicate that, at least in the developing world, about 30 percent of patients with coagulation disorders and chronic infection have presented progressive fibrosis that leads to cirrhosis, end-stage liver disease and hepatocellular carcinoma which may require liver transplantation (Ghany MG, 2008).

A significant number of patients with bleeding disorders are coinfected with HCV and HIV. Highly active antiretroviral therapy (HAART) has revolutionized the prognosis of HIV infection, such that HCV infection has assumed greater clinical importance, since liver disease is now the leading cause of death in patients coinfected with HIV. HIV/HCV (Balkaransingh P, 2018). To address this situation, a comprehensive approach is necessary, with adequate comprehensive health risk management, to prevent failures in management, complications or

avoid premature mortality, and to improve the quality of life and well-being of the people affected.

The prevalence and geographical distribution of patients in the country remain unknown in some way, which, ultimately, hinders the activities of caring for affected people. In this sense, the recognition of the national and territorial epidemiological profile will allow not only to characterize the basal state of the sick subjects, but also to identify the factors associated with the evolution of their health, as well as the actions required within the framework of international and national regulations current.

On the other hand, the development of capacities in health and public health management at the territorial level in Colombia has been heterogeneous and dissimilar. In recent years, an effort has been noted in the construction of policies and regulations that promote the guarantee of the fundamental right to health; however, the territorial particularities, the alternation in the local administrations, the lack of continuity in the territorial plans and structural weaknesses of inputs and suitable human talent, reveal a diverse panorama that requires the realization of a diagnosis and baseline , which evaluates the capacities that the territory has to adequately implement public health management processes, especially on the processes related to the territorial implementation of the Collective Intervention Plan, the provision of individual services, the development of capacities to the municipalities through Technical Assistance and the functional capacities of the health authority; all of the above with the aim of improving territorial management processes.

Therefore, there is an urgent need to strengthen care models and service infrastructure in each country, as well as to establish a continuous process of developing institutional capacities in order to guarantee the capacities and resources to advance health outcomes. , well-being and quality of life.

This work proposes a diagnosis of public health management capacities in each territorial entity, according to the methodology to address the development of capacities developed by the UNDP, which took as reference the analysis of the systemic approach and an analytical and multilevel study. of hemophilia and other coagulopathies in Colombia.

Design and type of study
Multilevel analytical prevalence study

Data sources

The database of the Basic Information System of Orphan Diseases of the High Cost Account from 2013 to 2015 was used. This information comes from the report made by the Institutions Providers of Health Services (IPS), the Administrative Entities of Benefit Plans in Health (EAPB), including those of the exception and special health regimes, as well as the departmental, district and municipal health directorates. For the diagnosis of basic capacities in public health management in Colombia, information collection instruments were used: one for each prioritized public health management process and one for functional

capacities, in accordance with the capacity development approach methodology developed by the UNDP (PNUD , 2009).

Study population
Colombian population, residing in private homes in the Colombian territory of all socioeconomic strata in 2015.

Variables

The variables considered to identify the individual and collective characteristics associated with the prevalence and conditions of the General System of Social Security in Health - SGSSS of patients with hemophilia and other coagulopathies and with HIV and HCV infection in Colombia, come from the mandatory nominal report, according to the provisions of the national information system defined for this purpose. To characterize the collective factors and the identification of territorial needs and capacities, the results of the national evaluation of public health management capacities (Minsalud - IOM 2015) were taken into account. The prioritized public health management processes were:

- Management of collective interventions
- Management of the provision of individual services
- Capacity building through technical assistance to municipalities
- Transversal category of functional capacities for prioritized processes in the Territorial Entities.

Findings and Discussion
Prevalence of hemophilia in Colombia

For the calculation of hemophilia in Colombia, the projection of the Colombian population as of December 31, 2015, estimated by DANE, was taken into account as the denominator.

The prevalence of hemophilia in Colombia for the year 2015 was 3.8 per 100,000 inhabitants. Analysis by sex was performed, finding a prevalence of hemophilia for men of 7.53 per 100,000 male inhabitants and for women of 0.17 per 100,000 female inhabitants.

Table 1
Prevalence of crude hemophilia in women, men and total x 100,000 inhabitants in Colombia 2015

Population	Prevalence
Women	0.17
Men	7.53
Total	3.80

Source: MSPS-SISPRO-High Cost Account, 2015.

Individual and collective characterization of the population with hemophilia in Colombia

Sociodemographic profile

A total of 3,506 cases of patients with hemophilia and other coagulopathies were registered in Colombia. The average age of the patients was 28 years, with a median of 24 years and a mode of 8 years. The minimum age recorded was 1 year and the oldest person was 97 years old.

Table 2
Distribution of the frequencies of patients with hemophilia and other coagulopathies in Colombia, 2015

Deficiency	n	%
Factor VIII (Hemophilia A)	1531	43.67
Factor IX (Hemophilia B)	307	8.76
Carrier	358	10.21
Von Willebrand	1143	32.60
fibrinogen	fifteen	0.43
Prothrombin	6	0.17
PV	17	0.48
FV and FVIII	6	0.17
FVII	68	1.94
Fx	1	0.03
FXI	37	1.06
FXIII	17	0.48
Total:	**3506**	**100**

Source: MSPS Database, Resolution 123 of 2015

In general, with respect to sex, 37.34% of the records correspond to women. We found 30 cases (1.95%) of women with Hemophilia A and 11 cases (3.58%) of women with Hemophilia B. In general, the average number of men with hemophilia and other coagulopathies in all departments was 72%.

Cases were presented in all groups of the life course. The predominant age group was 27 to 44 years old with 26% (899 cases); followed by the group from 19 to 26 years old with 19% (652 cases) and in third place the group from 45 to 59 years old with 13% (446 cases. The department of Boyacá and the District of Bogotá were the only territories that reported one case in the 0-1 year age group.

In Colombia, 69 EAPB, aggregated in Contributive Regime, Subsidized Regime and others (Exceptional Regimes, Special Regime or uninsured) reported having responsibility for the insured population with Hemophilia and other coagulopathies in Colombia. 69% of all patients with Hemophilia and other coagulopathies are in the contributory regimen, followed by 25% in the subsidized regimen and the remaining 6% (217 cases) in the exception and special regimens of the total number of patients with hemophilia or other coagulopathies, 31 cases

were recorded in individuals with indigenous ethnicity, 2 cases in Raizales of the San Andrés and Providencia archipelago, and 31 cases in Afro-Colombians.

In relation to the distribution by department and district, the capital district, followed by Antioquia, Valle del Cauca, Santander, Barranquilla, Risaralda, Cundinamarca, Tolima, Córdoba and Caldas occupy the first ten places and add 78% of the cases of all the national territory.

Table3
Percentage distribution of cases of hemophilia and other coagulopathies by department and district in Colombia, 2015

Departamento / Distrito	Total de casos	% Total
Bogotá, D.C.	915	26,10%
Antioquia	612	17,46%
Valle Del Cauca	325	9,27%
Santander	212	6,05%
Barranquilla	134	3,82%
Risaralda	131	3,74%
Cundinamarca	115	3,28%
Tolima	114	3,25%
Córdoba	91	2,60%
Caldas	89	2,54%
Huila	78	2,22%
Norte de Santander	70	2,00%
Atlántico	60	1,71%
Meta	60	1,71%
Bolívar	54	1,54%
Cauca	54	1,54%
Boyacá	50	1,43%
Nariño	50	1,43%
Cartagena	48	1,37%
Sucre	44	1,25%
Santa Marta	42	1,20%
Cesar	34	0,97%
Quindío	23	0,66%
Casanare	16	0,46%
Arauca	14	0,40%
Caquetá	14	0,40%
Chocó	12	0,34%
Magdalena	11	0,31%
La Guajira	10	0,29%
Buenaventura	7	0,20%
San Andres	6	0,17%
Putumayo	5	0,14%
Amazonas	3	0,09%
Guaviare	3	0,09%

Departamento / Distrito	Total de casos	% Total
Total General	3.506	100,00%

Source: self made. MSPS database, SISPRO – High Cost Account. Colombia 2015

Regarding indicators of the quality of care, only 13% of the total number of patients with hemophilia or other coagulopathies were users of genetic planning or counseling programs. The distribution of the proportions of participation in genetic planning or counseling programs by department can be seen in the following figure.

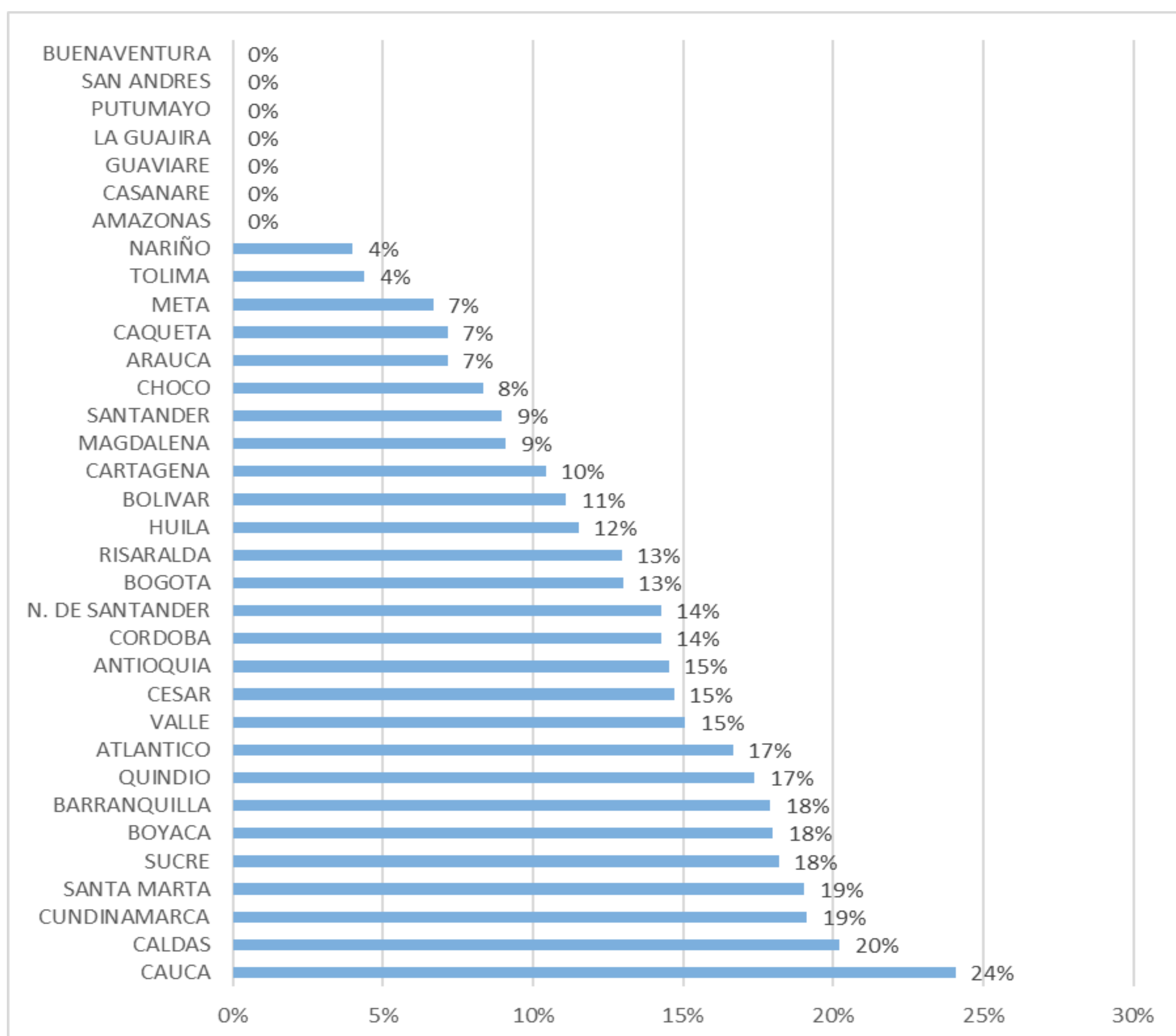

Figure 1. Care coverage in genetic planning or counseling programs for patients with hemophilia and other coagulopathies by departments and districts in Colombia, 2015

Source: Own elaboration. MSPS database, SISPRO – High Cost Account. Columbia 2015

Multidisciplinary and partial management

In Colombia, of the 3,506 patients with Hemophilia and other coagulopathies, only 3% (120 patients) receive care with an indicated multidisciplinary approach (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist, and psychologist). The following figure presents the percentage of patients with hemophilia and other coagulopathies with multidisciplinary treatment in Colombia. In the territories of Amazonas, Arauca, Bolívar, Caquetá, Casanare, Cesar, Chocó, Guaviare, Huila, Magdalena, Norte de Santander, Putumayo, Quindío, Tolima, Cartagena and Buenaventura, no patient was reported with a multidisciplinary approach.

To facilitate the analysis of the management of patients with hemophilia and other coagulopathies in Colombia, treatment was categorized into recommended management or other. To carry out this categorization, the information obtained on the severity of the disease in the study period, the treatment scheme received (on demand, intermittent prophylaxis, primary secondary and tertiary prophylaxis), and the presence of an inhibitor (yes or no) were used. The classification made was based on the treatment guide of the World Federation of Hemophilia (Hemophilia, Guías para el tratamiento de la Hemofilia, 2015).

Table 4
Coverage of recommended management in patients with hemophilia, according to severity of presentation, Colombia 2015

Hemophilia according to severity	Recommended handling	Total Cases
Severe hemophilia	603 (60%)	1,007
Moderate hemophilia	162 (38%)	423
Mild hemophilia	204 (55%)	368
Total hemophilia	969 (54%)	1,798

Source: self made. MSPS database, SISPRO – High Cost Account.

Next, the distribution is presented according to the percentage of cases by department that receive recommended treatment according to the severity of presentation of hemophilia.

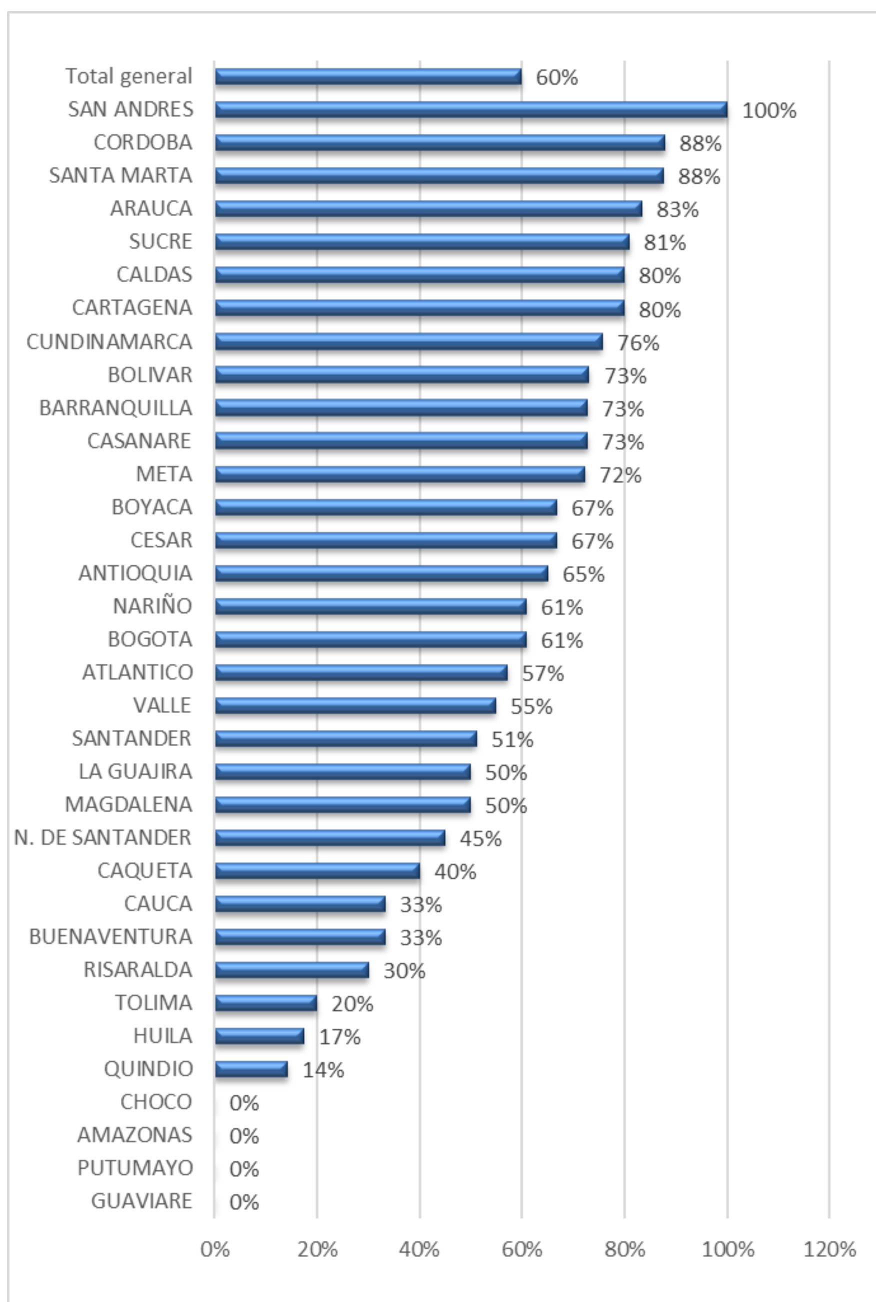

Figure 21. Coverage of recommended treatment in patients with severe hemophilia by department and district in Colombia, 2015
Source: self made. MSPS database, SISPRO – High Cost Account

Nationwide, the proportion of patients with hemophilia and other coagulopathies who required emergency department care for their condition was 29%. The departments that presented the highest requirements were the District of

Buenaventura (86%) and the departments of San Andrés, Chocó, Guaviare and Casanare, where the emergency service requirement was above 50%.

Arthropathy in patients with hemophilia and other coagulopathies in Colombia

Hemophilic arthropathy, one of the main complications of the disease, was identified in 35% of the population with hemophilia A and/or B. Figure 3 shows the prevalence of chronic hemophilic arthropathy, by departments and districts. At the national level, 642 cases of this complication were registered, with an average of 33%. The departments with the highest prevalence of cases were Amazonas and Chocó with 67%, followed by San Andrés with 50%.

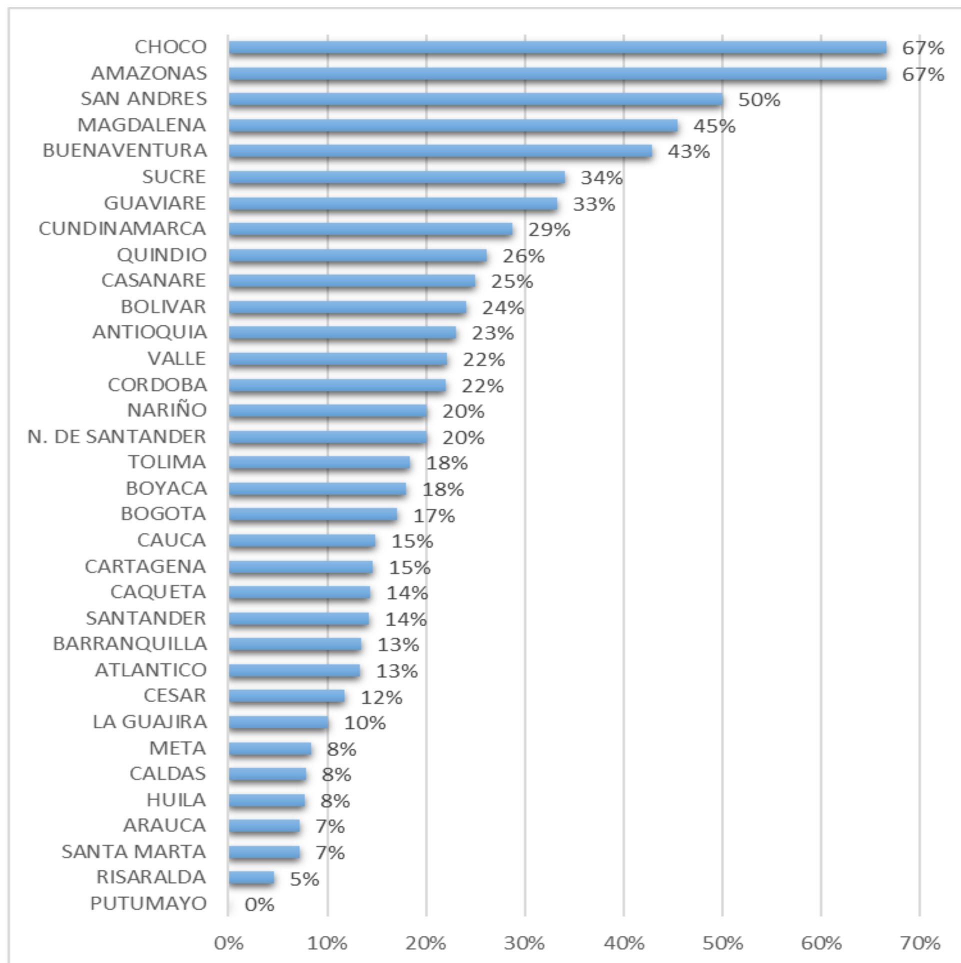

Figure 3.Prevalence of chronic hemophilic arthropathy by department and district in Colombia, 2015

Source: self made. MSPS database, SISPRO – High Cost Account.

HCV Infection – Hepatitis C Virus, HIV Coinfection – Human Immunodeficiency Virus and cases of Hemophilia and other coagulopathies in Colombia

5.3% and 3.3% of patients with hemophilia A and B, respectively, have infection with Hepatitis C Virus. Likewise, two cases of patients with Von Willebrand disease and HCV are recorded. It is noteworthy that, although of the total number of patients with hemophilia and other coagulopathies, 3% have HCV, and 54% have had the event ruled out; in 43% of individuals it is still unknown if they have the infection.

The panorama of HIV Infection and Hemophilia in Colombia shows that for every 100 patients with hemophilia, 1 has HIV. In Colombia, 12 cases of HIV with hemophilia are reported. However, in 43% of patients with hemophilia and other coagulopathies in Colombia, the results of the test are unknown.

Evaluation of capacities in Public Health Management in Colombia

The assessment of the state of progress of the Territorial Health Directorate arises from the consensus with the territorial actors in the field work, contrasting with collected supports and finally organizing the assessment into four levels, according to the following table:

Table 5
Scale of measurement and assessment of stages of development in which the Territorial Directorates of Health are found in the diagnosis of management capacities in public health in Colombia, 2015

Assessment of Development Stages	
1	In stage to develop
2	In stage of enlistment
3	Partially implemented
4	Implemented and with sustainability

Source: self made. Agreement 547 IOM – Ministry of Health, 2016

In general terms, 60% of the aspects evaluated are located at levels 2 and 3 of development, which refer to a stage of preparation or partial implementation (see Table 6 National Percentages of the Processes). The least degree of development in most of the territorial entities is in the management processes for the provision of individual services and in the process of technical assistance to municipalities.

Table 6
National Percentages of the Processes

Capabilities	1 Aspect to be developed	2 In stage of enlistment	3 Partially implemented	4 Implemented and with sustainability
F. Functional	18%	30%	33%	19%
P. Collective Interventions	eleven%	twenty-one%	35%	32%
D. Technical Assistance	19%	40%	30%	eleven%
I. GSPI - DT - PE - EISP	24%	28%	30%	17%

Source: self made. Database agreement 547 IOM - Ministry of Health, 2016.

Analysis of linear regression models for hemophilia and other coagulopathies in Colombia

Linear regression models were developed for hemophilia and other coagulopathies in Colombia. Table 7 presents the summary of the linear regression models developed, considering as variables the coverage of care in planning programs or genetic counseling of patients with hemophilia and other coagulopathies, the coverage of management with recommended treatment according to the severity of presentation of hemophilia, incidence of hemarthroses (%) in the last 12 months in patients with hemophilia and other coagulopathies, incidence of traumatic hemarthroses, prevalence of chronic hemophilic arthropathy, coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse , dentist, nutritionist and psychologist) and coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist) in patients with hemophilia and other coagulopathies.

Table 7
Summary of linear regression models for hemophilia and other coagulopathies in Colombia, 2015

Response variable	R-SQUARE	P-Value (Goodness of Fit)	P-Value ANOVA
Coverage of care in planning programs or genetic counseling for patients with hemophilia and other coagulopathies	99.2%	0.000	0.000
Management coverage with recommended treatment in severe hemophilia	100.0%	0.000	0.000
Management coverage with recommended treatment in mild	100.0%	0.000	0.000

Response variable	R-SQUARE	P-Value (Goodness of Fit)	P-Value ANOVA
hemophilia			
Incidence of hemarthrosis (%) in the last 12 months in patients with hemophilia and other coagulopathies	100.0%	0.000	0.000
Incidence of traumatic hemarthrosis	100.0%	0.000	0.000
Prevalence of chronic hemophilic arthropathy	100.0%	0.000	0.000
Coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist and psychologist) in patients with hemophilia and other coagulopathies	48.2%	0.000	0.000
Coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist) in patients with hemophilia and other coagulopathies	50.8%	0.000	0.000

Source: self made. Analysis of the database agreement 547 IOM - Ministry of Health and the MSPS database, SISPRO - High Cost Account. Columbia, 2016.

Linear regression model of management coverage with recommended treatment in severe hemophilia and regressor variables

The following table shows the results of the management coverage model with recommended treatment in severe hemophilia, in which the variables of spontaneous hemarthrosis incidence, multidisciplinary treatment coverage (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist and psychologist), coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist), management of the provision of individual services and care coverage in planning or counseling programs, showed statistical significance with coefficients of statistical relevance.

Table 8
Results of the linear regression model of management coverage with recommended treatment in severe hemophilia and regressor variables

Model	Regressor variables	Non-standardized coefficients		Significance
		B.	typ error _	
Management	(Constant)	-34,980	,000	0.000

Model	Regressor variables	Non-standardized coefficients		Significance
		B.	typ error _	
coverage with recommended treatment in severe hemophilia	Incidence of spontaneous hemarthroses	7,648	,000	0.000
	Coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist and psychologist) in patients with hemophilia and other coagulopathies	8,446	,000	0.000
	Coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist) in patients with hemophilia and other coagulopathies	1,191	,000	0.000
	Management of the provision of individual services	29,165	,000	0.000
	Coverage of care in planning programs or genetic counseling for patients with hemophilia and other coagulopathies	-3,548E-10	,000	1,000

Source: self made. Analysis of the database agreement 547 IOM - Ministry of Health and the MSPS database, SISPRO - High Cost Account. Columbia, 2016.

Multivariate model results

Multivariate models were developed for each of the variables that were statistically significant due to the characteristics of the response variable. Table 9 shows the results of the variables that obtained statistically significant values:

Table 9
Variables resulting from the multivariate regression model for hemophilia and other coagulopathies Colombia, 2015

Response variable	R-SQUARE	P-Value (Goodness of Fit)	P-Value ANOVA
Coverage of care in planning programs or genetic counseling for patients with hemophilia and other coagulopathies	99.2%	0.000	0.000
Coverage of recommended management in patients with severe hemophilia	100.0%	0.000	0.000
Coverage of recommended management in patients with mild hemophilia	100.0%	0.000	0.000
Incidence of hemarthrosis (%) in the last 12 months in patients with hemophilia and other coagulopathies	100.0%	0.000	0.000
Incidence of traumatic hemarthrosis	100.0%	0.000	0.000
Prevalence of chronic hemophilic arthropathy	100.0%	0.000	0.000
Coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist and psychologist) in patients with hemophilia and other coagulopathies	48.2%	0.000	0.000
Coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist) in patients with hemophilia	50.8%	0.000	0.000
Coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse, dentist, nutritionist and psychologist) in patients with hemophilia	100.0%	0.000	0.000
Coverage of partial multidisciplinary treatment (hematologist, orthopedist and physiatrist) in patients with	100.0%	0.000	0.000

Response variable	R-SQUARE	P-Value (Goodness of Fit)	P-Value ANOVA
hemophilia and other coagulopathies			

Source: self made. Analysis of the database agreement 547 IOM - Ministry of Health and the MSPS database, SISPRO - High Cost Account. Columbia, 2016

Likewise, a Spearman correlation test was developed, given that not all the variables met the normality criteria. The correlation coefficient and the p-value were established, which demonstrated the dependence of the variables.

The relationship between receiving recommended treatment for severe and mild hemophilia with receiving multidisciplinary treatment stands out in the model. Likewise, with the capacity if the DTS monitors and evaluates the provision of individual services and if the DTS leads and coordinates health care, the referral and counter-referral system and the EISP channeling processes by the Network.

In relation to the results of the individual characterization, in Colombia 1,838 cases of hemophilia were reported, of which 83.3% corresponded to patients with hemophilia A. These data correspond to what was planted by the WFH, who describes that hemophilia A represents between 80% and 85% of the world population with hemophilia (Srivastava A, 2013), being confirmed by other studies such as the one carried out in Princeton, where 85.5% of the patients were hemophiliacs (Brown TM, 2009), as well as in the one developed in Spain, for the year 2010, where 86% of hemophiliac patients were type (World Federation of Hemophilia, 2012)A.

The territorial capacity for public health management is variable and very limited in various departments and districts with a lower level of development. The epidemiological analysis of patients with hemophilia and other coagulopathies in Colombia corroborated the findings evidenced in the diagnosis of functional and technical capacities at the departmental and district levels to develop comprehensive processes for the provision of health services, management of population interventions, collective and individual and technical assistance by the health authority. This diagnosis showed that, in almost half of the territorial entities studied, the functional capacities to develop actions of early detection, specific protection, attention to events of interest in public health and technical assistance were still to be developed or in the preparation phase.

In territories with greater territorial weaknesses in terms of their public health management, they are significantly related to a higher proportion of cases of failures in care and complications related to hemophilia and other coagulation disorders. Aspects such as coverage of care in planning programs or genetic counseling for patients with hemophilia and other coagulopathies, coverage of recommended management in patients with severe, moderate and mild hemophilia, coverage of multidisciplinary treatment (hematologist, orthopedist, physiatrist, nurse , dentist, nutritionist and psychologist) and partial multidisciplinary (hematologist, orthopedist and physiatrist) in patients with hemophilia and other coagulopathies, the incidence of spontaneous and

traumatic hemarthroses and the prevalence of chronic hemophilic arthropathy are clearly related to the management capabilities of the service of health services, functional capacities, technical assistance to municipalities and management of collective interventions by the actors of the system.

These results are ratified when considering health and intersectoral evaluations at the territorial level, where the ranking of the departments and districts positions the highest state of development and progress in those with better public health management and better individual results in patient care. with hemophilia. The Departmental Competitiveness Index (IDC) 2016 (U del Rosario, 2016)evaluates territorial competitiveness based on ten pillars, which are grouped into three factors: i) basic conditions, ii) efficiency, and iii) sophistication and innovation. The basic conditions factor addresses the health component that incorporates subcomponents of early childhood coverage and quality. With a maximum score that can reach up to ten, the first five places in the IDC 2016 corresponded to Bogotá DC, a region that obtained a score of 8.12; second place was occupied by Antioquia, a department that reached a score of 6.28; Caldas was in third place with 5.96, followed by Santander with 5.73 and, finally, Risaralda with 5.48. Likewise, the departments of Tolima and Nariño were the ones that improved positions compared to the previous year, moving from position 15 to 11 and from 13 to 17, respectively (U del Rosario, 2016). This ratifies what was found in our study, where Caldas, Atlántico, Magdalena, Risaralda and Nariño present more than 70% of their assessed aspects of the diagnosis with results at levels greater than or equal to three (3).

As evidenced by the diagnosis of capacities developed, there is an important differential in terms of management capacity and the ability to organize the network for the provision of individual services in the territories. For example, Caldas, Magdalena and Risaralda have greater capacities and possibilities for coordination and management to determine the needs for individual care and agree on the development of a comprehensive service care model with the actors in the territory, unlike other departments. or districts such as Meta, Putumayo, Vichada and Arauca. In these entities, the institutional response is usually weak, often supported in a disjointed manner and resulting in low health indicators such as recommended treatments according to severity for hemophilia, multidisciplinary management and fewer treatment failures and complications in coagulation disorders.
These results corroborate the diversity in management capacities in the territorial scope of departments and districts in Colombia, and highlight the need to implement differential development policies with a focus on social determinants of health and equity.

Conclusions

The prevalence of hemophilia and other coagulopathies in Colombia for the year 2015 was 3.8 per 100,000 inhabitants, finding a prevalence in men of 7.53 per 100,000 male inhabitants and for women of 0.17 per 100,000 female inhabitants. The characteristics of health care for patients with hemophilia and other coagulopathies in Colombia present avoidable differentials related to structural and intermediate determinants of health, such as age, ethnicity, affiliation to the

general health security system, place of residence, among others. others. The largest number of cases of hemophilia and other coagulopathies in Colombia are concentrated in populated centers, with the most concentrated population being: Bogotá (26.10%), Antioquia (17.46%), Valle del Cauca (9.27%), Santander (6.05%) and Barranquilla (3.82%)

60% of the aspects evaluated in the diagnosis of capacities in public health management at the territorial level were found in the stage of readiness or partial implementation. The lowest degree of development was found in the process of managing the provision of individual health care services. A statistically significant relationship was found between the individual results of health care for hemophilia and other coagulopathies with the diagnosis of public health management at the territorial level.

The regression models for the indicators of recommended treatment, hemarthrosis, traumatic hemarthrosis, chronic hemophilic arthropathy, multidisciplinary management and partial management demonstrated sensitivity to assess the quality of management of the cohort of patients evaluated with statistical significance and a high degree of correlation in the most of the variables evaluated.

The results of the multinomial model, selecting the department of Arauca as the reference category, were statistically significant and adjusted to the variance presented by the observations. This model relates the departments with the highest weighting in their diagnosis of public health management capacities with individual variables of patients with hemophilia and other coagulopathies.

It is recommended to apply the results of this research for the adjustment of comprehensive care policies for this population, and to continue carrying out follow-up exercises on cohorts of patients with hemophilia and other coagulopathies, in a context of capacity development and strengthening of the community. public health management. In this way, it will be possible to improve the monitoring of health outcomes and advance in the implementation of comprehensive care models, according to the needs of each territory.

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