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Regionalized networks and guarantee of specialized health care: the experience of Ceará, Brazil

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Abstract *This paper analyzes policies and management tools aimed at the regional organization of specialized care in Ceará. A case study was developed in a health region based on 18 interviews with regional and municipal managers and health professionals and visits to services. Several factors enabled advances in the organization of specialized care: the preponderant role of the State Health Secretariat in the regional health coordination of actions and services, providing infrastructure, financing with redistribution of resources and technical support to municipalities; implantation of regional Polyclinic and Specialized Dental Care Centers through the Public Health Consortium; and logistics support of transport system. The institutional framework of Municipal Health Secretaries Council and the participatory functioning of the Regional Interagency Committee provided adequate space for the regional governance. Challenges remain for the integration of the network, qualification of care regulation, and provision of hospital care in the region. The results reinforce the importance of public and universal arrangements for the provision of comprehensive health care that can reduce inequities.*

Key words *Regionalization, Comprehensive health care, Health care, Unified Health System, Health management*

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Introduction

Since the 1990s, several countries have reconfigured their national health systems on a geographical basis with the goal of efficiency, improved access, and quality of care. The reforms included differentiated concentration/deconcentration processes for regional management structures, as well as political-administrative centralization/decentralization for subnational governments[1,2]. Also, they involved the implementation of instruments for integration and regional coordination of health policies, actions, and services[3].

In Brazil, regionalization gained prominence on the national health policy agenda at the turn of the 2000s[4]. The identified inequities resulting from mayorization favored arguments towards the strengthening of state governments and the regional organization of health care[5], with the health regions established as the planning and governance locus of the Unified Health System (SUS).

In this study, we consider that the escalation of the political and economic crisis from 2016 reinforces the importance of further advances in regionalization processes in the country, guided by the principles of public and universal health systems. The literature provides evidence of superiority in quality, efficiency, and equity in systems based on comprehensive PHC, predominantly public funding and delivery, and effective state regulation[6-9]. At the international level, responses to the 2008 world economic crisis favored the approximation of health systems to regional needs in order to reduce inefficiencies, with a strengthened PHC, concentration of specialized care and implementation of management mechanisms for the incorporation of new technologies and medicines[10,11].

However, the Brazilian experience, marked by territorial inequalities and the autonomous and interdependent action of different spheres of government, hinders the establishment of a single health authority in health regions. Regionalization is conditioned by the correlation of political forces, supply structure and incorporation of care technologies[12], as well as by the pacts established by different stakeholders (governmental and non-governmental; public and private), which enable access to higher technological density services[13].

Mello et al.[12] highlight as evidence of SUS regionalization studies the low qualification and turnover of health managers, poor governmental planning culture, the urgency of political party and clientelist interests in decision-making levels and failing leadership capacity of the State Health Secretariats. However, the authors suggest gaps in identifying factors that contribute to the success of state and regional experiences and explain variations of this process, even in adverse settings.

In this perspective, this paper is directed to the state of Ceará, pointed by Goya et al.[14] as "a fertile soil for the development of studies of health regionalization", whose path and experience of establishing Health Care Networks (RAS) in a regional perspective precede the federal regulation of the SUS[15,16]. This paper aims to analyze policies and management instruments aimed at regional organization of specialized care in the state, focusing on a health region. Specialized care is understood as health actions and services that, due to their technological characteristics, require specialized equipment and professionals and higher regional concentration to ensure economies of scale and quality[17].

We understand that the insufficient and fragmented supply of specialized services, responsible for a significant part of public health care and spending, is one of the main obstacles to regionalization[18], to the establishment of the RAS, besides mobilizing public and private stakeholders with diverse interests[19]. The state of Ceará shows an advanced stage of regional organization[4,20,21], which may inform other national experiences regarding models of public provision of specialized care in the current context of health crisis and budgetary constraints.

Methods

A case study was conducted in the Aracati Health Region of Ceará State, Brazil, through 18 semi-structured interviews and visits to secretariats, regulatory centers, PHC facilities and a regional polyclinic in November 2017. The region was selected by convenience and consisted of four small municipalities, historically dependent on the specialized services of the capital. Interviews with key actors included all locations and provided an overview of the health region.

Informants were identified as per the study objectives: Municipal Health Secretaries; managers and technicians of the Visits and Tests Scheduling Centers; primary care coordinators, whose services refer to specialized care; regional health coordinator; polyclinic direction; and health professionals working in primary and specialized

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care services. There were no refusals to participate, and the interviews were conducted face-to-face at the workplace, lasting approximately one hour each. The profile of respondents is described in Chart 1.

The content of the interviews recorded on audio equipment was analyzed based on pre-analysis, material exploration, management of results, and interpretation[22]. The results were interpreted with reference to part of the realms and essential attributes of the Integrated Health Services Networks[23], which guided the interview scripts, as follows: health system context; characteristics of regionalization; health establishment network coverage; conditions of access to specialized services; network governance and planning; qualification of human resources; assistance coordination mechanisms; network regulation and information systems; funding adequacy, presented within six emerging categories in the interviews, through which the results are organized.

Common patterns and regularities in the statements were identified, as well as divergences and convergences among the respondents. We sought to ensure the quality and validity of the findings by comparing the information of the different respondents in the municipalities of the region, the bibliographic analysis and the records of the researchers conducted during the on-site observation.

The Research Ethics Committee of the Fluminense Federal University approved the study.

Results

Health system context

Chart 2 systematizes a set of characteristics of the health system in the state of Ceará and in the case region, necessary to understand the context of implementation and management of the service network.

Network governance: stakeholders, institutions and decision-making environments

Most respondents considered successful the path of regionalization, especially compared to other national experiences. The State Health Secretariat (SESA) was appointed as the main regional actor and the Regional Health Coordination Offices (CRES) as levels of municipal articulation (E1). Staff training and stability (mainly public servants) at the CRES favored some continuity of policies and the state's legitimacy in supporting municipalities. CRES in the case region has had three regional coordinators in twenty years, confirming the continuity of the position.

The historic and active role of the Council of Municipal Health Secretaries (COSEMS) in the Bipartite Interagency Committee (CIB) and the decision-making processes of health policies was recognized, which contributed to the formalization of the Organizational Contract of

Chart 1. Characterization of key informants - Aracati/CE Health Region, 2017.

Position	Education
4 Municipal Health Secretaries (E1, E2, E3, E4)	4 with higher education, 3 with graduation in health, 2 masters, 1 Ph.D., 2 Higher Education Institutions teachers, 2 with long experience in health management and health movement.
5 Primary Care and Epidemiological Surveillance Coordinators / Undersecretariat of Health (E5, E6, E7, E8, E9)	5 with higher education in health; 4 with history of more than 20 years in the SUS and previous experience in management, inside and outside the municipality; 5 with postgraduate studies (specialization) in public health, most from the School of Public Health of Ceará.
2 Regional Managers (Polyclinic and CRES) (E10, E11)	2 with a health degree, with previous experience in SUS management and specialization at the School of Public Health of Ceará.
3 Regulation Center technicians (E12, E13, E14)	1 with a health degree and specialization in Regulation and Auditing, 2 with a technical level
4 Health professionals (E15, E16, E17, E18)	2 doctors, 2 nurses

Source: own elaboration; Captions: CRES – Regional Health Coordination.

Chart 2. Health system characteristics - Ceará and Aracati Health Region, 2019.

Political and administrative division of the state of Ceará	It is divided into 184 municipalities, 5 macro regions and 22 health regions: Fortaleza, Caucaia, Maracanaú, Baturité, Canindé, Itapipoca, Aracati, Quixadá, Russas, Limoeiro do Norte, Sobral, Acaraú, Tianguá, Tauá, Crateús, Camocim, Icó, Iguatú, Brejo Santo, Crato, Juazeiro do Norte and Cascavel.
Socioeconomic characteristics of the state and region of Aracati	Estimated state population of 9,020,460 inhabitants (2018). State with the 8th largest population in the country, and 3rd among the states of the Northeast. The HDI was 0.682 in 2010, 17th in the national ranking. The health region of Aracati has an estimated population of 118,032 inhabitants (2018): Aracati, 74,084 inhabitants, Fortim, 16,357, Icapuí 19,804 and Itaiçaba 7,787 inhabitants. HDI-M, Aracati holds the best position (26th) among the municipalities of the region, Icapuí (41st), Itaiçaba (60th) and Fortim (81st) (2016).
Characteristics of the SUS	The state has 19 regional polyclinics. There is a concentration of public hospital services in the capital: the network of the Ceará State Health Department has 11 hospitals, of which eight in the capital, and three regional hospitals in the inland: North Regional Hospital (Sobral), Regional Hospital of Cariri (Juazeiro do Norte) and Sertão Central Regional Hospital (Quixeramobim).
Hospital network in the region of Aracati	The region has five hospitals registered at the SCNES, three in Aracati (one nonprofit, one municipal and one belonging to UNIMED), one in Fortim (municipal) and one in Icapuí (municipal). The municipality of Itaiçaba had a Mixed Unit (SCNES / Dec.2018).
Primary Care in the region of Aracati	The region has 87% coverage of Primary Care, of which: 80% in Aracati and 100% in Fortim, Icapuí and Itaiçaba. The Family Health Strategy model is predominant in the municipalities (Dec.2018).
SAMU and UPA in the region of Aracati	Coordinated by the State Department of Health, SAMU Ceará is present in 136 municipalities, including the municipalities of Aracati and Icapuí. Fortaleza and Sobral keep the service under municipal management. The Aracati region has an Emergency Care Unit, based in the municipality of Aracati.
Health plans	In 2018, 14.8% of the state's population had health insurance, with coverage in the capital of 38%.

Sources: ANS TABNET (http://www.ans.gov.br/anstabnet/cgi-bin/dh?dados/tabnet_tx.def); E-GESTOR DAB/MS (https://egestorab.saude.gov.br/paginas/acessoPublico/relatorios/relHistoricoCoberturaAB.xhtml); IBGE (https://cidades.ibge.gov.br/brasil/ce/panorama); Ipece (https://www.ipece.ce.gov.br/2014/05/13/indice-de-desenvolvimento-municipal/); SCNES (http://cnes2.datasus.gov.br/Mod_Ind_Unidade.asp?VEstado=23); SESA-CE (https://www.saude.ce.gov.br/imprensa/servico).

Public Action by all municipalities and regions from 2012 (E2). The respondents also highlighted the "primary care culture", the activity of the local health movement and the mobilization of the Municipal Health Councils. The training and professionalization of the Municipal Health Secretaries (SMS) in the state and the region were highlighted. A significant set of SESA technical staff and health professionals were trained by the School of Public Health of Ceará (Chart 1). In contrast, some respondents indicated some "technification" of the performance of SMS and depoliticization of the position (E1) (Chart 3).

In the course of regionalization, the Regional Interagency Committees (CIR) (preceded by the Regional Bipartite Interagency Committees) established themselves as a decision-making environment in the health regions, under the direction of the CRES. In the region, the composition of the CIR was expanded with the participation (without the right to vote) of the coordinators of the polyclinic, the Center for Dental Specialties (CEO), Primary Health Care (PHC), hospital providers, besides SMS and state representatives. The CIR vice-president was the COSEMS representative elected by the region's SMS.

The CIR was evaluated as an essential regional governance environment, with strongly participatory, collaborative, resolute, and deliberative meetings. Major health problems were reported to be the agenda of CIR meetings. The regional coordinator also highlighted debates on topics related to the Municipal Health Council that contributed to the regionalization (Chart 3).

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Chart 3. Evaluation of key informants about the actors, institutions and decision-making spaces of the health regionalization process, Ceará, 2017.

Actors / institutions / decision spaces	Statements
State Health Secretariat (SESA/CE)	"State Health Secretary, State Government, without a doubt! The State Health Secretariat is the main figure of this all" (E1) "The state government was bold in the investment, to try to make it work and that this strengthening of regionalization would happen because until then, the regions of Ceará endured a huge care gap" (E10)
State Health Coordination Offices (CRES)	"They (CRES) provide critical support, pointing out flaws, indicators, rates, and how they are being tracked. They are a great mediator of regionalization. A huge mediator" (A1)
Municipal Council of Health Secretaries (COSEMS/CE)	"The Municipal Council of Secretaries, COSEMS, has always had a leading role in the history of public health in the state" (E2)
Municipal Health Secretaries (SMS)	"We have here of the 184 municipalities, 40 municipal secretaries that could be secretaries of any city in Brazil in any state. Well-educated people who understand what they are doing. There has been a secretary here for 14 years, 20 years in various municipalities" (E1). "The technification of the act is the depoliticization of the act as if it were secretary of any mayor A or mayor B as if it were the same thing. And it's not. So for good and for bad, we have this "lot" of secretaries" (E1).
Municipal Health Councils	"(...) we went to all the communities to elect the representatives, and the population indicated whom it wanted to represent us in the Municipal Health Council" (E5)
Regional Interagency Commission	"All health care system, from the flow to the UPA, the hospital, ambulance, all indicators and rates of epidemiological surveillance, health surveillance, everything is guided by the CIR", [which would operate as] "if it were a large secretariat between the four municipalities" (E3)

Source: own elaboration.

More recently, the Public Prosecution Service played an essential role in conducting health policy in the region, interfering with waiting lists and favoring the purchase of medicines that should be supplied by the SUS, even in the absence of public tenders (E1).

Public Health Consortium: an instrument to ensure the provision of specialized care from a regional perspective

One of the significant challenges of regionalization relates to ensuring medium-complexity care. Twenty-one Public Health Consortia (CPS) were established in the state to increase the supply of specialized services, based on the territory of the health regions (except in the capital). The CPS were established as a public association, autarchic and inter-federative entity under the State/SESA and enabled the implementation of specialty polyclinics and CEOs.

The CPS proposal was presented in the early years of the Cid Gomes government (Brazilian Socialist Party; 2007-2010), driven by SESA teams that, at the time, had a state secretary of outstanding technical capacity and political action in health. The governor's previous experience as mayor of Sobral favored the understanding of the municipal health management boundaries and the importance of the regional approach (E1) (Chart 4).

The programming of the service provision of the polyclinics (type 1 and type 2) and the CEOs, and the distribution of financial resources built on parameters approved at the consortium assemblies, subject to contracts. For each municipality, the state withheld up to a maximum of 10% and 7%, respectively, of the ICMS for the financing of polyclinics and CEOs. The funds were deposited directly in the CPS account, which guaranteed funding continuity. The polyclinics also had their state funds, and the CEOs

Chart 4. Summary of main results by selected attributes, illustrated with expressive statements by key actors, Aracati Health Region / CE, 2017.

Healthcare network coverage / Conditions for access to specialized services	**Statements**
. Presence of care gaps in medium-complexity; Establishment of Public Health Consortia, led by the governor – government priority; . Implementation of Polyclinic / CEO, via CPS, to provide specialized care in all health regions (except the capital): more timely and humanized access to SC; . Contractual instruments for distribution of SC supply among municipalities; . Low dependence of the private sector in SC; . Guaranteed transportation, via CPS, for access to polyclinics / CEO: reducing inequalities between headquarters and inland of the region and absenteeism; . The satisfaction of the population with the polyclinics and CEO and perception of health managers regarding the impossibility of providing SC by the municipalities – conditioning factors of project maintenance; . Conflicts between municipalities and polyclinics / CEO to provide specialized procedures/visits made available to municipal regulations and exclusive to internal references - "autonomization" of CPS; . Political interference in CPS and threats of discontinuity.	"In Sobral, he (Cid Gomes) (...) saw the municipalities around Sobral, going to Sobral without any sharing of responsibility other than to direct the user to the higher complexity level. (...) This statement was powerful in him and said: "Look, in the municipality, the discussion was about the expanded SUS; today, the SUS lives another moment, which is regionalization" (E1) "There were many difficulties; the population complained a lot. And regionalization has met that need. But regionalization with the polyclinic was a huge leap in quality for the population" (E5) "In this region, people seek the public health network only. Health is addressed and fought in the public health network, and not in private care (E15)" "Our concern is that today, within the polyclinic, they work with 50% of the vacancies for internal return. If the contract is 300 visits to pediatricians, the municipalities apportion 150, and the polyclinic has 150 to manage internally" (E6) "Mayors affirm, and I am saying this because I already heard here and where I worked (...) the funds would not go to the polyclinic but stay within the municipality" (E2) "So if you tell the people of municipality X that they won't be served anymore because the mayor no longer wants to finance the polyclinics, I believe people would remove him from office. People feel good about access to polyclinics. This is something that is already part of our network. It is the highest-rated health service throughout the state of Ceará" (E1)
Governanceand planning of the network	
. Acting Regional Interagency Commission - with expanded participation of providers and managers – decision-making space for regionalization conducted by the SESA/CRES; . Representation of COSEMS at the CIR – one of the SMS of the region; . Consortial assemblies – chaired by the mayor of the CPS – "mayorization" of the CPS; . Adoption of PGASS to replace the PPI – in the early stage, induced by the state; . Possible political impacts concerning the replacement of the PPI; . Active participation in CRES in conducting the PGASS implementation process in the health region; . Recognition of the need for territory-based and health needs-based planning; . Tensions between the need for increased service offer x lack of new resources; . Priority of discussions on PGASS at the CIR in 2017 – the locus of regional planning.	"Seeing the determinants and constraints of each territory, a stage that is skipped by managers when assuming their position, who are swamped by demands. The PGASS would serve to emphasize this moment, such an important stage that is knowing what that population needs" (E11) "It's a war, a war. Because PGASS will reformulate much consolidated political structure. The PPIs from all over Brazil were made back there and have been a "copy-and-paste" thing for ten years now" (E1) "(With PGASS) we became more aware of the allocation of resources, so we can have more autonomy to say: 'look, I want this service here, I pay and I get it" (E3) "(...) nothing was allocated (resources) without first being submitted to the CIR and receiving the approval of each manager of the region's municipalities" (E11)

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Chart 4. Summary of main results by selected attributes, illustrated with expressive statements by key actors, Aracati Health Region / CE, 2017.

Qualification of human resources	
. Extensive training of leading and managerial staff: SMS, SESA/CRES technicians, Polyclinic direction / CEO – undertaken mainly by the State School of Public Health; . Historical political engagement of the local health movement; . APS qualification processes - QualificaAPS - spearheaded and developed by SESA/CRES; . Difficulties in hiring polyclinic specialist doctors for workload – hiring by number of procedures – consequences for the quality of actions and involvement in continuing education activities and interprofessional relationship; . Higher retention of professionals in the polyclinic compared to primary care in the municipalities.	"Focus is on primary care. So the state is very concerned about primary care, it is constantly offering possibilities, training... Now they are implementing the QualificAPSUS, which is a project for restructuring primary care, to make a new risk stratification and a new territorialization" (E3) "It's amazing how we have a hard time with doctors. Impressive. We put this up for discussion and are practically hostage ... You won't find any doctor today (in the polyclinic) if you say "You will work 20 hours" (E10)
Assistance coordination mechanisms	
. Linking users to polyclinics for longitudinal follow-up; . Lack of shared electronic medical records; . Low polyclinic/CEO, hospitals, and primary care integration.	"If we look at it, they should not even be here; they should return to the PSF ... So when patients get here (polyclinic), it's impressive, they don't want to go back!" (E10) "A patient who had an endoscopy at the polyclinic, the gastroenterologist did it, prescribed the medication; he is at home, and there is no reason to return to the PSF. Thus, a counter-reference by the polyclinic was essential"(E13) "(...) When the patient is discharged from hospital, the counter-reference does not come, although the flows arerecorded. The specialized care doctor doesn't do it. We have less than 30% of patients with counter-referral. The system does not support counter-referrals. Patient follow-up is patchy" (E10).

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had their federal funds from the National Oral Health Policy.

The provision of specialized care through the CPS/Polyclinics/ CEO was positively evaluated by the respondents, as it allows access to health actions and services previously performed with great difficulties in the capital (E5). Overall, the evaluations pointed out that the implementation of CPS made access more "humanized" by reducing capital dependence, even for simple procedures, whose access generated great suffering and attrition to the population (Chart 4).

The polyclinic/CEO professionals had temporary and renewable contracts based on the Consolidation of Labor Laws (CLT), generally with a 20-hour weekly workload. As the polyclinic had difficulties attracting specialist physicians, some visits/procedures/day were defined for these professionals, even with a recognized impact on quality and length of care (E10). Professionals were available in the region for non-medical specialties.

The distribution of polyclinic services was subject to dissent. The management of the service disagreed with the proposal to provide 70% of visits/procedures to meet municipal references and 30% for internal demands. Among other factors, it was emphasized that the social valuation

Chart 4. Summary of main results by selected attributes, illustrated with expressive statements by key actors, Aracati Health Region / CE, 2017.

Network regulation and information systems	
. Computerized outpatient and hospital regulation system, developed by the state (UNISUS-WEB); . Accountability of users for the scheduling of procedure and exchange of clinical information; . Access to polyclinics through primary care referrals – minimization of policy crossings to ensure SC; . Need for the qualification of regulatory processes from the PHC and in the regulatory centers; . Polyclinic/CEO did not refer to other network services (absence of "external regulation"); . Need to adapt regulatory flows based on the necessities of the territory and the PHC and the adoption of clinical protocols for more appropriate and rational use of resources; . High absenteeism rates in specialist visits/CEO.	"Because it generates a counterflow for the patient. When he needs services outside the polyclinic, we send the patient back to the municipality, and there he seeks his regulation to do the service outside, whether at the municipal hospital, or another hospital outside. We (polyclinic) do not make external regulation" (E10) I will give an example: there (the polyclinic) we can find ECG equipment. It does echocardiography, but then my PSF could not ask for it. I have to send it there to the cardiologist so that he may request. Then I say 'Wow, if I have a doctor who says he can interpret this type of exam, which would improve the resolution, the link is with the PSF, why will I refer to the specialist to order the exam?" (E2)
Network funding adequacy	
. State counterpart guarantee for polyclinics / CEO financing; . Direct withholding of ICMS for CPS funding – funding continuity; . Polyclinic funding – state + municipality (no federal funding).	"In some places, the state participates with 60-70%. If it costs 100, I will divide the cost proportional to the population of the municipalities, discounting the ICMS of each of them, provided it is no more than 10% of the ICMS. It has a safety lock. Some municipalities collect so little ICMS that when you gather four-five municipalities, 10% of each, it does not arrive at 60%; this is when the State completes. And why is that only 10%? Because there's another rule. If you withdraw more than 10% from the municipality, you break the municipality that has so little revenue"(E1).

Source: own elaboration.

of specialties and the turnover of physicians in primary care contributed to the increased pressure for follow-up of users at the polyclinic (E10).

Respondents ratified that PHC referrals were the only way to access polyclinics. In the region, the low influence of private providers on specialized and primary care was reported because the network was mostly public (E10).

From 2016, through excess apportionment resources, the CPS acquired minibuses and vans to transport patients to the polyclinics and CEO, which reduced absenteeism and inequalities of access between the headquarters and other municipalities of the region. Still, logistical arrangements were being designed by municipalities to meet the specificities of rural areas (E5).

One of the main constraints on the success of CPS was related to state funding. Since, on average, the state accounted for approximately 50% of expenditures, adherence was considered advantageous for municipalities, which were under enormous pressure to provide SC in the region. Still, the direct retention of ICMS was a constant point of tension among mayors when they did not make a favorable assessment of service provision at the polyclinic against possible political gains from the municipal supply. The permanence of some municipalities in the CPS was attributed to the performance of SMS with hygienist training, which defended the resolution and scale in the provision of SC (E2). It was estimated that the stability of the CPS would not be threatened, nor consolidated, given the political interference of mayors who held the leadership. The population's satisfaction with the quality and infrastructure of the polyclinic/CEO also

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represented a conditioning factor for project maintenance (Chart 4).

Mayor presidency of the CPS, usually in the municipality of the region, was considered important, despite the so-called "mayorization" process, with interlinkages of local politics, often overlapping the health demands and positioning of the SMS. There would also be some imbalance of power in decision-making since population criteria defined the number of votes for each municipality in consortium assemblies. The regional headquarters, with 74,000 inhabitants, was entitled to 2 votes, and the state 2/5 of the total.

CPS/Polyclinic/CEO "autonomization" processes concerning regional management were identified by the respondents, who questioned the retention of a significant part of the supply for the internal referrals of the polyclinic. At this point, the tension between the institutionality of CPS that challenge the federative design was presented: "Whose employees would they be?" (E2). They would not be from the state, but the region considered one of the respondents (E2). The participation of the consortium services directorates in the CIR was one of the approach strategies, with positive evaluations.

People recognized that the municipalities could not provide specialized services, mainly due to the great difficulty of recruiting and retaining medical professionals, which made the CPS advantageous for the region, because of the growing demand for specialties. The need to incorporate some specialties, whose reference was still the capital or supplementary and independent private sector was emphasized.

Achieving integration between the polyclinic/CEO and primary care was one of the challenges, with some ongoing actions undertaken by the specialized service, such as the "Itinerant Polyclinics", with visits to the municipalities to disseminate the protocols and promote closer ties between professionals. This initiative took place routinely due to the high turnover of professionals in PHC (E10) (Chart 4).

Hospital care and small-sized hospitals: critical node of the regionalized network

The state had three major regional hospitals, and supply was concentrated in the capital (Chart 2). In the health region, the primary reference was a municipal hospital and a nonprofit hospital, both small-sized and low-complexity.

The nonprofit maternity hospital had de-accredited itself due to the low amounts paid by the SUS Chart and, at the time of the research, only provided births. The federal funds for Medium and High Complexity were not sufficient for its maintenance, requiring constant municipal contributions. The flow of the private network was small and insufficient for its maintenance. At the time, elective gynecological surgeries were not being performed, and the provider proposed to receive the amount established by the SUS Chart with up to 100% complementation, assessed as unfeasible by managers. Dependence on the provider and its de-accreditation were mentioned as factors that weakened the health region (E12) and a critical node of the regionalized network (E11).

It is interesting to note that three municipalities in the region had small-sized hospitals (HPP) (Chart 2), which in practice operated as mixed units, with doctors at night and on weekends (when the UBS do not operate) without hospitalization, only with urgent and emergency visits to stabilize patients for referral to a reference hospital. It was mentioned that there was no public policy for HPP and mixed units, and some managers intended to interrupt these services (E3).

Access regulation instruments

The provision of specialized visits/procedures of the polyclinic (except the quota for internal references) was made available to municipal centers for scheduling the procedures, through the state computerized regulation system (UNISUS-WEB). In the municipalities, the search for scheduling was performed by the user holding the PHC referral. Visits were scheduled on the spot, depending on the specialty. When carried out later, the central offices requested assistance from the PHC teams. This was the standard flow for the so-called "unregulated scheduling" to the polyclinic/CEO, with no need to include clinical justification. One of the challenges would be to advance the implementation of integrated electronic medical records and the qualification of regulatory processes from primary care.

For access to health services in Fortaleza (outpatient and hospital), the visit was scheduled in the municipality of origin, and the regulatory process in the macro-regional level that required clinical justification. The lack of clinical information and the profile of the visit scheduling central office professionals (mid-level technicians) hindered care regulation. The polyclinic did not refer to other network services, such as hospitals, which is a limitation recognized by respondents (E2).

User accountability for scheduling was considered inadequate due to risks of document loss, lack of search, or PHC teams' difficult follow-up. The same was true with the exchange of clinical information, and some counter-referral strategy was required since, in case of health problem resolution or follow-up at the polyclinic, the user would not need to return to PHC (E13) (Chart 4).

Evaluations in the four municipalities synchronously stated that the work process and flows for access to the polyclinic/CEO needed to fit local definitions and the role of primary care. Greater autonomy of PHC teams to request specialized procedures was a demand of managers. An exemplary case would be diagnostic tests only requested by polyclinic specialists, although the need was identified in primary care (E2). Still, there was concern about the municipal capacity to assume more regulatory functions in the face of insufficient infrastructure.

The lack of protocols would generate inadequate referrals by primary and specialized care. Professional accountability for more rational use of specialized resources, often taken as a therapeutic intervention, was mentioned as a critical node for more equiChart access (E13).

Regional planning and programming

The four municipalities were in the process of implementing the General Program of Health Actions and Services (PGASS) in 2017. PGASS was promoted by SESA and coordinated by CRES as an instrument to strengthen regionalization.

There was convergence concerning the insufficiency of the Agreed and Integrated Programming (PPI) in force for the planning and allocation of resources. A large pent-up demand for SC was identified, which occurred due to the direct search for services in the private network or even for not performing the agreed and paid procedures (E5). The calculation of production-based resource and the decision regarding the allocation of PPI resources by the municipal manager without the regional perspective (E2, E5) was also criticized.

It was assessed that there was some resistance from municipal managers, but the relevance of planning based on the health needs identified in the territory was recognized. CRES held workshops in the region, with broad participation of managers, technicians, and providers. Noteworthy was the pioneering spirit of SESA by launching an application to facilitate health programming in the testing phase. The instrument would be a guide, but the planning would require the critical eye of the managers on the territory (E11).

Another tension point in the implementation of PGASS was the possible increased supply of services without the addition of new resources, especially for assistance bottlenecks. The conduction of the regional office was classified as pragmatic by reaffirming that there would be no increase in resources, but use of existing ones based on health needs, and that PPI resources allocated to other health services could be streamlined if invested in regional equipment, especially at times of financial crisis.

Discussions on the PGASS became a priority at CIR meetings that was the main venue for regional negotiation. Strongly highlighted by respondents, PGASS differed from PPI by strengthening regionalization from the decisions endorsed in the CIR. SESA/CRES had created strategies to support new management ("Itinerant CRES") to elaborate action plans.

In 2017, the implementation of PGASS was in its initial stage, but already provided parameters to renegotiate some procedures with the polyclinic and minimize the inappropriate allocation of insufficient resources.

Discussion

This study aimed to analyze the policies and management instruments aimed at the regional organization of specialized SUS care in Ceará. The results suggest that the influential role of the state government and its regional levels are the main factors that contribute to the advanced stage of regionalization, also recognized by other studies[4,20,21].

Ceará is a state with tradition in territorial health planning, consolidated management structures, and regional agreement[4]. The CRES have administrative autonomy for the recruitment and financial programming of specialized services[14], as well as the perpetuity and qualification of the technical staff, which strengthens, with the municipal governments, the legitimation of the state in the formal negotiation and decision-making settings at the regional level and some continuity of health policies.

They share the leading role in conducting the health policy, the local health movement, with emphasis on the SMS and technicians/managers who switch between the various municipalities.

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Supported by the technical qualification of the main formative instrument of the SUS in the state, namely, the Public Health School, some "knowledge of Ceará's regionalization"[14] was produced, which originated subjects able to operate and organize regionalization.

The main instrument for structuring the supply of specialized care in the region is the CPS, responsible for the management of polyclinics and CEO. By representing true regional equipment, the architecture for its operation is outlined within the health regions. Thus, the operation of the CPS is only possible in the interweaving of the regional dynamic, whose CIR, with expanded participation, stands out as a decision-making and planning environment for regionalization, albeit not the only one. Although its role in the state of Ceará is ratified by this and other studies[16,17], other spaces/actors also compete for regionalization, especially in the health service delivery component, including consortium assemblies, led by mayors ("mayorization") and the polyclinics/CEO ("autonomization").

In general, it is assessed that the regionalization process is very dependent on CPS and that there has been considerable progress in accessing SC from its services. The assumption of CPS as a state government policy, with assured co-financing (states and municipalities) is one of the factors that condition the success of the experience, reducing the dependence and allowing direct payment to the private provider, as well as minimization of clientelist relationships for the access to SC, blights identified by several studies[24,25].

Consortia are one way of providing specialized services, but they do not ensure network integration[20]. In the case region, the network remained frayed, consisting of units with poorly defined and resolving functions, such as some hub hospitals or mixed units with low-resolution capacity, which weaken the provision of comprehensive care. The retention of doctors challenged the logic of networking in favor of procedural action within the polyclinics[14]. This issue is recognized as an issue with determinations concerning the regulation of medical work in the country. In any case, individually, each municipality would have even more limited recruitment possibilities.

In the case study, there seems to be some dispute or uncertainty in the exercise of longitudinal follow-up. Appreciation of the specialties and pressure from users for continuity of care in the polyclinic was one of the findings, which seems consistent with the positive evaluations and satisfaction regarding this service. However, the effects would be retention of a considerable part of services in the polyclinic, overuse of specialized resources and non-recognition of the role of primary care in identifying the demands of territories. The need to improve care regulation processes is recognized in the region, including the need for shared medical records, strategies for mutual accommodation between professionals, and qualification of referrals.

In short, several elements allowed some advance in the regional organization of SC in the case studied. SESA was the leader and driver of the regionalization process, providing infrastructure and financing through CRES work, with qualified and stable technical staff, mostly from civil servants. The strategy of implementing public CPS/Polyclinic/CEO ensured access to specialized care and established PHC referral as the primary access route. The logistic support of patient transportation system with route elaboration from the different locations was an essential factor to avoid absenteeism and improve efficiency. COSEMS' institutionality and CIR's participatory functioning provided adequate space for regional health governance. The recent implementation of the PGASS opens the field for further investigations, although it shows a precise movement to overcome the exhausted PPI in the state.

Some limitations of this study should be mentioned. This research focused on conducting interviews with managers, with a prominent role in conducting health policies in the region, not allowing to scale the provision of specialized services, nor possible changes in the supply standard from the implementation of the CPS and their health equipment.

However, these limitations do not compromise the contributions brought in this paper. The set of evidence produced can inform other experiences of the SUS that currently follow similar paths for providing specialized care via the CPS, guided by the experience of Ceará[26]. Moreover, in the context of crisis and the implementation of austerity policies that tend to aggravate the historical underfunding of the social area[27], the comprehension of experiences that are successful and synergistic with the principles of public and universal systems favors the construction of strategies to address commodification and ensures comprehensive health care.

Collaborations

PF Almeida, LD Lima, and L Giovanella were responsible for the design, drafting, interpretation of the paper's data. MT Martins-Filho participated in the review and critical analysis of results. PF Almeida and LD Lima performed the final version of the manuscript.

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References

1. Jakubowski E, Saltman RB, editors. *The changing national role in health system governance. A case-based study of 11 European countries and Australia*. Brussels: The European Observatory on Health Systems and Policies/WHO; 2013.
2. Greer SL, Jarman H, Azorsky A. *A reorganisation you can see from space: the architecture of power in the new NHS*. London: Centre for Health and Public Organization; 2014.
3. Marchildon GP. Regionalization: What Have We Learned? *Healthcare Paper* 2016; 16(1):8-15.
4. Lima LD, Viana ALA, Machado CV, Albuquerque MV, Oliveira RG, Iozzi FL, Scatena JHG, Mello GA, Pereira AMM, Coelho APS. Regionalização e acesso à saúde nos estados brasileiros: condicionantes históricos e político-institucionais. *Cien Saude Colet* 2012; 17(11):2881-2892.
5. Santos L. Região de saúde e suas redes de atenção: modelo organizativo-sistêmico do SUS. *Cien Saude Colet* 2017; 22(4):1281-1289.
6. Wagstaff A. *Social Health Insurance vs. Tax-Financed Health Systems – Evidence from the OECD*. New York: The World Bank Development Research Group; 2009.
7. Schneider EC, Sarnak DO, Squires D, Shah A, Doty MM. *Mirror, Mirror 2017: International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care*. New York: The Commonwealth Fund; 2017.
8. Kringos DS, Boerma WG, Hutchinson A, van der Zee J, Groenewegen PP. The breadth of primary care: a systematic literature review of its core dimensions. *BMC Health Serv Res* 2010; 10:65.
9. Fiocruz, Conselho Nacional de Saúde. Atenção primária e sistemas universais de saúde: compromisso indissociável e direito humano fundamental. *Saúde Debate* 2018; 42(n esp. 1):434-451.
10. Repullo-Labrador JR. El Sistema Nacional de Salud en tiempos de crisis: sin primaria no es posible. *AMF* 2012; 8(7):362-363.
11. Peiró S, Artells JS, Meneu R. Identificación y priorización de actuaciones de mejora de la eficiencia en el Sistema Nacional de Salud. *Gac Sanit* 2011; 25(2):95-105.
12. Mello GA, Pereira APCM, Uchimura LYT, Iozzi FL, Demarzo MMP, Vianna ALA. O processo de regionalização do SUS: revisão sistemática. *Cien Saude Colet* 2017; 22(4):1291-1310.
13. Viana ALA, Bousquat A, Melo GA, Negri Filho A, Medina MG. Regionalização e Redes de Saúde. *Cien Saude Colet* 2018; 23(6):1791-1798.
14. Goya N, Andrade LOM, Pontes RJS, Tarja FS. Regionalização da saúde: (in)visibilidade e (i)materialidade da universalidade e integralidade em saúde no trânsito de institucionalidades. *Saúde Soc*. 2016; 25(4):902-919.
15. Goya N, Andrade LOM, Pontes RJS, Tarja FS, Barreto ICHC. Percepção de gestores estaduais da saúde sobre o Contrato Organizativo da gestão Pública no Ceará, Brasil. *Cien Saude Colet* 2017; 22(4):1235-1244.
16. Mascarenhas GC, Shimizu HE. Os desafios do planejamento regional compartilhado à luz do Decreto N° 7508: um estudo de caso Sobral – Ceará. In: Silva RM, Jorge MSB, Silva Junior AG, organizadores. *Planejamento, gestão e avaliação nas práticas de saúde*. Fortaleza: EdUECE; 2016. p. 72-93.
17. Solla J, Chioro A. Atenção ambulatorial especializada. In: Giovanella L, Escorel S, Lobato LVC, Noronha JC, Carvalho JI, organizadores. *Políticas e sistemas de saúde no Brasil*. 2ª ed. Rio de Janeiro: Fiocruz; 2012. p. 547-576.
18. Pinafo E, Carvalho BG, Nunes EFPA. Descentralização da gestão: caminho percorrido, nós críticos e perspectivas. *Cien Saude Colet* 2016; 21(5):1511-1524.
19. Lima LD, Albuquerque MV, Scatena JHG, Melo ECP, Oliveira EXG, Carvalho MS, Pereira AMM, Oliveira RAD, Martinelli NL, Oliveira CF. Arranjos regionais de governança do Sistema Único de Saúde: diversidade de prestadores e desigualdade espacial na provisão de serviços. *Cad Saude Publica* 2019; 35(Supl. 2):e00094618.
20. Shimizu HE, Cruz MS, Bretas Júnior N, Schierholt SR, Ramalho WM, Ramos MC, Mesquita MS, Silva EN. O protagonismo dos Conselhos de Secretários Municipais no processo de governança regional. *Cien Saude Colet* 2017; 22 (4):1131-40.
21. Ouverney AM, Ribeiro JM, Moreira MR. O COAP e a Regionalização do SUS: os diversos padrões de implementação nos estados brasileiros. *Cien Saude Colet* 2017; 22(4):1193-1207.
22. Gomes R. A análise de dados em pesquisa qualitativa. In: MCS Minayo, organizadora. *Pesquisa Social: teoria, método e criatividade*. Petrópolis: Editora Vozes; 2002. p. 67-80.
23. Organización Panamericana de la Salud (OPAS). *La Renovación de la Atención Primaria de Salud en las Américas. Redes Integradas de Servicios de Salud. Conceptos, Opciones de Política y Hoja de Ruta para su Implementación en las Américas*. Washington: OPAS; 2010.
24. Santos AM, Giovanella L. Gestão do cuidado integral: estudo de caso em região de saúde da Bahia, Brasil. *Cad Saude Publica* 2016; 32(3):e00172214.
25. Fausto MCR, Campos SEM, Almeida PF, Medina MG, Giovanella L, Bousquat A, Carneiro A, Jerônimo AS, Aleluia IRS, Borges GA, Mota PHS. Itinerários terapêuticos de pacientes com acidente vascular encefálico: fragmentação do cuidado em uma rede regionalizada de saúde. *Rev. Bras. Saúde Matern. Infant*. 2017; 17(Supl. 1):S73-S82.
26. Bahia. Secretaria da Saúde da Bahia (SESAB). *Policlínicas Regionais de Saúde*. [acessado 2019 Ago 11]. Disponível em: http://www.saude.ba.gov.br/municipios-e-regionalizacao/policlinicasregionais/
27. Castro MC, Massuda A, Almeida G, Menezes-Filho NA, Andrade MV, Noronha KVMS, Rocha R, Macinko J, Hone T, Tasca R, Giovanella L, Malik AM, Werneck H, Fachini LA, Atun R. Brazil's unified health system: the first 30 years and prospects for the future. *Lancet* 2019; S0140-6736(19):31243-31247.

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