

INNOVATIONS IN VACCINE MONITORING - EXPERIENCE REPORT



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ABSTRACT

Introduction: Vaccines play a fundamental role in the promotion of public health. In Brazil, despite the advances achieved by the National Immunization Program (PNI), there has been a drop in vaccination coverage rates since 2016, aggravated by the Covid-19 pandemic. In light of this, strategies such as Rapid Vaccination Monitoring (MRV) are essential to identify gaps and propose effective interventions. **Objective:** To report the experience of nursing students from the family health internship in the development and execution of innovative actions to increase vaccination coverage in Montes Claros (MG). **Methodology:** This is a descriptive study, of the experience report type, carried out in the second half of 2024 in seven Family Health Strategy (ESF) units. The students, guided by preceptors, carried out data collection, active search, vaccination monitoring and intervention proposals. The actions included home visits, educational campaigns, extension of vaccination schedules and recreational activities for children. **Results and discussion:** Vaccination delays were identified mainly among children under two years of age. The interventions varied according to the reality of each unit: partnerships with other UBSs, use of social networks, preparation of educational materials, organization of thematic events and use of monitoring tools such as spreadsheets and visual panels. The approach to the community and the training of Community Health Agents (CHA) were fundamental for the population's adherence and awareness. **Final considerations:** The actions developed demonstrated the importance of innovation and articulation between the health team, academics and the community to improve vaccination coverage. Despite challenges such as misinformation and logistical difficulties, the experience contributed to the professional training of students and to the promotion of collective health.

Keywords: Immunization. Vaccination Coverage. Public health. Primary Health Care.

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INTRODUCTION

Vaccines are essential for improving the quality of life and increasing life expectancy of today's population, as well as playing a significant role in global health. In Brazil, despite the positive results of the National Immunization Program (PNI) in reducing infectious and parasitic diseases over the years, there has been a sharp drop in vaccination coverage rates (Simões *et al.*, 2024). In this scenario, immunization indicators, such as total vaccination coverage, homogeneity of coverage, and dropout rate, become vital tools for the prevention of communicable diseases that can be avoided through vaccination. This is because delays in adherence to the vaccination schedule show a significant vulnerability in primary health care (PHC) intervention strategies (Souza; Gomes, 2023).

Since 2016, Brazil has faced a significant reduction in vaccination rates for all vaccines provided for in the calendar, especially among children under 1 year of age and those of 1 year of age. This trend intensified further during the period from 2020 to 2022, due to the Covid-19 pandemic. It is important to note that the desired vaccination coverage for children, in relation to the vaccines in the National Calendar, is 95%, except for the BCG, rotavirus and Covid-19 vaccines, which have a target of 90%. Although there are indications of improvement in several vaccines in the National Vaccination Calendar, low adherence to vaccines has generated an accumulation of susceptible individuals and, as a result, an increase in the risk of (re)introduction and/or spread of vaccine-preventable diseases in the country (Pan American Health Organization, 2025).

Rapid Vaccination Monitoring (MRV) is an approach suggested by the Pan American Health Organization (PAHO) since the 1980s, which aims to assess vaccination coverage and identify vulnerable individuals who have not yet been vaccinated. This process involves verifying the vaccinations registered in the child vaccination booklets, through home visits carried out in a short period, at low cost and easy to implement throughout Brazil. The information collected through the MRV is extremely valuable to inform decisions on the formulation or review of additional vaccination strategies, aiming to improve vaccination rates and ensure that they are consistent (Moura *et al.*, 2018). Failures in vaccination coverage can be identified in various activities performed by health professionals, such as home visits, visits to health units, consultations, and continuous and systematic monitoring of the vaccination status of the population registered in the area of Primary Health Care (Lemos *et al.*, 2022; Monteiro *et al.*, 2021).

Health professionals play an essential role in health promotion by providing clear and informed information to the community about the relevance, safety, and efficacy of vaccines. In view of the frequent distancing of parents and guardians from vaccination units, often due to misinformation, it is the role of these professionals to clarify doubts and demystify questions on the subject. Strategies such as monitoring and actively searching for people with incomplete vaccination cards, extending the hours of vaccination rooms, and promoting scientific research in the area stand out as effective approaches to combat non-vaccination (Cruz; Bessa; Ferreira, 2024).

In addition, the vaccine sector is driven by innovation, which is crucial to ensure a greater competitive advantage. However, the innovation process is not simple; It is fraught with uncertainty, and only a small part of this process turns into success. However, the path to innovation is a complex challenge, fraught with uncertainty. That is why only a small portion of this process results in both technological and commercial success, especially considering the difficulty involved in creating vaccines. In recent years, the panorama of research, technological development, and innovation in Brazil, associated with immunizers, has faced a setback, due to the reduction of financial investments and the lack of public policies that encourage research and development activities (Rosenberg, Antunes, 2024).

The reluctance to vaccinate, particularly among children under 2 years of age, highlights the urgent need for public initiatives that adopt new approaches to encourage immunization. These strategies should not only ensure effective vaccine distribution, but also promote creative and motivating concepts about health, combating the spread of misinformation and ensuring greater vaccination coverage within the population (Leite, Martins, and Martins, 2023). Thus, this study aims to present innovative ideas developed by students to mitigate the rates of delay in vaccination in the area in question.

METHODOLOGY

This descriptive study, classified as an experience report, was carried out in the second semester of 2024 in 07 (seven) Family Health Strategy (ESF) units in Montes Claros, MG with the purpose of describing the innovation actions carried out by the nursing students of the family health internship as measures to improve the vaccination situation in the area covered by their respective activities.

The students of the internship were divided into 07 (seven) subgroups to carry out the internship accompanied by preceptors, for 06 months, in 07 different ESFs, located in

the following neighborhoods: Alcides Rabelo, Francisco Peres, Delfino Magalhães, Vila Telma, Morrinhos, Vargem Grande and Vila Campos. During the internship, the groups of students should carry out the activities simultaneously in each center, starting with the survey of vaccination coverage data, active search, vaccination monitoring, intervention proposal and intervention to improve the vaccination coverage of the unit in which they were working.

The survey of children under two years of age in the community was the first stage of the process. To this end, a meeting was held in each FHS of the study involving the Community Health Agents (CHA), where identification and monitoring strategies were discussed. This stage included the updating of existing mirror cards and the creation of new cards for children not yet monitored. The survey aimed to map the vaccination status of the child population, providing a comprehensive view of the needs of the community. Then, with the objective of optimizing the work, the students who worked in the centers during the internship in family health were divided by micro-areas of the ESF to allow a more focused and efficient approach in data collection and in the performance of monitoring actions.

In the second moment, a detailed and individual analysis of the children's vaccination status was carried out, according to the Ministry of Health's 2024 national child vaccination calendar: BCG, hepatitis B, pentavalent, pneumococcal poliomyelitis 10, rotavirus, meningococcal C, covid-19, yellow fever, triple viral, DTP, hepatitis A, chickenpox, through mirror cards and the electronic medical record system vivver (Brazil, 2024). After the survey and analysis of the vaccines, an active search was carried out through home visits and childcare. During these visits, the students talked to those responsible for them to check the vaccination status of the children and sensitize them about the importance of immunization.

To achieve the objectives, each unit began the construction of an Excel spreadsheet, stored and shared in the cloud, in which it was possible to insert vaccination status data such as: child's initials, date of birth, age, vaccination schedule identified by colors (red, for overdue vaccine, and green for vaccines applied). After that, intervention proposals were prepared by the groups to improve vaccination coverage, with the emergence of several innovative and dynamic ideas, and later actions and activities were carried out so that the interventions could be applied in the communities.

This study is part of a larger study that was approved by the Research Ethics Committee of the State University of Montes Claros, subsidized by the "Vaccine Yes" Extension Project, for which a favorable opinion was obtained, number 6.234.026/2022.

RESULTS AND DISCUSSION

Through the monitoring and survey of vaccination coverage in health units, it was possible to identify several gaps in the vaccination schedule of children and pregnant women, many of whom did not receive all the recommended vaccines or were behind on their vaccination schedule. In the current context, in which factors such as misinformation and resistance to vaccination contribute to this delay, vaccination monitoring becomes even more crucial. In this way, this tool not only ensures vaccination coverage, but also strengthens the bond between the health team and the community, positively impacting public health and disease prevention.

In order to strengthen the relationship between the health units and the families, in addition to facilitating communication with the community health agents (CHA), the students were distributed among the micro-areas of each unit. Thus, each inmate took responsibility for addressing questions and concerns from families during childcare consultations and home visits, promoting a dialogue based on scientific evidence to gain the trust of parents and guardians.

In addition, considering the reality and challenges encountered, monthly meetings were held in each unit with the CHAs. These meetings aimed to update vaccination monitoring, review management panels in sight or informative banners and recognize the progress made, in addition to identifying patients with overdue vaccines. These meetings contributed to more effective communication among the health team and the planning of strategies to improve vaccination coverage.

During the internship in Family Health, academics had the opportunity to engage directly with primary care, gaining a deep understanding of its relevance and applicability. From the analysis of immunization indicators and the development of innovative strategies to expand vaccination, the students demonstrated technical-scientific skills essential for their professional training, expanding their experiences and skills for the job market.

LIMITATIONS

Some units did not have their own vaccine room, and it was necessary to establish partnerships with other units to carry out the proposed activities. In addition, the inconsistency or absence of vaccination records made it difficult to monitor properly. The unavailability of several immunobiologicals, such as vaccines against Covid-19, chickenpox, and hepatitis A, during the study period, also represented a challenge, aggravated by the resistance, lack of interest, and misinformation of parents and guardians regarding the importance of vaccination.

FACILITATORS

Among the factors that facilitated the realization of the activities, the tools to optimize the monitoring of the vaccination status and the collaboration of the health team stand out. Educational actions played a key role in combating misinformation, contributing to increasing the confidence of those responsible for vaccines and, consequently, to better adherence to the vaccination schedule.

- SCENARIO: ALCIDES RABELO

A partnership was established with the team of the reference vaccine room - UBS Vera Cruz - to update the VIVVER system and the overdue vaccination cards of children and pregnant women, due to the absence of an immunization room at the Alcides Rabelo unit. Despite this, there was no lack of efforts to promote actions focused on immunizing the population, such as publications on social networks, vaccination at home and a playful Children's Day action to attract children and promote immunization.

Figure 1 - Female students of the family health internship of the ESF Alcides Rabelo during vaccination at home.



Source: Authors' file.

Figure 2 - Publications made by the students during the internship on the Instagram application page of the ESF Alcides Rabelo.



Source: Authors' file.

Figure 3 - Children's Day health action carried out by the students of the internship at the ESF Alcides Rabelo with a focus on vaccinating children.

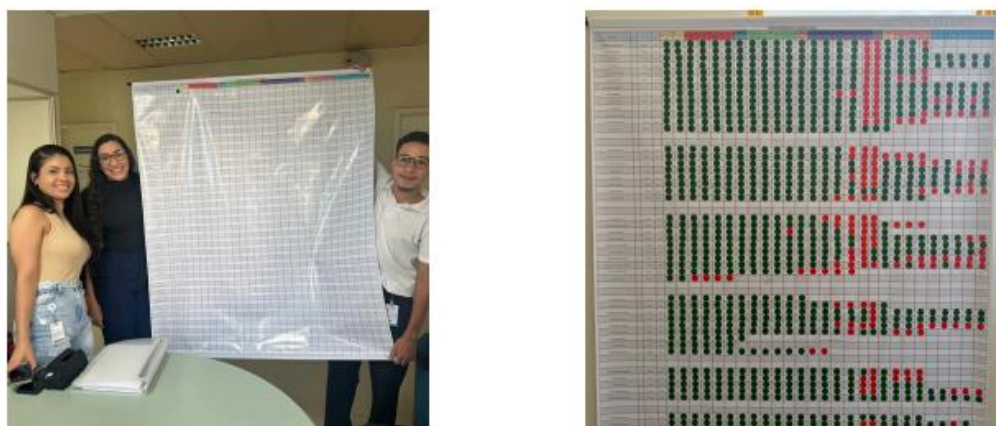


Source: Authors' file.

SCENERY: DELFINO MAGALHÃES

At the Delfino Magalhães unit, the students produced a banner with stickers for better visualization of the vaccines delayed by the health team. In addition, they made publications on social networks, vaccination at home, production of educational and informative materials delivered at home along with gifts as a way to raise awareness and attract the population to immunization.

Figure 4 - Visual management activity carried out by the students of the family health internship with the production of a vaccination monitoring banner at the ESF Delfino Magalhães.



Source: Authors' file.

Figure 5 - Publications made by the students during the internship on the Instagram application page of the ESF Delfino Magalhães.



Source: Authors' file.

Figure 6 - Active search for childhood vaccination promoted by the inmates of the ESF Delfino Magalhães.

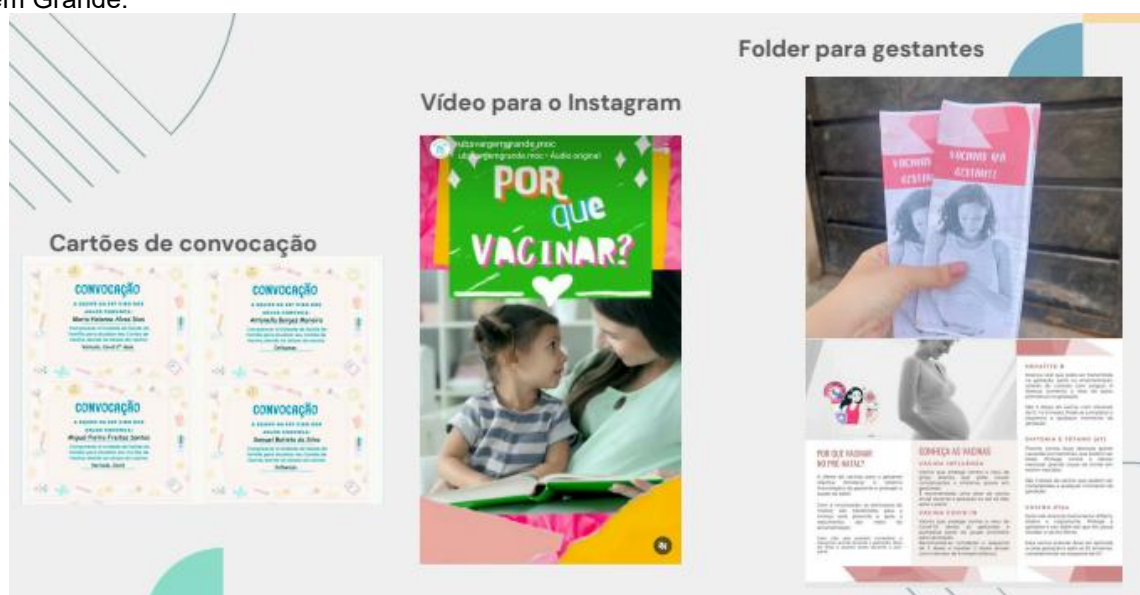


Source: Authors' file.

SETTING: VARGEM GRANDE

At the Vargem Grande unit, the academics produced an animated and informative video for social networks, as well as publications, informing the population about vaccines. In addition, they carried out a children's day action with games and snacks to promote childhood immunization and created folders and "call" letters to be delivered during home visits to pregnant women and children with overdue vaccines.

Figure 7 - Arts created and disseminated by the students during the internship in family health at the ESF Vargem Grande.



Source: Authors' file.

Figure 8 - Children's Day health action carried out by the students of the internship at the ESF Vargem Grande with a focus on vaccinating children.



Source: Authors' file.

Figure 9 - Publications made by the students during the internship on the Instagram application page of the ESF Vargem Grande.

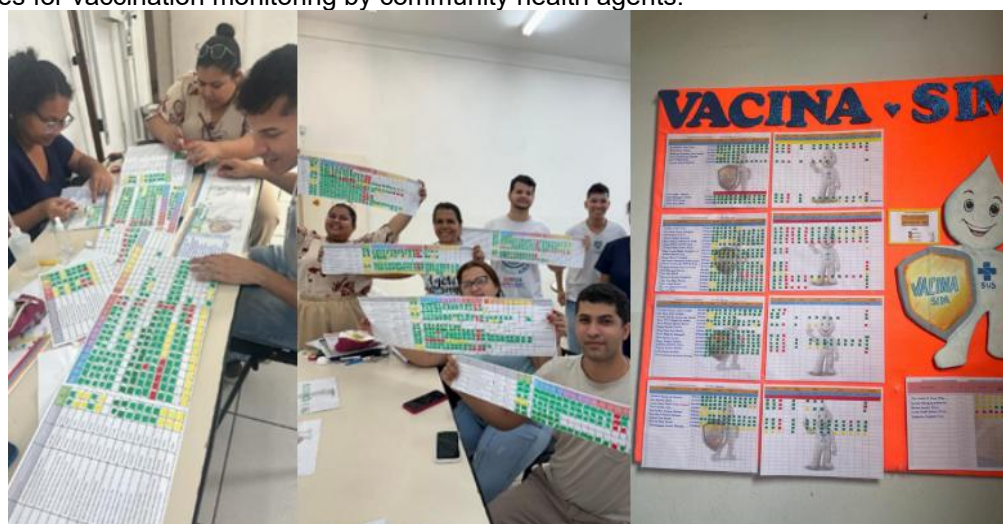


Source: Authors' file.

SCENERY - VILA CAMPOS

The students of the Vila Campos unit carried out a special action on Children's Day with the objective of increasing the adherence of families to vaccination, with a raffle of toys and playful activities. In addition, nutritional call events were held to update pending vaccines, an awareness campaign on vaccination against covid-19 and the production of "portable" vaccination monitoring on A4 paper and colored tapes for the CHAs, making it possible for them to follow and update during home visits.

Figure 10 - Visual management activity carried out by the students of the family health internship with the production of a vaccination monitoring panel at the Vila Campos FHS unit and the preparation of a board with colored tapes for vaccination monitoring by community health agents.



Source: Authors' file.

Figure 11 - Children's Day health action carried out by the students of the boarding school at the ESF Vila Campos with a focus on vaccinating children and drawing a children's scooter to increase the adherence of families to the action.



Source: Authors' file.

SCENARIO: FRANCISCO PERES

The students of the Francisco Peres unit carried out a nutritional call for nutritional assessment and vaccination monitoring, vaccination at home and presentation of scientific research on the data found on vaccination coverage in the unit.

Figure 12 - Nutritional call promoted by the students of the internship at the ESF Francisco Peres with evaluation of vaccine cards and vaccination update.

- Chamada nutricional: Convocação de crianças para avaliação nutricional integrada ao monitoramento vacinal.



Source: Authors' file.

Figure 13 - Active search for childhood vaccination promoted by the inmates of the ESF Delfino Magalhães.

• **"Vacimóvel":** Atendimento domiciliar com oferta de vacinas para facilitar o acesso.



Source: Authors' file.

Figure 14 - Submission and presentation of data found during vaccination monitoring at the ESF Francisco Peres by internship students at a scientific event.

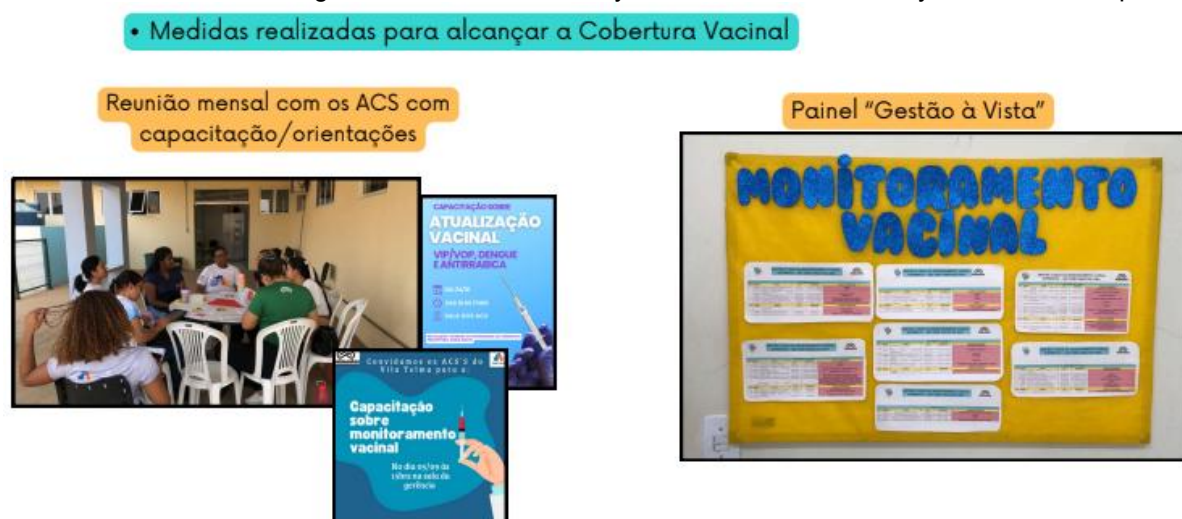


Source: Authors' file.

SETTING: VILA TELMA

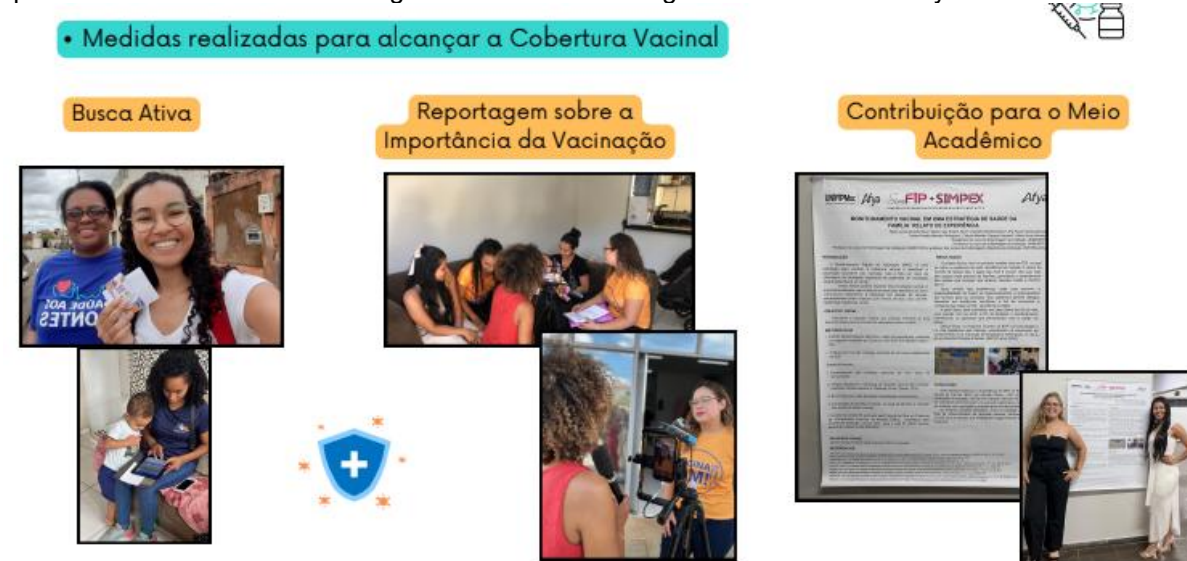
The students of the Vila Telma unit carried out training with the unit's health team on vaccination monitoring, as well as the sight management panel, active search, publications on social networks with various themes and even the presentation of scientific research on the data found on vaccination coverage in the unit. In addition, a children's day action was carried out with games and gifts to attract children and update the vaccination card of children and their families, as well as a televised report to publicize the "Vaccine Yes" project, promoting the awareness of the regional population about the importance of vaccination.

Figure 15 - Monthly meetings with community health agents with presentation of a management panel in sight for vaccination monitoring at the ESF Vila Telma by the students of the family health internship.



Source: Authors' file.

Figure 16 - Active search for childhood vaccination, regional report disclosing the importance of vaccination and presentation of data found during vaccination monitoring at a scientific event by the inmates.



Source: Authors' file.

Figure 17 - Children's Day health action carried out by the students of the boarding school at the ESF Vila Telma with a focus on vaccinating children



Source: Authors' file.

SCENERY - MORRINHOS

The academics of the Morrinhos unit made publications on social networks, children's day action, training on vaccination monitoring with community health agents, created an information bulletin with the update of the cards, to pass on to the agents, informing about the status of each one's area of activity and the progress of the process. In addition, informative pamphlets on vaccine-preventable diseases were made and delivered to parents and pregnant women and an individual vaccination monitoring panel for each child in the area with a fridge magnet, to facilitate visualization and, consequently, reduce vaccination delays.

Figure 18 - Children's Day health action carried out by the students of the internship at the ESF Morrinhos with a focus on vaccinating children.



Source: Authors' file.

Figure 19 - Training and management in sight with community health agents with delivery of a panel from each respective area of the agents.



Source: Authors' file.

Figure 20 - Preparation and delivery of an individual vaccination monitoring panel for each child in the ESF Morrinhos with a refrigerator magnet to facilitate daily visualization and thus improve vaccination coverage.



Source: Authors' file.

The actions carried out highlighted the importance of vaccine monitoring as an indispensable strategy for the promotion of collective health, despite the weaknesses found, such as inconsistencies in the records and challenges in the population's adherence. Even in the face of refusals and difficulties in vaccination coverage, the strategies applied proved to be effective in expanding vaccination, highlighting the fundamental role of nursing students and the multiprofessional team in the process of training, sensitization and community mobilization.

FINAL CONSIDERATIONS

This study highlighted the importance of vaccination monitoring in the Family Health Strategy (FHS) in Montes Claros, MG, by allowing the verification of the vaccination status of children under 2 years of age and the involvement of families in immunization. However,

challenges persist, such as vaccine hesitancy and the lack of availability of some vaccines, particularly COVID-19 and chickenpox, with unregulated stocks during the study period, which negatively impacted coverage rates. It is crucial that vaccination strategies are constantly reviewed and adapted, taking into account not only the distribution of vaccines, but also the strengthening of communication between health workers and the community.

Despite the sociocultural barriers, the negligence of some parents and guardians, inconsistencies in vaccination records and the lack of supplies, the activities carried out during the internship with a focus on immunization were essential for the technical-scientific and practical development of the students, expanding their experiences and ideas on the subject. This advance was the result of the efforts of preceptors and academics to develop and implement effective strategies to improve vaccination in the units. Even in the face of challenges such as misinformation and lack of vaccines, innovative solutions, such as the use of digital platforms, active search, televised reports, distribution of educational materials, and fridge magnets, have demonstrated the importance of flexible and creative approaches. To ensure sustainability and expand the advances obtained, continuous and well-structured interventions are indispensable, ensuring that vaccination coverage goals are maintained in the long term.

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