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Original article

Riverside and River Family Health Teams in regulatory acts of the Ministry of Health – Brazil

Equipes de Saúde da Família Ribeirinha e Fluvial nos atos normativos do Ministério da Saúde – Brasil

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ABSTRACT

The aim was to identify the central topics of the regulatory acts referring to Riverine Family Health and Riverine Family Health teams and Riverine Basic Health Units. This is a documentary study carried out in three stages: 1) search of regulatory acts of the Brazilian Ministry of Health and the National Council of Municipal Health Departments; 2) thematic categorical analysis; 3) interpretation/reflection. A total of 108 ordinances were accessed, and most of them were directed at Riverine Basic Health Units. The number of ordinances increased over the period. The analysis is divided into two categories: "From invisibility to visibility of riverine populations"; and "Proposals for Riverine Family Health and Riverine Family Health teams and Riverine Basic Health Units". The regulatory content addressed team composition, work arrangements, and financing, and aimed to accredit and qualify municipalities to receive financial incentives, change team types, establish criteria for registration in information systems, and suspend financial incentives. The conclusion is that the 2011 Brazilian National Primary Care Policy constituted a timeframe for visibility and the possibility of guaranteeing access to the right to health for riverside populations. The discontinuity of financial transfers proves to be an obstacle that must be overcome.

KEYWORDS: Primary Health Care. Family Health Strategy. Interdisciplinary Health Team. Universal Access to Healthcare services. Health of Specific Groups.

RESUMO

Objetivou-se identificar os temas centrais dos atos normativos referentes às equipes de Saúde da Família Ribeirinha e de Saúde da Família Fluvial e das Unidades Básicas de Saúde Fluviais. Trata-se de estudo documental realizado em três etapas: 1) busca dos atos normativos do Ministério da Saúde e Conselho Nacional de Secretários Municipais de Saúde; 2) análise categorial temática; 3) interpretação/reflexão. Foram acessadas 108 portarias, e a maioria dos atos foi dirigida às Unidades Básicas de Saúde Fluviais. Houve uma evolução ascendente do número de portarias ao longo do período. A análise é dividida em duas categorias: "Da invisibilidade à visibilidade das populações ribeirinhas"; e "Proposições para as equipes de Saúde da Família Ribeirinha e de Saúde da Família Fluvial e Unidades Básicas de Saúde Fluviais". Os conteúdos normativos versaram sobre composição das equipes, regime de trabalho e financiamento, e tiveram como finalidade o credenciamento e habilitação dos municípios para recebimento de incentivos financeiros, alteração do tipo de equipe, estabelecimento de critérios para registro nos sistemas de informação, e suspensão de incentivo financeiro. Conclui-se que a Política Nacional de Atenção Básica de 2011 se constituiu em um marco temporal para visibilidade e possibilidade de garantia do acesso ao direito à saúde das populações ribeirinhas. A descontinuidade de transferência financeira demonstra ser um obstáculo a ser superado.

PALAVRAS-CHAVE: Atenção Primária à Saúde. Estratégia Saúde da Família. Equipe Interdisciplinar de Saúde. Acesso Universal aos Serviços de Saúde. Saúde de Grupos Específicos.

INTRODUCTION

Primary Health Care (PHC) is the foundation of healthcare systems worldwide and faces multiple challenges in meeting the specific needs of different regions and countries[1]. In Brazil, significant investments have been made, but inequalities still need to be overcome, as recognized in a report called "*Relatório 30 anos de SUS, que SUS para 2030?*", which points out that policies, strategies, and initiatives are still needed for at-risk populations, such as Indigenous peoples, *quilombolas*, and riverside communities[2].

Numerous policies have been established to serve these populations, taking as a reference the Brazilian legal framework, which is composed of legal acts distributed among: constitutional norms; infraconstitutional norms, which cannot provide for anything beyond what is dictated by the constitutional text (laws, decrees, treaties, among others); and infralegal norms, which arise from public administration internal regulation and seek to enforce the law, detailing its application in terms that can be materialized in practice. This last group includes ordinances, resolutions, and regulatory and operational instructions[3].

Social, economic, and geographic inequalities negatively impact universal access to healthcare[4]. Since the 1990s, PHC has been the most notable facet of universal access to healthcare services for a large portion of the Brazilian population[5]. With the establishment and increase in the number of Family Health Strategy (FHS) teams, including Riverside Family Health teams (RFHts) and River Family Health teams (RiFHts), there was subsequent territorial expansion and population access to healthcare services and, as expected, an improvement in general health indicators, recognized nationally and internationally[6,7]. According to data from the Ministry of Health (MoH), as of September 2023, in the Legal Amazon, there were 52 active Riverside Basic Health Units (RBHUs) and 69 RFHts, with the largest number in the states of Amazonas and Pará[8].

RFHt was first established by specific ordinance in 2010, being revoked by the ordinance establishing the 2011 Brazilian National Primary Care Policy (In Portuguese, *Política Nacional de Atenção Básica* - PNAB) (2011 PNAB)[9]. RiFHt and RBHUs were also initially established through specific ordinances[10-13]. The revised PNAB of 201714 included in its provisions the two new team modalities as well as RBHUs.

RFHts, RiFHts, and RBHUs are, respectively, organizational arrangements and primary healthcare facilities established within the Brazilian Healthcare system (In Portuguese, *Sistema Único de Saúde* - SUS) in the last decade and aimed at assisting the riverside population of the Legal Amazon (Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, Roraima, Tocantins, and part of Maranhão) and the Pantanal of Mato Grosso do Sul. RFHts and RiFHts perform their

functions in health facilities located in communities accessible by rivers, requiring small boats or RBHUs. RBHUs, boats that contain the physical structure of a conventional Basic Health Unit (BHU), equipped with the ambiance, furniture, and equipment necessary to assist the riverside population, must operate at least 20 days per month, with at least one RiFHt. In other words, in an RBHU, more than one RiFHt and a River Oral Health team can operate[14].

These organizational arrangements, added to those already existing in PHC in Brazil, despite being late in relation to the legal framework of "health is a right of all and a duty of the State" (Federal Constitution of 1988 and Law 8,080 of September 19, 1990)[15,16], aspired to guarantee this right, materialized in the practical unfolding of SUS doctrinal principles: universality (access to healthcare services at all levels of care); comprehensiveness (articulated and continuous set of actions, and preventive and curative services, individual and collective, required for each case at all levels of complexity of the system); and equity (without prejudice or privileges of any kind)[15,16].

Upon acknowledging the importance of health policies to assist the riverside population, the following question arose: what are the decisions formulated in the MoH's regulatory acts directed at PHC or specifically at RFHts, RiFHts, and RBHUs for the provision of healthcare to the riverside population? Thus, the objective was to identify the central topics of regulatory acts related to RFHts, RiFHts, and RBHUs.

METHOD

This is a documentary study, in which the MoH's formulations, enacted in regulatory acts, were characterized as documents, to provide riverside populations with the right to access healthcare. The study was organized in three stages: (1) search for regulatory acts; (2) analysis (organization of content); (3) interpretation and reflection (results).

The search strategy for regulatory acts took place in December 2023 on official MoH portals, such as *Sistema de Legislação da Saúde* (https://saudelegis.saude.gov.br/saudelegis/secure/norma/listPublic.xhtml), and the Brazilian National Council of Municipal Departments, as the "*Legislação Diária*" interface (https://portal.conasems.org.br/legislacao-diaria). In both portals, available search resources were used (filling out the form and using filters). The following isolated and aggregated keywords were used: "Riverside Family Health Team", "Riverside Family Health Team", and "Riverside Basic Health Units". Inclusion criteria were outlined according to the type of regulatory act, being laws, decrees, ordinances, or resolutions; the legislation's purpose and specificity, when it expressly addressed RFHts, RiFHts, and RBHUs; and the year of publication, including the oldest regulatory act of interest, from the first ordinance specific to RFHt (August 2010), to the most

recent (December 2023). The search process was conducted by two authors, initially independently and later jointly. At this stage, the obtained samples were mutually checked, eliminating duplicates and, ultimately, creating the data *corpus*.

The material was organized in a structured Microsoft Excel spreadsheet, based on a script composed of the following items: year of publication; object (RFHt, RiFHt or RBHU); type of document (law, decree, ordinance or resolution); document title and number; synthesis; main provisions; central topic.

For analysis, the categorical thematic analysis technique was used[17]. In the pre-analysis phase, the materials were named (coded), ordered chronologically, and organized according to team type (RFHt, RiFHt) or RBHU. Subsequently, the materials were subjected to a skim reading (direct and intense contact with the material). In the material exploration phase, the regulatory acts were classified into the pre- and post-2017 PNAB periods based on their historicity and analysis, with an emphasis on the most recent and current acts. This process allowed the construction of thematic categories, which are described as results and reflections on the topic.

RESULTS

According to the search criteria, all the material obtained was of the ordinance type. For the pre-2017 PNAB period, ten ordinances were retrieved, and for the post-2017 PNAB period, including this one, 108 ordinances were accessed (Table 1). As expected, there was a general upward trend in the number of ordinances over the period, with particular emphasis on the years 2015 and 2022, in which no specific regulatory acts or acts including RFHts, RiFHts, and RBHUs were published. It is also noteworthy that the largest number of acts was directed at RBHU.

Table 1 – Distribution of the number of specific regulatory acts (ordinances) or those that also provide for Riverside Family Health teams, River Family Health teams and Basic Riverside Health Units, 2010-2023

(Continues)

YEAR	RBHU	RiFHt	RFHt	TOTAL
2010	-	-	1	1
2011	1	-	1	2
2012	1	-	-	1
2013	1	1	-	2
2014	1	-	2	3
2015	-	-	-	-
2016	-	-	1	1

(Conclusion)

YEAR	RBHU	RiFHt	RFHt	TOTAL
2017	6	3	6	15
2018	20	2	4	26
2019	13	4	5	22
2020	7	1	7	15
2021	13	-	8	21
2022	-	-	-	-
2023	5	1	3	9
TOTAL	**68**	**12**	**38**	**118**

Legend: RBHU - Basic River Health Unit; RiFHt - River Family Health Team; RFHt - Riverside Family Health team.

Source: prepared by the authors

From the set of information, two analytical categories were created: From invisibility to visibility of riverside populations in Primary Health Care's regulatory acts; and Regulatory proposals for Riverside Family Health and River Family Health teams and Riverside Basic Health Units based on the 2017 Brazilian National Primary Care Policy. These categories took as reference the specific declaration of care for riverside populations established in PNAB[14].

From invisibility to visibility of riverside populations in Primary Health Care's regulatory acts

In relation to riverside populations, the first regulatory acts originated from the MoH for financing care for this specific population starting in 2010, when differentiated criteria were established for RFHt implementation, financing, and maintenance. The following year, with the publication of the 2011 PNAB, RFHts and RiFHts were referred to as "primary care teams for specific populations", but the financial incentive amounts and the rules for team composition, operation, and monitoring would be regulated through specific acts at a later date[9].

Considering the specific acts, regarding the definitions and differentiations of these two types of teams, it was established that RFHts perform most of their functions in Basic Health Units (BHUs) located in communities, whose team access is by river; RiFHts, in turn, perform their work activities in communities with the same characteristics, but the team's movement and care take place in RBHUs[9].

Standards were also established regarding team composition, team members' workload, work schedule, operating conditions, and requirements for outlining work plans, among other aspects. For RBHUs, parameters were defined regarding the minimum physical structure of vessels and equipment required for monthly funding requests. Regarding this last point, it is worth noting that, due to initiatives already underway or implemented by local managers, three funding

modalities were established: monthly incentives for RFHts; expansion of the minimum staffing of RFHts and RiFHts; and implementation of new RFHts and RiFHts[9].

Subsequent regulatory acts revised the funding amounts for RFHts and RiFHts, establishing criteria for qualifying RBHUs. Until 2013, there was no funding from the MoH for the construction of RBHUs, which was instituted earlier that year[10,14]. This expenditure was linked to the *Requalifica UBS* program, a program that aimed to improve the physical structure of BHUs through the construction of new BHUs, expansions, or renovations[11]. This is why, starting in 2013, the number of municipalities in the Legal Amazon and Pantanal that submitted projects to the MoH for the construction of RBHUs increased.

Still in line with the historicity of systematic coverage of riverside populations with RFHts and RiFHts, other regulatory acts provided for adaptations of already standardized components[12,13]. With these formulations and adaptations, RFHts, RiFHts and RBHUs were incorporated into the 2017 PNAB[14]. RBHU became one of the three types of PHC units (BHU, RBHU, and Mobile Dental Unit). Due to the long distance between communities and the reference BHU, RFHts and RiFHts were able to incorporate support units, where professionals provide care to the population during visits. Chart 1 presents, chronologically, the regulatory acts that regulated RFHts, RiFHts, and RBHUs prior to the publication of the 2017 PNAB.

Chart 1 – Regulatory acts of the Ministry of Health prior to the 2017 National Primary Care Policy, in which there are explicit decisions or recommendations directed to Riverside Family Health teams, River Family Health teams, and Riverside Basic Health Units

(Continues)

ORDINANCE	SYLLABUS
Ordinance 2,91/2010	Establishes differentiated criteria for FHS implementation, financing, and maintenance for riverside populations in the Legal Amazon and Mato Grosso do Sul.
Ordinance 2,488/2011	Approves PNAB, establishing a review of guidelines and standards for the organization of Primary Care, FHS, and PACS, including the definition, composition, and operations of RFHts, RiFHts, and RBHUs, and ensuring the need for specific regulations.
Ordinance 2,490/2011	Sets funding amounts for RFHts and the cost of RBHUs, through the review of guidelines and standards for Primary Care organization, established by PNAB.
Ordinance 1,591/2012	Establishes criteria for qualifying RBHUs to receive the monthly funding incentive referred to in Article 4 of Ordinance 2,490/MO/MoH of October 21, 2011.
Ordinance 290/2013	Institutes the “RBHU construction” component within the *Requalifica UBS* program.

(Conclusion)

ORDINANCE	SYLLABUS
Ordinances 3,204/2013 and 2,301/2014	Accredits municipalities to receive the incentives related to RFHts.
Ordinance 837/2014	Redefines the organizational structure of RFHts and RiFHts in municipalities in the Legal Amazon and the Pantanal of Mato Grosso do Sul.
Ordinance 1,229/2014	Sets monthly financial incentive amounts for the funding of RiFHts and RBHUs.
Ordinance 2,533/2016	Suspends transfer of financial incentives related to municipalities with irregularities in registration of professionals with CNES.

Legend: FHT – Family Health Strategy; CNES – *Cadastro Nacional de Estabelecimentos de Saúde* (Brazilian National Registry of Health Establishments); RFHt – Riverside Family Health Team; RiFHt – Riverside Family Health Team; RBHU – Riverside Basic Health Unit; PACS – *Programa de Agentes Comunitários de Saúde* (Community Health Workers Program); PNAB – *Política Nacional de Atenção Básica* (Brazilian National Primary Care Policy).

Source: prepared by the authors.

Regulatory proposals for Riverside Family Health and River Family Health teams and Riverside Basic Health Units based on the 2017 Brazilian National Primary Care Policy

The regulatory acts analyzed for the post-2017 PNAB period were interpreted in terms of content (guidelines) and purpose. In relation to content, three thematic components were identified: team composition; work regime; and financing.

The minimum staff of RFHt consists of a physician, a nurse, and a nursing assistant or technician. The manager may choose to include other professionals, such as a dentist, an oral health technician or assistant, and, depending on territory size, up to 24 community health workers (CHWs), up to 12 disease control workers (DCWs), up to 11 nursing assistants or technicians, plus an oral health assistant or technician, and up to two higher-level healthcare professionals.

It should be noted that, in addition to CHWs, the nursing assistants or technicians on the team must reside in their respective areas of operation. The minimum staffing level for RiFHt differs from that of RFHt only in that it includes at least one laboratory technician or biochemist. For RiFHt, the manager is also allowed to include CHWs and DCWs, both without a specified maximum, a dentist, a dental technician or assistant, and up to two higher-level healthcare professionals.

Concerning work schedule, there are no specific rules for either team. RFHts are expected to provide at least 14 days of service to the population per month, with a workload equivalent to eight hours per day. A team travel schedule is recommended to ensure service to all communities within the assigned territory at least once every 60 days. For CHWs and nursing assistants or technicians (included at the manager's discretion and based on the territory's needs), workload

is 40 hours per week. Since there are no details on the work schedule for RiFHts, it is understood that the same rules apply to workload.

Specific funding for healthcare in riverside communities, through RFHts and RiFHts, is provided in the form of a cost incentive for logistics, which assumes the existence of up to four teams, up to four active support units, and up to four small vessels exclusively for transportation of healthcare professionals. Both structures (support units and vessels) must be active and properly reported in the Brazilian National Registry of Health Establishments (In Portuguese, *Cadastro Nacional de Estabelecimentos de Saúde* - CNES). For funding for RBHU, it is assumed that they exist, have an active registry, and have updated information in CNES.

From the perspective of purpose, the following thematic classes were found: accreditation of municipalities to receive financial incentives; qualification of states and municipalities to build RBHU; change in the type of team; establishment of rules for registration with CNES; adaptation of these arrangements to established rules; financial incentive and incorporation of additional, including proposal for expansion or renovation of RBHU; and suspension of financial incentive.

Most of regulatory acts address the suspension of financial incentive transfers to municipalities with irregularities in their professional registration or failure to update data in the Health Information System for Primary Care. Two other frequent, plausible, and expected topics concern the accreditation and qualification of states and municipalities to receive incentives and additional financial support necessary for the operation of RFHts, RiFHts, and RBHUs. Chart 2 (on the next page) 8omponent a thematic synthesis of statements of regulatory acts published since the 2017 PNAB, aggregated by the main 8omponente of the purpose, showing the number (n) of ordinances related to the topic, in general and by year of publication.

With the exception of 2022, from 2017 onwards there was accreditation of municipalities in all years, with a greater concentration in 2018 and 2023. Acts related to the suspension of financial incentives occurred more frequently in 2018, 2019 and 2021. In these three years, 43 of the 56 ordinances related to this topic were published.

Chart 2 – Main purpose and number (n) of related ordinances, year and number of ordinances by topic, and synthesis of the respective headings of the regulatory acts referring to Riverside Family Health teams, River Family Health teams, and Riverside Basic Health Units published from September 2017 to December 2023

(Continues)

PURPOSE OF REGULATORY ACTS (n)*	YEAR OR PUBLICATION (n)*	SYNTHESIS OF CONTENT
Accreditation of states and municipalities (25)	2017 (2); 2018 (6); 2019 (3); 2020 (4); 2021 (4); 2023 (6)	Accredits municipalities eligible for the transfer of federal financial incentives for RBHU funding and incorporation of additional components.
Qualification of states and municipalities for the construction of RBHU (11)	2017 (4); 2018 (5); 2021 (2)	Allows states and municipalities in the Legal Amazon and the Pantanal region of Mato Grosso do Sul to receive funding for the construction of RBHUs under the *Requalifica UBS* program.
Change of FHS team to RFHts and RiFHts (5)	2017 (2); 2020 (1); 2023(2)	Changes FHS type to RFHt, in accordance with the rules established by Ordinance 837/MO/MoH of May 9, 2014, and the rules established by Section III of Annex XXII of Consolidation Ordinance 2/MO/MoH of September 28, 2017, converting the codes for INE approved as FHS by SAPS/MoH Ordinance 49 of December 27, 2019, to include RFHts.
Rules for registration with CNES (2)	2017 (1); 2019 (1)	Defines and approves codes related to INE for accredited and registered PHC teams or services with CNES for the transfer of federal funding incentives, monitoring, and assessment, including RiFHts and RFHts.
Adaptation of RFHt to established rules (5)	2019 (2); 2020 (3)	Adjust RFHts to the rules established by Section III of Chapter II of FHS teams in Annex XXII of Consolidation Ordinance 2, dated September 28, 2017; incorporate RFHts and components of support units and professionals added to the team, in accordance with Annex XXII of Consolidation Ordinance 2/MO/MoH, dated September 28, 2017, which redefines the organizational structure of RFHts and RiFHts in municipalities in the Legal Amazon and the Pantanal of Mato Grosso do Sul.
Financial incentive (5)*	2017 (1); 2018 (1); 2019 (1); 2020(1)	Defines the values of the monthly financial incentive to cover the costs of RFHts, RiFHts, and RBHUs; amends Consolidation Ordinance 6/MO/MoH of September 28, 2017, to provide for a monthly financial incentive to cover the costs of RFHts and RBHUs; incorporates additional support units and additional healthcare professionals into RFHts; establishes a financial incentive for the additional cost of a small vessel for transportation of healthcare professionals to serve communities and support units for decentralized care of RBHU, in accordance with the organizational arrangement established by Section III of Chapter II of FHS teams of Annex XXII of Consolidation Ordinance 2/MO/MoH of September 28, 2017, adding professionals to the minimum team composition.

(Conclusion)

PURPOSE OF REGULATORY ACTS (n)*	YEAR OR PUBLICATION (n)*	SYNTHESIS OF CONTENT
Proposal to expand or renovate RBHU (1)	2019 (1)	Proposes the transfer of financial resources for the expansion, construction, and renovation of RBHU.
Suspension of financial incentives (56)	2017 (5); 2018 (14); 2019 (14); 2020 (6); 2021 (15); 2023 (1)	Suspends the transfer of financial incentives related to RFHts, RiFHts, and RBHUs in municipalities with irregularities in their CNES professional registration and/or with a lack of data entry into the Health Information System for Primary Care, or with duplicate registrations of professionals in CNES. Furthermore, it nullifies the accreditation of municipalities to receive monthly incentives for RBHU funding, implemented by a revoked legal act (Ordinance MO/MoH 287 of February 28, 2013).

Legend: FHS – Family Health Strategy; CNES – CNES – *Cadastro Nacional de Estabelecimentos de Saúde* (Brazilian National Registry of Health Establishments); RFHt – Riverside Family Health Team; RiFHt – River Family Health Team; RBHU – Riverside Basic Health Unit; PHC – Primary Health Care; MO – Minister's Office; MoH – Ministry of Health; INE – *Identificações Nacionais de Equipe* (National Team Identifications); SAPS – *Secretaria de Atenção Primária à Saúde* (Department of Primary Health Care); *Number of ordinances accessed and included in the analysis by thematic component and by year.

Source: prepared by the authors.

DISCUSSION

Health, as a fundamental right of all Brazilians, must be guaranteed by the State[15,16] through public health policies, due to their purposes and specificities, but also through public policies in various areas of the social order (economy, social assistance, science and technology, to name a few). In addition to assistance for diseases or conditions, carried out by the health sector, all public actions must converge to promote individual and collective health, to reduce the risks of preventable diseases and their complications.

Universal access to healthcare services alone does not meet all the demands of this fundamental right. Therefore, the availability of Health Care Network points in all territories is essential for care provision and disease treatment, specific prevention measures, and health protection and promotion. This requires an integrated supply compatible with demand, across all territories, whose resources and service provision include citizens without distinction[16].

Universal access to healthcare services at all levels of care, in addition to being one of the organizational and doctrinal principles of SUS, brings with it a strong ethical anchor[4]. Among the main obstacles to achieving universality in SUS, the socioeconomic and health inequalities that exist in the country have the greatest weight, aggravated by the limited governance of health authorities in less favored municipalities and regions, which applies to the North region[18].

Based on previous studies[19-22], the increase in PHC coverage is evident, with the inclusion

of riverside families. However, weaknesses and challenges remain to be faced, such as the discontinuity of funding, the impact of the political situation at certain moments in history, as seems to have occurred in 2015 and 2022, professional qualification to assist riverside populations, among other aspects.

A study conducted in the Amazon region analyzed the performance of RFHts and RiFHts through services offered by eight municipalities in Amazonas (coverage of primary care actions, individual and collective actions of health teams). The results showed that the implementation of RFHts and RiFHts promoted the inclusion of populations from low-density areas and remote urban centers, confirming the relevance of the teams, RBHUs, and small vessels.

Another study, involving health workers working in RBHUs and riverside residents in the municipalities of Manaus and Novo Airão, both in the state of Amazonas, showed that RiFHts and RBHUs represent progress in terms of accessibility to PHC, with the potential to conduct less biomedical and more interactive work in the region. Their effectiveness proved to be more appropriate for actions such as low-risk prenatal care, which require regular appointments. However, for conditions requiring continued care, care delivery was compromised, indicating the need to adapt the organization of care established within the territories covered by RBHU. Underutilization of the CHW workforce and a mismatch between their tasks and those of other members of the multidisciplinary team were also observed. With these conclusions, the authors warned of the risk of replicating, without due critical thought, the routines adopted in services located in urban areas[20].

Based on the issues addressed in regulatory acts regarding the composition of RFHts and RiFHts, there is no new information regarding the minimum staffing level for FHS teams (physician, nurse, and nursing technician/assistant), but the manager is free to include other professionals, including the oral health team and CHW. The mandatory inclusion of a laboratory technician or biochemist in RiFHt minimum staffing level is an exception. While the “freedom” granted to the local manager to dictate the composition of RFHts and RiFHts is plausible due to territorial peculiarities, it is also open to criticism. Depending on the level of commitment of local managers to dispersed populations’ health, the composition of expanded teams may be neglected, even though it is essential to increase the capacity to solve problems generated by pent-up demands, as well as to carry out actions to prevent diseases or worsening of clinical (individual) and/or epidemiological (community/collective) conditions in the territory under the team’s health responsibility[14].

In general, CHWs are part of RFHts, as demonstrated by the number of ordinances that provided funding for the inclusion or expansion of this professional in this type of team. In relation to RiFHts, the inclusion of CHWs should be considered, considering the implementation of other types of teams in territories assisted by RiFHts, which may already have CHW coverage from

RFHts or the CHW strategy. In these settings, RiFHt provides services with strong participation from CHWs in their respective areas. It is also important to emphasize that the CHW role is essential in PHC in all territories. In remote rural and riverside areas, home visits constitute CHWs' main activity, representing the most important form of contact between healthcare services and users and, often, the only accessible health resource[23]. It has been demonstrated that longer experience as a CHW results in robust knowledge and a strong connection to the territory. These workers also possess the skills to (re)construct intersectoral practices associated with the social, micropolitical, and cultural determinants of the health-disease process[24].

RFHt and RiFHt professionals' working hours are expressed in terms of "work regime", unlike the description for professionals who make up FHS. The revised 2017 PNAB establishes a mandatory 40-hour workweek for all FHS professionals, which represented a change in relation to the 2011 PNAB (revoked), which had an exception for FHS medical professionals, who could have a 20-hour workweek[9,14]. As for work schedule, although RFHts and RiFHts are expected to work at least 14 days per month in riverside areas, with a daily workload equivalent to eight hours, with a travel schedule of RFHts and RiFHts that ensures they serve communities at least once every 60 days, practice may vary. A study conducted in the municipality of Borba, Amazonas state, describes the work experience of a RiFHt, showing that, in an area composed of 23 communities, the travel and work time lasts a minimum of 12 days and a maximum of 20 days, depending on water levels, and that the team returns to the same communities in approximately 40 days[14].

Regarding professionals, this study found no provisions in the regulatory acts on work processes and qualifications. This occurred both in the specific acts for RFHts, RiFHts, and RBHUs, as well as in those covering PHC that include parameters for these teams. The regulatory acts analyzed address the composition and work regime of these teams, as mentioned. Although essential, the availability of human and physical resources (RBHU, small vessels, supplies, among others) alone does not guarantee health production.

The professional dimension, characterized as the private encounter between the professional and the user (individual, family or community), can be qualified from the perspective of three essential elements: building a bond between both; professionals' technical qualification; and professionals' ethical positioning in the face of users' needs and suffering[21]. Concerning the development of bonds between workers and users, a study involving PHC workers found that bonds are associated with reception, which, in turn, is associated with the work process. From this perspective, the relationship of trust established at the time of reception reflects the meaning and necessity of applying reception as a technology and tool for intervention. Consequently, its practical effects determine and give reception a central role in the teams' work process[22].

The qualification of professionals at all levels of education who work in RFHts and RiFHts

must be considered and prioritized. Only then will it be possible to overcome gaps in training and uncritically reproduce the biomedical care model. Qualification, in its various forms (continuing or permanent education, *lato sensu* or *stricto sensu*), can be key to producing comprehensive, territorialized care (the relationship between prevention, care, and health promotion) and to organizing more democratic and participatory work processes (worker participation in action planning and defining and discussing team goals and priorities)[5].

Ethical positioning derives from individual choices and professional training, but it is also tied to the institution (its objectives, priorities, and strategies, the methods used to achieve results, and the type of management) and the objective conditions for professionals to perform their legally assigned functions. A study conducted with professionals from BHU (Family Clinics) in the city of Rio de Janeiro[25] identified problems involving staff, families, and users; team members; staff and management; and professional secrecy. The main (bio)ethical consequences of these problems were a breakdown in respect and trust between users and staff, and damage to the interpersonal relationships necessary to achieve teamwork results.

By extension, it is believed that any of these ethical problems and their consequences observed within the PHC of an urban center, when present in the context of RFHts, RiFHts and RBHUs, can have potentially more deleterious effects, both for users, because they have no other alternative service or professional to turn to in their care demands, and for professionals, because, during a period of care in dispersed and distant communities, they may be more susceptible to undesirable attitudes towards themselves, the team and the users.

Still in relation to professional qualification, within PHC and its coverage in areas of difficult access, the promulgation of the latest edition of the *Programa Mais Médicos* (PMM)[26] stands out, as it aims to “increase the provision of medical services in areas with limited or highly vulnerable services and promote the training of physicians specializing in Family and Community Medicine”. This intention extends to riverside communities.

As previously mentioned, the regulatory acts’ main purpose was to suspend federal financial transfers to municipalities that presented irregularities in their information registration with CNES, according to established rules. This is certainly an issue that deserves to be explored in a properly designed study to identify the circumstances and possible causes of this outcome. There is a clear mismatch between riverside communities’ needs for assistance, availability of increased funding to serve them, and, at the same time, discontinuity of services and/or information management at the municipal level, to the point of compromising the transfer of planned financial resources.

The regulatory acts also addressed the criteria for accreditation to receive incentives and additional financial assistance as well as municipal compliance. Based on the number of acts suspending the transfer of financial resources, it is assumed that there is a need for a system to

monitor and track municipal compliance that takes into account the health management's specificities, issues related to the maintenance of health teams, and the territories' specificities[27]. A review study identified that, among the challenges to be overcome in the healthcare provided to riverside populations, are disorganization and lack of preparation of teams to work in these areas.

The changes in team types were expected, since, before the establishment of RFHts and RiFHts, care for riverside populations was provided by FHS. Therefore, some of these teams had to adapt to established rules for RFHts and RiFHts. Furthermore, the ordinances that addressed the change from FHS to RFHt arose from the need for small vessels to transport healthcare professionals to serve the communities and the increase in professionals to the minimum team composition, in addition to support units for decentralized care, or also due to the need to adapt the existing RFHts to the rules established for RiFHts.

The incorporation of additional funding to cover support units and add professionals to the minimum staffing level requires the existence of teams, active support units, and small vessels dedicated exclusively to transporting healthcare professionals. Both structures (support units and vessels) must be active and duly reported to CNES. For funding for RBHU, their existence, active registration, and updated information with CNES are assumed. The rationale behind these increases, beyond coverage and access, is to solve problems within the community and ensure care for cases requiring specialized care. However, studies[27] demonstrate the persistence of social determinants of prevalent diseases, such as parasitic diseases and other conditions sensitive to primary care, such as stroke. A study that assessed PHC attributes in river health identified that the worst of these was community orientation[28].

Currently, when discussing any aspect of SUS financing for PHC, it is necessary to consider and analyze the *Programa Previne Brasil*[29], due to its relevance to the topic and the impact it has on healthcare for dispersed populations. This program establishes a financing model for PHC[14]. The changes introduced in PHC financing, with the *Programa Previne Brasil*, were part of the implementation of the economic package that has been underway in Brazil since 2016[30]. The following changes stand out: (1) end of the fixed Primary Care Floor (In Portuguese, *Piso de Atenção Básica* - PAB) (federal per capita transfer to all municipalities, considering their estimated populations and socioeconomic characteristics); (2) end of the PAB variable related to the number and type of FHS implemented, and to performance through an assessment system that included the process of self-assessment of teams and external assessment, as was the case with the Program for Improving the Quality of Primary Care; and (3) end of funding for the Expanded Centers for Family Health and Primary Care[30].

Instead of these parameters, the new PHC financing model provides for payment based on a capitation component relative to the population registered per team in the PHC information

system, with no distinction between FHS teams and Primary Care teams. It also provides for performance-based payment, considering the results of indicators achieved by accredited teams registered with CNES. Despite the lack of objectivity, these indicators were still classified as: (1) team process and intermediate results; (2) health outcomes; and (3) overall PHC indicators[14,30].

There is a component with incentives for strategic actions, with specific subcomponents, which includes RBHUs. However, in general, there is no indication of how the goals to be achieved by the teams would be calculated or how the diversities that characterize Brazil's vast territory would be considered[14,30]. This, in particular, concerns riverside populations, who live in dispersed areas, in territories with very low population density, when compared to those who live in municipal headquarters or even in their rural districts.

The *Programa Previne Brasil* is based on criticisms by the federal government from the 2019-2022 period of the previous PHC financing model and arguments in favor of increased flexibility and autonomy for managers, as well as greater efficiency and performance recognition. Authors considered these privatizing, mercantile, and selective measures that pointed toward counter-reforms regarding policies to expand coverage and access[31]. Furthermore, this program sought to promote change in the healthcare model and greater control over public spending. However, the political climate has changed, and the current situation highlights the relaunch of PMM, mentioned above, in the context of professional qualifications[26].

FINAL CONSIDERATIONS

The regulatory acts selected and analyzed allow us to identify paths already taken and others that could be followed or deviated from, towards the ongoing improvement of specific actions related to care for riverside populations. The delay in the development and implementation of RFHts, RiFHts, and RBHUs compared to the establishment of FHS indicates that, despite quantitative increases, especially in coverage and funding, and qualitative increases, regarding improved indicators and user and worker satisfaction, there was a coverage gap between different territories regarding the provision of healthcare services and population access to these services, with a notable disadvantage for the riverside population and other specific groups referred to in the 2011 PNAB and 2017 PNAB.

In relation to riverside populations, the 2011 PNAB constituted a relevant timeframe for the visibility and possibility of guaranteeing access to the right to health for these populations. The regulatory acts published since 2010, specific or within PHC, which addressed RFHts, RiFHts, and RBHUs, as well as related successful practices in the territories where riverside populations live and work, were decisive for their maintenance in the revised 2017 PNAB, which is commendable. However, it is worth highlighting the delay of at least 20 years in the establishment

and standardization of SUS for the formulation of specific norms and the first experiences of implementing RFHts and RiFHts in the territories for which they are intended.

The frequent occurrence of ordinances aimed at suspending financial transfers for the purposes of operating RFHts, RiFHts and RBHUs due to irregularities related to compliance with previously established standards points to the need for monitoring processes of municipal management and health teams that include self-assessment and external assessment processes along the Program for Improving Access and Quality of Primary Care lines.

REFERENCES

1. Murphy P, Burge F, Wong S. Measurement and rural primary health care: a scoping review. Rural Remote Health [Internet]. 2019 [Cited 2024 jan. 27];19(3). Available at: https://pubmed.ncbi.nlm.nih.gov/31365828/

2. Organização Pan-Americana da Saúde. Relatório 30 anos de SUS, que SUS para 2030? Brasilia : OPAS. [Internet] 2018 [Cited 2024 fev. 20]. Available at: https://iris.paho.org/handle/10665.2/49663

3. Domingos CM, Nunes EFPA, Carvalho BG, Mendonça FF. A legislação da atenção básica do Sistema Único de Saúde: uma análise documental. Cad Saude Publica [Internet]. 2016 [Cited 2024 jan. 27]; 32(3):e00181314. Available at: https://www.scielo.br/j/csp/a/nQjYRqwSB84YfJGfNqRtNPs/?lang=pt

4. Menezes ELC, Scherer MDA, Verdi MI, Pires DP. Modos de produzir cuidado e a universalidade do acesso na atenção primária à saúde. Saúde Soc [Internet]. 2017 [Cited 2024 fev. 20]; 26(4):888–903. Available at: https://www.scielo.br/j/sausoc/a/MxGqmyYkCy9yjkVnpNz3VbP/?lang=pt

5. Morosini MVGC, Fonseca AF, Lima LD. Política Nacional de Atenção Básica 2017: retrocessos e riscos para o Sistema Único de Saúde. Saúde em Debate [Internet]. 2018 [Cited 2024 nov. 18];42(116):11–24. Available at: https://www.scielo.br/j/sdeb/a/7PPB5Bj8W46G3s95GFctzJx/?lang=pt

6. Facchini LA, Tomasi E, Dilélio AS. Qualidade da Atenção Primária à Saúde no Brasil: avanços, desafios e perspectivas. Saúde em Debate [Internet]. 2018 [Cited 2024 Jan.15]; 42(spe1):208–23. DOI: http://dx.doi.org/10.1590/0103-11042018s114

7. Mendes EV. A atenção Primária à Saúde no SUS: avanços e ameaças. Brasília, DF: Conselho Nacional de Secretários de Saúde (CONASS). [Internet] 2021 [Cited 2024 jan.15]. Available at: https://www.conass.org.br/biblioteca/conass-documenta-38/

8. Ministério da Saúde (Brasil). Conselho Nacional de Saúde. Plano Nacional de Saúde, Período 2024-2027. [Internet] 2024 [acessado em 2024 fev. 21]. Available at: https://digisusgmp.saude.gov.br/storage/conteudo/W2jOMcLWqx1wLMZMqx7Y6MMVFCjxGgR1WzGIcOqC.pdf

9. Ministério da Saúde (Brasil). Portaria GM/MS n° 2.488, de 21 de outubro de 2011. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes e normas para a organização da Atenção Básica. [Internet] 2011 [Cited 2023 dez. 10]. Available at: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt2488_21_10_2011.html

10. Ministério da saúde (Brasil). Portaria GM/MS Nº 1.591, de 23 de julho de 2012. Estabelece os critérios para habilitação de UBSF. [Internet] 2012 [Cited 2023 dez 10]. Available at:

https://bvsms.saude.gov.br/bvs/saudelegis/gm/2012/prt1591_23_07_2012.html

11. Ministério da saúde (Brasil). Portaria GM/MS Nº 290, de 28 de fevereiro de 2013. Institui o componente 'construção de UBSF' no âmbito do Programa de Requalificação de Unidades Básicas de Saúde (UBS). [Internet] 2013 [Cited 2023 dez. 10]. Available at: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0290_28_02_2013_comp.html

12. Ministério da saúde (Brasil). Portaria GM/MS Nº 837, de 9 de maio de 2014. Redefine o arranjo organizacional das ESFR e das ESFF dos Municípios da Amazônia Legal e do Pantanal Sul-Mato-Grossense. [Internet] 2014 [Cited 2023 dez. 10]. Available at: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2014/prt0837_09_05_2014.html

13. Ministério da saúde (Brasil). Portaria GM/MS Nº 1.229, de 6 de junho de 2014. Define os valores do incentivo financeiro mensal de custeio das ESFR, das ESFF e das UBSF. [Internet] 2014b [Cited 2023 dez. 20]. Available at: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2014/prt1229_06_06_2014.html

14. Ministério da saúde (Brasil). Portaria GM/MS Nº 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica. [Internet] 2017 [Cited 2023 dez. 15]. Available at: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2017/prt2436_22_09_2017.html

15. Brasil. Constituição da República Federativa do Brasil de 1988. Brasília (DF): Senado Federal. [Internet] 1988 [Cited 2023 dez. 20]. Available at: https://www4.planalto.gov.br/legislacao/

16. Brasil. Lei Nº 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. D.O.U de 20/09/1990, pág. nº 18055. [Internet] 1990 [Cited 2024 jan. 05]. Available at: https://www.planalto.gov.br/ccivil_03/leis/l8080.htm

17. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. 14. ed. São Paulo: HUCITEC, 2014. 416 p.

18. Garnelo L, Sousa ABL, Silva CO. Regionalização em Saúde no Amazonas: avanços e desafios. Cien Saude Colet [Internet]. 2017 [Cited 2024 jan. 05]; 22(4):1225–34. DOI: http://dx.doi.org/10.1590/1413-81232017224.27082016

19. Lima RTS, Fernandes TG, Martins Júnior PJA, Portela CS, Santos Junior JDO, Schweickardt JC. Saúde em vista: uma análise da Atenção Primária à Saúde em áreas ribeirinhas e rurais amazônicas. Cien Saude Colet [Internet]. 2021 [Cited 2024 jan. 07];26(6):2053–64. Available at: https://www.scielo.br/j/csc/a/PvFjywqqXgsPy5Phds5XyRq/?lang=pt

20. Garnelo L, Parente RCP, Puchiarelli MLR, Correia PC, Torres MV, Herkrath FJ. Barriers to access and organization of primary health care services for rural riverside populations in the Amazon. Int J Equity Health [Internet]. 2020 [Cited 2024 jan. 07];19(1). DOI: http://dx.doi.org/10.1186/s12939-020-01171-x

21. Costa LA, Carneiro FF, Almeida MM, Machado MFAS, Dias AP, Menezes FWP, *et al*. Estratégia Saúde da Família rural: uma análise a partir da visão dos movimentos populares do Ceará. Saúde em Debate [Internet]. 2019 [Cited 2024 jan. 11]; 43(spe8):36–49. Available from: https://www.scielo.br/j/sdeb/a/8jK7WwBqCBRpBPcg8WNZyFM/?lang=pt

22. Feitosa MVN, Candeias R, Feitosa AKN, Melo WS, Araújo FM, Carmo JF *et al*. Práticas e saberes do acolhimento na atenção primária à saúde: uma revisão integrativa. Revista Eletrônica Acervo Saúde. [Internet] 2021, 13(3):e5308-e5308 [Cited 2024 fev. 15]. Available at: https://acervomais.com.br/index.php/saude/article/view/5308/4290

23. Lima JG, Giovanella L, Fausto MCR, Almeida PF. O processo de trabalho dos agentes comunitários de saúde: contribuições para o cuidado em territórios rurais remotos na

Amazônia, Brasil. Cad. Saúde Pública [Internet]. 2021 [Cited 2025 ago. 18]; 37(8):e00247820. doi: https://10.1590/0102-311X00247820.

24. Baldoino M, Herkrath F, Horta, Garnelo Luiza. Modos de vida e organização do trabalho de agentes comunitários de saúde de unidades fluviais na Amazônia. Trabalho, Educação e Saúde [Internet]. 2023 [Cited 2025 ago. 18]; 21, e02470231. https://doi.org/10.1590/1981-7746-ojs2470.

25. Simas KBF, Simões PP, Gomes AP, Costa AAZ, Pereira CG, Siqueira-Batista R. (Bio)ética e Atenção Primária à Saúde: estudo preliminar nas Clínicas da Família no município do Rio de Janeiro, Brasil. Cien Saude Colet [Internet]. 2016 [Cited 2024 fev. 15]; 21(5):1481–90. Available at: https://www.scielo.br/j/csc/a/D8DcdNyT4GLxR3L7SpSyZbt/?lang=pt

26. Ministério da saúde (Brasil). Lei Nº 14.621, de 14 de julho de 2023 - Institui a Estratégia Nacional de Formação de Especialistas para a Saúde no âmbito do Programa Mais Médicos e dá outras providências. D.O.U de 14/07/2023, pág. nº 1. [Internet] 2023 [Cited 2024 jan. 05]. Available at: Available at: https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/lei/l14621.htm

27. Santos IO, Rabello RED, Corrêa RG, Melo GZS, Monteiro ÂX. Avanços e desafios na saúde das populações ribeirinhas na região amazônica: uma revisão integrativa. Rev APS [Internet]. 2022 2016 [Cited 2024 fev. 15]; 24. DOI: http://dx.doi.org/10.34019/1809-8363.2021.v24.34823

28. Figueira MCS, Silva WP, Marques D, Jennifer Bazilio J, Pereira JA, Vilela MFG, Silva EM. Atributos da atenção primária na saúde fluvial pela ótica de usuários ribeirinhos. Saúde em Debate [Internet]. 2020 [Cited 2024 jan. 20]; 44 (125): 491-503. DOI: https://dx.doi.org/10.1590/0103-1104202012516

29. Ministério da saúde (Brasil). Portaria GM/MS Nº 2.979, de 12 de novembro de 2019. Institui o Programa Previne Brasil, que estabelece novo modelo de financiamento de custeio da Atenção Primária à Saúde no âmbito do SUS. [Internet] 2019 [Cited 2024 jan. 05]. Available at: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2019/prt2979_13_11_2019.html

30. Melo EA, Almeida PF, Lima LD, Giovanella L. Reflexões sobre as mudanças no modelo de financiamento federal da Atenção Básica à Saúde no Brasil. Saúde em Debate [Internet]. 2019 [Cited 2024 jan. 05];43(spe5):137–44. Available at: https://www.scielo.br/j/sdeb/a/n5ftgSYH5bsBBJpbxR7L5RN/?lang=pt

31. Seta MHD, Ocké-Reis CO, Ramos ALP. Programa Previne Brasil: o ápice das ameaças à Atenção Primária à Saúde? Cien Saude Colet [Internet]. 2021 [Cited 2024 jan. 30]; 26(suppl 2):3781–6. Available at: https://www.scielo.br/j/csc/a/YDNxWmxtzxsfhTgn9zjcrhC/?lang=pt

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