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ASSESSMENT OF PATIENT SAFETY IN VACCINATION ROOMS

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ABSTRACT

Objective: identify adherence to patient safety recommendations in the vaccination room.
Method: this is a cross-sectional study that analyzed 463 vaccination procedures in six vaccination rooms in Minas Gerais from June to July 2018. Data were obtained with the application of the Patient Safety Checklist for Vaccination Rooms through systematic observation of the vaccination procedure. Descriptive statistics were used for data analysis.
Results: 463 vaccination procedures were observed, and the mean overall adherence score was 58.5%, min. 43.3% and max. 74.1%. The items of higher adherence were related to the records of vaccine data (name, date, and batch) on the vaccination card; vaccine application with dose, route of administration, location and correct materials; and records in an information system. The items of lower adherence were related to health guidance; investigation of adverse events following immunization and the health status of the vaccinated person; records of vaccine laboratory and vaccination center on the vaccination card; vaccine workforce handwashing; and proper vaccine preparation.
Conclusion: the mean overall score found in this study was 58.5% for the adherence to recommendations for vaccination procedures. This result highlights the need for educational interventions that promote patient safety in the vaccination room and studies analyzing the factors that prevent such adherence.

DESCRIPTORS: Patient Safety. Vaccines. Immunization. Primary Health Care. Vaccination.

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AVALIAÇÃO DA SEGURANÇA DO PACIENTE NA SALA DE VACINAÇÃO

RESUMO

Objetivo: identificar a adesão às recomendações de segurança do paciente, em sala de vacinação.
Método: estudo seccional realizado com 463 procedimentos de vacinação, em seis salas de vacinação de Minas Gerais, no período de junho e julho de 2018. Os dados foram obtidos pela aplicação da Lista de Verificação de Segurança do Paciente em Sala de Vacina, por meio de observação sistemática do procedimento de vacinação. Estatística descritiva foi utilizada para análise de dados.
Resultados: foram observados 463 procedimentos de vacinação, e o escore geral médio de adesão foi de 58,5%, mínimo de 43,3% e máximo de 74,1%. Os itens de maior adesão foram referentes ao registro no cartão de vacinas com dados da vacina (nome, data e lote); aplicação da vacina com dosagem, via de administração, local e materiais corretos e registro em sistema de informação. Os itens de menor adesão estavam relacionados à orientação em saúde; à investigação de eventos adversos pós-vacinais e do estado de saúde da pessoa vacinada; ao registro no cartão de vacinas quanto ao laboratório da vacina e da unidade vacinadora; à higienização das mãos dos profissionais e ao preparo da vacina de maneira correta.
Conclusão: evidenciou-se escore médio de 58,5% de adesão às recomendações dos procedimentos de vacinação, assim, tornam-se necessárias intervenções educativas que promovam a segurança do paciente, na sala de vacinas, e investigações quanto aos fatores que dificultam a adesão.

DESCRITORES: Segurança do Paciente. Vacinas. Imunização. Atenção Primária à Saúde. Vacinação.

EVALUACIÓN DE LA SEGURIDAD DEL PACIENTE EN LA SALA DE VACUNACIÓN

RESUMEN

Objetivo: identificar la adhesión a las recomendaciones de seguridad del paciente en sala de vacunación.
Método: estudio seccional realizado sobre 463 procedimientos de vacunación en seis salas de vacunación de Minas Gerais entre junio y julio de 2018. Datos obtenidos por aplicación de Lista de Verificación de Seguridad del Paciente en Sala de Vacunación, mediante observación sistemática del procedimiento de vacunación. Se utilizó estadística descriptiva para analizar los datos.
Resultados: fueron observados 463 procedimientos de vacunación. El puntaje general promedio de adhesión fue del 58,5%, mínimo de 43,3% y máximo de 74,1%. Los ítems con mayor adhesión fueron los referentes al registro en la libreta de vacunación, con datos de la vacuna (nombre, fecha y lote); aplicación de vacuna con dosaje, vía de administración, lugar y materiales adecuados y registro en sistema de información. Los ítems de menor adhesión estuvieron relacionados con la orientación en salud: investigación de eventos adversos posteriores a la vacunación y estado de salud del vacunado; registro en libreta de vacunación del laboratorio productor de la vacuna y de la unidad de vacunación; higiene de las manos de los profesionales y correcta preparación de la vacuna.
Conclusión: se evidenció puntaje promedio de 58.5% de adhesión a las recomendaciones de procedimientos de vacunación, resultando necesarias intervenciones educativas promotoras de la seguridad del paciente en la sala de vacunación respecto de los factores que dificultan la adhesión.

DESCRIPTORES: Seguridad del Paciente. Vacunas. Atención Primaria de Salud. Vacunación.

INTRODUCTION

Patient safety has been a major concern for international and national health agencies. Maintaining quality and safe care has been an issue at different levels of health, particularly in primary health care (PHC), as it is the preferred point of access to the Brazilian Unified Health System (SUS)[1–2].

One of the main services provided in PHC is vaccination, which is an important strategy for infectious disease prevention, helps reduce morbidity and mortality, avoids hospitalization, reduces costs for the health system, and prevents future lack of capacity[2]. As it is a relatively simple, low-cost and globally used intervention, the adoption of safe vaccination practices, based on scientific evidence, is extremely important.

There is a concern about the predisposition for adverse events following immunization (AEFI) because these events are preventable, may cause patient damage, are related to the performance of the nursing team, and because they happen due to a failure to observe good practices in immunization, directly impacting its safety[3].

The vaccination room is a semi-critical area, and all procedures must promote maximum safety[4]; therefore, safety measures must be systematically inserted in all care processes[5].

A successful vaccination process must ensure patient safety in this environment, among other aspects. For this reason, it is important to consider all recommendations for vaccination, such as conditions of manufacture, transport, storage, preparation, administration and proper waste disposal[6].

Immunobiologic agents must be used according to the indications, contraindications, doses, storage conditions, reconstitution procedures described in the package insert, among other aspects. Failure to comply with the standards recommended by the Ministry of Health (MH) may lead to immunization errors and cause reduced or absent vaccine effect, as well as serious or even fatal adverse events[3].

A systematic review was conducted to define the prevalence of vaccination errors documented in the English language medical literature and identify the most common types of errors. It showed a vaccination error prevalence of 1.15 per 10,000 vaccine doses, and the most common vaccination errors were “wrong vaccine administered” and “off-schedule administration”[7].

Regarding the adverse events resulting from immunization, they are often benign, local and transient, so the benefits of vaccination outweigh the risks[8]. However, serious events, although less frequently observed, may occur and require hospitalization, causing sequelae, anomalies and risk of death, involving immediate intervention[9–10].

In the medical literature, the most frequent AEFIs are those of low intensity, such as pain, redness, heat, erythema, nodule, induration, edema, hot subcutaneous abscess at the injection site, and fever above 39º C, which affect more often children under one year of age[3,11–13].

To ensure the safety of patients being vaccinated, researchers have built and validated a protocol to assess patient safety, considering the role of nursing professionals in vaccination in primary care, and concluded the adoption of safety protocols is important to improve the quality of care, and that future studies about this topic are required for safe nursing care with vaccines[14].

Another investigation, conducted in Ohio, in the United States of America, to reduce immunization errors related to prescription, implemented age-specific immunization alerts and mandatory prescriber education in primary care[15].

In order to reduce adverse events related to immunization and ensure patient safety in the vaccination room, the Manual of Rules and Procedures for Vaccination was issued by the Brazilian Ministry of Health, which describes safe practices for technical procedures in the vaccination room, including planning, monitoring and evaluation[4,16].

Considering the absence of studies in the scientific literature that evaluate practices in the vaccination room, and understanding that immunization errors compromise the quality of care and patient safety and occur due to the lack of good vaccination practices, the following study question was identified: Do health professionals who perform immunization procedures comply with good practices for vaccination? This study was conducted to identify adherence to patient safety recommendations in the vaccination room, in order to answer the study question.

METHOD

This is a cross-sectional study conducted in six vaccination rooms in a city in the state of Minas Gerais, in June and July 2018, according to the recommendations of the Strobe Guidelines.

The city has 78 vaccination rooms in operation. Room selection for this study considered all six Integrated Care Centers (UAI) that comprise the health care system, due to the greater volume and high flow of vaccination, which administer around 10,010 vaccine doses every month, accounting for 35.9% of vaccine doses administered in the city.

For sample calculation, 90.0% prevalence of adherence to the item "The health professional who administered the vaccine analyzed the vaccine card and identified again the vaccine to be administered," 3% accuracy, and 95% confidence interval were considered, for a finite population of 10,000 vaccines, leading to a sample of 370 procedures. With a 20% loss, the maximum number of attempts of vaccination observations was 463. The finite population was based on data provided by the Municipal Health Department for the monthly number of vaccine doses administered in six UAIs, named A, B, C, D, E, and F in this study. The recruitment process used a non-probability sampling method.

Routine vaccination procedures performed in vaccination rooms of the UAIs during the data collection period were included in this study, and special vaccination procedures were excluded.

For data collection, the researchers developed an instrument named the Patient Safety Checklist for Vaccination Rooms (LVSPSV - Lista de Verificação de Segurança do Paciente em Sala de Vacina), based on the recommendations of the Manual of Rules and Procedures for Vaccination issued by the Brazilian Ministry of Health, as well as other recommended materials, such as technical notes, technical reports, ordinances, and the updated vaccination calendar[4,16–17].

The instrument was submitted to apparent face and content validation by five experts with a doctoral degree and experience in the vaccination room and methodological research, who were selected through the Lattes platform. The experts assessed the items proposed in the instrument and made suggestions about the content, sequence and addition of other items considered relevant to patient safety in the vaccination room (for example: inclusion of proper dose, materials and dosage, and work period of vaccine workforce; removal of vaccinee's age; unification of the items to obtain information about the health status of vaccinees, evaluating contraindications and situations that indicate temporary postponement of vaccination; alteration to the identification label verification item for product assessment, considering appearance of the solution, packaging condition, batch number and expiration date). The changes suggested by the judges resulted in the validated version, considering the LVSPSV as a satisfactory instrument, as well as the items representing patient safety in the vaccination room. The changes were made by the researcher with at least 80% agreement among the experts.

For the reliability analysis of the instrument, the inter-observer method for consistency assessment was adopted, with comparison of the scores obtained from the LVSPSV instrument, which was simultaneously applied by two independent researchers to 99 vaccination procedures in two UAIs. The vaccination procedures of the reliability analysis were not included in the general data

analysis, thus not included in the study sample. The reliability of adherence scores from the items, calculated by the Kappa coefficient, ranged between 72.7% and 100%, while the reliability of adherence scores from the domains, analyzed by the intraclass correlation coefficient (ICC), ranged from 0.6 to 0.8. All reliability coefficients were statistically significant (p<0.001). The instrument was considered valid and reliable and can be used to provide more quality and patient safety in the vaccination room.

The LVSPSV has two sections: characterization and aspects of immunization. The first section has the following variables: identification of the vaccination room (name of the city and health center), name of the individual to be vaccinated (initials and birth date), and the vaccine to be administered (name of the vaccine and dose). The second section has 31 items that refer to the recommendations from the Ministry of Health to be observed at each vaccination procedure to ensure patient safety in the vaccination room, and that comprise the three domains of the list. Domain 1 refers to procedures prior to the administration of immunobiologic agents and has 19 items. Domain 2 is related to the procedures during the administration of immunobiologic agents and has 10 items. Domain 3 has two items addressing the procedures after the administration of immunobiologic agents. Each item allows the registration of up to four vaccination procedures.

Each item of the list has the options yes (code 1), no (code 2), and not applicable (code 66). The total score of the list is 31, which is equivalent to a score between 0 and 100%, indicating adherence to all recommendations for vaccination procedures, according to the Manual of Rules and Procedures for Vaccination issued by the Brazilian Ministry of Health.

Prior to data collection, a pilot study was conducted with 12 vaccination procedures to estimate data collection time, applicability, weaknesses and spacing for immunization, and assess the instrument suitability. After the pilot study, the instrument structure was altered to a horizontal arrangement to allow the collection of more than one vaccination procedure per vaccinated person, and a field for remarks was added to each item for further information.

Data were obtained through systematic observation, based on the LVSPSV structured instrument, thus avoiding the researcher interference[18]. When a potential error was perceived, the researcher did not intervene in the service, but alerted the health professional, not ignoring the ethical implications for the possibility of error. However, the item was noted as non-adherence.

One of the researchers approached the individual to be vaccinated or his/her legal guardian in the UAI waiting room, and informed about the study and, with the consent of the participant, collected the signature on the informed consent form; then checked the vaccination card to see the vaccines that would be administered and, without interference in the operation of the center, entered the vaccination room with the participant and observed the entire vaccination procedure. After leaving the vaccine room, again checked the vaccination card to see the notes written on it.

Data collected were submitted to double typing in the *Microsoft Office Excel* for Windows with later validation, and analyzed with the Statistical Package for the Social Science (SPSS) for Windows, version 22. The analysis of categorical variables used tables of absolute and relative frequencies, while the analysis of quantitative variables used measures of central tendency (mean and median) and measures of variability (amplitude and standard deviation). To determine the adherence score, scores were generated for each vaccination procedure. The total score of adherence to safety recommendations was determined by counting 'yes' answers from the total items of the instrument using the following formula: [number of 'yes' answers / (number of valid items – number of 'not applicable' items) *100]. The adherence score for each domain was also calculated using the following formula: [number of 'yes' answers of the domain / (number of valid items of the domain – number of 'not applicable' items of the domain) *100].

This study was approved by the human research ethics committee and observed the ethical provisions of Resolution nº 466/2012 of the National Health Council, and all participants signed an informed consent form.

RESULTS

In total, 463 vaccination procedures were observed, with a mean of 2.06 (SD=1.3), min. 1 and max. 6 procedures for each vaccinated person. With a distribution that is proportional to the number of vaccines performed in each center, 88 (19.0%) vaccination procedures were observed in center A, 69 (14.9%) in center B, 51 (11.0%) in C, 79 (17.1%) in D, 111 (24.0%) in E, and 65 (14.0%) in F. Data were obtained in different work shifts, with 156 (33.7%) vaccination procedures in the morning, 216 (46.7%) in the afternoon, and 91 (19.7%) at night.

Regarding the age group of vaccinees, higher concentrations of vaccination procedures were observed among children under one year old (n=119; 25.7%) and among 1-34-year-olds (n=116; 25.1%). The most frequently administered vaccines were combined adult vaccine (n=72; 15.6%), hepatitis B (n=66; 14.3%), and MMR vaccine (n=55; 11.9%). The most common dose was the 1st dose of the vaccine schedule.

When assessing adherence to safety recommendations, the mean overall adherence score was 58.5%, min. 43.3% and max. 74.1%. The highest mean adherence score was obtained in Domain 2 (64.8%), followed by Domain 1 (56.1%), and Domain 3 (49.8%).

Regarding the procedures before vaccine administration (Domain 1), items 11,12, and 13, which refer to records on the vaccine card, showed 100% adherence. On the other hand, low adherence to items 4 (0.2%), 5 (3.2%), and 9 (2.8%) was identified, showing weaknesses at patient reception and data collection about previous vaccine, information about current health status of the vaccinee, and importance of completing vaccination schedules (Table 1).

In Domain 2, which refers to the performance of the procedures, during the administration of the immunobiologic agent, 100% adherence to item 26 (proper administration route) was observed, while the lowest adherence (0.6%) was obtained in the item related to adequate handwashing technique (item 21). Most professionals in the vaccine room performed hand hygiene, but with inadequate technique and/or without removing adornments.

Also in Domain 2, item 23 (proper preparation), which addresses the importance of the vaccination room, obtained 26.6% adherence. The most common errors observed in this study were the simultaneous preparation of several doses for later administration, and multi-dose vaccine vials with needles inserted in the rubber piece in order to facilitate dose aspiration.

Table 1 – Frequency distribution of adherence to recommendations for the procedures prior to the administration of the immunobiologic agent (Domain 1). Uberlândia, MG, Brazil, 2018. (n=463)

Items	Adherence				Not applicable	
	Yes		No			
	n	%	n	%	n	%
Item 1 – Confirmed the vaccinee's age by checking the birth date.	459	99.1	4	0.9	–	–
Item 2 – Identified the vaccine to be administered by checking the vaccination card.	422	91.1	2	0.4	39	8.4
Item 3 – Checked the age and the interval between doses recommended for the vaccine.	461	99.6	2	0.4	–	–
Item 4 – Investigated the occurrence of adverse events following immunization regarding the previous dose (if any).	1	0.2	190	41.0	272	58.7
Item 5 – Obtained information about the patient's health status, evaluating contraindications.	15	3.2	448	96.8	–	–
Item 6 – Mentioned the name of the vaccine to be administered.	435	94.0	28	6.0	–	–
Item 7 – Mentioned the diseases the vaccine protects against.	142	30.7	321	69.3	–	–
Item 8 – Explained about the benefits of vaccination	20	4.3	443	95.7	–	–
Item 9 – Explained about the importance of completing the vaccination schedule (when necessary).	13	2.8	294	63.5	156	33.7
Item 10 – Personal data.	208	44.9	255	55.1	–	–
Item 11 – Name of vaccine.	463	100	–	–	–	–
Item 12 – Date of vaccine administration.	463	100	–	–	–	–
Item 13 – Batch number.	463	100	–	–	–	–
Item 14 – Vaccine laboratory.	4	0.9	459	99.1	–	–
Item 15 – Vaccine center.	11	2.4	452	97.6	–	–
Item 16 – Name of health professional who administered the vaccine.	443	95.7	20	4.3	–	–
Item 17 – Scheduled the vaccine with a pen (when necessary).	235	50.8	72	15.6	156	33.7
Item 18 – Explained about the follow-up visit (when necessary).	201	43.4	106	22.9	156	33.7
Item 19 – Explained about potential adverse events following immunization.	33	7.1	430	92,9	–	–

Item 24 (labeled the vaccine with the date and time of vial opening) had 37.4% adherence. The center investigated offers a high number of vaccine administrations, then professionals use the entire vaccine vial before the period after opening. Item 29 (vaccine administration was performed with proper technique) presented 60.3% adherence but common errors were observed, such as not performing skin pinch, inadequate needle positioning, and aspiration before administration.

Table 2 shows these results.

Table 2 – Frequency distribution of adherence to recommendations for the procedures during the administration of the immunobiologic agent (Domain 2). Uberlândia, MG, Brazil, 2018. (n=463)

Items	Adherence				Not applicable	
	Yes		No			
	n	%	n	%	n	%
Item 20 – The vaccine professional analyzed the vaccine card and identified again the vaccine to be administered.	339	73.2	124	26.8	–	–
Item 21 – Washed the hands using an adequate technique.	3	0.6	460	99.4	–	–
Item 22 – Examined the product.	53	11.4	410	88.6	–	–
Item 23 – Properly prepared the vaccine (when necessary).	123	26.6	291	62.9	49	10.6
Item 24 – Labeled the vaccine with the date and time of vial opening (when necessary).	173	37.4	66	14.3	224	48.4
Item 25 – Vaccine was administered at correct dosage.	461	99.6	2	0.4	–	–
Item 26 – Vaccine was administered using a proper administration route.	463	100.0	–	–	–	–
Item 27 – Vaccine was administered with adequate materials.	462	99.8	1	0.2	–	–
Item 28 – Vaccine was administered at the adequate site.	461	99.6	2	0.4	–	–
Item 29 – Vaccine administration was performed with a proper technique.	279	60.3	184	39.7	–	–

Finally, Domain 3, regarding the procedures after the administration of the immunobiologic agent, the highest adherence (99.6%) was observed in item 31, indicating that almost all procedures are recorded in the national immunization system. In contrast, none of the professionals performed the hand hygiene technique properly (item 30), after performing the procedure with the patient (Table 3).

Table 3 – Frequency distribution of adherence to recommendations for the procedures after the administration of the immunobiologic agent (Domain 3). Uberlândia, MG, Brazil, 2018. (n=463)

Items	Adherence				Not applicable	
	Yes		No			
	n	%	n	%	n	%
Item 30 – Washed the hands using an adequate technique.	–	–	463	100.0	–	–
Item 31 – Inserted information in the National Immunization Program (SI-PNI) or equivalent system.	461	99.6	2	0.4	–	–

DISCUSSION

The mean vaccination rate found in this study was close to that found in an investigation[19] that observed 450 individuals who received 736 doses of vaccines, leading to mean 1.64 vaccines per vaccinee.

Most vaccines were administered to children up to four years old, a fact that was already expected, because, according to the national vaccination calendar, children under one year old should receive 15 doses and children aged one to four years, 12 doses, so age groups present a higher number of vaccine administrations[11,17].

Adherence to safety recommendations was greater regarding records on the vaccine card and in the information system and proper administration of the immunobiologic agent.

Ordinance nº 1533 of August 15, 2016 issued by the Ministry of Health states that, in order to prove vaccine administration, the vaccine card must have the following information: personal data (full name, birth date, and address); vaccine name; administration date; batch number; vaccine laboratory; vaccine center; and name of the professional who administered the vaccine[20].

Inclusion of data in the Information System of the National Immunization Program has become easier with the development of a mobile vaccine app, which allows data synchronization, favoring the nursing team work in the vaccination room and safe care[21].

Data showed low adherence to the recommended measures to ensure patient safety regarding the investigation of adverse events following immunization and the health status of the vaccinee, guidance about the importance of completing the vaccination schedule, hand hygiene using proper technique, adequate preparation and administration of the immunobiologic agent, and vial identification with date and time.

Low adherence to the investigation of AEFI regarding previously administered immunobiologic agents was similar to that described in the literature. A study conducted in 89 vaccine rooms in Fortaleza showed that professionals did not investigate the occurrence of AEFI in 80.9% of the vaccination rooms[22]. Another study with 10 vaccination rooms and 28 professionals identified that, in 80.7% of vaccine administrations, no questions were made about AEFI for previous doses; in only 18.4%, questions were made about fever, 15.3% about hypersensitivity to some component of the vaccine, 0.8% about immunodeficiency, and 0.4% about the use of immunosuppressive drugs[19].

Failure to question the vaccinees about previous adverse reactions exposes them to the risk of a more serious reaction than previously reported[22]. For patient safety, health professionals must investigate the occurrence of adverse events related to the previous dose, as well as the current health status of the vaccinee in order to analyze the specificities of indications and contraindications of immunobiologic agents[16].

An investigation conducted in São Paulo performed interviews and observed the preparation, administration and guidance to vaccinees in 48 vaccine administrations in two health centers. However, in one of the centers evaluated, 94.4% of the professionals did not investigate the patient's health conditions[23].

A literature review showed that live attenuated vaccines can cause infections in children with immune changes due to an underlying disease, immunosuppressive therapy or transplantation. To ensure safe care, each case should be carefully assessed to determine whether immunization is adequate or not.[24].

Although the Ministry of Health recommends that health professionals must explain about the importance of completing the vaccination scheme[4], this item had low adherence in this study. Despite the need and the importance of health professionals providing information to ensure adherence to vaccination, one study conducted with physicians and medical students to identify their perception of vaccine importance concluded they had doubts about the vaccination schedule and vaccine safety and they refused vaccines for different reasons, such as fear of adverse events and lack of knowledge about diseases.[25]

In a literature review, the authors concluded that the lack of information and the spread of non-scientific information favor the return of infectious diseases, making eradication difficult, so health professionals should inform the population about the benefits of vaccination[26].

Regarding the recommendations for the procedures during and after the administration of immunobiologic agents, this study showed that almost all professionals did not perform hand hygiene technique properly. In a world scenario in which safe care is a priority, studies show that adherence to the hand hygiene procedure is unsatisfactory all over the world, reporting low adherence rates[27].

The results of this study are in agreement with those of an investigation that also presented unsatisfactory results, as only 15.8% of nursing professionals washed their hands after vaccination[19].

In the vaccination room, the lack of adequate hand hygiene can bring risks to patients, compromising their safety. Lack of hand hygiene can contaminate the vaccine, supplies, or the vaccinee and may cause an AEFI[3].

The provision of safe care is compromised when primary care nurses report noncompliance with appropriate techniques, justified by the high number of vaccines administered in each shift.[2] Another study also showed low adherence to the correct vaccine preparation technique, as vaccines were previously aspirated into the syringes some time before administration, in disagreement with the recommendation to aspirate it only at the moment of vaccination[22].

The results of this study indicate adherence to the recommendations for vaccination procedures is far from the ideal score. An integrative review showed failure to comply with the Manual of Rules and Procedures for Vaccination issued by the Brazilian Ministry of Health and that no continuous training is provided to health professionals, indicating the need for permanent education[6].

A study with 56 immunization professionals showed the need and importance of permanent education to ensure safety in the workplace for health professionals, and quality and safety in vaccination for patients[28]. Strategies can be developed to reduce errors and, consequently, increase patient safety, including constant training to health teams; improved differentiation of vaccines with similar names, abbreviations, labeling and packaging; implementation of adequate screening mainly to assess contraindications; and application of standard operating procedures (SOP)[13].

In order to ensure patient safety and quality care, weaknesses must be identified and changes must be implemented to improve the safety of vaccines at different levels: from patient interventions to organizational actions at local, national, and international levels[29]. Teaching-service-community integration can be a strategy for changes in professional practice, the health care model, consequently, improving health services and patient safety[30].

Study limitation refers to the failure to investigate adherence-related factors; however, the responses to the objectives proposed in this study were not compromised. We suggest that future studies should explore this perspective.

The results of this study can support primary care professionals in the adoption of strategies that favor the adherence to good practices for vaccination and permanent education, contributing to the provision of safe and quality care in vaccination rooms.

CONCLUSION

The mean overall adherence score was 58.5%, considered insufficient, when considering the importance of complying with 100% of the guidelines proposed by the Ministry of Health. Failure to perform good practices contributes to immunization errors and compromises patient safety and quality care.

The nursing team is responsible for all tasks performed in the vaccination room, from vaccine receipt to storage, provision of guidance, and vaccine administration. The nursing team also faces

the challenge to ensure safe and quality care to the population through the health system that uses vaccine rooms for disease prevention.

Health education and engagement of vaccine professionals to comply with the recommendations for vaccination procedures, according to the Manual of Rules and Procedures for Vaccination, issued by the Brazilian Ministry of Health, may favor patient safety in the vaccination room.

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NOTES

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CONFLICT OF INTEREST

There is no conflict of interest.

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