

Health Providers' Points of View on the Impact of the Project to Strengthen the Expanded Program of Routine Vaccination from 2014 to 2018 in the Barumbu Health Zone in Kinshasa, Democratic Republic of Congo

Ngoyi Kankiesa Nestor^{1*}, Milambo Kapia Patrick², Bope Kwete Minga Barthélémy³, Pembu Pembu Francy¹, Muanyim Bope Pierre¹, Nkumbi Malu Jeant², Tshiana Kabongo Elysée², Sabuli Sewa Alexis¹, Kafinga Luzolo Emery⁴

¹ISTM-Kinshasa/Community Health in Kinshasa, Kinshasa, Democratic Republic of Congo

²PNLCT, Kinshasa, Democratic Republic of Congo

³ISTM-Kinshasa/Occupational Health, Safety and Environmental Management in Kinshasa, Kinshasa, Democratic Republic of Congo

⁴UPN-Kinshasa/Pedagogy and Didactics of Health Sciences, Kinshasa, Democratic Republic of Congo

Email: *nestorngoyi@gmail.com

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Abstract

According to the World Health Organization, approximately 3 million deaths are prevented each year in the world thanks to vaccination and then, in addition, each year, it makes it possible to avoid nearly 750,000 children suffering from serious physical, mental or neurological handicaps and 1.5 million other deaths could be avoided if the vaccination coverage is improved. However, vaccination coverage is often not achieved due to various difficulties encountered by health providers in the expanded program on vaccination activities. Yet, it is important to strengthen the program. This research paper aimed to assess health providers' points of view on the impact of the project to strengthen the routine expanded program on vaccination in the Barumbu health zone in Kinshasa, Democratic Republic of Congo (RDC). To do so, we surveyed a convenience sample of 234 health providers involved in the implementation of the project, including 210 community relays, 9 permanent nurses, 9 health committee chairpersons and 6 health authorities. A questionnaire related to the objective of the research was submitted to them. After analyzing the data, we found that the points of view of health providers are negative. The performance of the vaccination program was not great. Several reasons were given for this, including the non-involvement of the political

and administrative authorities, the failure to respect the funds disbursement circuit and the non-effective financing of vaccination activities in the Barumbu health zone in Kinshasa, DRC.

Keywords

Point of View, Health Providers, Impact, Strengthening Project, Routine Vaccination

1. Introduction

In the early 1970s, five million children died each year worldwide from avoidable diseases by vaccination. At that time, the vaccination coverage rate for children was less than 5%. This is why the WHO launched the Expanded Program on Vaccination (EPI) in 1970 against six diseases: diphtheria, tetanus, pertussis, poliomyelitis, measles and tuberculosis. This program became effective in 1977. The target populations were newborns and infants in their first year of life, but also older children up to three or five years of age and women of childbearing age for the prevention of neonatal tetanus. Older children and adults were included for tetanus vaccination every 10 years. Two other diseases were included in the EPI: yellow fever in 1988, in amaril-endemic areas, and hepatitis B (HBV) in 1991. The *Haemophilus influenzae* type b (Hib) vaccine is the latest vaccine recommended by the WHO [1].

Many countries around the world are now facing unprecedented outbreaks of vaccine-avoidable diseases due to low coverage rates. Inequities in access to vaccines and, in some places, a crisis of public confidence in vaccination are a cause for concern [2].

In 2019, 14 million infants worldwide did not receive the initial dose of DPT, indicating inadequate access to vaccination and other health services, and another 5.7 million infants were only partially immunized. From the total of 19.7 million children, more than 60% lived in 10 countries: Angola, Brazil, Ethiopia, India, Indonesia, Mexico, Nigeria, Pakistan, the Philippines, and the Democratic Republic of Congo [3].

Vaccination is considered as one of the most effective public health measures to prevent mortality, morbidity and complications of infectious diseases. According to World Health Organization estimations, nearly 3 million deaths are prevented annually worldwide through vaccination and another 1.5 million deaths could be prevented simply by improving vaccination coverage. However, vaccine effectiveness is only possible when the vast majority of the population is vaccinated [4].

According to the WHO, about 3 million deaths are prevented each year worldwide through vaccination and that, in addition, about 750,000 children are prevented from suffering serious physical, mental or neurological disabilities each year. And another 1.5 million deaths could be avoided if vaccination coverage is im-

proved. Vaccine potency is possible if resources of sufficient quantity and quality are available to effectively support vaccination activities [5].

Despite the importance given to the quality of health care and services, there has been very little sustained activity in improving the quality of health care and services in developing countries. Studies in recent years have highlighted significant gaps in health care and services and management systems in developing countries [6].

To improve the health of the population, it is essential to ensure the quality of health care and health systems services. However, the quality of a health care system and health services requires the consideration of structures and resources, functioning and activities, results of their effects and impact on the health and well-being of populations [7].

The evaluation of vaccination services conducted in 2010 showed a decline in activities related to factors, related to human resources material and financial as well as the quality of services rendered [8]. The allocation of sufficient resources to the activities of the routine expanded program of vaccination will ensure the sustainability of vaccination services and contribute to the improvement of the health of the population. To this end, the optimization of logistics is an effective strategy for anticipating epidemics [9].

However, because of the multiple reasons for low vaccine coverage, the reappearance of these diseases remains significant, some with epidemic modes of expression. Although vaccines are available and free of charge in health facilities, many children miss out on the various strategies organized in order to reach them. Missed opportunities for vaccination are high; they limit the catch-up of children who missed their appointment due to restriction of activities due to insufficient resources [10].

The Democratic Republic of Congo, with an area of 2,345,000 km² and a population estimated in 2013 at 86,453,301 inhabitants and distributed in 516 Health Zones, constitutes an important challenge due to its demographic weight. The target for routine vaccination is 3,458,132 children.

UNICEF is vaccinating thousands of children and delivering medical kits to the various health centers in the Democratic Republic of Congo (DRC) as the number of deaths from the world's largest measles epidemic has reached the 4000 threshold of 4000 deaths. Since January 2019, 203,179 measles cases have been reported in the country's 26 provinces, including 4000 deaths. Children under five years of age account for 74% of infections and nearly 90% of deaths. The number of measles cases in the DRC has tripled this year compared to 2017 [10].

In 2018, decline in vaccination coverage in the DRC compared to routine vaccination has been noted. Vaccination coverage against all early childhood diseases (hepatitis B, diphtheria, tetanus, pertussis and Hib) decreased from 2% to 10%, while poliovirus vaccination coverage rates decreased by 8.4% for IPV and 5.4% for OPV3. Coverage for other vaccines against smallpox, measles, yellow fever, pneumococcal disease, and rota virus decreased from 4.5% to 1.5% [11].

The decline in recent years is probably due to well-established problems, such as weak systems, low coverage, and inadequate supplies. However, the Expanded Program on Vaccination (EPI) in the DRC had been supported by the project to strengthen the routine EPI program. Thus, the question that guided this study was: What are the points of view of health providers on the impact of this routine vaccination project from 2014 to 2018 in the BARUMBU health zone in Kinshasa, DRC? The answer to this question will allow us to propose perspectives on this routine activity.

2. Material and Methods

1) Type of study

This is a descriptive cross-sectional study concerning health providers' points of view on the impact of the project to strengthen the routine vaccination expanded program in the Barumbu health zone in Kinshasa/DRC from 2014 to 2018.

2) Study area

Kinshasa is the capital of the Democratic Republic of Congo. This city comprises 24 administrative municipality, including that of Barumbu. It is one of the first eleven administrative entities of the capital and was created by the decree law of March 26, 1957. Together with Lingwala and the commune of Kinshasa, it was part of the indigenous city developed at the beginning of the 20th century [12]. Its current borders are those set by ministerial decree no. 69-0042 of January 23, 1969, determining the number, names and borders of the communes of the city-province of Kinshasa. Its current functioning is regulated by the provisions of law no. 82-008 of February 25, 1982 establishing the status of the provincial city of Kinshasa, and establishing the territorial organization of the Democratic Republic of Congo (DRC). This municipality covers an area of 4.72 Km².

3) Target population

Health providers composed of community relays, permanent nurses, health committee chairpersons and health authorities helped us to collect the data expected and constitute for us the study population.

4) Sampling

We surveyed a convenience sample of 234 health providers involved in the implementation of the project, including 210 community relays, 9 head nurses, 9 health committee chairpersons and 6 health authorities. A questionnaire related to the impact of the project to strengthen the routine expanded program on vaccination was submitted to them. To collect the necessary data, we resorted to a field survey using the face-to-face interview technique.

5) Inclusion criteria

- Being a health care provider operating for more than three years in the facility to be surveyed.
- Being a community health relay operating for more than three years in the Barumbu health zone in Kinshasa, DRC

- Being a health authority and agree to answer our questions.

6) Parameters studied

In addition to the impact of the project to strengthen the routine expanded program on vaccination, the parameters studied were gender, age group, level of education, marital status, providers, sustainability of the health system, reason for non-sustainability of the system, budgeting, disbursements, level of disbursement problems, community participation and improvement in vaccination coverage, on the basis of which data useful to the objective of the study should be collected

7) Data analysis plan

Data entry and cleaning were done using the Microsoft software Excel 2010 and analyzed using the SPSS software based on a predefined plan. To verify the influence of the independent variables on the dependent variable on the project to strengthen the routine expanded program of vaccination, we used the Chi-square test at the 95% confidence level.

3. Results

Table 1 shows that 58.1% of the respondents were male. The same table shows that 41% of the respondents were in the 24 - 29 age group, with an estimated average age of 28 years.

With regard to the level of education, the results obtained show that 81.6% of the respondents had a state diploma. The same table shows that 67.5% were married and 90.6% were community relays.

Table 2 shows that the majority (85.5%) of the project's health providers approve of the non-sustainability of the system. As for the reasons for not making the system sustainable, the majority of providers (91%) indicate that it is due to a lack of funds.

Table 3 shows that 93.2% of the project providers prove that the project activities were not 100% budgeted. As for the disbursement of funds, the results show that 92.7% of the providers had not disbursed the funds and that 38.5% of the disbursements were made at the provincial health division level.

Table 4 informs us that community participation was effective (97.9%), the financing of vaccination activities was not effective (94%) and according to 77.3% of the providers, the project did not have a positive impact on the performance of the routine expanded program of vaccination.

According to **Table 5**, the following aspects: Actual funding of vaccination activities and disbursement of funds had an association with the impact of the project on the performance of the routine expanded program of vaccination ($p < 0.05$).

4. Discussion

This study on health providers' points of view on the impact of the project to strengthen the expanded routine vaccination program in the BARUMBU health

Table 1. Distribution of respondents by gender, age, education level, marital status and project providers.

Variables	Frequency (234)	Percentage
Sex		
Female	98	41.9
Male	136	58.1
Age (years)		
24 - 34	96	41
35 - 45	60	25.7
35 - 45	78	33.3
*Level of education		
A ₀	8	3.4
A ₁	8	3.4
A ₂	5	2.1
D ₆	191	81.6
Others	22	9.4
Marital status		
Married	158	67.5
Singles	33	14.1
Others	43	18.4
Health providers		
Community relays	210	90.6
Registered Nurse	9	3.4
Chairpersons of health committees	9	3.4
Political-administrative authorities	6	2.5

*A₀ = graduate nurse; A₁ = undergraduate nurse; A₂ = nurse; D₆ = state diploma.

Table 2. Distribution of respondents according to the sustainability of the system and the reason for not sustaining the system.

Variables	Frequency (234)	Percentage
Sustainability of the system		
Yes	34	14.5
No	200	85.5
Reasons for not sustaining the system (n = 200)		
Lack of supply of inputs	14	7
*No involvement of PAA	4	2
Lack of funds	182	91

*PAA: Political-Administrative Authority.

Table 3. Distribution of respondents on total budgets, disbursements and level of disbursement.

Variables	Frequency (234)	Percentage
Providers' opinion on budgeted activities		
Yes	218	93.2
No	16	6.8
Providers' opinion on the disbursement of funds		
Yes	17	7.3
No	217	92.7
*Providers' opinions on the level of disbursement of funds		
BCZS	64	27.3
DPS	90	38.5
PTF	80	34.2

*BCZS: Central Office of the Health Zone; *DPS: Provincial Health Division; *PTF: Technical and Financial Partners.

Table 4. Distribution of respondents according to providers' opinions on community participation, effective financing of vaccination activities and the impact of the project to strengthen the routine expanded program on vaccination.

Variables	Frequency	Percentage
Providers' opinion on community participation		
No	5	2.1
Yes	229	97.9
Opinion on the effective financing of vaccination activities		
No	170	94
Yes	64	6
Opinion on the impact of the project		
Negative	181	77.3
Positive	53	22.7

zone from 2014 to 2018, shows according to **Table 1** that the most represented gender was male (58.1%) versus female (41.9%).

We classified the age into three groups. Yet, from **Table 2** it appears that the most represented age group is 24 - 29 years (41%) followed by 45 - 56 years (35.6%) and finally 34 - 43 years (23.4%). The average age is 28 years. It also emerges that the most represented level of education is that of state graduates with 191 respondents, followed by other levels (9.9%), the bachelor's degree level (3.4%), the A1 level (3.4%) and the graduate level (2.1%). These results corroborate those of Onyengo in his study on family health in the DRC, which establishes an association between socioeconomic data and health [12].

Table 5. Association between the following aspects: community participation, effective financing of vaccination activities and disbursement of funds with the impact of the project on the performance of the routine expanded program of vaccination.

Variables	Impact of the project on the performance of the routine expanded program of vaccination		Chi-square	P
	Yes comes before	Yes		
Providers' opinion on the effective financing of vaccination activities				
No	160	10		
Yes	40	24	34.42	0.0000
Providers' opinion on community participation				
No	4	1		
Yes	129	100	1.11	0.2904
Providers' opinion on the disbursement of funds				
Yes	10	7		
No	200	17	19.04	0.0000

With regard to the categories of providers in the implementation, 90.6% of the project's providers are community relays, followed by the heads of the health centers (3.4%), the presidents of development comity (CODEV) (3.4%) and the political and administrative authorities (2.5%). These results are superimposed on those found in Burundi, according to WHO [13].

Table 2 shows that the majority of project providers (85.5%) emphasize the non-sustainability of the system. The reasons for the non-sustainability of the system are: lack of funds for the majority of providers (91%). These results are similar to those found by the Expanded Program on Vaccination, DRC [11], in its comprehensive multi-year plan for the EPI of the Democratic Republic of Congo.

For **Table 3**, 93.2% of the project health providers stated that the project activities were not 100% budgeted. With regard to the disbursement of funds, the results show that 92.7% of the providers had not disbursed funds and that 38.5% of the disbursements were made at the provincial health division level. This supports the guidelines in the EPI Comprehensive Multi-Year Plan for DRC [14].

Regarding the opinions in **Table 4**, community participation was effective (97.9%), financing of vaccination activities was not effective (94%) and according to 77.3% of the providers, the project did not have a positive impact on the performance of the routine expanded program of vaccination.

With regard to **Table 5**, the following aspects: Effective financing of vaccination activities and disbursement of funds were associated with the impact of the

project on the performance of the routine expanded program of vaccination ($p < 0.05$). This is consistent with the results reported in the United States, where B.D. Ibrahima *et al.*, as they had pinpointed the following reasons as those associated with the performance of the routine expanded program of vaccination: involvement of the APAs, community participation, respect for the circuit of disbursement of funds and effective financing of vaccination activities [15].

5. Conclusions

Vaccination is a means of stimulating a country's growth, and it is also one of the most effective means of saving children's lives. In addition, vaccination is an excellent strategy for controlling the diseases targeted by the EPI, namely: tuberculosis, poliomyelitis, whooping cough, diphtheria, pneumonia, meningitis, measles, tetanus, yellow fever, *Haemophilis influenzae* infections, etc. Unfortunately, a large number of children escape routine vaccination with existing vaccine strategies in many developing countries. A fully immunized child is protected against all of the above-mentioned vaccine-avoidable diseases.

Through this study, we have understood, according to the opinions of the providers, that the performance of the vaccination program was not very good, and several reasons were given for this, including: the non-involvement of the APAs, the failure to respect the circuit for disbursing funds, and the non-effective financing of vaccination activities in the Barumbu health zone in Kinshasa, DRC.

6. Recommendations

Considering the health providers' points of view, the following recommendations are proposed:

- 1) To strengthen the vaccination through sensitization;
- 2) To help every to get good conscious on vaccination.

Conflicts of Interest

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

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