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Administration of nOPV2 Polio National Immunization Days (PIN) for Children Aged 0–7 Years as a Preventive Measure Against Poliomyelitis

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Abstract: Poliomyelitis (polio) is a highly infectious disease caused by the poliovirus and can lead to permanent paralysis. To address outbreaks of type 2 poliovirus, the Indonesian government implemented the National Immunization Week (PIN) using the novel Oral Polio Vaccine type 2 (nOPV2). This initiative aims to increase polio immunization coverage, particularly among children aged 0–7 years, who are most vulnerable to the disease. This activity was conducted in two sub-districts—Karang Panjang and Amantelu—through school visits and local health posts (posyandu). Each vaccinated child's immunization card was updated, and families received counseling regarding the importance of polio vaccination. The campaign in the working area of Karpan Health Center, Ambon, reached 1,204 children, achieving 77.8% coverage. Community participation, especially among parents, was enthusiastic. Future efforts are expected to increase coverage to 100% through continued public engagement and education.

Keywords: Immunization, Polio Disease, PIN Polio nOPV2

1. Introduction

Poliomyelitis (polio) is a highly contagious disease caused by the poliovirus, which can lead to permanent paralysis and, in severe cases, death. Although polio can affect individuals of all ages, children under the age of five are the most vulnerable (Sari, Fairuza, Aziza, & Setiati, 2024). Immunization remains the most effective strategy to prevent polio and other vaccine-preventable diseases (VPDs), such as diphtheria, tetanus, pertussis, measles, and tuberculosis (Normasari & Yasmon, 2021). These programs serve not only to protect individuals but also to establish herd immunity within communities.

However, despite the availability of vaccines, Indonesia continues to face challenges in achieving optimal immunization coverage. Parental refusal, fueled by misinformation, low awareness, and cultural misconceptions, remains a significant barrier to successful implementation (Rubiyati, 2020). To achieve a polio-free status, broad collaboration among stakeholders—including health services, educational institutions, and the public—is essential to improve coverage and address these challenges.

Globally, the basic immunization coverage for polio among WHO member states is reported at 86%, leaving around 4% of infants unprotected and still at risk of contracting the virus (Sari et al., 2024). Once infected, polio has no cure; survivors may suffer lifelong disabilities that significantly affect their quality of life and future potential (Runggandini, 2023). Therefore, enhancing parental knowledge is critical to increase vaccine acceptance and uptake (Karingga & Nikmah, 2024).

In response to outbreaks in several Indonesian regions, the Ministry of Health launched the nOPV2 National Immunization Week (PIN), targeting children aged 0–7 years as a supplementary effort to strengthen protection against polio (Sembiring & Pemiliana, 2023). The novel oral polio vaccine type 2 (nOPV2) is known to be well-tolerated and rarely causes adverse effects such as fever, making it a safe option for mass administration (Rahayu, 2024). Encouraging participation from parents and communities, especially in health center working areas such as Puskesmas Karpan in Ambon, is essential for program success.

Although several studies have reported on similar immunization activities across various regions (Asri et al., 2024; Lestari, Hikmat, Kurniasih, Wahyuni, & Amaliah, 2023; Supriatin & Lestari, 2024), this program remains highly relevant due to persistent gaps in public awareness and geographic coverage. Continuous vaccination efforts are necessary to address the risk of virus mutation and rapid transmission driven by increasing mobility (Rahayu, 2024). Therefore, periodic and updated campaigns, such as the nOPV2 PIN, are critical in sustaining Indonesia's progress toward polio eradication.

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2. Materials and Methods

The method used in this program involved directly administering polio immunizations to children targeted by the campaign. The nOPV2 Polio National Immunization Week (PIN) was carried out with the objective of providing oral polio vaccine to children aged 0–7 years in the service area of Karpan Health Center, Ambon, specifically in two sub-districts: Karang Panjang and Amantelu, Sirimau District, Ambon City.

Each child who received the immunization had their vaccination recorded on an immunization card, documenting their immunization history. Parents were also provided with essential information and encouraged to participate in future National Immunization Week (PIN) activities, ensuring their children complete the full and optimal vaccine schedule for protection against poliovirus.

During this nOPV2 immunization campaign, a total of 1,204 children were successfully immunized across the two sub-districts Karang Panjang and Amantelu which represents 77.8% coverage in the Karpan Health Center working area. Although this achievement is considered quite successful, it still falls short of the 100% target and highlights the need for continued efforts to increase coverage. The success of this campaign demonstrates not only high community participation but also effective coordination between healthcare workers and the local population in supporting the immunization program.

With this high level of coverage, the program is expected to help prevent the spread of poliovirus in the area and provide better health protection for children.

3. Results

The implementation of the nOPV2 Polio National Immunization Week (PIN) achieved several notable outcomes. First, there was a significant increase in community knowledge, particularly among parents, regarding the importance of polio immunization. The educational efforts during the campaign helped parents understand the critical role of vaccination in protecting their children from poliomyelitis, a disease that can cause permanent paralysis.

Second, the program showed successful immunization coverage, with 1,204 children immunized—representing 77.8% of the target population. Although the campaign did not reach the ideal 100% target, the result indicates the program's effectiveness and the commitment of all stakeholders involved in ensuring that children receive the necessary vaccines.

Third, there was strong community support and enthusiasm, especially from parents of children aged 0–7 years. High attendance and participation during the immunization events reflected the community's active involvement and trust in the program.

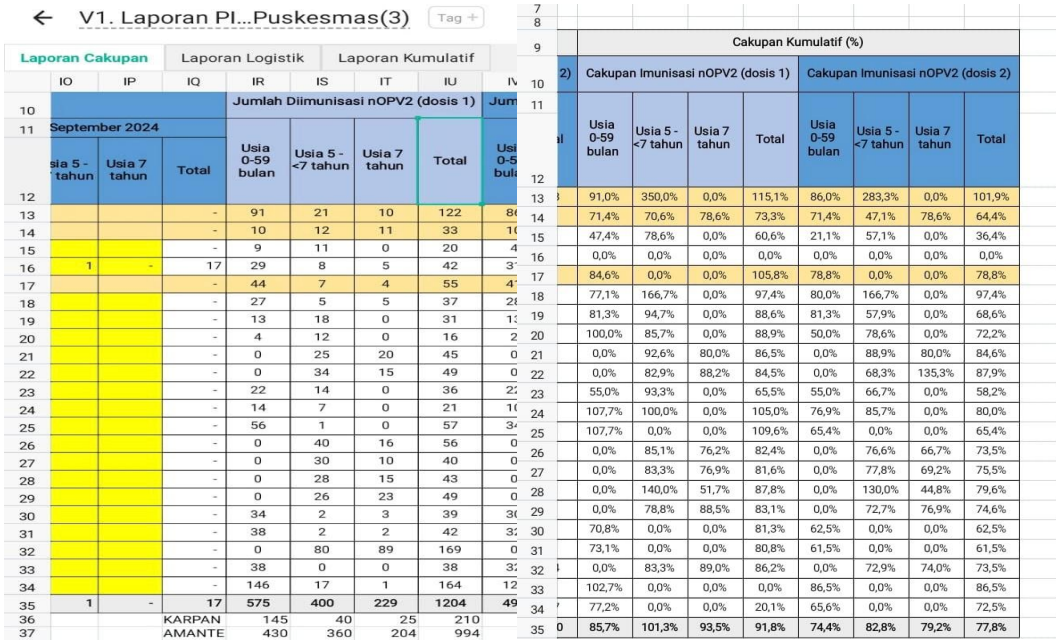
Overall, the nOPV2 PIN Polio immunization campaign can be considered a success. This is evidenced not only by the high immunization coverage but also by increased public knowledge, awareness, and strong parental support. With these positive outcomes, it is hoped that the polio immunization program will continue to expand and improve, ensuring that every child receives the protection they need against poliovirus.

Figure 1. Polio nOPV2 Administration

4. Discussion

The activity began with coordination between the Health Office, the immunization team from Karpan Health Center in Ambon, and the local community. This initial step was essential to ensure the smooth and effective implementation of the nOPV2 Polio Immunization Program. During coordination, the teams were divided and immunization service points were determined. Four teams were formed, each consisting of two representatives from the health center. This division aimed to maximize service coverage and ensure that every target child could receive the vaccine properly. Each team was assigned to a specific area within the Karpan Health Center's service region, allowing for more efficient distribution of personnel and resources. The teams were composed of experienced medical personnel trained in immunization delivery.

Public outreach was also conducted to inform the community about the schedule and locations of immunization, emphasizing the importance of protecting children from poliovirus. The immunization process was carried out carefully in accordance with medical procedures. Children who received the vaccine were given immunization cards as documentation and vaccination records. Additionally, their fingers were marked with ink to easily identify vaccinated children. After receiving the vaccine, parents were informed about the next immunization phase to ensure that children complete their full vaccine doses for optimal protection against polio.



← V1. Laporan PI...Puskesmas(3)

Laporan Cakupan | Laporan Logistik | Laporan Kumulatif

	IO	IP	IQ	IR	IS	IT	IU
10				Jumlah Diimunisasi nOPV2 (dosis 1)			
11	September 2024						
12	sia 5 - tahun	Usia 7 tahun	Total	Usia 0-59 bulan	Usia 5 - <7 tahun	Usia 7 tahun	Total
13			-	91	21	10	122
14			-	10	12	11	33
15			-	9	11	0	20
16	1	-	17	29	8	5	42
17			-	44	7	4	55
18			-	27	5	5	37
19			-	13	18	0	31
20			-	4	12	0	16
21			-	0	25	20	45
22			-	0	34	15	49
23			-	22	14	0	36
24			-	14	7	0	21
25			-	56	1	0	57
26			-	0	40	16	56
27			-	0	30	10	40
28			-	0	28	15	43
29			-	0	26	23	49
30			-	34	2	3	39
31			-	38	2	2	42
32			-	0	80	89	169
33			-	38	0	0	38
34			-	146	17	1	164
35	1	-	17	575	400	229	1204
36			KARPAN	145	40	25	210
37			AMANTE	430	360	204	994

	Cakupan Kumulatif (%)							
	Cakupan Imunisasi nOPV2 (dosis 1)				Cakupan Imunisasi nOPV2 (dosis 2)			
	Usia 0-59 bulan	Usia 5 - <7 tahun	Usia 7 tahun	Total	Usia 0-59 bulan	Usia 5 - <7 tahun	Usia 7 tahun	Total
13	91,0%	350,0%	0,0%	115,1%	86,0%	283,3%	0,0%	101,9%
14	71,4%	70,6%	78,6%	73,3%	71,4%	47,1%	78,6%	64,4%
15	47,4%	78,6%	0,0%	60,6%	21,1%	57,1%	0,0%	36,4%
16	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
17	84,6%	0,0%	0,0%	105,8%	78,8%	0,0%	0,0%	78,8%
18	77,1%	166,7%	0,0%	97,4%	80,0%	166,7%	0,0%	97,4%
19	81,3%	94,7%	0,0%	88,6%	81,3%	57,9%	0,0%	68,6%
20	100,0%	85,7%	0,0%	88,9%	50,0%	78,6%	0,0%	72,2%
21	0,0%	92,6%	80,0%	86,5%	0,0%	88,9%	80,0%	84,6%
22	0,0%	82,9%	88,2%	84,5%	0,0%	68,3%	135,3%	87,9%
23	55,0%	93,3%	0,0%	65,5%	55,0%	66,7%	0,0%	58,2%
24	107,7%	100,0%	0,0%	105,0%	76,9%	85,7%	0,0%	80,0%
25	107,7%	0,0%	0,0%	109,6%	65,4%	0,0%	0,0%	65,4%
26	0,0%	85,1%	76,2%	82,4%	0,0%	76,6%	66,7%	73,5%
27	0,0%	83,3%	76,9%	81,6%	0,0%	77,8%	69,2%	75,5%
28	0,0%	140,0%	51,7%	87,8%	0,0%	130,0%	44,8%	79,6%
29	0,0%	78,8%	88,5%	83,1%	0,0%	72,7%	76,9%	74,6%
30	70,8%	0,0%	0,0%	81,3%	62,5%	0,0%	0,0%	62,5%
31	73,1%	0,0%	0,0%	80,8%	61,5%	0,0%	0,0%	61,5%
32	0,0%	83,3%	89,0%	86,2%	0,0%	72,9%	74,0%	73,5%
33	102,7%	0,0%	0,0%	0,0%	86,5%	0,0%	0,0%	86,5%
34	77,2%	0,0%	0,0%	20,1%	65,6%	0,0%	0,0%	72,5%
35	85,7%	101,3%	93,5%	91,8%	74,4%	82,8%	79,2%	77,8%

Figure 1. Total data on PIN Polio nOPV2 Immunization Administration

Thanks to well-structured planning and strong coordination among all stakeholders, the implementation of the nOPV2 Polio National Immunization Week (PIN) at Karpan Health Center in Ambon proceeded smoothly and achieved satisfactory results. This success not only reflected the operational effectiveness of the immunization program but also demonstrated the solid commitment of health workers, local authorities, and the community in improving child health outcomes. A total of 1,204 children were immunized, reaching a coverage rate of 77.8%, which is considered a significant achievement even though it falls slightly short of the national target of 100% coverage (Sembiring & Pemiliana, 2023; Runggandini, 2023).

The data revealed that the children who received immunizations were categorized into three age groups: 557 children aged 0–59 months, 400 children aged 5 to under 7 years, and 229 children aged exactly 7 years. When broken down by area, 210 children were immunized in Karang Panjang and 994 in Amantelu, confirming the reach of the program across both targeted sub-districts. These outcomes are in line with findings from previous community-based immunization efforts that showed how strong collaboration, targeted outreach, and effective planning can substantially increase vaccine uptake in local populations (Karingga & Nikmah, 2024; Lestari et al., 2023).

Furthermore, the success of the nOPV2 campaign in the Karpan service area reinforces the importance of continuous immunization programs, especially in regions with recent or potential polio outbreaks. As polio remains a threat due to viral mutation and population mobility, consistent efforts in vaccination and community engagement are vital to sustaining long-term disease prevention (Rahayu, 2024; Sari et al., 2024). Therefore, this initiative not only contributed to local health improvements but also aligned with national and global goals of polio eradication.

5. Conclusions

The administration of nOPV2 Polio through the National Immunization Week (PIN) in two sub-districts within the working area of Karpan Health Center, Ambon, can be considered fairly successful, achieving 77.8% coverage out of the 100% target. A total of 1,204 children aged 0–7 years across Karang Panjang and Amantelu sub-districts received the vaccine. This relatively high achievement reflects growing awareness and responsiveness among parents and the local community in preventing polio in children. It also marks a significant milestone and provides motivation to maintain consistency and commitment in protecting children from polio through ongoing immunization efforts.

Based on the study findings, it is recommended that health centers (Puskesmas) provide ongoing education about polio, especially for parents with limited knowledge. Additionally, schools should serve as key platforms for sharing accurate information on polio and other preventable diseases, helping to raise awareness and support immunization efforts in the community.

Conflict of Interest

No conflicts of interest

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