Farmácia Cuidar+ Program: Evaluation of the implementation of clinical services

Programa Farmácia Cuidar+: avaliação da implantação dos serviços clínicos

Ana Paula Rigo[1], Karin Hepp Schwambach[2], Fernanda Fávero Alberti[1], Marcelo Pedrotti Barbieri[3], Elisabete Elisa Pereira Zenere[3], Carine Raquel Blatt[3]

ABSTRACT The study aims to evaluate the implementation of clinical services by pharmacist in state of Rio Grande do Sul (RS), within the scope of Farmácia Cuidar+ Program, established in 2021. A matrix consisting of 22 indicators distributed across 8 dimensions with a score ranging from zero to 100 was applied during the initial phase (2022) and the intermediate phase (2023), in all 446 municipalities that joined the program. The average score of the municipalities in the initial phase (n = 351) and intermediate phase (n = 386) was 20.1 and 32.8 (p = 0,000), respectively. There was a significant increase in the following dimensions: treatment adherence, pharmacist's clinical services, pharmacist's office, safety, and health education. Smaller municipalities (less than 500 monthly consultations) achieved higher scores than larger municipalities in both phases. The implementation of the Farmácia Cuidar+ program showed significant results in the overall scores of the indicators proposed to evaluate pharmacist's clinical services. This outcome highlights progress regarding the clinical services as well as certain weaknesses that must be thoroughly discussed and improved for the effective implementation of Pharmaceutical Services Policy.

KEYWORDS Quality indicators, health care. Pharmaceutical services. Drugs from the specialized component of pharmaceutical care. Primary Health Care. Pharmacists.

RESUMO *O estudo objetiva avaliar a implementação dos serviços clínicos desenvolvidos por farmacêuticos do estado do Rio Grande do Sul, no âmbito do Programa Farmácia Cuidar+, implantado em 2021. Uma matriz composta por 22 indicadores distribuídos em 8 dimensões que compõem uma nota de zero a 100 foi aplicada na fase inicial (2022) e na fase intermediária (2023), nos 446 municípios que aderiram ao programa. A nota média dos municípios nas fases inicial (n = 351) e intermediária (n = 386) foi de 20,1 e 32.8 (p = 0,000), respectivamente. Houve aumento significativo nas dimensões: adesão ao tratamento, atividades clínicas, consultório, segurança e educação em saúde. Os municípios de menor porte (menos de 500 atendimentos ao mês) tiveram melhores notas que municípios de maior porte em ambas as fases. A implantação do Programa Farmácia Cuidar+ apresentou resultados significativos nas notas gerais dos indicadores propostos para avaliar os serviços clínicos providos por farmacêuticos. Este resultado aponta avanços com relação às atividades clínicas e fragilidades, que devem ser discutidas amplamente e aprimoradas para a efetiva implementação da Política de Assistência Farmacêutica.*

PALAVRAS-CHAVE *Indicadores de qualidade em assistência à saúde. Assistência farmacêutica. Medicamentos do componente especializado da assistência farmacêutica. Atenção Primária à Saúde. Farmacêuticos.*

[1] Secretaria Estadual de Saúde do Rio Grande do Sul (SES-RS), Departamento de Assistência Farmacêutica (Deaf) – Porto Alegre (RS), Brasil.

[2] Hospital de Pronto Socorro de Porto Alegre (HPS) – Porto Alegre (RS), Brasil.

[3] Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA) – Porto Alegre (RS), Brasil.
carineblatt@ufcspa.edu.br

Introduction

In Brazil, the National Drug Policy[1] and the National Policy of Pharmaceutical Assistance (PNAF)[2] were established to improve access to medicines and their rational use. From the historical perspective of more than 30 years of the Unified Health System (SUS) and 20 years of the PNAF, some advances were noticeable, such as the decentralization and structuring of the management of Pharmaceutical Assistance (AF) for the municipalities and the expansion of access to essential medicines[3-6]. There has also been an increase in the number of pharmacists working in Primary Health Care[6-9].

In addition to the management activities involving medicines, traditionally attributed to pharmacists, clinical activities aimed at patients have gained prominence because of the pharmacist's role as responsible for the effectiveness and safety of pharmacotherapy[10-13]. However, many challenges still need to be overcome to effectively implement the pharmacist's clinical activities within the SUS.

Initially, it is necessary to review the understanding that Pharmaceutical Assistance (AF) is merely an area of support for health actions and services, focused only on providing supplies and logistics, with incipient social care practices and provision of pharmaceutical services[14,15]. In addition, the funding centered on access to medicines[11,16,17], the high demand for managerial activities related to the provision of medicines and deficiencies in the training of pharmacists for direct assistance to the user[7,16] make it difficult for pharmacists to plan and carry out clinical activities.

Recently, the National Guidelines for Pharmaceutical Care[18] were published. In Rio Grande do Sul (RS), the state where this study was developed, the Policy for Pharmaceutical Assistance of the State of RS[19] was published and presented specific guidelines to implement pharmaceutical care to boost this model of practice. In this sense, to expand and qualify the clinical services developed by pharmacists in Pharmacies of Special Medicines (FME) that dispense medicines from the Specialized Component of Pharmaceutical Assistance (CEAF) and the state's complementary list, the pioneering Farmácia Cuidar+ Program was established in RS, in 2021[20].

CEAF is decentralized in all municipalities of RS, and the Farmácia Cuidar+ Program was adhered to by 446 (89.7%) municipalities[21]. The financial resources transferred could be used in three axes: structure, visual identity, and pharmaceutical care[22]. The funds were distributed according to the size of the municipality, based on the number of users served monthly in the FME. In return for the funds received, municipalities should have implemented the clinical services provided by pharmacists[20].

This study aims to evaluate the implementation of clinical services developed by pharmacists in RS under the Farmácia Cuidar+ Program, implemented in 2021.

Material and methods

This was an implementation evaluation study, the sample of which consists of the 446 (89.7%) municipalities in Rio Grande do Sul, which were grouped by size, according to the number of patient visits per month: I (up to 500), II (501 to 1,000), III (1001 to 2,000), IV (2001 to 3,000) and V (more than 3,000).

A matrix for evaluating the clinical services provided by pharmacists was created, validated and assessed by experts[17]. This matrix consists of 22 indicators that make up a score from zero to 100, distributed in 8 dimensions: effectiveness of asthma treatment, effectiveness of treatment of Chronic Obstructive Pulmonary Disease (COPD), treatment adherence, pharmacist's clinical activities, pharmacist's office, safety, health education, and continuing education, as shown in *box 1*.

Box 1. Indicators of clinical services developed by pharmacists under the Farmácia Cuidar+ Program

Dimension, score	Indicator name	Maximum Score
Effectiveness of Asthma treatment*# ,10	1. Effectiveness of asthma treatment	10
Effectiveness of COPD treatment*#, 10	2. Effectiveness of COPD treatment	10
Treatment adherence#, 8	3. Patient adherence to pharmacological treatment	8
Pharmacist's clinical activities, 42	4. First dispensing by pharmacist Asthma/COPD	8
	5. Dispensing by pharmacist Asthma/COPD	4
	6. Guidance on the drug use process	4
	7. Guidance for the results of medication use	4
	8. Guidance on adverse effects	4
	9. Record of care in the medical record	4
	10. Guidance on medication transportation	4
	11. Guidance on medication storage	4
	12. Exam evaluation and monitoring	2
	13. Medication reconciliation	2
	14. Evaluation of drug-drug interaction:	2
Pharmacist's office, 2	15. Pharmacist's office	2
Safety, 12	16. Registration of suspected adverse effects	4
	17. Registration of dispensing errors	4
	18. Double-check when dispensing	4
Health education	19. Health education material	4
	20. Participation in health education groups	4
Continuing Education, 8	21. Pharmacist's continuing education	4
	22. Staff Continuing Education	4

Source: Prepared by the authors.

*Applied only to size V municipalities.

The source of the indicator is the state management system.

For FME sizes I, II, III and IV, indicators 1 and 2 related to the results of effectiveness of asthma and COPD treatments are not applied, as these municipalities are not required to carry out tests to monitor the control of these diseases, following the regulations of the Farmácia Cuidar+ Program, and the maximum score for these municipalities is 80 points. However, the final grade is calculated on a weighted basis, so that all municipalities can be compared. The source and calculation formula of each indicator can be found in a previous publication[17].

The data for calculating the indicators were obtained using a questionnaire created on the Google Forms platform and sent by email to the pharmacists who coordinate the FME. The information for the indicators related to the effectiveness of asthma and COPD treatment, as well as for treatment adherence, were collected from the information system of the State Health Department (SES) of RS – Sistema AME – used to manage information on patient and their treatments related to CEAF. The evaluation was carried

out in the initial phase (March 2022) and in the intermediate phase (December 2023) of the program.

At the beginning of the Farmácia Cuidar+ Program, an online course on pharmacist's clinical activities for the care of people with asthma and/or COPD was developed and made available, in addition to the Farmácia Cuidar+ Program Manual – Pharmaceutical Care Axis. The research team also held face-to-face meetings with pharmacists working in the FMEs, organized in the health macro-regions. These meetings aimed to present the evaluation matrix and the results of the initial phase, in addition to carrying out service simulation activities in order to develop skills to perform clinical services. During these meetings, simulations of first dispensing, recurrent dispensing, and pharmacotherapeutic follow-up were performed for people with asthma. Other initiatives included a self-instructional online course and printed manuals for pharmacists, health education materials, videos and meetings discussing the topics of the program, as well as meetings with municipal managers to raise awareness about drug-related morbidity and mortality and present the results obtained.

Data analysis considered the scores achieved for each indicator in each phase, taking into account all municipalities that responded to the form. The database with the answers was compiled in a Microsoft Excel spreadsheet. Statistical analysis was carried out using the Stata software, with a significance level of 5%; Chi-Square, Student's t-test and repeated measures ANOVA were used, with Sidak's test for multiple comparisons. The scores for the indicators were presented descriptively in the form of mean and Standard Deviation (SD), stratified by size of the municipalities and/or health macro-region.

Pharmacists who agreed to take part in the study filled in the Free and Informed Consent Form (FICF). In this research, all fundamental ethical and scientific requirements were respected, based on the guidelines and provisions of the Resolution of the National Health Commission of the Ministry of Health, No. 466/2012[23], and Circular Letter No. 2/2021[24], of the National Research Ethics Commission for procedures in research with any stage in a virtual environment, in addition to the recent Law No. 14,874, of May 2024[25]. The study was approved by the Ethics Committee of the Federal University of Health Sciences of Porto Alegre, opinion No. 5.235.955, CAAE number 53806421.7.0000.5345.

Results

Among the 446 municipalities that joined the Farmácia Cuidar+ Program, 351 pharmacists answered the form in the initial phase and 386 in the intermediate phase, which represents a percentage of responses to the online questionnaire of 78.7% and 86.5%, respectively. The average score of the municipalities in the initial phase was 20.1 (SD = 15.6), while in the intermediate phase it was 32.8 (SD = 17.7), p = 0.000. There was also a significant increase in the dimensions: treatment adherence, pharmacist's clinical activities, pharmacist's office, safety, and health education, as shown in *table 1*.

In the initial phase, scores were low for most indicators. The indicators with the highest score in this phase were: guidance on medication transportation, guidance on medication storage and continuing education of the pharmacist. In the intermediate phase, in addition to those already mentioned, the indicators of patient adherence to pharmacological treatment, pharmacist's office, and health support material scored better.

Table 1. Results of the assessment of the implementation of clinical services developed by pharmacists in the initial (n = 351) and intermediate (n = 386) phases of the Farmácia Cuidar+ Program in the municipalities of Rio Grande do Sul, by dimension

Dimension	Score (Range)	Initial phase score (±SD) (n = 351)	Intermediate phase score (±SD) (n = 386)	p-value
Effectiveness of Asthma treatment*	0 to 10	0.3±1.3	0.6±1.7	0.635
Effectiveness of COPD treatment*	0 to 10	0±0	0±0	
Treatment adherence	0 to 8	0.6±2.1	5.8±3.6	0.000
Pharmacist's clinical activities	0 to 42	9.4±9.7	8.0±12.1	0.001
Pharmacist's office	0 to 2	0.3±0.4	0.6±0.5	0.000
Safety	0 to 12	1.2±2.1	1.6±2.3	0.004
Health education	0 to 8	1.7±2.4	3.2±2.6	0.000
Continuing education	0 to 8	3.1±2.7	3.1±2.9	0.676
Total score	0 to 100	20,1±15.6	32.8±17.7	0.000

Source: Prepared by the authors.

*Applied only to size V municipalities. SD = Standard Deviation.

When comparing the data from the intermediate phase with the initial phase, there was a significant increase in the following indicator: patient adherence to pharmacological treatment, first dispensing by the pharmacist, guidance on the process and medication use, guidance on expected results of the medication use, exam assessment and monitoring, drug medication reconciliation, assessment of drug-drug interaction, guidance on potential adverse effects, pharmacist's office, registration of suspected adverse events, registration of dispensing errors, double-checking when dispensing, support material and health dispensing group, as shown in *table 2*.

Table 2. Results of the assessment of the implementation of pharmaceutical clinical services in the initial (n = 351) and intermediate (n = 386) phases of the Farmácia Cuidar+ Program in the municipalities of Rio Grande do Sul, by indicator

Indicator	Score (Range)	Initial phase score (±SD) (n = 351)	Intermediate phase score (±SD) (n = 386)	p-value
1. Effectiveness of Asthma treatment*	0 to 10	0.3±1.3	0.6±1.7	0.635
2. Effectiveness of COPD treatment*	0 to 10	0±0	0±0	
3. Patient adherence to pharmacological treatment	0 to 8	0.6±2.1	5.8±3.6	0.000
4. First dispensing by the pharmacist for Asthma/COPD	0 to 8	1.6±3.0	2.4±3.4	0.001
5. Dispensing by the pharmacist for Asthma/COPD	0 to 4	1.5±1.8	1.8±1.8	0.082
6. Guidance on the process and medication use	0 to 4	0.9±1.5	0.7±1.4	0.034

Table 2. Results of the assessment of the implementation of pharmaceutical clinical services in the initial (n = 351) and intermediate (n = 386) phases of the Farmácia Cuidar+ Program in the municipalities of Rio Grande do Sul, by indicator

Indicator	Score (Range)	Initial phase score (±SD) (n = 351)	Intermediate phase score (±SD) (n = 386)	p-value
7. Guidance for the expected results of medication use	0 to 4	0.4±1.1	1±1.6	0.000
8. Guidance on medication transportation	0 to 4	1.9±1.9	2±1.8	0.471
9. Guidance on medication storage	0 to 4	1.6±1.8	1.7±1.8	0.505
10. Exam assessment and monitoring	0 to 2	0.2±0.8	0.6±1.2	0.000
11. Medication reconciliation	0 to 2	0.2±0.8	0.4±1.1	0.001
12. Assessment of drug-drug interaction	0 to 2	0.1±0.6	0.3±1.0	0.001
13. Guidance on potential adverse effects	0 to 4	0.4±1.1	0.7±1.4	0.005
14. Registration of care in the medical record	0 to 4	0.4±1.2	0.4±1.1	0.715
15. Pharmacist's office	0 to 2	0.3±0.4	0.6±0.5	0.000
16. Registration of suspected adverse effects	0 to 4	0±0.2	0.0±0.2	0.680
17. Registration of dispensing errors	0 to 4	0.5±1.3	0.7±1.6	0.029
18. Double-check when dispensing	0 to 4	0.6±1.4	0.9±1.6	0.027
19. Health support material	0 to 4	1.3±1.9	2.5±1.9	0.000
20. Health education group	0 to 4	0.4±1.1	0.6±1.3	0.017
21. Pharmacist's continuing education	0 to 4	2.3±2.0	2.3±2.0	0.653
22. Staff Continuing Education	0 to 4	0.7±1.5	0.9±1.7	0.202

Source: Prepared by the authors.

*Applied only to size V municipalities. SD = Standard Deviation.

Table 3 shows the average scores for each indicator, in the initial and intermediate phases, according to the size of the municipalities. The average score of the municipalities increased between the phases for all service sizes. Size I municipalities (less than 500 visits/month) achieved the highest average score. Size V municipalities (more than 3,000 visits/month) obtained the lowest average score increase when comparing the two periods.

Table 3. Results of the assessment of the implementation of clinical services developed by pharmacists in the initial (n = 351) and intermediate (n = 386) phases of the Farmácia Cuidar+ Program in the municipalities of Rio Grande do Sul, distributed by size of the number of patient visits/month

Size		I		II		III		IV		V	
Indicator	Score (Range)	Initial Phase# (n = 199)	Intermediate Phase# (n = 222)	Initial Phase# (n = 66)	Intermediate Phase# (n = 76)	Initial Phase # (n = 61)	Intermediate Phase# (n = 62)	Initial Phase# (n = 10)	Intermediate Phase# (n = 9)	Initial Phase# (n = 15)	Intermediate Phase# (n = 17)
Average score	0 a 100	**22.7±16.3**	**34.5±18.6**	**17.5±15.9**	**32.2±17.5**	**17.3±13.3**	**30.2±15.8**	**12.9±7.5**	**33.0±12.6**	**12.5±6.9**	**21.7±9.4**
1. Effectiveness of Asthma treatment*	0 a 10									0.3±1.3	0.6±1.7
2. Effectiveness of COPD treatment*	0 a 10									0.0±0.0	0.0±0.0
3. Patient adherence to pharmacological treatment	0 a 8	**0.8±2.5**	**5.4±3.8**	**0.5±1.9**	**6.5±3.1**	**0.0±0.0**	**6.1±3.5**	**0.8±2.5**	**8.0±0.0**	**0.0±0.0**	**5.2±3.9**
4. First dispensing by the pharmacist for Asthma/COPD	0 a 8	**1.9±3.3**	**2.9±3.6**	1.6±2.8	2.1±3.2	1.4±3.0	1.7±3.1	0.0±0.0	1.3±2.8	0,5±1.4	0.7±2.1
5. Dispensing by the pharmacist for Asthma/COPD	0 a 4	1.9±1.9	2.1±1.8	1.3±1.7	1.7±1.8	1.1±1.7	1.2±1.7	0.0±0.0	0.9±1.8	0.3±0.7	0.1±0.5
6. Guidance on the process and medication use	0 a 4	**1.1±1.6**	**0.7±1.4**	0.7±1.3	0.7±1.3	0.7±1.4	0.8±1.4	0.0±0.0	0.9±1.8	0.3±1.0	0.1±0.5
7. Guidance for the expected results of medication use	0 a 4	**0.5±1.3**	**1.2±1.7**	**0.3±0.8**	**1.1±1.6**	0.3±1.0	0.6±1.3	0.0±0.0	0.2±0.7	0.0±0.0	0.1±0.5
8. Guidance on medication transportation	0 a 4	2.1±1.9	2.1±1.8	1.6±1.9	2.0±1.9	1.5±1.8	1.8±1.8	2.0±1.9	1.8±2.1	1.7±2.0	0.8±1.6
9. Guidance on medication storage	0 a 4	1.9±1.9	2.0±1.8	1.4±1.8	1.6±1.7	1.3±1.7	1.4±1.8	1.6±1.8	0.9±1.8	1.3±2.0	0.6±1.4
10. Exam assessment and monitoring	0 a 2	**0.3±0.9**	**0.7±1.3**	0.2±0.9	0.6±1.2	0.1±0.6	0.2±0.6	0.2±0.6	0.5±1.3	0.0±0.0	0.2±1.0
11. Medication reconciliation	0 a 2	**0.3±0.9**	**0.5±1.2**	**0.2±0.6**	**0.5±1.2**	0.1±0.6	0.4±1.0	0.1±0.2	0.1±0.2	0.0±0.0	0.0±0.1
12. Assessment of drug-drug interaction	0 a 2	**0.2±0.7**	**0.4±1.1**	0.2±0.8	0.3±0.8	0.0±0.3	0.2±0.8	0.0±0.0	0.1±0.2	0.0±0.0	0.0±0.0
13. Guidance on potential adverse effects	0 a 4	**0.5±1.3**	**0.9±1.5**	0.3±1.0	0.5±1.2	0.3±1.0	0.5±1.2	0.0±0.0	0±0	0.3±1.0	0.0±0.0
14. Registration of care in the medical record	0 a 4	0.5±1.3	0.5±1.2	0.3±1.1	0.3±1	0.4±1.2	0.4±1.1	0.0±0.0	0.4±1.3	0.0±0.0	0.1±0.5
15. Pharmacist's office	0 a 2	**0.2±0.4**	**0.5±0.5**	**0.2±0.4**	**0.6±0.5**	**0.4±0.5**	**0.8±0.4**	0.6±0.5	0.7±0.5	**0.4±0.5**	**0.9±0.2**
16. Registration of suspected adverse effects	0 a 4	0.0±0.3	0.0±0.3	0.0±0.0	0.0±0.0	0.0±0.3	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
17. Registration of dispensing errors	0 a 4	0.6±1.4	0.7±1.5	0.4±1.2	0.8±1.6	0.4±1.2	0.5±1.3	**0.0±0.0**	**2.2±2.1**	0.8±1.7	0.9±1.7
18. Double-check when dispensing	0 a 4	0.6±1.3	0.8±1.5	0.5±1.3	0.6±1.4	0.6±1.3	1.1±1.7	1.2±1.9	1.3±2	1.7±2.0	1.9±2.1
19. Health support material	0 a 4	**1.3±1.9**	**2.5±2.0**	**1.3±1.9**	**2.3±2.0**	**1.2±1.8**	**2.9±1.8**	0.4±1.3	1.8±2.1	**1.3±2.0**	**3.8±1**
20. Health education group	0 a 4	0.4±1.2	0.7±1.3	**0.3±1.0**	**0.7±1.4**	0.5±1.2	0.4±1.2	0.3±0.9	0.0±0.0	0.0±0.0	0.4±1.2
21. Pharmacist's continuing education	0 a 4	2.4±2.0	2.2±2.0	2.1±2	2.3±2.0	2.5±2.0	2.3±2.0	2.4±2.1	2.7±2.0	2.1±2.1	3.1±1.7
22. Staff Continuing Education	0 a 4	0.7±1.5	0.8±1.6	0.7±1.6	0.6±1.5	0.7±1.6	0.9±1.7	**0.8±1.7**	**2.7±2.0**	1.3±2	2.1±2.1

Source: Prepared by the authors.

Note: Number of users served monthly at the Special Medicines Pharmacy, being I (up to 500), II (501 to 1000), III (1001 to 2000), IV (2001 to 3000) and V (more than 3000).

Values in bold indicate a significant difference between the initial and intermediate phases (p < 0.05).

* Applied only to the municipalities of Size V. # Average score and standard deviation.

Regarding asthma and COPD control effectiveness indicators, no municipality reached the minimum percentage of patients with controlled COPD to score on this indicator, so the score was zero in the two phases evaluated. For asthma, the percentage of patients who use medication and have the disease controlled is very low.

Discussion

About a year and a half after the start of the Farmácia Cuidar+ Program, there was a significant increase in the average scores of the municipalities that had joined the program in relation to the indicators proposed for evaluating the implementation of clinical services developed by pharmacists. This result shows that specific programs with financial resources in addition to the purchase of medicines, which seek to structure pharmacies and offer technical support to pharmacists with a focus on pharmaceutical care, can promote changes in work processes related to clinical services developed by pharmacists in the SUS.

Evaluating this program enables its sustainability as a tool for qualifying the SUS and helps develop effective strategies for areas that are considered priorities. In a systematic review that sought to identify the strategies used to evaluate the implementation of patient care services in community pharmacies, it was identified that 'training and educating stakeholders' and 'engaging the consumer' were the most frequent implementation strategies. Other strategies also mentioned were: 'providing interactive assistance', 'adapting to the context', 'financial incentive', and 'changing infrastructure'[26].

Size I municipalities have better results in the pharmacist's clinical activities, such as the first dispensing, general guidance and exam monitoring. This result may be related to the existence of a greater bond between pharmacists and users in municipalities with a lower number of visits/month, where the pharmacist is responsible for dispensing medicines[27,28]. Building a bond between users and health workers favors relationships of trust and facilitates the user's adherence to care, allowing the deepening of the process of co-responsibility for health[29].

Size I municipalities represent the reality of most municipalities in Rio Grande do Sul[21] and Brazil[30]. Smaller municipalities usually only have one pharmacist responsible for technical-managerial and technical-assistance services[17]. The negative aspect is that the many demands involved in managerial activities can suppress clinical activities[11]. On the other hand, despite the multiple demands, the pharmacist, when working alone, is the one who effectively accompanies the patient, especially in the dispensing process, although they often do not recognize dispensing as a clinical activity. Interviews with the service component of the National Survey on Access, Use and Promotion of the Rational Use of Medicines in Brazil show that only 21.3% of pharmacists said they carried out clinical activities, with pharmaceutical guidance and pharmaceutical care being the most frequently cited[10].

In addition, the small number of professionals in public pharmacies is pointed out as a barrier to implementing clinical services developed by pharmacists, who end up prioritizing management services for drug logistics[10]. Changing this logic is a challenge for pharmacists themselves, who often do not feel prepared to carry out clinical activities[31].

In the size V municipalities, the scores were slightly better in relation to the aspects of structure, such as: presence of a pharmacist's office, double-checking when dispensing medicines and having support material to guide patients when dispensing. Such tasks are usually possible when there is a larger team and/or larger space. In addition, in municipalities with a greater demand for patients, better organization of processes is generally necessary.

Five of the eight dimensions proposed for evaluating the implementation of clinical

services showed significant differences, demonstrating that different actions were performed by pharmacists between the evaluation periods. Financial support to implement clinical services, continuing education, and evaluation activities seem to be important for the effectiveness of the intended actions. The average scores are still somehow, off the maximum score, but it is understood that this is a gradual process of raising awareness among pharmacists and managers. It is important to highlight the importance of evaluation during the process of implementing a program and disseminating the results[26,32]. In this way, pharmacists in the municipalities are able to visualize their reality, compare it with the reality of similar municipalities, as well as understand what the goal is and what points need to be improved.

The dimensions related to the effectiveness of asthma and COPD treatment, which assess results, were applied only to size V municipalities (n = 17). In asthma, there was a small increase in the number of patients with disease control, but it was not significant, while in COPD the number of patients with disease control is minor. Nevertheless, the clinical complexity of COPD results in a reduced response to treatment when lifestyle modification measures are not adopted in conjunction with the correct and safe use of medication[33].

The effectiveness results suggest that the evaluation of complex treatments requires prolonged follow-up and an integrated approach that includes both clinical and behavioral aspects of patients. Several studies have reported that health interventions engaged by pharmacists have an impact on treatment adherence and the correct performance of the drug inhalation technique in asthma and COPD patients[33-37].

In the 'Pharmacist's clinical activities' dimension, there was no significant change between the phases for 'dispensing by pharmacist for asthma and COPD', 'Guidance on medication transportation' and 'Guidance on medication storage', however, these indicators already had a higher score in the initial phase, and therefore guidance on transport and storage were the most provided prior to the implementation of the Farmácia Cuidar+ Program. This finding is in line with national and regional surveys that highlight dispensing as the most common clinical service[10,27,31,38]. Despite this, the concept of dispensing as a clinical service, and not only as the delivery of medicines, is not widespread even among the pharmacists[10,30].

The results of the 'pharmacist's clinical activities' dimension vary according to the practices adopted in the different municipalities. For some municipalities, more time may be needed to organize, train and prioritize clinical activities. Many of the medicines that are part of the CEAF's list include diseases with a lower prevalence in the population and that are more complex in terms of care, monitoring and treatment effectiveness, such as transplantation, schizophrenia, asthma, and COPD. All these diseases have clinical protocols, which pharmacists must use to ensure patient-centered care[39,40]. As a clinical service, pharmacotherapeutic follow-up is the most studied; however, the clinical activities commonly developed in primary care in Brazil are dispensing and guiding users regarding the correct use of medicines[27].

Another important aspect of the clinical services provided by pharmacists is the documentation of the process, a reality that is still incipient in the municipalities investigated. This result is possibly associated with the initiation of the pharmacist's clinical practice[41], the fragmentation of Pharmaceutical Assistance (AF) in the context of the Specialized Component concerning other health services[42], and insufficient training for pharmaceutical care[41,43,44]. Incorporating the registration of the clinical service in medical records as an essential part of the care would favor pharmacists not only to document the care, but also to allow following up patients and to strengthen their integration and collaboration within the health team, making a more significant contribution

to comprehensive user care and having their clinical attributions recognized[45,46].

Encouraging the pharmacists' clinical activities was expected to lead to an increase in the indicator scores. Paradoxically, guidance on the drug use process showed a significant reduction in values when comparing the intermediate and initial phases, both in total and in the size I municipalities. Even though pharmacists recognize clinical activities as important, the complexity and multitasking related to the Pharmacy can prevent the prioritization of user guidance[8,30,38], which can negatively impact the effectiveness of the treatments provided[4,17].

The 'safety' dimension showed progress only in the indicator that measures the registration of suspected adverse effects. The use of double-checking the item to be dispensed and the registration of dispensing errors are processes that are still little performed in pharmacies and that need to be implemented to ensure the safety of the drug user. A study carried out in municipalities of the state of Santa Catarina also found a lack of actions aimed at patient safety within the scope of AF (Pharmaceutical Assistance)[47].

Health education is an important strategy for encouraging the rational use of medicines and promoting self-care, which can be carried out individually or in groups. The study by Araújo et al.[10] highlights the low participation of pharmacists in these activities, which is causes concerns considering the central role of these professionals in providing appropriate guidance on medicines.

In the present study, an evolution was observed in the indicator 'Health support material', which demonstrates progress in the availability of these materials over time. The coordination of the Farmácia Cuidar+ Program has developed materials aimed at guiding users and makes them available to FME pharmacists, such as a self-care diary; papers with a description of the correct use of inhalation devices; videos on specific diseases to be sent via WhatsApp or waiting room, or

even during the pharmaceutical consultation. The materials are included in the state dispensing system, with the option of printing for delivery to the user, available at the Farmácia Cuidar+ Program Manual – Pharmaceutical Care Axis – and on the program's website. The delivery of ready-made materials to workers seems to be an incentive to carry out health education activities, but this does not prevent pharmacists from developing their materials to support the dispensing of medicines and guidance for users.

The continuing education dimension did not show a difference between the phases, despite the initiatives of the Farmácia Cuidar+ Program. In recent years, clinical services developed by pharmacists have challenged educators, managers, and workers with demands related to training[48]. Many pharmacists do not have undergraduate knowledge that has explored the complexities of Clinical Pharmacy and Pharmaceutical Care, which limits the development of the clinical skills needed for routine and work processes[48,49]. In this context, there is a need to raise awareness of local management to coordinate initiatives aimed at training pharmacists and staff or at promoting training programs with this objective.

The limitations of this study are partly related to the use of data from a computerized system, the quality and accuracy of which depend directly on the consistency and accuracy of the records entered, as well as the fact that the source of clinical service indicators is the pharmacist responsible for carrying out these activities. On the other hand, this is currently the best source available, and, although incipient, it allows for comparisons and reflections. In addition, face-to-face meetings where the matrix of indicators and the results of the initial stage were presented to pharmacists may have introduced a response bias with respect to the results of the intermediate stage, as participants were exposed to previous information. Although this dynamic may have had some impact on the spontaneity and

independence of the responses in the subsequent stage, it is believed that the results still provide valuable subsidies on the pharmacists' perception of the indicators assessed. Participation in filling in the questionnaire was voluntary, and although a high percentage of responses was achieved, non-responders may have been pharmacists who do not carry out or do not want to perform any clinical activity, or municipalities that do not have a pharmacist.

In the process of evaluating AF (Pharmacological Assistance) in primary care, it has been identified that the main gap is related to the process of evaluating the clinical services provided by pharmacists[50-52]. In this sense, in addition to evaluating the structure and process, it is necessary to evaluate the results obtained through these actions[53]. Studies investigating the provision of clinical services within the scope of CEAF are scarce and highlight the need for progress in its implementation[50-52].

Over the past few years, it has become clear that access to medication alone does not guarantee clinical outcomes. A phramaceutical assistance (AF) policy needs to ensure that drugs are used correctly and achieve the desired therapeutic results, and this is intrinsically related to the appreciation of clinical activity as a technical-assistance and exclusive activity of the pharmacist, as well as the work of the pharmacist integrated into the health team. After almost three years since the start of the Farmácia Cuidar+ Program, it is necessary to discuss strategies for raising awareness among managers, pharmacists and the population of the importance of pharmaceutical clinical activities, aiming at the sustainability of actions.

Conclusions

The Farmácia Cuidar+ Program, an unprecedented state funding program for the implementation of clinical services developed by pharmacists in the context of CEAF, showed significant results in the general scores of the indicators proposed to evaluate clinical services, as well as in the dimensions of treatment adherence, pharmacist's clinical activities, office, safety and health education.

The results observed in this study show that the implementation of the Farmácia Cuidar+ Program is advancing and, although the results obtained are far from the full score proposed in the indicators evaluated, which would reflect an ideal situation, changes have been noticed. In addition, the heterogeneity between municipalities is noticeable, especially those with a lower number of patient visits per month. In addition to the transfer of financial resources, several strategies were adopted to encourage the implementation of clinical services. These include face-to-face meetings held in the state's seven health macro-regions, aimed at disseminating the program and training pharmacists through continuing education, focusing on clinical services for users with asthma and COPD.

This study shows that specific programs, implemented at the state level, with the transfer of financial resources, technical support, and evaluation by the state management, encourage the implementation of clinical services developed by pharmacists, contributing to the achievement of the guidelines established in the PNAF.

Collaborators

Rigo AP (0000-0002-9142-9421)*, Schwambach KH (0000-0003-3271-2566)*, Alberti FF (0000-0003-4049-9902)*, Barbieri MP (0009-0000-1781-7875)* and Blatt CR (0000-0001-5935-1196)* contributed to research planning, data collection and analysis, and manuscript writing. Zenere EEP (0009-0003-5603-7419)* contributed to data collection and analysis and manuscript writing. ■

*Orcid (Open Researcher and Contributor ID).

References

1. Ministério da Saúde (BR), Gabinete do Ministro. Portaria nº 3.916, de 30 de outubro de 1998. Política Nacional de Medicamentos. Diário Oficial da União [Internet], Brasília, DF. 1998 nov 10 [acesso em 2025 mar 12]; Seção I:18-22. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/1998/prt3916_30_10_1998.html

2. Conselho Nacional de Saúde (BR). Resolução nº 338, de 6 de maio de 2004. Aprova a Política Nacional de Assistência Farmacêutica. Diário Oficial da União, Brasília, DF. 2004 maio 20; Seção I:96.

3. Oliveira LCF, Assis MMA, Barboni AR. Assistência Farmacêutica no Sistema Único de Saúde: da Política Nacional de Medicamentos à Atenção Básica à Saúde. Ciênc saúde coletiva. 2010;15:3561-7. DOI: https://doi.org/10.1590/S1413-81232010000900031

4. Oliveira MA, Luiza VL, Tavares NUL, et al. Access to medicines for chronic diseases in Brazil: a multidimensional approach. Rev Saúde Pública. 2016;50(supl2):6s. DOI: https://doi.org/10.1590/S1518-8787.2016050006161

5. Gerlack LF, Karnikowski MGO, Areda CA, et al. Gestão da assistência farmacêutica na atenção primária no Brasil. Rev Saúde Pública. 2017;51(supl2):15s. DOI: https://doi.org/10.11606/S1518-8787.2017051007063

6. Costa KS, Tavares NUL, Nascimento Júnior JM, et al. Avanços e desafios da assistência farmacêutica na atenção primária no Sistema Único de Saúde. Rev Saúde Pública. 2017;51(supl2):3s. DOI: https://doi.org/10.11606/S1518-8787.2017051007146

7. Carvalho MN, Álvares J, Costa KS, et al. Força de trabalho na assistência farmacêutica da atenção básica do SUS, Brasil. Rev Saúde Pública. 2017;51(supl2):16s. DOI: https://doi.org/10.11606/S1518-8787.2017051007110

8. Leite SN, Bernardo NLMC, Álvares J, et al. Medicine dispensing service in primary health care of SUS. Rev Saúde Pública. 2017;51:11s. DOI: https://doi.org/10.11606/S1518-8787.2017051007121

9. Nakamura CA, Leite SN. A construção do processo de trabalho no Núcleo de Apoio à Saúde da Família: a experiência dos farmacêuticos em um município do sul do Brasil. Ciênc saúde coletiva. 2016;21(5):1565-72. DOI: https://doi.org/10.1590/1413-81232015215.17412014

10. Araújo PS, Costa EA, Guerra Junior AA, et al. Atividades farmacêuticas de natureza clínica na atenção básica no Brasil. Rev Saúde Pública. 2017;51(supl2):6s. DOI: https://doi.org/10.11606/S1518-8787.2017051007109

11. Araújo SQ, Costa KS, Luiza VL, et al. Organização dos serviços farmacêuticos no Sistema Único de Saúde em regiões de saúde. Ciênc saúde coletiva. 2017;22(4):1181-91. DOI: https://doi.org/10.1590/1413-81232017224.27042016

12. Conselho Federal de Farmácia (BR). Serviços farmacêuticos diretamente destinados ao paciente, à família e à comunidade: contextualização e arcabouço conceitual. Brasília, DF: Conselho Federal de Farmácia; 2016.

13. Ndefo UA, Moultry AM, Davis PN, et al. Provision of medication therapy management by pharmacists to patients with type-2 diabetes mellitus in a federally qualified health center. P&T. 2017;42(10):632-7.

14. Bermudez JAZ, Esher A, Osorio-de-Castro CGS, et al. Assistência Farmacêutica nos 30 anos do SUS na perspectiva da integralidade. Ciênc saúde coletiva. 2018;23(6):1937-49. DOI: https://doi.org/10.1590/1413-81232018236.09022018

15. Pereira CEO, Bambirra EHF, Fernandes BD, et al. Factors influencing the implementation of pharmaceutical care in outpatient settings: A systematic review applying the Consolidated Framework for Implementation Research. Res Social Adm Pharm. 2022;18(4):2579-92. DOI: https://doi.org/10.1016/j.sapharm.2021.06.011

16. Destro DR, Vale SA, Brito MJM, et al. Desafios para o cuidado farmacêutico na Atenção Primária à Saú-

de. Physis. 2021;31(3):e310323. DOI: https://doi.org/10.1590/S0103-73312021310323

17. Schwambach KH, Rigo AP, Mota LS, et al. Indicadores do cuidado farmacêutico para monitoramento da implantação do Programa Farmácia Cuidar+. Rev Cont Saúde. 2024;24(49):e15552. DOI: https://doi.org/10.21527/2176-7114.2024.49.15552

18. Ministério da Saúde (BR), Gabinete do Ministro. Portaria GM/MS nº 4.379, de 14 de junho de 2024. Altera a Portaria de Consolidação GM/MS nº 2, de 28 de setembro de 2017, para estabelecer as Diretrizes Nacionais do Cuidado Farmacêutico no âmbito do Sistema Único de Saúde – SUS. Diário Oficial da União [Internet], Brasília, DF. 2024 jun 17 [acesso em 2025 mar 12]; Edição 114; Seção I:139. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2024/prt4379_17_06_2024.html

19. Rio Grande do Sul (RS). Decreto nº 56.626, de 16 de agosto de 2022. Institui a Política Estadual de Assistência Farmacêutica. Diário Oficial do Estado do Rio Grande do Sul, Porto Alegre, RS. 2022 ago 16.

20. Secretaria da Saúde (RS). Portaria nº 649, de 14 de setembro de 2021. Institui o Programa Farmácia Cuidar+ no Estado do Rio Grande do Sul e regulamenta a transferência de recursos destinados à sua implementação em 2021. Diário Oficial do Estado do Rio Grande do Sul, Porto Alegre, RS. 2021 set 14.

21. Rigo AP, Gossenheimer AN, Burlamaque GB, et al. Farmácia Cuidar+: Programa estadual de fomento à implementação do cuidado farmacêutico no SUS. JAFF. 2022;7(2):23-8. DOI: https://doi.org/10.22563/2525-7323.2022.v7.n.2.p.23-28%20

22. Burlamaque BG, Guimarães AR, Schneiders RE, et al. Estrutura das Farmácias de medicamentos especiais do RS: uma análise para o programa Farmácia Cuidar +. JAFF. 2023;7(2): 20-8. DOI: https://doi.org/10.22563/2525-7323.2022.v7.n.2.p.20-28

23. Conselho Nacional de Saúde (BR). Resolução nº 466, de 12 dezembro de 2012. Aprova as diretrizes e normas regulamentadoras de pesquisas envolvendo se-

res humanos. Diário Oficial da União, Brasília, DF. 2013 jun 13; Edição 112; Seção I:59-62.

24. Ministério da Saúde (BR); Secretaria-Executiva do Conselho Nacional de Saúde; Comissão Nacional de Ética em Pesquisa. Carta Circular nº 1/2021-CONEP/SECNS/MS. Orientações para procedimentos em pesquisas com qualquer etapa em ambiente virtual. Comissão Nacional de Ética em Pesquisa, Brasília, DF. 2021 mar 3.

25. Presidência da República (BR). Lei nº 14.874, de 28 de maio de 2024. Dispõe sobre a pesquisa com seres humanos e institui o Sistema Nacional de Ética em Pesquisa com Seres Humanos. Diário Oficial da União, Brasília, DF. 2024 maio 29; Edição 103; Seção I:3-7.

26. Bacci JL, Bigham KA, Dillon Sumner L, et al. Community pharmacist patient care services: a systematic review of approaches used for implementation and evaluation. J Am Coll Clin Pharm. 2019;2(4):423-32. DOI: https://doi.org/10.1002/jac5.1136

27. Barros DSL, Silva DLM, Leite SN. Serviços farmacêuticos clínicos na atenção primária à saúde do Brasil. Trab Educ Saúde. 2019;18(1);e0024071. DOI: https://doi.org/10.1590/1981-7746-sol00240

28. Fernandes BD, Freitas RR, Melchiors AC. Avaliação dos serviços farmacêuticos: indicadores de estrutura e processo em farmácias comunitárias. Rev Bras Pesq Saúde [Internet]. 2015 [acesso em 2025 mar 12];17(1):31-7. Disponível em: https://periodicos.ufes.br/rbps/article/view/12447

29. Ministério da Saúde (BR), Gabinete do Ministro. Portaria nº 2.436 de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União, Brasília, DF. 2017 set 21; Edição 183; Seção I:68.

30. Leite SN, Manzini F, Álvares J, et al. Infraestrutura das farmácias da atenção básica no Sistema Único de Saúde: Análise dos dados da PNAUM-Serviços. Rev

Saúde Pública. 2017;51(supl2):13s. DOI: https://doi.org/10.11606/S1518-8787.2017051007120

31.   Lima MG, Álvares J, Guerra Junior AA, et al. Indicadores relacionados ao uso racional de medicamentos e seus fatores associados. Rev Saúde Pública. 2017;51(supl2):23s. DOI: https://doi.org/10.11606/S1518-8787.2017051007137

32.   Souza JFF, Fernandes BD, Rotta I, et al. Key performance indicators for pharmaceutical services: A systematic review. Explor Res Clin Soc Pharm. 2024;10(14):100441. DOI: https://doi.org/10.1016/j.rcsop.2024.100441

33.   Moreira ATA, Pinto CR, Lemos ACM, et al. Evidências da associação entre adesão ao tratamento e mortalidade em pacientes com DPOC acompanhados em um programa público de gerenciamento de doenças no Brasil. J Bras Pneumol. 2022;48(1):e20210120. DOI: https://doi.org/10.36416/1806-3756/e20210120

34.   Hesso I, Gebara SN, Kayyali R. Impact of community pharmacists in COPD management: Inhalation technique and medication adherence. Respir Med. 2016;118:22-30. DOI: https://doi.org/10.1016/j.rmed.2016.07.010

35.   Jia X, Zhou S, Luo D, et al. Effect of pharmacist-led interventions on medication adherence and inhalation technique in adult patients with asthma or COPD: A systematic review and meta-analysis. J Clin Pharm Ther. 2020;45(5):904-17. DOI: https://doi.org/10.1111/jcpt.13126

36.   Timilsina M, Tiwari R, Banstola S. Impact of Pharmacist-led Interventions on Medication Adherence and Inhalation Technique in Adult Patients with COPD and Asthma. Jhas. 2023;13(1):14-22. DOI: https://doi.org/10.37107/jhas326

37.   Mahmoud A, Abuhelwa AY, Owen T, et al. Role of Pharmacists in the Care of Adult Asthma Patients: A Scoping Review. Res Social Adm Pharm. 2024;20:860-869. DOI: https://doi.org/10.1016/j.sapharm.2024.06.005

38.   Vieira JW, Pilger D, Bittencourt RA, et al. Characterization of dispensing processes in primary care pharmacies in Rio Grande do Sul. J Hosp Pharm Health Serv. 2021;12(2):0603. DOI: https://jhphs.org/sbrafh/article/view/603

39.   Silva AAS, Costa SMC. A descentralização do componente especializado da assistência farmacêutica na 15ª região de saúde do estado do Ceará. Rev Bras Farm Hosp Serv Saude. 2015;6(1);37-40.

40.   Brito AH, Araújo MO. Acesso a Medicamentos do Componente Especializado da Assistência Farmacêutica: uma Revisão Integrativa. Revisa. 2023;12(4):770-85.

41.   Destro DR, Mendonça SAM, Brito MJM, et al. A formação para o cuidado farmacêutico na atenção primária à saúde na perspectiva dos farmacêuticos. Rev Cont Saúde. 2023;23(47):e13353. DOI: https://doi.org/10.21527/2176-7114.2023.47.13353

42.   Rover MRM, Peláez CMV, Farias MR, et al. Da organização do sistema à fragmentação do cuidado: a percepção de usuários, médicos e farmacêuticos sobre o Componente Especializado da Assistência Farmacêutica. Physis. 2016;26(2):691-711. DOI: https://doi.org/10.1590/S0103-73312016000200017

43.   Almeida RB, Mendes DHC, Dalpizzol PA. Ensino farmacêutico no Brasil na perspectiva de uma formação clínica. Rev Ciênc Farm Básica Apl. 2014;35(3):347-54.

44.   Lima EDD, Silva RGD, Ricieri MC, et al. Clinical pharmacy in the hospital environment: focus on the documentation of activities. Rev Bras Farm Hosp Serv Saúde. 2019;8(4):18-24. DOI: https://jhphs.org/sbrafh/article/view/307

45.   Maes KA, Studer H, Berger J, et al. Documentação de cuidados farmacêuticos: Validação de um sistema de classificação orientado à intervenção. J Eval Clin Pract. 2017;23:1425-32. DOI: https://doi.org/10.1111/jep.12817

46.   Cerqueira-Santos S, Rocha KSS, Boaventura TC, et al. Development and content validation of an instru-

ment to document the dispensing of prescribed medicines. J Clin Pharm Ther. 2019;44(3):430-9. DOI: https://doi.org/10.1111/jcpt.12803

47. Monteiro ER, Lacerda JTD, Natal S. Avaliação da gestão municipal na promoção do uso racional de medicamentos em municípios de médio e grande porte de Santa Catarina, Brasil. Cad Saúde Pública. 2021;37(5):e00112920. DOI: https://doi.org/10.1590/0102-311X00112920

48. Dóczy AP, Santos GB, Luiza VL, et al. A perspectiva de egressos e de outros atores envolvidos sobre uma formação em serviços farmacêuticos na Atenção Primária à Saúde. Interface (Botucatu). 2023;27:e220594. DOI: https://doi.org/10.1590/interface.220594

49. McDermott I, Astbury J, Jacobs S, et al. To be or not to be: The identity work of pharmacists as clinicians. Sociol Health Illn. 2023;45(3):623-41. DOI: https://doi.org/10.1111/1467-9566.13605

50. Gallina SM, Mendes T, Bittencourt RA, et al. Diagnosis of pharmaceutical service for the Specialized Component and Special Drug Program in municipalities in the Rio Grande do Sul. J Hosp Pharm Health Serv. 2023;14(1):0815. DOI: https://doi.org/10.30968/rbfhss.2023.141.0815

51. Fatel KO, Rover MRM, Mendes SJ, et al. Desafios na gestão de medicamentos de alto preço no SUS: avaliação da Assistência Farmacêutica em São Paulo. Ciênc saúde coletiva. 2021;26(11):5481-98. DOI: https://doi.org/10.1590/1413-812320212611.00842021

52. Rover MRM, Leite SN, Farias MR, et al. Avaliação da capacidade de gestão do componente especializado da assistência farmacêutica. Ciênc saúde coletiva. 2017;22(8):2487-99. DOI: https://doi.org/10.1590/1413-81232017228.0160201

53. Soares LSS, Brito ES, Galato D. Percepções de atores sociais sobre Assistência Farmacêutica na atenção primária: a lacuna do cuidado farmacêutico. Saúde debate. 2022;44(12):411-26. DOI: https://doi.org/10.1590/0103-1104202012510