

## Public Health consortia: a literature review

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**Abstract** *Regional Health Planning is a health services' hierarchization strategy that allows actions and services decentralization. Nonetheless, some challenges to implementing regional health planning are identified, such as difficulties in coordinating actions and services in different geographic locations, with different managements to meet population health needs with adequate scale, quality, and cost. In this context, intercity health consortia emerge as an organizational solution that allows better coordination and integration between federative entities, and their main benefits are scale gain in public services delivery; rationalization of processes and expenses; and realization of joint projects that would be impossible to be implemented if managed and funded in isolation. This paper aims to understand how health consortia reach better performance in the procurement and hiring of services by cooperative action through a narrative literature review. The results are organized into three parts: i) definition and concepts of public consortium; ii) definition and concepts of intercity health consortium (CIS); iii) health consortium case studies in Brazil.*

**Key words** *Health consortia, Regional health planning, Decentralization, Local health systems*

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## Introduction

Health systems can be defined based on their laws and regulations, the form of financing, logics of administration, and the scope of services to serve a given population<sup>1</sup>. Biassoto Júnior et al.<sup>2</sup> states that there are broad discussions about the construction of universal, equitable, and comprehensive health systems that guarantee people's access to quality and resolute services. In Brazil, health has remained as the first and foremost problem faced by the population in daily life in recent years, and public underfunding of the health sector is one of the impeding factors for compliance with the constitutional precepts of universal access and comprehensive care<sup>3</sup>.

Health decentralization and municipalization in Brazil were discussed at the Ninth National Health Conference. Buss<sup>4</sup> states that, as the minimum cell of Brazilian political-administrative structure, the municipality can theoretically organize a health system more suited to the needs of its population, as it is closer to the concrete space where people live and more sensitive to their pressures and demands. However, the author points out the need for institutional municipal development to empower them to formulate and implement these social policies.

Souto Júnior<sup>5</sup> argues that regionalization presupposes a population-based and territory-based organization of the SUS that seeks a distribution of services and promotes access equity, quality, streamlined resources, and rational spending. Kehrig et al.<sup>6</sup> reinforce that the establishment of regionalized health care networks is agreed among the managers involved to define shared or not shared responsibilities, for example, through the Regional Interagency Commissions (CIR).

However, despite the benefits, there are still challenges to implement regionalization, such as the difficulties to integrate and coordinate actions and services in different geographical spaces, with different managements, to meet the health needs and demands of the population in the correct scale, quality, and costs<sup>7</sup>. Also, this guideline implies service delivery fragmentation and lower bargaining power in the procurement of materials and services.

In the context of budgetary constraints in public management and the need to increase the efficiency of the use of public resources, associated with the complex SUS management in a federalist system and with explicit decentralization and regionalization policies, public consortia emerge as an organizational solution to meet co-

ordination and integration needs among federative entities. Consortia's benefits are the gain in scale in the provision of public services, rational processes and expenses, the accomplishment of joint projects that are impracticable in isolation, and the political strengthening of regions that until then had negligible state representation<sup>8</sup>.

Concerning material procurement and service contracting processes, consortia have shown better performance compared to individual procurement in each of the federative entities. Studying the Itajaí Valley (Santa Catarina) Intercity Health Consortium, Amaral and Blatt<sup>9</sup> observed an approximate decline of 48.0% in the number of items that were missing in at least one day, between 2007 and 2009. Ferraes and Cordoni Junior<sup>10</sup> focused their analysis on the Paraná Saúde Consortium and found that, in 2000, procurement through this entity achieved a 29.7% lower cost than the prices disclosed in the Ministry of Health Price Bank.

Given the above points, this paper aims to investigate how intercity health consortia can achieve better performance regarding the procurement and contract of services processes through a narrative bibliographic review.

Therefore, this publication is shown in three parts: i) the bibliographic search method; ii) exposure of the main contents extracted by reading the papers, dissertations, theses, and other documents collected; iii) conclusions and final comments.

## Methods

Gil<sup>11</sup> states that bibliographic research is understood as a process that involves the following steps: choosing the theme; preliminary bibliographic survey; formulation of the problem; drafting of the subject's provisional plan; source search; reading of the material; annotations; logical organization of the subject; and text drafting.

Reviews can be systematic, narrative, and integrative. This work is characterized as a narrative review. Rother<sup>12</sup> affirms that narrative review papers are broad publications that describe and discuss the development or state of the art of a given subject, from a theoretical or contextual viewpoint. The author says this type of research consists of the analysis of the literature published in books, magazine papers, and the interpretation and personal critical review of the author. The literature review method in this research is summarized in Figure 1.

This research used specialized Brazilian and international health databases, as well as journal databases gathering various subjects besides public health.

The chosen specialized Brazilian health database was the Virtual Health Library (BVS), and the international database was PubMed. As for non-specialized databases, we chose to use the ISI Web of Knowledge and SCOPUS, as they contain the journals with the most considerable bibliometric impact in the world.

In the search conducted in the BVS database, we aimed to search for papers, master's dissertations, doctoral theses, and technical reports that were not indexed by ISI, SCOPUS, or PubMed, and that had specific "views" about the Brazilian reality. On this basis, we adopted keywords "consortium" and "health," and the search, without restrictions as to the year of publication, returned 173 publications. Given that this is a highly active topic, we decided to restrict the selection to publications after 2000, and 113 papers remained. After reading the abstracts of these works, to recognize the specific object of those publications and verify their suitability for the specific purpose of this research, concerning the performance in the procurement of materials and contracting services by the consortia, we found that only twenty publications were in line with this research.

In the SCOPUS database, a first attempt was made with the keywords "health" and "consortium," without restriction as to the date of publication, which returned 7,005 papers addressing the topic returned. This result dropped to 5,918 publications when applying a new filter for post-2000 research. With a still high number, we decided to add one more keyword, namely, "purchasing," because this study focuses on the understanding of how consortia can be an instrument to achieve better performance in procurement processes, which shortlisted the results to 74 papers. After reading the abstracts, we identified that only ten papers had a direct relationship with the object of this research.

The same search engine was applied in the ISI – Web of Knowledge database. Keywords "health" and "consortium," without restriction on the period of publication, returned 3,688 papers. Restricting the period to the 2000-2017 period, it returned 3,292 papers, which, by adding the keyword "purchasing," dropped to 19 works. When reading the abstracts, four publications were within the scope of this research, but three of them coincided with publications found in the SCOPUS database search.

When submitting the same keywords in the PubMed database, we observed that the journals contained therein were indexed by any of the three previously consulted databases, returning publications that had already been analyzed in previous searches.

## Results

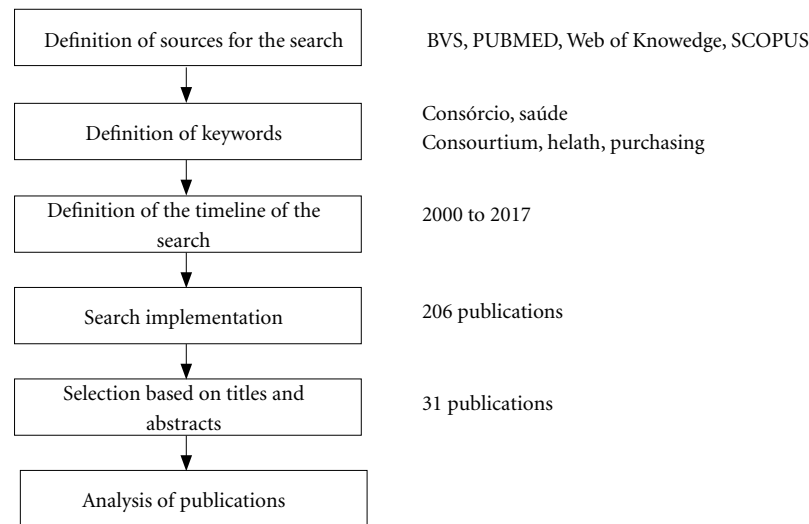
The results of the literature review were divided into three blocks. The first block shows definitions, advantages, and disadvantages of public consortia in Brazil, without a specific focus on health, but for understanding this instrument's advantages for cooperative projects and processes among federative entities. The second block focuses specifically on the Intercity Health Consortia (CIS), highlighting their definitions, history, and primary management challenges. The last block shows some cases of CIS in Brazil, with a look at its main results, especially for the procurement of goods and for the cooperative contracting of services, besides the difficulties for its implementation, maintenance, and management.

Chart 1 shows the publications used in this narrative review by displaying titles, authors, year of publication, the vehicle of publication, and main subjects covered.

### Public consortia: definitions, advantages, and disadvantages

The Observatory of Public Consortia and Federalism<sup>40</sup> recognizes that the 1988 Constitution enshrined the Brazilian federative system based on an agreement establishing the autonomy of the territorial spheres of power. While the federalist model provides gains, the Brazilian federation is characterized by the strong asymmetry between governments, which brings the need to plan policies to correct or minimize inequalities between states and municipalities<sup>33</sup>.

Baldissera<sup>8</sup> states that the decentralization model was not accompanied by instruments for planning and coordinating government actions, and, in this context, intercity consortia emerged as a coordinating mechanism located in spheres that transcend the territorial boundaries of municipalities, and at the same time, do not reach the limits of states. Public consortia can be understood as an organizational solution to meet the needs of coordination and integration among federative entities, intended to operate delegated



**Figure 1.** Literature review method.

competences, as an expression of the exercise of autonomy of consortium entities<sup>41</sup>.

It is an instrument of technical and financial cooperation between municipalities, states, and the Federal Government, which can serve to articulate assets, enable cooperation in regional projects, works, and other actions aimed at promoting the development of a given region<sup>42</sup>.

While Law 11.107/2005<sup>43</sup>, or Law of Consortia, institutionalized the figure of public consortia in Brazil only in 2005, some consortium mechanisms existed before then<sup>39</sup>. In these structures, the groups of federated entities, mostly municipalities, were associated horizontally and cooperatively and decided to collaborate, not for profit, to solve common issues in a particular area, without legal personality, with only one protocol of intent.

Taking into account the principle of economy, even with the ability to provide the service in isolation, it may be advantageous to seek partnership with other municipalities, spending fewer resources and achieving the same results. One can also increase the quality of the services provided by maintaining the expenses that would be incurred in isolation<sup>8</sup>.

Linhares et al.<sup>44</sup> noted that consortia prove to be very valuable instruments in the performance of policies aimed at solving problems that occur in multi-municipal territorialities, such as health, environment, and infrastructure.

The sustainability of consortia requires a consistent political agreement between federative actors, aiming at long-term goals to the detriment of immediacy, and one that can address diversity to the detriment of unilateral decision-making<sup>41</sup>.

Moreover, the difficulties faced by federative entities are transported to consortia, such as low qualification of civil servants, conflicting agendas between areas, planning gaps, bureaucratic barriers, and finite and misapplied resources.

Despite the flexibility generated by consortia, many face obstacles to their operation because of legal fragility, difficulty in relationship with other federated entities, lack of commitment and responsibility to pay municipal contributions, political use of a consortium, and fiscal irresponsibility<sup>35</sup>.

#### **The Intercity Health Consortia (CIS)**

The decentralization of the health policy, provided for in the 1988 Constitution<sup>45</sup>, generated a significant increase in the participation of municipalities in the provision of health services<sup>24</sup>. However, the transfer of the Federal Government's responsibilities to states and municipalities has faced obstacles related to organizational and financial deficiencies, as well as inefficiencies due to problems of scale and scope caused by fragmented services<sup>31</sup>. The author mentions a loss of production scale, resulting from the increased

**Chart 1.** Summary table of papers used in the narrative review.

Title	Main subjects addressed
Physician-Owned Surgical Hospitals Outperform Other Hospitals in Medicare Value-Based Purchasing Program <sup>13</sup>	Measurement of procurement performance of Medicare hospitals adhering to the “Hospital Value-Based Purchasing Program”
Medical technology procurement in Europe: A cross-country comparison of current practice and policy <sup>14</sup>	Study on the influence of purchasing policies for the dissemination of health product use in universal health systems in Europe
Hospital purchasing alliances: Utilization, services, and performance <sup>15</sup>	Studies on how hospital consortia managed to reduce product acquisition costs and transaction costs, particularly for medicines.
Case study of how successful coordination was achieved between a mental health and social care service in Sweden <sup>16</sup>	Study on the establishment and coordination structure of a consortium for the provision of mental health services in Sweden
Optimal administrative geographies: An algorithmic approach <sup>17</sup>	Proposition of elements to assist the decision to define health administrative territories in the United Kingdom, such as demographic density, the coexistence of local authorities in the territory, size, and homogeneity of the population served.
Impact of Supply Chain Collaboration on Value Co-creation and Firm Performance: A Healthcare Service Sector Perspective <sup>18</sup>	Conceptualization of supply chain collaboration in the healthcare industry, focusing on hospital supply chains
New Trends in Healthcare Supply chain <sup>19</sup>	Papers about new trends in cost reduction in the healthcare supply chain, using tools such as virtual supply chain centralization, supply chain management practices, RFID technology, data analysis, and more.
Building a Better Delivery System: A New Engineering/Health Care Partnership <sup>20</sup>	Report on the identification of engineering applications that can contribute to the health sector in the short, medium and long term, as well as verification of factors that may accelerate or prevent the adoption of these technologies.
Learning for the NHS on procurement and supply chain management: a rapid evidence assessment <sup>21</sup>	Collection of NHS studies on how health care system costs can be curbed through improved supplier relationships, expanded purchasing competencies and skills, use of materials management technology
Supply Chain for Regional Centralized Purchasing: An Application Model <sup>22</sup>	Proposition of a centralized purchasing model at the regional and national levels of European health systems, as a way of reducing acquisition costs.
Conditional Cash Transfers for Improving Uptake of Health Interventions in Low- and Middle-Income Countries <sup>23</sup>	Study on how performance-dependent resource transfer conditioning can broaden the use of preventive health services and core health indicators
Consórcios de saúde: estudo de caso exitoso <sup>24</sup>	Case study on the oldest CIS of the health sector (Penápolis Region Intercity Health Consortium – CISA) to draw up a set of recommendations, based on the experience reviewed, for adaptation to other CIS experiences.
Institucionalidade e governança da regionalização da saúde: o caso da região Sul Mato-Grossense à luz das atas do colegiado de gestão <sup>6</sup>	Discussion about the regionalization of health, aiming to analyze the dimensions of institutionality and governance in its management, understood through consolidated levels CIR; regulation center; intercity consortium; and regional hospital.
Percepção dos gestores municipais de saúde relacionada à saúde ambiental: consórcio intercity de saúde Cerrado Tocantins Araguaia <sup>25</sup>	The prospective study aimed to analyze the perception and actions of the municipal managers who are part of the Cerrado Araguaia Tocantins intercity consortium regarding environmental health problems in the northern region of the state.
Constituição de Consórcios Intermunicipais de Saúde: Uma Aplicação da Técnica de Agrupamento por Clusters <sup>26</sup>	This paper aims to propose the use of the clustering technique, applied to the hospitalization data of the municipalities of the State of São Paulo as an attempt to reduce arbitrariness in the establishment of intercity consortia.

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**Chart 1.** Summary table of papers used in the narrative review.

<b>Title</b>	<b>Main subjects addressed</b>
Consórcio intermunicipal para a aquisição de medicamentos: impacto no desabastecimento e no custo <sup>9</sup>	The study analyzes the impact of consortium for the purchase of medicines in the shortage and cost of medicines of the Primary Pharmaceutical Care Component of Indaial, SC.
Cooperação intercity, reterritorialização da gestão pública e provisão de bens e serviços sociais no Brasil contemporâneo: a experiência dos Consórcios de Saúde de Minas Gerais <sup>27</sup>	Estudo para a verificação do impacto do consorciamento na ampliação e melhoria da qualidade dos serviços de saúde, além dos seus condicionantes de natureza política e administrativa nos consórcios do Estado de Minas Gerais
Consórcio de medicamentos no Paraná: análise de cobertura e custos <sup>10</sup>	The paper analyzes the coverage and costs of the Paraná Saúde Consortium (CPS), established for the procurement of medicines for the municipalities of Paraná.
Consórcios Intermunicipais de Saúde: Uma Análise à Luz da Teoria dos Jogos <sup>28</sup>	The study analyzes the establishment and political-financial sustainability of the Intercity Health Consortia through a dynamic two-period game with incomplete data, in which two mayors of municipalities decide on membership and permanence in the consortium.
Avaliação do processo de implementação do Consórcio Intercity de Saúde da região do Teles Pires <sup>29</sup>	The dissertation evaluated the process of implementation of the Intercity Health Consortium of the Teles Pires micro-region, in the context of regionalization of health care.
Cooperação intercity no âmbito do SUS <sup>30</sup>	The dissertation addresses the interactions between various agents that may be involved with the structuring of an intercity cooperation geared to public health policy.
Ensaio sobre consórcios intermunicipais de saúde: Financiamento, Comportamento Estratégico, Incentivos e Economia Política <sup>31</sup>	Discussion on Intercity Health Consortia based on theoretical foundations provided by theories of partnership and electoral competition, combined with formal models of game theory and contract theory.
A regionalização da saúde no Estado do Mato Grosso: o processo de implementação e a relação público-privada na região de saúde do Médio Norte mato-grossense <sup>32</sup>	Characterization of the instruments and mechanisms adopted in the regionalization in the Middle North of Mato Grosso, highlighting the public-private relationships in the public health system, besides the discussion about the decision-making process and interaction between the various actors.
Cooperação Intergovernamental em busca do Desenvolvimento Regional <sup>33</sup>	This paper aims to identify how intergovernmental cooperation can contribute to the elaboration of integrated public policies, by investigating the contributions of cross-sectional actions to the strengthening of municipalities and macro-regions.
Desafios da adaptação à lei de consórcios públicos: experiências concretas no Estado de São Paulo <sup>34</sup>	The paper aims to show a study about the process of adaptation of consortia to Law No. 11,107/2005, with emphasis on the investigation of consortia in the state of São Paulo, which did not convert to public consortia under the law.
Consórcios intermunicipais paulistas rumo aos consórcios públicos – reflexões <sup>35</sup>	The paper aimed to identify the existing consortia in the State of São Paulo and their suitability to Federal Law 11.107/2005, through the survey in 645 municipalities of São Paulo, between June and September 2010.
O papel da CIB/MG no processo de regionalização do SUS em Minas Gerais <sup>5</sup>	The dissertation describes how CIB/MG contributed to the regionalization process in Minas Gerais, from 2004 to 2007.
Avaliação da satisfação dos usuários com os serviços do consórcio intermunicipal de saúde do noroeste do Paraná <sup>36</sup>	An interview was conducted with health service users to assess user satisfaction with the services provided by CISA in northwestern Paraná. It was concluded that CISA is a reference for small municipalities and that users are satisfied with services it provides.

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**Chart 1.** Summary table of papers used in the narrative review.

Title	Main subjects addressed
Municípios cooperando com municípios: relações federativas e consórcios intermunicipais de saúde no Estado de São Paulo <sup>37</sup>	The paper analyzes the Alto Vale do Ribeira Health Consortium, describing its institutional design and analyzing the results and the main changes in the service network of the consortium municipalities after its implementation.
Regionalização dos Serviços de Saúde em Mato Grosso: um estudo de caso da implantação do Consórcio Intermunicipal de Saúde da Região do Teles Pires, no período de 2000 a 2008 <sup>38</sup>	The paper aims to evaluate the implementation of the Intercity Health Consortium of the Teles Pires-MT Region, through the analysis of the external contexts of the region (sociodemographic and epidemiological) and the assistance-related context of the consortium (organization, financing and production of services), based on secondary data for the period 2000-2008.
Gestão interfederativa do SUS: a experiência gerencial do Consórcio Intermunicipal do Sertão do Araripe de Pernambuco <sup>39</sup>	This paper aims to analyze the management experience of the Sertão do Araripe de Pernambuco Intercity Health Consortium (Cisape), through a managerial administration model, that is, guided by post-bureaucratic public management.

number of establishments and equipment, which led to inefficient health systems and reduced quality of services provided to the population.

A large number of small municipalities with limited or no availability of medium and high complexity services have shown that decentralization must be accompanied by intergovernmental coordination and cooperation strategies<sup>6</sup>.

Municipalities must incorporate innovative ways of managing and organizing service networks through collective institutional construction<sup>6</sup> to implement the health regionalization policy. Thus, Neves and Ribeiro<sup>24</sup> state that intercity health consortia (CIS) are organizational arrangements that have been the frequent object of evaluation of results, impacts and implementation mechanisms in the academic community, as they favor the construction of agreed regional systems and, thus, facilitate the implementation of decentralization strategies for regionalization and hierarchization of the SUS in the provision of services.

CIS are shown as public sector innovations for better management, to provide specialized services and higher technological density to the population, besides generating environmental and economic gains in the provision of these public services<sup>25</sup>. Health consortia aim to solve management and service delivery issues in a specific region through concerted efforts and the articulation of physical, financial, and technological resources in search of solutions to shared problems<sup>27,29</sup>. This allows the financial sustainability of investments and contributes to streamlining the care network.

Teixeira et al.<sup>28</sup> define intercity health consortia as an autonomous initiative of municipalities located in contiguous geographical areas, which

associate themselves to jointly manage and provide specialized and diagnostic support services with higher technological density for the population of the participating municipalities. Muller and Greco<sup>36</sup> highlight consortia as an instrument to solve local challenges, such as expanding and ordering services, contracting services, making remuneration of professionals with incentive payments more flexible, and streamlining the available regional resources, to improve access and quality of services. Consortia agree on rules for financing services and client access based on resources of associated municipalities<sup>5</sup>.

Morais and Chaves<sup>25</sup> realize that most Brazilian municipalities, especially those far from large centers or with low population indices, have a hard time implementing the SUS due to the difficulty of allocating qualified human resources, access to the use of technologies and lack of adequate physical structures. Deriving from this, when analyzing the consortia of the State of Minas Gerais, Rocha and Faria<sup>27</sup> found that the municipalities acting jointly can arrive at positive results such as the capacity for achievement, increased service to citizens, greater efficiency in the use of public resources and realization of actions that would be inaccessible to a single municipality.

Thus, they can address individual needs, such as scarce financial, technological, and human resources needed to implement public policies. Thus, Neves and Ribeiro<sup>24</sup> state that the CIS is an alternative organization that can overcome the individual shortcomings of each municipality in health care, especially in specialized medical consultations and medium and high complexity ex-

ams, as well as reducing the competitive aspects of Brazilian federalism.

When studying the Cerrado Araguaia Tocantins Intercity Health Consortium, Morais and Chaves<sup>25</sup> realized that intercity consortia hold a strategic position in the hierarchical organizational structure of the municipalities, as they allow the development of intersectoral strategies and practices, and have the necessary autonomy to build partnerships and carry out planning beyond the political and administrative boundaries of the municipalities.

Health consortia enable greater integration of regional health care networks, increasing the supply of beds and access to medium and high complexity networks, as well as strengthening the regional regulatory system<sup>46</sup>. The author also points out that this type of model enables strategic regional planning through the joint mapping of demands, setting priorities, and offering technical assistance aiming at the elaboration of integrated projects. It also allows the referral of joint requests for resources, besides the management of shared contracts and agreements. Rocha and Faria<sup>27</sup> point out that, in the case of consortia of the State of Minas Gerais, the regional provision of services avoids the municipality's overload in the construction of new outpatient and hospital services, recruitment of specialized human resources and the procurement of high-cost equipment, enabling better use of the available network.

Another advantage of municipalities adhering to a CIS is the structuring of a network as per the installed capacity of the various actors, thus reducing idle capacity and optimizing the service and referral of patients between municipalities<sup>24</sup>. Also, as they are legal entities governed by private law, they can have greater administrative flexibility, thus allowing the recruitment of people as per the market's logic, paying competitive salaries, as well as offering productivity bonuses, which would tend to improve the performance of professionals and raise the quality of services provided<sup>25</sup>.

The consortia reside in a logic of cooperative federalism, in which it is possible to streamline and integrate public actions and foster the adoption of redistributive policies<sup>27</sup>. However, the authors point out potential adverse results, such as the subordination of the weaker to the stronger, no clear definition of the distribution of responsibilities, and, thus, lack of accountability of the system.

Regarding the emergence and formation of consortia, Neves and Ribeiro<sup>24</sup> observed two main trends. In the first one, a free association was observed between municipalities as per their

political characteristics, and a regionalization following these characteristics. In the second, a governmental induction by state governments, through the creation of mechanisms and incentives to have this association as per their preferences was found. The authors note that consortia are set primarily around small or medium-sized municipalities for the provision of specialized care, and found that 95% of the municipalities that are part of consortia have less than fifty thousand inhabitants, and 60% have less than ten thousand inhabitants. Additionally, Teixeira<sup>31</sup> realizes that most of the consortium municipalities (52%) have mean incomes between the fifth and eighth deciles, and this shows that the consortium municipalities are, in general, medium- to high-income municipalities. However, Oliveira<sup>37</sup> states that the consortium mechanism did not spread equally among the Brazilian states and municipalities. Table 1 shows the number of consortia in each of the Brazilian states.

In the case of the consortia of the State of Minas Gerais, Souto Júnior<sup>5</sup> realized that the autonomy transferred to small municipalities, with less than 30,000 inhabitants, generated a deficit in the provision of health services to the population due to the lack of sufficient and efficient administrative structures, as well as of technicians and human resources in general, and negligible investments. The author points out that municipal autonomy was more sustainable when municipalities decided to consort to buy larger-scale services with a defined scope from their needs through cooperation agreements, ensuring more significant savings.

In the case of the Intercity Health Consortium of the Penápolis Region (CISA), Neves and Ribeiro<sup>24</sup> state that the decision-making structure of the consortia is centered on a Mayors' Council and the consortium is managed by an executive body. Concerning their financing, the authors highlight the contribution of the municipalities to maintain the operation of the consortium and the transfer of resources from the SUS to provide the services themselves. Also, Teixeira et al.<sup>28</sup> state that funding of these structures derives from three primary sources: municipal quotas (defined by population criteria or use of services), direct SUS resources, and resources originating from the State Health Secretariats.

Galindo et al.<sup>39</sup> highlight the two instruments that formalize the transfer of resources to the consortium: the apportionment agreement and the program agreement. The authors believe that the program agreement helps the Consortium



start to perform the public services demanded by society. The apportionment agreement, in turn, defines the economic and financial responsibilities of each consortium member and the way of transferring resources to the public consortium expenses, such as charges, personnel expenses or assets necessary for its operation.

In the case of the consortia of the State of Minas Gerais, Rocha and Faria<sup>27</sup> indicate that the relationship of equality between the municipalities was presented as a principle found in the consortium structuring. Thus, they are generally organized from the establishment of a Council of Municipalities (usually consisting of municipal health secretaries), a Fiscal Council (responsible for budgetary and financial management control), and an Executive Secretariat. In the case of the Teles Pires (MT) Micro-region Intercity Health Consortium, Botti<sup>29</sup> notes that, for the development of its actions, the organization uses technical and administrative teams from the municipalities that are part of or contracted by the public selection, under the Consolidated Labor Laws (CLT).

Neves and Ribeiro<sup>24</sup> point out that the sustainability of this model is due to the positive political results generally obtained. The authors studied in depth the case of the Penápolis Health Consortium and realized that one of the reasons for its long-term success was the political stability allowed by the succession of mandates of mayors and councilors, as well as the excellent relationship between the Executive and Legislative powers. Rocha and Faria<sup>27</sup> also reinforce that the operation of consortia in the state of Minas Gerais depends on the characteristics of municipal policy and that, in more successful cases, executives seek to base their decisions on technical-instrumental criteria, aiming at preserving the experience against political and electoral interference.

Morais and Chaves<sup>25</sup> point out, specifically in the case of the Cerrado Araguaia Tocantins Intercity Health Consortium, that an obstacle for the consortium is the need to overcome its limits and boundaries for the implementation and monitoring of public health policies, reflecting in the political, economic and care dynamics. Keinert et al.<sup>48</sup> also highlight other challenges to be overcome, such as the sensitization of municipal managers, shortage of human resources, concern about the legal situation, and the understanding of the Court of Accounts directly related to the consortium.

Also, although the benefits of a consortium are clear, some members still behave as free-riders, that is, making use of the public service provided

**Tabela 1.** Número de consórcios de saúde por estado.

Estado	Número de Consórcios
MG	68
PR	23
SP	23
CE	21
SC	16
RS	16
MT	15
PB	10
RJ	8
ES	7
RN	3
PA	2
AM	1
PE	1
BA	1
Interestadual	1
Total	216

Fonte: Observatório dos Consórcios Públicos e Federalismos<sup>47</sup>.

by the consortium, but without participating in its funding, thus weakening the original purpose of the association<sup>49</sup>. It is also noticed that consortia composed of more homogeneous municipalities concerning population, financial resources, and political power seem to be at better odds of succeeding, since, in the case of asymmetries, the most robust municipalities tend to capitalize for themselves the positive effects of cooperation<sup>27</sup>.

### Cases of Intercity Health Consortia

Experiences of high relevance in the consortium are those of the states of Minas Gerais and Paraná, mainly due to the commitment that the governments of these states had with the establishment of consortia<sup>5,27</sup>. In the case of Minas Gerais, it was found that the state government's action was not limited to spreading the concept and providing information for the creation of consortia, but also linking the release of state resources to the consortium of municipalities, thus creating strong incentives for the shaping of these structures in the state.

Galindo et al.<sup>39</sup> highlight the case of Pernambuco and state that, while consortia are an intercity management strategy, the adoption of public consortia as a SUS regionalization strategy resulted from a choice of the state government. The authors realized the recent trend of state participation as consortium financier, through the transfer

of funds or the assignment of human resources, materials, equipment, and technical support.

The consortia of the State of Paraná show that their setup was fundamental to improve access to specialized services and expand service coverage<sup>48</sup>. In the case of municipalities that are part of the Health Consortia of the Association of Municipalities of the Middle Valley of Itajaí, the joint purchase of medicines allowed the reduction of costs, ensuring a greater supply of medicines and lower shortage of the Primary Pharmaceutical Care component, identified through the declining mean number of days for missing medication and the number of missing items<sup>9</sup>.

In the case of the Paraná Saúde Consortium, we noted that, by comparing prices between the Ministry of Health's Price Bank and those practiced by the consortium, the prices paid by the Consortium for the purchase of medicines were systematically lower, and the variation observed was 0.7% to 68.0%. The consortium still has an extensive population coverage (88.2% of the state's municipalities and 55.6% of the state's population), thus indicating its potential as an instrument for promoting equity of access to health goods and services<sup>10</sup>.

In the state of São Paulo, we highlight the case of the Alto Vale do Ribeira Health Consortium (CISAVAR), where the consortium allowed the expansion of the supply of specialized services, through the better use of existing services (reduced hospital-headquarters idleness), besides reducing the free-rider behavior of neighboring municipalities, which began to contribute financial resources to the hospital to which they were already referring patients<sup>37</sup>. The author also points out an increased bargaining power of the municipalities involved with the state government, bringing resources to the region that would hardly be obtained if they requested them in isolation.

The decentralization of care and management of resources and health actions and services in the state of Mato Grosso began in 1995, through the process of articulation and technical cooperation with the municipalities, where the state government was responsible for this conduct<sup>29</sup>. The author points out that a study conducted by the State Health Secretariat between 1995 and 2000 concerning the performance of health consortia in the region showed an increase in regional outpatient and hospital care resolution, verified by reducing the referral of procedures from the municipalities of the state to the capital Cuiabá and other federated states.

In the case of the Teles Pires (MT) Intercity Health Consortium, we note that the problems not solved by the consortium were related to the referral and counter-referral system and the existence of waiting lists for performing elective procedures and appointments in some specialties. Because of this, we identified the importance of conducting studies to map the real demand, as well as future projections of this demand, for better planning of the consortia regarding their service provision and definition as to their service capacity<sup>38</sup>.

As counterexamples, we can cite the states of the North and Northeast regions, which have the lowest resources of specialty services, hospitals, and specialized technical advice, and yet do not widely use the model of health consortia<sup>37</sup>. The author highlights two factors that may inhibit municipal cooperation in these cases. The first would be the territorial extension of the municipalities (substantial, in the case of the northern region), distant from each other, and challenging to access, which hinders people's access to the region's services. The second factor is justified because they are impoverished regions and, therefore, may not have a desirable minimum level of services, since they do not have the requirements concerning equipment and health resources. That is, the consortium would not produce additional gains for the municipalities involved regarding services available to citizens. However, by gathering around a consortium, these municipalities could increase their bargaining power with state and federal governments to raise funds for health.

Teixeira<sup>31</sup> believes that states can hold a more proactive position in the process of establishment and maintenance of CIS through two complementary mechanisms. They can foster partnerships by facilitating consortia's adherence to innovative technologies that would otherwise be inaccessible for their high cost. Also, the state can ensure that members of a consortium do not default under a contract between the municipalities and the state, which would ensure the transfer of funds directly to consortia in the event of non-compliance with financial transfer clauses.

### Final comments

The forms of intergovernmental relationships and, more specifically, of intercity consortia, is a subject still hardly explored by science regarding public policies<sup>37</sup>. The author believes that,

while being a relevant subject, studies on health consortia find it challenging to further explore their findings due to the lack of historical data, especially for small municipalities, which are the most active in the consortium, which hinders the proof of the good results that this type of arrangement can provide.

Additionally, in attempts to rationalize health expenditures, actions focused on reducing expenses related to the supply of materials and services to health systems are more effective than restricting access to the demanders of these services<sup>50</sup>. Also, intercity health consortia have shown advantages regarding the cost of purchasing or contracting services and the reduced shortages of this input and availability of services<sup>5,9,10,27,48</sup>. Thus, actions focused on structuring the relationship between Health Systems and material suppliers and service providers are justified given their potential for improving the efficiency of health services.

Again, exploring the argument of the importance of rationalizing health spending, an indicator widely used by nations is the assessment of the percentage of GDP that is intended for health actions. According to the Global Health Observatory<sup>51</sup>, a World Health Organization institute for monitoring and comparing health indicators across countries, in 2013, Brazil allocated 9.7% of its GDP to health and 6.9% of total government spending.

While the principles of integrality and universality are found in their health care system, we can infer that these objectives are still far from being achieved since government spending represents only 48.2% of total health spending in Brazil, showing that a large proportion of this expenditure is made directly, privately, by households. These data prove, quantitatively, that the Brazilian Health System must be enhanced to achieve its goal of integrality and universality, and this involves improving the purchase of materials and contracting services mechanisms.

From the academic-scientific standpoint, the literature review showed that a large number of studies discuss the historical and legal context of the implementation of consortia in Brazil. Also, some studies focus on understanding the setup or performance of a single intercity consortium (single case study), but few are intended to make a comparison between two or more consortia in the same region. Other studies address consortium performance evaluation, but the issues related to consortium governance are mentioned only as one of the factors that can affect this performance, without detailing these structures and mechanisms.

From the public health's perspective, this research showed that there are definite gains from the adoption of intercity health consortia, especially for small and medium-sized municipalities, and that state governments can be potent inducers of this strategy. However, a challenge for the effective implementation of consortia lies in the governance of these organizations, given the variety of actors involved in this decision-making process.

However, in the researched universe, we can identify a gap of works and publications that try to understand, in detail and in-depth, the structures and governance mechanisms of the consortia. When it comes to organizational structures where decision-making involves several mayors and health secretaries, with possible distinct political orientations and priorities that are not necessarily convergent, studies on the governance of these organizations are a challenge for the advancement of academic studies on the subject.

### **Collaborations**

RGC Flexa carried out the conception and the design of the study, as well as the analyses. RG Barbastefano contributed to the selection of papers, as well as the drafting and review of the final text.

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