



# EVALUATION OF DAYCARE MENUS IN PONTA GROSSA USING THE IQ COSAN

## AValiação de Cardápios de Creches em Ponta Grossa pelo IQ COSAN

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**ABSTRACT: Introduction:** The quality of food provided in schools is essential. In this context, the National School Feeding Program (PNAE) aims to ensure access to adequate and healthy food for students. **Objective:** To qualitatively assess the menus offered to daycare centers in the municipality of Ponta Grossa, Paraná, using the Quality Index of the Food and Nutrition Security Coordination. **Methods:** Data were collected from the menus of Municipal Daycare Centers, available on the electronic platform “School Feeding”, published under the responsibility of the Municipal Department of Education of Ponta Grossa, from March to June 2023. **Results:** The evaluated menus were rated as “adequate”, as no restricted or prohibited foods were offered. Points were lost only in the dairy group because they were not offered on one weekday. **Conclusion:** According to the evaluation using the IQ COSAN tool, it is concluded that the menus meet the PNAE recommendations and are classified as “adequate”.

**KEYWORDS:** School Feeding. National School Feeding Program. Child Food and Nutrition.

**RESUMO: Introdução:** A qualidade da alimentação ofertada no âmbito escolar é essencial e nesse contexto, o Programa Nacional de Alimentação Escolar (PNAE) tem como finalidade garantir o acesso à alimentação adequada e saudável aos estudantes. **Objetivo:** Avaliar qualitativamente os cardápios oferecidos às creches do município de Ponta Grossa – Paraná, por meio do Índice de Qualidade da Coordenação de Segurança Alimentar e Nutricional. **Métodos:** Dados coletados dos cardápios de Creches Municipais, disponibilizados na plataforma eletrônica “Alimentação Escolar”, publicados sob responsabilidade da Secretaria Municipal de Educação de Ponta Grossa, nos meses de março a junho de 2023. **Resultados:** Os cardápios avaliados apresentam pontuação “adequada”, pois não houve oferta de alimentos restritos e proibidos. A perda de pontos se deu apenas no grupo dos laticínios, pois não foi ofertado em um dia da semana. **Conclusão:** De acordo com avaliação através da ferramenta IQ COSAN, conclui-se que os cardápios dos atendem as recomendações do PNAE e classificam-se como “adequados”.

**PALAVRAS-CHAVE:** Alimentação Escolar. Programa Nacional de Alimentação Escolar. Alimentação e Nutrição Infantil.

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## INTRODUCTION

Since the dawn of humanity, eating has been considered one of the most important activities for human development. In childhood, it becomes even more significant, as it is during this period that eating habits are established, accompanying the individual throughout life.<sup>1,2</sup>

In this scenario, school meals are considered essential for the development of health-promoting practices, since children spend most of their time at school and eat a significant part of their meals in this environment. Additionally, exposure to various foods and preparations is greater, influencing preferences and aversions, which directly affect growth and cognitive development.<sup>3,4</sup>

School feeding emerged in Brazil as a public policy, conceptualized in 1940 and implemented only in 1955 by the Federal Government, initially known as the School Meal Campaign. Later, with law No. 11,947/2009, it was renamed the National School Feeding Program (PNAE), aiming to ensure the provision of healthy and adequate meals in Brazilian public schools, contributing to students' physical, mental, and cognitive development and improving the quality of education.<sup>5,6</sup>

However, despite the scope and relevance of the PNAE, it is necessary to monitor the implementation of parameters established in current regulations, as adequate and healthy food contributes to the growth and development of school-aged children.<sup>7</sup>

Thus, the present study aimed to qualitatively evaluate the composition of the menus of the Municipal Network of Ponta Grossa - PR, using the Quality Index of the Food and Nutrition Security Coordination (IQ COSAN) tool, offered to children aged between 0 and 3 years, intending to analyze whether they meet the PNAE guidelines.

## NATIONAL SCHOOL FEEDING PROGRAM - PNAE

The PNAE plays a fundamental role in promoting health, education, and comprehensive development of basic education students by providing them with adequate and healthy food, serving as a key Food and Nutrition Security (FNS) strategy, and supporting the Human Right to Adequate Food (HRAF).<sup>8</sup>

The program integrates public policies related to education and health, coordinated by the National Fund for Educational Development (FNDE), which transfers financial resources to states, municipalities, and the Federal District to acquire food and cover other school feeding expenses.<sup>9</sup>

According to resolution No. 6 dated May 8, 2020,<sup>10</sup> which addresses school feeding services for basic education students within the PNAE, the offered food aims to contribute to students' psychological, social, and biological development. It also supports learning, academic performance, nutritional education habits, and energy and nutritional demands during the school year.

School feeding is a state duty and a right for all, with the following key guidelines:

- Inclusion of nutritional education in the teaching-learning processes;
- Universal service provision;
- Social participation;
- Support for sustainable development;
- Equal right to school feeding.

For municipal school menus, the PNAE requires food to be minimally processed, meeting students' age-specific nutritional needs, respecting seasonality, sustainability, and food culture.<sup>9</sup>

According to Resolution No. 06,<sup>10</sup> for daycare centers operating full-time (morning and afternoon), menus must meet at least 70% of nutritional needs distributed across at least three meals. Additionally, the menus must include at least 520 grams of fresh fruits, vegetables, and greens per student weekly, distributed as follows:

**Table 1.** Minimum frequency and dietary restrictions according to PNAE.

Food	Minimum frequency	Observations
Fresh fruits	4 days/week	Fruit-based drinks do not replace the requirement for fresh fruit
Vegetables and greens	5 days/week	
Heme iron sources	4 days/week	If there is only a source of non-heme iron, these must be accompanied by absorption facilitators.
Vitamin A sources	3 days/week	
Foods with added sugar, honey, or sweetener in culinary preparations and drinks	Prohibited	Restriction for units serving the age groups of 1 to 3 years
Foods with <i>trans</i> fats and ultra-processed foods		

Source: Adapted from FNDE (2020).<sup>10</sup>

Menus must cater to students with special dietary needs, such as diabetes, hypertension, celiac disease, intolerances, and allergies, and also cultural specificities, such as indigenous and quilombola communities. For menus offered to daycare centers, the consistencies of the preparations and nutritional information must be presented.<sup>10</sup>

## FOOD AND NUTRITIONAL SECURITY COORDINATION QUALITY INDEX TOOL (IQ COSAN)

Given the importance of school menus, the General Coordination of the National School Feeding Program (CGPAE), through the Food and Nutrition Security Coordination (COSAN), developed a tool called the Food and Nutrition Security Coordination Quality Index (IQ COSAN), aimed at standardizing the qualitative analysis of school menus.<sup>11</sup>

To create this tool, COSAN relied on both current legislation and the School Food Menu Quality Indicator (IQCAE) to assess the presence and/or absence of various food groups in the menus, as well as the daily and weekly supply of foods, awarding positive scores for allowed foods and negative scores for prohibited ones.<sup>12</sup>

The IQ COSAN enables managers, nutritionists, and other professionals involved in the program to monitor the quality of meals served in schools, ensuring compliance with the program's guidelines and principles for healthy eating, thereby advancing the objectives of the PNAE.<sup>11</sup>

In addition, this tool helps identify areas for improvement in school food supply and supports planning actions to enhance the quality of meals offered. It contributes to creating healthier menus tailored to students' nutritional needs, promoting a nutritious and balanced diet for this population.<sup>11</sup>

## PERFORMANCE OF THE NUTRITIONIST PROFESSIONAL IN THE SCHOOL ENVIRONMENT

Resolution No. 465 of the Federal Council of Nutritionists (CFN) dated August 23, 2010,<sup>13</sup> emphasizes the critical role of nutritionists in ensuring the quality of food provided to students in Brazilian public schools. These professionals promote healthy eating habits and contribute to shaping more conscious and healthier citizens.

This resolution also highlights that nutritionists are tasked with preparing school menus, considering the nutritional needs of children and adolescents in each age group, as well as the regional and cultural characteristics of the population served.

Additionally, nutritionists are responsible for guiding food handlers on best practices in hygiene and food safety, ensuring that food is prepared and stored correctly to avoid health risks for students.<sup>13</sup>

Furthermore, nutritionists must also be involved in monitoring and evaluating the program, ensuring that menus are properly implemented, nutritional goals are achieved, and food is sourced ethically and sustainably.<sup>13</sup>

## METHODOLOGY

This is a cross-sectional study, whose objective was to qualitatively evaluate the menus offered by the Municipal Network of the city of Ponta Grossa, Paraná, from March to June 2023, based on the recommendations of the PNAE.

Menu data was collected from the “School Food” electronic platform managed by the City of Ponta Grossa and published by the Municipal Department of Education. The study focused on menus from the Municipal Early Childhood Education Centers (CMEI), which serve children aged 0 to 3 years full-time, providing four daily meals: breakfast, lunch, afternoon snack, and dinner.

The IQ COSAN tool was employed for the evaluation. This accessible and user-friendly instrument utilizes a Microsoft Excel® spreadsheet to assess four menu parameters over one to five weeks, by awarding points: the presence of the six food groups; the presence of regional foods and sociobiodiversity; weekly diversity of meals offered; and absence of foods classified as restricted, prohibited, and sweet foods or preparations.

Using this method, a table like the one illustrated in Table 2 is filled out.

**Table 2.** The table used to evaluate the quality of the menus served.




COSAN Menu Quality Index										
COMPONENTS WEEK X (day/month to day/month)										Observations
DAILY ASSESSMENT COMPONENTS	Ref	Mon	Tue	Wed	Thu	Fri	Result	Freq		
Presence of foods from the cereal and tubers group	2									
Presence of foods from the bean group	2									
Presence of foods from the vegetable group	2									
Presence of fresh fruit	2									
Presence of foods from the milk and dairy products group	2									
Presence of foods from the meat and eggs group	2									
Absence of restricted foods	2									
Absence of sweet foods and preparations	2									
SCORING										
WEEKLY EVALUATION COMPONENTS							Result	Reference		
Offering regional foods?							2.5			
Food supply from sociobiodiversity?							2.5			
Menu diversity							1 ref/day or 20% DNR*	2 refs /day or 30% DNR *	3 refs day/or 70% DNR *	
Offering prohibited foods										
FINAL SCORE OF THE WEEK										

DNR: Daily Nutritional Requirements.

Source: Adapted from FNDE (2018).<sup>11</sup>

After completing the fields, the tool generated a score for each week along with a weekly average. Based on these scores, the menus were classified into three categories:

**Table 3.** Menu quality rating

Menu quality rating	
Inadequate (0-45.9)	
Needs improvement (46-75.9)	
Adequate (76-95)	

Source: Adapted from FNDE (2018).<sup>11</sup>

It is worth noting that weeks with less than five days, due to holidays or school vacations, were disregarded.

## RESULTS

After evaluating the menus, they were classified in order to verify whether their quality was following the PNAE guidelines. It was found that all analyzed menus achieved average scores indicating a classification of “adequacy,” as presented in Table 4.

**Table 4.** Average evaluation and classification of the menus for March, April, May, and June (2023) according to the IQ COSAN tool score.

Month	Week	Scoring	Average rating score	Menu quality rating
March	Week 1	93	94.6	Adequate
	Week 2	95		
	Week 3	95		
	Week 4	95		
	Week 5	95		
April	Week 1	NA*	95	Adequate
	Week 2	95		
	Week 3	NA*		
	Week 4	95		
May	Week 1	NA*	95	Adequate
	Week 2	95		
	Week 3	95		
	Week 4	95		
June	Week 1	95	95	Adequate
	Week 2	NA*		
	Week 3	95		
	Week 4	95		
	Week 5	95		

\*Not Applicable

Source: Authors

Table 4 shows the weekly and monthly averages of the menus proposed for March, April, May, and June, which were rated as “adequate”. It is worth noting that weeks with holidays were not analyzed and are marked as “Not Applicable” (NA\*), since according to the IQ COSAN manual, these should be disregarded.

According to Table 5, a point deduction occurred in March within the “dairy” food group, as dairy products were not offered on one weekday. Nonetheless, the menu for the municipality of Ponta Grossa, Paraná, complies with current legislation.

**Table 5.** Monthly frequency of food groups

Month	Monthly school days	Legumes		Vegetables and Greens		Fruits		Meat and Eggs		Dairy products		RF*		SFP *	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
March	23	23	100	23	100	23	100	23	100	22	95	0	0	0	0
April	18	18	100	18	100	18	100	18	100	18	100	0	0	0	0
May	24	24	100	24	100	24	100	24	100	24	100	0	0	0	0
June	20	20	100	20	100	20	100	20	100	20	100	0	0	0	0

RF: Restricted foods; SFP: Sweet Foods and Preparations.

**Source:** Authors.

The absence of restricted foods positively impacted the overall adequacy score. Notably, no sweet preparations were included in the menu. Instead, healthy alternatives such as powdered milk, raisins, bananas, and apples were suggested for sweetening dishes like rice pudding, carrot cake, coconut frappe, and smoothies, aligning with the prohibition of sugar for the age group served.

Additionally, Table 5 highlights that the required daily frequency for cereals, tubers, legumes, vegetables, fresh fruits, milk and dairy products, and meat and eggs was consistently met. The menus also achieved the recommended minimum of 25 distinct preparations weekly.

Another factor contributing to menu adequacy was the inclusion of regional foods such as apples, sweet potatoes, and chicory, alongside native sociobiodiversity species like peanuts and guava.<sup>11</sup>

Finally, it is understood that the analyzed menus comply with legal requirements and include a variety of nutritious, regional, and sociobiodiversity-based foods. This finding demonstrates the careful work of the Technical Responsible Nutritionist (RT) and contributes to adequate nutrition for the children served by the program.

## DISCUSSION

The current nutritional landscape raises concerns, as overweight and obesity are now prevalent among school-age children, as it is known that excess weight contributes to the early development of several diseases.<sup>14</sup>

According to the Pan American Health Organization (PAHO),<sup>15</sup> approximately 39 million children are obese, and projections indicate that by 2025, about 167 million individuals will be overweight or obese due to poor dietary habits. In 2020, it was observed that the number of obese children aged 5-9

grew by over 300% between 1989 and 2009, with indicators of childhood overweight prevailing in the Brazilian population.<sup>16</sup>

Preventing childhood obesity requires a multifaceted approach, including the implementation of coordinated policies across government departments. In this context, menus designed by nutritionists under the PNAE serve as vital tools for promoting healthy eating habits. Instruments like the IQ COSAN ensure that school meals are nutritionally adequate, regionally relevant, and respectful of sociobiodiversity.<sup>11,17</sup>

For example, a study conducted in Sinop-MT in 2023 assessed municipal school menus using IQ COSAN. While the final scores indicated adequacy, Santos and Rauber<sup>18</sup> highlighted insufficient emphasis on regional foods and inadequate offerings of fresh fruits and key nutrients such as iron, vitamin A, and fiber, alongside excessive fat content.

A study carried out in Santos-SP in 2022 according to the IQ COSAN found that the menus offered need improvements since foods considered “prohibited” or “restricted” are offered, in addition to low food diversity.<sup>14</sup>

Similarly, in Governador Valadares-MG, the menus of municipal schools were also qualitatively analyzed. According to Oliveira, Oakis, and Roberto,<sup>19</sup> the results indicate that the menus are adequate and varied, offering regional foods and sociobiodiversity. However, most of the fruits offered are prepared rather than in their “*in natura*” form; additionally, restricted foods, such as chocolate drinks and banana puddings, are offered.

In comparison, this study demonstrates that the menus in Ponta Grossa fully comply with PNAE guidelines, offering adequate and healthy nutrition. They include all required food groups, regional items, and sociobiodiversity-based foods, fostering a school environment that supports nutritional education.

However, it is important to emphasize that the PNAE stands out as one of the largest school feeding programs, covering 20% of the Brazilian population, aiming to promote health and guarantee food and nutritional security. Consequently, it is necessary to increase monitoring regarding compliance with the guidelines proposed by the program.<sup>20,21</sup>

## CONCLUSION

The evaluated menus meet the parameters established for the age group served, demonstrating the efficiency of the Municipal Department of Education in Ponta Grossa, Paraná.

In summary, the analysis of menus offered to daycare centers in Ponta Grossa excelled compared to other studies using the IQ COSAN tool. This is reflected in the superior provision of mandatory food groups, the absence of restricted and prohibited items, and the appropriate inclusion of regional foods, sociobiodiversity, and a variety of preparations.

Therefore, it is concluded that the menus fulfill the nutritional requirements of preschoolers, adhering to all the PNAE’s requirements and recommendations. They contribute positively to the adequate growth and development of the target audience.



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