

Article

The implementation of government regulation on the administration of immunization

Fitriani Nur Damayanti^{1,*}, Fitri Yanti¹, Lia Mulyanti¹, Maria Ulfa Kurnia Dewi¹, Zulvi Wiyanti², Budi Santosa³, Sandeep Poddar⁴

¹ Department of Midwifery, Universitas Muhammadiyah Semarang, Semarang 50273, Indonesia

² Department of Midwifery, Universitas Prima Nusantara Bukittinggi, Semarang 50273, Indonesia

³ Department of Medical/Clinical Laboratory Program, Universitas Muhammadiyah Semarang, Semarang 50273, Indonesia

⁴ Research & Innovation Division, Lincoln University College, Selangor D. E., Petaling Jaya 47301, Malaysia

* Corresponding author: Fitriani Nur Damayanti, fitriani@unimus.ac.id

CITATION

Damayanti FN, Yanti F, Mulyanti L, et al. (2024). The implementation of government regulation on the administration of immunization. *Journal of Infrastructure, Policy and Development*. 8(8): 5728. <https://doi.org/10.24294/jipd.v8i8.5728>

ARTICLE INFO

Received: 9 April 2024

Accepted: 30 April 2024

Available online: 9 August 2024

COPYRIGHT



Copyright © 2023 by author(s).

Journal of Infrastructure, Policy and Development is published by EnPress Publisher, LLC. This work is licensed under the Creative Commons Attribution (CC BY) license.

<https://creativecommons.org/licenses/by/4.0/>

Abstract: The Universal Child Immunization Village (UCI) is a community that has successfully achieved the goal of providing Complete Basic Immunization (CBI) to infants before they reach one year of age. Based on data from the 2018 Basic Health Research, Complete Basic Immunization (CBI) coverage reached 57.9%. In contrast, 32.9% of the population received incomplete immunizations, while a small portion, namely 9.2%, did not receive any immunizations at all. This research aims to understand the implementation of government regulations regarding immunization implementation in the working area of Tarempa Community Health Center, Anambas Islands Regency. In this study, the author uses a qualitative socio-legal method. The snowball sampling technique was used to collect research samples. The samples in this study are parents of infants in South Tarempa Village and East Coastal Village, healthcare workers in the working area of Tarempa Community Health Center, and the PPKB Department of Health who meet the inclusion and exclusion criteria. Out of 9 primary informants, the coverage of immunization implementation in the working area of Tarempa Community Health Center primarily did not meet the requirements with seven informants (77.8%) and met the criteria with two respondents (22.2%). The assessment of the role of healthcare workers as customers, communicators, motivators, facilitators, and counselors was positively evaluated based on good criteria. Parental refusal of immunization and the lack of regulations from local governments are inhibiting factors in implementing immunization programs.

Keywords: government regulation; baby immunization; UCI; CBI

1. Introduction

Universal Child Immunization (UCI) is a community where every district and village has successfully (Sharma et al., 2023) achieved the goal of providing Complete Basic Immunization (CBI) to infants before reaching the age of 1 year (Bach et al., 2019). To comply with Minister of Health Regulation Number 482/Menkes/SK/IV/2010, which outlines the National Immunization Acceleration Campaign (GAIN UCI) for 2010–2014, all villages and urban neighborhoods must receive complete immunization (Percy et al., 2019). The UCI rate was 80%, and the CBI coverage was 100% in 2014 (Bragazzi, 2019). Achieving UCI according to the target can provide Herd Immunity for infants and toddlers (Lestari et al., 2023), thus preventing outbreaks of VPD3I (Extraordinary Events of Vaccine-Preventable Diseases) (Putri, 2019).

The government has introduced an immunization program to protect children from Vaccine-Preventable Diseases (VPD) and boost their immune systems (Groman et al., 2019). By receiving vaccinations, children can be protected from diseases such as TB, HPV, Measles, Polio, Tetanus, Hepatitis-A, Hepatitis-B, Diphtheria, Pneumonia, and Pertussis (Dewi and Dhamanti, 2022).

To expand CBI coverage, the Ministry of Health of the Republic of Indonesia has included indicators of the Comprehensive Basic Immunization Program (Sulistiwati et al., 2022) in the National Medium-Term Development Plan (RPJMN) (Jansen et al., 2024). According to the RPJMN of the Ministry of Health for the period 2015–2019, one of the indicators of the Immunization Program is the percentage of districts/cities that achieve UCI in villages at 80% and CBI coverage of infants at 100% (Breitschwerdt et al., 2022; Satari et al., 2019). This unique indicator is applied at the district/city level by ensuring the coverage of Universal Child Immunization (UCI) in villages and urban neighborhoods, as well as Complete Basic Immunization (CBI) (Bukan et al., 2022; Rachlin et al., 2022).

Midwives play a crucial role in vaccination, as they have authority from newborn toddlers to preschool-age children (Huang et al., 2023). Counseling, information, and education on immunization services must be consistently provided (Paul et al., 2022), as this is a legal responsibility, especially for mothers seeking midwifery services for their toddlers (Damayanti et al., 2020; Yunilia, 2021). Immunization in babies, young children, and pregnant women (Humphrey et al., 2023) is a proactive effort to prevent diseases and health problems in individuals, families, communities, and society (Damayanti et al., 2019).

Despite global efforts, immunization implementation remains a significant challenge (Congedo et al., 2024). Astonishingly, about 20 million children worldwide did not receive the vaccinations the World Health Organization (WHO) recommended in 2018 (Heersema et al., 2023). However, the most concerning issue is the existence of children in Indonesia who have not yet received vaccinations (Sulistiyowati et al., 2024). The Ministry of Health must address this issue promptly and ensure immunization is accessible to everyone, even in remote areas and islands throughout Indonesia (Oktaria et al., 2022). Based on data from the 2018 Basic Health Research, Complete Basic Immunization (CBI) coverage reached 57.9% (Han et al., 2024). Surprisingly, 32.9% of the population received incomplete immunizations, while approximately 9.2% did not receive any immunizations at all (Sari and Nadjib, 2019).

Policy plays a crucial role in the functioning of national and state affairs (Herdea et al., 2023), as it guides the actions of government agencies in enacting laws (Galagoda et al., 2023), formulating policies, and allocating resources for effective state management over a certain period (Endris et al., 2022). Policy implementation involves two approaches: direct execution through government programs or the creation of derivative policies (Rowley et al., 2024). The Indonesian government has stipulated its immunization policy in the Minister of Health Regulation of the Republic of Indonesia Number 12 of 2017 (Nuryanah, 2020). This regulation serves as a comprehensive guideline for immunization practices in the country (Sinuraya et al., 2024).

The implementation of the immunization policy in the Tarempa Community Health Center working area has not been optimal, especially in some villages. Various

obstacles hinder the success of the implementation of the immunization program. Firstly, environmental conditions pose challenges as they do not adequately support these programs. Additionally, lack of family support for infant and toddler immunization leads to low coverage of routine immunizations. Furthermore, there is still a lack of understanding and awareness among the community, especially among parents, about the importance of vaccination. Finally, geographical factors also make it difficult for officers to reach remote areas or villages and perform their duties effectively. As a result, the immunization program has not reached its full potential.

Based on preliminary studies, local government regulations regarding immunization implementation in the Anambas Islands Regency have not been issued, such as regional or regent regulations regarding sanctions for parents who refuse to immunize their children. Based on Local Area Monitoring reports and UCI coverage reports for villages in the Tarempa Community Health Center working area for 2021 and 2022, out of 6 villages and one urban neighborhood, two villages did not reach the target, namely Desa Tarempa Selatan and Desa Pesisir Timur.

Table 1 shows that South Tarempa Village and East Coastal Village did not reach the UCI target in 2021 and 2022. Based on this, the author wishes to research “Implementation of Government Regulations on Immunization Administration in the Working Area of Tarempa Community Health Center”.

Table 1. The report of UCI in Tarempa Community Health Center working area.

No	Name of Village	Achievement		UCI
		2021	2022	
1	Tarempa Barat	85.7%	90%	yes
2	Tarempa Barat Daya	100%	83.5%	yes
3	Tarempa Timur	82%	82%	yes
4	Sri Tanjung	80%	83%	yes
5	Tarempa Selatan	70.8%	71.4%	no
6	Kelurahan Tarempa	92.6%	90%	yes
7	Pesisir Timur	57.9%	65%	no

2. Materials and methods

This finding uses a qualitative and socio-legal research approach, specifically focusing on the legal aspects of immunization implementation regulations. The research was conducted in South Tarempa Village and East Coastal Village, the working area of Tarempa Community Health Center. The subjects in this study were parents of infants in South Tarempa Village and East Coastal Village, totaling 44 people, healthcare workers at Tarempa Community Health Center, totaling 62 people, and personnel from the Health Promotion and Disease Prevention Department of Anambas Islands Regency, totaling 12 people. The research samples were carefully selected using inclusion and exclusion criteria.

3. Results and discussion

3.1. Informant characteristic

In this research, the researcher looked for information from nine primary informants and three supporting informants (triangulation).

Based on **Table 2**, it is found that the majority of the informants are aged between 26–35 years, totaling seven informants. Additionally, most of the informants have an elementary school education, totaling five informants, and most of the informants’ occupations are related to household affairs, totaling five informants.

Table 2. Informant characteristics.

Informant	Sex	Age	Education	Occupation	Address	Description
formant 1 (R)	F	28	Elementary School	Housewife	Tarempa Selatan	Main Informants
Informant 2 (N)	F	29	Junior High School	Housewife	Tarempa Selatan	Main Informants
Informant 3 (D)	F	27	Senior High School	Wiraswasta	Tarempa Selatan	Main Informants
Informant 4 (M)	F	29	Elementary School	Farmer	Tarempa Selatan	Main Informants
Informant 5 (A)	F	31	Junior High School	Farmer	Tarempa Selatan	Main Informants
Informant 6 (SD)	F	20	Elementary School	Housewife	Pesisir Timur	Main Informants
Informant 7 (J)	F	23	Elementary School	Farmer	Pesisir Timur	Main Informants
Informant 8 (H)	F	30	Senior High School	Housewife	Pesisir Timur	Main Informants
Informant 9 (L)	F	28	Elementary School	Housewife	Pesisir Timur	Main Informants
Informant 10 (Z)	F	37	Bachelor Degree	Civil Servant	Tarempa	Supporting Informant
Informant 11 (FO)	M	49	Master Degree	Civil Servant	Tarempa	Supporting Informant
Informant 12 (DS)	F	43	Bachelor Degree	Civil Servant	Tarempa	Supporting Informant

Source: Processed primary data of 2024.

3.2. Immunization coverage in the working area of Tarempa Community Health Center

Table 3 shows that the immunization coverage in the working area of Tarempa Community Health Center primarily does not meet the criteria, with seven informants (77.8%). In contrast, only two respondents (22.2%) meet the requirements.

Table 3. Immunization coverage based on the main informant’s responses.

Criteria	Number	%
Met	2	22.2
Not met	7	77.8
Total	9	100

Source: Processed primary data of 2024.

The non-compliance with coverage is due to a lack of knowledge resulting from insufficient information obtained by the informants about the government policy regulations regarding immunization implementation, as revealed in interviews with the primary informants. Knowledge is the result of perception (touch, taste, hearing, sight, and smell) of something. A person’s behavior is significantly influenced by knowledge or cognitive aspects. Fear can affect a person’s understanding, compelling them to seek further information (Mantel et al., 2019). A mother’s ability to understand and make sound judgments increases with an expanding knowledge base. However, knowledge-driven actions often have short-lived effects and are not repeated—

conversely, coercion-driven actions last longer (Hasanah et al., 2021)

Research conducted by Triyanto and Kusumawardani, (2020) shows that education is closely related to knowledge: individuals with higher education have broad expertise and tend to acquire information from others and the media (Nugrawati, 2019). Based on **Tabel 2**, it shows that there are three respondents with higher education (25%) and five informants with low education (41.6%). Education serves as a foundation for equipping students with the skills and knowledge needed to fulfill their roles in the future (Moisi et al., 2019). It is generally believed that the higher the education one receives, the more knowledge they acquire. However, it is essential to note that higher education does not guarantee an abundance of expertise that aligns directly with one’s future role. Instead, obtaining higher education does not necessarily guarantee a wealth of knowledge directly relevant to one’s future responsibilities.

Occupation plays a significant role in shaping our knowledge. Practical experience gained through work and valuable skills and expertise acquired empower us to make informed decisions. Combining scientific reasoning and work experience is crucial for personal growth and development (Indonesia, 2022). Based on **Table 2**, it is interesting that 41.6% of respondents, totaling five informants, serve as housewives.

3.3. The role of health workers in implementing government policy on immunization organization

1) The role of health workers as customers.

The duties of health workers are to provide vaccination to children under five, record in the child and infant health card, and perform other health promotion activities related to the vaccination program at integrated health posts.

Based on the data presented in **Table 4**, it is evident that the responses of the primary informants show that out of the total informants, seven individuals (77.8%) have good criteria. In contrast, two informants (22.3%) have less good criteria.

Table 4. Role of health workers as customers based on the main informant’s responses.

Criteria	Number	%
Good	7	77.8
Not Good	2	22.3
Total	9	100

Source: Processed primary data in 2024.

This is based on the interview results with informant Z, who stated:

“Yes, every month, we go down to the villages in the working area of Tarempa Community Health Center to carry out integrated health post, which include the immunization program. Immunization results are recorded in the child and infant health card, baby cohort, and infant books.”

Similarly, according to the interviews with informants F and D, health workers at Tarempa Community Health Center routinely carry out immunizations through integrated health posts every month:

“According to reports submitted to the Health Office in the form of immunization Local Area Health Monitoring, immunization registers, and side effects after immunization reports, Tarempa Community Health Center routinely carries out immunizations at integrated health posts.” (Informant F)

“The immunization program services conducted at integrated health posts are scheduled every month by Tarempa Community Health Center.” (Informant D)

Health workers must be able to provide convenience or facilities, and in the immunization program, facilities provided are integrated health posts in each village.

One effort to increase public confidence in the immunization program is Customer-Oriented, namely how health workers provide excellent service to the community so that they feel satisfied and comfortable and become a positive source of “mountain voice.” One indicator of healthcare quality is community satisfaction (Simamora et al., 2019).

2) The role of health workers as communicators.

Health workers want to change their behavior in this way. Health workers must know how and what communication content is, as their attitude and appearance are crucial.

Based on **Table 5** the responses of the primary informants show that the role of health workers as communicators can be known with good criteria by six informants (66.7%) and not good criteria by three informants (33.3%).

Table 5. Role of health workers as communicators based on the main informant’s responses.

Criteria	Number	%
Good	6	66.7
Not Good	3	33.3
Total	9	100

Source: Processed primary data in 2024.

From the interview results with Informant Z:

“In addition to centralized socialization, we also go to the homes of parents who refuse to immunize their children to provide immunization information, even though they still refuse to immunize their children after our visit.” (Informant Z)

This is based on the interview results with informants F and D, who said that health workers at Tarempa Community Health Center conduct sweeps of households after carrying out integrated health posts.

“From several times I monitored the integrated health posts, usually after the integrated health post ends, health workers go to target households that did not attend the integrated health post to conduct sweeps while providing KIE.” (Informant F)

“Health workers at Tarempa Community Health Center conduct sweeps and health education for parents who do not bring their children to the integrated health post.” (Informant D)

Based on insights gathered from primary and secondary sources, it can be assessed that health workers play a good role as communicators because they visit households to provide health education to parents who do not want to immunize their

children. However, according to the researcher’s observations, health workers in delivering immunization socialization or interpersonal communication have not used simple language or language that the community can easily understand, so the message is not conveyed well, leading mothers with babies to refuse to bring their babies for immunization.

Communicators play a crucial role in communication because they create messages. The message’s form and content depend heavily on the communicator’s skills. A skilled communicator can enhance communication flow and ensure the audience quickly understands the message. Practical communication skills are highly valued among health workers at Community Health Centers because they are trusted to deliver health information created by the government.

3) The role of health workers as motivators.

This is an effort to encourage individuals or community groups to achieve goals. As a result, health education is crucial to increase community desire.

Based on **Table 6**, the responses of the primary informants show that the role of health workers as motivators can be known with good criteria by five informants (55.5%) and not good criteria by four informants (44.5%).

Table 6. Role of health workers as motivators based on the main informant’s responses.

Criteria	Number	%
Good	5	55.5
Not Good	4	44.5
Total	9	100

Source: Processed primary data in 2024.

From the interview results with Informant Z:

“We have been diligent enough to encourage mothers to immunize their children through group socialization activities, health education visits to homes, and embracing cadres to approach and communicate with these mothers.”

The interview results with informants F and D state that health workers at Tarempa Community Health Center have provided motivation or encouragement to the community.

“I think health workers at Community Health Centers must have motivated the community to immunize their children.” (Informant F)

“Health workers at the Community Health Center, especially Tarempa Community Health Center, cannot just stand idly by with this problem; they have tried hard to motivate the community, especially parents who refuse to immunize their children.” (Informant D)

Findings from discussions with primary and additional sources indicate that the role of health workers as motivators is considered good, where health workers motivate the community through socialization and health education conducted during home visits.

According to Notoatmodjo (2019), motivation is a force in a person that influences their behavior or guidance. Additionally, motivation can mean encouraging or pushing someone to act or engage in activities to achieve specific goals.

The responsibility of health workers to provide motivation is no less important than other responsibilities, it is to vaccinate infants and toddlers by showing the consequences that will occur if they do not, making them rethink.

4) The role of health workers as facilitators.

Health workers must be able to provide convenience or facilities. In the immunization program, facilities provided are integrated health posts in each village.

Based on **Table 7**, the responses of the primary informants show that the role of health workers as facilitators can be known with good criteria by six informants (66.7%) and not good criteria by three informants (33.3%).

Table 7. Role of health workers as facilitators based on the main informant’s responses.

Criteria	Number	%
Good	6	66.7
Not Good	3	33.3
Total	9	100

Source: Processed primary data in 2024.

From the interview statement with informant Z:

“Integrated health posts are the only place to carry out immunization programs in the village, which is very helpful for the community, so they don’t have to go far to the Community Health Center if they want to immunize their children, and we only occasionally advocate local midwives, traditional birth attendants, and youth organizations.”

In line with informant Z’s statement, according to informants F and D, besides integrated health posts, immunizations can also be conducted at sub-health centers (Pustu), but this cannot be done due to vaccine resistance.

“I think besides integrated health posts, sub-health centers should also be allowed to provide immunizations, but because of vaccine resistance, this cannot be done yet, and from the perspective of the Community Health Center, there is a lack of advocacy to midwives, traditional birth attendants, and youth organizations.” (Informant F)

“The place for immunization implementation in the village is at integrated health posts, while it cannot be done at sub-health centers due to vaccine resistance, and if the Community Health Center may have carried out advocacy to midwives, traditional birth attendants, and youth organizations, but rarely.” (Informant D)

Findings from discussions with primary and additional sources can be considered good facilitators. The role of health workers as facilitators, such as health workers visiting the homes of mothers who refuse to immunize their children, conducting checks, and providing immunization information, as well as health workers not advocating and empowering parties such as community leaders, traditional birth attendants, and youth organizations.

Increased active participation in the community can also result in successful empowerment. As facilitators, health workers are responsible for facilitating mutual learning and creating a harmonious group environment. A health worker, for example, can create a learning atmosphere in immunization socialization to be more interactive

by providing various tools to make the audience more interested (Iryadi and Syamsiah, 2022).

Sarwono (2020) stated that mothers initially heed health workers' advice to avoid punishment or perhaps receive rewards for their obedience. However, this obedience is only temporary because it means she only acts according to the supervision of health workers. Once supervision is stopped, this behavior is immediately discarded.

5) The role of health workers as counselors.

Counseling is an effort to change individual or group behavior through counseling. Counseling is usually needed if someone is experiencing difficulty with something and hopes the problem can be solved through consultation.

Based on **Table 8**, the responses of the primary informants show that the role of health workers as counselors can be known with good criteria by six informants (66.7%) and not good criteria by three informants (33.3%).

Table 8. Role of health workers as counselors based on the main informant's responses.

Criteria	Number	%
Good	6	66.7
Not Good	3	33.3
Total	9	100

Source: Processed primary data in 2024.

From the interview results with informant Z:

"We have provided counseling to mothers whose children experience adverse events following immunization because we have to respond to adverse event reports to provide trust in vaccination and provide treatment to children with adverse events following immunization."

According to informants F and D, health workers at the Tarempa Community Health Center should counsel the community, especially mothers whose children experience adverse events following immunization.

"The occurrence of adverse events following immunization sometimes makes the community reluctant to immunize their children in the future, so health workers must provide counseling when adverse events occur." (Informant F)

"Health workers should provide counseling to parents whose children experience adverse events following immunization to ensure that the community can respond well to immunization." (Informant D)

The results of interviews with health workers can be used to evaluate the role of counselors. Maternal evaluation indicates that health workers often teach how to use fever-reducing drugs and encourage mothers to vaccinate their babies entirely and on time. The role of a counselor is already integrated with other roles because activities related to the role of a counselor are present in every health worker working at the Community Health Center. Mothers believe that health workers, both at their homes and in the village, have given instructions, guidance, or other explanations about immunizations. It has impacted the behavior of mothers who set aside time to bring their babies to the Community Health Center for vaccination until it is completed.

Mothers and families can rely on health workers to provide valuable information about vaccination and adverse events following immunization. These dedicated counselors ensure that parents are aware of potential side effects such as fever, swelling, continuous crying, skin rashes, diarrhea, and even seizures that may occur after vaccination. Providing health education as a form of support aims to encourage patients and their families to adopt healthier behaviors. Additionally, doctors serve as trusted sources for patients seeking guidance and consultation on their health issues: Health Worker Support and Family Support with Knowledge About Basic Immunization in Bantar Jaya Pebayuran Village.

Iryadi and Syamsiah (2022) stated that patient satisfaction with the results of counseling from health workers will undoubtedly affect their compliance with immunizations. In addition, the empathetic and caring attitude shown by health workers will significantly impact patients' emotional well-being. Ultimately, these factors will contribute to the overall patient compliance rate (Mittal et al., 2023).

3.4. Factors inhibiting health workers in implementing government regulations on immunization implementation in the Tarempa Community Health Center area

Inhibiting factors act as barriers, hindering progress and the success of specific efforts.

Based on **Table 9**, the main informant's responses indicate that inhibiting factors in immunization implementation can be identified with the criteria of existing by nine informants (100%) and the requirements of not existing by 0 informants (0%). From the interview results with Informant Z:

Table 9. Inhibiting factors in immunization implementation based on the main informant's responses.

Criteria	Number	%
Exist	9	100
Doesn't exist	0	0
Total	9	100

Source: Processed primary data in 2024.

“There are several factors that hinder the achievement of the immunization program, namely, firstly, parents who refuse immunization due to fear of adverse events following immunization (AEFI) and doubts about the halal status of the vaccine.”

In addition, regulations from the local government also affect the success of the immunization program, which is in line with the statements of informants F and D:

“The problem encountered is parents who refuse immunization, the absence of regulations from the local government because if sanctions are imposed on the community, it is feared to violate human rights.” (Informant F)

“Parental rejection of immunization due to AEFI and doubts about the halal status of the vaccine, as well as the absence of regulations from the local

government, is also an inhibiting factor in this immunization program.”
(Informant D)

Based on insights gathered from primary and secondary sources, so the message is not conveyed well, leading mothers with babies to refuse to bring their babies for immunization. According to recent research by Putri (2019), many mothers underestimate the importance of immunization for their children. They believe that because their children are already healthy, they do not need further protection through vaccination (Barton et al., 2021). However, another study by Karmila and Nababan, (2021) reveals exciting insights. Interviews conducted with research participants indicate that some mothers refrain from vaccinating their children due to religious beliefs (Dąbek et al., 2022).

In Minister of Health Regulation No. 12 of 2017, Adverse Events Following Immunization (AEFI) are stipulated in articles 40, 41, and 42. Article 40 reads:

- 1) To monitor and address AEFI, the Minister forms the National AEFI Commission, and the Governor forms the Provincial AEFI Commission.
- 2) The membership of the National AEFI Commission and the Provincial AEFI Commission, as referred to in paragraph (1), shall consist of at least representatives from pediatric specialists, internal medicine specialists, obstetrician and gynecologist specialists, neurologists, forensic specialists, pharmacologists, vaccine specialists, immunologists, and/or cross-sectoral related elements.
- 3) If necessary to support the tasks of the Provincial AEFI Commission and the National AEFI Commission, the regent/mayor may form a Working Group for AEFI consisting of at least representatives from pediatric specialists and internal medicine specialists.
- 4) The operational funding of the National AEFI Commission is charged to the state budget, and the Provincial AEFI Commission or the Working Group for AEFI is charged to the regional budget.
- 5) Monitoring and addressing AEFI must be carried out through activities:
 - (1) AEFI surveillance and vaccine safety website.
 - (2) Treatment and care for AEFI patients.
 - (3) AEFI research and development.

Article 41 states:

- 1) Members of the community who become aware of suspected AEFI occurrences must promptly report them to healthcare facilities providing immunization services or the local health department.
- 2) Healthcare facilities providing immunization services or the local health department that receive reports as described in paragraph (1) must conduct an investigation.
- 3) Investigation results, as described in paragraph (2), must be promptly reported in stages to the head of the district/city health office and the head of the provincial health office.
- 4) The head of the provincial health office shall submit the report as described in paragraph (3) to the National AEFI Commission, Provincial AEFI Commission, and AEFI Working Group. (5) Reports described in paragraph (4) may be submitted through the vaccine safety website.

- 5) Regarding reports as described in paragraph (4), the Provincial AEFI Commission conducts field etiology studies and causality studies by the National AEFI Commission.
- 6) AEFI study results, as described in paragraph (6), are submitted to the Minister through the Director General and provided as feedback to the provinces.

Article 42 reads:

- 1) Patients suspected to have health disorders due to AEFI are provided with treatment and care during the investigation and causality assessment process of AEFI.
- 2) If health disorders, as referred to in paragraph (1), are determined to be health disorders due to AEFI, the patient shall receive treatment and care.
- 3) Financing for investigations and case studies, as referred to in paragraph (1), shall be borne by the Central Government, Provincial Governments, District/City Governments, and other financing sources by the provisions of laws and regulations.
- 4) Financing for treatment, care, and referrals for individuals suspected to have health disorders due to AEFI shall be borne by the regional revenue and expenditure budget or other financing sources by the provisions of laws and regulations.

Regarding the permissibility of vaccines, it is stated in Fatwa MUI Number 04 of 2016 as follows:

- 1) Immunization is permissible (mubah) as a form of effort to achieve immunity and prevent certain diseases.
- 2) Vaccines for immunization must use halal and pure vaccines.
- 3) The use of vaccines for immunization that are made from haram substances and najis is considered haram.
- 4) Immunization with vaccines that are haram and najis is not allowed except:
 - (1) When used under al-dlarurat (emergency) or al-hajat (necessity) conditions;
 - (2) When halal and pure vaccine materials have not been found and
 - (3) When there is a statement from competent medical personnel stating that no halal vaccines are available.
- 5) If failure to immunize someone would result in death, serious illness, or permanent disability that threatens life, immunization is considered obligatory based on the considerations of competent and trusted experts.
- 6) Immunization should not be performed if, based on the considerations of competent and trusted experts, it poses a risk of (more significant) harm.

The responsibility of local governments for immunization programs is stipulated in Ministry of Health Regulation Number 12 of 2017, articles 28 and 29.

Article 28 states:

District/city governments are responsible for providing operational costs for implementing routine immunization services and additional immunizations at community health centers, integrated health posts, schools, and other immunization service points.

Article 29 states:

Provincial governments, district/city governments, and their subordinate units are

responsible for mobilizing active community participation in implementing immunization service programs.

4. Conclusion

Based on the findings described by the researchers regarding the “Implementation of Government Regulations on Immunization Implementation in the Work Area of Tarempa Community Health Center, Anambas Islands Regency”, the researchers obtained the following further findings:

- 1) Regarding the coverage of immunization implementation in the work area of Puskesmas Tarempa, it does not meet the requirements due to the lack of maternal knowledge. The low coverage of immunization implementation is because the information obtained about immunization is still insufficient from healthcare professionals and various media platforms, including mass media and social media.
- 2) The role of healthcare workers in implementing government regulations on immunization management is considered good. Healthcare workers have performed their roles as customers, communicators, motivators, facilitators, and counselors.
- 3) The inhibiting factor healthcare workers face in implementing government regulations on immunization management is parental rejection of immunization due to misconceptions about AEFI and the halal status of vaccines and the lack of regulations from local governments regarding immunization programs. AEFI and government regulations are stipulated in Ministry of Health Regulation Number 12 of 2017, and the halal status of vaccines is stated in Fatwa MUI Number 4 of 2016.

Author contributions: Conceptualization, FND and FY; methodology, LM and ZW; validation, FY, FND, and MUKD; formal analysis, BS; investigation, FY; resources, FND; data curation, LM; writing—original draft preparation, FY; writing—review and editing, FND, SP; visualization, MUKD; supervision, BS. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: The authors express their utmost gratitude to the respondents, the heads of Tarempa Selatan Village and Pesisir Village, and the head of Puskesmas Timur in the work area of Puskesmas Tarempa.

Conflict of interest: The authors declare no conflict of interest.

References

- Antoniou, T., McCormack, D., Fell, D. B., et al. (2023). Impact of national recommendations for routine pertussis vaccination during pregnancy on infant pertussis in Ontario, Canada: a population-based time-series study. *BMC Pregnancy and Childbirth*, 23(1). <https://doi.org/10.1186/s12884-023-05938-2>
- Ansariadi, S. E., Wahiduddin, Bustan, N., et al. (2024). Analysis of risk factor for pneumonia in children less than five years in Makassar. *Journal of Education and Health Promotion*, 13(1), 16. https://doi.org/10.4103/jehp.jehp_727_23
- Asmawati, A., Mohas, M., & Agustina, R. S. (2022). Legal Consequences Arising from the Occurrence of Post-Immunization Adverse Events in the Implementation of the Complete Basic Immunization Program in Banten Province. *Sultan Jurisprudence: Jurnal Riset Ilmu Hukum*, 2(2), 224. <https://doi.org/10.51825/sjp.v2i2.17084>

- Bach, A. T., Kang, A. Y., Lewis, J., et al. (2019). Addressing common barriers in adult immunizations: a review of interventions. *Expert Review of Vaccines*, 18(11), 1167–1185. <https://doi.org/10.1080/14760584.2019.1698955>
- Barton, S. M., Calhoun, A. W., Bohnert, C. A., et al. (2022). Standardized Vaccine-Hesitant Patients in the Assessment of the Effectiveness of Vaccine Communication Training. *The Journal of Pediatrics*, 241, 203–211. <https://doi.org/10.1016/j.jpeds.2021.10.033>
- Bragazzi, N. L. (2019). Pharmacists as Immunizers: The Role of Pharmacies in Promoting Immunization Campaigns and Counteracting Vaccine Hesitancy. *Pharmacy*, 7(4), 166. <https://doi.org/10.3390/pharmacy7040166>
- Breitschwerdt, S., Schwarze-Zander, C., Al Tayy, A., et al. (2022). Implementation of EACS vaccination recommendations among people living with HIV. *Infection*, 50(6), 1491–1497. <https://doi.org/10.1007/s15010-022-01827-6>
- Bukan, M. F., Weraman, P., & Manurung, I. (2022). Influencing Factors on Complete Basic Immunization (IDL) in Infants. *Journal of Telenursing (JOTING)*, 4(2), 863–870. <https://doi.org/10.31539/joting.v4i2.3960>
- Congedo, G., Lombardi, G. S., Zjalic, D., et al. (2024). Knowledge, attitudes and behaviours of a sample of Italian paediatricians towards RSV and its preventive strategies: a cross-sectional study. *Italian Journal of Pediatrics*, 50(1), 35. <https://doi.org/10.1186/s13052-024-01593-1>
- Dąbek, J., Sierka, O., & Gąsior, Z. (2022). Protective vaccinations in the control and prevention of infectious diseases—knowledge of adult Poles in this field. Preliminary results. *BMC Public Health*, 22(1), 2342. <https://doi.org/10.1186/s12889-022-14821-2>
- Damayanti, F. N., Absori, A., & Wardiono, K. (2019). Legal Protection of Midwives Based on Professional Justice in Midwifery Practices. *Indian Journal of Public Health Research & Development*, 10(4), 437–441. <https://doi.org/10.5958/0976-5506.2019.00734.4>
- Damayanti, F. N., Absori, A., Wardiono, K., & Rejeki, S. (2020). The Evidence-Based Midwife Professionalism. *Indian Journal of Forensic Medicine & Toxicology*, 14(3), 1877–1881. <https://doi.org/10.37506/ijfmt.v14i3.10699>
- Dewi, J. S., & Dhamanti, I. (2022). Comparison of Policies for Implementing Routine Immunization in Children before and during the Pandemic. *JIP Jurnal Ilmiah Ilmu Pendidikan*, 5(3), 808–812.
- Endris, B. S., Fenta, E., Getnet, Y., et al. (2022). Barriers and facilitators to the implementation of nutrition interventions at primary health care units of Ethiopia: A consolidated framework for implementation research. *Maternal & Child Nutrition*, 19(1). <https://doi.org/10.1111/mcn.13433>
- Estofolete, C. F., de Andrade Gandolfi, F., de Aguiar Milhim, B. H., et al. (2022). Reduced Prevalence of Measles Antibodies in a Cohort of Brazilian Children under 15 Years of Age. *Vaccines*, 10(10), 1570. <https://doi.org/10.3390/vaccines10101570>
- Galagoda, G. C. S., Perera, J., de Silva, R., et al. (2023). ASVAC2022. In: Proceedings of the 8 th Asian Vaccine Conference. <https://doi.org/10.1080/21645515.2023.2165360>
- Groman, D., Higgins, D., Khan, S., et al. (2019). Lessons learned from the Advancing Maternal Immunization collaboration: identifying evidence gaps for informed respiratory syncytial virus maternal immunization decision-making. *Gates Open Research*, 3, 1544. <https://doi.org/10.12688/gatesopenres.13060.1>
- Han, R., San Martin, P., Ahmed, N., et al. (2024). Modelling the Public Health Burden of Herpes Zoster and the Impact of Adjuvanted Recombinant Zoster Vaccine in Five Selected Countries in Southeast Asia. *Infectious Diseases and Therapy*, 13(4), 761–778. <https://doi.org/10.1007/s40121-024-00945-y>
- Hasanah, M. S., Lubis, A. D., & Syahleman, R. (2021). Relationship between mother’s level of knowledge about basic immunizations and compliance with basic immunizations for babies. *Jurnal Kesehatan Borneo Cendekia*, 5(1), 53–63.
- Heersema, L. A., Cunniff, L., Eiden, A. L., et al. (2023). Intersection of policy and Immunization Information Systems (IIS). *BMC Public Health*, 23(1), 1828. <https://doi.org/10.1186/s12889-023-16457-2>
- Herdea, V., Tarciuc, P., Ghionaru, R., et al. (2023). A Sensitive Public Health Issue—The Vaccine Acceptancy and the Anti-Pertussis Immune Status of Pregnant Women from a Romanian Metropolitan Area. *Children*, 10(4), 640. <https://doi.org/10.3390/children10040640>
- Huang, Y., Song, Y., Li, J., et al. (2023). Survey on Immunization Services for Children with Medical Conditions—China, 2022. *China CDC Weekly*, 5(19), 419–423. <https://doi.org/10.46234/ccdcw2023.079>
- Humphrey, J., Wanjama, E., Carlucci, J. G., et al. (2023). Preferences of Pregnant and Postpartum Women for Differentiated Service Delivery in Kenya. *Journal of Acquired Immune Deficiency Syndromes*, 94(5), 429–436. <https://doi.org/10.1097/qai.0000000000003303>

- Indonesia, J. M. M. (2022). Increasing Mothers' Knowledge About Complete Basic Immunization in Moyag Village, East Kotamobagu District. *Jurnal Masyarakat Madani Indonesia*, 1(3), 179–183.
- Iryadi, R., & Syamsiah, N. (2022). The Influence of the Role of Health Officers on Cadre Participation in Posyandu Activities in Kedongdong Village, Indramayu Regency. *Jurnal Kesehatan Pertiwi*, 4(1), 19–22.
- Jansen, M., Spasenoska, D., Nadjib, M., et al. (2024). National Immunization Program Decision Making Using the CAPACITI Decision-Support Tool: User Feedback from Indonesia and Ethiopia. *Vaccines*, 12(3), 337. <https://doi.org/10.3390/vaccines12030337>
- Karmila, Nababan, D., & Lina Tarigan, F. (2021). Inhibiting Factors Of Basic Immunization Immunization At Simpang. *Journal of Healthcare Technology and Medicine*, 7(2), 2615–109.
- Kriss, J. L., Grant, G. B., Moss, W. J., et al. (2019). Research priorities for accelerating progress toward measles and rubella elimination identified by a cross-sectional web-based survey. *Vaccine*, 37(38), 5745–5753. <https://doi.org/10.1016/j.vaccine.2019.02.058>
- Lestari, C. S. W., Dewi, R. M., Sunarno, S., et al. (2023). The effectiveness of hepatitis B vaccine in toddlers based on the five-year period national basic health research (Riskesdas 2007, 2013 and 2018) in Indonesia. *PeerJ*. <https://doi.org/10.7717/peerj.15199>
- Mantel, C., Chu, S. Y., Hyde, T. B., et al. (2020). Seasonal influenza vaccination in middle-income countries: Assessment of immunization practices in Belarus, Morocco, and Thailand. *Vaccine*, 38(2), 212–219. <https://doi.org/10.1016/j.vaccine.2019.10.028>
- Mittal, S., Rawat, C., Gupta, A., et al. (2023). Adverse Events Following Immunization Among Children Under Two Years of Age: A Prospective Observational Study From North India. *Cureus*, 15(4). <https://doi.org/10.7759/cureus.38356>
- Moïsi, J., Madhi, S. A., & Rees, H. (2019). Vaccinology in sub-Saharan Africa. *BMJ Global Health*, 4(5). <https://doi.org/10.1136/bmjgh-2018-001363>
- Notoatmodjo, S. (2019). Health Promotion and Educational Behavior. In: Jakarta. Rineka Cipta h. PT. Rineka Cipta.
- Nugrawati, N. (2019). The relationship between maternal knowledge and attitude towards complete immunization in toddlers. *JIKP Jurnal Ilmiah Kesehatan PENCERAH*, 8(1), 59–66.
- Nuryanah, I. (2020). Implementation of Immunization Implementation Policy in Tasikmalaya Regency. *JAK PUBLIK (Jurnal Administrasi & Kebijakan Publik)*, 1(3).
- Okello, G., Izudi, J., Ampeire, I., et al. (2022). Two decades of regional trends in vaccination completion and coverage among children aged 12–23 months: an analysis of the Uganda Demographic Health Survey data from 1995 to 2016. *BMC Health Services Research*, 22(1), 40. <https://doi.org/10.1186/s12913-021-07443-8>
- Oktaria, V., Bines, J. E., Murni, I. K., et al. (2022). Timeliness of routine childhood vaccinations in Indonesian infants in the first year of life. *Vaccine*, 40(21), 2925–2932. <https://doi.org/10.1016/j.vaccine.2022.04.001>
- Paul, S., Paul, S., Gupta, A. K., et al. (2022). Maternal education, health care system and child health: Evidence from India. *Social Science & Medicine*, 296. <https://doi.org/10.1016/j.socscimed.2022.114740>
- Percy, J. N., Crain, J., Rein, L., et al. (2020). The impact of a pharmacist-extender training program to improve pneumococcal vaccination rates within a community chain pharmacy. *Journal of the American Pharmacists Association*, 60(1), 39–46. <https://doi.org/10.1016/j.japh.2019.09.004>
- Putri, N. S. (2019). Implementation of the Minister of Health's regulations regarding the implementation of immunization in the measles and rubella/measles rubella vaccine immunization program: case study at the Batujajar Community Health Center, West Bandung Regency. UIN Sunan Gunung Djati Bandung.
- Rachlin, A., Danovaro-Holliday, M. C., Murphy, P., et al. (2022). Routine Vaccination Coverage—Worldwide, 2021. *Morbidity and Mortality Weekly Report*, 71(44), 1396–1400. <https://doi.org/10.15585/mmwr.mm7144a2>
- Ricciardi, W. (2022). HTA and National Immunisation Program: an overview of competent bodies and of the impact of HTA on the decision-making process. *European Journal of Public Health*, 32(Supplement_3). <https://doi.org/10.1093/eurpub/ckac129.327>
- Riccò, M., & Peruzzi, S. (2022). Tetanus Vaccination Status and Vaccine Hesitancy in Amateur Basketball Players (Italy, 2020). *Vaccines*, 10(1), 131. <https://doi.org/10.3390/vaccines10010131>
- Rowley, F., Cottrell, S., Howard, C., et al. (2024). Use of invitations and reminders are associated with higher levels of Herpes zoster (shingles) vaccination uptake. A cross-sectional survey of general practices in Wales, and ecological analysis of uptake data, 2022. *Vaccine*, 42(7), 1682–1689. <https://doi.org/10.1016/j.vaccine.2024.02.034>

- Sari, W., & Nadjib, M. (2019). Determinants of Complete Basic Immunization Coverage among Family Hope Program Recipients. *Jurnal Ekonomi Kesehatan Indonesia*, 4(1). <https://doi.org/10.7454/eki.v4i1.3087>
- Sarwono. (2020). *National Reference Book for Maternal and Neonatal Health Services*. PT. Bina Pustaka.
- Satari, H. I., Sundoro, J., Andrijono, A., et al. (2019). Post Marketing Surveillance Study of 2nd Dose Quadrivalent Human Papilloma Virus Vaccine in Elementary School Children in Jakarta, Indonesia: Safety Result and Implementation of School-Based HPV Immunization Program. *Asian Pacific Journal of Cancer Prevention*, 20(3), 869–875. <https://doi.org/10.31557/apjcp.2019.20.3.869>
- Sharma, S., Bhardwaj, A., Arora, K., et al. (2023). Assessing universal maternal health service coverage and their determinants in India: A multicentric cross-sectional study. *Journal of Family Medicine and Primary Care*, 12(8), 1516–1524. https://doi.org/10.4103/jfmipc.jfmipc_1891_21
- Simamora, R. H., Purba, J. M., Bukit, E. K., et al. (2019). Penguatan Peran Perawat Dalam Pelaksanaan Asuhan Keperawatan Melalui Pelatihan Layanan Prima. *JPPM*, 3(1), 25–31. <https://doi.org/10.30595/jppm.v3i1.2940>
- Sinuraya, R. K., Alfian, S. D., Abdulah, R., et al. (2024). Comprehensive childhood vaccination and its determinants: Insights from the Indonesia Family Life Survey (IFLS). *Journal of Infection and Public Health*, 17(3), 509–517. <https://doi.org/10.1016/j.jiph.2024.01.007>
- Sulistiowati, E., Yuniyanto, A., & Yanti, F. (2022). Utilization of the Healthy Indonesia Program With a Family Approach Data During the COVID-19 Pandemic. *Asia Pacific Journal of Public Health*, 34(4), 401–405. <https://doi.org/10.1177/10105395211072993>
- Sulistiyowati, N., Tjandrarini, D. H., Titaley, C. R., et al. (2024). Suboptimal child healthcare practices and the development of multiple infectious diseases in children aged 24–59 months. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1340559>
- Triyanto, E., & Kusumawardani, L. H. (2020). Analysis of Change Behavior Prevention of Covid-19 Transmission Based on Integrated Behavior Model. *Jurnal Keperawatan Soedirman*, 15(2), 66–73. <https://doi.org/10.20884/1.jks.2020.15.2.1441>
- Yunilia, S. (2021). Legal Responsibilities of Independent Practicing Midwives for Storage of Child Immunization Vaccines. *DE LEGA LATA: Jurnal Ilmu Hukum*, 6(1), 235–251.
- Zimmermann, M., Frey, K., Hagedorn, B., et al. (2019). Optimization of frequency and targeting of measles supplemental immunization activities in Nigeria: A cost-effectiveness analysis. *Vaccine*, 37(41), 6039–6047. <https://doi.org/10.1016/j.vaccine.2019.08.050>