



## Complete Basic Immunization Coverage among Infants in Temanggung Regency

Ayun Sriatmi<sup>1\*</sup>; Martini Martini<sup>2</sup>; Farid Agushybana<sup>3</sup>; Sutopo Patria Jati<sup>4</sup>; Nikie Astorina Y. D.<sup>5</sup>; Novia Handayani<sup>6</sup>; Nurhasmadiar Nandini<sup>7</sup>

Faculty of Public Health, Diponegoro University, Semarang City, Indonesia

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### ABSTRACT

Immunization is a process of forming immunity in individuals against infectious diseases. The government has required infants to be fully immunized, but in practice, it turned out that there were still many people refusing immunization. This study aimed to analyze the coverage and the punctuality of immunization and the factors that influenced it. The research was descriptive observational with qualitative and quantitative approaches. The population of the study was mothers who had < 2 years old infants living in Temanggung Regency. 498 and 199 respondents were obtained in 2018 and 2019 by using a random sampling technique. The research instrument used was Rapid Card Check and MCH Handbook. The results showed that infants were not immunized (2-6,5%), and the punctuality of immunization was 32-89%. There was a relationship between knowledge ( $p=0,039$ ) and the mother's perception ( $p=0,005$ ) towards infants' essential immunization completeness.



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#### \*) corresponding author

Dr. Dra. Ayun Sriatmi, M. Kes  
Department of Health Administration and  
Policy, Faculty of Public Health, Diponegoro  
University  
Jl. Emerald Asri Utama B1/11, Bukit Emerald  
Jaya, Meteseh, Tembalang, Semarang, 50271  
Email: ayunsriatmi@gmail.com

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### ABSTRAK

Imunisasi adalah proses pemberian kekebalan bagi individu dari suatu penyakit tertentu. Pemerintah telah mewajibkan balita untuk melakukan imunisasi dasar lengkap, namun pada praktiknya ternyata masih terdapat masyarakat yang enggan untuk imunisasi. Tujuan penelitian ini adalah untuk menganalisis cakupan dan ketepatan imunisasi, serta faktor-faktor yang mempengaruhinya. Metode yang digunakan dalam penelitian ini adalah deskriptif observasional dengan pendekatan kualitatif dan kuantitatif. Populasi penelitian adalah ibu yang memiliki balita < 2 tahun yang tinggal di Kabupaten Temanggung. Dengan menggunakan teknik random sampling, diperoleh sebanyak 498 dan 199 responden pada tahun 2018 dan 2019. Instrumen penelitian yang digunakan adalah Rapid Card Check dan Buku KIA. Hasil menunjukkan bahwa terdapat balita yang tidak diimunisasi (2-6,5%) dan ketepatan imunisasi sebesar 32-89%. Terdapat hubungan antara pengetahuan ( $p=0,039$ ) dan persepsi ibu ( $p=0,005$ ) terhadap kelengkapan imunisasi dasar balita.



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### INTRODUCTION

Immunization is a process to give a person immunity against an infectious disease by administering a vaccine. Immunization is the most cost-effective way to prevent and

reduce morbidity, disability, and death caused by PD31 (WHO, 2013). The immunization program carried out by the Indonesian government is one of the efforts made to reduce morbidity and mortality in children to achieve the

Millennium Development Goals (MDGs) in 2030 (UNICEF, 2015)

Indonesia was ranked 4<sup>th</sup> in the world after India, Nigeria, and the Democratic Republic of the Congo for under-vaccinated children in the DPT3 immunization coverage. Due to these factors, WHO and UNICEF prioritize Indonesia as one of the countries to carry out acceleration in achieving the 100% UCI Village. It is estimated that as many as 1.5 million children under five in Indonesia have not received basic immunizations or other vaccines (WHO, 2013).

In the last five years, complete basic immunization coverage in Indonesia has been above 85%, but this figure has not reached the Strategic Plan target set by the Ministry of Health. In 2017, the complete basic immunization coverage in Indonesia was 91.12%. It was below the 2017 Strategic Plan target of 92%. Meanwhile, among provinces in Indonesia, only 15 could achieve the 2017 Strategic Plan Target, one of which was Central Java Province (Health Ministry of Indonesia, 2017). In 2017, the rate of complete basic immunization coverage in Central Java was 97.52%. This figure decreased compared to the achievement in the previous year, which was 97.67% in 2016 (Central Java Provincial Health Office, 2017).

In Temanggung Regency, the coverage rate of complete primary immunization in 2017 was 96.00%. This figure reached the strategic plan target of the Temanggung District Health Office 2013–2018 of 90%. However, compared to the coverage rate in 2016, this figure decreased by 98.71% (Department of Health of Temanggung Regency, 2017).

Although Temanggung has reached its target, some people still refuse to immunize because they believe immunization is haram, even though Indonesian Ulama Council (Majelis Ulama Indonesia; MUI) has explained that

immunization is allowed as a form of effort to prevent dangerous diseases (MUI, 2018). Based on several studies, several factors cause people to refuse immunization, including parental knowledge, family traditions, and family support (Budiarti, 2019).

Given this explanation, further investigation on problems related to complete primary immunization needs to be carried out, such as immunization coverage, immunization accuracy, and factors related to mothers' willingness to immunize toddlers.

**METHOD**

The research design used was descriptive observational with qualitative and quantitative approaches. The population of the study, conducted in Temanggung Regency in 2018 and 2019, were all mothers having 12-23 months toddlers and resided in Temanggung Regency. The research sample was 497 respondents in 2018 and 199 respondents in 2019 selected using random sampling technique through a survey in one selected village among community health centers in Temanggung Regency with a maximum number of 20 children at each locus of the region.

The research instrument used was the Rapid Card Check (RCC) recommended by UNICEF and the MCH Handbook to ensure the timing of immunizations for toddlers. Variables in this study include coverage of primary immunization, timeliness of basic immunization, mother's knowledge, mother's attitude, and mother's belief in immunization. The data collected were analyzed statistically using chi-square analysis and presented in tabulated form.

**RESULT AND DISCUSSION**

**Table 1**  
**Immunization Information Sources (N=697)**

Source of Information	Yes		No	
	f	%	f	%
Health workers	609	87,4	88	12,6
Cadre	411	59,0	286	41
School	43	6,2	654	93,8
Figurehead	9	1,3	688	98,7
Friends	24	3,4	673	96,6
Television	114	16,4	583	83,6
Radio	12	1,7	685	98,3
Newspaper	2	0,3	695	99,7
Social Media	43	6,2	654	93,8
Leaflet	2	0,3	695	99,7
Banner	10	1,4	687	98,6
Poster	2	0,3	695	99,7

Table 1 shows that the most sources of immunization information received by respondents are from health workers, 87.4%, and cadres, 59%.

Table 2 shows that in 2018 the highest immunization coverage was BCG immunization, 97.6%, and in 2019, was Penta 3 and Polio 4 immunization, both of which reached 95.5% coverage. Meanwhile, the lowest immunization coverage was HBO immunization, 95% in 2018 and 93.5% in 2019.

During 2018–2019, some reasons for under-five children were not being immunized were that children were sick,

parents were busy, parents were afraid of their children getting sick resulting from immunization side effects, the belief that immunization is haram, and no support from family to give immunizations to toddlers.

The results of this study were in line with the one of Scobie, who stated that the majority of mothers who do not immunize their children are due to lack of awareness of the importance of immunization, fear of injections, fear of side effects, no immunization officers present, sick children, long waiting times, and not convenient for immunization (Scobie et al., 2015).

**Table 2**  
**Complete Basic Immunization Coverage for Toddlers in 2018-2019**

Classification	HBO		BCG		DPT-HB-Hib		Polio 4		Measles	
	f	%	f	%	f	%	f	%	f	%
<b>2018</b>										
Immunized	473	95	486	97,6	481	96,6	481	96,6	474	95,2
Not yet	25	5	12	2,4	17	3,4	17	3,4	24	4,8
<b>Total</b>	<b>498</b>	<b>100</b>								
<b>2019</b>										
Immunized	186	93,5	191	96,0	190	95,5	190	95,5	187	94,0
Not yet	13	6,5	8	4	9	4,5	4,5	4,5	12	6
<b>Total</b>	<b>199</b>	<b>100</b>								

Table 3 shows that most mothers have not immunized their toddlers on time. The highest percentage of immunization accuracy was HBO, which was 88.4% in 2018 and 89.2% in 2019, while the lowest one was BCG, which was only 32.5% in 2018, and in 2019, the lowest percentage of immunization accuracy was Polio 4, which was 40.5%.

After the baby is born in a health facility, HBO immunization will immediately be given; therefore, the accuracy of HBO immunization is higher than that of other immunizations.

**Table 3**  
**Accuracy of Complete Basic Immunizations for 2018-2019**

Classification	HBO		BCG		DPT-HB-Hib		Polio 4		Measles	
	f	%	f	%	f	%	f	%	f	%
<b>2018</b>										
Yes	418	88,4	158	32,5	215	44,7	212	44,1	230	48,5
No	55	11,6	328	67,5	266	55,3	269	55,9	244	51,5
<b>Total</b>	<b>473</b>	<b>100</b>	<b>486</b>	<b>100</b>	<b>481</b>	<b>100</b>	<b>481</b>	<b>100</b>	<b>474</b>	<b>100</b>
<b>2019</b>										
Yes	166	89,2	93	48,7	77	40,5	76	40,0	105	56,1
No	20	10,8	98	51,3	113	59,5	114	60	82	43,9
<b>Total</b>	<b>186</b>	<b>100</b>	<b>191</b>	<b>100</b>	<b>190</b>	<b>100</b>	<b>190</b>	<b>100</b>	<b>187</b>	<b>100</b>

**Mother's Knowledge**

Knowledge is the basis for a person to do an action. A mother possessing a good understanding and knowledge of the importance of immunization is likely to immunize her toddler (Mondal et al., 2014). In addition, behavior-based good knowledge will be last longer than otherwise (Kadir, 2014).

Statistical tests using chi-square test on the variable of mother's knowledge of immunization with the completeness of immunization for toddlers showed that the relationship between mother's knowledge and immunization completeness for toddlers was significant at (p) = 0.039 ( $\alpha$  = 0.05).

**Table 4**  
**Variables Related to Complete Basic Immunization of Toddlers in 2018-2019**

Classification	Complete Basic Immunization Status of Toddler				Total		P-value
	Incomplete		Complete		f	%	
	f	%	f	%			
<b>Mother's Knowledge (2018-2019)</b>							
Know	58	8,3	635	91,1	693	99,4	0,039*
Do not know	2	0,3	2	0,3	4	0,6	
<b>Total</b>	<b>60</b>	<b>8,6</b>	<b>637</b>	<b>91,4</b>	<b>697</b>	<b>100</b>	
<b>Mother's Perception (2018)</b>							
Positive	40	8,0	453	91,0	493	99,0	0,005*
Negative	3	0,6	2	0,4	5	1	
<b>Total</b>	<b>43</b>	<b>8,6</b>	<b>455</b>	<b>91,4</b>	<b>498</b>	<b>100</b>	
<b>Mother's Attitude (2019)</b>							
Agree	16	8,0	181	91,0	197	99,0	0,164
Uncertainty	1	0,5	1	0,5	2	1	
Disagree	0	0	0	0	0	0	
<b>Jumlah</b>	<b>17</b>	<b>8,5</b>	<b>182</b>	<b>91,5</b>	<b>199</b>	<b>100</b>	
<b>Mother's Confidence (2019)</b>							
Confidence	16	8,0	180	90,5	196	98,5	0,236
Not Confidence	1	0,5	2	1	3	1,5	
<b>Total</b>	<b>17</b>	<b>8,5</b>	<b>182</b>	<b>91,5</b>	<b>199</b>	<b>100</b>	

\*P-value <0.05 = significant

The result of this study was in line with the one of Joseph, who stated that parents who understand the benefits of immunization are to immunize their toddlers (Joseph et al., 2015). According to Favin, lack of knowledge about the importance of having immunization is the major problem in immunization (Favin et al., 2012).

### Mother's Perception

Perception is the interpretation and conclusion of information obtained through experiences, events, or objects in the perception process (Notoadmodjo, 2010).

Statistical tests for the variable perception of mothers with the completeness of immunization for toddlers showed that the relationship between mothers' perceptions and the immunization completeness for toddlers was significant at  $(p) = 0.005$  ( $\alpha = 0.05$ ).

Respondents having negative perceptions stated that they did not understand the benefits of immunization. They refused to be immunized because immunization is haram and not good for the body. Parental perception is important as according to research conducted by Kubli, most parents who do not immunize their toddlers are due to poor perceptions. They believe that their toddlers are in good health, so there is no need for immunization, and if they are sick, they prefer to give medicine rather than immunization. This perception causes immunization coverage to be low (Kubli et al., 2017).

### Mother's Attitude

Various factors may influence people's attitudes, such as personal experience, culture, essential people, religious beliefs, and personal emotion. In addition, knowledge also plays a role in forming attitudes (Azwar, 2013).

Mothers having negative attitudes towards immunization tend to behave negatively toward essential immunization provision for toddlers, while those with positive attitudes tend to provide basic immunizations for toddlers (Schneeberg et al., 2014).

The statistical tests showed a significance value is  $(p) = 0.164$  ( $\alpha = 0.05$ ), meaning that there was no relationship between the mother's attitude and completeness of infant immunization. This finding was different from the one of Dharma, who stated that the better the mother's attitude is, the greater the chance of the mother to comply with immunization (Yuda & Nurmala, 2018).

### Mother's Confidence

Personal experiences that have been affected by others and myths related to immunization influence a person's belief in immunization (Rahmawati & Umbul, 2014).

The analysis results showed no relationship between the mother's belief in immunization and the completeness of immunization for toddlers with a significance value of  $(p) = 0.236$  ( $\alpha = 0.05$ ). This finding was different from a study in Surabaya, which stated that poor parental trust in immunization could affect participation in primary immunization for toddlers (Rahmawati & Umbul, 2014).

### LIMITATION OF THE STUDY

The limitation of this study is that immunization records are generated from MCH book documents or immunization

certificates; as a result, a mother failing to show a complete document, the immunization is declared incomplete.

Then, the number of children under two in an area is not always sufficient for up to 20 children at each region's locus, so any number is still included in the research sample.

### CONCLUSION AND SUGGESTION

There are still toddlers who have not carried out primary immunization by 2–6.5%. The number of toddlers not having primary immunization is 2–6.5%. Meanwhile, the immunization accuracy is 32–89%, with HBO the highest of all other types of essential immunization accuracy. Factors related to the completeness of immunization under five include knowledge and perceptions of mothers. Support and participation from health workers to the community, especially for families having toddlers, is significant to increase awareness of the importance of immunization which can expand immunization coverage and dispel wrong assumptions related to immunization.

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### Conflict of Interest statement

The author declares that there is no conflict of interest.

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