

# Analysis of Immunization Services During The Covid-19 Pandemic

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## ABSTRACT

The immunization program launched by the Ministry of Health is one of the preventive measures to avoid contracting certain diseases, namely preventable diseases by immunization including tuberculosis, diphtheria, pertussis, tetanus, hepatitis B, polio and measles. The Covid-19 pandemic threatens to have an impact on health progress and in particular on child development due to the delay in immunization services as a national program. The purpose of this Systematic Review is to analyze the effect of immunization services during the Covid-19 pandemic. Database search includes Google Scholar, Science Direct, and Pubmed with keywords The keywords used are complete basic immunization, covid-19 period, impact of COVID-19 immunization. The next stage is to select articles according to the criteria, which are published in 2017-2022 with the full text of 12 articles that meet the inclusion criteria. Initial literature search found 52 articles (Google Scholar 42 articles, Science Direct 10 articles, Proquest 5 articles) 40 articles issued were not in sync with the topic of discussion and did not discuss complete basic immunization 12 full text articles met the criteria. Immunization should be prioritized to prevent and protect from preventable diseases by immunization during the Covid-19 pandemic, if the situation allows. Basic immunization services during the Covid-19 pandemic decreased and affected the amount of immunization coverage. Factors that influence this are the main focus of health services on Covid-19 cases, the implementation of lockdown, physical-social distancing, self-isolation and delays in the distribution of vaccine supplies.

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## INTRODUCTION

During the Covid-19 pandemic, all life arrangements changed, all countries including Indonesia made various efforts to prevent the transmission of the virus. In fact, this also has an impact on health services, which is one of the factors that people get access to immunization services. The social conditions of the community during the Covid 19 pandemic also affected the health services for infants and toddlers at the posyandu<sup>1</sup>. Immunization

is not a new thing in the world of Indonesian health, but still many parents are still hesitant in making decisions for their children to be immunized<sup>2</sup>. Since Indonesia reported its first COVID-19 case in March 2020, routine immunization coverage has been decreasing. For example, diphtheria, pertussis, and tetanus (DPT3) and measles and rubella reduced by more than 35% in May 2020 compared to the same period in the previous year. In April 2020, 84% of all health facilities reported experiencing impaired immunization services<sup>3</sup>. In addition, there has also been a decrease in the number of suspected measles cases from January to May 2020 compared to 2019 of 50.4%<sup>4</sup>. This will of course have an impact on decreasing achievements which will also hamper efforts to eliminate rubella measles in 2023.

Immunization services in Indonesia will still be carried out by health workers during the covid 19 pandemic by implementing health protocols according to local government policies, based on an analysis of the epidemiological situation of the spread of covid-19, coverage routine immunization, and the epidemiological situation of preventable diseases by immunization<sup>5</sup>. Immunization health services are very difficult during the covid-19 pandemic. The government is focused on preventing transmission and handling cases of COVID-19, coupled with the implementation of a system of regional restrictions and creating community associations that cause access to outside the home to be disrupted<sup>6</sup>. Physical distancing policies and the burden on the health system associated with the pandemic have led to a reduction in coverage rates and the need for vaccinations. Changes to immunization services, even for a short period of time, will result in an increase in the number of susceptible individuals and increase the likelihood of immunization-preventable diseases<sup>7</sup>.

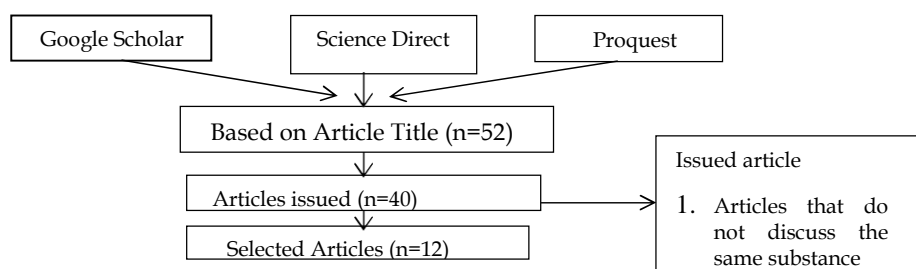
This can have an impact on health services and become a double burden in the event of a preventable diseases by immunization outbreak during the Covid-19 pandemic which in the end the immunization coverage decreases and becomes a problem for the community. The purpose of this systematic review is to analyze the effect of immunization services during the COVID-19 pandemic.

## RESEARCH METHOD

Database searches include Google Scholar, Science Direct, and Pubmed with keywords. The keywords used are complete basic immunization, covid-19 period, impact of COVID-19 immunization. The next stage is to select articles according to the criteria limits, which are published in 2017-2022 with full text, in the preparation of Preferred Reporting Items for Systematic Reviews and Meta Analysis (PRISMA) the articles that have been found are then synthesized and analyzed according to the inclusion and exclusion criteria. The inclusion criteria in this systematic review are complete basic immunization during the COVID-19 period. While the exclusion criteria in this systematic review are: articles that do not describe complete basic immunization during the covid-19 period. The search for articles began in August 2022 with keywords that had been determined by the researcher. The articles found by the researchers were selected according to the inclusion and exclusion criteria, with the keywords complete basic immunization, covid-19 period, impact of COVID-19 immunization. The researcher deletes the published articles, examines the articles that meet the criteria and groups them according to the research results to proceed to the discussion.

## RESULTS AND DISCUSSION

Initial literature search found 52 articles (Google Scholar 42 articles, Science Direct 10 articles, Proquest 5 articles) 40 articles issued were not in sync with the topic of discussion and did not discuss complete basic immunization 12 full text articles met the criteria as listed in Figure 1



**Figure 1.** Flow diagram and article selection

The results from 12 articles showed that complete basic immunization had decreased coverage during the COVID-19 pandemic due to limited implementation.

**Table 1.** Analysis of Immunization Services during the Covid-19 Pandemic

No	Title, author, year	Results
1	Impact of Covid 19 on The Outcomes of Basic Immunization In Health Facilities  Retno Setyo Iswati , Indria Nuraini (2020) <sup>8</sup>	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.
2	Routine Immunization Programs for Children during the COVID-19 Pandemic in Ecuador, 2020-Hidden Effects, Predictable Consequences  Gianina Lizeth Suárez-Rodríguez, Jose Salazar-Loor, Jackson Rivas-Condo, Alfonso J Rodríguez-Morales, Juan-Carlos Navarro, José Ruben Ramirez-Iglesias. (2022) <sup>9</sup>	There was no significant difference in doses applied during the 2018 and 2019 years. However, a significant ( $p < 0.05$ ) drop of 137,000 delivered doses was observed in 2020 compared to the pre-pandemic years. Reductions in the percentage of coverage were more pronounced for the PENTA vaccine (17.7%), followed by PV (16.4%), ROTA (12%), and PCV vaccines (10.7%). Spatial analysis shows a severe impact on vaccination coverage on provinces from the Coast and Highland regions of the country. The pandemic has significantly impacted the immunization programs for infants across Ecuador.
3	Impact of the COVID-19 lockdown on routine vaccination in Pakistan: a hospital-based study  Saeed Ur Rahman, (2022) <sup>10</sup>	The results: on average, there was more than 30% declined in routine vaccination during the lockdown period, while somewhat improved post lockdown, ie 12%. Thus, this ongoing pandemic is a reminder for the national immunization programs to consider to tackle the disruption in routine immunization, otherwise, this continued disruption may lead to secondary outbreaks of vaccine preventable diseases amongst the public..
4	Analysis of Evaluation of Immunization Programs During the Covid-19 Pandemic  Khanza Nadhifa, Queen Laras Ati Alya, Retia Rismawati, Meta Ayu Riswaluyo, Wachyu Sulistiadi (2020) <sup>11</sup>	The results of this study indicate that before the COVID-19 pandemic, immunization coverage in Indonesia was still uneven and after the pandemic when compared to 2019 in the same period, immunization coverage showed a decrease from 0.5% to 46.5%.
5	Impact of the COVID-19 pandemic on routine immunization coverage in children under 2 years old in Ontario, Canada: A retrospective cohort study  Catherine Ji, (2022) <sup>12</sup>	Result: 12,313 children were included. Overall UTD coverage for all children was 71.0% in T1, dropped by 5.7% (95% CI: -6.2, -5.1) in T2, slightly increased in T3 but remained lower than in T1. MMR vaccine UTD coverage slightly decreased in T2 and T3 by approximately 2%. The largest decreases were seen at ages 15-month and 18-month old, with drops in on-time coverage of 14.7% (95% CI: -18.7, -10.6) and 16.4% (95% CI: -20.0, -12.8 ) respectively during T2. When stratified by sociodemographic characteristics, no specific subgroup of children was found to have been differentially impacted by the pandemic.
6	Analysis of the Implementation of the Complete Basic Immunization Program (Idl) During the Covid-19 Pandemic at the Tempel I Health Center, Sleman Regency  Fathahidin, Ghaniya Afifa(2021) <sup>13</sup>	The results of the study found that the Tempel I Health Center had closed the immunization service for 1 month at the beginning of the COVID-19 pandemic. After re-planning, immunization services began to reopen. Constraints were found from input elements related to aspects of the number, adequacy and readiness of human resources, facilities and infrastructure, utilization of guidelines. Then on the elements of the process found obstacles in the aspects of organization and implementation, and on the environmental elements found obstacles in the response of parents, location security during the COVID-19 pandemic and access to mobilization to service locations.

7	Analysis of Complete Basic Immunization Program Achievements During the COVID-19 Pandemic in Pesisir Selatan District  Ahmad Adi Trianto, Hardisman Dasman, Yuniar Lestari (2021) <sup>14</sup>	Complete basic immunization has decreased in coverage during the COVID-19 pandemic due to less than optimal implementation due to lack of personnel accompanied by limited information media in remote areas causing a lack of socialization, budget efficiency and lack of cooperation in each cluster, perceptions of halalness in rural areas, busyness parents in urban areas, non-compliance with health protocols in rural and remote areas, perception of no benefit in urban and remote areas, worry and fear of contracting COVID-19 in each cluster
8	Basic Immunization Services for Babies Under 12 Months of Age and Influencing Factors at Wangaya Hospital, Denpasar City During the COVID-19 Pandemic Fabiola Vania Felicia, I Kadek Suarca. (2020) <sup>15</sup>	The basic immunization visits in January-July 2020 and 2019 were 123 and 368 patients, respectively. Compared to the overall visits to the pediatric polyclinic, the percentages were 13.1% and 21.9% (p<0.001). There is a relationship which means that there is a decrease in immunization services during the COVID-19 period.
9	Comparison of the Implementation of Immunization during the Covid-19 Pandemic and Non-Pandemic Periods at the Massenga Polewali Mandar Health Center Andi Masyita Putri, Saharuddin Saharuddin, Rini Fitriani (2021) <sup>16</sup>	Results: the significance value (p) of the difference in immunization was 0.032. This result shows a significant value, where there was a decrease in immunization coverage by 11.33% during the Covid-19 pandemic at the Massenga Health Center Polewali Mandar..
10	The Effect of the Covid 19 Pandemic on Immunization Visits at the Posyandu, Tanjungwangi Village, Cijambe District  Nicke Uriant Diharja, Siti Syamsiah, Risza Choirunnisa (2020) <sup>17</sup>	There was no effect of mother's knowledge (p-value = 0.468), mother's attitude (p-value = 0.667), and family support (p-value = 0.626) on mother's participation in immunization visits at Posyandu Tanjungwangi, Tanjungwangi Village, Cijambe District in 2020. here is no effect of the Covid-19 Pandemic on immunization visits at the Tanjungwangi Posyandu, Tanjungwangi Village, Cijambe District in 2020. Suggestion: Mothers who have toddlers should continue to provide immunizations for their children even in the Covid-19 Pandemic condition by continuing to follow the directions of health workers.
11	Factors Associated with Complete Basic Immunization Status in Infants During the Covid-19 Pandemic At Vidyan Medika Main Clinic  Siwi Pertiwi, I Gusti Ayu (2021) <sup>18</sup>	The results of this study indicate that immunization coverage <95% is most commonly found in the red areas of the Pentabio 1 and 2 immunization zones, as well as measles. The Chi-square test found that there was no significant association with basic immunization coverage.
12	Factors Affecting Compliance with Complete Basic Immunization During the Covid-19 Pandemic In Aceh  Mauidhah Mauidhah, Farah Diba, Rahmawati Rahmawati (2021) <sup>19</sup>	The results show that the respondent's modification factor (knowledge) is categorized as good (51.9%), the respondent's perception is categorized as less (53.8%), and the possibility of respondent's action is categorized as less (61.5%). It is recommended for Peusangan Health Center officers to provide education and promotion related to immunization from the time of pregnancy so as to increase knowledge, perceptions and actions to implement complete basic immunization..

## Discussion

A review of 12 articles found that 2 articles showed no link between vaccination services and the Covid-19 pandemic. 10 articles show link between drop in vaccination services during Covid 19. Basic immunization services during the Covid-19 pandemic decreased and affected the amount of immunization coverage. Factors that influence this are the main focus of health services on Covid-19 cases, the implementation of lockdown, physical-social distancing, self-isolation and delays in the distribution of vaccine supplies. Public health centers, posyandu services, especially the provision of immunization, did not work as expected during this period. The epidemic is caused by anxiety, fear of bringing the baby to the puskesmas, posyandu, or other health care places. Likewise, many health workers feel hesitant in carrying out posyandu services in the midst of the Covid-19 pandemic<sup>20</sup>. Parents' anxiety during the Covid-19 pandemic is usually due to their ignorance of parents in

preventing Covid-19, especially when visiting the Puskesmas or attending the Posyandu. Factors that need to be considered in giving immunizations are parental compliance in giving immunizations, if parents are not obedient in giving immunizations to their children it can affect the immunity and vulnerability of the child's body to a disease, so timely immunization is very necessary so that children are protected from various dangerous diseases<sup>21,22</sup>.

Other factors that influence it can be explained by using the theory of the Health Belief Model (HBM)<sup>23</sup>. Complete basic immunization should be given to children according to their age, but in certain conditions, some children do not get complete basic immunization because there are still different understandings about immunization among the community<sup>24</sup>. The impact of COVID-19 on immunization programs in Indonesia is described in the WHO Indonesia Situation Report, namely that there was a decrease in vaccination coverage for several diseases that could be prevented by immunization by 10-40% in March-April 2020 compared to March-April 2019. This was because health workers (immunization officers) were diverted to handle the pandemic<sup>25</sup>. Vaccination officers are also worried about the risk of COVID-19 transmission that can occur during immunization services<sup>26</sup>. In addition, the implementation of Large-Scale Social Restrictions (PSBB) in many areas has limited activities outside the home and difficult access/transportation to health services<sup>27,28</sup>. The Director of Health Surveillance and Quarantine, Ministry of Health of the Republic of Indonesia, explained that almost 83.9% of health services, especially the immunization program, were stopped due to the pandemic. The Covid-19 pandemic has greatly affected the decline in immunization coverage rates and the performance of preventable diseases by immunization surveillance in Indonesia.

In carrying out the provision of basic immunization, several things must be done, including arranging an arrival schedule so that children do not gather for too long, separating sick children from healthy children who will be immunized into different waiting rooms and service rooms, immunizations are given according to schedule if there are none. contraindication, there are officers who ask if there is contact with family members or neighbors who are being treated at the hospital due to suffering from Covid-19 in areas with high Covid-19 cases, if there is a history of contact they are served according to the procedures specified in the technical instructions of the Ministry of Health of the Republic of Indonesia<sup>29</sup>.

The COVID-19 pandemic, which has infected most countries, should not dampen the enthusiasm of health workers to continue to echo the importance of immunization and take important steps to ensure that every child who is a vulnerable group is protected from dangerous diseases by immunization. During the Covid-19 pandemic, the government, in this case, the Ministry of Health, issued technical instructions for immunization services during the Covid-19 pandemic. Immunization must still be pursued completely on schedule to protect children from . preventable diseases by immunization Immunization services during the Covid-19 pandemic are carried out according to local government policies, based on an analysis of the epidemiological situation of the spread of COVID-19, routine immunization coverage, and the epidemiological situation.

The principles that are the reference in implementing the immunization program during the Covid-19 pandemic are in accordance with technical instructions, namely: 1) basic and advanced immunizations are still attempted to be complete and carried out according to schedule to protect children from preventable diseases by immunization; 2) operationally, immunization services both at posyandu, puskesmas, mobile health centers and other health facilities that provide immunization services follow local government policies; 3) preventable diseases by immunization surveillance activities must be optimized including reporting.

## CONCLUSION

Basic immunization services during the Covid-19 pandemic decreased and affected the amount of immunization coverage. Factors that influence this are the main focus of health services on Covid-19 cases, the implementation of lockdown, physical-social distancing, self-isolation and delays in the distribution of vaccine supplies. The impact of covid 19 on childbirth preparation is the anxiety of pregnant women, this anxiety can be reduced by providing direction, counseling and education for pregnant women about transmission and transmission routes. How to protect yourself from covid-19 and its prevention. It is transmitted from pregnant women to babies. What is more important if the mother is hesitant and afraid to go to the hospital for a pregnancy check for fear of contracting the virus from other people.

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