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Quality of Vaccination Provision in the Second Year of Life in Health Facilities in the Rural Commune of Koubri, Burkina Faso

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Abstract

Introduction: The introduction of the Measles, Rubella (MR) vaccine and the Meningitis (Men A) vaccine in the second year of life in the expanded immunization program is a strategy for strengthening vaccine immunity in children. However, the quality of this strategy seems to be poorly documented in Burkina Faso. This study aims to assess the quality of the vaccination offer in the second year of life in health facilities in the rural commune of Koubri. **Methodology:** This was a mixed sequential explanatory design. The quantitative component focused on the quality of vaccination. As data collection tools, we used a self-administered questionnaire, an observation grid and a document analysis grid. The qualitative component explored the perception of vaccination from the perspective of mothers and health personnel. We based our approach on the integrative quality assessment model, which served as the analytical framework. **Results:** The results show that in terms of quality, the storage of vaccines in refrigerators was not consistent in all health facilities. Also, temperature readings are not taken daily and hand hygiene is not observed by staff before and after vaccination. Nevertheless, the usefulness of vaccines is perceived positively by staff and mothers of children. **Conclusion:** The study reveals major shortcomings in compliance with vaccination chain standards, thus compromising the quality and safety of vaccination. However, the positive perception of the usefulness of vaccines according to stakeholders is an asset to be capitalized on. These results call for strengthening supervision, on-

going training and rigorous monitoring of vaccination practices with a view to sustainably improving the quality of services.

Keywords

Evaluation, Quality, Vaccination Offer, Second Year of Life, Burkina Faso

1. Introduction

Vaccination is an essential component of the human right to health and an individual, collective, and governmental responsibility [1]. It involves immunizing a person against an infectious disease, usually by administering a vaccine. Vaccines, which stimulate the immune system, protect a person from infection or disease [2]. It is one of the most cost-effective strategies in the field of health. It is ranked among the ten great achievements of the 20th century in the field of public health according to the Centers for Disease Control (CDC). It helps combat and eliminate potentially fatal infectious diseases and through vaccination more than 2 to 3 million deaths are prevented each year [2]. The vaccination schedule varies in different parts of the world and is determined by an epidemiological combination of targeted infections and the ability of these vaccines to induce the required immune response in children [3]. In Burkina Faso, the Expanded Program on Immunization (EPI) was introduced in 1980, but the vaccination schedule was extended to the second year of life in 2014, which offers a more varied spectrum of protection of targets against vaccine-preventable diseases [4]. This period is a good time to catch up on vaccinations for children who are not up to date with their vaccine doses or to strengthen immunity against measles or meningitis in those already vaccinated [5]. However, in recent years, there has been a resurgence of certain diseases included in the vaccination schedule or subject to prevention campaigns; this is evidenced by the recent measles epidemics reported in several localities in the country [6]. Furthermore, the evolution of vaccination coverage is satisfactory in the first year of life, with a rate of 117.6% but remains low for the second year, with a rate of 84.4% [6]. This observation is also made in the health facilities of the rural commune of Koubri. This phenomenon is partly due to the fact that a certain number of children are not or poorly vaccinated. The reasons given include, among other things, insufficient information communicated to health personnel, insufficient social mobilization in favor of health during the second year of life and the reluctance of some parents [5]. In addition, the scientific literature on the quality of vaccination provision appears limited in the Burkinabe context. The objective of this study was to examine the quality of vaccination provision in the second year of life in health facilities in the commune of Koubri. More specifically, it was a question of 1) describing the vaccination services provided by health workers (Vaccine Management, Vaccine Safety and Vaccination Practices), 2) evaluating the perceived quality of vaccination by mothers of children and health

workers (reception and waiting time, availability of vaccines, updating of skills, provision of information and involvement of all stakeholders).

2. Methodology

2.1. Study Type

This is a mixed-method study that took place from June 6 to August 5, 2022.

2.2. Study Site

The study took place in the eleven (11) health and social promotion centers in the rural commune of Koubri.

2.3. Sampling/Sample

We conducted exhaustive sampling for the selection of health facilities and health workers. As for the selection of mothers of children, it was a purposive sampling. Mothers of children who met the selection criteria constituted the sample. The sample size of mothers was determined by saturation. Health facilities should be in the public sector.

2.4. Data Collection

Semi-structured interviews, direct observation of practices and documentary analysis were used as data collection techniques. The questionnaire, an observation grid and a documentary analysis grid were used as data collection tools.

2.5. Analysis of the Collected Data

We conducted a thematic analysis of the qualitative data. As for the quantitative data, we used Epi info software for the descriptive analysis.

2.6. Ethical Considerations

The protocol was approved by the ethics committee. The participant's verbal consent was respected. Also, to preserve the confidentiality of the respondent, the data collection instruments were made anonymous.

3. Results

3.1. Sociodemographic Characteristics of Participants

A total of 45 health workers participated in the study. The average age was 38 years, with an average professional seniority of twelve (12) years. Most of the study participants had a secondary education level. There were 16 mothers of vaccinated children. Most were not in school (10/16) and were housewives (12/16).

3.2. Vaccination Benefits for Health Workers

3.2.1. Vaccine Management by Health Workers

A total of 24.44% of the agents reported not having knowledge about storing vac-

cines in the refrigerator and 51.11% of the agents knew the temperature range for storing vaccines (2˚C - 8˚C). In 55.5% of the FSs, the temperature was recorded only in the morning and 44.4% recorded it twice a day (morning and evening).

3.2.2. Vaccine Safety

A handwashing facility was available in 22.22% of vaccination sites and 22.22% of agents observed infection prevention measures. These measures were not respected by any after vaccination. The disposal methods used by the FS were mainly incineration (Table 1). All FS have an AEFI management tool but the items are not correctly entered.

Table 1. Distribution of means of disposal of biomedical waste from vaccination.

Means of waste disposal	Effective	Percentage (%)
Open-air incineration	21	46.67
Modern incinerator	18	40
Disposal into a soakaway	4	8.89
Waste transport to the district	2	4.44
Open-air incineration	45	100

3.2.3. Vaccination Practices

All vaccinators adopt a proper posture, positioning themselves correctly between the child held by the mother and the vaccine equipment before aspiration. Injection sites are respected by all. However, none perform aseptic procedures at the injection site or check the condition of the Vaccine Control Tablet before use. All agents mention the upcoming vaccination dates at 15 months, but only 44.44% communicate them to the mothers. Follow-up of lost-to-follow-up cases is not systematically recorded in vaccination registers in all HFs.

3.2.4. Perceived Quality of Vaccination

The perceived quality of vaccination emerges as multidimensional, centered around reception, product availability, ongoing training of staff, and the involvement of all stakeholders in the process.

3.2.5. Reception and Waiting Time

Welcome and friendliness are an essential foundation for beneficiary satisfaction. Agents strive to create a reassuring atmosphere that is conducive to the expression of needs.

"*It's the usual greeting, eh, we really do what we can to make sure the woman is comfortable in the best conditions to say everything she needs. So when they come, they have the space. The activity itself begins with the educational talk*, […]." (*agent P_D*)

On the mothers' side, this perception is confirmed:

"*Hmm… we're well received. There's no argument. When we arrive, we're greeted, sometimes we even joke, and the nurses are open to our concerns.*" (*Mother Gr_E*)

However, the workload appears to be a constraint limiting the effectiveness of this reception. One agent points out:

"*Here, it must be said that the waiting time is particularly long and it is linked to our number. We only officially have three agents who are there both at the dispensary and at the maternity ward. And when they come, there are many of them and people are not necessarily available to them. So frankly, they wait until 10 or 11 am even, especially on the day of the big vaccination* […]" (*Agent P_G*)

This overload sometimes results in a feeling of exhaustion:

"*If people come, I gather them and vaccinate them. Even today I don't feel well, so it's serious. Major isn't here either. I find myself alone. But you understand that everything can't be normal, ah, this country is like that.*" (*Agent P_E*)

3.2.6. Vaccine Availability

The absence of stock shortages is generally perceived as a positive factor, reinforcing confidence in the service:

"*There has never been a break at my level*". (*Agent P_G*)

However, the mothers' experiences reveal contrasting situations:

"*Yes, products are sometimes missing. We came last time, and the product wasn't ready. We wasted our time… it's finally today that we got it.*" (*Mother Gr_K*)

"*It actually happens that he refuses to open a bottle just because there aren't enough children and so he has to go back and come back next time.*" (*Mother Gr_G*)

3.2.7. Skills and Information

Maintaining vaccine quality also requires regular updating of skills and the dissemination of information. One officer emphasizes:

"*The training we receive is insufficient in my opinion, especially during our meetings, with staff* […], *we also read the documents on vaccination and we give refresher shots to the trainees on opening vaccine bottles and filling the supports.*" (*Agent P_7*)

3.2.8. Involvement of Stakeholders

Perceived quality is strongly influenced by the degree of involvement of all stakeholders. In some cases, the isolation of an agent compromises the continuity of service:

"*Not everyone is involved. I'm the only one doing routine vaccinations. Last Thursday, I was lying sick, and all the women were postponed until next Thursday.*" (*agent P_H*)

"*… I'm alone in charge of the cold chain, everything related to vaccine and consumable management. Sigh… with the rotating schedule of curative consultations at the dispensary it's difficult. I only live for the service so it risks cracking unfortunately, I can't take it anymore.*" (*agent P_L*)

This overload is also perceived by mothers:

"*The health worker is always present on the day of vaccination and she proceeds each time in order of arrival… but ah… not easy from then on, she is alone and as there are a lot of children, we hang around a lot.*" (*mère Gr_K*)

Conversely, the involvement of other community actors such as ASBCs is recognized as a major asset:

"*We have ASBCs who support us and the work they do in terms of awareness and mobilization in the community is very valuable…*" (*agent P_D*)

"*Yes, the ASBCs raise awareness in markets and in mosques and churches about wastewater management to combat malaria, to follow the vaccination schedule and how to take care of our children, and it's really interesting…*" (*mother Gr_T*)

4. Discussion

4.1. Quality of Vaccination Services

It encompasses all the services offered by health workers to the population in terms of vaccination. The quality of vaccines intended for the immunization of children in health centers depends on the availability and functionality of the equipment. Fortunately, the cold chain equipment is functional in all health centers. On the other hand, there is the knowledge and expertise of the workers to guarantee the effectiveness of the vaccines. The storage of vaccines in the refrigerator and the monitoring of temperature variations must be well monitored to optimize the quality of the vaccine. Our study revealed that the storage of more than 50% of vaccines in the different health centers was inadequate. RR and MenA vaccines should be stored near the freezer section. However, nearly 60% of refrigerator temperature monitoring was irregular. This situation represents a major risk of vaccine deterioration. Nearly 50% of respondents did not know the temperature range for storing vaccines. In addition, no agent checks the PCVs either during the removal of vaccines from the refrigerator or before loading the syringe for injection. This PCV check is nevertheless fundamental to ensure the good condition of the vaccine. Compliance with this storage period is necessary for the quality of the vaccines and is justified by twice-daily temperature measurements. Thus, in a study carried out on the quality of vaccination in schools in the Monastir region of Tunisia, it was shown that nearly 60% of agents check the PCVs to ensure that the CDF is maintained before administering the vaccine [7]. There is still much work to be done in terms of vaccine safety. This concerns all the mechanisms put in place and the effective use of a certain number of equipment such as safety boxes, the hand washing device, the trash can and the incinerator. Asepsis of the injection site and hand hygiene are not respected by any agent, contributing to increasing the risk of infection. Also, waste disposal takes place in an incinerator in 40% of FS. These notorious shortcomings, which prove that the safety of vaccination is not ensured, could be explained by the lack of training supervision of agents. In a study carried out in Ivory Coast in 2012, on 88.9% of vaccine injections, the hemostasis pad was the same as that used for cleaning the injection site [8].

4.2. Perceived Quality of Vaccination

Mothers of children are satisfied with the reception provided by providers. In 2018

conducted in Burkina Faso, because the majority of respondents believe that regardless of the waiting time spent, they are patient given the good working atmosphere at the vaccination site. In two studies on the community's perception of childhood vaccination, the majority believe that the reception was perceived negatively by mothers in the FS [9]. The mothers' dissatisfaction was due to the poor behavior of the healthcare staff [10].

Negative perceptions are being recorded due to temporary vaccine shortages [11]. The results of this study revealed a major discrepancy: health workers do not report vaccine stockouts, while mothers experience them. This could be explained by potential reasons, such as communication or last-mile availability issues. Dissatisfaction among beneficiaries could contribute to vaccination abandonment. Community health workers play a key role in social mobilization and community awareness.

4.3. Limitations of the Study

This study has certain limitations that should be acknowledged in order to fully appreciate its significance. First, the small sample size (n = 16) limits the ability to identify generalizable trends across all mothers living in similar rural contexts. Although the qualitative method allowed for a thorough understanding of individual experiences, the small number of participants reduces the variability of perspectives and could introduce representativeness bias.

Second, the research focused on a single rural municipality, which limits the contextual and sociocultural diversity of the testimonies collected. The results must therefore be interpreted in light of local specificities—including community dynamics, care practices, and socioeconomic conditions—which may differ from one region to another.

5. Conclusions

The quality of vaccination services remains a major concern within our healthcare facilities. Current practices among healthcare providers whether related to vaccine management, safety protocols, or post-vaccination monitoring are often inadequate, thereby compromising the overall quality of service delivery.

To fully capitalize on the positive momentum observed among stakeholders, two concrete courses of action are recommended:

Institutionalize permanent participatory frameworks that regularly bring together healthcare providers, community representatives, and local decision-makers. Such consultation platforms would enhance dialogue, enable the joint identification of priority areas for improvement, and support the collective monitoring of corrective action plans. This participatory approach would foster shared accountability, transparency, and sustainability in implementing quality-improvement strategies.

Strengthen and valorize existing local capacities through targeted continuing education and mentorship programs. Health authorities could, for instance, pro-

mote the creation of peer champions or quality assurance units within health facilities to disseminate best practices, supervise teams, and sustain collective motivation.

Finally, future studies involving larger and more diverse samples would allow for a more comprehensive assessment of beneficiaries' satisfaction levels and provide stronger evidence to guide quality enhancement initiatives.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Berkley, S., Chan, M., Elias, C., Fauci, A., Lake, A. and Phumaphi, J. (2013) Plan d'Action Mondial pour les Vaccins-GVAP. OMS.

[2] OMS (2020) Thème de santé: La vaccination. https://www.who.int/fr/campaigns/world-immunization-week/world-immunization-week-2020

[3] Ettarh, R.R., Mutua, M.K. and Kyobutungi, C. (2012) Ethnicity and Delay in Measles Vaccination in a Nairobi Slum. *Tropical Medicine and Health*, **40**, 59-62. https://doi.org/10.2149/tmh.2012-09s

[4] Ministère de la santé (2018) Plan de relance de la stratégie avancée en vaccination au Burkina Faso.

[5] OMS (2018) Établir et renforcer la vaccination au cours de la deuxième année de vie: Pratiques vaccinales au-delà de la petite enfance. https://creativecommons.org

[6] Ministère de la santé (2020) Vaccination au cours de la deuxième année de vie.

[7] Bouanene, I., Trimech, F., Ben Salah, A., Ben Salem Kamel, K. and El Mhamdi, S. (2017) Audit sur la qualite de la vaccination en milieu scolaire dans la region de Monastir (Tunisie). *Eastern Mediterranean Health Journal*, **23**, 383-387. https://doi.org/10.26719/2017.23.5.383

[8] Tiembré, I., Bénie Bi Vroh, J., Attoh-Touré, H., Douba, A., N'Zi, E., Dagnan, N.S., *et al.* (2013) Qualité des prestations vaccinales des centres sociaux publics d'Abidjan, Côte d'Ivoire. *Santé Publique*, **24**, 429-438. https://doi.org/10.3917/spub.125.0429

[9] Kagoné, M., Yé, M., Nébié, E., Sié, A., Müller, O. and Beiersmann, C. (2018) Perception de la communauté concernant la vaccination infantile et ses implications pour l'efficacité: Une étude qualitative en milieu rural au Burkina Faso.

[10] Titoria, R., Upadhyay, M. and Chaturvedi, S. (2020) Quality of Routine Immunization Service: Perception of Clients. *Indian Journal of Public Health*, **64**, Article No. 44. https://doi.org/10.4103/ijph.ijph_92_19

[11] Li, A.J., Peiris, T.S.R., Sanderson, C., Nic Lochlainn, L., Mausiry, M., da Silva, R.B.J.B.M., *et al.* (2019) Opportunities to Improve Vaccination Coverage in a Country with a Fledgling Health System: Findings from an Assessment of Missed Opportunities for Vaccination among Health Center Attendees—Timor Leste, 2016. *Vaccine*, **37**, 4281-4290. https://doi.org/10.1016/j.vaccine.2019.06.041