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Offer of practices by life course and chronic diseases and other conditions in BHU in Brazil: data from the 2024 Census

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Abstract *The aim is to characterize the provision of practices in Primary Health Care (PHC) in Brazil by region and the population of each municipality. The 2024 National Census of Basic Health Units (BHUs) was applied through an electronic instrument on the e-Gestor platform. Variables regarding life course and chronic diseases, among other health conditions, were selected. Outcomes were constructed with the sum of positive responses to each set of variables, and the 75% percentile of the distribution was set as the cutoff point for analysis according to the geopolitical region and population of the specific municipality. A total of 44,938 BHUs were included. For life course, 46.2% of the BHUs achieved a score above the cutoff point, while for chronic diseases and other conditions, this score was 33.6%. For both outcomes, the Northeast and Southeast regions reached the highest proportions, and the North and Midwest regions, the lowest. In relation to population size, both outcomes showed a higher prevalence in municipalities with more than 900,000 inhabitants and a lower prevalence in municipalities with less than 20,000 inhabitants. Considering the marked regional inequalities, it is necessary to seek a universalization of the provision of actions aimed at priority groups in PHC.*

Key words *Primary Health Care, Basic Health Units, Health Care, Disparities in health care, Evaluation of health care processes*

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Introduction

Supported by the constitutional principles of universality, comprehensiveness and equity in health care, the Family Health Strategy (FHS), the Brazilian model for organizing territorially based Primary Health Care (PHC) and community organization within the Brazilian Unified Health System (SUS), is present in 88.4% of all Basic Health Units (BHU) in the country[1].

Over the past 30 years, the FHS has significantly boosted population access to PHC services nationwide, achieving over 85% coverage in municipalities with fewer than 50,000 inhabitants as of 2020[2]. Today, the FHS has expanded, with over 50,000 FHS teams (53,679 FHS) spread across all Brazilian municipalities, registering a 73% coverage (considering one FHS for every 3,000 people). The increased population coverage has also been accompanied by an expansion in the provision of individual and collective services, reflecting changes in health policies aimed at comprehensively meeting the health needs of the population in light of the challenges posed by the country's demographic and epidemiological transition[3].

The provision of individual and collective services can be referred to as the "scope of practice", a term used to describe the set of activities, functions, and actions that professionals can safely perform, based on their education, training, and professional competence[4]. The expansion of the scope of practice observed in Brazilian PHC uses comprehensiveness as a guideline and has been made possible by the set-up of multidisciplinary teams within the FHS (physician, nurse, nursing technician, community health agent), the implementation of Oral Health teams (dental surgeons, technicians, and oral health assistants), and the creation of multidisciplinary teams, currently eMulti, consisting of 11 professional categories and 11 medical specialties[4-6].

The National Primary Care Policy (*Política Nacional de Atenção Básica* - PNAB), in its 2006, 2011, and 2017 editions, highlights that the scope of PHC practices includes health promotion, disease prevention, diagnosis, treatment of acute and chronic conditions, harm reduction, palliative care, health surveillance, and rehabilitation[7-9]. PHC professionals must provide comprehensive and continuous care, ensuring health monitoring for people at all stages of life, which includes promoting healthy habits, implementing preventive care, monitoring chronic diseases, and meeting mental health needs, offering treatment to vulnerable groups such as children, pregnant women, the elderly, people with disabilities, the homeless population, among others[10]. PHC must operate in an integrated manner with other services in the SUS healthcare network, which is the preferred gateway to the health system[11]. However, the extent to which the actions prescribed in policies and protocols are actually carried out in health services throughout Brazil is unknown. This uncertainty justified our investigation into the issue, with data from the 2024 National Census of BHUs. The results can fill in the gap and list priorities for managers and professionals, redirecting resources and redirecting practices in this area of the health system.

The present article therefore sought to describe the provision of a set of services aimed at users in different scenarios throughout their lives and people with chronic health conditions in Brazilian BHUs, according to major regions and the population of a given municipal, This study was based on the results of the 2024 National Census of BHUs, discussing the limits and potential for comprehensive treatment in Brazilian PHC.

Method

Study design

This study has a cross-sectional and descriptive design, based on the 2024 National Census of BHUs.

The National Census of Basic BHUs was launched in May 2024, following a presentation given to the Tripartite Intermanagerial Commission (*Comissão Intergestores Tripartite* - CIT), which allowed municipal managers to electronically register in the e-Gestor PHC system. Upon joining the Census, each municipality had access to the list of its PHC facilities registered with the National Registry of Health Establishments (*Cadastro Nacional de Estabelecimentos de Saúde* - CNES) for review and to identify the person responsible for responding to the questionnaire. The data completion period began on June 3, 2024, and ended on August 31, 2024. The state of Rio Grande do Sul had an additional 65 days due to the climate catastrophe it was experiencing at that time. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were used to describe the study[12] (Supplementary Chart 1).

Universe/Sample

The census database included 49,738 health establishments that were officially registered with CNES as of April 2024. Of this total, 4,027 establishments were inactivated by the municipal manager, as they were not in operation during the census period, totaling 45,711 health establishments.

The data used in this study were extracted from the electronic platform of the 2024 National Census of BHUs, accessed through the e-Gestor PHC panel, hosted on a DATASUS server and managed by the technical team of the Secretariat of Primary Health Care (SAPS/MS). The platform concentrated the responses recorded during the collection period into a single relational database, allowing for subsequent technical analysis. At the end of the collection period, the data were extracted using the platform's own functionality, which enabled a structured exploration through a script compatible with the R language, generating two main files: one containing the variable dictionary and the data used in the analysis, with their encoding and configurations, and the other containing the response data. This process ensured information integrity, database standardization, and variable traceability, enabling their subsequent statistical processing in a secure environment, in accordance with the principles of the General Personal Data Protection Law (LGPD – Act No. 13,709/2018).

The database was analyzed for completeness and consistency, examining the frequency distribution of the variables of interest and comparing the response categories with the data collection instrument. Consistency analysis was performed by comparing valid values for each variable against any previous variable filters.

It was observed that, even after the managers had executed the inactivation process, some non-BHU establishments had responded to the questionnaire. Therefore, the following establishments were excluded from the analysis: a) in an open-ended question, that they were not BHU establishments; b) that were mobile land or river units; c) that did not have funding from the Ministry of Health for FHS Teams, PHC Teams, Riverside FHS Teams, and Community Health Agents (CHAs); and that did not have FHS, FHS Teams, or Riverside FHS Teams, in addition to having names clearly indicative of establishments of another level of care (COVID Center, Birthing Center, Specialty Center, Dental Specialty Center (DSC), Specialized Rehabilitation Center (SRC). This process led to the exclusion of 773 establishments, totaling 44,938 BHU establishments.

Variables

Variable selection was considered in relation to the quality of treatment and discriminatory power among BHUs, as defined by a group of PHC experts through successive approximations, ultimately reaching a nominal consensus. The complete questionnaire included a set of 20 to 34 services to be implemented in the BHUs for each subdimension and is available in full on the Ministry of Health's official website[13].

Here, the scope of practices in PHC centers was characterized using data from the 2024 Census. The selected information was grouped into two sections. The first included prenatal and postpartum care; childcare from birth to two years of age; sexual and reproductive health; cervical and breast cancer detection, prevention, and screening; men's health; and elderly health. Fourteen questions were selected from this section to form the outcome labeled *life course* (Chart 1). The second section included care for individuals with systemic arterial hypertension, diabetes mellitus, overweight/obesity, tuberculosis, leprosy, mental health, and situations of violence. Sixteen questions were selected from this section to form the outcome labeled *chronic diseases and other conditions* (Chart 2).

Analysis plan

Initially, all questions were segmented into 0 "no" and 1 "yes"; they were then summed to form two summary numerical variables related to the outcomes of life course and chronic diseases and other conditions. The 75th percentile cutoff point was used to categorize the BHUs into two groups: those that scored at or above the 75th percentile and those that scored below this cutoff point. The cutoff point allowed one to describe the percentage of BHUs positioned above the 75th percentile for both summary variables. It was determined based on the distribution of values in the variables that summed the positive responses for each set of variables observed in the database. Ideally, all variables would have positive responses (100%), which would attribute a level of excellence to the BHU; using the median of the distribution could bias the BHU toward very low performance. Therefore, an intermediate position measure, 75%, was chosen to reach the majority of the distribution.

Chart 1. Selected variables and respective questions from the 2024 BHU National Census data collection instrument for the *life course* outcome.

Life course	Questions from the 2024 BHU Census Instrument	Selected variable
Prenatal and postpartum care	Q48 Which of the following prenatal care actions are performed at this BHU? () Rapid test for syphilis.	Rapid test for syphilis
	Q49 Do(es) the team(s) at this BHU receive the results of the laboratory study for syphilis (VDRL) of the pregnant women in a timely manner?	Teams receive the results of the laboratory study exam for syphilis (VDRL) of pregnant women in a timely manner
	Q53 Is a postpartum consultation performed at this BHU up to one week after birth by the doctor and/or nurse on the team?	Postpartum consultation up to one week after delivery by the team nurse and/or doctor
	Q72 Indicate the strategies that were used to encourage vaccination in the last 12 months at the BHU:	Community health education actions - vaccination
Children's health	Q59 Are the following services and consultations performed on children and newborns at this BHU: () check the results of the heel prick test.	Teams check the results of the foot test
	Q71.2 Do the teams at this BHU monitor the vaccination coverage of the population in their coverage area?	Teams monitor the vaccination coverage of the population in their coverage area
Sexual and reproductive health	Q47 Which of the following sexual and reproductive health services are performed at this BHU? () insertion of an Intrauterine Device (IUD).	Insertion of the Intrauterine Device (IUD)
	Q47 Which of the following sexual and reproductive health services are performed at this BHU? () Treatment for women in the climacteric/menopause stage.	Treatment for women in climacteric/menopause
Women's health	Q57 Are the results of the cervical cytology test delivered in a timely manner at this BHU?	Timely delivery of cervical cytology test results
	Q55 Is cervical and breast cancer detection, prevention, and screening performed at this BHU?	Detection, prevention, and screening for cervical and breast cancer
Men's health	Q69 What specific services are conducted at this USB to provide comprehensive care for men's health? () identification of risk factors for diseases and conditions most prevalent in the male population.	Identification of risk factors for diseases and conditions most prevalent in the male population
	Q69 What specific actions are taken at this BHU to provide comprehensive care for men's health? () guidance for the male population regarding the early diagnosis of prostate cancer.	Guidance for the male population regarding early diagnosis of prostate cancer
Elderly health	Q68 What actions are taken at this BHU to care for the health of elderly people? () multidimensional assessment.	Multidimensional assessment
	Q68 What actions are taken at this BHU to treat the health of elderly people? () assessment of nutritional status (weight and height), with the results recorded in the medical records.	Assessment of nutritional status (weight and height), recorded in the medical record

Source: Ministry of Health, 2024.

The segmented variables were analyzed by geopolitical region and population of the given municipality, according to the Brazilian Institute of Geography and Statistics (IBGE)[14].

The option for analysis using synthetic outcomes was chosen due to the large number of selected variables, for which an individualized description by region and population of the

Chart 2. Selected variables and respective questions from the data collection instrument of the 2024 National BHU Census for the *chronic diseases and other conditions* outcome.

Chronic diseases and other conditions	Question from the 2024 BHU Census instrument	Selected variable
Hypertension	Q61 What actions are taken at this BHU to treat people with systemic arterial hypertension? () checking and recording blood pressure for control.	Checking and recording blood pressure for control
	Q61 What actions are taken at this BHU to treat people with systemic arterial hypertension? () cardiovascular risk stratification.	Cardiovascular risk stratification
	Q61 What actions are taken at this BHU to treat people with systemic arterial hypertension? () requesting lipid profile tests.	Request for lipid profile tests
Diabetes	Q62 What actions are taken at this BHU to treat people with diabetes mellitus? () glycated hemoglobin test.	Request for glycated hemoglobin
	Q62 What actions are taken at this BHU to treat people with diabetes mellitus? () fundus exam/retinography.	Fundus examination/ retinography
	Q62 What actions are taken at this BHU to treat people with diabetes mellitus? () foot exams.	Foot exams
Overweight/ Obesity	Q63 What actions are taken at this BHU to treat overweight and obese people? () monitoring and guidance on nutritional status and strategies for a healthy weight.	Monitoring and guidance on nutritional status and strategies for a healthy weight
	Q63 What actions are taken at this BHU to treat overweight and obese people? () shared treatment with the multidisciplinary team (eMulti).	Shared treatment with the multidisciplinary team (eMulti)
Tuberculosis	Q64 What actions are taken at this BHU to treat people with tuberculosis? () home visits by the CHA to actively identify absent and high-risk individuals.	Home visits by the CHA to actively identify absent and high-risk individuals.
	Q64 What actions are taken at this USB to treat people with tuberculosis? () directly observed treatment (DOT).	Directly observed treatment (DOT)
Leprosy	Q65 What actions are taken at this BHU to treat people with leprosy? () Active search for those who have missed or abandoned treatment.	Active search for those who have missed or abandoned treatment.
	Q65 What actions are taken at this BHU to treat people with leprosy? () Treatment prescription by the nurse.	Treatment prescription by the nurse
Mental health	Q66 What actions are taken at this BHU to treat people with mental health problems? () shared treatment with CAPS.	Shared treatment with CAPS
	Q66 What actions are taken at this BHU to treat people with mental health problems? () psychotropic treatment	Psychotropic treatment
Situation of violence	Q67 What actions are taken at this BHU to treat people in situations of violence? () mandatory reporting of cases of violence	Mandatory reporting of cases of violence
	Q67 What actions are taken at this BHU to treat people in situations of violence? () post-exposure prophylaxis of sexually transmitted infections (STIs) in situations of sexual violence.	Post-exposure prophylaxis of sexually transmitted infections (STIs) in situations of sexual violence.

Source: Ministry of Health, 2024.

given municipality was not desirable. Thus, a cutoff point for the distribution could be used, in this case, the 75th percentile, which represents a situation in which most services were being offered by the BHU.

Ethical aspects

The research protocol was evaluated and approved by the Research Ethics Committee of the College of Public Health at the University of São Paulo (Opinion No. 6 779 222, CAAE 78767024.2.0000.5421), dated April 25, 2024.

Results

A total of 44,938 BHUs were included in the analyses, with the following distribution nationwide: North region (n=4,096; 9.1%), Northeast (n=17,737; 39.5%), Southeast (n=13,375; 29.8%), South (n=6,607; 14.7%), and Midwest (n=3,123; 7.0%). The distribution of BHUs based on the municipality's population was as follows: up to 20,000 inhabitants (n=15,529; 34.6%), from 20,001 to 50,000 inhabitants (n=11,412; 25.4%), from 50,001 to 100,000 inhabitants (n=6,007; 13.4%), from 100,001 to 900,000 inhabitants (n=9,641; 21.5%) and above 900,000 inhabitants (n=2,349; 5.2%).

The highest percentages in the life course outcome were observed for actions offering rapid testing for syphilis during prenatal care (93.9%), receiving the results of this test in a timely manner (93.5%), checking the results of the heel prick test by teams (91.4%), and actions for detection, prevention, and screening of cervical and breast cancer (85.9%). In this same block, the lowest percentages were recorded for Intrauterine Device (IUD) insertion (19.7%), multidimensional assessment of the elderly (62.8%), and community health education actions for vaccination (65.6%) (Table 1).

The most frequently reported variables that comprised the outcome of chronic diseases and other health problems were blood pressure monitoring and recording to control hypertension (97.2%), request for glycated hemoglobin to control diabetes (94.6%), home visits by the CHA to actively search for absent and high-risk individuals with tuberculosis (85.7%), and compulsory reporting of cases of violence (83.5%). The lowest percentages in the same block were the provision of fundus examination/retinography (22.9%), post-exposure prophylaxis of STIs in situations of sexual violence (38.3%), shared treatment with the eMulti team for overweight or obese people (54.4%), and foot examination for people with diabetes (58.7%) (Table 2).

For the *life course* outcome (with fourteen questions) and the *chronic diseases and other conditions* (with sixteen questions), the cutoff points for the 75th percentile or higher were twelve and thirteen positive responses, respectively. Few PHC units reported offering all the actions included in each summary variable: 2,603 for *life course* (5.8%) and 1,706 for *chronic diseases and other conditions* (3.8%).

The analytical approach, which involved using a distribution cutoff point above the 75th percentile for responses in each outcome, yielded results of 46.2% for life course and 33.6% for chronic diseases and other conditions. This means that approximately four and three in ten BHUs, respectively, reported offering most of the selected programs nationwide.

When analyzing these percentages by region, striking differences were observed in the *life course* outcome, with the highest performance recorded in the Northeast (49.3%) and Southeast (46.1%), and the lowest in the Midwest (39.3%) and North (41.8%) regions, with a national average of 46.2%. The *chronic diseases and other conditions* outcome had a national average of 33.6%, with the lowest performance in the North (28.0%), South (29.1%), and Midwest (29.8%) regions. Important differences were also identified based on the municipality's population. The *life course* outcome showed a good performance in 69% of the BHUs in municipalities with more than 900,000 inhabitants, followed by those with 100,001 to 900,000 inhabitants (49.8%), and low BHU performance in municipalities with fewer than 20,000 inhabitants (41.3%). The *chronic diseases and other conditions* outcome performed well in BHUs in municipalities with more than 900,000 inhabitants (63.1%), but BHUs located in the other groups of municipalities yielded scores below 35%. Both differences in each outcome, based on region and population size, were statistically significant ($p<0.001$) (Figure 1).

Discussion

Significant advances in the provision of SUS PHC practices concerning the scope of BHU services were observed in Brazil between 2012 and 2018[15-17]. The Census results seem to indicate a setback, which raises the need for studies that could reveal what happened to the provision of PHC actions between 2018 and 2024 amid the change in federal funding, with the extinction of the Basic Care Floor at the end of 2019, and with the emergence of the COVID-19 pandemic, mainly during the first and second waves, before the advent of population vaccination.

Table 1. Number and percentage of BHUs with positive responses for each of the variables included in the *Life Course* outcome. Brazil, 2024.

		n	%
Pre-Natal and Postpartum	Rapid syphilis test	42,183	93.9
	Teams receive timely results from the syphilis laboratory test (VDRL) for pregnant women.	42,021	93.5
	Postpartum check-up within one week after delivery by the team's physician and/or nurse.	38,742	86.2
	Community health education initiatives - vaccination.	29,471	65.6
Children's health	Teams check heel prick test results	41,082	91.4
	Teams monitor vaccination coverage of the population in their coverage area	36,595	81.4
Sexual and Reproductive Health	Intrauterine Device Insertion (DIU)	8,856	19.7
	Care for women in perimenopause/menopause	32,355	72.0
Women's health	Teams receive results of cervical cytology tests in a timely manner	37,840	84.2
	Detection, prevention, and screening of cervical and breast cancer	38,609	85.9
Men's Health	Identifying risk factors for diseases and conditions most prevalent in the male population	33,019	73.5
	Guiding the male population regarding early diagnosis of prostate cancer	35,598	79.2
Elderly health	Multidimensional evaluation	28,240	62.8
	Assessment of nutritional status (weight and height), recorded in the medical record	33,280	74.1

n: absolute frequency, %: relative frequency.

Source: National Census of BHUs, 2024.

Table 2. Number and percentage of BHUs with positive responses for each of the variables included in the *Chronic Diseases and Other Conditions* outcome. Brazil, 2024.

		n	%
Hypertension	Checking and recording blood pressure for control	43,699	97.2
	Cardiovascular risk stratification	27,538	61.3
	Requesting lipid profile tests	37,068	82.5
Diabetes	Request for glycated hemoglobin	42,527	94.6
	Fundus examination/retinography	10,301	22.9
	Foot examinations	26,354	58.7
Overweight/ obesity	Monitoring and guidance on nutritional status and strategies for a healthy weight	29,214	65.0
	Shared care with the multidisciplinary team (eMulti)	24,435	54.4
Tuberculosis	Home visits by CHAs to actively identify absent and high-risk individuals	38,513	85.7
	Directly observed treatment (DOT)	30,222	67.3
Leprosy	Actively search for those who have missed or abandoned treatment	35,536	79.1
	Treatment prescription by the nurse	16,034	35.7
Mental health	Shared treatment with CAPS	12,974	71.1
	Psychotropic treatment	29,123	64.8
Situation of violence	Mandatory reporting of cases of violence	37,535	83.5
	Post-exposure prophylaxis of sexually transmitted infections (STIs) in situations of sexual violence	17,220	38.3

n: absolute frequency, %: relative frequency.

Source: National Census of BHUs, 2024.

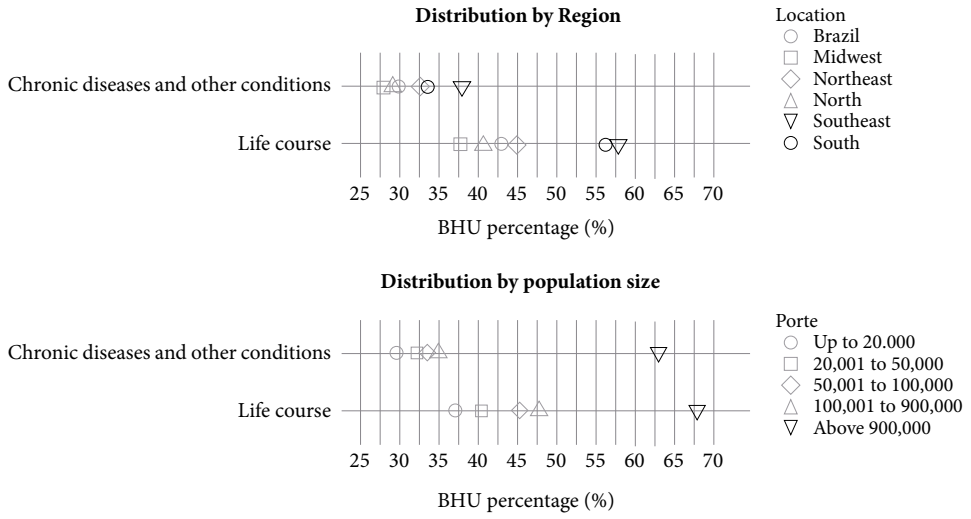


Figure 1. Percentage of primary care units (PHCs) that ranked above the 75th percentile *in life course* and *chronic diseases and other conditions* outcomes, based on region and municipal population.

Source: National Census of BHUs, 2024.

The concept of scope of practice in PHC is not new and expresses an ongoing effort to improve PHC. Its formulation dates back to the first efforts to organize PHC as the preferred entry point into the system, and since then, it has been progressively detailed by regulations and public policies[4,5]. The PNAB, in its 2006, 2011, and 2017 versions, defined that the scope of practices must include actions to promote health, prevent diseases, treat acute and chronic conditions, and provide rehabilitation, in a comprehensive, continuous, and resolute manner, prioritizing the FHS model[7-9]. The PNAB also emphasizes intersectoral action, in a multidisciplinary team, with a focus on vulnerable groups[8,9].

Decree No. 7,508/2011, in turn, established the National List of Health Actions and Services (*Relação Nacional de Ações e Serviços de Saúde* - Renases), systematizing the actions and services that SUS must ensure, and reinforcing the core role of PHC as a care coordinator[18]. Between 2011 and 2018, the National Program for Improving Access and Quality of Primary Care (*Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica* - PMAQ-AB) functioned, in practice, as a strong driver of the expansion of the scope of PHC practices in Brazil[17,19]. More recently, the PHC Service Portfolio (*Carteira de Serviços da APS* - CaSAPS), launched in 2019, sought to operationalize this guideline, organizing actions by thematic areas and detailing minimum inputs and procedures[10]. Although this instrument brings advances to the standardization and monitoring of PHC, it has also been the subject of controversy regarding its emphasis on individual clinical practices, which may restrict the expanded community approach that characterizes the FHS model[20].

The way in which the scope of practice is defined, guided, and incorporated into the BHU routine directly impacts the workforce's responsiveness, system costs, and access equity[21,22]. A limited scope of practice tends to generate a higher percentage of unnecessary referrals to other levels of care, while expanding the scope is associated with increased PHC resolution[23] and user satisfaction.

The complexity of achieving a scope of practices in PHC consistent with a community-based treatment model and the provision of quality services is expressed in the main results of this study: only 46.2% of the BHUs achieved more than 75% of the provision of actions and services in relation to the items registered in the BHU Census for the *life course* and only 33.6% for *chronic diseases and other conditions*.

Review studies[23-26] have indicated that several factors may be involved in the provision of actions, including inconsistencies and barriers to

legislation and regulation in current legislative and regulatory systems that prevent healthcare professionals from working within their full scope of practice. Furthermore, management models and staffing methods can influence professionals' ability to perform all recommended services, from the perspective of comprehensive treatment. Other factors were cited, notably training and continuing education, financing policies, inputs, infrastructure, and the availability of information and communication technologies.

The outcomes of this study varied significantly depending on the municipality's population size. In municipalities with fewer than 20,000 inhabitants, the provision of treatment was lower (41% for the *life course* and 30% for *chronic diseases and other conditions*) compared to municipalities with more than 900,000 inhabitants (69% and 63%, respectively). The analysis by region highlighted the Northeast as the best performer in both outcomes, which may reflect the greater presence of the Family Health Strategy in its municipalities, consolidating team practices with greater coverage across different programmatic services.

International literature[27,28] notes an expansion in the scope of practice of PHC physicians working in rural and remote areas, where they often develop a broader range of skills in response to population needs, shortages of professionals, services, and referral opportunities. Unlike in urban areas, general practitioners and family doctors are often the only professionals available in rural municipalities, which appears to be related to differences in municipal population, as there is a strong presence of rural areas in municipalities with fewer than 20,000 inhabitants.

It was found that most BHUs provided high rates of timely heel prick tests, rapid syphilis tests, and VDRL results. Issues related to the timely receipt of cervical cytology test results and gynecological detection, prevention, and screening need to be universalized, considering decades of efforts in women's health, including the provision of postpartum checkups and IUD insertion. Recent policies aimed at men's and elderly health still face challenges, including the multidimensional assessment of older adults and community activities.

Adequate professional training is a key factor in the comprehensiveness of PHC actions and services, and is an essential factor in their provision. PHC is organized in Brazil without all professionals having adequate training for their work[29,30], a significant factor affecting the comprehensiveness of the scope of practices. It is important to note that aspects related to professional training and equipment availability could compromise the provision of developed practices[27].

A limitation of this article was the selection of a set of actions and services that focused on different stages and aspects of the *life course* and *chronic diseases and other conditions* to represent the provision of PHC practices. The census gathered information on a wide range of actions and services, including oral health, bedridden individuals, post-COVID conditions, integrative and complementary health practices, emergencies, the availability of diagnostic tests, the collection of materials for examination at the PHC unit itself, and access to medications and nutritional supplements. These actions were not included in the present analyses. It is estimated that, if data from the full scope of practices available in the instrument were included, the results would project worse performance at PHC units. The possibility of information bias, in the sense of overestimation in responses, should also be considered, given that the Ministry of Health, the highest level of management in the Brazilian system, conducted the Census. No other data sources were used for cross-validation.

Among the study's strengths is its use of census data, with all eligible PHC units nationwide responding online on a platform dedicated to this survey, resulting in a database of nearly 45,000 BHU. In addition to the tripartite agreement – MS, CONASS, and CONASEMS – the Census resumed collaboration with researchers from ABRASCO's Primary Care Network, which contributed to the improvement of the entire process. The 2024 Census data allows on to update information from the first PMAQ cycle in 2012, when 38,312 BHUs were studied.

In a scenario of persistent significant regional inequalities, the results reinforce the importance of management in supporting health teams to achieve universalization and improve the quality of care in PHC, through the provision of services targeted at people at different stages of their lives and those with chronic diseases and other conditions.

Collaborations

E Tomasi, B Venturin, ALQ Vilasbôas, and E Thumé were responsible for the conception and design, data analysis and interpretation, article writing, and critical review. ES Kemper, DD Klitzke, C Pilz, AF Santos, SZF Almeida, CZ Cardillo, and MAM Martins participated in the article writing and critical review. All authors approved the version to be published.

Data availability statement

The data sources adopted in the research are indicated in the article's body.
The Supplementary Material mentioned is available at: https://doi.org/10.48331/SCIELODATA.3X91EP.

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