

## Access to vaccination room in primary health care services\*

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### ABSTRACT

The objective of this study was to analyze the access to vaccination rooms in the Family Health Strategies of a municipality of Minas Gerais, Brazil. This is a unique, qualitative case study carried out in 2015. The vaccination rooms were the units of analysis of the study. Semi structured interviews were conducted with 49 users and 30 health professionals and we observed the care routine in the vaccination room. The technique of thematic content analysis was used, with pre-established categories. The data demonstrated that access to vaccination rooms in primary health care presents obstacles, implying the exclusion of users to the immunization service, hence the importance of knowing the difficulties of accessing the service, in order to reorganize it and include vaccination to all target audiences of the National Immunization Program.

**Descriptors:** Health Services Accessibility; Vaccines; Primary Health Care; Community Health Nursing.

### INTRODUCTION

Immunization is an action to control and eliminate infectious diseases and it is estimated that more than 30 doses of vaccine are administered globally every second and no other health intervention can affect so many persons or is capable of preventing such a wide range of public health problems<sup>(1)</sup>.

The Brazilian National Immunization Program (PNI) is considered as one of the most complete programs among developing nations, with a distribution of more than 300 million annual doses among 44 immunobiologicals, in the approximately 35,000 immunization rooms scattered throughout the country with the objective of offering universal

vaccines to all age groups<sup>(2)</sup>. Despite the efforts made by the PNI and the vaccination strategies adopted to eliminate several diseases and control others, there is a need to identify factors that influence vaccine coverage<sup>(3)</sup>, which are heterogeneous, mainly in relation to disparities of the coverage in municipalities, which can compromise the control, elimination, or eradication of immunopreventable diseases<sup>(3-5)</sup>.

The Family Health Strategy (FHS), because of its delimitation of the area of coverage, the number of families under its responsibility, the diagnosis of the health situation, and the definition of actions, is different from traditional health care units; therefore, it must enable the universal access to health services, one of the principles advocated by the Brazilian Unified Health System (SUS)<sup>(6)</sup>. Given the relevance and indisputable impact of immunization on the health of populations, it is fundamental to conduct studies aimed at the knowledge and elucidation of the factors that facilitate or hinder the access to vaccination rooms in SUS health units.

The term access is used here as the use of the service and implies identifying barriers in any way that may prevent the individual from obtaining a right or a service that is formally guaranteed<sup>(7)</sup>. It can be the result of the combination of several factors, of different dimensions, that are interrelated, defined as geographic and socio-organizational<sup>(8)</sup>, socioeconomic and cultural<sup>(9)</sup>. In the literature consulted, we found no studies on the access to vaccination rooms in Brazil. Thus, we ask: how has the organization of the Family Health Strategy influenced the access to vaccination rooms?

Therefore, the objective of this study was to analyze the access to vaccination rooms in the Family Health Strategies of a municipality in the western health region of Minas Gerais, Brazil.

## METHOD

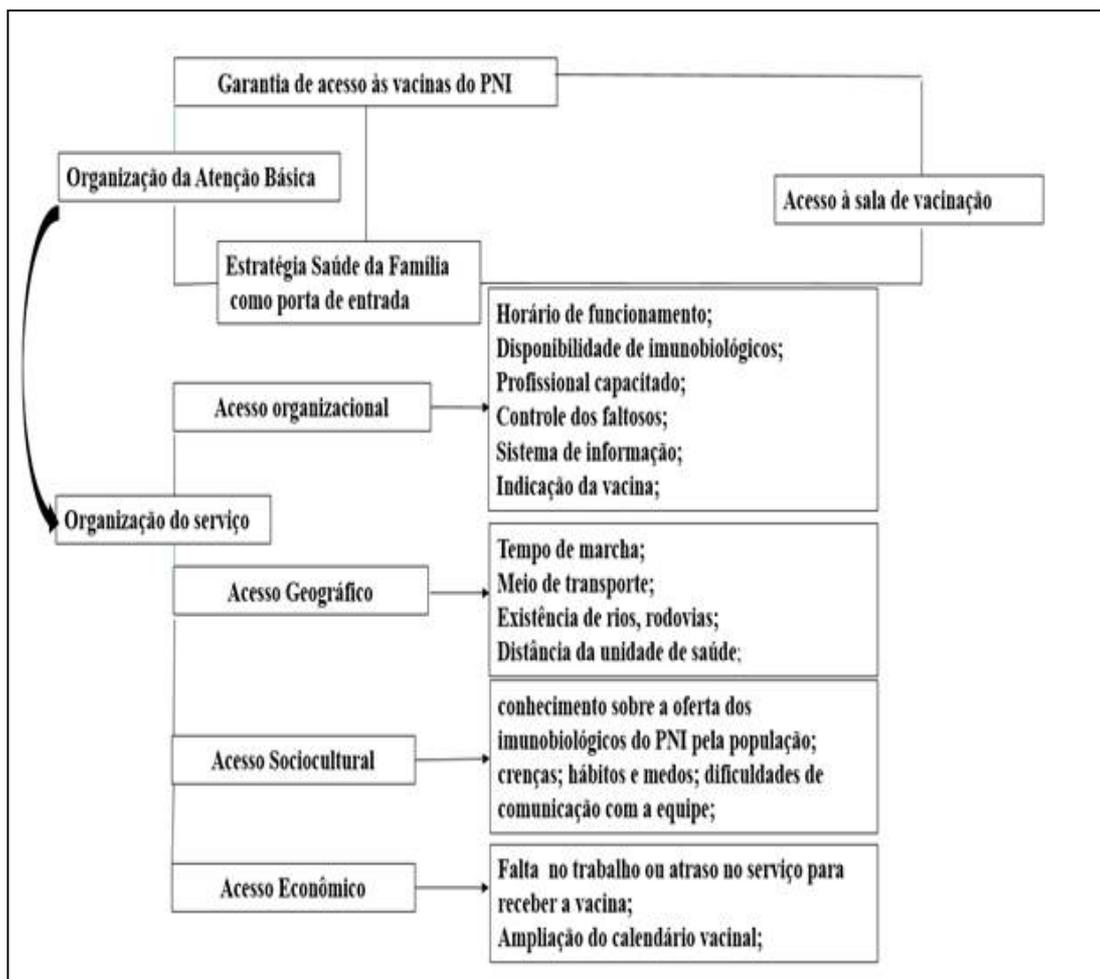
### Characterization of the case

A single case study was conducted in a small municipality in the State of Minas Gerais, Brazil, with 100% FHS coverage. It is a municipality recognized nationally as the second furniture center of Brazil<sup>(10)</sup>.

Since 1999, the municipality has expanded its health services network, aiming at the reorganization of primary health care with the FHS, and today there are nine units of family health strategies with a diversity of territory, as the municipality has urban teams and two rural teams. They have differences in the social production of health, since the rural teams are itinerant with difficult situations, such as the distance traveled by the professionals and the obstacles of unpaved roads.

### Elaboration of the theoretical model

Data collection was preceded by the elaboration of a theoretical model (Figure 1), which incorporated the dimensions and criteria related to accessibility to vaccination rooms, based on the theoretical framework of Donabedian<sup>(8)</sup> and Fekete<sup>(9)</sup> in the following dimensions of access: organizational, geographical, sociocultural, and economic.



**Figure 1:** Theoretical model for the analysis of access to vaccination rooms in Primary Health Care.

Image subtitle:

- Garantia de acesso às vacinas do PNI = Guarantee of access to PNI vaccines
- Organização da Atenção Básica = Organization of Primary Care
- Acesso à sala de vacinação = Access to the vaccination room
- Estratégia Saúde da Família como porta de entrada = Family Health Strategy as an entry point
- Acesso organizacional = Organizational access
- Organização do serviço = Organization of the service
- Horário de funcionamento = Opening hours
- Disponibilidade de imunológicos = Availability of immunobiologicals
- Profissional capacitado = Trained Professional
- Controle de faltosos = Control of missing patients
- Sistema de informação = Information system
- Indicação da Vacina = Indication of vaccine
- Acesso geográfico = Geographical access
- Tempo de marcha = Walking time
- Meio de transporte = Means of transport
- Existência de rios, rodovias = Existence of rivers, highways
- Distância da unidade de saúde = Distance from health unit
- Acesso sociocultural = Sociocultural access
- Conhecimento sobre ofertas dos imunobiológicos do PNI pela população; crenças; hábitos e medos; dificuldades de comunicação com a equipe = Knowledge of the population about offers of PNI immunobiologicals; beliefs, habits, and fears; communication difficulties with the team
- Acesso Econômico = Economic access
- Falta no trabalho ou atraso no serviço para receber a vacina = Missing work or arriving late at it to be vaccinated
- Ampliação do calendário vacinal = Expansion of the calendar of vaccines

For each of the dimensions of accessibility described in the model, the aspects related to vaccination

room were defined taking into account their interaction and influence in the access to the vaccination room.

In the organizational dimension, the following items were defined: opening hours, availability of immunobiologicals, trained professional, control of missing patients, information system, and indication of vaccine. In the geographic dimension of the access, we established: walking time, means of transport, existence of rivers and/or highways, and distance from the health unit. Sociocultural access was characterized by the knowledge of the population about offers of PNI immunobiologicals; beliefs, habits, and fears; and communication difficulties with the team. Finally, the economic dimension of access defined missing work or arriving late at it to be vaccinated and the expansion of the vaccination calendar.

In this study, for the analysis of access to primary care vaccination rooms, the terms access and accessibility were used as synonyms.

### Data collection and analysis

The participants of this research were workers of the FHS teams, such as physicians, nurses, nursing assistants/technicians, community health agents, and primary care coordinator, amounting to 31 professionals interviewed, identified with the letter (P) followed by the number of the interview. As an inclusion criterion, we established having been working for at least six months in Primary Health Care (PHC) so that the professional knew the reality of his or her unit. Of the 53 possible respondents, 23 professionals were on vacation, health leave, work leave, or their time working at the FHS was less than six months. Therefore, we were left with 30 possible participants who were all interviewed, after agreeing to participate voluntarily in the research by signing the Informed Consent.

In addition to the professionals, 49 target users of the vaccination room also participated in the research: mother of a child, adolescent, pregnant woman, adult/worker, older adult, and bedridden persons with preserved cognitive ability, identified with the letter (U) followed by the number of the interview. Interviews were carried out with users who were waiting for health care in the unit; we sought to reach all the target audience with home visits to groups that were not found in the unit. The indication of home visits was made by the health team together with the researcher.

The criteria for closing the interviews were at least one user for each PNI target group in each vaccination room and all health professionals who met the criteria for inclusion.

Field research was carried out from March 2 to May 13, 2015, based on a survey of primary data from direct observation, with descriptive nature, performed in all FHS. The recording of these observations was done in a field diary prepared after each period, identified as "observation notes" (ON).

The data were analyzed according to the thematic content analysis technique described by Bardin<sup>(11)</sup>, and the categories were predefined into the four dimensions of access: geographic, organizational, sociocultural, and economic. This way of categorizing called "boxes" is applicable when the organization of the material results directly from theoretical hypothetical foundations<sup>(11)</sup>. In the material exploration stage, the software Atlas.ti version 7.5.6 was used to aid in the coding and analysis of the context and registration

units.

The project was approved by the Research Ethics Committee of the *Universidade Federal de São João Del-Rei*/Campus Centro Oeste, under opinion # 910,125. CAAE: 37653214.7.0000.5545.

## RESULTS AND DISCUSSION

### The organizational dimension of access

The main obstacle of access in relation to the organizational dimension was the lack of immunobiologicals, also pointed out in other studies<sup>(5,12-13)</sup> and it is a major obstacle for adequate vaccination coverage.

*[...] the last time I went there was last week to vaccinate my daughter for the three-month vaccine, but they didn't have the vaccine because the girl who went to pick the vaccine said that they hadn't arrived at center C, they pick it up and bring it here to center S, she told me to come back next week that they would have the vaccine [...] U1.*

The unavailability of vaccines contributes to low coverage or delay of the calendar of vaccines. In the United States in 2009, during the Hib vaccine shortage, there was a temporary recommendation to postpone the booster dose but maintain the primary regimen, and this guidance resulted in a decrease from 66% to 39.5% of children with complete calendar of vaccines<sup>(14)</sup>.

In Brazil, it is important to note that, during the data collection of this study, the country faced a shortage of vaccines because of insufficient transfer by the Ministry of Health because of reforms in manufacturing laboratories. However, the scheduling routine of vaccines was kept, regardless of the shortage of immunobiologicals.

*[...] I have a vaccine that is given on Tuesday, so not to waste it; I have a vaccine that is given on Friday. Then we look and if we are on the right day we call the nurse or the technician that carries out the vaccination. And if it is not the day, we will guide the person and explain why [...] P58.*

The fear of waste places health workers in a difficult situation between deciding to open the multi-dose vial and the loss of unused doses or scheduling it for another day, when there is a larger group, thus avoiding waste but inducing losses of vaccine opportunities and increasing the risk of illness<sup>(15)</sup>.

In the records of the field diary, a result of the direct observation of the services, we could identify that opening hours are not the same; there is a vaccination room that does not open at lunch time and ends its activities earlier, besides the availability of vaccines on specific days and hours. In other rooms, although the unit is open, no vaccines are given at lunch time and there is a concentration of immunobiologicals on certain days.

*[...] Coming during business hours, which is from seven to five, until five o'clock the people who work are very nice and there is lunch time as well, and the vaccine room continues working properly [...] P25.*

*[...] From seven to four, excluding the lunch hour, that's when nobody is present, a technician or nurse in the unit, but*

*the staff is already well advised about this [...] P61.*

Even after more than two decades of SUS, the difficulty of access is one of the main problems in PHC/FHS that does not offer widespread access to its users and does not have consolidated organizational technologies for such end<sup>(16)</sup>. The vaccination room that works during business hours, and normally does not offer alternative schedules, limits the access, especially for those persons in the labor market<sup>(14)</sup>

Regarding vaccination opportunities, a single strategy is not enough to improve immunization rates and reduce difficulties of access. Vaccines need to be accessible at all possible opportunities and all efforts must be made for a wide dissemination of available immunobiologicals<sup>(14)</sup>.

Some users expressed dissatisfaction with the prolonged waiting. One user reports she left without receiving the vaccine after waiting for a long time.

*[...] I waited there, nobody told me anything if they would give it or not, I arrived at seven o'clock, then it was seven, seven and a half, eight, I start working at eight, at eight fifteen I went away, I will not be waiting anymore, nobody gave the solution for anything [...] U52.*

Certain professionals were overloaded with the care given to the population in the coverage area; they need to carry out other activities, not only vaccination (ON). We detected from observation and also from the reports of interviewees that the difficulties regarding waiting time are experienced in health units with a larger number of persons registered (ON).

*[...] Number of employees, because the girls are overloaded, this FHS here treats too many people and the number of employees is very small, so in my opinion, I don't know if it's because I came from Belo Horizonte and there the number of employees in the centers is practically twice as much here and with much less people than the FHS here [...] U23.*

The FHS consists of a multiprofessional team that operates in a defined geographic area and registered population, being responsible for a population with an average of 3,000 persons, and a maximum of 4,000 persons, and it may be smaller according to the risk and vulnerability presented<sup>(6)</sup>. The great territorial extension of the country and its demographic and geographic peculiarities point to the need to reduce users per FHS team, so that it can offer an effective access to the care<sup>(16)</sup>.

### **The geographical dimension of access**

In the case of the municipality studied, the characteristics of the geographic organization stand out for the great number of rural communities and the lack of urban transport in these communities. Access in this dimension was not criticized by the users living in the urban area of the municipality, which was already expected, since the health units under study are located in the territory where the registered families live. However, the interviewed professionals and users of the rural area identified barriers to access the vaccination room.

*[...] also because we don't have buses, we don't have public vehicles that go to these places at the right time, so dropping*

*the work at the farm to come here is difficult, they depend sometimes on a ride or on their bosses who come to town, this does not make it impossible, but it is a great obstacle! [...] P49.*

Compared to urban residents, rural residents need a longer journey against other problems such as poor road maintenance and public transport difficulties. We found that the types of displacement are mostly walking, riding a horse, and bicycling. Rural residents are the ones who face the most difficulties of access to the unit, as a professional reports it.

*[...] In rural areas access to both geographical distribution and access to reach the unit is difficult because in our community I have homes that are close to me, so for patients to come here sometimes they have no cars, no transportation within the community, so they come walking, come on a horse, so, on this issue of access to the unit, getting here is difficult [...] P75.*

Geographic access is a major challenge, which includes peculiarities that favor or prevent persons from receiving care in a vaccination room. Geographic accessibility is defined not only by the distance of someone's house to the health unit, but also by the geographical barriers encountered in the displacement, such as the existence of rivers, hills, dirt roads, floods, and the lack of public transportation<sup>(9)</sup>. Brazil has today the FHS *Ribeirinhas* and the Fluvial Primary Health Units, which take the health team to places of difficult access, such as the Amazon and Mato Grosso do Sul region<sup>(6)</sup>.

More effort and creativity are needed in the attempt to program the vaccination offer, with a regulated periodicity, in order to promote equity and ensure access to health as a right<sup>(5,17)</sup>.

### The sociocultural dimension of access

Cultural accessibility, from the perspective of the population, is related, among other things, to the knowledge about the offer of health services, difficulties in communicating with the staff, habits, and beliefs<sup>(9)</sup>.

Non-vaccination is related to the fear of pain, lack of knowledge, customs, and beliefs that society brings along with its cultural values<sup>(18)</sup>. Vaccination appears to be morally unquestionable and is recognized as one of the major advances of science in the control and eradication of infectious diseases. However, we need to respect existing moral, individual, and cultural positions<sup>(18)</sup>.

In some interviews, users and professionals speak about non-vaccination because of integrative and additional practices. One user views vaccination as an assault on the body and considers vaccination against the HPV virus to be absurd.

*[...] I think the flu vaccine is absurd! You know, I think it's an offense to the person; a child does not need it at all! It is as if I had physically assaulted my children, another vaccine is HPV for girls, how absurd, I get mad when I hear that they will give the HPV vaccine to girls, I think there has to be education [...] U37.*

*[...] One obstacle is also homeopathy, because the homeopath says to not receive some vaccines, but we talk, guide [...] E2.*

The most difficult groups to reach are those with low education level, those who lack an understanding

on immunization, or those who are culturally opposed to vaccines<sup>(19)</sup>. There are anti-vaccination movements that can negatively influence the rates of vaccination coverage. Thus, in the current context, an open dialog with the parents and subjects averse to vaccination is essential, providing accurate information on the diseases and adverse events of vaccines<sup>(14)</sup>.

Regarding the habits and customs of the population, this study identified as an obstacle in the day to day immunization service, the lack of preservation of the vaccine card by the adult and the habit of seeking vaccination only when an injury occurs or when the complete vaccination card is required by certain companies. This increases the risk of adverse events and public spending with doses of vaccine administered unnecessarily.

*[...] usually adults only come when they need the vaccination card updated! When they get hurt, they come for the tetanus vaccine and don't think about prevention first [...]* P26.

*[...] one difficulty that I have is the card, patients say they lost it and you have to do everything again, or they don't remember, you have to make an arrangement. So I think the first thing we should do is raise awareness of the importance of the card [...]* P36.

The lack of knowledge about the vaccination situation of the population is still one of the major problems faced, since the individual does not usually preserve his or her vaccination receipt<sup>(20)</sup>, which can result in several problems such as difficulty in providing the professional with access to information. It is important to continue the vaccination schedule that has been initiated in previous occasions and its complexity can affect the reliability of a history of verbal vaccination<sup>(21)</sup>. Vaccines belong to a group of biological products, with an excellent safety profile; however, they are not exempt from adverse events. A retrospective cohort study to examine the risk of local reactions following administration of the dual vaccination for adults found an increased risk in relation to the number of doses given previously<sup>(22)</sup>. Therefore the presentation of the vaccine receipt is essential for the continuity of the planning, thus avoiding unnecessary doses of vaccine and risk of adverse events.

### The dimension of economic access

In recent times, there has been a great international mobilization for new vaccines and vaccination campaigns<sup>(15)</sup>, resulting in the expansion of the PNI vaccination calendar in Brazil, such as the vaccines: tetra, hepatitis A, triple acellular bacterial, papillomavirus, and hepatitis B for all age groups<sup>(23)</sup>. This expanded and free access to vaccines is viewed with optimism by society, which now does not need to resort to private clinics to ensure immunization.

*[...] my girl was always vaccinated at the center, I never paid for a vaccine, I didn't have this need, because the center met all the demands for vaccines [...]* U64.

The expansion of the vaccination calendar was reinforced by the health professional who reports the number of vaccines included in the PNI in recent times and mentions as an example the vaccines against

pneumonia, meningitis, and varicella.

*[...] Look and see the amount of vaccines that we have here, and they arrived from the SUS. Before we had Polio, DPT, Measles, we had no Hepatitis B, no Pneumonia, no Meningitis, no chickenpox. [...] P3.*

However, access to health services is influenced by the economic and social condition of persons<sup>(24)</sup>. We observed the uneasiness of parents, with no financial conditions to offer the vaccine to their children who are outside the age group advocated by the PNI.

*[...] I do not agree on the age range they put for some vaccines, for example, the flu campaign, I stayed in the waiting line, hoping there was a vaccine to vaccinate my boy because he was not in the age group and today I don't have the conditions to buy the vaccine [...] U56.*

## FINAL REMARKS

Vaccination, because it is considered one of the basic services of the PHC, could not impose barriers to access; however, in this study we enumerated and discussed the difficulties encountered by health professionals and users when using this service. We observed that many interviewees reported difficulties with the organizational elements of the services, such as centralization on a specific day and time for vaccination and opening hours of the vaccination room. For rural residents, geographical access is difficult, and the habit of the adult of not preserving the card was one of the great obstacles in the sociocultural access.

The results of this study also show the importance of the nursing team in the access to vaccination; trained and updated professionals reduce the losses of vaccine opportunities.

In view of these considerations, it is important to remember that the municipality studied has 100% FHS coverage and presented barriers to the access, thus raising the question of how is the access to vaccination in municipalities with lower coverage, thus making new studies necessary on this subject that is still little studied.

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