

Provision of specialized care in remote rural municipalities in Brazil: challenges for local managers

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Abstract

This case study analyses the challenges to the provision of Specialized Care (SC) in remote rural municipalities (RRM) in Brazil. Interviews were conducted with managers from two Brazilian states (Piauí and Bahia). The distance between municipalities is a limiting factor for access; in addition, the significant care gaps contribute to different organizational arrangements for the provision and access to SC. In all the RRM, periodically, physicians offer SC by direct disbursement to users or sale of procedures to managers, compromising municipal and family budgets. Health regions do not meet the demand for SC, accentuating the need for extensive travel. The managers of RRM have additional challenges for the provision of SC regarding the financing, the implementation of cooperative arrangements, the provision of care articulated in networks with a view to comprehensive care in search of solutions to the locoregional specificities.

Background

In Brazil, the public model of actions and services is based on the Unified Health System (SUS), which is structured by sharing responsibilities among the three spheres of the federation – the Union, states, and municipalities.¹ The SUS is a state policy of universal character that expanded the Brazilian social protection system from the perspective of conforming to a Welfare State.² To this end, it assumes health as a right of all the citizens and attribution of the state,³ which, in turn, should provide comprehensive and articulated services at different levels of care - primary health care, specialized health care, and hospital care.⁴ Different studies attest to the health success of the SUS and its impact on the quality of life of Brazilians.^{5,6,7}

Among the obstacles to ensuring comprehensive care in the SUS, the restricted offer of specialized care (SC) - outpatient medical services, diagnostic and therapeutic support, the difficulty of access in circumstances that allow appropriate use in an adequate time, and often the public dependence on contracts with the private sector stand out.⁸ Access to SC becomes even more critical in small municipalities⁹ and with rural and remote characteristics,¹⁰ in the face of the great distances to urban agglomerations, insufficiency, and adequacy of professionals, as well as the unavailability and/or high costs associated with health transportation.^{11,12} These are common challenges in countries with vast geographical distances and territories with low population density.¹³

SC should preferably be offered in a way that guarantees an adequate scale to ensure the cost-effectiveness and quality of care.¹⁴ In contrast, in the daily life of the rural population, in large and sparsely populated territories, marked by weak infrastructure and historical absence of social policies, the location of services based exclusively on the economic logic often implies a lack of care,¹¹ loss of timely care,¹² and inequities.^{15,16}

The guideline of regionalization in Brazil, through health regions, has been the organizational strategy that seeks to articulate municipalities of the same sanitary territory to share SC, concentrating services (by scale and scope) in the region's host city, with a perspective of combining continuity, integration, and coordination of care,¹⁷ with primary health care (PHC) as the preferred gateway.¹⁸

In the Brazilian semi-arid region, there are socioeconomically vulnerable populations living in remote rural municipalities (RRM), exposed to non-assistance and loss of therapeutic opportunity due to barriers related to the displacement from the place of residence to the health service, geographic, or financial insufficiency.¹¹ These characteristics should be considered by health system managers when organizing the supply of SC - quantity, quality, and location - so that they seek to overcome health inequities and enable care integrality.^{12, 19, 20} This study analyses the challenges to the provision of SC for populations living in RRM in three health regions of the Northeastern semi-arid region.

Methodology

This article is part of a national study on the organization and use of PHC services in Brazilian RRM.²¹ Multiple case studies were conducted in RRM with a qualitative approach through semi-structured interviews. In Brazil, the definitions of rural and urban areas gained a typology in 2017,²² proposed by the Brazilian Institute of Geography and Statistics (IBGE), aligned with Organization for Economic Co-operation and Development (OECD) and European Union methodologies, based on parameters of demographic density, location concerning urban centres, and population size.

This article analyses the results from four RRM located in three different health regions circumscribed to the Brazilian semi-arid region, in the states of Piauí and Bahia. To define the intentional sample of the study, the RRM of the semi-arid region were characterised through a set of socioeconomic, demographic, and health indicators. Subsequently, we adopted the criterion of selecting municipalities that would approach the "average municipality" considering these variables, which led to the election of the municipalities of Rio Grande do Piauí - Piauí state, Morpará, and Ipupiara - Bahia state, besides Pilão Arcado, with outlier characteristics (for having a population above the average in the area).

The study population was composed of 13 interviewees: eight municipal health managers - Municipal Health Secretaries and Basic Health Care Coordinators (MM); three regional managers (RM), and two state managers (SM). The interviews were face-to-face, with an average duration of 2 h 30 min each, conducted in their respective workplaces, audio-recorded, and transcribed in full from May to October 2019.

To produce the results, we proceeded to the thematic content analysis of the material with its respective steps of categorization, description, and interpretation. Subsequently, we started to compare the speeches in the dialectical confrontation of ideas and positions of the subjects, identifying convergences and divergences for critical interpretation. The intention was not the judgment of each municipality, but the understanding of processes in the territories.

The study was approved by the Ethics Committee on Human Research of the Escola Nacional de Saúde Pública of the Fundação Oswaldo Cruz (Opinion No. 2.832.559), with the consent of the municipalities.

Results

The results are organized into two dimensions. Dimension 1 presents the context of health regions: socioeconomic characteristics (Table 1) and the main flows and distances to specialized care (Fig. 1 and Table 2). Subsequently, dimension 2 presents the health care points and care regulation in RRM: from PHC to specialized care. The corresponding empirical data are synthesised with the main findings and their respective speech fragments.

Table 1
Characteristics of Remote Rural Municipalities, Health Regions, Semi-arid, Brazil, 2019

Local	Population ¹ 2020	Area (km ²) ²	Density (inhab./km ²) ²	Population in rural areas ² (%)	Extreme poverty ² (%)	PBF beneficiary population ³ (%)
Bahia State	15.324.591	564.732,80	27,14	27,93	12,71	51,93
<i>Health Region Ibotirama</i>	<i>196.095</i>	<i>28.667,00</i>	<i>7,46</i>	<i>33,39</i>	<i>31,38</i>	<i>78,40</i>
Ipupiara	10.157	1.055,80	9,62	35,60	23,79	76,14
Morpará	8.950	2.093,90	4,27	33,12	29,89	80,11
<i>Health Region Juazeiro</i>	<i>535.846</i>	<i>57.467,30</i>	<i>10,74</i>	<i>26,58</i>	<i>24,84</i>	<i>72,51</i>
Pilão Arcado	35.740	11.626,60	3,07	66,44	40,90	74,87
Piauí State	3.219.953	251.611,30	12,80	34,23	13,27	58,86
<i>Vale Rios Piauí and Itauerais Health Region</i>	<i>201.853</i>	<i>27.833,10</i>	<i>5,39</i>	<i>44,55</i>	<i>29,42</i>	<i>74,81</i>
Rio Grande do Piauí	6.331	636,00	9,95	34,74	31,13	75,78
Brazil	211.755.692	8.516.000	23,8	15,67	6,62	21

Table 2

Distance between Rural Remote Municipalities to the headquarters of health regions/macro-regions and the state capital, Semi-arid, Brazil, 2019

Place of departure		Health region headquarters (distance/time)	Headquarters of the macro-region health region (distance/time)	Capital (distance/time)
Ipupiara (BA)	Rural area ^{UR}	281 km (05h:25)	489 km (08h:12)	739 km (12h:00)
	Headquarters	161 km (02h:25)	369 km (05h:12)	619 km (09h:00)
Morpará (BA)	Rural area ^{UR}	108 km (02h:25)	305 km (05h:05)	745 km (11h:20)
	Headquarters	86 km (01h:25)	283 km (04h:05)	723 km (10h:20)
Pilão Arcado (BA)	Rural area ^{UR}	299 km (04h:48)	299 km (04h:48)	806 km (12h:40)
	Headquarters	281 km (04h:08)	281 km (04h:08)	788 km (12h:00)
Rio Grande do Piauí (PI)	Rural area ^{UR}	163 km (03h:00)	Does not apply to the state of Piauí*.	408 km (06h:20)
	Headquarters	135 km (02h:00)		380 km (05h:20)

Dimension 1 - Context of health regions: socioeconomic characteristics and main flows to specialized care

In Bahia, the health region of Ibotirama is composed of nine municipalities - among them the RRM of Ipupiara and Morpará - and makes up the macroregion of health West, with the municipality of Barreiras as its headquarters, responsible for most of the provision of specialized care services. In Bahia, the health region of Juazeiro is formed by ten municipalities - among them the RRM of Pilão Arcado - and composes the Northern macro-region of health, whose headquarters is the municipality of Juazeiro responsible for most of the provision of specialized care services. This health region borders the states of Pernambuco and Piauí. Finally, the health region of Vale Rios Piauí and Itaueiras, in Piauí, is composed of 28 municipalities - including the RRM of Rio Grande do Piauí - with the municipality of Floriano as the regional headquarters. Still, the largest provider of specialized care is the capital, Teresina.

The socioeconomic and demographic characteristics of the three regions and the respective elected RRM are summarised in Table 1.

In the four RRM, specialized services should be distributed to contemplate the health needs of the territories according to the design of the health regions (Fig. 1) and provided through the Pactuated and Integrated Programming (PIP). Although the provider was commonly private, the most significant supply was public, especially for specialized consultations and exams.

Some patients go to the regional hospital of Ibotirama, others to the municipal hospital of Barra, and others to Salvador. [...] for example, the municipality of Ibotirama hired a urologist and other doctors from other specialties. Therefore, a private clinic was hired to perform; however, the municipality [to pay] has the correct cost. MRI and orthopedics, the municipality of Barreiras also hired a private clinic and, several times, we outsourced this service and used it. So, it goes from public to public and public to private, at zero cost to the population; zero, so we use the transfer (MM3).

However, the insufficient and disorganized supply by the SUS, associated with the long distances, contributed to various arrangements for the provision/acquisition of SC - direct purchase from the private provider by the municipality, supply through agreements between municipalities, and direct disbursement by the user - in order to somehow fill the gaps in care or shorten the waiting times.

[...] to what extent Juazeiro is able to meet all this demand. Sometimes, this demand cannot be met [...]. Say that there is specialized care for all our demands. In the maternal-infant network, we do not have very great fragility in orthopaedics, and cardiology is also very complicated (RM3).

The public service is very outdated and cannot meet what the entire population wants. There has been a lot of private health care, and we understand that we are being well served here. The mayor has significantly focused on [public] health; however, the private sector has stood out. Perceiving that most of the exams, both quantity, and price, are in the private sector in Irecê, then, Ipupiara sends a lot to Irecê, there are even vans that make the line weekly. The fare is expensive; however, it pays off for the population because everyone who goes there likes the private service (MM1).

Although the headquarters of the RRM concentrated the primary health services, a large portion of the population lived in rural areas in dispersed territories, thus requiring frequent travel to access some continuity between different levels of care.

The distances between municipalities are vast, making it very difficult for the population to access health services, especially in terms of medium and high complexity problems. For us to structure this flow here in the region is very challenging. Moreover, within the municipality itself, we have municipalities that some locations are more than 100 km from the headquarters (RM1).

For Morpará and Ipupiara, located in the same health region, the main supply cities via pacts were Barra, Ibotirama, Barreiras, and Salvador. In turn, the municipality of Irecê stood out for the supply of private services that were purchased directly by the municipal manager, without pacts.

For Pilão Arcado, the main cities of supply via pact were Juazeiro and Salvador. The municipality of Remanso also presented itself as the headquarters of the regional SAMU and reference in the reading of

preventive slides for cervicouterine cancer. The municipality borders the state of Piauí and has a sizeable territorial extension. Therefore, for some localities in the rural area, the population moved to municipalities of neighboring states, even for PHC care. Because it is a city on the interstate border, Petrolina, in Pernambuco, was a vital hospital reference, especially for orthopedics.

On the other hand, in Rio Grande do Piauí, the references were concentrated in Floriano and, mainly, Teresina (state capital).

[...] our territory is in a transitional location, where the care gap in the center-south is enormous. The only reference hospital for medium and high complexity is located here in our territory, which is the hospital of Floriano. [...] now, the consultations [with specialists], generally, are in Teresina [...] because there is a specialty that only has two, three professionals for the entire state, so it cannot be enough (GR2).

For the four RRM, the distances between the place of residence of the user and the health care points for SC were the most significant organizational barriers. Although it met the logic of scale and scope, this issue of spatial distribution paradoxically imposed inequities on vulnerable populations and the neediest municipalities.

For example, we spent nine months with a pregnant woman, and she did only one exam, and that was it! Because she had this difficulty of access; a pregnant woman, with nausea; she had all the difficulty in the world to go and do these exams [at the headquarters of the health region]. So, we spent nine months with this pregnant woman without a blood count because the mother could not afford to pay [the fare] (GM6).

Thus, the populations in rural areas of the RRM needed to travel to the municipal headquarters and then go to the municipalities that provided specialized services. In this sense, the precarious road conditions, usually unpaved in rural areas, reinforced the geographical barriers to healthcare facilities.

Dimension 2 - Health care points and care regulation in RRM: from PHC to specialized care

For cases of urgency and emergency, there was an emergency care facility at the municipal headquarters of the RRM that served for the evaluation and stabilisation of the clinical condition and subsequent referral to referral services. Such care units operated continuously, with the support of a team composed of doctors, nurses on duty, and auxiliary staff. In the case of doctors, several times, they were the same ones who worked in the PHC units, i.e., they accumulated the functions of PHC general practitioner and the on-call physician as a way to increase the income and, consequently, this strategy also worked as a mechanism to attract professionals. However, there was a reduction in the workload in PHC units, which were deprived of doctors on duty shifts.

Some specialized public procedures were occasionally offered in the municipalities themselves in a very segmented way. Morpará provided consultation with a psychiatrist and ultrasonography (in a PHC unit), laboratory tests, and electrocardiogram (in the emergency service). Informal agreements with doctors who had more than one specialty were made such that, even if they were contracted for only one type of

specialty, they could also support other needs (for example, a psychiatrist who treated cardiology in Ipupiara).

In Ipupiara, some specialties (psychiatry, orthopaedics, ultrasonography, and radiography) were offered in the municipality through direct purchase from private doctors/clinics to make up for the shortage via PIP. In addition, the gap in the SUS table (value paid to the provider versus quantity contracted/agreed) compromised the supply expectation. It generated the need for purchase by the municipal treasury (inequity for poorer municipalities and more vulnerable populations). Thus, Ipupiara complemented (according to the health secretary's criteria) the SC for users (socioeconomic and clinical criteria) who urgently needed it through direct payment to the private provider. The manager also negotiated discounts with private clinics and referred the patient who would make the direct disbursement.

I think that is a great challenge for the manager. He [health secretary] was a social assistance secretary and knows each person's profile and tries, in a way, to filter and prioritize those who are low-income. Both economic and clinical filtering, if a person can wait, he goes for a normal appointment; however, the low-income person, who cannot afford it, tries to help by financing the specialist; that is how it works (MM2).

Pilão Arcado offered some specialized services in the municipal hospital and complemented, equally, in the local private network (radiography, ultrasonography, and electrocardiography). Moreover, Rio Grande do Piauí offered a collection of laboratory tests in the territory. However, the laboratories were in Floriano (hired through PIP) and offered cardiology and ultrasonography with their own resources.

Thus, in the vacuum of SUS, specialist doctors went to the RRM and offered consultations, procedures, and exams for direct payment of the users or sold them to the municipal public entity. Such private offers were intermittent and residual in the set of needs of the population, mainly due to the socioeconomic conditions of the vast majority of the inhabitants and budget limits of the RRM. However, the direct purchase by the municipal manager seemed, contrastingly, to stimulate the private network.

[...] the municipalities structure EY services by hiring professionals. Then, the professional goes there and provides the service. Subsequently, the municipalities do not get paid for it because they do not have a service that SUS can accredit, which is very much in the municipal counterpart (RM1).

[...]to have a consultation and return with the exams, it would take six months. Then, some patients go to SUS for the first consultation; when the doctor asks for the exams, they go to the clinic, pay, and then return to show the [SUS] doctor (RM3).

In small municipalities, [specialized care] is much more private, the larger municipalities can have an adequate structure, they can resort to some accreditation, but the management is public and, in the cases of small municipalities, there is still this issue of company contracts, or contracting with private companies or professionals (SM1).

Another contradiction, as a result of the long trips to the provider, was that, in some cases, it was more advantageous for users to acquire the procedure/consultation by direct disbursement when offered by

the private initiative in their city residence or the closest municipality. Not coincidentally, the RRM, when possible, offered procedures in their own territory or bought from neighbouring providers (outside the pact) because it was less expensive than having health transportation and, in some cases, accommodation. This organizational logic contributed to the strengthening of the private provider and split the network modelling.

As the population is impoverished, then, SUS schedules and the closest one is Floriano. Therefore, it is challenging for the population to access because it depends on paying for a van to go and come back. So, it is not even worth paying for a blood count, summary [of urine], because you have to pay 50 reais, at least, of passage. Then, I went to Floriano, talked to some laboratories, and formed this partnership; we do the collection here to facilitate access. The secretariat takes this material there and brings the results (RM7).

The lack of vacancies for SC was a reality in all three health regions. It affected all the municipalities indiscriminately; however, they seemed to be more harmful to the RRM since they concentrated more significant difficulties of geographical access and more vulnerable populations.

As, many times, SC and long-term care offers are located in the respective state capitals, all the RRM offered a support house for patients' stay. The users received the Out-of-Home Treatment (OHT) benefit; however, the total value of the federal transfer of the program to the municipality did not meet the need; additionally, the managers supplemented most of it with their own money.

There is a support house in Salvador; several municipalities have an agreement with that house. They have one in Barreiras; some already have one, those municipalities further away have a support house (RM1).

Every municipality has an OHT car, which they send for treatment outside the municipality. They both come here (headquarters of the health region) for haemodialysis and other treatments in Salvador (RM2).

In all municipalities, the appointment scheduling centres centralized in the health secretariats mediated access to the SC. Information about the appointment scheduling period was often provided informally to the population. The community health agent (CHA) played an essential role in providing information on appointment scheduling and the results of specialized tests, especially in rural areas.

The patient goes through primary care, gets a referral for that specialty, then goes to the secretariat, where he is scheduled in the regulation system; and then is referred (MM8).

When the user could get an appointment in the SC, the clinical information was brought by the patient himself since there was no integrated information system. One of the few exceptions was the high-risk prenatal care in Ipupiara, with flow and counterflow between the municipality and the hospital in Barreiras.

Some systems work as a reference, such as high-risk prenatal care. In this case, we can have a bigger link, a greater strength in the network [...] has a flow and essential information, both outbound and return (MM2).

There was unreliability in the counter-referral system, and the main informants about the health condition and history of consultations were the patients. The CHAs shared this information with the PHC team (hospital discharge, the performance of procedure, therapeutic plan, etc.).

Because some individuals have no way to come [to schedule], the health agent brings the copy of the document; when we make the appointment, we contact them, and usually, when it is a place where the individual does not have a telephone, the health agent takes it and tells the patient (MM7).

Despite the enormous difficulties in access to SC and provision of health transport in none of the RRM, there was the systematic use of telemedicine and the units were partially computerized. Additionally, there were unreliable communication services by telephone and internet availability, especially in the rural areas, i.e., contrary to the needs of remote territories.

[...] access to Telehealth is very little, although the Telehealth staff comes here [in the health region], and has been in some municipalities, training with professionals. However, we still feel that there is still not much access [...] internet [in health units] is also a difficulty (RM2).

[...] we have implemented [telehealth]; however, it does not work [...] for consulting we do not have, only for training, for capacity building (RM3).

Discussion

In the three health regions studied, the frayed regional logic of the SUS and the impasses of the care gaps compromise the integrality of health care for the population of the RRM, unfolding in inequities, since these are the poorest municipalities with the most vulnerable population. The managerial, financial, and technical rationality imposes the concentration of health equipment for SC in cities that are reference points for a set of other municipalities,^{14,23} although inter-municipal cooperation is motivated primarily by the economies of scale and cost efficiency.^{24,25}

The RRM lacks the rationality (scale and scope) required to assume regionalized networks of health services. As a result, the population, even when covered by specialized public services, commonly purchase the health service (consultation, examination, or procedure) by direct disbursement, given the barriers of geographical access to public services (long distances and shortage of health transportation) and greater availability of private providers nearby. Given this reality, the managers seek to offer specialized public care in their own territory through direct purchase with professionals and/or private clinics in a segmented and unilateral way, to the detriment of regional planning between municipalities. However, these are tiny and poor municipalities, which means that spending health care directly with private providers with the own revenues of the municipal treasury reduces the negotiating power of public

managers and exposes them to the deregulated market game - in price, quantity, and quality of the product offered - signaling fiscal inequities.^{26, 27}

The historical absence of the social policies in rural territories.^{15, 28, 29} has made them hostages to all sorts of exploitation as clients³⁰ and selective programs aimed at appeasing specific problems without, however, reversing persistent inequalities.²⁹ To some extent, the health services reflect these discrepancies and, therefore, the RRM accumulate different needs that, in synergy, increase the health demands. Nevertheless, the monopoly of services and medical specialties,³¹ the autonomy of the physician,³² and the asymmetry in the diagnostic conduct³³ make the population and, often, the managers, hostages of biomedical rationality,³⁴ not always committed to the production of health care.³⁵

In the RRM, there are difficulties in attracting and retaining professionals,³⁶ contributing to the lack of care at the first level of the network and the accumulation of acute diseases to PHC.³⁷ On the other side, the specialized services (scarce and concentrated) are pressured by a demand far beyond what is routinely expected, as it emerges from a population that has its diseases diagnosed late, aggravated by the lack of timely care, and faced with very unfavourable socioeconomic issues, and simultaneously affected by a triple burden of disease.³⁸ Therefore, this is a population that, through intersectionalities,³⁹ requires comprehensive and continuous public policies to reverse social inequities in health.⁴⁰ In addition, all the problems identified are worse for populations residing in rural areas of the RRM, i.e., there is a need for specific health policies that reach vulnerable population groups within territories that are already at a socio-spatial disadvantage concerning the surroundings.

In contrast, the modelling of health regions has maintained unassisted care and encouraged the private market for selling consultations and isolated procedures precisely in impoverished territories.⁴¹ This paradoxical effect of regionalization⁴² reflects the federative mechanism of the country since the municipal manager has the autonomy to define the place of service execution. However, the financial limit and the availability of providers²⁵ impose organizational restrictions. In addition, in the logic of sharing services among municipalities, the more rural and remote the territory is, the more it will require, in addition to the health procedure, to provide health transportation, support homes, and other logistical actions to enable the displacement and/or permanence of the user during the period required for treatment away from home.⁴³

Thus, health problems are not overcome through the existence of specialized services, nor exclusively through access to them. This is because the lack of network integration, aggravated by segmentation in supply,⁴⁴ imposes the absence of a communication relationship between PHC and SC professionals.⁴⁵ Such precarious communication, in RRM, begins in the scheduling of appointments centred in the municipal health secretariats and in the total lack of knowledge by PHC professionals of the size and clinical profile of users on the waiting list vacancies in the SC. All these issues compromise quality health care.^{20, 46}

The flow of clinical information between professionals (counter-referral) is the responsibility of each user/family, resulting in information amnesia that implies recurrent clinical rework (aggravated by the turnover of PHC physicians), overlapping of therapeutic behaviours, and the loss of contact for continuity of care.⁴⁷ Another significant aspect is that some users with serious diseases end up "losing" contact and trust in the first level of care professionals and link to other care, resulting in the detriment of continuity and care coordination via PHC.⁴⁸ Not coincidentally, in the vacuum of information technologies in RRM, CHAs play the role of strategic informant and keep the PHC team informed, even if not systematically, of the users' flows to the SC, relying, once again, on the memories of patients and family members.

Last but not the least is the underutilization of telehealth strategies, a strategic resource in remote areas. In countries like Australia, telehealth is even used for specialized consultations, accessed directly by the user.¹³ The development of telemedicine strategies in remote areas can be a device to facilitate access to SC and prevent avoidable hospitalizations^{13,49} and should be the subject of investment in the country.

As limits of the study, we highlight that the constellation of interviewed subjects can be expanded according to the desired focus and capture perspectives that respond to the different aspects that help understand the challenges in the organization and provision of the SC. The option for qualitative research is not enough to unveil all the obstacles to the assumption of a resolution-based regionalized network, requiring other approaches to expand the scope of data and thus enable the triangulation of methods.

Concluding Remarks

In the RRM, the integration of services with the regional network is quite fragile. Most of the time, they are only the financier, leaving the provider and regulator functions in the hands of the municipalities of reference. In this area, the incipency or absence of communication tools between the levels of care compromises the attribute of coordination and, in this sense, favours the inadequacy of diagnoses and treatments with severe consequences to patient safety.

Finally, historically unassisted municipalities (small, rural, and remote) remain in a vicious circle between poverty that generates illnesses, including preventable ones, and technical-economic insufficiency of the supply of services to treat and prevent them, enduring or generating new illnesses, as well as the worsening of existing problems. From this perspective, globally universal health systems require sophisticated strategies to ensure comprehensive care that cannot be restricted to the supply of services since a range of socio-sanitary specificities implies access barriers.

Abbreviations

CHA - community health agent

MM - Municipal Health Secretaries and Basic Health Care Coordinators

OECD - Organization for Economic Co-operation and Development

OHT - Out-of-Home Treatment

PHC - primary health care

PIP - Pactuated and Integrated Programming

RM - regional managers

RRM – remote rural municipalities

SC - Specializade Care

SM - state managers

SUS - Unified Health System

Declarations

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the Escola Nacional de Saúde Pública of the Fundação Oswaldo Cruz (No. 2.832.559). All participants received verbal and written information about the aim and the content of the study. Written informed consent was obtained and data were treated with confidentiality. All procedures were performed in accordance with relevant guidelines.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

The datasets analysed during the current study are not publicly available for reasons of ethical nature pre-established with the respondents guaranteeing confidentiality, we cannot make available the data obtained during the research, however in case of doubt we can make available the instrument used for data collection through the main author's email fabielygomes@gmail.com.

COMPETING INTERESTS

The authors declare that they have no competing interests to disclose.

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AUTHORS' CONTRIBUTIONS

FN and AS wrote the main manuscript text. LC prepared figure 1 and tables 1 e 2. PA review the methodology and writing. AC and MF review the writing. All authors read and approved the final manuscript.

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Figures

Figure 1

Assistance flows between municipalities and health regions, Semiarid, Brazil, 2019

Source: Based on data from the PHC in MRR research in Brazil, Ensp/Fiocruz

