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Challenges in search of safety in vaccine coverage in children up to two years old

Retos en busca de la seguridad en la cobertura vacunal en niños hasta los dos años

Os desafios em busca da segurança na cobertura vacinal em crianças de até dois anos de idade

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Abstract

The aim was to cite the main challenges faced by nursing professionals for vaccination coverage in children up to two years of age in the municipality of Miguel Pereira, State of Rio de Janeiro. This is a descriptive and exploratory research, with a qualitative approach. Twenty-four nursing professionals participated in the study, who work in the immunization rooms of 12 Family Health Units (USF), 1 Health Center and at the Municipal Hospital. Data were collected from July to August 2020, through a semi-structured questionnaire. It was found that 14 (58.33%) professionals carried out training on vaccination outside the municipality and 10 (41.67%) did not; 10 (83.3%) units administer vaccines twice a week and 2 (16.67%) only once, but the Health Center and the Hospital vaccinate every day of the week, during business hours; 6 (42.86%) units schedule vaccines and 8 (57.14%) units are on demand. Of the scheduled vaccines, 14 (58.33%) guardians attend with the child and 10 (41.67%) do not attend. It is essential that a corrective action plan be drawn up by managers, so that vaccination coverage in the municipality rises from 76.9% and reaches the recommended by the Ministry of Health.

Descriptors: Nurse Practitioners; Vaccination Coverage; Safety; Minors; State.

Resumén

El objetivo fue citar los principales desafíos que enfrentan los profesionales de enfermería para la cobertura de vacunación en niños de hasta dos años en el municipio de Miguel Pereira, Estado de Río de Janeiro. Se trata de una investigación descriptiva y exploratoria, con enfoque cualitativo. Participaron del estudio 24 profesionales de enfermería, que actúan en las salas de inmunización de 12 Unidades de Salud de la Familia (USF), 1 Centro de Salud y en el Hospital Municipal. Los datos fueron recolectados de julio a agosto de 2020, a través de un cuestionario semiestructurado. Se constató que 14 (58,33%) profesionales realizaron capacitaciones sobre vacunación fuera del municipio y 10 (41,67%) no; 10 (83,3%) unidades administran vacunas dos veces por semana y 2 (16,67%) una sola vez, pero el Centro de Salud y el Hospital vacunan todos los días de la semana, en horario comercial; 6 (42,86%) unidades programan vacunas y 8 (57,14%) unidades son a demanda. De las vacunas programadas, 14 (58,33%) tutores asisten con el niño y 10 (41,67%) no asisten. Es fundamental que se elabore un plan de acciones correctivas por parte de los directivos, para que la cobertura de vacunación en el municipio pase del 76,9% y alcance la recomendada por el Ministerio de Salud.

Descriptores: Enfermeras Practicantes; Cobertura de Vacunación; Seguridad; Menores; Estado.

Resumo

Objetivou-se citar os principais desafios enfrentados pelos profissionais de enfermagem para a cobertura vacinal em crianças até dois anos de idade no município de Miguel Pereira, Estado do Rio de Janeiro. Trata-se de uma pesquisa descritiva e exploratória, com abordagem qualitativa. Participaram do estudo vinte e quatro profissionais de enfermagem, que trabalham nas salas de imunização de 12 Unidades de Saúde da Família (USF), 1 Posto de Saúde e no Hospital Municipal. Os dados foram coletados no período de julho a agosto de 2020, através de um questionário semiestruturado. Constatado que 14 (58,33%) profissionais realizaram capacitação sobre vacinação extra município e 10 (41,67%) não; 10 (83,3%) unidades administram vacinas 2 vezes por semana e 2 (16,67%) somente 1 vez, mas o Posto de Saúde e o Hospital vacinam durante todos os dias da semana, em horário comercial; 6 (42,86%) unidades agendam as vacinas e 8 (57,14%) unidades são por demanda livre. Das vacinas agendadas 14 (58,33%) responsáveis comparecem com a criança e 10 (41,67%) não comparecem. É fundamental que um plano de ação corretivo seja traçado pelos gestores, para que a cobertura vacinal no município saia de 76,9% e atinja o recomendado pelo Ministério da Saúde.

Descritores: Profissionais de Enfermagem; Cobertura Vacinal; Segurança: Menores de Idade; Estado.

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Introduction

Vaccines are among the most effective Public Health measures for the prevention, elimination and control of communicable diseases.[1]

Organized immunization programs are recognized as one of the most cost-effective investments in health.[2]

In Brazil, the National Immunization Program (PNI) was created in 1973, has universal access throughout the national territory and is one of the largest in the world, offering 45 different immunobiologicals for the entire population.[3]

Immunobiologicals are made available in the Family Health Strategies (ESF) according to the immunization schedule, with specific guidelines for each stage of life: childhood, adolescence, adult, pregnancy, elderly and indigenous population.[4]

Vaccination coverage can be understood as the relevance of children under two years of age who live in the population and who have taken the immunobiologicals in full, interpreting the administration of all vaccines recommended by the PNI as a comprehensive scheme, of which the doses were administered in the exact age groups and with the correct intervals.[4]

Currently, the PNI offers 44 types of immunobiologicals, including vaccines, serums and immunoglobulins.[4,5] However, the increase in the complexity of items in the vaccination schedule in recent decades and the introduction of several vaccines in a short period brought new challenges to the program, including achieving and maintaining high vaccination coverage in the population.

According to data from the National Immunization Program Information System (SIPNI), vaccination coverage in a population of 273 children under two years of age, from January to December 2019 in the Municipality of Miguel Pereira-RJ, was 76.9% vaccinated , taking into account possible shortages of some vaccines from the National Immunization Program.

Given the above, the following question arises: what are the challenges faced by nursing professionals to achieve vaccination coverage in children up to 2 years of age?

Thus, this study aims to: cite the main challenges faced for vaccination coverage in children up to two years of age in the municipality of Miguel Pereira, in the Centro Sul Fluminense region of the State of Rio de Janeiro.

Methodology

This is a descriptive and exploratory methodological research, with a qualitative approach.

The first stage comprised the construction of a questionnaire after reading the manuals, programs and protocols of the Ministry of Health. As inclusion criteria, the nursing professionals who work in the immunization rooms of the 12 Family Health Units (USF) in the municipality of Miguel Pereira, the Health Post Senador Roberto Campos and the Municipal Hospital Luiz Gonzaga were selected. Nursing professionals from other health units not selected for the study were adopted as exclusion criteria.

The Basic Units of the municipality have a professional team composed of a doctor, a nurse, a nursing technician and community health agents. The Senador Roberto Campos Health Post was chosen among the health posts for being a reference unit for specialties.

Research questions: age; sex; professional category; unit type; Days of the week used in units for vaccination of children under 2 years of age; location of vaccination units; Factors that contribute to the reduction of vaccination days in the units; training course on immunization; Attendance of the guardian with the child up to 2 years of age, on the day scheduled by the unit for vaccination.

Data collection was carried out from July to August 2020, in the 14 health units in the municipality.

The data were analyzed through the characterization of the samples, the calculation of the percentage of closed answers and the interpretative analysis of the open questions were discussed in the light of the pertinent literature.

The second stage was developed after the project was approved by the Human Research Ethics Committee of the Centro Universitário de Valença-RJ. The sample consisted of nurses and nursing technicians, who worked in the immunization rooms of 12 USF, 1 health center and 1 municipal hospital and met the definition of nursing professionals. Working in the immunization room was a mandatory requirement.

The ethical precepts established by Resolution No. 466/2012 of the National Health Council and Circular Letter No. 1/2021 of CONEP/SECNS/MS were observed and developed after being approved by the Certificate of Presentation and Ethical Appreciation (CAAE): 33766720.2.0000.5246 and by the Opinion of the Ethics Committee in Research with Human Beings of the University Center of Valença-RJ, through the Embodied Opinion nº: 4.122.363.

The present study presents minimal risks related to the exposure of the interviewees. As benefits, the study will contribute to the elucidation of the challenges of vaccination coverage in the municipality.

Results and Discussion

Feedback was obtained from 11 (45.83%) nurses and 13 (54.17%) nursing technicians. There was no exclusion of professionals in the study, all were volunteers to participate in the research.

The nursing professionals who participated in the study were between 25 and 29 years old (n=3, 12.50%), 30 and 34 years old (n=4, 16.67%), 35 and 39 years old (n=6, 25 .00%), 40 and 44 years old (n=2, 8.33%), 45 and 49 years old (n=4, 16.67%), 50 and 54 years old (n=5, 20.83%), they are female (n=21, 87.50%) and male (n=3, 12.50%). Twelve USF (85.72%), the Senador Roberto Campos Health Center (7.14%) and the Municipal Hospital of Miguel Pereira (7.14%) participated in the research. Regarding the days of the week used in the vaccination units, 10 (71.42%) work twice a week - in the morning, 2 (14.29%) work once a week - in the morning and 1 (14.29%) works every day of the week full

time. All 14 (100.00%) units are located in mixed areas (urban and rural areas). Nursing professionals cited the factors that contribute to the reduction of vaccination days in the units, among them, 14 (58.34%) professionals reported inadequate conditions for storing vaccines and 10 (41.66%) professionals reported the deficit of nursing professionals. With regard to training courses on immunization, 10 (41.66%) nurses took a training course in the municipality, 1 (4.18%) nurse did not take a training course, 3 (12.50%) nursing technicians took a course training and 10 (41.66%) nursing technicians did not take a training course. Regarding the attendance of the guardian with the child up to 2 years of age on the day scheduled for vaccination at the health unit, 14 (58.34%) nursing professionals (11 nurses and 3 nursing technicians) reported that the guardian attends with the child and 10 (41.66%) nursing technicians reported that the guardian does not appear with the child on the day scheduled by the unit for vaccination, as described in Tables 1, 2 and 3.

Table 1. Social characteristics of nursing professionals. Miguel Pereira, RJ, Brazil, 2022

Age	**n**	**Percentage**
25 to 29 years-old	3	12,50%
30 to 34 years-old	4	16,67%
35 to 39 years-old	6	25,00%
40 to 44 years-old	2	8,33%
45 to 49 years-old	4	16,67%
50 to 54 years-old	5	20,83%
Total	24	100,00%
Sex	**n**	**Percentage**
Feminine	21	87,50%
Masculine	3	12,50%
Total	24	100,00%
Professional Category	**n**	**Percentage**
Nurse	11	45,83%
Nursing Technicians	13	54,17%
Total	**24**	**100,00%**

Nursing today in the country is made up of a staff of 80% technicians and nursing assistants and 20% nurses.[6]

It is also noted in the research that the area of nursing is an eminently female profession, which is in line with what is presented by the Federal Nursing Council (COFEN)[6], in Brazil, this professional staff is made up of 84.6% women. It is important to point out, however, that even though this is a female category, 15% of men.

Table 2. Characteristics of vaccination units. Miguel Pereira, RJ, Brazil, 2022

Unit Type	**n**	**Percentage**
Family Health Unit	12	85,72%
Health Center	1	7,14%
Municipal Hospital	1	7,14%
Total	14	100%
Scheduling of vaccines	**n**	**Percentage**
Units schedule	6	42,86%
Units receive spontaneous demand	8	57,14%
Total	14	100,00%
Days of the week used in vaccination units	**n**	**Percentage**
2 times a week - morning	10	71,42
1 time a week - morning	2	14,29%
Every day of the week in the morning and afternoon	2	14,29%
Total	**14**	**100,00%**

Primary health care (PHC) is made up of basic health units (UBS) and Primary Care Teams, while the intermediate level of care is the responsibility of the Mobile Emergency Care Service (SAMU), the Emergency Care Units (UPA), and medium and high complexity care is provided in hospitals.[7]

Primary Care is the population's first contact with the Unified Health System (SUS). It is the preferred gateway to the Health Network and integrates a set of actions. As part of a unique mechanism, nurses play a fundamental role in providing assistance to citizens, both within Primary Care (AB) and in medium and high complexity.[7]

The study analyzed nursing professionals in the following units: USF Praça da Ponte, USF Praça da Ponte II, USF Governador Portela, USF Governador Portela II, USF São Judas Tadeu, USF do Cupido, USF do Plante Café, USF Mangueiras, USF Vila Selma, USF Vila Suíssa, USF Vera Cruz and USF Pantanal, Health Post Senador Roberto Campos and Hospital Municipal Luiz Gonzaga, all in the municipality of Miguel Pereira.

Of the 12 USF in the municipality, 2 USF do not have an exclusive room for vaccination. All research units have an operating computerized system. 6 (42.86%) units schedule vaccinations and 8 (57.14%) units receive spontaneous

demand. There are no exclusive nursing technicians and nurses to work in the vaccination room, these nursing professionals share various administrative and technical tasks such as administering vaccines, which contributes to the reduction of shifts for vaccination in the units, which varies from 1 to 2 days a week, only where there is an exclusive nursing technician for the vaccination room, vaccination days are open from Monday to Friday, from 8 am to 5 pm.

Table 3. Perception of nursing professionals. Miguel Pereira, RJ, Brazil, 2022

Factors that contribute to the reduction of vaccination days in the units (immunization coverage)		**Percentage**
Inadequate storage conditions for vaccines	6	25,00%
Deficit of nursing professionals	10	41,66%
Occasional lack of some immunobiologicals	8	33,34%
Total	24	100,00%
Training course on Immunization by the Municipality	**n**	**Percentage**
Nurses who took a course	10	41,66%
Nurses who did not take a course	1	4,18%
Nursing technicians who took a course	3	12,50%
Nursing technicians who did not take a course	10	41,66%
Total	24	100,00%
Attendance of the guardian with the child up to 2 years of age on the day scheduled by the unit for vaccination	**n**	**Percentage**
Yes	14	58,34%
No	10	41,66%
Total	24	100,00%
Knowledge of the vaccination coverage of the Health Unit of origin	**n**	**Percentage**
Nurses who know the information	11	45,83%
Nursing technicians who know the information	8	33,34%
Nursing technicians who are unaware of the information	5	20,83%
Total	**24**	**100,00%**

Regarding the perception of nursing professionals about the contributing factors to the reduction of vaccination coverage in children up to 2 years of age in the units, the information collected indicated that 10 (41.66%) professionals reported the deficit in dimensioning of nursing professionals. nursing in the units, followed by inadequate conditions for storing vaccines. In this item, the professionals report that in 6 (42.85%) units there is an imminent risk of compromising the conservation and quality of the vaccines, therefore, after the end of each scheduled shift, these vaccines return to the municipality's immunization center, but in 8 (57.15%) units the vaccines remain stored.

Another fact reported by 8 (33.34%) nursing professionals as a contributing factor to the decrease in vaccination coverage was the eventual lack of some immunobiologicals from the Ministry of Health program.

The shortage of immunobiologicals, attributed to difficulties in the delivery of international vaccines and/or the production capacity of laboratories, can be blamed for the drop in vaccine coverage in Brazil.[8]

Problems with patient safety do not only occur in hospitals, but also affect patients receiving primary care. The WHO recognized the progress in the implementation of PHC in global terms, however, it pointed out as a challenge the adoption of practices that allow offering continuous, humanized, quality and safe care.[9]

It was found that 10 (41.66%) nurses and 3 (12.50%) nursing technicians took training courses on vaccination, but with no burden on the municipality's management, all of them taking part were on their own.

The municipality works in the units with the vaccination system for children up to 2 years of age by appointment. 14 (58.34%) nursing professionals reported that parents attend with the child for vaccination on the scheduled day, while 10 (41.66%) refer to non-attendance.

A study carried out in Basic Units in Volta Redonda, RJ, found a higher prevalence of children with delayed vaccination among children of mothers with less than eight years of schooling.[10]

Vaccination coverage in the municipality of Miguel Pereira during the study period was 76.9%, 11 (45.83%) nurses and 8 (33.34%) nursing technicians reported knowing information about vaccination coverage in the municipality , while 5 (20.83%) nursing technicians reported not knowing completely.

Verification of immunization coverage and

identification of the reasons that cause the shortage or lack of immunization is essential for the conformation of governmental vaccination plans and for the recognition of children in arrears.[11]

As limitations of the study, the reduced number of recent studies available on the subject in the State of Rio de Janeiro is pointed out.

Conclusion

In order for the health service to guarantee excellent vaccination coverage, it is essential to comply with a sequence of norms and plan actions that combine everything from the management and structure of the unit to the administration of immunobiologicals.[12]

Actions should be designed based on the difficulties encountered in the study and this becomes a challenge for city managers, as there are problems related to the infrastructure of the units, equipment, dimensioning of nursing professionals, permanent education, active search for children up to 2 years of age for vaccination and consequently increased vaccination coverage in the municipality of Miguel Pereira.

The Ministry of Health, as the responsible institution, has been concerned about the decline in vaccination coverage in the country. The World Health Organization recommends coverage of 90% for BCG and human rotavirus, and 95% for other immunizers.[13]

Measures to be taken to promote vaccination include (i) extending the hours of vaccination sites, (ii) avoiding barriers to access, (iii) taking advantage of opportunities for vaccination (appointments or other procedures at health facilities), (iv) identify children who are late in the vaccination schedule, through active search and community strategies, (v) promote collective health education actions, together with the community, for disease prevention through vaccination, and (vi) combat any false information about vaccination, always extolling the safety and benefits of vaccines.[13]

It is concluded that patient safety is essential to reduce risks and minimize damage to the health of users who seek care in PHC. In view of this, the promotion of constant education actions for all teams, focusing on safe and quality care tends to be one of the main nursing strategies.[14]

It is believed that a limitation of this study was the existence of few previous studies and findings on the subject. The data obtained will contribute to the awareness of Municipal Managers, USF Coordinators, Immunization and Epidemiological Surveillance Coordinators, on the importance of vaccination coverage in children up to 2 years of age in the Municipality of Miguel Pereira.

Future studies are recommended in the research municipality and in other municipalities in the State of Rio de Janeiro, with the objective of analyzing the situation to improve actions and corrective measures, aiming at safe vaccination coverage in children up to 2 years of age, as recommended by the Ministry of Health, which is to achieve vaccination coverage above 95%.

References

1. Andre FE, Booy R, Bock HL, Clemens J, Datta SK, John TJ, et al. Vaccination greatly reduces disease, disability, death and inequity worldwide. Bull World Health Organ. 2008;86(2):e81-160. https://doi.org/10.2471/blt.07.040089.
2. World Health Organization (WHO). Immunization [Internet]. [Geneva]: World Health Organization; 2019 [acesso 20 jun. 2022]. Disponível em: https://www.who.int/news-room/facts-in-pictures/detail/immunization
3. Ministério da Saúde (BR). Programa Nacional de Imunizações [Internet]. 2018 [acesso 17 jun. 2021]. Disponível em: https://www.gov.br/saude/pt-br/acesso-a-informacao/acoes-e-programas/programa-nacional-de-imunizacoes-vacinacao
4. Ministério da Saúde (BR). Manual de normas e procedimentos para vacinação [Internet]. Brasília, DF: MS; 2014 [acesso 12 jun. 2022]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/manual_procedimentos_vacinacao.pdf
5. Ministério da Saúde (BR). Programa Nacional de Imunização: coberturas vacinais no Brasil, período: 2010 - 2014 [Internet]. Brasília (DF): MS; 2015 [acesso 17 jun. 2022]. Disponível em: Disponível em: https://portalarquivos2.saude.gov.br/images/pdf/2017/agosto/17/AACOBERTURAS-VACINAIS-NO-BRASIL---2010-2014.pdf
6. Conselho Federal de Enfermagem (COFEN). Pesquisa inédita traça perfil da enfermagem. COFEN [Internet]. 2017 [acesso 17 jun. 2021]. Disponível em:http://www.cofen.gov.br/pesquisa-inedita-traca-perfil-da-enfermagem_31258.html
7. Organização Mundial da Saúde (OMS). Global strategy on humanres ources forhealth:Work force 2030 [Internet]. Genebra (GE): OMS; 2016 [acesso em 19 jun 2022]. Disponível em: https://apps.who.int/iris/bitstream/handle/10665/250368/9789241511131-eng.pdf
8. Sato APS. What is the importance of vaccine hesitancy in the drop of vaccination coverage in Brazil? Rev Saúde Pública. 2018 Nov;52(1):e1-9. https://doi.org/10.11606/S1518-8787.2018052001199
9. Aguiar TL, Lima DS, Moreira MAB, Santos LF, Ferreira JMBB. Incidentes de segurança do paciente na Atenção Primária à Saúde (APS) de Manaus, AM, Brasil. Interface. 2020;24(suppl 1). DOI: 10.1590/Interface.190622
10. Cardoso MDT, Carneiro SG, Ribeiro TT, Strapasson JF, Carneiro RG. Avaliação da cobertura vacinal em crianças de 2 meses a 5 anos na estratégia saúde da família. Rev APS [Internet]. 2015 [acesso 17 jun. 2021];18(3):e273-80. Disponível em: https://periodicos.ufjf.br/index.php/aps/article/view/15346
11. Sato APS. National Immunization Program: Computerized System asa tool for new challenges. Revista de Saúde Pública [Internet]. 2015 [acesso 17 jun. 2021];49:e1-5. Disponível em: https://ri.cesmac.edu.br/bitstream/tede/571/1/Os%20desafios%20do%20programa%20nacional%20de%20imuniza%C3%A7%C3%A3o%20em%20um%20munic%C3%ADpio%20do%20sert%C3%A3o%20alagoano.pdf.
12. Jéssica RTM, Selma MFV, Valeria CO, Fernanda ML. O quotidiano na sala de vacinação: vivências de profissionais de enfermagem. Av Enferm. 2019;37(2):e198-207. https://doi.org/10.15446/av.enferm.v37n2.73784

13. Conselho Nacional de Secretarias Municipais de Saúde (BR). Dez passos para ampliar a cobertura vacinal [Internet]. Brasília (DF): CONASEMS; 2019 [acesso 04 jun 2022]. Disponível em: https://www.conasems.org.br/dez-passos-para-ampliar-cobertura-vacinal
14. Silva EA, Voltarelli A, Gatto RS, França CE, José EAR, Souza MJL, Miranda C, Arruda AL. Enfermagem na segurança do paciente na Atenção Primária. Glob Acad Nurs. 2022;3(1):e223. https://dx.doi.org/10.5935/2675-5602.20200223
15. Barcelos RS, Santos IS, Munhoz TN, Blumenberg C, Bortolloto CC, Matijasevich A, et al. Cobertura vacinal em crianças de até 2 anos de idade beneficiárias do Programa Bolsa Família, Brasil. Epidemiol. Serv. Saúde. 2021:e30(3). https://doi.org/10.1590/S1679-49742021000300010