The Regionalization Process in Brazil: influence on Policy, Structure and Organization dimensions

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Abstract

Objectives: to analyze the influence and performance on Policy, Structure and Organization dimensions in the regionalization process in five health regions in Brazil.

Methods: a quantitative, cross-sectional study using primary data from 217 fulfilled interviews with managers, service providers and representatives of society in five health regions in Brazil. Calculation on the Influence Index that measures the contribution level of three dimensions in regionalization.

Results: after analyzing the three dimensions that influence the regionalization process separately, it is necessary to point out that there is a better performance on the Policy dimension in front of all the others; on the other hand, Structure dimension shows itself to be feeble, configuring a real obstacle to progress the regionalization process; Organization occupies an intermediate place in all the regions of the study. The insufficient availability of physical, human and financial resources impedes to advance the regionalization and the achievement of its major objectives, which are the integration of services and coordination care.

Conclusions: regionalization follows an uncertain path and without clear direction of its objectives, goals and deployed instruments. The Regional planning, in the case of health, is still a theoretical exercise.

Key words *Health policy, Regional planning*

Introduction

The limitations of the regionalization processes that account for territorial transformation in the world and in Brazil are distributed in four areas of study: demographic, economic, policy and social.[1]

Marked by globalization and by the increasing inequalities between social classes, territories and Nation, the present moment witnesses the changes in flows of people and of goods, in the job market, in the development and the availability of knowledge. This context challenges the complex system of public policies, alternating the market-State relations.

To mitigate certain tendencies, the public policies should be included in the leverage processes of regional economies with the purpose to induce a centralized dynamic development on people capable to placate socio-spacial inequalities.

In 2008, a study from the *Instituto Brasileiro de Geografia e Estatística* (IBGE) (Brazilian Institute of Geography and Statistics) on urban networks in Brazil had already pointed out the formation of agglomerated population beyond the City boundaries. The organ attributed for a new scale of importance to these demographic movements by exposing how deep the economic inequality and the offering of services were within National territory.

A more recent study on the evolution of inequality in the Country confirms that, despite the progress in some indicators, the territorial inequalities still is the mark in Brazil.[1] Both studies show that populations in some regions in Brazil require more resources than others and that the urban networks require regional planning policies. One of the key measurements to improve living conditions and reduce inequalities is the formulation of regional planning that combines economic incentives with investments in social policies.

It is from this point that the present article seeks to discuss some of the results on the research about *Política, Planejamento e Gestão das Regiões e Redes de Atenção à Saúde no Brasil* (Policy, Planning and Management in Regions and Healthcare Networks in Brazil), with the objective to analyze the influence and the performance of Policy, Structure and Organization dimensions in the regionalization process in five health regions in Brazil. Initially, it is a brief description and problematization on recent regional policies. And afterwards, it discusses the specificities in the health area, and then finally brings some reflections in order to contribute to the discussion about the regionalization process in progress.

Public policies for regional development in Brazil recent years

The *Instituto de Pesquisa Econômica Aplicada* (IPEA) (Institute for Applied Economic Research) launched in 2017 a study showing strands of thoughts that advocate regional policies actions for people and for territories in recent regional development. These initiatives will produce different results on the development in the regions. While social policies have an impact on the demand for local and regional consume, as well as the productive investment policies in offering regional and local goods and services.[2]

Following the International debate on the relevance of adopting policies focused on the territory, as it proposed was by the *Organização para a Cooperação e Desenvolvimento Econômico* (OCDE) (Organization for Economic Cooperation and Development), or to the people, as defended by the World Bank, an assessment of the period can offer a singular interpretation of this controversy, based on the advances and the setbacks revealed by the public policies in Brazilians' reality.[3]

The two proposals, the European experiences (OECD) and the North American (World Bank) were put face to face. The latter proposes, in the document "Reshaping Economic Geography: World Development Report ",[4] a non-place-neutral approach, whose thesis is based on the idea that the most powerful instruments for the integration [regional] are the improvements in those institutions that work aiming spatially 'blind', that is, the institutions that are involved in the provision of essential services, such as education, health and public safety.[5]

The approach which advocates the place-based approach is proposed by the OECD in How Regions Grow: trend and analysis and Regions Matter.[6,7] Such studies are influenced by the European experience in development and defends explicitly of a regional policy, above all, to increase the competitiveness of the regions in an International scenario and to strengthen strategies for endogenous development in depressed regions or with low growth.

By giving good results that were generated by social policy in regions of lower level of development, according to the IPEA study, there is a need to rethink and to strengthen the productive dimension of territorial competitiveness and/or structural change. In other words, the social policy contributed in terms of resource allocation, the creation of purchasing power and well-being, but this dimension has not been properly perceived by the managers of

the regional policies.[2]

The imbalance of regional development in the Country has been involving inconsistent movements with diversified migratory flows and territorial occupation, or concentrated, or spatially distributed or selective. Despite this diversification is resulting in new expressive regional centers, there is still a logic of the past century to concentrate immigrants and emigrants in major centers in search of social ascent.[2]

Given the socioeconomic transformation in Brazil and the territorial impact that follows, the IPEA outlined a defined typology by private and governmental inversion modalities associated to the preferential types of impacted predominant territorial and redefined by the power of forces in action.[2]

According to this analysis, investments tend to concentrate in conglomerate regions. The spatial interactions and the economy scales, urbanization and among others are present there. In Brazil, these more structured metropolitan agglomerations extend along the coast (South, Southeast, Northeast). The characteristics in which literature calls city-region are present in these urban centers. There are concentrations of large companies, the most qualified job market, the system circuits and the regional urban sub-system.[2]

Combine and articulate National and regional policies, as suggested by the IPEA study to enhance the beneficial effects of the economic growth and of welfare in the lower level of development regions.

One way to strengthen the territorial dimension is for the Country to redirect the dynamic traditional input provider and natural resources for the International market. Another proposal is to strengthen the medium-sized cities in a systemic way in order to promote the movement of goods and people by using the Brazilian territory assets in a more balanced way.[2]

However, the Intergovernmental relations continue to be a challenge for a successful public policies implementation in the Country.

The constitution of regions and networks

For a process that covers the social, policy, institutional, economic, cultural dimensions and being influenced by the complexity of old and renewed International and National flows, the regionalization creates a wide mosaic spectrum. However, nowadays, the region is fragmented and its extension is discontinued, demanding an approach with different scales territorial to seize the phenomena analyzed in a given space.

In this context, the multiscalarity is seen as an important tool to understand the territory. It is necessary to consider the dimension scale, not only as a mathematician resource who establishes the relation between the real measurements and its graphical representation, in other words, a strict cartographer. The scale should be addressed according to a wide geographical interpretation r, while an "analytical artifice which gives visibility to the real" and portrays the relation between space, society and political power.[8]

Analyze the territory from different cuttings - and here, in this case, in a health region - deserves, whenever necessary, to relate the scales to his/her surroundings. From an analytical and methodological point of view, the use of different scales makes it possible to view, question and confront differences and specificities of wider or reduced portions of a territory, worldly, Nationally, Regional and Local phenomena locus that interact, differ and/or compete with each other.[8]

In this scenario, the option to use the multiscalarity enables a greater knowledge of complexity of the studied region, as well as the agents who act there. This concern allows to analyze the organization of space, the structure and dynamic socio-spatial and historic places, a dynamic population, the formation of city networks (the hierarchy and bias relations), the distribution and density of the productive technical basis and infrastructure, service networks, and among others.[9]

The definition of the scale levels demands a delimitation of one or more cutting, thus, this procedure is of extreme complexity. The choice of an expressed cutting of an "area" requires first of all, the insertion of a territorial cutting in wide hierarchy spaces, and then, understanding the existing relations among them as a whole. The articulation that is formed between the cuttings from the territory allows to view a socio-spatial inequalities mosaic and the main continuities or discontinuities.

The networks role is to ensure links in its various aspects. The networks can represent abstract flows (social networks, land projection systems) or solid (transport networks, communication, trade and goods). In addition, it may be visible (roads and railways) or invisible (information networks and telecommunications), but the network can also be social and political (flow of people, messages, values).

In the scope of the National health policy, the characterized norms that the *Rede de Atenção à Saúde* (RAS) (Healthcare Network) are defined by organizational arrangements for health services and

actions in different technological densities that are integrated by means of the technical, logistical and management support systems, seek to guarantee the completeness in care, there is no hierarchy among the services.[10,11]

Among the objectives of RAS, the systemic integration of health services and actions, is emphasized with provision of continuous care, integral, of quality, responsible and humanized; and the expansion of the system performance in terms of access, equity, clinical effectiveness and sanitary, as well as economic efficiency.[12,13]

The Region and Networks research: Policy, Planning and Management in Regions and Healthcare Networks in Brazil

The *Planejamento e Gestão das Regiões e Redes de Atenção à Saúde no Brasil* (Policy, Planning and Management of regions and networks of health care in Brazil) research - *Pesquisa Região e Redes* (Region and Networks) intend to analyze and share information about the nuances of the Brazilian regionalization process, in order to understand how the regions are formed. The hypothesis is adopted for the conformation of regional care systems can improve the indicators and the performance of the health system.

The reason for this assertive is that to regulate and direct the flow of services and of people in a delimited area means to introduce improvements to access services and the use of more rational use of resources, attending in an integral way for health needs.

To discuss this issue is not an easy task. In addition to the study on characteristics in the healthcare points in territories and the behavior of flow of people between the intra- and inter-health services, it is necessary to clarify these movements as a function of other variables that go beyond the flow of urban network and the availability of services, or availability of offering in the health sector.

For this reason, further studies are needed in the field, with a primary data survey, covering aspects related to policy, planning and management in health. It is necessary to look for different aspects that make up the activity of satisfying health needs.

On the other hand, it is necessary to define what levels of healthcare are the key to integral care: without any doubt, primary care, the networks and health surveillance constitute structural elements of care and, within the networks, the urgency and emergency network occupies a central place. This is why we define these as the focus of the study: *Atenção Primária à Saúde* (APS) (Primary Health Care), the *Rede de Urgência e Emergência* (RUE) (Urgency and Emergency Network), and Health Surveillance.

In the research field extended the five health regions of the five Brazilian macro-regions – in the North, Manaus, Entorno and Alto do Rio Negro; in the Midwest, Baixada Cuiabana; in the Northeast, Petrolina and Juazeiro; in the Southeast, North-Barretos and South-Barretos; and in the South, Carbonífera and Costa Doce. These regions are integrated by the *Urbano Regional do IBGE* (IBGE Regional Urban) and divided as, a National metropolis, a regional capital and cities with different densities of urban networks and, in addition to State boundary and International areas, regions with different compositions of public and private services and belonging to different groups are according to the typology proposed by the survey.[14]

The same regions contemplate of the population that varies from 384,175 to 2,119,145 inhabitants with varied demographic densities, population growth rates and aging population rates, and besides the non-homogeneous regional health system performance, according to the *Indicador de Desempenho Regional* (Regional Performance Indicator) created by the research.[15]

The choice of these regions for the study field should precisely be the present variability in the territories, which enables us to verify how this specific composition of characteristics impacts the regionalization process and what particular weight of these aspects are in front of others, such as the itinerary history on health policy in these same regions.

The methodological approach of the study aimed in the public policy instruments, some concepts to analysis the regionalization process, as the relation between the key agents, that is, those who are established formally or informally between State bureaucracy (policy managers in different government levels) and the non-State agents (service providers), and the resources that are held and mobilized to explain how these same relations (or their absences) explain the implementation level in the regionalization policy.

Nowadays, the interaction between the public and private State agents is constant in the health regions, such as, public financing and private provision under multiple mechanisms with emphasis on those who were created after the SUS emergency, as the *Organizações Sociais de Saúde* (OSS) (Social Health Organizations) are.

Another important constraint involves the capacity of installed services, the availability of

financial and human resources, in other words, the key agents' perception are on the adequacy and the form of recruiting these resources.

In addition to the Policy and Structure dimensions, the form of relation between services and professionals also have great influence on the performance in favor of regionalization, in other words, contributing to a better coordination and integration in health actions.

That is why we chose 3 dimensions that can explain, if not all, at least part of the regionalization process: policy, structure and organization.

The first refers to the policy process and seeks to identify the performance, negotiation and conflict spaces in the region, the processes and the decision-making flows and the policy conduct and the functions performed by each institution to decide on the health region. The structure reflects the availability and adequacy of financial and physical human resources, the forms of employing human resources and services.

The organization presents the criteria on the conformation of the *Redes de Atenção à Saúde* (Healthcare networks) on planning, management, the systemic integration between services, the regulation and the population's access to health care.

In this article, the focus will be the presentation of the indicators' analysis results constructed for the five health regions studied: Manaus, Entorno and Alto Rio Negro; Baixada Cuiabana; Petrolina/ Juazeiro; North-Barretos and South-Barretos; and Carbonífera and Costa Doce.

Methods

This is a quantitative, cross-sectional study using primary data from interviews conducted with managers, service providers and representatives of the society in five health regions in Brazil. Interviews were conducted with 217 key informants using a structured questionnaire. All of the interviewees were selected according to the administrative position at the moment of the data collection in each institution of State, Regional and City scope.

The structured questionnaires used were divided in policy, structure and organization dimensions in the regionalization process. For the Policy dimension, it was considered as the leading role played by the public organs, providers of health services, the society and other agents in the health system organization. We also observed the importance of the *Comissão Intergestores Regional* (CIR) (Regional Inter-managers Comission) for decision-making and the importance of the guidelines and incentives as promoters of regionalization instruments (Table 1).

The Structure dimension studied the participation of City, State and Federal spheres in funding the Primary Healthcare, the increasing investment of RAS in the past three years and the sufficiency of physical and human resources, and the coverage of Primary Healthcare (Table 2).

The Organization dimension were assessed by the importance of the parameters to configure the networks in the region, the mechanisms and tools to integrate and coordinate care in the region, the initiatives to coordinate care in the Primary Healthcare at medium and high complexity are handled by specialists, as well as the role to regulate RAS (Table 3).

For each of the dimensions and its components, they implemented synthetic indices in the *Likert* scale of five points derived from the expressed questionnaires and in dichotomous and multinomial questions. For the expressed questions in the *Likert* scale, the mean score was calculated in which the value one [1] corresponds to the worst assessment and five [5] is the best in relation to the investigated question. For the dichotomous and multinomial questions, the percentage of affirmative and/or positive answers was used in relation to the item investigated. With the standardization of these questions on a scale of [1] to [10] points, the arithmetic means was obtained by the indices of each component.

The *Índice de Influência* (Influence Indice) on a scale of [1] to [10] points, the contribution level of the three dimensions - Policy, Structure and Organization – is in the deployment of health system regionalization. The dimension indice is calculated with the arithmetic mean of its components; the *Índice de Influência* (Influence Indice) corresponds to the arithmetic mean of the dimension indices. In this scale the values above six [6] indicate the best situations in the considered components and dimensions.

The performance indicator in the health system in a regional context was built based on the methodology used by Uchimura *et al*.[15] The authors considered the five dimensions for the indicator's proposition (the population's health conditions, health system coverage, financing, human resources and SUS production). For this study, an indicator's performance adaptation was performed proposed by the authors,[15] with the increase of the item percentage of clinical production in medium and high complexity in the total clinical production, besides the variable, the financing. The indicator's performance represents the sum of the components in five dimensions with an interval of [0.5], the higher the value obtained, the better the performance

Table 1

Perspective, components and scores of Policy Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Protagonism (protagonism indicator corresponds to the arithmetic mean of the components)	The importance of the agents in the regionalization process of decision making in the region	P04.3: regional Structure of the State Health Department (Board of the Regional Health, Regional Center, etc.)	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance of regional structure in the decision making on health in the region
		P05.1: Public establishments of medium and high complexity	1. Arithmetic mean of each question (P05.1 and P05.3)	Higher values indicate that the informants attributed greater importance of these establishments in decision making on health in the region
		P05.3: Private establishments non-profit employees/affiliated with SUS of medium and high complexity	2. Arithmetic mean of two means and standardization to a scale of 1 to 10	
		P06.2: Civil Society Organizations (community associations, pathology carriers entities, service clubs, etc.)	1. Arithmetic mean of each question (P06.2 and P06.3)	Higher values indicate that the informants attributed greater importance of these organizations in the decision-making on health in the region
		P06.3: Academic institutions (universities, research institutions)	2. Arithmetic mean of two means and standardization to a scale of 1 to 10	
		P07.4: Regional Inter-managers Commission (CIR)	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance of CIR in decision making on health in the region
		P041: Ministry of Health	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance to the Ministry of Health in decision making on health in the region
		P04.2: The State Health Department (central level)	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance to the State Health Department in decision making on health in the region
		P07.1: COSEMS	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance of COSEMS in decision making on health in the region

Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1.

continue

Table 1 **conclusion**

Perspective, components and scores of Policy Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Regional importance (indicator corresponds to the arithmetic mean of the components)	Contribution of the Regional Inter-managers Commission (CIR) in the region	P15.1: Health policy coordination P15.2: Resolution of Conflict P15.3: Negotiation between public and private entities) P15.4: Elaboration on regional planning P15.5: Conformation on care networks P15.6: Monitoring and evaluation P15.7: Negotiation and financing	1. Arithmetic mean of each question 2. Arithmetic mean of two means and standardization to a scale of 1 to 10	Higher values indicate that the informants attributed greater importance to the CIR contribution in the regionalization process
Regionalization Formentor (indicator corresponds to the arithmetic mean of the components)	Influence of financial incentives in the decisions making on health in the region	P21.6: Financial incentives from the Federal Government P21.7: Financial incentives from the State Government	1. Arithmetic mean of each question 2. Arithmetic mean of two means and standardization to a scale of 1 to 10	Higher values indicate that the informants attributed greater influence of incentives and guidance in the regionalization process
	The influence of the guidelines in the decisions making on health in the region	P21.1: Ministry of Health Guidelines P21.2: The State Health Department Guidelines P21.3: Tripartite of the Inter-managers Commission Guidelines (CIT) P21.4: Bipartite of the Inter-managers Commission Guidelines (CIB)	1. Arithmetic mean of each question 2. Arithmetic mean of two means and standardization to a scale of 1 to 10	

Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1.

Table 2

Perspective, components and scores of the Structure Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Participation in the RAS costing (indicator corresponds to the arithmetic mean of the components)	Relative participation of governmental spheres in the cost of health network (RAS) in the region	E34.1: The Federal sphere E34.2: State sphere E34.3: City Sphere	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater relative participation of the respective spheres in RAS costing
Sufficiency on RAS physical resources (indicator corresponds to the arithmetic mean of the components)	Sufficiency on physical resources of the region for RAS in relation to:	E02.1: Primary care coverage E02.2 : Specialized consultations E02.3: General Hospital beds E02.4: Hospital Beds for elective procedures E02.5 : Neurosurgery and cardiac surgery E02.6: Adult ICU E02.7: Neonatal ICU E02.8 : Support Service for diagnosis and therapy (SADT) of medium complexity E02.9 : Support Service for diagnosis and therapy (SADT) of high complexity	The arithmetic mean of the proportions of "yes" in each question standardized on a scale of 1 to 10	Higher values indicate that the informants attributed greater sufficiency of these resources
Sufficiency of human resources of RAS (indicator corresponds to the arithmetic mean of the components)	Sufficiency of human resources in the region to RAS in relation to:	E15.1: Physicians E15.2: Nurses E15.3: Dentists E15.4: Other professionals with superior schooling level E15.5: Professionals with high school level	The arithmetic mean of the proportions of "yes" in each question standardized on a scale of 1 to 10	Higher values indicate that the informants attributed greater sufficiency of these resources

Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1.

continue

Table 2 **conclusion**

Perspective, components and scores of the Structure Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Sufficiency of coverage of APS (Indicator corresponds proportion standardized at a scale of 1 to 10)	Existence of population groups without coverage on Primary Healthcare (APS) in geographical areas of the region	E23: There are population groups without coverage on Primary Healthcare (APS) in geographical areas of the region	Standardized proportion on a scale of 1 to 10	Higher values indicated greater coverage of APS
Increased investment in RAS (indicator corresponds proportion standardized at a scale of 1 to 10)	Increased in investments in the Healthcare Network (RAS) in the last 3 years	E. 35: In the last three years, the investment in the Healthcare Network (RAS) in the region	Standardized proportion on a scale of 1 to 10	Higher values indicated increased investment

Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1

Table 3

Perspective, components and scores of the Organization Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Networks (indicator corresponds to the arithmetic mean of the components)	Importance of technical and administrative parameters and offering configuration of the networks in the region	Parameters: * O02.1: Territorial distribution of the population O02.2: Sociodemographic profile of the population O02.3: Access conditions (means of transportation, geographical barriers, cultural barriers, etc.) O02.4: Epidemiological criteria, risk analysis and situations of vulnerability O02.5: Existing coverage in health supplement O02.6: Availability of health services O02.7: Availability of human resources O02.8: Financial Incentives O02.9: Existence of regional management associations	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance to these parameters for networks configuration
Integration (indicator corresponds to the arithmetic mean of the components)	Importance of mechanisms and instruments for integration assistance and coordination of care in RAS in the region	Parameters:* O24.1: Iinformal mechanisms of clinical referencing O24.2: Formal mechanisms of reference and counter-reference O24.3: Therapeutic arsenal available in the unit O24. 4: Clinical Guidelines (protocols and guidelines)	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed greater importance to these parameters for networks configuration
Coordination of care (indicator corresponds to the arithmetic mean of the components)	Frequencies that occur initiatives for the coordination of care in the region	Initiatives for care:* O33.1: APS Physicians accompany their patients during hospitalization O33.2: APS Physicians receive written information about the results of the consultations referred to the Specialists O33.3:APS Physicians get in contact with specialists to exchange information about the referred patients O33.4: The experts get in contact with the APS professionals to exchange information about the referred patients O33.5: Educational activities are organized permanently that enable to encounter and have personal contact between the APS professionals and the specialists	The arithmetic mean of the scores and standardization to a scale of 1 to 10.	Higher values indicate that the informants attributed higher frequency of these initiatives

* Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1; ** The questions values Y/N: No= 0 and Yes=1.

continue

Table 3 **conclusion**

Perspective, components and scores of the Organization Dimension. Research on Region and Networks, 2017.

Perspective	Description of the Perspective	Component	Operationalization	Interpretation
Regulation (indicator corresponds to the arithmetic mean of the components)	Regulation of RAS	A44: What consists RAS role:** O44.1: Ensure Access O44.2: Seek hospital beds O44.3: Empty the beds to attend the waiting list O44.4: Offer back up hospital beds O44.5: Offer alternatives for situations without clinical severity O44.6: Contribute to the planning and organization of the network O46: The existence of a central regulation of health care network in the region** O47: The existence of protocols and flows in RAS in the region**	The arithmetic mean of the proportions of "yes" in each question standardized on a scale of 1 to 10	Higher values indicated higher level of RAS regulation
	Regulation of RUE	O48: What consists the role of the Urgency and Emergency network (RUE):** O48.1: Ensure Access O48.2: Seek hospital beds O48.3: Empty the beds to attend the waiting list O48.4: Offer back up hospital beds O48.5: Offer alternatives to situations without clinical severity O48.6 Contribute to the planning and organization of the network O50: The existence of a central regulation of Urgency and Emergency network (RUE) in the region** O51: The existence of protocols and flows in the Urgency and Emergency network (RUE) in the region**	The arithmetic mean of the proportions of "yes" in each question standardized on a scale of 1 to 10	Higher values indicated higher level of regulation of RUE

* Question Values (scores): Very high = 5; High = 4; Average = 3; Low = 2; Very low and I don't know=1; ** The questions values Y/N: No= 0 and Yes=1.

of the system.[15]

Finally, the indicator attributes for regionalization measurement on a scale of [1] to [10], three specific components of the regionalization process - coordination, integration and regulation - extracted from the components of the *Índice de Influência* (Influence Indice). The coordination level in the regions was expressed by the components referring to the participation of the agents involved in the regionalization process and the regional importance of CIR. The integration component was expressed by relating to networks and integration, and the adjustment of the component itself of the Índice de Influência (Influenced Indice). Equivalently, the arithmetic mean of the components generates the indice which refers to the attributes of regionalization, in which the values above six [6] indicate that the region is positioned in a satisfactorily way in relation to coordination, integration and regulation of the health system in the region.

The data were tabulated by using the PHP Line Survey - Open Source software. The statistical calculations were performed by using the SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.).

The study was approved by the Ethics Committee at the Faculdade de Medicina da Universidade de São Paulo, with the process number 071/15, and in accordance with the standard of the National Health Council 466/12.

Results

When we look at the three dimensions that influence the regionalization process separately, it is necessary to point out that there is a better performance on the Policy dimension comparing to others; on the other hand, the Structure dimension is shown as the weakest, configuring a real obstacle for the advancement in the regionalization process; the Organization dimension occupies an intermediate place in all the regions of the study. The best performance of Policy is that it is not able to neutralize the obstacle placed by the Structure in none of the regions of study. The final indice complies with the two regions with results above six, Petrolina/Juazeiro and Carbonífera/Costa Doce; and two with the indice between five and six were North-Barretos and South-Barretos and Baixada Cuiabana; and one with the indice below five were the Entorno in Manaus and Alto Rio Negro (Table 4). These are the indices separated from the three dimensions that explain the final result and the conformation of these blocks. It reflects specific conditions of these territories formed by these regions, the evolution and the recent directions for the health policy in these same locations and Federative States.

The Policy Dimension

There is a great diversity of institutions identified as having a very high influence in the decisions of the regional policy, but the highlights are for public institutions - Ministry of Health, the *Secretarias Estaduais de Saúde* (State Health Departments) and its regional structure - as for the organization spaces, as for the *Conselho de Secretários Municipais de Saúde* (Cosems) (Council of the City Health Secretaries). But calls attention to little emphasizes of the CIR. In Federal policies, a strong characteristic is the participation of the deployment in Federal entities, in a specific case of regionalization, there was no emphasizes to this intergovernmental forum, except in only one region. In the same way, the regional structures of the *Secretarias Estaduais de Saúde* (State Health

Table 4

Overall and separated Influence Indice among the policy, structure and organization components, 2017.

Influence Indice	Petrolina / Juazeiro	Carbonífera / Costa Doce	North-Barretos/ South-Barretos	Baixada Cuiabana	Manaus, Entorno and Alto Rio Negro
Policy	7.79	7.75	7.05	7.04	5.86
Organization	6.79	6.22	6.18	6.12	5.15
Structure	3.78	4.13	3.27	3.05	3.3
Overall	6.12	6.03	5.5	5.4	4.77

Departments) also are not important in defining the regional policy. In Manaus, Entorno and Alto do Rio Negro, for example, the interviewees pointed out a strong health policy trait centralizing the decisions in the structures of the *Secretarias Estaduais de Saúde* (State Health Departments), due to the difficulty of establishing regional structures for geographical and physical issues.

The strength of the *Ministério da Saúde* (MS) (Ministry of Health) in the policy emphasizes the little participation still in the State spheres defining directions and specific objectives of the policy, and the low share of other governmental entities in their deployment, indicating a change in what was the flagship of health in earlier periods - implementation of policies with high participation of sub-National authorities. Another point to be highlighted is the citation of the medium and high complexity providers (public and/or employed) just below the public institutions in the four regions of the study: Petrolina/Juazeiro, Carbonífera/Costa Doce, North-Barretos and South-Barretos and Baixada Cuiabana. In only one region, Manaus, Entorno and Alto do Rio Negro, entities of the society are nominated, which explains the weight of the institutions in teaching and researching, as well as the corporations of professionals with emphasis on physicians.

Another institution with influence is the media and its several vehicles to diffuse. However, the number of pages on-line created by citizens who complain about the conditions in the health services in the cities called our attention. And also the amount of "profiles" of managers on *Facebook* - sometimes it is more visited than any other institutional sites of the cities - which they use it to communicate with the population.

It is possible that the city councils have not been pointed out as important channels for discussion and an orientation on the policy at a regional level by the fact that few discuss about the regional issue.

The little scope of CIR can perhaps be much better explored when we analyze the managers and service providers' view on the role that the institution performs in the regional decision making arena, what we will do next is, different aspects of the CIR contribution at a regional level are observed, including the coordination of the policy, the regional planning, the monitoring and the evaluation.

It is worth remembering that the CIR was pointed out as the responsible for the coordination of the policy. When we asked the managers and service providers, which institution and/or space has greater importance in decision making in the regional policy, the institutions received more emphasis than the intergovernmental forum did.

All this suggests that there is no clear definition on the role and the importance of the CIR as a negotiation space and intergovernmental agreement. The financial resources stand out in relation to the guidelines, as an instrument to promote the regionalization, and, within these, the Ministry of Health stands out in all five regions and in three are followed by the reference of financial State resources.

As it is known, the States have little involvement in the health policy and have left the Ministry of Health the important role in financing along with the cities, which explains this result.

Many of the incentives for deployment on thematic networks are still exclusive to the Union with little or no sharing by the States. Thus, only in two regions of State resource were also identified as important the Baixada Cuiabana and Petrolina/Juazeiro.

The State guidelines are the most emphasized as an instrument to promote the regionalization process, soon after the Ministry of Health guidelines. Both institutions compete in establishing guidelines for the regionalization process in all parts of the study.

The Structure Dimension

In this dimension all the resource sufficiency is low. Surprisingly, it is not the lack of financial resources of the most mentioned item by managers and service providers, but the lack of physical resources in three regions, the human resources in one region, and the insufficient financing of RAS in another.

To point out that financing is the best performance in Structure, this can be explained by the weight of the City financing in the regions, always superior in the Federal and State participation, in spite of the managers and the service providers did not indicate how significant the increase in resources for RAS investment in the past three years.

It is also important to note that the coverage of Primary Health Care was identified as insufficient in four regions, except in Carbonífera/Costa Doce, with emphasis on Baixada Cuiabana.

The Organization Dimension

In criteria for conformation of networks were highlighted in two main factors: territorial distribution of the population and access. There was a time that financial incentive was mentioned,

however, to use the information on population distribution in the territory and their conditions to access, the conformation of the networks were mapped in a predominant way.

The integration of services, in other words, the component of the regionalization policy regarding the Organization is noted with emphasis in a region, which denotes the permanence of older policies, as the establishment of formal and informal mechanisms of reference and counter-reference between services. It is followed by initiatives of regulation, however, the coordination of care and the initiatives viewing its deployment as practices, almost non-existent.

What is new is the coordination of care and the relation between Primary Health Care and specialties, that is, a better integration in the phases of care, a true challenge for the National and International health policy. In all the regions, this dimension was the lowest component of all the dimensions.

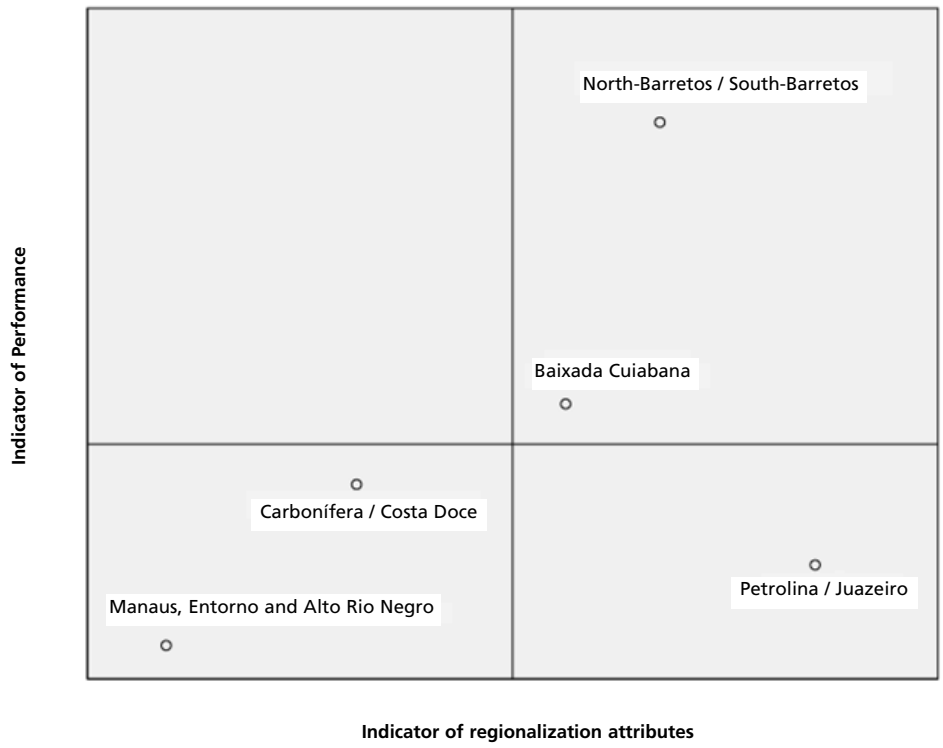
Relation in indice and performance

The intersection of the indicator's performance with the indice of evident influence, in the case of Manaus, Entorno and Alto do Rio Negro, an approach between a low performance and the incipient regionalization process was always measured by the influence indice. In the case of North-Barretos and South-Barretos and Baixada Cuiabana, there is a better performance and incipient regionalization process. And, in the Carbonífera/Costa Doce and Petrolina/Juazeiro regions, a low performance and a more advanced process in relation to regionalization.

However, at the intersection with regionalization attributes it seems that a greater consistency when the low performance is combined with lower attributes and the high performance is combined with higher attributes. In only one case, Petrolina/Juazeiro had low performance figure next to a higher attribute (Figure 1).

Figure 1

Performance indicators and attributes of the regionalization of the five regions studied. Research Region and Networks, 2017.



Discussion

The little/poor/insufficient availability of physical, human and financial resources and the non-introduction of care innovations hinder even the advanced regionalization policy and the achievement of its larger goals which are the integration of services and the coordination of care, or better yet, the establishment of a health system integrated with coordinated services. This better or worse performance does not reflect on regional differences of the two Brazils – austral and North - neither the typologies of the health regions, in which enables us to affirm that there are autonomy levels in the regionalization process in the health policy.

Bearing in mind that the dimensions are influenced by Federal and State policies, it is to be assumed that the two regions that stand out in the Northeast and in the South were depositary of some investment and in years more remote and/or recently institutional innovation.

As Petrolina/ Juazeiro constitute of a region of the Qualisus network project[16] and lived a period of much involvement of City and State spheres in the regional health policy and this is the reason of the existence of this project that may have corroborated for a more positive perception of the managers and the service providers that were interviewed.

The same cannot be said about Carbonífera /Costa Doce. This path may be explained by the long stay of the regional issue in health policies in Rio Grande do Sul, because of the outstanding performance of Cosems in a long period of time in the region and by a whole series of institutional investment made by the State Health Department.[16]

The low performance in Manaus, Entorno and Alto Rio Negro is not surprising given the difficulties of deployment in the regionalization process in the North region of the Country.[17] Baixada Cuiabana is a region that has already experienced a period of great protagonism of regional issue. It may be that the memory of better times have contributed to the worst assessment at the present moment.[18]

The biggest surprise appears on the result of the Southeast region. North-Barretos and South-Barretos, despite hosting a whole large medical assistance complex, has been the target of recent Federal and State investments, (UPA and AMES) in hosting its territory a strong institution as the Fundação Pio XII (Pius XII Foundation) and to possess a large campus for human resources for health training course, this does not emphasize the regionalization process.[19]

The highlight of the Cosems due to its close relation with the cities and the support that offers through the figure of supporters of their own structure and practice of regular discussion on the issues involving health policy.[20]

The insufficient coverage of Primary Health Care in four health regions, except, Carbonífera/ Costa Doce that calls attention because in recent years, there were investments in the physical structure (PMAQ) and the greatest availability in human resources (*Programa Mais Médicos*) (More Physicians Program), but, even so, there is an impression of insufficiency on the behalf of the managers and service providers in regions with profiles and geographic location that were so different.

The sore point is precisely the lack of physical capacity and human resources availability, which was to be expected given the low investments in health during the first decade of the 21st century and the large empty assistance are still present throughout the Brazilian territory.

In relation to the items of Organization, such as integration and regulation, it is known that there were incentives from Federal policy to deploy thematic networks and integration; in the same way, initiative States, in favor of a better regulation of services and job offerings which nowadays is a reality in many Brazilian States, however, the integration of services is what still needs to be improved.

There are major challenges for the establishment of an integral health system and a real coordination of services in all the regions studied, in spite of some progress in specific policies regarding the deployment thematic networks and the establishment of formal and informal integration of mechanisms.

The called empty assistances proliferate across the Country and do not follow the expansion of the population in urban centers, nor the needs raised by the populations' pyramid: accelerated aging process in some regions and the important weight of young people and adults and among others.

The low allocated investments in health by the three governmental levels and the expansion of Primary Healthcare is a little resolutive,[21] in addition to the decrease in offering hospital beds in all the regions, there are barriers that charge a high price in the constitution of the health regions.

The most delicate point appears between Primary Healthcare and specialties since both are operated by different institutions: the first is based in the city and the second in the region, however, with little interference from the regional agents (regional

structures of the State Health Department), both in their designs to provide for the establishment for initiatives with the objective in improving the integration.

Marchildon[22] calls attention that in Canada the absence of command of in the regional instances on organization and performance in primary care is among the responsible factors for the weaknesses of the regionalization process. The Primary Healthcare involves negotiations between corporations of professionals and the provincial governments and there is a considerable autonomy of the professionals and total untying of the regional policy.

In Brazil, the primary care is still thought in a City space and there are no initiatives of a pooled action in cities in order to optimize their networks, scale economies and the definition of flows of patients among Cities. Finally, the lack of network integration in primary care and with other services seeking better care and lower costs.

Complex Problem, challenging and recurrent nowadays, which makes the integration difficult and is the huge institution mosaic present in the regions, in the form of contracts, links and management contracts operated by Cities and States.

It is still aggravated by the presence in some regions of intermediating professional corporations as to hire all professionals for health services on outpatient clinics and hospitals (in this case, Manaus, Entorno and Alto Rio Negro region).[23]

The intergovernmental forums are in the process of emptying because the real decisions about the direction of the constitution and/or strengthening process in health regions, or are centered in the State structures, or in the structures of health in the pole cities.

The conflicts between the pole city and the State Health Department are strong in all the visited regions by research and the difficulty to understand, in order that the technical staff takes turns between one and another structure (the case in Baixada Cuiabana). In other words, what could be a facilitator for the cooperative actions and cooperative is worsen (almost always) by politics disputes, political party and election.

The discussion of the public and private sectors among managers and service providers, do not have its own forum. They go through numerous formal and informal relations and it is urgent the need to set up a space inside the CIR or the creation of a specific forum for this purpose. All of these factors conspire against the regionalization process and the fragility of the space to negotiate and in agreement with the intergovernmental has become a new label for SUS.

Another strong characteristic is that the regional governance pattern does not obey any of the trajectories described in the international literature that points to three summarized cases by Pires and Gomide[24]: first, there is the emptying of the State by the loss of control over the public policies, from the emergency and the thickening of the interactions among State, market and civil society, pointed out by Mathews[25] and Zehavi[26]; second, there is a relocation from the State to other functions which passes to regulate instead of producing and providing services, in other words, relocates the ability of the State to produce to regulate - without the loss of centrality, continuing to be in control in the formulation and financing of public policies[24]; third, there is an increased collaboration and intensification of interactions among the State and non-State agents in the production of public policies in which can result in complementarity and synergies.[27]

In the case of health policy, in Brazil there was no emptying because the State still controls the contracts with the provider institutions. There was no displacement of function, thus, the function provided of the State continues to be present in some types of activities, in some regions; and, finally, there is no indication of cooperation, complementarity and synergy between the public and private sectors in the region. Therefore, the regionalization process follows an uncertain path without a clear guideline of its objectives, targets and deployment instruments, and the regional planning, in the case of health is still a theoretical exercise.

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