Revista ARACÊ
ISSN: 2358-2472

COW'S MILK PROTEIN ALLERGY: PROPOSAL FOR A FORM AND HEALTH INDICATORS FOR THE REQUEST AND DISPENSATION OF SPECIAL NUTRITIONAL FORMULAS

https://doi.org/10.56238/arev7n2-130

Submitted on: 11/01/2025 **Publication date:** 11/02/2025

Laís Fernanda Costa Oliveira[1], Clara Oliveira Lopes[2], Camilla Rodrigues Evangelista Silva[3], Érica da Silva Barros[4], Milena Alves Carvalho Costa[5] and Renata Andrade de Medeiros Moreira[6]

ABSTRACT

The objective of this study was to outline a proposal for an instrument, evaluation, and monitoring for requesting and supplying Nutritional Formulas (NF) for Cow's Milk Protein Allergy (CMPA). A cross-sectional study was carried out, through the critical analysis of the results of the first stage of the research, which evaluated the quality of the medical, nutritional, and social forms for requesting NF for children with CMPA in the Pharmaceutical Services (PS) of the Health Department of the State of Tocantins. The second stage consisted of the application of a questionnaire with the parents/guardians of the children registered in the PS between 2021-2022, where the socioeconomic data of the family, the nutritional status of the children, and food consumption were collected through a 24-hour food recall. A descriptive analysis of the questionnaire data was performed. A proposal was developed for new instruments for requesting NF for CMPA and health indicators for evaluation and monitoring. It was identified the need to add to the medical form (type of diagnosis, test performed), the nutritional form (assessment of nutritional status based on

[1] Graduate Program in Health and Nutrition at the Federal University of Ouro Preto – UFOP
E-mail: lais.fco@aluno.ufop.edu.br
ORCID: 0009-0009-4775-0400
LATTES: http://lattes.cnpq.br/7859444224643990
[2] Nutrition Course at the Federal University of Tocantins – UFT
Email: clara.oliveira@mail.uft.edu.br
ORCID: 0000-0002-6060-6798
LATTES: http://lattes.cnpq.br/4270035031046272
[3] Graduate Program in Health Sciences at the Federal University of Tocantins – UFT
E-mail: camilla.rodrigues@mail.uft.edu.br
ORCID: 0000-0001-9463-030X
LATTES: http://lattes.cnpq.br/5281095831270379
[4] Uniasselvi
Email: ericasilvabarros@gmail.com
ORCID: 0000-0003-3885-1911
LATTES: http://lattes.cnpq.br/0924279696172884
[5] School of Public Health Foundation of Palmas/Municipal Health Department of Palmas – FESP/SEMUS
E-mail: milalves@gmail.com
ORCID: 0000-0002-0517-999X
LATTES: http://lattes.cnpq.br/6092963824946950
[6] Nutrition Course at the Federal University of Tocantins – UFT
E-mail: renatamoreira@mail.uft.edu.br
ORCID: 0000-0001-6096-9145
LATTES: http://lattes.cnpq.br/5453434127959577

Revista ARACÊ
ISSN: 2358-2472

growth curves, daily FN schedule, and complementary feeding), and the social form (standardization of information regarding the family's socioeconomic conditions). Health indicators were elaborated from the surveillance of health conditions and the service produced, providing support for decision-making in the sector. The use of the new forms will enable comprehensive health care and the human right to adequate food. The elaboration of specific health indicators becomes important for better follow-up and monitoring of the service.

Keywords: Collective Health. Maternal and Child Health. Comprehensive Health Care. Pharmaceutical Assistance. Allergy.

Revista ARACÊ
ISSN: 2358-2472

INTRODUCTION

In Brazil, health is a right of all and a duty of the State, and the guarantee of the dignity of the human person is one of the pillars of the Constitution1. Since food is essential for the maintenance of life, promoting Food and Nutrition Security (FNS) is a responsibility of the State through the implementation of public policies capable of guaranteeing the realization of the Human Right to Adequate Food (DHAA) in its dimensions such as the right to be free from hunger and malnutrition; the right to adequate and healthy food, which consists of guaranteeing permanent and regular access in a socially just way; and to a dietary practice appropriate to the biological and social aspects of the individual2,3,4.

In this sense, the Unified Health System (SUS) provides the conditions for the promotion, protection, and recovery of health5, and is structured in the Health Care Network (RAS). In the RAS Support Systems, Pharmaceutical Services (PS) are responsible for promoting access to medicines and supplies for the treatment of the main health problems of the population6.

Among these problems is Cow's Milk Protein Allergy (CMPA), characterized by immunological mechanisms due to the formation of IgE antibodies when predisposed people come into contact with cow's milk proteins, especially casein (rennet protein) and beta-lactoglobulin and alpha-lactalbumin (whey proteins)[7,8]. Among the symptoms of IgE-mediated allergy are skin reactions (urticaria, angioedema), gastrointestinal (vomiting and diarrhea), respiratory (bronchospasm, runny nose) and systemic reactions (anaphylaxis); when they are not mediated by IgE, they develop proctitis, enteropathy and enterocolitis, and as for mixed reactions, the symptoms triggered are eosinophilic esophagitis, gastritis and eosinophilic gastroenteritis, atopic dermatitis and asthma7,9,10.

The diagnosis of CMPA is based on anamnesis with physical examination and evaluation of the child's nutritional status, exclusion of cow's milk protein, observing the reappearance of symptoms with the performance of the Oral Provocation Test (TPO), a gold standard method, which consists of the progressive offer of the suspect food and/or placebo, under medical supervision10, 11,12. For treatment, a diet is carried out in which cow's milk and cow's milk products are completely excluded, replacing the high-calorie protein diet appropriate for age10, and exclusive breastfeeding is recommended in the first six months of life and together with food until 24 months, with restriction to allergenic foods by the mother10,13.

Revista ARACÊ
ISSN: 2358-2472

If the child cannot receive breast milk or maintains signs and symptoms even though he or she is on an exclusion diet, the use of Special Nutritional Formulas (FNE) is advised10,11,13. However, due to the high cost of FNE and the absence of specific public policies for CMPA, access by families can be impaired, making it difficult to adhere to treatment and generating risks of child growth and development deficits14,15.

In this sense, there was a growing number of lawsuits with requests to guarantee the supply of nutritional formulas within the scope of the National Councils of Health Secretaries (CONASS) and the Municipal Health Secretariats (SMS) between 2007 and 201316. In a study carried out, the costs of supplying nutritional formulas judicially for children with CMPA, between the years 2014 and 2019, by the State Health Department (SES) of Pernambuco, where 9,877 cans were supplied, for R$ 1,359,654.0814. A survey carried out by CONASS, regarding the purchase prices of FNE by the SES, allowed the Ministry of Health (MS) to estimate the budgetary impact of the incorporation of CMPA formulas in the SUS between the years 2018 and 2022, identifying a cost of R$ 79,631,103.17 in the first year of incorporation with an estimate of R$ 659,212,776.41 in the last year11.

Thus, through the National Commission for the Incorporation of Technologies – CONITEC11 and based on Law No. 12,041 of April 28, 2011, which provides for therapeutic assistance and the incorporation of health technologies within the scope of the SUS17, the Ministry of Health incorporated soy-based formulas, extensively hydrolyzed protein-based formulas with or without lactose and amino acid-based formulas for children aged 0 to 24 months with CMPA, by Ordinance No. 67 of November 26, 201818.

It is noteworthy that to meet the demand of the FNE of the population, it is necessary to have standardized formula dispensing forms, for this, Decree No. 7,508, of June 28, 2011, and the National List of Essential Medicines (RENAME) can be used as a parameter, which "comprises the selection and standardization of medicines indicated for the care of diseases or injuries within the scope of the SUS", and in the case of the FNE, it suggests that States or Municipalities guarantee the supply of these, but there is no indication of the formula. If it is provided by the state and municipal spheres, the request must be accompanied by the National Therapeutic Form (FTN) and the Clinical Protocol and Therapeutic Guidelines 19.

The FTN aims to subsidize the prescription, dispensation, and use of its medicines, together with the Clinical Protocols and Therapeutic Guidelines that establish criteria for the

Revista ARACÊ
ISSN: 2358-2472

diagnosis of the disease or health problem; the recommended treatment, with medications and other appropriate products; recommended dosages; clinical control mechanisms; and the monitoring and verification of therapeutic results, to be followed by SUS managers19.

As for the State of Tocantins, before the CONITEC note, the dispensation of FNE for CMPA was incorporated through CIB Resolution No. 315 of December 5, 2013, which provides for the request of special infant formulas in the State PS by the SMS of origin of the patient, through a social form for the opening of the process, and a medical form filled out by the pediatrician, gastroenterologist or allergist, together with the nutritional formula, both valid for six months20.

Thus, it was at the discretion of each state and municipality to implement their documentation and protocols, which are an important tool to standardize the conducts pertinent to the prescription of professionals and the budgetary control to acquire these inputs, as there is no specific ordinance for the incorporation of FNE acquired within the scope of the SUS15,21. About Tocantins, a study conducted by Oliveira[22] identified the need to improve the quality of the forms used to dispense CMPA infant formula, since they present inconsistencies in the data, which can generate diagnostic errors, impairing the treatment of the children assisted and the monitoring of the demand for PS management.

In this sense, it was found that the forms used for dispensing infant formula for CMPA in the PS of the Health Department of the State of Tocantins require adjustments and that they are the same used for other nutritional demands. Given this, it is necessary to build a single form for CMPA, allowing the strengthening of the line of care of comprehensive health care for children, as well as better management of the service, and the development of health indicators23 for evaluation and monitoring of the dispensation of infant formulas.

METHODS

The present study is part of a larger research project entitled "Evaluation of the supply of infant formulas for cow's milk protein allergy for children aged 0 to 2 years in the State of Tocantins". This consists of the elaboration of a form proposal after the analysis of the two stages of the research (Figure 1).

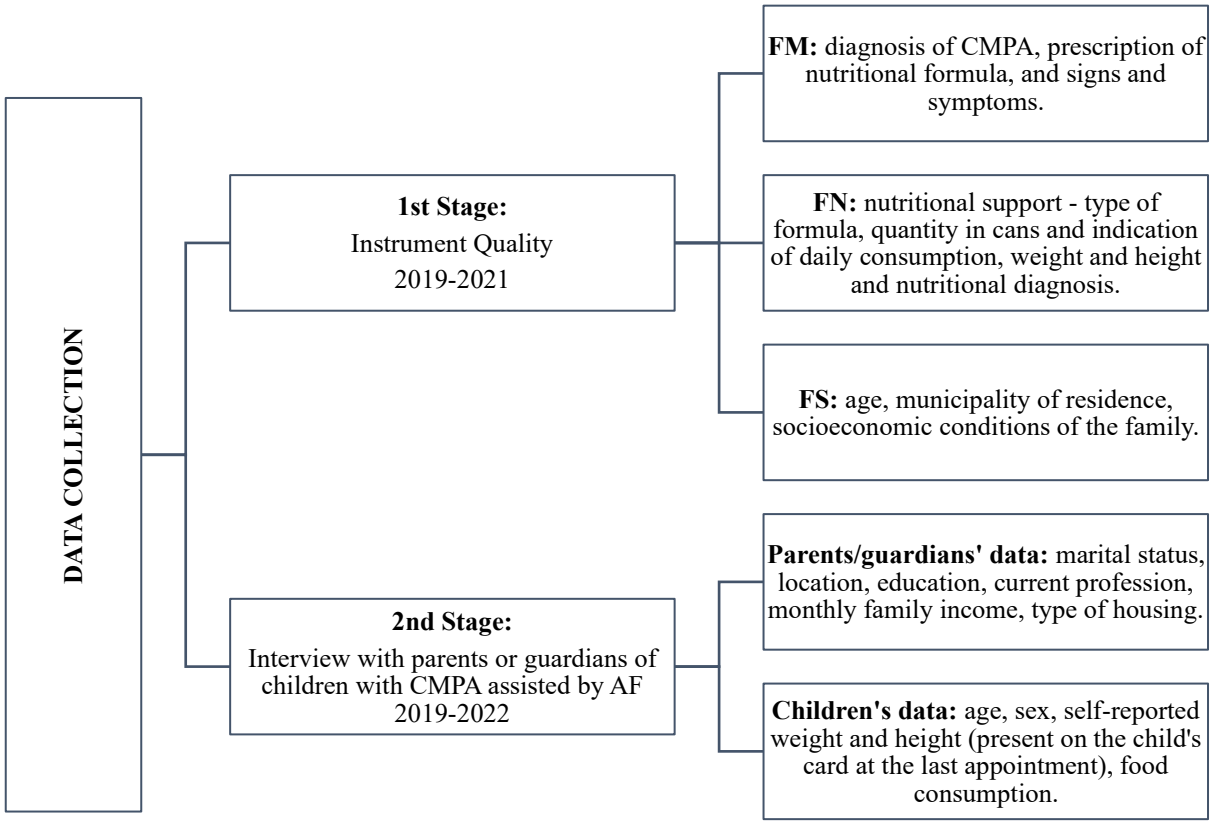
The data from the first stage evaluated the quality of the Medical Form (FM) data; Nutritional Form (FN) and Social Form (FS) of the FNE request for CMPA of children attended by PS of the Health Department of the State of Tocantins (SESAU/TO)[22,24] (Figure

Revista ARACÊ
ISSN: 2358-2472

1), and made it possible to identify weaknesses in the information contained in the forms for analysis of the approval of the FNE request and monitoring of the data by PS.

The results of the data collection of the second stage occurred through face-to-face interviews at the Nutrition and Health Studies Complex of the Federal University of Tocantins (UFT) for parents/guardians who lived in Palmas and for those who did not live in the capital or could not attend the UFT, interviews were conducted via telephone (Figure 1). It is noteworthy that the interviewers were previously trained to conduct the interview and that the telephone contact used was the one contained in the database of the FNE sector of the PS. The stage allowed the analysis of information about the child's family and diet that was not present in the forms.

Figure 1 – Description of the flowchart of the data collection of the first and second stages of the survey, 2021-2023.



Weight and height data were used to assess nutritional status according to the World Health Organization (WHO)[25 growth curves] using the WHO Anthro Software and classification of nutritional status according to the recommendations of the Guide for the Organization of Food and Nutrition Surveillance in Primary Health Care26.

Revista ARACÊ
ISSN: 2358-2472

In addition, the data on the children's food consumption were evaluated through the application of a 24-hour food recall (R24). The prescribed daily food intake was analyzed based on the data of the nutritional formula for CMPA and complementary feeding, as well as the amount to be consumed (grams) per day, by calculating the energy and nutrients of the child's diet using the DietWin® program – DietWin Nutrition Software27, the Brazilian Food Composition Table – TBCA28 and the nutritional information on the label of the dispensed infant formula. After obtaining energy and macronutrient intake, these were evaluated according to the recommendations of the *Institute of Medicine29,30,31.*

Caloric intake was compared to the recommendations, using the Estimated Energy Requirement (EER)[29] formula according to age, sex, and nutritional status, considering the minimum and maximum estimated variabilities. The micronutrients were evaluated based on the values of the Estimated *Average Requirement* (EAR), *Recommended Dietary Allowance* (RDA), and *Tolerable Upper Intake Level* (UL)[30,31].

Next, descriptive analyses of the data were performed using the *Statistical Package of Social Science* (SPSS) software, version 28.0. Based on the statistical data of the first and second stages, proposals were developed for an instrument for requesting, renewing, and updating FNE for CMPA and health indicators for evaluation and monitoring.

Health indicators are synthesis measures containing relevant information on certain attributes and dimensions of health status and health system performance, which together should reflect the health situation of a population and serve to monitor health conditions. Thus, these indicators were elaborated based on the data contained in the nutritional form (1st stage of the project), and on interviews with parents or guardians (2nd stage of the project), using the Interagency Health Information Network document as a theoretical framework23.

The research project related to this study was approved by the Research Center of the State Health Department/Tocantins School of the Dr. Gismar Gomes Unified Health System (SES/ETSUS) for permission to carry out the research and by the Research Ethics Committee (CEP) of the Federal University of Tocantins (Opinion No. 4,999,609).

Revista ARACÊ
ISSN: 2358-2472

RESULTS

ANALYSIS OF THE FORMS (MEDICAL, NUTRITIONAL AND SOCIAL) – 1ST STAGE OF THE RESEARCH

After analyzing the results obtained in the first stage of the project regarding the quality of the data from the medical, nutritional, and social forms used to request the dispensation of nutritional formula for children with CMPA in SESAU/TO22, problems were identified that allowed the elaboration of proposals for the construction of new instruments, described in Chart 1.

Chart 1 - Presentation of proposals for improvements in the medical, nutritional, and social forms for requesting the dispensation of nutritional formula for children with allergy to cow's milk protein in the Pharmaceutical Services of the State of Tocantins based on the problems found in the current reports.

Form	Problematic	Proposal
Medical Form	- Lack of information on the type of diagnosis made for CMPA. - Does not present the test performed for the diagnosis of CMPA.	- In the diagnostic field, put options to be marked: IgE test (unmediated IgE, mediated IgE, Mixed); Oral Provocation Test (TPO), and date of performance12. - Determination of the formula by type of diagnosis (table with an indication of the formula to be justified if the 2nd or 3rd option is determined).
	- Inadequate information from the diet description.	- Insert the table indicating the types of formulas in the 1st, 2nd, and 3rd options. - FNE type marking field. - Justification for choosing the 2nd or 3rd option.
Nutritional Form	- Nutritional status assessment: - Lack of weight and height data. - Lack of Z-score values of the WHO growth curves25. - Lack of classification of nutritional status according to the WHO growth curves25 by the SISVAN26 cutoff points.	- Mandatory field of weight (Kg), height (cm). - Field for filling in the Z score of the WHO growth curves25 followed by the classification of nutritional status according to the Guide for the Organization of Food and Nutrition Surveillance in PHC26.
	- Nutritional Diagnosis.	- Nutritional diagnosis according to the evaluation of the 4 growth curves of the WHO25 and classification of nutritional status described in the previous field of the form. - Evolution of nutritional status. (renewal form) – evaluate the evolution of the child's nutritional status according to the data of the growth curve, comparing the previous data with the current one (e.g., a child with thinness for age, but with improvement in weight gain – ascending/ascending curve). - W/H, W/A, H/A, and BMI/A (evolution by curve and final diagnosis).

Revista ARACÊ
ISSN: 2358-2472

	-Food consumption: - Daily schedule of nutritional formula. - Complementary feeding.	- Describe the nutritional formula with the daily frequency and amount at a time. - Present the calories and meal times.
Social Form	- Few applications presented the Social Form. - Lack of standardization of the information contained in the Social Forms regarding the socioeconomic conditions of the family.	- Present a Social Form containing fields with: 1. Income (Salary, aid) with per capita; 2. Education (mother and father); 3. Child support network; 4. Parents' employment/work; 5. Type of housing; 6. Location (Rural and urban area); 7. Access to health.

Note: CMPA – Cow's Milk Protein Allergy; PHC – Primary Health Care; E/I – Height by Age; FNE – Special Nutritional Formulas; BMI/A – Body Mass Index by Age; P/E – Weight by Height; P/A – Weight by Age; WHO – World Health Organization.

Regarding the type of diagnosis, for the indication of infant formula replacing feeding in children <u><6 months or complementing it for >6 months to 24 months, the recommendations of the CONITEC10 as</u> shown in Chart 2 were used. It is noteworthy that the definition for the 1st or 2nd option should be considered according to the observation of the signs and symptoms related to CMPA in the child attended. However, in the PS of Tocantins, it was identified that already in the first request for infant formula, the amino acid-based formula was present in 50% of the diagnoses of mediated IgE, 48.1% of unmediated IgE, and 63.2% of mixed diagnosis22.

Chart 2 - Indication of the use of infant formulas according to the mechanism of action involved in CMPA, according to the National Commission for the Incorporation of Technologies – CONITEC, 2022.

Type of diagnosis	**<u>≤</u> 6 months**	**> 6 months**
IgE-mediated	**1st Option:** Formula based on extensively hydrolyzed protein. **2nd Option:** Formula based on free amino acids.[1]	**1st Option:** Soy protein-based formula.[2] **2nd Option:** Formula based on extensively hydrolyzed protein. **3rd Option:** Formula based on free amino acids.[1]
Unmediated IgE	**1st Option:** Formula based on extensively hydrolyzed protein. **2nd Option:** Formula based on free amino acids.	**1st Option:** Formula based on extensively hydrolyzed protein. **2nd Option:** Formula based on free amino acids.

Note: [1]Free amino acid-based formula should be the first choice in cases where the child has severe symptoms, regardless of age group. [2]Soy-based formulas should be the first choice in cases with a low risk of developing anaphylactic reactions.
Source: Adapted from BRASIL, 2022.

Revista ARACÊ
ISSN: 2358-2472

ANALYSIS OF THE INTERVIEW OF PARENTS/GUARDIANS OF CHILDREN WITH CMPA – 2ND STAGE OF THE RESEARCH

In the second stage of the larger survey, the application of a questionnaire to parents or guardians allowed the evaluation of 47 children who received FNE by SESAU/TO, all >6 months, and 53.2% female, where they had a median current weight of 10.30 kg (95%CI: 9.73 – 10.79) and the current height of 74.00 cm (95%CI: 72,63 –77,65).

Regarding the Weight/Age (W/A) growth curves, 84.5% were of adequate weight/age and 11.1% had low or very low W/A. However, Weight/Height (W/A) showed that 16.3% were at risk of being overweight, and 28% were overweight, as for Height/Age (H/A), 39.5% had low or very low H/A. identified by the W/H and H/A curves when analyzing the food consumption data, excessive consumption of calories (72.1%), carbohydrates (50.0%), proteins (75.0%) and lipids (34.1%), insufficient intake of total calories (16.3%) and calcium (46.0%) were observed (Table 1).

Table 1 – Description of food consumption data for children with cow's milk protein allergy attended by the Tocantins State Department of Health, 2021-2022.

Variable	Values
Caloric amount ingested (Kcal)[1]	1044,1700 (944,6777 – 1234,0151)
Calorie Intake Rating2	
Insufficient	16,3 (7)
Adequate	11,6 (5)
Excessive	72,1 (31)
Amount of carbohydrate ingested (g)[1]	130,00 (113,76 - 123,51)
Classification of Carbohydrate Intake2	
Insufficient	22,7 (10)
Adequate	27,3 (12)
Excessive	50,0 (22)
Amount of protein ingested (g)[1]	40,5150 (36,0775 – 56,4062)
Classification of Protein Intake2	
Insufficient	6,8 (3)
Adequate	18,2 (8)
Excessive	75,0 (33)
Amount of lipids ingested (g)[1]	34,6200 (32,9728 – 37,6200)
Classification of Lipid Intake2	
Insufficient	18,2 (8)
Adequate	47,7 (21)
Excessive	34,1 (15)
Amount of calcium ingested (mg)[1]	500,000 (418,084 – 477,370)
Classification of Calcium Intake2	
Insufficient	46,4 (16)
Adequate	52,3 (23)
Excessive	11,4 (5)
Amount of phosphorus ingested (mg)[1]	380,000 (342,604 – 369,669)
Classification of Phosphorus Intake2	
Insufficient	13,6 (6)
Adequate	72,7 (32)
Excessive	13,6 (6)
Amount of vitamin A ingested (mg)[1]	600,000 (448,644 – 546,811)

Revista ARACÊ
ISSN: 2358-2472

Classification of Vitamin A2 Intake Insufficient Adequate Excessive	 9,1 (4) 34,1 (15) 56,8 (25)
Amount of vitamin D ingested (mg)[1]	5,000 (8,461 – 19,834)
Classification of Vitamin D2 Intake Insufficient Adequate	 13,6 (6) 86,4 (38)
Amount of cobalamin (B12) ingested (mg)[1]	0,900 (0,746 – 0,845)
Classification of consumption of Cobalamin (B12)[2] Insufficient Adequate	 6,8 (3) 93,2 (41)

[1] Nonparametric – median and 95 confidence interval. [2] Categorical variable – Percentage (%).

Table 2 describes the social data of the 47 families interviewed in the second stage of the research. It is noteworthy that 31.9% are single mothers, with 29.8% answering as a profession to be "housewife" and 6.4% were unemployed, of which 21.0% had completed high school and 59.5% lived in rented, financed, or ceded houses. Regarding the income data, the median monthly family income was R$ 2,640.00 (95%CI: 3156.09 – 8570.38), with a *per capita* of R$ 622.00 (95%CI: 777.26 – 1430.26) (Table 2).

Table 2 – Description of the social and socioeconomic data of the families of children with cow's milk protein allergy assisted by the Tocantins State Department of Health, 2021-2022.

Variable	Values
Marital status1	
Single	31,9 (15)
Married	66,0 (31)
Divorced	2,1 (1)
Education1	
Elementary 1 Incomplete	2,1 (1)
Elementary 2	4,3 (2)
Incomplete Incomplete High School	2,1 (1)
Complete High School	21,3 (10)
Complete Technician	2,1 (1)
Incomplete Higher Education	8,5 (4)
Complete Higher Education	57,4 (27)
Complete Postgraduate	2,1 (1)
Locality1	
Countryside	8,5 (4)
Urban area	91,5 (43)
Type of housing1	
Rented	40,4 (19)
Own	40,4 (19)
Funded	8,5 (4)
Courtesy	10,6 (5)

Revista ARACÊ
ISSN: 2358-2472

Profession1	
Lawyer	2,1 (1)
Social worker	2,1 (1)
Unattended	2,1 (1)
Administrative Assistant	2,1 (1)
Bank	2,1 (1)
Accountant	2,1 (1)
Unemployed	6,4 (3)
Diarist	2,1 (1)
Typist	2,1 (1)
From home	29,8 (3)
Domestic	2,1 (1)
Businesswoman	2,1 (1)
Nurse	10,6 (5)
Student	2,1 (1)
Manager	2,1 (1)
Cashier	2,1 (1)
Pedagogue and manicurist	2,1 (1)
Teacher	6,4 (3)
Secretariat	2,1 (1)
Public servant	8,5 (4)
Saleslady	4,3 (2)
Animal Scientist	2,1 (1)
Monthly family income (Reais)[2]	2640,00 (3156,09 – 8570,38)
Number of people living in the house	4,00 (3,68 – 4,41)
Per capita income (Reais)[2]	622,00 (777,26 – 1430, 26)

1Categorical variable – Percentage (%). 2Nonparametric – median and 95% confidence interval.

ELABORATION OF A PROPOSAL FOR INDICATORS FOR EVALUATION AND MONITORING OF THE DISPENSATION OF FORMULAS FOR CMPA

Health indicators were developed to monitor children with CMPA attended by PS in Tocantins, based on the new proposed form, considering that the FNE sector does not have a definition of indicators for the dispensation of formulas and the health situation of children. To enable the use of these indicators in evaluation and monitoring, as well as their inclusion in the Annual Health Plans of PS and their use with greater periodicity, 1 to 2 priority indicators were described for each Form, as follows:

- Medical Form:

- Proportion of children with CMPA <6 months attended at AF SESAU/TO in a given year;
- Proportion of children with CMPA >6 months attended at AF SESAU/TO in a given year.

- Nutritional Formula:

- Prevalence rate of thinness (marked thinness + thinness) in children with CMPA treated at AF SESAU/TO;

Revista ARACÊ
ISSN: 2358-2472

- Prevalence rate of short stature (very short height + short stature) for age in children with CMPA treated at AF SESAU/TO.

- Social Form:

- Percentage of children with CMPA assisted by AF SESAU/TO who live in families in extreme poverty and below the poverty line.

DISCUSSION

It was observed that the type of diagnosis should be presented in the medical form since the determination of specific IgE helps in the identification of IgE-mediated food allergies and mixed reactions9. Thus, this is a fundamental piece of data, which is related to the signs and symptoms of the disease and the best choice of nutritional formula, contributing to a more efficient treatment10.

It is suggested to perform the Oral Provocation Test (OPT), whenever possible, after performing a diet to exclude milk and dairy products, since it is the gold standard test for the diagnosis of CMPA, as it is effective in confirming allergy and identifying misdiagnosed cases, especially when it comes to the non-IgE-mediated form because it presents late manifestations12. Regarding the recommendations of CONITEC10 for the request of formulas according to the type of diagnosis, it was perceived that the request for the FNE was inappropriate for all the children mentioned above.

It should also be considered that amino acid-based formulas have a higher cost for PA. Data collected on the amount paid for the purchase of FNE for CMPA in the state's AF between 2019-2021 showed that a 400g can cost R$172.00, while an 800g soybean and 400g extensively hydrolyzed soybean cost R$72.00 and R$124.00, respectively. Since extensively hydrolyzed FNE is interesting for the development of maturation of the gastrointestinal tract, it is necessary to request medical and nutritional forms to request an initial and renewal formula that justifies the recommendation based on the evaluation of signs and symptoms, diagnosis and nutritional status, taking into account the health situation of the child with CMPA within their needs, promoting adequate development and at the same time reducing the direct cost of the SUS, thus improving the cost-effectiveness of the service provided.

Regarding the assessment of nutritional status, it should be remembered that growth is a sensitive indicator of adequate energy and protein intake10. The description of the prescribed complementary feeding and the caloric amount related to food consumption in

Revista ARACÊ
ISSN: 2358-2472

the nutritional forms of children with CMPA is necessary for PA to assess the evolution of food and nutritional status and the amount of formula to be offered24. In this sense, it is evident that there is a demand to include anthropometric parameters in the forms, followed by the estimation of the children's total energy expenditure and an accurate collection of the history of the diet10. Information on weight (kg), height (cm) measured, z-scores of the growth curves for children under 5 years of age25, classification of nutritional status26, and nutritional diagnosis according to the evaluation of all curves should be presented.

In addition, the diet should be programmed in the nutritional forms with meal times and distribution following the same principles recommended for children without allergies8,9. With the information described and presenting an initial and renewal nutritional form that demonstrates the planning and adequacy of food intake to the nutritional needs of children, it will be possible to develop continuous monitoring of nutritional status, avoiding multiple forms of malnutrition15. It is also noteworthy that food consumption should be evaluated and timely guided from 6 months onwards, according to the recommendations of the Food Guide for Brazilian children under two years of age13.

The social form is presented as an instrument that provides information that helps in the process of comprehensive health care, assuming different contours about the Social Determinants of Health (SDH), providing support for adherence and continuity of treatment15. In this sense, SDH, socioeconomic conditions, and access to the SUS contribute to the maintenance of health or the increase of diseases15. It is noteworthy that this evaluation also makes it possible to analyze the need to develop intersectoral actions and a child support network, referrals for adherence to social programs due to the restriction of family resources for other demands that go beyond the acquisition of the FNE.

These data strengthen the need for the social form, for the feasibility of human rights and those provided for in the constitution, such as health1 and food6, and for the health teams' understanding of the families served. It is known that CMPA formulas are expensive and are provided by the SUS, being accessible to low-income families and those with financial resources7, meeting the SUS doctrinal principles of universality and equity5. Thus, this form would make it possible to understand the differences between the families, seeking to see them as the result of their life experiences, ways of being, and cultures, among others. Thus, allowing the management of the FNE Sector to systematize the service provided according to the degree of need, contributing to comprehensive health care.

Revista ARACÊ
ISSN: 2358-2472

Finally, there is a need to evaluate and monitor the information present in the requests for nutritional formulas for CMPA. This fact is justified because they contribute to the routine monitoring of relevant data in the FNE sector, answering questions about the service provided, and identifying the achievement of the objectives32. Thus, it is essential to develop health indicators, facilitating the surveillance of health conditions and the quantification and analysis of the service produced, which provides support for decision-making for the planning and execution of health actions23.

FINAL CONSIDERATIONS

Thus, there is a need for medical (initial and renewal), nutritional (initial and renewal), and social (initial for opening the process) forms for CMPA in SESAU/TO, which present all the necessary information for PS to be able to monitor the children assisted and their families, since these data provide comprehensive health care. To guarantee the right to health and food, avoid nutritional deficiencies, promote FNS and DHAA, and also contribute to the management of the FNE sector, thus improving the cost-effectiveness of the service provided in the SUS.

It is also important to consider the importance of defining the evaluation and monitoring indicators for the dispensation of CMPA formulas and the health situation of the children attended, so that the PS management can identify whether the new forms are effective in responding to the service's questions, supporting decision-making for the planning and execution of health actions.

It is also considered that the form proposal should be analyzed by the PS team, by the social workers, physicians, and nutritionists who care for these children by SESAU/TO and researchers in the areas that involve CMPA to verify the possible need for changes in the proposal. In addition, during the implementation of the form in Tocantins, there is a demand to carry out permanent health education actions and to raise awareness and motivation of the professionals who apply for FNE for the adequate follow-up of the children and two families and the adequate and complete completion of the request form by the professionals involved. Thus, the importance of this work is also highlighted, as it contributes to the improvement of nutritional assistance to children with CMPA, enabling the realization of qualification proposals in the State, aimed at nutritionists, doctors, and social workers, through the articulation of courses.

Revista ARACÊ
ISSN: 2358-2472

REFERENCES

1. Brazil. (1988). Constitution of the Federative Republic of Brazil. Brasília: Senado Federal. Diário Oficial da União.

2. Brazil. (2005). Voluntary Guidelines for the Right to Adequate Food. Brasília, DF.

3. Brazil. (2010a). Ordinance No. 4,279, of December 30, 2010. Establishes the guidelines for the organization of the Health Care Network within the scope of the Unified Health System (SUS). Official Gazette of the Federative Republic of Brazil, Brasília, DF.

4. Oliveira, A. R. (2020). Food and symbolic aspect from the perspective of public policies for the fulfillment of the Human Right to Adequate and Healthy Food. Food and Nutrition Security, 27, 1-10. UNICAMP, Sistema de Bibliotecas.

5. Brazil. (1990). Civil House. Law No. 8,080, of September 19, 1990. Provides for the conditions for the promotion, protection, and recovery of health, the organization and operation of the corresponding services, and other provisions. Official Gazette of the Federative Republic of Brazil, v. 20.

6. Brazil. (2010b). Constitutional Amendment No. 64 of February 4, 2010. Amends Article 6 of the Federal Constitution to introduce food as a social right. Official Gazette of the Union, Executive Branch, Brasília.

7. Brazil. Secretariat of Science, Technology and Strategic Inputs. National Commission for the Incorporation of Technology in the SUS. (2017). Clinical Protocol and Therapeutic Guidelines Cow's Milk Protein Allergy (CMPA). Brasília: Ministry of Health.

8. Solé, D., Silva, L. R., Cocco, R. R., Ferreira, C. T., Sarni, R. O., Oliveira, L. C., et al. (2018a). Brazilian Consensus on Food Allergy: 2018 - Part 1 - Etiopathogenesis, clinical and diagnosis. Arq Asma Alerg Imunol, 2(1), 7-38.

9. Solé, D., Silva, L. R., Cocco, R. R., Ferreira, C. T., Sarni, R. O., Oliveira, L. C., et al. (2018b). Brazilian Consensus on Food Allergy: 2018 - Part 2 – Diagnosis, treatment and prevention. Arq Asma Alerg Imunol, 2(1), 39-82.

10. Brazil. Ministry of Health. (2022a). Clinical Protocol and Therapeutic Guidelines for cow's milk protein allergy – Recommendation Report. Brasília, DF.

11. Brazil. Ministry of Health. (2018a). Nutritional formulas for children with cow's milk protein allergy – Recommendation Report (N° 345). Brasília, DF.

12. Brazil. Ministry of Health. (2021). Oral challenge test for cow's milk protein allergy – Recommendation Report. Brasília, DF.

13. Brazil. Ministry of Health, Secretariat of Primary Health Care, Department of Health Promotion. (2019). Food guide for Brazilian children under 2 years old. Brasília: Ministry of Health.

Revista ARACÊ
ISSN: 2358-2472

14. Assis, A. B. R. (2020). From Judicialization to the Implementation of the Program for the Supply of Nutritional Formulas for Children with Cow's Milk Protein Allergy: Cost Analysis (Master's thesis). Federal University of Pernambuco, Recife.

15. Viegas, A. A. C. (2021). Analysis of cow's milk protein allergy protocols in children up to 2 years of age in Brazil (Master's thesis). Sergio Arouca National School of Public Health, Oswaldo Cruz Foundation, Brasília.

16. Pereira, T. N., Silva, K. C., Pires, A. C. L., Alves, K. P. S., Lemos, A. S. P., & Haime, P. C. (2014). Profile of lawsuits for the supply of nutritional formulas sent to the Brazilian Ministry of Health. Demetra: Food, Nutrition and Health, 9(1), 199-214.

17. Brazil. (2011a). Law No. 12,041 of April 28, 2011. Amends Law No. 8,080, of September 19, 1990, to provide for therapeutic assistance and incorporation of health technology within SUS. Official Gazette of the Federative Republic of Brazil, Brasília, DF.

18. Brazil. (2018b). Ordinance No. 67 of November 23, 2018. Publicizes decision to incorporate soy-based and other special nutritional formulas for CMPA children in SUS. Official Gazette of the Federative Republic of Brazil, Brasília, DF.

19. Brazil. (2011b). Decree No. 7,508, of June 28, 2011. Regulates Law No. 8,080 regarding SUS organization, health planning, and inter-federative articulation. Official Gazette of the Federative Republic of Brazil, Brasília, DF.

20. Tocantins (State). (2013). CIB Resolution No. 315 of December 5, 2013. State Standardization for Dispensation of Special Infant Formula to Patients with Allergy to Cow's Milk Protein. State Department of Health, Palmas.

21. Santos, T. C. (2018). Organization of the Care Line for People with Special Dietary Needs: Experience report from the construction of a protocol (Residency completion work). Multiprofessional Residency in Family Health, State Family Health Foundation / Oswaldo Cruz Foundation, Camaçari.

22. Oliveira, L. F. C. (2022). Evaluation of the quality of the request form for special nutritional formulas for children with cow's milk protein allergy in Tocantins. In XVIII Seminar on Scientific Initiation, UFT.

23. Interagency Health Information Network - Ripsa. (2008). Basic indicators for health in Brazil: concepts and applications (2nd ed.). Brasília: Pan American Health Organization.

24. Lopes, C. O. (2022). Adequacy of the Nutritional Diagnosis and Dietary Prescription of children with allergy to cow's milk protein registered in the Pharmaceutical Assistance of Tocantins. In XVIII Seminar on Scientific Initiation, UFT.

25. World Health Organization (WHO). (2007). Development of a WHO growth reference for school-aged children and adolescents. Bulletin of the WHO, 85, 660-667. Geneva.

Revista ARACÊ
ISSN: 2358-2472

26. Brazil. Ministry of Health; Federal University of Sergipe. (2022b). Guide for the Organization of Food and Nutrition Surveillance in Primary Health Care. Brasília, DF.

27. University of São Paulo (USP), Food Research Center (FoRC). (2020). Brazilian Food Composition Table (TBCA) (Version 7.1). Available at: http://www.tbca.net.br/

28. Institute of Medicine (IOM). (2005). Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein and Amino Acids (Macronutrients). Washington DC: The National Academy Press.

29. Institute of Medicine (IOM). (2006). Dietary Reference Intakes: The Essential Guide to Nutrient Requirements. Washington DC: The National Academy Press.

30. Institute of Medicine (IOM). (2010). Dietary Reference Intakes for Calcium and Vitamin D. Washington DC: The National Academy Press.

31. Tamaki, E. M., Tanaka, O. Y., Felisberto, E., Alves, C. K. A., Junior, M. D., Bezerra, L. C. A., et al. (2012). Methodology for the construction of a panel of indicators for monitoring and evaluating SUS management. Ciência e Saúde Coletiva, 17(4), 839-849.