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ORIGINAL ARTICLE

THE NON CONTINUITY OF THE VACCINATION SCHEDULE FOR CHILDREN REGISTERED IN THE FAMILY HEALTH STRATEGY UNITS

A NÃO CONTINUIDADE DO ESQUEMA VACINAL EM CRIANÇAS CADASTRADAS EM UNIDADES DE ESTRATÉGIA SAÚDE DA FAMÍLIA

LA NO CONTINUIDAD DEL CALENDARIO DE VACUNACIÓN PARA LOS NIÑOS INSCRITOS EN LAS UNIDADES DE ESTRATEGIA SALUD DE LA FAMILIA

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ABSTRACT

Objective: identifying the factors associated to non-continuity of the vaccination schedule in children under 1 year old. **Method:** an exploratory, cross-sectional, descriptive and of a quantitative approach carried out from January to March 2012. The sample included 130 mothers/ caretakers of children under one year old. The data collection instrument consisted of 28 questions. The research project was approved by the Research Ethics Committee, Protocol 167/11. **Results:** it was found in the interviews that the responsible for leading the child to the FHS was 100% female figure, where most were aged between 19-33 years old (58,46%), married (74,62) and of home (61,54%). The lack of immunobiological in the unit was responsible for 35,38% of the difficulties encountered by mothers/caregivers to vaccinate the child. **Conclusion:** the factors associated with non-vaccination are: the low maternal education, the lack of knowledge of them about the real importance of vaccination and low family income. **Descriptors:** Vaccination; Family Health Program; Nursing; Immunization Programs; Public Policies.

RESUMO

Objetivo: verificar os fatores associados a não continuidade do esquema vacinal em crianças menores de 1 ano. **Método:** estudo exploratório, transversal, descritivo, de abordagem quantitativa, realizado no período de janeiro a março de 2012. A amostra compreendeu 130 mães/cuidadoras de crianças menores de um ano. O instrumento de coleta de dados foi composto por 28 perguntas. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, Protocolo 167/11. **Resultados:** verificou-se nas entrevistas que o responsável por conduzir a criança até a ESF foi 100% a figura feminina, onde a maioria possuía faixa etária entre 19 a 33 anos (58,46%), eram casadas (74,62) e do lar (61,54%). A falta de imunobiológico na unidade foi responsável por 35,38% das dificuldades encontradas pelas mães/cuidadoras para vacinar a criança. **Conclusão:** os fatores associados a não vacinação são: a baixa escolaridade materna, falta de conhecimento das mesmas sobre a importância real da vacinação e a baixa renda familiar. **Descritores:** Vacinação; Programa Saúde da Família; Enfermagem; Programas de Imunização; Políticas Públicas.

RESUMEN

Objetivo: identificar los factores asociados a la no continuidad del programa de vacunación en niños menores de 1 año de edad. **Método:** un estudio exploratorio, transversal, descriptivo y de enfoque cuantitativo realizado entre enero y marzo de 2012. La muestra incluyó a 130 madres/ cuidadores de niños menores de un año. El instrumento de recolección de datos consistió en 28 preguntas. El proyecto de investigación fue aprobado por el Comité de Ética en la Investigación, Protocolo 167/11. **Resultados:** se encontró en las entrevistas que el responsable de dirigir al niño a la ESF fue del 100% la figura femenina, donde la mayoría tenía entre 19 a 33 años (58,46%) estaban casadas (74,62) y del hogar (61,54%). La falta de inmunobiológicos en la unidad era responsable de 35,38% de las dificultades encontradas por las madres/cuidadores para vacunar a los niños. **Conclusión:** los factores asociados con la no vacunación son la baja educación materna, la falta de conocimiento de las mismas sobre la verdadera importancia de la vacunación y los bajos ingresos familiares. **Descriptores:** Vacunación; Programa Salud de la Familia; Enfermería; Programas de Inmunización; Políticas Públicas.

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INTRODUCTION

Vaccination is an integrated and routine action of health services, belonging to the primary care level and of great effect on general conditions of child health, representing one of the greatest advances in medical technology in recent decades, becoming the most cost procedure and effectiveness in the health sector.¹

Vaccines prevent illness and death of millions of people annually, representing the intervention with more cost-effective. Nevertheless, about two million children die each year from vaccine-preventable diseases.²

In recent years Brazil has been showing a significant reduction with respect to infant mortality rate (IMR). A recent report published by the Brazilian Institute of Geography and Statistics (IBGE) showed that between the years 2000-2010 IMR fell from 29,7 ‰ to 15,6 ‰, representing a decrease of 47,6% over the past decade. A decrease of 58,6%, the Northeast led the decline in infant mortality rates in the country, from 44,7 to 18,5 deaths of children under one year per thousand live births, although still the region with the greatest indicator.³

Among the proposed interventions to reducing the infant mortality rate, stands out the immunization of children, which was developed in Brazil, the Expanded Program on Immunization (EPI), created in 1974 by the World Health Organization (WHO), being regulated in 1975, when established the National Immunization Program (NIP). PNI is a key player in the control of communicable diseases; it combines routine immunization, national immunization days, periodic campaigns and epidemiological surveillance.⁴

The child assistance programs based on immunization were reinforced by several projects developed by the Ministry of Health (MOH), for example, the Integral Assistance Program for Children's Health (PAISC), which addresses as one of its goals to increase vaccination coverage levels in accordance with the technical standards of the Ministry of Health.⁵

Vaccinate children from the first months of age is an action of specific protection against serious diseases, causing permanent or lethal damage; therefore, children of vaccination results in improved health status of a community, at her reflection in health indicators, especially in the infant mortality rate.⁶

To achieve the goal of increasing such vaccination coverage levels, there is an alternative to Primary Health Care (PHC),

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commonly used term to refer to the level of most elementary attention of a health care system, which provides a set of services and actions that can affect positively on most of the health needs of a population.⁷

This level of service has been considered as the "gateway" of the health system, from where it would establish relations with average levels and high complexity⁷, taking it as an important representative of the Family Health Strategy (FHS), described as a set of health actions in the individual and collective level, covering the promotion and health protection, disease prevention, diagnosis, treatment, rehabilitation and health maintenance.⁸

Responsibility for the vaccination of the population of a region belonging to a basic health unit/ BHU, should not be restricted solely to health team members who administer the vaccines; either, the child's vaccination should occur only when the mother or guardian attends the health service for this purpose.⁹

It becomes essential that all components of a health care team should be prepared to contribute to the success of a vaccination plan; taking advantage of every opportunity to implement the level of immunization of the susceptible population⁹ makes it necessary to resort to home visits to the active search for missing cases, reintegrating them to the local immunization program.¹⁰

Some factors have been associated with non-continuity of the vaccine program among them shows up parental resistance due to beliefs or even fear of vaccine reactions, absence of ACS in micro-areas covered by the FHS, forgetfulness/daily difficulties of caregivers, lack of proper guidance by the health team, low socioeconomic status added yet, the large amount of children.¹¹⁻² However, scientific publications are scarce on the subject, in particular, regional studies. Against this background and in view of the contributions that this information can provide managers and health professionals justified this study.

OBJECTIVE

- Checking the factors associated with the non-continuity of the vaccination schedule in children under 1 year old.

METHOD

Article compiled from the Work Course Conclusion << Factors associated with lack of continuity of the vaccination schedule in children under one year old enrolled in the Family Health Strategy units in the city of

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Caruaru-PE >> presented at the end of the Graduate Nursing Faculty ASCES; Caruaru - PE, Brazil. 2012.

An exploratory, cross-sectional, descriptive and of a quantitative approach study, whose sample included 130 mothers/caregivers of children under one year assisted by FHS units resident in Caruaru-PE municipality, and addressed 91 in urban areas and 39 rural.

For the sample selection, it was considered as a criterion for inclusion mothers or caretakers of children under one year old with incomplete immunization and they were registered in the units of the Family Health Strategy (FHS), and excluded those who did not have family record in these health facilities.

Data collection occurred from January to March 2012 and occurred in the FHS, while the mothers /caregivers and their children wait time of a routine visit and during home visits. We used structured instrument with 28 questions which were about the socioeconomic, demographic, cultural and religious families of those children and other research objectives.

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After being informed about the intention of the study, mothers/caregivers who have expressed a desire to participate voluntarily in the study signed the Informed Consent Form (ICF), which was secured their anonymity and the confidentiality of information and guaranteed the right to withdraw their participation at any time of the investigation. Following the precepts of Resolution 196/96, which regulates research involving human subjects, the project was approved by the Research Ethics Committee (REC) of the Faculty ASCES in ordinary day meeting 23th December, 2011, on the advice of number 167/11.

RESULTS

Of the 130 mothers/caretakers of children who participated in the survey, 91 (70%) lived in urban areas, while 39 (30%) in rural areas. The socio-demographic and economic characteristics of the respondents are shown in Table 1.

Table 1. Socio-demographic and economic characteristics of mothers/caregivers of children who presented incomplete vaccination schedule, stratified by urban and rural area. Caruaru, January to March / 2012.

Variables	n (%)	Urban Zone n (%)	Rural Zone n(%)
Gender	Female - 130 (100) Male - 0	91 (70) -	39 (100) -
Age	< 18 years old - 33 (25,38) 19 - 33 - 76 (58,46) 34 - 50 - 21 (16,15)	23 (25,27) 54 (59,34) 14 (15,38)	10 (25,64) 22 (56,41) 7 (17,95)
Marital Status	Single - 29 (22,31) Married / Stable union - 97 (74,62) Separated (a)/Divorced (a) 2 (1,54) Widow / Widower - 2 (1,54)	22 (24,18) 66 (72,53) 1 (1,10) 2 (2,20)	7 (17,95) 31 (79,49) 1 (2,56) -
Number of residents at home	Two to four - 77 (59,23) Five or more - 53 (40,77)	54 (59,34) 37 (40,66)	23 (58,97) 16 (41,03)
Numbers of children	One to three - 110 (84,62) Four or more - 16 (12,31) Does not have - 4 (3,08)	78 (85,72) 9 (9,89) 4 (9,89)	32 (82,06) 7 (17,95) -
Schooling	Illiterate - 5 (3,85) Adult and youth literacy - 6 (4,26) * Elementary School - 81 (62,31) High school - 25 (19,23) University - 13 (10)	3 (3,30) 50 (54,95) 24 (26,37) 12 (13,19) 2 (2,20)	3 (7,69) 31 (79,48) 1 (2,56) 1 (2,56) 3 (7,69)
Profession	Housewife - 80 (61,54) Civil servant - 2 (1,54) Farmer (a) - 7 (5,38) Autonomous - 14 (10,77) Unemployed - 3 (2,31) **Other - 24 (18,46)	58 (63,74) - 13 (14,29) 3 (3,30) 16 (17,58) -	22 (56,41) 2 (5,13) 6 (15,38) 1 (2,56) 8 (20,51) -
Family income	Without income - 1 (0,77) < 1 ***SM - 79 (60,77) De 1 ₣ 2 SM - 34 (26,15) De 2 ₣ 5 SM - 15 (11,54) De 5 ₣ 10 SM - 1 (0,77)	- 53 (58,24) 24 (26,37) 13 (14,29) 1 (1,10)	1 (2,56) 26 (66,67) 10 (25,64) 2 (5,13) -

*Comprises the 2nd to the 9th year. ** Other: artisan, domestic, Community Health Agent (CHA), nanny, cashier, seamstress, lunch ladies, Dentist and production assistant. *** Current minimum wage \$ 622,00.

It was observed that all caregivers of children were female and the majority (58,46%) was in the age group between 19 and 33 years old. Also according to that table, it was noted that (74,62%) were married or living in a stable union, while only 1,54% were provided separately or widow. Most of them lived in homes with two to four people (59,23%). When questioned regarding the number of children, most reported having between one and three children (84,62%), and

3,08% reported not having, since them only caregivers.

In **Table 1**, the school was examined, where it had been observed that 62,31% did not finish elementary school, in turn, 3,85% reported having no schooling. As a profession, home caregiver was the predominant (61,54%), but only two people working as a civil servant (1,54%).

Relating to family income of the sample, the majority answered earn less than a minimum wage (60,77%), while only one

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person (0,77%) reported earning around 5-10 salaries.

Table 2. Reviews of mothers/caregivers of children who presented incomplete vaccination schedule on vaccination and presence of adverse events, stratified by urban and rural area. Caruaru, Jan. to Mar. /2012.

Variables	n (%)	Urban Zone n (%)	Rural Zone n (%)
Importance of vaccines	Yes - 128 (98,46) No - 2 (1,54)	91 (100) -	37 (94,87) 2 (5,12)
Opinion about vaccines	Not prevent illness - 13 (10) Prevent illness and death - 48 (36,92) Prevents only the illness - 68 (52,31) Prevents only death - 1 (0,77)	8 (8,79) 30 (32,97) 52 (57,14) 1 (1,10)	5 (12,82) 18 (46,15) 16 (41,03) -
Time spent between the residence and the BHU	< 30 minutes - 113 (86,92) 30 min to 1 hour - 17 (13,08)	82 (90,11) 9 (9,89)	31 (79,49) 8 (20,51)
Difficulties for vaccination	Distance between the residence and the FHS - 10 (7,69) Lack of vaccine - 46 (35,38) Hours of operation of the FHS incompatible with the availability of mothers - 17 (13,08) Lack of professionals - 3 (2,31) Lack of confidence in the professional - 4 (3,08) *Other - 50 (38,46)	9 (9,89) 31 (34,07) 15 (16,48) 1 (1,10) 2 (2,20) 33 (36,26)	1 (2,56) 15 (38,46) 2 (5,13) 2 (5,13) 2 (5,13) 17 (43,59)
Presence of adverse event in previous vaccination	Yes - 90 (69,23) No - 40 (30,77)	70 (46,63) 21 (23,09)	20 (51,28) 19 (48,72)
Type of adverse event	High fever - 78 (60) Only local reaction - 12 (9,23) Does not apply - 40 (30,77)	59 (64,84) 11 (12,09) 21 (23,08)	19 (48,72) 1 (2,56) 19 (48,72)
Occurrence of adverse effect and non-vaccination on the part of the mother/caregiver	Yes - 6 (4,62) No - 84 (64,62) Does not apply - 40 (30,77)	4 (4,40) 66 (72,52) 21 (23,09)	1 (2,57) 19 (48,72) 19 (48,72)
Frequency of adverse events	Once - 87 (66,91) Four times or more - 3 (2,31) Does not apply - 40 (30,77)	67 (73,62) 3 (3,30) 21 (23,09)	20 (51,28) - 19 (48,72)
The ACS domiciliary research on the vaccine delay	Yes - 30 (23,08) No - 100 (76,92)	23 (25,27) 68 (74,73)	7 (17,95) 32 (82,05)
Opinion of mothers/caregivers about the duct above the ACS	Very important - 10 (7,96) Important - 20 (15,38)	9 (9,9) 14 (15,38)	1 (2,56) 6 (15,39)

*Other: Forgetfulness, lack of time and knowledge, illness of the child.

When we investigated the perception of participants about the importance of vaccines (Table 2), it was noted that 98,46% responded that the vaccine is important and about 1,54% revealed not to be considered relevant. As for the review of its immunogenicity, 52,31% of caregivers verbalized that prevents the child's illness, however 10% reported that this does not prevent anything and 0,77% said they only prevents death. Considering the time spent by respondents to arrive to the FHS, most shows<30 minutes (86,92%).

The main difficulty to vaccinate infants was the other option, that is, various excuses, placing it among them the lack of knowledge, forgetfulness, among others, making use of 38,46% of cases, followed by lack of vaccine in the health unit (35,38%); while few cited a lack of professional to apply the immunobiological as the cause of delayed immunization (2,31%).

When investigating the prevalence of adverse events, there was a percentage of 69,23% responding that at some point the

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child had such reactions, while 30,77% answered that the minor does not show any post-vaccination event. The percentage who answered present vaccine reaction, 60% reported fever, while only 9,23% local reaction. However, 64,62% said that this was not the reason for non-vaccination. Overall, 66,91% said that their children had reactions at least once, 2,31% said the presence of four or more times.

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When asked about achieving some questioning by ACS on the lack of children in the appointed day for the administration of 76,92% vaccine reported that it did not happen and 23,08% said that the agents played this role. In the opinion of mothers/caregivers on the above attitude, 15,38% revealed find important this happens.

Table 3. Monitoring by the FHS children presented incomplete vaccination schedule, stratified by urban and rural area. Caruaru, January to March / 2012.

Visit the agent monthly	Yes - 72 (55,38)	49 (53,85)	23 (58,97)
	No - 58 (44,62)	42 (46,15)	16 (41,03)
Attendance of childcare queries	Yes - 115 (88,46)	79 (86,81)	36 (92,31)
	No - 15 (11,54)	12 (13,19)	3 (7,69)
Frequency of queries	Biweekly/Monthly - 82 (63,08)	59 (64,84)	23 (58,97)
	Bi-Monthly/Quarterly - 35 (26,92)	22 (24,17)	13 (33,34)
	Not attends - 13 (10)	10 (10,99)	3 (7,69)
Information on vaccination in childcare queries	All times - 49 (37,69)	40 (43,96)	9 (23,08)
	Sometimes - 45 (34,62)	33 (36,26)	12 (30,77)
	Hardly - 13 (10)	4 (4,40)	9 (23,08)
	None of the times - 16 (12,31)	10 (10,99)	6 (15,38)
	Not attend the consultations - 7 (5,38)	4 (4,40)	3 (7,69)

Referring to Table 3 some 55% of mothers/caregivers reported receiving CHA of visits monthly and 44,62% of them claimed not receive it. Checking the monitoring of children during routine visits, 88,46% said accomplish it and not 11,54%. As the frequency of these consultations, 63.08% and performed fortnightly/monthly. Still, in relation to consultations, were asked about the guidelines given by the nurses professionals about the importance of vaccination, 37,69% spoke receive them every

time, but 10% said they hardly information is shared.

In the item on the types of vaccines in delay in children under one year, much of the countryside, as urban, there is in figure 1 that the higher prevalence was related to the tetravalent vaccine (DTP + Hib), followed by pneumococcal 10 and polio vaccine while the Bacilli Calmette-Guérin (BCG) showed a very small percentage among other biopharmaceuticals.

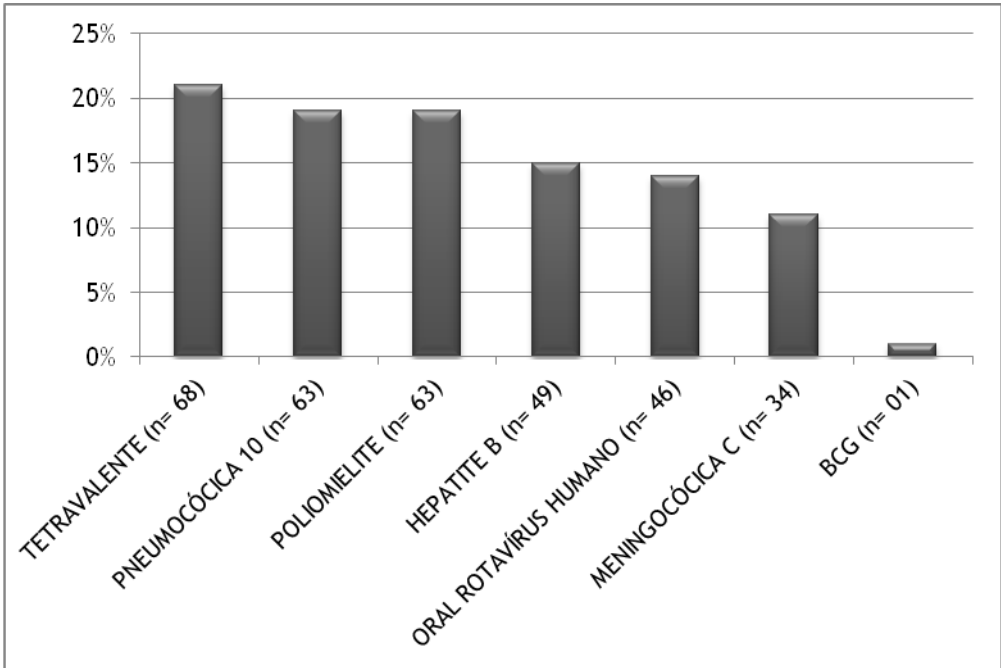


Figure 1. Prevalence of children with delayed vaccines distributed by immunobiologicals. Caruaru, January to March / 2012.

DISCUSSION

The parents/caregivers interviewed were female, corroborating with two studies that show for the positive association between women and the use of health services.¹⁴⁻⁵

The reasons about this association have been reported in other studies¹⁴⁻⁵, that addressed the difference of roles by gender, where the association of care is directly linked to being a woman, where the invulnerability, strength and virility of a man, the social imaginary, are incompatible with the male when intended to demand for health services and work activities, taking the first item in the list of men's concerns; however, the differential may be the type of service used, where women seek more ambulatory and preventive services, while men use more intensely the curative services.¹⁴⁻⁵

It is curious to note that the delayed immunization of children took place in the homes of women aged 19-33 years old. What dismissive studies conducted in the states of Maranhão and Parana, in 1994 and 2009, respectively, the authors highlight the extremes of age (<17 and above 60 years old) as one of the factors associated with lower non-vaccination by forgetting issues.^{12,16}

It is noteworthy that the delayed immunization of children took place mainly in the homes of married women, whose occupation was "home" with the residents from their homes around four people and only one to three children at most revealing that they did not fit in dysfunctional household situations of sub-human conditions, with overcrowding of people and totally unfavorable environments to the same room; therefore, are the internal and external factors of the family environment that directly interfere in the health-disease process of children.¹⁷

To ensuring adequate health status, particularly as regards the settlement of vaccination cards, maternal participation is essential. One of the factors contributing to oblivion in attendance the vaccinator unit is heavy journey of some women in their homes with large numbers of children or residents, and also contributes to this activity extra-home.¹²

You cannot think about the welfare of the infant without thinking about family, because it is part of the inclusion and child-friendly space in which she receives love, affection, protection and security.¹⁸ It is also noticed in the data survey that mothers/caregivers, had low levels of education and family income, data supported in a study conducted in Rio de

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Janeiro, in 2005, when it refers to low-income, extremes of maternal age, many children, low maternal education, greater number of household members, residence for less than a year in the area, lack of knowledge about the diseases prevented by immunization and the presence of disease in children as associated factors for non-vaccination.¹⁹

By questioning the mothers/caregivers about the importance of vaccines, most reported being very important, particularly preventing the illness and death of the child, observing result similar to that found by Gatti and Oliveira (2005), a study conducted within of São Paulo, in 2000; however, giving a contradiction on the behavioral practice these mothers/caregivers.⁶

It is known that in order to ensure an adequate immune defense, infants need complete the immunization schedule in order to ensure the protection of the vaccinated person and the community, minimizing the transmission of the infectious agent, providing indirect protection to unvaccinated through the so-called herd immunity.¹²

It was also found that the reason for vaccination delay was not related to the distance between their homes and the FHS units, since most of these were located within 30 minutes from the health service. Study by Molina, Godoy, and Carvalho Junior, in Botucatu - SP, in 2000, showed similar data, showing that 98,6% of respondents said ease upon arrival to the clinic.²⁰

The fact that mothers/caregivers of these children reside next to the FHS could be a facilitator to maintain the current vaccine schedule, however, possibly due to the social conditions in which these women are found, health turns out not to be the main concern.⁶

As regards the difficulties presented by these women in vaccinated children, the lack of trust in the health professional responsible for managing the immunobiological was the most displayed, regardless of geographic setting. In this context, the host and the bond would be able to reorganize the work process and ensure universal access to individuals who seek health services, helping to reach better results in health interventions.²¹⁻³

Other situations were scored as difficulties for child vaccination, corroborating some data found in a study conducted in northeastern Brazil, in 1994, which pointed out as factors associated with non-vaccination the presence of disease in children, delayed scheduling consultations, lack of care or night on weekends, queues, waiting time, no distractions and playroom for the kids while waiting.¹⁶

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Despite the research focus of this research has not been health professionals, should evaluate the health services on all aspects (infrastructure, human resources, supplies, etc.) factors that that could adversely affect the child's vaccination as observed in a study conducted in the state of Paraíba, where health professionals from the Basic Health Units (BHU) described barriers as lack of inputs (22%), lack of vaccine units (7%), lack immunobiological (13%), difficulties of access (2%), among others.²⁴

The vaccine adverse events (AEFI) may also be related to non-vaccination, being understood as any sign or symptom serious and/or unexpected and/or undesirable to occur after vaccination, even when it is applied correctly.²⁵

Given the sample studied, most replied that their children to be vaccinated had reactions, and fever the most cited both in the urban area, as in the countryside. Although this is not generally a serious adverse event, may be associated with conditions leading to the search for medical care, including emergencies,²⁶ yet, despite this statement, one realizes that most women reported that this was not why they stopped vaccinating, nor the number of times that these events were present.

Results obtained in research into the work of the Community Health Agents (CHA) related to delayed immunization of children, significant association was observed, as the vast majority reported no knowledge of this action despite his monthly visit and those who received this questioning by the CHA, reported find this important attitude.

Guided by Decree 648 of 28th March 2006, one of the specific duties of the CHA within the Family Health Program (FHP) comprises develop health promotion activities, prevention of diseases, injuries and health surveillance through home visits and educational activities at individual and collective level in the home and community.⁸

A Basic Health Unit (BHU), health promotion activities and disease prevention is the team's responsibility as a whole and especially the professional nurse, with regard to the care of children, it should guide mothers/caregivers about the importance of mass vaccination at the time of a routine visit; where data clearly revealed that the professional action, as well as the effective participation of mothers in the consultations monthly or even fortnightly according to the need of their child.

The comprehensive health care of children, is only carried out by the regular and

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systematic monitoring of them to assess their growth and development, as well as guidance to mothers about vaccination and for this to happen it is necessary for the health team to act so joint.²⁷

There is no question the relevance that vaccines have the protection of health and prevention of vaccine-preventable diseases, especially during childhood. In Brazil, as in other countries, the Ministry of Health, immunization programs, and provides periodically campaigns in order to control and eradicate diseases from the mass vaccination of children.²⁸ Our data vaccines with the highest rate of delays in the timetable was the tetravalent (DTP + Hib), followed by polio and Pneumococcal 10 and still Calmette-Guerin Bacillus (BCG) in lowest percentage such immunobiologicals in your absence or even its delay, can cause serious health damage of children.

According to the Ministry of Health in 2009, the DTP vaccine coverage in 1998 was 93%, from 97% in 2000, in 2007 already with the tetravalent (DTP + Hib) was reached percentile of 98%, and noticeable a considerable increase over the years, however when facing this data to the study presenting observed a distortion of this reality, considering that this vaccine showed the highest dropout.²⁹

Perhaps because it is a vaccine with a high degree of difficulty regarding achieving realization of the full vaccination schedule, since it is known that should be given 3 doses of this in the first year of life. To achieve this goal is directly involved the service, the health team and mothers or guardians, using say that a successful outcome of the applicability of this immunobiological achieves good results that assume the other vaccines in infants with the same age group.³⁰

In Brazil, the systematic use of DPT vaccine (DTP) that protects against pertussis, diphtheria and tetanus beyond makes it suitable measures to effective control and prevention³¹. Currently, the Ministry of Health recommends vaccination coverage for DTP above 90% of susceptible, and assigns effectiveness of 75% to 80% against pertussis Basic complete scheme². Pertussis affects more children under one year, followed by the age group 1-4 years in the case of adults, account for only 2-3% of cases.³²

The diphtheria, tetanus and pertussis (DTP) is now distributed to the National Immunization Program (NIP) by the Institute Butantan since 1992 and on a large scale since 1996. In 1999, the Haemophilus influenzae vaccine type b (Hib) PNI was introduced in

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Brazil, and is administered in the scheme two, four and six months of age.¹⁶

Regarding the polio vaccine, there is through a given raised in a scientific research that was high incidence in Brazil, however, these days, is eradicated thanks to vaccination and surveillance work carried out since 1980. In 1994, Brazil received the "Certificate Eradication of Wild Poliovirus Indigenous Transmission". Still, it is of paramount importance to maintain high rates of vaccination coverage homogeneously, and an active epidemiological surveillance in order to immediately identify the reintroduction of poliovirus and adopt control measures that prevents its spread.³³

However referring to the work we can see still a deficit that matches the full vaccination coverage, demonstrating the need for greater attention to administration of immunobiological, it is known that the only way to prevent the condition occurs from the vaccine immunization, therefore specific measures and the realization of multiple vaccination on days of national campaigns, are responsible for obtaining control of this disease, was implemented this strategy in 1980 that allowed the non-occurrence of cases of polio in Brazil since 1989.³³

Although preventive actions immunization and the availability of appropriate antibiotic therapy, the *Streptococcus pneumoniae* infections remain a significant cause of morbidity and mortality in humans, particularly for acute respiratory infections in infants especially in the first six months of life, with a rate of colonization 30 to 50% in children.³⁴⁻⁶

The effectiveness of pneumococcal vaccine can be observed in the study by Moretti, Pereira, Sakae and Silva, in 2007, when the authors observed that the sample in question there was a decrease of 69% after the introduction of the vaccine.³⁷

Streptococcus pneumoniae (pneumococcus) is the main etiological agent of pneumonia and invasive disease in children and adults. It is estimated that, in developing countries, pneumococcus is responsible for more than 1 million deaths per year in children younger than 5 years old, most pneumonia.³⁸

Regarding the BCG vaccine, the research reveals that there was a small percentage of its delay and also due to the impact of preventable diseases by the same; it cannot in any way neglect their presence.

Among the diseases that the BCG vaccine prevents, is tuberculosis (TB) is a major public health problem worldwide. It is estimated that a third of the world population is

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infected with *Mycobacterium tuberculosis* (MT).³⁹ For this reason it is essential to be administered the first dose of BCG vaccine in children at birth, a study conducted in Brazil brings the result that the applicability of this immunobiological provides 80% more protection, however, also shows that as the years is a decline this protection where adolescents aged 15 to 20 the effect was reduced to only 39%.⁴⁰

The use of BCG vaccine has been widely adopted since 1920; it encouraged the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) in 1948. In 1974, the Expanded Program on Immunization (EPI) of WHO included on your calendar. The vaccination coverage with BCG in the world showed upward trend observed from the decade of 70.⁴⁰

Before all the research rose, there was the extreme importance of working vaccine issues, especially with regard to the delay of the immunization schedule of children, specifically those with the lowest age of one year, because it is a group susceptible to the short, medium and long term diseases depending on the social conditions in which they are embedded.

CONCLUSION

This study showed that, despite major vaccination campaigns and implementation of the Ministry of Health programs for this purpose, there is still a high rate with respect to the delay in the immunization schedule of children under one year old, because what was shown in the results was a high percentage of arrears in vaccines tetravalent, followed by polio and pneumococcal C.

The question that was associated with the following factors: low education x lack of knowledge about the real importance of vaccination and also the low-income and social condition in which they operate mothers/caregivers. Thus, it is clear that much remains to be done in the area of immunization, as there is a high risk of the occurrence of vaccine-preventable diseases.

It was also noted the great deficiency of updated scientific papers and published in this area, it is important that health professionals seek to understand the delay has come and even vaccine shortage order to act effectively in health promotion and disease prevention in process population, especially those in less fortunate circumstances financially.

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