
IMPACT OF COVID 19 ON THE OUTCOMES OF BASIC IMMUNIZATION IN HEALTH FACILITIES

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ABSTRACT

The purpose of this study was to determine the impact of Covid 19 on basic immunization coverage, oriented to the number of Covid 19 cases mapped in the red, yellow, and green. This research provides the advantage of making a policy to improve children's health during a pandemic, particularly in preventing diseases that can be anticipated by immunization, such as tuberculosis, diphtheria, hepatitis, tetanus, meningitis, polio, and measles. This research can also be used as a basic for immunization in health facilities while still implementing health protocols. This study's results can be implemented in primary health facilities such as the Puskesmas, Posyandu, Poskesdes, or Midwife Independent Practice. This study's results indicate that immunization coverage <95% is mostly found in the red zone area of Pentabio 1 and 2 immunization, as well as measles. Chi-square test found that there was no significant relationship with basic immunization coverage.

Keywords: Impact of Covid 19; Zone; Basic Immunization; Immunization Coverage

INTRODUCTION

In immunization, there is the concept of Herd Immunity or group immunity, which is only formed if the immunization coverage is high (at least 95%) and evenly distributed throughout the region. The immunity of most of these targets will indirectly protect other age groups. If there are one or several diseases that can be prevented by immunization (PD3I) in the community, the disease will not spread quickly, and extraordinary events can be prevented.¹

According to WHO, about 1.5 million children die each year because of diseases that can be prevented by immunization. In 2018, approximately 20 million children did not get complete immunization. Some children even did not get immunized at all. Indonesia is one of the countries with a large number of children who do not receive complete immunization. This situation has resulted in The Emergence of Extraordinary Events (KLB) in diseases that can be prevented by immunization (PD3I), such as diphtheria, measles, and polio.²

In Indonesia, the coverage of villages or wards for Universal Child Immunization (UCI) in 2019 is 89,1%, with the number of villages 60,269 in 34 provinces. From this data, there are also nine provinces where no data was reported. Meanwhile, the percentage of cities or districts whose immunization targets reached 80% was 71.98%, with 370 cities or districts out of 514 districts. This condition has decreased between 2017 and 2018. Provinces with the lowest percentage are in Maluku and Aceh districts.³ The study results explain that immunization coverage is influenced by the knowledge, attitudes, motivation or parents, and immunization information.⁴

WHO states that Covid 19 is a pandemic in the world, in Indonesia through the Head of National Disaster Management Agency (BNPB) number 13A of 2020 designated as disease outbreak disaster emergency. In efforts to prevent and accelerate the handling of the Covid 19, the government has also issued Government Regulation number 21 of 2020 concerning large-scale social

restrictions (PSBB), Presidential decree number II of 2020 concerning the determination of public health emergencies, and Presidential decree number 12 of 2020 concerning the determination of non-natural disasters the spread of Covid 19 as National Disaster, with this the health center has made several efforts to break the chain of the spread of Covid 19 by handling, preventing and limiting transmission of the infection.⁵

Based on the government's policies, it will indirectly affect the Puskesmas program's implementation, one of which is immunization. Initial data collection by distributing questionnaires to mothers of children under five found that from 7 respondents, five respondents delayed the immunization schedule, and two respondents still immunized their toddlers. Based on the above problems, the researchers are interested in researching to know the impact of Covid on Basic Immunization coverage.

MATERIAL AND METHODS

This type of research is a descriptive observational study with a cross-sectional approach, which was carried out in July 2020. This study's independent variable is the mapping of the Covid 19 case and the dependent variable, namely the basic immunization coverage. Data collection was carried out by distributing questionnaires to midwives and nurses through a google form distributed online. The total population was 46 respondents in East Java with random sampling. The results of the study were analyzed by Univariate and chi-square test.

RESULT

1. Mapping of areas based on the number of Covid 19 cases

Table 1. Distribution Covid 19 Zone Color Frequency

	Covid 19 spread zone	N	Percentage (%)
1	Red	22	47,8
2	Yellow	16	34,8
3	Green	8	17,4
	Total	46	100

The table above shows that most of the east java area is in the red zone, namely 22 (47.8%).

2. Basic Immunization coverage

Table 2. Frequency Distribution of Basic Immunization Coverage

Type of Immunization	Immunization Coverage			
	< 95%		≥95%	
	N	(%)	N	(%)
BCG	22	47,8	24	52,2
Hb Uniject	14	30,4	32	69,6
Pentabio 1	24	52,2	22	47,8
Pentabio 2	27	58,7	19	41,3
Pentabio 3	22	47,8	24	52,2
Polio	23	50	23	50
Measles	25	54,3	21	45,7

Table 2. about basic immunization coverage states that almost half of the coverage is $\geq 95\%$ for BCG, HB Uniject, Pentabio 3, and polio immunizations, while the $< 95\%$ coverage is more for Pentabio 1, Pentabio 2, and Measles

3. The results of the chi-square test analysis

Table 3. Cross tabulating of The Covid 19 zone with immunization coverage of BCG, Pentabio 1

Zone	Immunization Coverage					
	BCG		ρ	Pentabio 1		ρ
	<95%	\geq 95%		<95%	\geq 95%	
Green	3	5	0,342	5	3	0,342
Yellow	6	10		6	10	
Red	13	9		13	9	
Total	22	24		24	22	

Table 4. Cross tabulating of the Covid 19 zone with immunization coverage of Pentabio 2 and 3

Zone	Immunization Coverage					
	Pentabio 2		ρ	Pentabio 3		ρ
	<95%	\geq 95%		<95%	\geq 95%	
Green	5	3	0,091	3	5	0,342
Yellow	6	10		6	10	
Red	16	6		13	9	
Total	27	19		22	24	

Table 5. Cross tabulating of the Covid 19 zone with immunization coverage of Polio, Hb Uniject, and Measles

Zone	Immunization Coverage								
	Polio		ρ	HB Uniject		ρ	Campak		ρ
	<95%	\geq 95%		<95%	\geq 95%		<95%	\geq 95%	
Green	4	4	0,422	3	5	0,806	3	5	0,189
Yellow	6	10		4	12		7	9	
Red	13	9		7	15		15	7	
Total	23	23		14	32		25	21	

The cross-tabulation results of tables 3, 4, and 5 regarding immunization coverage <95% are found in the red zone for all basic immunizations except for Hb Uniject. While the chi-square data analysis test found that there was no significant relationship between the Covid 19 zone and basic immunization coverage, BCG ($\rho=0,342$), Pentabio 1 ($\rho=0,342$), Pentabio 2 ($\rho=0,091$), Pentabio 3 ($\rho=0,342$), Polio ($\rho=0,422$), Hb Uniject ($\rho=0,806$) and Measles ($\rho=0,189$)

DISCUSSION

The east java area in July 2020 is mostly in the red zone (Table 1.). Mapping of areas can assist interested parties in obtaining accurate information and speed up government policymaking.⁶ A study explains that cluster determination in area mapping

uses the Rapid Miner software, which combines clustering and classification methods. The number of clusters is determined by the Davies Boulding Index (DBI) parameter. The comparison of the values of the Davies Boulding Index (DBI) produces three clusters, namely the high cluster (red zone), the alert cluster (yellow zone), and the low cluster (green zone)⁷. Mapping the Covid 19 pandemic area is the basis for seeing the distribution of cases and reference materials for handling Covid 19 and other policies.

The basic immunization coverage results were $\geq 95\%$ for BCG, HB Uniject and Pentabio 3, while for Pentabio 1,2, and measles, the coverage was <95%. The results of research at the Ambacang Kuranji Public Health Center in Padang, several factors

affect immunization coverage, namely knowledge, attitudes, motivation of parents, and immunization information.⁴ During the Covid 19 pandemic, many essential/primary service programs were not implemented optimally because all service concentrations were focused on handling Covid 19.⁸ Seeing that there is still basic immunization coverage that is less than the target in July 2020 due to the pandemic, resulting in many programs that are not implemented temporarily to prevent the spread and transmission of the coronavirus. To prevent the decline in immunization coverage, the government has issued technical guidelines for implementing immunization during a pandemic.

The research results in tables 3 and 4 show that immunization coverage is less than 95% in the red zone and there is no relationship between the regional zone and the immunization coverage. A study conducted in the United States in May 2020 to look at changes in immunization coverage during the pandemic, results showed a decrease in immunization coverage in all age groups except for Hepatitis B at birth (Hb Uniject). This is because outpatient services have switched to practical telemedicine services, indirectly affecting immunization services that require direct services.⁹ The results of tracking vaccine data showed a decrease in orders for non-influenza and measles vaccines after the national Covid 19 emergency announcement.¹⁰ The lack of immunization coverage in the red zone is closely related to the existence of government policies regarding large-scale social restrictions to prevent and transmit Covid 19.

CONCLUSION

In the explanation of the above research, it can be concluded that the areas in East Java with the red zone have immunization coverage <95%, with the types of immunization for Pentabio 1, Pentabio 2, and measles. So it can be concluded that there is no significant relationship between the Covid 19 case area zone and basic immunization coverage (BCG, Hb Uniject, Pentabio 1, Pentabio 2, Pentabio 3, Polio and Measles).

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