



Estimate Coverage Rate and Efficiency of Social Mobilization for Nationwide bOPV and MR Vaccination Campaign in Libya, 2017

Salem Alkoshi¹

¹ PhD in Public Health, Department of public health, Faculty of Public Health & Nursing, Al Asmarya Islamic University, Libya

*Corresponding authors: Salem Alkoshi,

Address: Department of public health, Faculty of Public Health & Nursing, Al Asmarya Islamic University, Libya,

Email: alkushis@yahoo.com, Tel: + 218919816465

Abstract

Background & Aims: The main goal of vaccination in a campaign is to strengthen the immunity of people. The study aims to assess the vaccination coverage rate of the campaign, the efficiency of social mobilization, and parental awareness.

Materials & Methods: A prospective cross-sectional study was carried out in Msallata city from 8 Jan to 16 Mar 2018. Data collection was associated with children who belonged to the targeted age group. The source of data was from parents being met randomly in different public areas. The vaccines given in the campaign were bOPV for children below 6 years of age and MMR for children within the age range of 3-5 years. The questions to know the parental response and effectiveness of social mobilization.

Results: 1194 children were scanned for receiving bOPV vaccine, and 637 for receiving MMR vaccine through the campaign. The coverage rate of bOPV was 92.5%, while MMR was 93%. The main reasons for unvaccinated healthy children (89 unvaccinated children) were unsatisfied parents to SIAs (36%), busy in jobs (37%), and no idea about the campaign (27%), while 11 of the unvaccinated children were sick. Parents who heard late after launching the campaign were 63%. Campaign information to parents was from TV (30%), health officers (16%), Facebook (16%), and SMS (13%) (P-value <0.05). Parents' satisfaction with the campaign was very high (95%).

Conclusion: The study demonstrated that the campaign was close to achieving the target coverage rate (95%). Accurate preparation and appropriate microplanning with trained staff will contribute to vaccination.

Keywords: Polio, Measles, Campaign, Libya

Received 02 February 2021; accepted for publication 05 March 2021

Introduction

Supplementary immunization activities (SIAs) are implemented to boost immunity in the community especially among children against vaccine-preventable diseases (1). Basically, the low coverage rate of routine vaccination is the main justification in conducting SIAs

and will not be addressed instead of routine vaccination, and also SIAs are one of the fundamental pillars of disease eradication programs (1-4). The major objective of SIAs is to interrupt transmission of infectious diseases by building immunity among unprotected people, strengthening the immunity to people being partially

protected, and boosting immunity among immunized people (2, 5, 6). The incidence of measles disease can be significantly decreased by giving a measles-containing vaccine (MCV) via SIAs to close the immunological gaps rapidly (3, 6, 7). In Americas, measles was interrupted by large-scale high-quality SIAs by 2002 (3). In 1988, Polio was endemic in more than 125 countries, paralyzing more than 350,000 children. SIAs have played a crucial role in reducing the prevalence of polio globally by more than 99% since 1988 (8, 9). Significant progress in achieving measles elimination during the period from 2000 to 2017 was shown, declining measles cases by 83% and death by 80% (10, 11). Ideally, SIAs coverage rate must exceed 95% to work towards eradication and to prevent an epidemic potential (12-14). In Libya, a national bOPV and MMR vaccination campaign was conducted in October 2017 for children below 6 years of age and children within the age range of 3-5 years, respectively. The campaign was implemented to maintain the immunity at a high level, and therefore to meet the requirements of eradication goal for both diseases. This study aimed to assess the coverage rate for bOPV and MMR vaccines, the efficiency of social mobilization, and to check the status of parental awareness level related to the campaign.

Materials & Methods

A national vaccination campaign was carried out to vaccinate children by bOPV vaccine targeted to age group from birth to below 6 years, and MMR vaccine for children within the age range of 3-5 years in a period of one week in October 2017 regardless of their vaccination history. The study aims to assess the coverage rate of this campaign, efficient social mobilization, and parents' awareness. A prospective cross-sectional study was carried out in Msallata city from 8 January 2018 to 16 March 2018. The city of the study is located 100 km in the southern-east of the capital, Tripoli, with an 80,000 population (15). The data were collected from parents of eligible children for the campaign using a questionnaire containing questions related to the study objectives.

The age group for polio vaccination was determined in accordance with WHO recommendation, while age group for MMR vaccine was to the availability of vaccine stocks.

The samples in the study were parents selected randomly at different places in the city. The parents were met at 33 various places (10 health facilities, 1 hospital, and 22 schools). The main condition in selecting the parents for the study was if they have eligible children for the campaign. The parents answered questions concerning the vaccination status of the child in the campaign, the reason for parental refusal to vaccinate the child, when and from where the source of information received about the campaign time, and parental awareness status to the campaign.

The data were analyzed by SPSS software to have outcomes related to the objectives such as the percentage of the coverage rate for bOPV and MMR vaccine. To calculate the percentage, the numerator was the number of vaccinated children in the campaign and the denominator was the total number of children who were eligible for the same vaccine in the campaign. A comparison between variables was calculated using the chi-square test, with p-values <0.05.

Ethics:

Permission to visit all selected places for data collection was obtained from the management. Oral consent was received from parents selected in the study. Also, directorate affairs of health and education sectors provided written permission to managers of selected health facilities and schools to allow the visit and data collection.

Results

The study was carried out to evaluate the national immunization campaign implemented in October 2017 to boost the immunity towards polio and measles eradication. The study examined 1194 children below 6 years of age for receiving bOPV, and 637 children within the age range of 3-5 years for receiving MMR vaccine in the campaign.

Coverage Rate of Vaccines:

The coverage rate of the bOPV vaccine was 92.5%, while the MMR coverage rate was 93.1%. A significant

comparison between vaccinated and unvaccinated children for each vaccine was observed (P-value <0.05). Table 1 explains the coverage rate for both vaccines.

Table 1. The coverage rate of vaccines in national vaccination campaign 2017

Vaccine	Number of children	%	Std. Deviation	Chi-square test p-value
bOPV vaccine			0.26276	0.000
vaccinated	1105	92.5		
Non vaccinated	89	7.5		
Total	1194			
MMR vaccine			0.25378	0.000
vaccinated	593	93		
Unvaccinated	44	7		
Total	637			

Significant level is $p < 0.05$

Reasons on Unvaccinated Children:

The study recognized 89 children who did not receive campaign's vaccines in which 11 (11.5%) were sick children, while 78 (88.5%) were healthy children. Most of the sick children suffered fever (64%), diarrhea

(18%), and chest inflammation (18%). Regarding unvaccinated healthy children, reasons for not vaccinating were unsatisfied parents to the campaign (36%), busy parents (37%), and no idea about conducting the campaign (27%). Table 2 shows reasons for not vaccinating children.

Table 2. The reasons for not vaccinating children

Variable	Number of unvaccinated children	%	Std. Deviation	Chi-square test p-value
Health status			0.32080	0.000
Good	78	88.5		
Sick	11	11.5		
Total	89			
Sick reasons			1.03280	0.202
Diarrhea	2	18		
Fever	7	64		
Chest inflammation	2	18		
Total	11			
Non-sick reasons			1.31048	0.509
Unsatisfied	28	36		
Busy	29	37		
No idea	21	27		
Total	78			

Significant level is $p < 0.05$

Social Mobilization of the Campaign:

Social mobilization data were collected from 1174 parents. Most parents (63.1%) heard about implementing the campaign during the campaign, while 21.7% of parents had an idea about the campaign one

week before the launching. The most common sources for campaign information to parents about the appointment of the campaign were from TV (30.4%), health officers (16.4%), Facebook (16%), and friends of parents (13.3%). Table 3 shows the effectiveness of social mobilization of the campaign.

Table 3. The effectiveness of social mobilization of the campaign

Variable	Number of parents	%	Std. Deviation	Chi-square test p-value
When did people hear about the campaign appointment?			0.74383	0.000
Two weeks before campaign	178	15.2		
One week before campaign	255	21.7		
During campaign	741	63.1		
Total	1174			
Source of Campaign			2.15123	0.000
Friend	120	13.3		
TV	274	30.4		
Radio	66	7.3		
Poster	31	3.4		
Facebook	144	16		
SMS	118	13.1		
Health officer	148	16.4		
Total	901			

Significant level is $p < 0.05$

Parental Awareness of the Campaign:

The awareness of parents for the national vaccination campaign was very high in 94.5% of parents. 33 parents were unsatisfied with the campaign but their response to

the campaign was positive. Of those, 76% accepted their wives' motivation for vaccination, whilst 24% imitated other parents to vaccinate their children in the campaign (Table 4).

Table 4. The satisfaction of parents with the campaign

Variable	Number of parents	Total parents	%	Std. Deviation	Chi-square test p-value
Parents satisfied about campaign importance		1194		0.22861	0.000
Satisfied	1128		94.5		
Not Satisfied	66		5.5		
Reason of vaccinated children but not satisfied		33		0.87039	0.003
Wife Motivation	25		75.8		
Imitating People	8		24.2		

Significant level is $p < 0.05$

Discussion

The study evaluated the post-vaccination campaign in terms of coverage rate of bOPV and MMR vaccines, the efficiency of social mobilization, and parental awareness of the campaign. The SIAs targeted to vaccinate children below 6 years of age by bOPV and children within the age range of age group 3-5 years by MMR vaccine regardless of their vaccination history. This campaign was carried out nationwide in one week in October 2017. SIAs are the basis of preventive health programs that should be implemented from time to time to remedy the weak coverage rate of vaccination or inefficient routine immunization service. Campaigns are not routinely scheduled; it is planned irregularly according to outbreaks or towards eradication program. Since WHO global strategic plan recommends giving MMR vaccine through the campaign starting from the age group of 9 months, the MMR vaccine was given only to children aged 3-5 years in this campaign which is not comparable with WHO recommendation (11). However, the polio vaccine was given to the selected age group according to WHO rules (12). In this campaign, the coverage of bOPV and MMR vaccines were 92.5% and 93%, respectively. The coverage rate was relatively high, but it could not meet the global strategic plan to eradicate polio and measles due to the fact that the coverage rate in campaigns must exceed 95% to achieve the goal (12, 13). The low coverage rate could be justified by inactive social mobilization which indicated that two-third (63%) of parents received information about the campaign during the implementation. The weakly social mobilization in the campaign could be justified by limited financial support dedicated to the social mobilization activities. The study pointed out that the best methods for efficient social mobilization were TV, Facebook, SMS, and health officers. These methods can be considered in particular to strengthen social mobilization for achieving a high coverage rate in future campaigns that do not require high expenditures. In addition, studies carried out in India and Nigeria demonstrated that mosque announcement and home visit especially in the low coverage rate areas are appropriate social mobilization

activities for SIAs (16, 17). The main weakness of this campaign was the inability to provide information about the timing of the campaign implementation to all parents even though high parental awareness for vaccination (95%) was indicated in the study. In addition, convincing each family for vaccination must be considered to ensure a high coverage rate of SIAs. Two-third of careless parents to the vaccine had a positive response to the campaign after wives motivation, while one-third of them imitated other parents to vaccinate their children in the SIAs.

The perceived weakness in social mobilization can be a result of inappropriate planning or insufficient social mobilization resources. However, the high coverage rate achieved (93%) was attributed to the significant parental awareness. In addition, other three motivations that helped to achieve this coverage rate were easy access to vaccination points, availability of transportation, and remarkable social relationship among people. These factors with good microplanning will play a crucial role to reach each child in future SIAs. Parents' decisions for vaccination should be maintained high, and persuade neglected parents through active communication outreach. Since the access to the internet and social media has increased significantly in Libya, official social media and websites related to preventive health programs can take a place in providing the correct and confident information (18, 19). In the community, the source of the information especially for SIAs might be more important than the information itself (18, 20, 21). Additional studies to assess routine and supplementary immunization activities will highlight more positive factors associated with strengthening campaign performance and persuading unaware parents to access preventive health programs.

Conclusion

Carrying out supplementary immunization activities is very important towards the eradication of poliomyelitis and measles. Accurate preparation and establishing an appropriate microplanning with trained staff will contribute to reach each child with quality of vaccine campaign implementation. The post-

vaccination evaluation highlights the weak points that could affect the coverage rate. There is no doubt about the importance of pre-campaign measures, for example community outreach will achieve a high level of vaccine uptake, and subsequently, build effective immunity against infectious diseases. Continuous monitoring of preventive health programs helps in assessing the performance, maintaining public confidence, as well as improving health service in protecting people against infectious diseases.

Acknowledgements

We would express our gratitude to national health authority at Msallata city for the permission to achieve this work.

Conflict of interests

The author declare that there is no conflict of interest.

References

1. Kagina BM, Wiysonge CS, Machingaidze S, Abdullahi LH, Adebayo E, Uthman OA, et al. The use of supplementary immunisation activities to improve uptake of current and future vaccines in low-income and middle-income countries: a systematic review protocol. *BMJ open* 2014; 4(2): e004429.
2. WHO. Supplementary Immunization. Polio Eradication Initiative (Internet). 2019. Available from: <http://polioeradication.org/who-we-are/strategic-plan-2013-2018/supplementary-immunization/>
3. Khetsuriani N, Deshevoi S, Goel A, Spika J, Martin R, Emiroglu N. Supplementary immunization activities to achieve measles elimination: experience of the European Region. *J Infect Dis* 2011; 204(suppl_1): S343-52.
4. HELLERINGER S, FRIMPONG JA, ABDELWAHAB J, ASUMING P, TOURÉ H, AWOONOR-WILLIAMS JK, et al. Supplementary polio immunization activities and prior use of routine immunization services in non-polio-endemic sub-Saharan Africa. *Bull World Health Organ* 2012; 90: 495-503.
5. WHO. Polio Eradication Initiative. Supplementary immunization (Internet). 2019 (cited 2021 Jun 1). Available from: <http://www.emro.who.int/polio/strategy-supplemental-immunization/supplementary-immunization.html>
6. Hutchins SS, Redd SC, Schrag S, Kruszon-Moran D, Wooten K, McQuillan GM, et al. National serologic survey of measles immunity among persons 6 years of age or older, 1988-1994. *MedGenMed* 2001; E5.
7. Priti C, Sourabh S. Saxena, Measles & rubella vaccination campaign in India: Why, how, when and where. *Indian Journal of Community Health* 2018. 30(2): 111-4.
8. Kazi AM, Murtaza A, Khoja S, Zaidi AK, Ali SA. Monitoring polio supplementary immunization activities using an automated short text messaging system in Karachi, Pakistan. *Bull World Health Organ* 2013; 92: 220-5.
9. WHO. Pakistan and Afghanistan: the final wild poliovirus bastion (Internet). 2019. Available from: <https://www.who.int/news-room/feature-stories/detail/pakistan-and-afghanistan-the-final-wild-poliovirus-bastion>.
10. Dabbagh A, Laws RL, Steulet C, Dumolard L, Mulders MN, Kretsinger K, et al. Progress toward regional measles elimination—worldwide, 2000–2017. *MMWR Morb Mortal Wkly Rep* 2018; 67(47): 1323.
11. Orenstein WA, Cairns L, Hinman A, Nkowane B, Olivé JM, Reingold AL. Measles and rubella global strategic plan 2012–2020 midterm review. *Vaccine* 2018; 36: A1-34.
12. Organization WH, Initiative GPE. Polio endgame strategy 2019-2023: eradication, integration, certification and containment. World Health Organization; 2019.
13. Organization WH. Measles elimination field guide. Manila: WHO Regional Office for the Western Pacific; 2013.
14. Uddin MJ, Adhikary G, Ali MW, Ahmed S, Shamsuzzaman M, Odell C, et al. Evaluation of impact of measles rubella campaign on vaccination coverage and routine immunization services in Bangladesh. *BMC Infect Dis* 2016; 16(1): 411.
15. General Information Authority, Population Survey. National Corporation for information and documentation in Libya, 2006.
16. Weiss WM, Rahman MH, Solomon R, Ward D. Determinants of performance of supplemental

- immunization activities for polio eradication in Uttar Pradesh, India: social mobilization activities of the Social mobilization Network (SM Net) and Core Group Polio Project (CGPP). *BMC Infect Dis* 2013; 13(1): 17.
17. Duru JI, Usman S, Adeosun O, Stamidis KV, Bologna L. Contributions of volunteer community mobilizers to polio eradication in Nigeria: the experiences of non-governmental and civil society organizations. *Am J Trop Med Hyg* 2019; 101(4_Suppl): 74-84.
18. Leask J, Kinnersley P, Jackson C, Cheater F, Bedford H, Rowles G. Communicating with parents about vaccination: a framework for health professionals. *BMC Pediatr* 2012; 12(1): 154.
19. Betsch C, Brewer NT, Brocard P, Davies P, Gaissmaier W, Haase N, et al. Opportunities and challenges of Web 2.0 for vaccination decisions. *Vaccine* 2012; 30(25): 3727-33.
20. Hobson-West P. 'Trusting blindly can be the biggest risk of all': organised resistance to childhood vaccination in the UK. *Sociol Health Illn* 2007; 29(2): 198-215.
21. Brownlie J, Howson A. 'Leaps of faith' and MMR: an empirical study of trust. *Sociology* 2005; 39(2): 221-39.