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EXPERIENCE REPORT

Implementation of Advanced Practice Nursing in coping with vaccine delay: an experience report

Implementação da Prática Avançada de Enfermagem no enfrentamento do atraso vacinal: um relato de experiência

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ABSTRACT
Objective: To describe the implementation of advanced practice nursing to address delayed immunization in children under two years of age. **Methods:** This experience report monitored the immunization status of children under two years of age and described advanced practice nursing to improve immunization compliance. **Results:** The immunization status of children was monitored, and individual and collective actions and interventions were carried out, such as individual consultations, active searches, telephone calls and messages via a mobile phone application, ongoing education, and the production of educational materials to raise awareness among the community, parents/guardians and health professionals about the importance of keeping the immunization schedule up to date, as proposed by the Brazilian National Immunization Program. **Conclusion:** The interventions in this report have demonstrated important public health implications and may suggest that advanced nursing practices positively impact improving immunization coverage.
Descriptors: Vaccines; Vaccination Hesitancy; Health Strategies; Nursing.

RESUMO
Objetivo: Descrever a implementação de práticas avançadas de enfermagem para abordar o atraso na imunização em crianças menores de dois anos de idade. **Método:** Trata-se de um relato de experiência que monitorou a situação vacinal de crianças menores de dois anos e descreveu práticas avançadas de enfermagem para melhorar a adesão à vacinação. **Resultados:** Foi monitorado o estado vacinal das crianças e realizadas ações e intervenções individuais e coletivas, como consultas individuais, buscas ativas, ligações telefônicas e mensagens via aplicativo de celular, educação continuada e produção de materiais educativos para conscientização entre a comunidade, pais/responsáveis e profissionais de saúde sobre a importância de manter o calendário vacinal atualizado, conforme proposto pelo Programa Nacional de Imunizações. **Conclusão:** As intervenções neste relatório demonstraram implicações importantes para a saúde pública e podem sugerir que as práticas avançadas de enfermagem têm um impacto positivo na melhoria da cobertura vacinal.
Descritores: Vacinas; Hesitação Vacinal; Estratégias de Saúde; Enfermagem.

INTRODUCTION

The Brazilian National Immunization Program (PNI) is the Ministry of Health's responsibility, with actions shared with state and municipal health departments. It is recognized as an essential public health intervention because of its significant results, particularly in terms of its impact on reducing vaccine-preventable diseases[1,2].

However, in today's world, the complexities of vaccine adherence and adequate immunization coverage pose numerous challenges to maintaining the results achieved and reaching new heights. Therefore, there is an urgent need to strengthen collaboration between countries and communities, the scientific community, the public and private sectors, and govern-

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governmental and nongovernmental organizations to achieve better outcomes in terms of vaccine adherence and to maintain high vaccine coverage[2,3].

In the state of Minas Gerais, the analysis of vaccination coverage indicators in 2021 showed that the abandonment rate among children under two years of age was 80.9%, which places the state at high and very high risk in terms of the transmissibility of vaccine-preventable diseases. In this sense, measures aimed at achieving high vaccination coverage and reducing vaccine refusal will contribute to better vaccination coverage and possible "herd immunity" effects throughout the state, thus reducing the risk of re-emergence of vaccine-preventable diseases that have already been controlled or eradicated[4,5].

Primary Health Care (PHC), as the central axis of public health policy, is a setting that should focus on health promotion and disease prevention, which provides opportunities for practices that focus on vaccination[5,6]. Paradoxically, vaccination delays are a weakness in the context of PHC interventions and can be identified during the various activities carried out by health professionals, such as home visits, childcare appointments, or other visits to health units, or even during the monthly monitoring of the vaccination status of all children registered and monitored in the health area[7,8].

From this perspective, strategies aimed at improving vaccine adherence and vaccination coverage are emerging and included in advanced practice nursing because they have health implications while also converging on economic and social aspects. Due to the complexity of the reasons for vaccine hesitancy, no single intervention strategy can cover all the different facets related to this phenomenon[8-10].

To this end, this report aims to describe the implementation of advanced practice nursing to address vaccine hesitancy in children under two years of age.

METHOD

This is an experience report that monitored the vaccination status of children under 2 years of age enrolled in five Family Health Strategies (FHS) in micro-regions of a medium-sized municipality located in the north of Minas Gerais as well as describing the implementation of advanced practice nursing as strategies to improve vaccination adherence and local vaccination coverage.

The actions took place between March and June 2023 and were carried out by teachers and students from the 9th period (Family Health Internship) of the undergraduate nursing course at the State University of Montes Claros (Unimontes), in partnership with scholarship students and teachers from this university, linked to an Institutional Project approved by the Ministry of Health (MoH).

For immunization surveillance, 9th period students were previously given instructions on assessing the immunization schedule and technical guidance on vaccines. They were instructed to use the mirror card to record vaccine doses and to monitor the immunization schedule of children under two years of age, according to the PNI. Interns were also asked to conduct advanced practice nursing in primary health care as a curricular activity, which included proposing interventions to increase vaccine adherence and coverage at the internship sites, which were the settings for this study.

All the activities carried out were known to and approved by the municipal administration as an important partnership between the service and academia to strengthen immunization actions.

The use of the data collected was limited to scientific discussion, without any disclosure that could identify the participants. All research team members were adequately trained in the ethical aspects and committed to responsible and respectful conduct. The commitment to ethics guided every stage of this study, always with the integrity and well-being of the participants in mind, and to contribute to the production of relevant and responsible knowledge in the health field.

RESULTS

At the start of the activities, a situation analysis was needed to quantify the target population. To do so, in mid-March 2023, academics in their respective fields conducted a reliable survey of children under two who were duly registered with the Basic Health Units (UBS). At this stage, we triple-checked the registered children by verifying their registration in the e-SUS and VIVVER systems and consulting with the community health agents responsible for monitoring them. A total of 210 children in this age group were enrolled and monitored.

A comprehensive approach to vaccine monitoring was used, including an initial assessment of the child's immunization record, recording of doses received, identification of delayed doses, actively seeking updates to the immunization schedule, and concurrent implementation of practices to improve vaccine adherence.

To track immunization status, a mirror card was completed for these children. At this stage, data was retrieved using community health agents (ACS) records and cross-referenced with the e-SUS system. Information was consolidated using dynamic Microsoft Excel spreadsheets, facilitating the organization and monitoring of children's immunization status. This allowed for detailed monitoring and streamlined information management. Between March and June, a review was also conducted during nursing consultations (pediatric care) of the listed children by nursing students during the Family Health Internship. This phase revealed several inconsistencies, such as errors in immunization records, discrepancies between electronic records and ACS records, unjustified delays in immunization, and schedule deviations from PNI recommendations.

An active community search was conducted for children with delayed schedules through home visits, telephone calls, and pediatric nurse consultations. Children with immunization records showing delayed doses were referred to the immunization room for schedule updates. In addition, interventions to improve vaccine adherence were implemented, such as sending messages to children's guardians through a mobile application. These reminders were sent one day prior to the scheduled vaccination date to encourage adherence and to educate caregivers about the importance of immunization.

During the monitoring, some challenges were identified related to the delays in the children's vaccination cards served by the teams. These challenges are mainly due to vaccine hesitancy, exacerbated by the "infodemic" during the Covid-19 pandemic and the widespread dissemination of vaccine misinformation. Other situations were also identified as causes of vaccine delay, including parents' unwillingness to bring children to FHS and vaccination rooms, children falling ill, lack of vaccine supplies (some vaccines were not available in the network during the study period), prematurity, and specific health conditions, including allergies.

Children with vaccine delays were treated individually, where parents were interviewed about possible reasons for vaccine delay and/or hesitancy, and educational interventions were provided to demystify fake news and false contraindications for vaccines, as well as assertive guidance about the importance of vaccinating children.

It is important to note that children with up-to-date immunization schedules were followed up monthly to update their immunizations according to the PNI. During routine follow-up visits (child care) or health needs, their caregivers were congratulated on their behavior, and the importance of keeping their vaccinations up to date was reinforced.

At the same time, health education activities were carried out throughout the monitoring period as part of other advanced care practices to support the implementation of actions to strengthen vaccination coverage and promote this group's health according to each specific area's needs. These activities were aimed at ACS, nursing technicians, vaccine room technicians, other professionals from basic health units, and the population (especially those responsible for children) to promote reliable and up-to-date information on vaccinations, thus favoring an increase in vaccination coverage.

Graphic information materials on vaccines were also produced, as well as a symbolic certificate for children who updated their vaccination card, as a motivational measure to keep their vaccination schedule up to date; information on vaccines was posted on the official social media profile of a UBS; and interventions were carried out in the vaccination room to create a more humanized and welcoming environment.

These integrated strategies have led to improved immunization coverage and, as a result, better local immunization coverage, which protects children's health and the health of the communities in which they live.

Finally, the teams' success in increasing vaccination compliance has been remarkable, resulting in a reduction in the number of children under two years of age with overdue vaccinations. The joint work of the teams (health professionals, students, and nursing professors) and the sensitization of parents/guardians were key factors in achieving positive results, with significant public health benefits.

However, this is a report of experience carried out in a short time, and the descriptions given here should be interpreted with caution and in light of the various specificities of each terri-

tory, as well as the complexity of the challenges in tackling vaccine delay and hesitancy, which suggests the need for further research using different methodologies to assess the real impact of the actions carried out in this report.

CONCLUSION

The interventions in this report have demonstrated important public health implications and suggest the need for continued efforts to promote and strengthen interventions to encourage immunization of children in this age group.

This report highlights the importance of nursing, particularly nurses, in monitoring children's immunization schedules as well as strategic interventions and advanced practices to address vaccine hesitancy.

By identifying the challenges faced and the intervention strategies implemented, it was possible to confirm that the experience made a significant contribution to the clinic and teaching, with nursing students and teachers experiencing and learning to practice critically, actively, and reflectively. In addition, this report could encourage the need for further studies and also support the development of public policies in favor of immunization.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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