Outpatient regulation in Primary Care in the municipality of Rio de Janeiro, Brazil, based on the local regulatory doctors

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Abstract *The scope of the article was to characterize the process of regulation of care in Primary Health Care units in the city of Rio de Janeiro, with an emphasis on the outpatient dimension. A cross-sectional study was carried out in 2019, by means of a survey, with the participation of 114 local regulatory physicians. With respect to the profile of local regulators, there is a high percentage with training in Family and Community Medicine and the length of service of these professionals in the units is relatively satisfactory. For 52.6%, the infrastructure for regulation is adequate, but connectivity frequently presents problems. In the regulation system, the mechanisms and schedules for making vacancies available and accessing them elicit competition between the regulators of the units, with work overload and associated access inequities. There was major involvement of local regulators in activities of evaluation and management of waiting times. The majority reported that there was little or no interaction with specialized care. Although the decentralized regulation process still has some shortcomings, the study points to the feasibility and contribution of more intense participation of Primary Care in the regulation of access.*

Key words *Comprehensive Health Care, Health Care Regulation, Primary Health Care*

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Introduction

The management of waiting times and queues is a common problem for health systems in several countries, both public and predominantly private[1-4], and it is necessary to broaden the discussion beyond the monitoring of waiting lines and/or the expansion of supply, also covering the structuring of networks and ensuring timely, equitable, and transparent access[5].

Within the Unified Health System (UHS), where access times to specialized care are also a challenge, several studies have highlighted important issues regarding the regulation of access, such as the management of care offers by different regulation centers; scarcity and/or inequalities in the offer of specialized services (exams, specialties); fragile interface between Primary Health Care (PHC) and specialized care; resoluteness and capacity of PHC care; tension between managers and providers over the control of health care resources, among others[4-8].

Among the dimensions of UHS' National Regulation Policy[9], the regulation of access to care, also known as care regulation, has the objectives of organizing, controlling, managing, and prioritizing access and care flows. Established by the regulatory complex and its operational units, this normative definition covers medical regulation exercising health authority to guarantee access, based on protocols, risk classification, and other prioritization criteria. Besides, it is organized in specific areas such as outpatient, urgencies and emergencies, and hospital bed regulation[9].

Based on its strategic character in the care networks, Primary Health Care has been called upon to play a greater role in the regulatory processes of access to other services, in order to make feasible its function of care coordination[10,11]. This fundamental attribute of PHC is configured as a necessary condition to achieve a comprehensive and continuous care, as well as to meet the population's needs, especially those that require integration between different points of care in the health system[12,13]. The National Primary Care Policy (NPCP)[14] stresses the importance of articulating and implementing processes that strengthen local regulation practices and that provide communication between units, regulation centers, and specialized services.

The municipality of Rio de Janeiro, with an estimated population of 6,718,903 inhabitants[15], is geographically divided by the Municipal Health Secretariat (MHS) into 10 programmatic areas (PA) to improve health service management[16].

The distribution of the population in the neighborhoods that make up the PAs is not homogeneous, with several centers of high population density[7].

In the last decade, the municipality underwent a great expansion of coverage and qualitative investment in PHC in a movement of change called by some of its players "reform of care in primary health care"[17]. As of 2012, it adopted a decentralized model of outpatient regulation, so that the regulation of access to exams and specialized consultations was also performed by physicians from PHC units, based on vacancies made available by the regulatory center. As a predominant, but not absolute, scenario, these professionals also integrate the Family Health Care teams (besides acting as local regulators), evaluate requests made by colleagues in the unit, and can authorize and schedule them, return them, or even refuse them, through a computerized regulation system[7,18].

During the research period, the municipality had 52.9% of estimated population coverage by Primary Care teams, of which 46.2% were Family Health teams. It also had 75 teams of the Extended Core of Family Health and Primary Care (ECFH-PC)[19].

The profile of the state and municipal hospital network in the city is predominantly general, while in the federal and university network the high complexity services stand out. Specialized outpatient care is provided by hospitals, polyclinics, and specialized centers, and for outpatient care it is necessary to be referred by a Primary Care physician, through a system operated by the municipal central office (focus of the study, for concentrating most of the PHC requests) and another under state coordination. There is an Internal Regulation Nucleus (IRN) in the structure of the programmatic areas, responsible for mediation between the municipal central office and the PHC units.

Considering the assumptions of regulation and Primary Care in national policies, it is noted that the implementation of care regulation in Brazil is heterogeneous, including in metropolitan regions[20], with varying degrees of participation of PHC in the regulatory process. However, centralization of regulatory decisions in regulatory centers is still predominant[21] and, among the records found in Brazil, the experience of the municipality of Rio de Janeiro stands out for the marked entry of Primary Care in care regulation.

In this context, considering the singularities of this experience in the national scenario as

well as the importance of regulation for PHC, the present study aimed to characterize the regulation process conducted in the municipality's Primary Care units based on its local operators.

Methods

This is a cross-sectional study, conducted by means of a survey, using an electronic questionnaire (Google Forms) initially sent by email to 485 physicians with a local regulation function in 260 Primary Health Care units in the municipality of Rio de Janeiro – local regulators, technical officers (TO) and Family and Community Medicine (FCM) Residency tutors – between the months of August and October 2019.

After multiple strategies to increase the number of respondents, such as resending the invitation by e-mail and messaging application (WhatsApp), contacting heads of Program Areas (PA) and the central level of the Municipal Health Secretariat of Rio de Janeiro (SMS-RJ) to encourage completion, 125 returns were obtained and 114 were selected. The response rate was 25.7%.

The electronic questionnaire (consisting of 38 questions – 31 closed and 7 open) was designed based on the study objectives, addressing variables related to the following categories: (1) profile of local PHC regulators; (2) characteristics of the unit and the Programmatic Area (PA) of operation; (3) technical preparation and structure for regulation; (4) local activities and practices in the regulation process; (5) interactions of the local regulator with other professionals of the unit and the Network; and (6) evaluation about the decentralized regulation model.

The questionnaire was previously answered by two professionals with expertise in access regulation and PHC, as a way to verify clarity and consistency of the questions, completion time, and return of the answers to the database.

The quantitative data generated by the closed questions, in the format of simple frequencies, were systematized in the SPSS program, organized into the categories presented in Tables 1 and 2, and submitted to descriptive analysis. The variables in the tables correspond to the questions and alternatives in the questionnaire. The data from the open questions were initially categorized and grouped, and then sorted by frequency of appearance, and the three most frequent answer categories for each question are shown in Chart 1.

This research was approved by the Research Ethics Committees (CEP) of the institution of the research coordinator and of the aforementioned municipality, through the consubstantiated opinions number 3.263.136 and 3.358.407. All the participants were directed to the questionnaire after reading the Informed Consent Form (ICF) online and agreeing to participate in the research, and the answers were given anonymously.

Results

As can be seen in Table 1, which presents the profile of the local primary health care regulators in the municipality, most of the respondents have a residency and/or title in Family and Community Medicine. Most of them have been graduated for more than 4 years.

Regarding the type of unit, 62.3% of professionals reported that they work as regulators in Family Clinics (type of PHC unit in the city organized only with Family Health teams). About their function in local regulation, the respondents presented themselves in two groups with approximate frequencies (local regulator or physician with access profile of regulator to SISREG and Technical Officer).

As shown in Table 2, which presents the main results referring to the local process of outpatient regulation in Primary Health Care in Rio de Janeiro, the study had participants from all programmatic areas of the municipality, in heterogeneous numbers. Most professionals worked in units with between 4 and 7 Family Health teams and more than 3,001 registered users per team.

Within programmatic areas, radiography, mammography, and ultrasonography exams had the highest frequencies of responses among the easiest to perform. MRI, colonoscopy, and Doppler were among the most difficult. Dermatology, otorhinolaryngology, and pulmonology were cited as easiest to schedule in the programmatic areas, while ophthalmology, nephrology, and general surgery were considered the most difficult.

Guidance by colleagues and the completion of courses and training were the most indicated strategies for technical preparation for the exercise of regulation. Regarding the structure, 52.6% of professionals responded that the IT infrastructure for regulation is adequate, but connectivity often presents problems of instability and/or slowness.

About the clinical capacity and quality of requests from the unit's physicians, a little more than

Table 1. Profile of participating local primary health care regulator physicians. Rio de Janeiro-RJ, 2019.

Variables	n	%
Gender		
Female	70	61.4
Male	44	38.6
Age		
26-30 years of age	21	18.4
31-35 years of age	30	26.3
36-40 years of age	22	19.3
Over 40 years of age	41	36.0
Education		
FCM Residency	58	50.9
FCM Title	29	25.4
Specialization in Family Health	16	14.0
Collective Health Specialization or Residency	5	4.4
Master's Degree	19	16.7
PhD	4	3.5
Others	23	20.2
Time since Graduation		
Less than 1 year	1	0.9
Between 1-3 years	7	6.1
Between 4-8 years	42	36.8
Between 9-12 years	14	12.3
More than 12 years	50	43.9
Type of Health Unit where you function as a regulator		
Family Clinic	71	62.3
MHC with Family Health (mixed)	33	28.9
Worked until 2019 in the unit, but is no longer working in any Basic or Primary Care Unit in the municipality	7	6.1
Others (Polyclinics, SHC etc.)	3	2.6
Time working as a regulator in the Unit		
Less than 6 months ago	12	10.5
Between 6 months and 1 year	10	8.8
Between 1-2 years	27	23.7
Between 3-4 years	26	22.8
Between 5-6 years	17	14.9
7 years or more	22	19.3
Role in local regulation		
Local regulator or physician with regulator access profile to SISREG	58	50.9
Technical Officer (TO)	56	49.1

MHC - Municipal Health Center; SHC - School Health Center; FCM - Family and Community Medicine; SISREG - Regulation System.

Source: Authors, from the questionnaires, 2019.

half reported that most physicians have good clinical training and that most requests are relevant.

Regarding local activities and practices in the regulatory process, SISREG stood out as one of the most used tools, indicated by more than 90% of respondents. About the workload for regulation activities, a little more than 70% of the physicians reported dedicating between 1 and 8 hours a week. For 20.1%, this dedication increases to more than 8 hours. In addition, 70.2% responded that they perform regulation activities both on and off the job.

Table 2. Summary of the main results regarding the local process of outpatient regulation in Primary Health Care. Rio de Janeiro-RJ, 2019.

Categories	Variables	%
Characteristics of the unit and the programmatic area of operation	Location according to unit PHC	
	PHC 1.0	12.3
	PHC 2.1	12.3
	PHC 2.2	4.4
	PHC3.1	21.9
	PHC 3.2	6.1
	PHC 3.3	11.4
	PHC 4.0	7.9
	PHC 5.1	2.6
	PHC 5.2	10.5
	PHC 5.3	10.5
	Number of family health teams per unit	
	Between 1-3 teams	21.9
	Between 4-7 teams	60.5
	Average number of registered users per team	
	Between 3001-4000 users/team	45.6
	More than 4000 users/team	40.4
	Easiest exams to perform in PHC (shorter waiting time)	
	Radiography	63.2
	Mammography	42.1
	Ultrasonography	28.9
	Most difficult exams to perform in PHC (longer waiting time)	
	MRI	27.2
	Colonoscopy	27.2
	Doppler	26.3
	Easiest specialties to perform in PHC (shorter waiting time)	
	Dermatology	78.9
	Otolaryngology	39.5
	Pneumology	17.5
	Most difficult specialties to perform in PHC (longer waiting time)	
	Ophthalmology	31.6
	Nephrology	29.8
	General Surgery	24.6
Technical preparation and structure for regulation	Preparation for regulation (MR)	
	Peer-Driven	55.3
	Through courses and training on regulation	37.7
	IT and connectivity at the unit	
	The infrastructure for regulation is adequate, but connectivity presents problems of instability and/or slowness frequently	52.6
	SISREG features and speed	
	Features are adequate, but speed is unsatisfactory	62.3
	Clinical capacity and quality of requests from the unit's physicians	
	Most physicians have good clinical training, and most requests are relevant	52.6
	It is very heterogeneous, depends very much on the physician and the type of examination/specialized consultation requested	36.0

Table 2. Summary of the main results regarding the local process of outpatient regulation in Primary Health Care. Rio de Janeiro-RJ, 2019.

Categories	Variables	%
Local activities and practices in the regulation process	Tools used in regulation (MR)	
	SISREG	95.6
	Electronic Health Record	74.6
	Regulation Protocol	72.8
	Hours per week dedicated to local regulation	
	Between 1-3 hours	31.6
	Between 4-8 hours	41.2
	More than 8 horas	20.1
	Place where regulation activities take place	
	At work and outside of work	70.2
	Only when at work	29.8
	Type of actions performed in local regulation (MR)	
	Requesting exams and consultations	97.4
	Analyzing requests	88.6
	Request for clarification or complementation (return or outstanding issues)	88.6
	Parameters applied to user scheduling	
	Considers both the waiting time and the location of the performing unit	67.5
	Considers mainly the distance to the performing unit	21.1
	Seeks to schedule the consultation, procedure or exam considering mainly the waiting time	8.8
	Distance from the places to which users are referred	
	The place of scheduling varies a lot, according to the specialty or exam, so it is not possible to say what happens in general	67.5
	Risk rating evaluation of the unit's requests	
	They are very heterogeneous, varying according to the person requesting them and the unit's team	47.4
	They are almost always inserted with risk classification appropriate to the diagnostic hypothesis and the severity of the clinical condition of the described user	40.4
Interactions of the local regulator with other professionals of the unit and the Network	Type of interaction between colleagues in the same unit (MR)	
	In person on a daily basis	92.1
	By messaging application - WhatsApp	79.8
	Interaction with regulators from other units (MR)	
	By messaging application - WhatsApp	82.5
	In person at meetings	41.2
	Interaction with other services in the network, beyond PHC	
	There is little direct interaction with specialized services	63.2
	No direct interaction with specialized services	35.1
	Most frequent forms of direct interaction with specialists from other services	
	By telephone	50.0
	By e-mail	45.9
	ECFH's participation in local regulation	
	Participates	25.5
	Does not participate	48.2
	There is no ECFH in the unit	26.3
	Sector/level most sought after in case of problems/doubts beyond local governability	
	IRC or RT of PAC	86.8
	Other RT colleagues	10.5

(MR) - The question allowed to mark one or more alternatives as an answer; PA - Programmatic Area; SISREG - Regulation System; ECFH - Extended Core of Family Health; IRC - Internal Regulation Center; PAC - Programmatic Area Coordination; TO - Technical Officer.

Source: Authors, from the responses to the questionnaire, 2019.

Chart 1. Evaluation of local regulators of Primary Health Care about the decentralized model of regulation. Rio de Janeiro-RJ, 2019.

Category	Variables	Main Assessments by Regulators
Assessment of the decentralized regulation model	Main gains, benefits, or facilities of local regulation in PHC	**Regulation done closer to the patients (n=42)** - Better understanding of the main needs of the territory and the patients **Local interaction and possibility of discussion among colleagues about regulation (n=42)** - Better management of requests, queues, and vacancies - Improvements in the quality of referrals/solicitations and turning these moments into opportunities for case discussions **Speed of regulation (n=41)** - From the analysis of the requests to the scheduling of appointments: in some cases, the scheduling is immediate during the consultation, besides the regulation that can be made at any time
	Main difficulties, problems, or challenges of local regulation in PHC	**Low offer/high waiting time (n=58)** - Low supply of some specialties (with oversupply in some specialties and low supply for basic specialties such as general surgery) **Imbalance between the time to regulate and the regulator time (n=41)** - Time for vacancies to become available is "enemy" of time to regulate - Overload due to the accumulation of attributions **Lack of information and other problems with referral flow (n=18)** - Untimely availability of the profiles and inclusion criteria of each service, which are only visualized after the requests - Criticism to the functionalities of the regulation system - Connectivity problems and slowness of the regulation system
	Strategies or measures that could qualify the regulation	**Qualification of the professionals (n=45)** - Conducting capacity building/training at the levels of clinical skills, use of the regulation system, and regulation of certain queues - Qualification of requests, including risk classification **Improvements in the availability and clarity of information regarding regulation (n=39)** - Criteria for inclusion in services - Anticipation and updating of preparation information - Availability of qualified, practical, and direct guides and protocols **Increasing supply (n=20)** - Increasing the number of vacancies - Increasing the number of providers

Source: Authors, from the responses to the questionnaire, 2019.

Among the actions performed in local regulation, the following stood out: exam and consultation requests, analysis of requests and requests for clarification or complementation – returns or pending issues. Approximately 70% consider both the waiting time and the location of the executing unit (specialized service where exams or specialized consultations are performed) as parameters in the scheduling of users. For 67.5%, the scheduling location (where users are referred) varies greatly according to the specialty or exam, and it is not possible to say what happens in general.

Regarding the interactions of the regulator with other professionals in the unit and the Network, most responded that the main forms of

interaction between colleagues in the same unit are in person on a daily basis and by messaging application (WhatsApp). The latter was also frequent in the interaction with regulators from other units.

In contrast, when it comes to other services in the network beyond PHC, 63.2% said there is little interaction with specialized care. For 35.1%, there is no such interaction.

Most emphasized that the NIR or the RT of the Programmatic Area Coordination (PAC) are the sectors most sought in case of problems and/or doubts beyond the local governability.

Finally, Chart 1 shows the categories of most frequent answers for each question related to the assessment of local PHC regulators about the decentralized model of regulation.

Regarding the main gains, benefits, or facilities of local regulation in Primary Care, the professional regulators highlighted: the possibility of regulation being made closer to the patients/users and, consequently, with a better understanding of the main needs of the territory and the users; the faster regulation, where in some cases the scheduling is immediate during the appointment (probably when the requester is also a regulator); and the local interaction and the opportunities for discussion among regulation colleagues, with reflexes in the better management of requests, queues and vacancies, and in the quality of referrals/applications.

Among the difficulties, problems, or challenges that were evaluated, the following were observed: the low offer of some specialties and the long waiting time; the imbalance between the time to regulate and the regulator's time – characterizing the time for vacancies to become available as the regulator's "enemy" –; and the lack of information or inadequacy related to the flows and referral modes.

Finally, concerning the strategies or measures that could qualify the regulation process, the regulators indicated: the qualification of professionals, through capacitation and training; improvements in the availability and clarity of information relative to the assistance offers in SISREG; and the increase in the offer of vacancies and providers.

Discussion

As a key point for the strengthening of any health care model, the training of physicians to work in a comprehensive way in Primary Care stands out as one of the challenges, and in the context of the municipality of Rio de Janeiro, the high percentage of professionals trained in Family and Community Medicine among the respondents is striking, suggesting a scenario different from the national reality[22].

Regarding the recommended number of users per Family Health team, which is now between 2,000 and 3,500 people, without the previous NPCP's average recommendation of 3,000 people/team, the high percentage of teams in the municipality with more than 4,000 registered users stands out, suggesting important reflections on access and the work process[23].

A good IT infrastructure of the units is one of the main requirements for the use of decentralized computerized systems of regulation[24]. Data from the 3rd cycle of the National Program for Improvement of Access and Quality of Basic Care (NPIAQ-BC), conducted in 2017, indicated that 100% of Basic Health Units (BHUs) in the municipality of Rio de Janeiro had at least one computer in usable condition in every unit, higher than the country's rate (89.3%)[25].

Furthermore, according to the NPIAQ-BC, all the BHUs in the municipality also had access to the Internet, with 97.37% with a continuously working connection. The national scenario showed 74.03% and 85.67%, respectively[25].

The results of this study, however, indicate that although the IT infrastructure is considered adequate for the performance of regulatory activities, for more than half of the responding medical regulators, connectivity frequently presents problems related to the instability and/or slowness of the regulatory system itself.

In the questionnaire, mammography was among the easiest exams to perform in the programmatic area, supporting the NPIAQ-BC results, where 98.31% of the teams in Rio de Janeiro reported that the exam is offered in the municipality and has satisfactory access, higher than the country's percentage of 53.74%[25].

Among the most difficult specialties to access in the programmatic area, ophthalmology and general surgery were among the three most frequent answers in the questionnaire. In line with this result, the findings of Pinto *et al.*[7] also pointed to the reduction of waiting times for these specialties as one of the biggest challenges for the MHS of Rio de Janeiro. It is worth pointing out the distinction between queuing and waiting time, where the request itself corresponds to the inclusion of the user in the queue for potential scheduling, and the waiting time, on the other

hand, considers the flow between the dates of request, of authorization, and of execution of the consultation and/or specialized examination[26].

Due to the difficulty in scheduling elective surgeries, a challenge many countries with public and universal health care systems have also encountered[1], it is necessary to consider elements related to the (re)dimensioning and management of the supply, characterized as important issues in the regulatory process[10].

Similar to the panorama of most Brazilian capitals, most specialties are offered in the municipality itself. Since 1993, Rio de Janeiro has adopted a subdivision in programmatic areas[16], however, the referral of users to places where specialized services are installed often goes beyond the limits of programmatic area[7].

As pointed out by Rocha[18], Peiter et al.[27], SIS-REG is the main tool of outpatient care regulation in the city. Although its implementation is identified as an advance in regulation in Rio de Janeiro, Pinto et al.[7] mention difficulty in territorial parameterization between the units that offer vacancies and the place of residence of the population, with possible implications for the geographic accessibility of users. According to the results of the questionnaire, where most of the respondents pointed out that the place of scheduling varies a lot, according to the specialty or exam, it highlights the problem regarding the little organization of outpatient services on a regional basis[21,28,29].

In the Belo Horizonte experience, Dias[28] highlights the regional organization of specialized care, characterized by the regionalized Medical Specialty Centers, which reduces the travel burden for patients and makes communication and integration with Primary Care easier. In the case of the Regional Dental Specialty Centers in the state of Ceará, Silva Junior[30] points out reflections on possible gaps related to the paradoxes of regionalization, highlighting challenges related to the distribution of vacancies, assurance of health transportation, and regulation from the PHC. Besides the regional character, Canonici[29] reinforces the integration with other levels of care as an important element for the organization of specialized units/services, so that the construction of mechanisms and strategies to ensure comprehensive care reinforces the commitment to the attributes that sustain the role of PHC in its longitudinally and care coordination functions.

Several authors reinforce the association of the concept of regulation with the principle of equity[8,27,31]. This principle is based on the notion of social justice and, specifically in the case of health, access is a key point of observation, either as an enforcement or as a barrier. Although access and equity in health may refer more to socially conditioned health needs, the ways in which services are organized can influence their access and use. Considering central ideas such as transparent, timely and equitable access, the regulatory process is an important strategy to reconcile the relationship between need, demand, and supply[10]. Coupled with a well-structured PHC, as the main entrance door, it seeks to manage and qualify the process of prioritizing the access to care services, in order to ensure the effectiveness of equity in the health system, materialized for example in the access time according to the user's need, and not only or necessarily according to the order of arrival (or request)[27].

According to Peiter et al.[27], understanding this close relationship between the regulation of access to health care and the principle of equity tends to motivate the development of activities by regulatory professionals with a view to achieving this principle. Moreover, it is important to develop the knowledge and skills necessary for the implementation of equity through health regulation, which includes acting according to the demands, defining access protocols, classifying clinical criteria, and the correct handling of SISREG.

As a counterpoint to this, according to this study, the imbalance between the regulator's time and the regulation's time was pointed out as one of the main problems triggered by the regulation model adopted by Rio de Janeiro. The times at which vacancies are made available, associated with the lack of parameterized quotas (per unit or per region) foster a logic of competition among the regulators of the different units, with obvious consequences in the overload of these professionals, which can be seen, for example, by the number of hours that they dedicate to regulation, even outside their workday. In addition, the way vacancies are made available contributes to inequalities in access between users in different units.

However, another important result of the questionnaire points to the several types of actions performed in local regulation. The involvement of PHC regulators in evaluation and queue management activities can strengthen microregulating practices in Basic Health Units[14] and Primary Care itself as the care coordinator.

In an international context, the analysis of the Chilean experience shows the need for greater

advances in the role of Primary Care, where networks seem to orbit around large and powerful hospitals, and from these, in turn, is where the main initiatives of integration and coordination of care emerge[4]. In the Spanish health system, the reduction of waiting times is still susceptible to improvement and signals the importance of complementary measures to increase the problem-solving capacity of PHC and the coordination of the system within the management and local practices[5].

For Starfield[32], the attribute of care coordination by Primary Care is essential and its challenges can be subdivided: 1) in the health facility itself, when users are seen by several team members and information about the patient is generated in different places (including laboratories and clinics); 2) with other specialists called in to provide advice or short-term interventions; and 3) with other specialists who treat a specific patient for a long period of time, due to the presence of a specific disorder. Therefore, the microregulating practices identified in the study, although insufficient, can contribute to strengthening the capacity of care coordination, especially if they are supported by actions capable of interfering in the priorities and times of user access to specialized care and in their interactions with it.

Silva[21], in turn, indicates that the outpatient regulation models present variations in Brazil, and can be decentralized, partially decentralized, and centralized, considering the different degrees of PHC input in regulation. In Belo Horizonte, besides the decentralized regulators in the districts of the municipality, the coordinators of the regionalized centers also perform the regulatory function, responsible for distributing quotas per unit and for monitoring the waiting lines[21,28]. Among the experiences that also count on decentralized regulators, Guarulhos features regulators in the health regional offices, and highlights network integration strategies, such as meetings between professionals from different levels[28,33]. In Recife, we emphasize the existence of district regulation centers and the focus on matrix support of professionals from polyclinics to PHC[28,31]. The degree of decentralization of the Rio de Janeiro experience in PHC regulation, as can be seen, seems to be more pronounced, despite the intermediate and supportive arrangements that are more evident in these other experiences.

Communication technologies (mainly represented by messaging applications) stood out at the local and network levels in the municipality, the latter mostly among regulators from different PHC units and the Internal Regulation Center of the Programmatic Area Coordination. However, contrary to the NPIAQ-BC data, where 89.38% of the municipal teams reported the existence of an institutionalized communication flow with specialized care[25], the present study showed very little interaction between PHC and specialized care professionals. Mendes and Almeida[34] highlight WhatsApp as a communication mechanism widely known by primary and specialized care physicians, but they draw attention to its use only among known professionals, signaling that close relationships are necessary for collaboration[35].

Regarding the use of communication and information technologies by regulators, not only the strength of their presence is highlighted, but also the informal character of the use of messaging applications, operating in a complementary way to the formal communication systems between the regulation players. It is also worth noting that, despite the existence of national guidelines and strategies of the Ministry of Health for integration between Telehealth and regulation in PHC[36] and the existence of Telehealth in the municipality of Rio de Janeiro, such communication applications, probably due to their agility and because they are already used by these players for other purposes, seem to contribute to the constitution of informal networks operated by various players, with repercussions that should be further explored in other studies and interventions, including considering the need for creative confrontation of the difficulties of integration between services as well as the risks of eventual excesses of informality.

Rocha[18] indicates, as one of the obstacles to the regulation of outpatient care in Rio de Janeiro, the low investment in the approximation of Primary Care with specialized care, triggering a scenario of Network fragmentation and less coordination of care, added to the elements already mentioned regarding the organization of specialized services.

In a context marked by challenges and concerns regarding the integration of the care network, especially between primary and specialized care[37], the study by Almeida *et al.*[38] highlights the creation and strengthening of regulatory structures within the Municipal Health Secretariats and Family Health Units with decentralization of functions to the local level, organization of flows, electronic medical records, and expansion of the offer of specialized municipal services as important strategies for integration between levels of care observed in four large urban centers.

For Santos[39], these strategies also favor the coordination role of Primary Health Care. Considering such indications, it can be seen in this study that the strong decentralization of outpatient regulation was not associated, at the same level, with devices for (re)structuring and networking, especially regarding the interfaces between specialized care and PHC.

Conclusion

This study, despite the limits of the response rate and its heterogeneity among the regions of the municipality, points out the feasibility and contribution of the decentralized model of regulation with more intense input from Primary Care. In Rio de Janeiro, this happens from the several regulatory activities performed by PHC professionals, such as queue management and communication within and between basic units, favoring a regulation with greater proximity and knowledge of the users' needs, which can foster a partial expansion of the PHC capacity to coordinate care.

However, this local process of decentralized regulation still presents important limitations such as the dimensioning and management of the supply of some exams and specialties, fragile organization of specialized care on a regional basis, competition for vacancies between units associated with inequalities in access and work overload, as well as low integration between PHC and specialized care. Such elements indicate the need for priority and intensive investment by the management regarding modifications in the scope of professional practices, in the organization of services, and in the architecture of municipal regulation.

Collaborations

CL Silva Junior assisted in data analysis, writing, review, and approval of the manuscript. KPL Guabiraba assisted in data analysis, writing and approval of the manuscript. GG Gomes assisted in data analysis, drafting and approval of the manuscript. CLT Andrade assisted in the conception, data analysis, review, and approval of the manuscript. EA Melo assisted in the conception, data analysis, writing, review, and approval of the manuscript.

Acknowledgments

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ERRATUM

p. 2492,

where it reads:

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