The Operational Capacity of Healthcare Sector in Handling Covid-19 in Indonesia

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Abstract

Indonesia has faced a crisis in handling the Covid-19 pandemic, especially in June and July 2021. It has caused Indonesia placed the highest daily death rate in the world. The study aimed to analyze the level of operational capacity handling the Covid-19 pandemic. The study used a quantitative method, supported by qualitative data sources by literature studies. The data collection was carried out by survey methods in four provinces with the highest active cases in Indonesia. The analysis technique used descriptive statistics. The results of the study show that operational capacity is in the moderate category (66,15). The five indicators of operational capacity are in the moderate category, meaning they are not optimally supporting the handling of Covid-19, namely: the availability of hospital facilities (average score 68), availability of medical devices (average score 67), availability of health workers (average score of 69.22), the capacity to prevent transmission of Covid-9 (average score 62), lastly, the implementation of vaccination (average score 65). The recommendations of the study are: 1) Compile data on the availability of hospital beds according to standard requirements; 2) Improvement of laboratory capacity; 3) Develop a liaison network for producers, donors, and users, supply medical equipment and medicines; 4) Intensify testing and tracing; 5) Evaluating the needs of health workers and setting standards for their safety protection; 6) Increase vaccination targets, especially for the elderly.

***Keywords**: Operational Capacity, Health Sectors, Handling Covid-19.*

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A. INTRODUCTION

The Covid-19 pandemic is not easily handled by any country, including Indonesia. Bloomberg surveyed 53 countries that very effective in handling Covid-19. The 53 countries are spread across North and South America, Europe, Africa, the Middle East, Asia Pacific, and Southeast Asia. The top position is occupied by Norway in the top 10, followed by Switzerland, New Zealand, France and the United State. In Southeast Asian, Singapore placed 11th rank and Thailand at 41th. Meanwhile, Indonesia is on the list of the worst countries handling Covid-19 (Liputan 6.com, August 2021).

Active cases and deaths of Covid-19 in Indonesia are the highest among ASEAN countries. Worldometers data on August 2, 2021 shows that there are 524,142 active cases of Covid-19 in Indonesia. While active cases in Thailand 209,039, Malaysia 203,644, Vietnam 116,493, Myanmar 79,151, Philippines 63,137, Brunei only 55 cases. The number of Covid-19 deaths per 1 million population in Indonesia is 357, in Malaysia 292, the Philippines 253, Myanmar 184, Cambodia 87, Thailand 76, Singapore has only 6 and Brunei has 7 deaths (Worldometers, 2021).

There are many factors contributing to increase active and deaths cases of Covid-19 in Indonesia. However, hhe focus of the study is to analyze the operational capacity issues supporting the handling of the Covid-19 pandemic in Indonesia. It is important to know the need for Indonesia reviewing its operational capacity to deal with future pandemics.

B. LITERATURE REVIEW

The concept of State Capacity has been used by scholars to analyze the capacity of the state or government in various perspectives, for example the capacity of the state in economic development, civil conflict, law and human rights (HAM) and democratic consolidation (Bessley & Persson, 2011; Handson & Sigman, 2019). The concept of state capacity consists of four dimensions, namely operational capacity, administrative capacity, political institutional capacity and military capacity (Grindle, 1996; Hendriks Cullen 2010; Puroshutama, 2015; Woo, 2020).

The concept of state capacity is used by the authors to analyze government capacity on the operational capacity dimension. One of them is Woo. Woo (2020) has analyzes the operational capacity of Government policies for handling Covid-19 cases in Singapore. The aspects of operational policy capacity namely physical infrastructure and technology, detection, isolation and treatment of Covid-19. (1) Infrastructure capacity includes the availability of hospitals, health clinics and bed facilities, as well as isolation facilities such as hotels, military barracks, as well as meeting buildings. (2) The use of technology infrastructure, such as the Infrared Fever Screening System to track people infected by Covid-19.

This study analyzes the government's capacity in the operational dimension for handling the Covid-19 pandemic. There are 5 indicators that are the focus of the study, namely health facilities and equipment, medical personnel, detection systems and vaccination implementation.

C. METHOD

The study aimed to determine the operational capacity for handling the Covid-19 pandemic. The study was designed using a quantitative approach with a survey method. Collecting data using a questionnaire that has met the requirements of validity and reliability (Table 1). To explain quantitative data, the authors used qualitative data sourced from books, mass media and reports from government and non-government agencies. Data processing using descriptive statistics.

Table 1 Result of Validity Test

Variable	Validity Range	$r_{table\ (\alpha,\ n-2)}$	Results
Operational Capacity	0,542-0,706	0,549	Reliable

Table 2 Result of Reliability Test

Variable	Cronbach's Alpha	Results
Operational Capacity	0,882	Reliable

The studied population is government officials in 4 Provinces. The sample used a purposive sample, therefore, the sampel of study is the officers who members of the

Covid-19 National Task Force in 4 Provinces, namely, West, Center Java, Banten and Jakarta.

Table 3 Population and Sample

Province	Population	Sample
West Java	Member of Covid-19 Task Force	47
Central Java	Member of Covid-19 Task Force	45
Jakarta	Member of Covid-19 Task Force	47
Banten	Member of Covid-19 Task Force	46
Total		185

The transformation is needed to determine the smallest index value for the lowest total score and 100 for the highest total score for each indicator. Distribution data shows an interval scale with values ranged 0 to 100. Four level namely "low" for values between 0 dan 25, "less" for a value between 26 and 50, "moderate", for a value between 51 and 75 and "high" for values between 76 and100 (Sumardjo, 1999).

The transformation formula as follows (Sumardjo, 1999):

Indicators Index Transfornation

$$= \frac{Total\ Score\ Achieved - \text{Expected Minimum Score}}{Total\ Expected\ Minimum\ Score - \text{Expected Minimun Score}} x100$$

Variables Index Transfornation

$$= \frac{Total\ Score\ Achieved - \text{Expected Minimum Score}}{Total\ Expected\ Minimum\ Score - \text{Expected Minimun Score}} x100$$

Note: Variable index value interval 0 – 100

D. RESULT AND DISCUSSION

Survey operational capacity in 4 (fours) Provinces found that the level of operational capacity in moderate category (66,15%) (Table 4). The dimension of operational capacity includes availability of health facilities, medical equipment, detection system of Covid-19, and implementation vaccination program. The finding of surveys as follows, 1. The majority of respondents perceive operational capacity as moderate (66.15%); 2. Jakarta has higher operational capacity in all dimensions compared to three provinces (78.34%).

Table 4 The Operational Capacity in Handling Covid-19

Operational Capacity	Category	West Java (%) n=47	Center Java (%) n=45	Banten (%) n=47	Jakarta (%) n=46	Total (%) n=185
Availability of Health Facility	**Low**	**2**	**2**	**0**	**0**	**1**
	Less	13	11	24	7	9
	Moderate	60	67	55	66	66
	High	25	20	21	28	24
Average		**65,21**	**64,67**	**65,94**	**72,24**	**68 (Moderate)**
Medical Equipment	Low	2	0	0	0	1
	Less	17	22	9	2	12
	Moderate	70	56	68	63	64
	High	11	22	23	35	23
Average		**62,13**	**64,58**	**63,79**	**71,52**	**67 (Moderate)**

Availability of Health Worker	Low	0	0	0	0	0,00
	Less	4	9	0	2	3,78
	Moderate	89	73	83	83	82,16
	High	7	18	17	15	14,05
Average		**67,43**	**68,87**	**65,74**	**75,85**	**69,22 (Moderate)**
Level of Detection	Low	4	4	0	2	3
	Less	13	24	11	7	14
	Moderate	66	67	79	60	70
	High	17	5	11	32	13
Average		**60,74**	**56,93**	**64,55**	**75,6**	**62 (Moderate)**
Vaccination Program	Low	0	0	0	0	0
	Less	23	29	6	2	15
	Moderate	51	60	75	67	68
	High	26	11	19	32	17
Average		**65,36**	**60,11**	**62,46**	**78,34**	**65 (Moderate)**
Total Average: 66,15						

Note: 0 – 25 = *low*, 26 – 50 = *less*, 51 – 75 = *moderate*, 76 – 100 = *high*

Health Facility. The availability of health facilities is in the moderate category. Jakarta has the highest availability of health facilities (72.24%) compared to three provinces which are in the range of 64%-65%. There are some issues of operational capacities, such as availability of hospital beds in Indonesia deemed is not optimal supporting health services. Based on figure 1, Indonesia's bed ratio is 1.17 which means 1.17 beds are available in hospitals for 1000 residents. The highest bed ratio are Jakarta Province (2.33) and the lowest are West Nusa Tenggara and East Nusa Tenggara, the availability of beds in West Java (0.85), Banten (0.87) Central Java (1.15), East Java (1.07) (Widinawati, 2020).

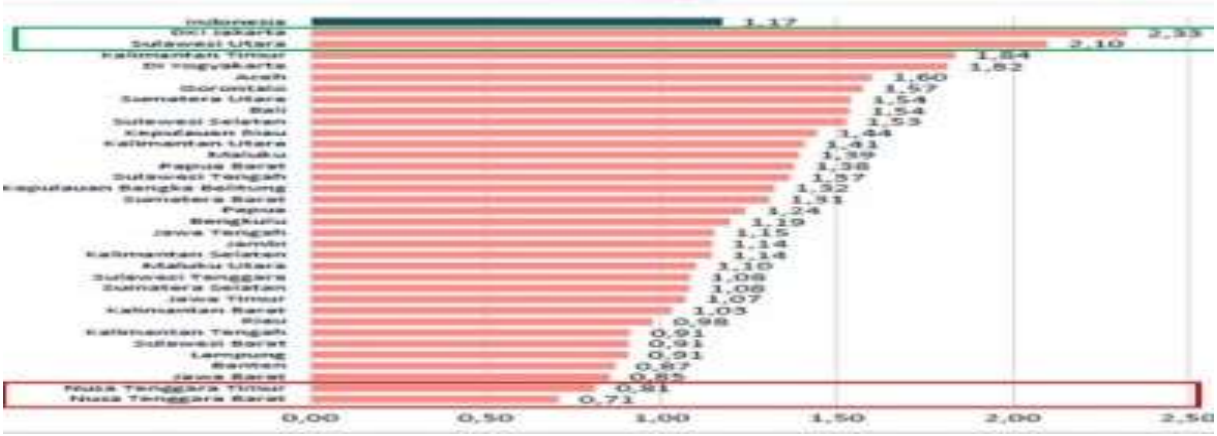

Figure 1 Hospital Bed Ratio per 1,000 Population in Indonesia, 2018

Sources: https://infokes.dinus.ac.id/2020/02/20/kacamata-statistik-pada-kapasitas-rumah-sakit/

The availability of beds per population (bed to population ratio-BOR) in Indonesia is not yet ideal as the standard recommended by WHO is 5:1000 or 5 hospital beds for 1,000 residents. Meanwhile, the other countries such as China (4.31),

South Korea (12) and Japan as the highest in Asia reached 13 beds per 1000 population. On May 2021 BOR was only 28% (World Bank, 2019). However, when there was a spike in positive cases of Covid-19, BOR rose sharply to 49.6% in June 2021.On July, BOR for isolation rooms and intensive care units (ICU) in seven provinces reached 50-80%. In fact, this exceed the BOR standard by WHO, which is 60%. BOR increased sharply to reach 74% in July 2021.

Table 4 Indonesia Bed to Population Ratio per 1000 Population Across Asian Countries

No	Country	Population	Bed to Population Ratio (1000 Population)
1	Indonesia	273 Million	1.17
2	India	1,3 Billion	2,71
3	China	1,4 Billion	4,34
4	South Korea	51,26 Million	12
5	Japan	126,47 Million	13

Sources; World Bank, 2019

The number of Covid-19 laboratories are 796. However, the availability of the laboratory is not sufficient for the implementation of the Covid-19 testing. For example, Covid-19 testing target, according to WHO standards is 1000 people per one million population per week. Indonesia's population of 270 million people, therefore, the test must be carried out on 270 thousand people per week. However, laboratories in local area are lack the reagents and the equipment for the Covind-19 test. Also, limitation of laboratories worker.

Health Equipment. Respondent perceives that availability of medical equipment is in the moderate category. Jakarta has the highest availability of medical equipment (72.24%) compared to three provinces which are below 65%. When Covid-19 infections cases raise in June July, availability of health equipment indicated are low. There are shortage of ventilators and oxygen. The availability of ventilators in DKI Jakarta is only around 55 percent, Central Java, 34 percent, and West Java and Banten only 19 percent each (Table). The surge in Covid-19 patients has caused some hospitals to have difficulty obtaining oxygen cylinders (Indraswari, 2021). The same time, In June-July 2021, there are shortage of medicine in market because the need for medicine increases. Shortage of medicines due to slow production and distribution processes.

Table 5 the Availability of Oxygen Cylinder

Province	Existing		Gap (%)
	The Need	Available	
West Java	6.106	1215	19
Central Java	3382	1154	34
Jakarta	1915	1071	55
Banten	1645	328	19

Source: Katadata, April 2020

Health Worker. Respondent perceives the availability of health workers is in the moderate category (69.22%). The availability of health workers from high to low is Jakarta (75.85%) followed by Central Java (68.87%), West Java (67.43%) and Banten (65.74%) (Ministry of Health, 2019).

Table 6 the Availability of Healthcare Worker (per 100.000 Population)

Province	Population	Covid-19 Cases (June)	Doctor Ratio	Nurse Ratio	Midwife Ratio	Laboratory Official Ratio
West Java	48.683.861	350.719	1:11	1:77	1:43	1:6
Central Java	34.490.835	232.839	1:17	1:133	1:68	1:12
Jakarta	10.467.299	482.264	1:65	1:285	1:66	1:26
Banten	12.689.736	53.472	1:11	1:76	1:42	1:6

Source: Ministry of Health, 2019

Table 4 showed that Jakarta is the highest ratio health worker per 100.000 population. There are 65 doctors, 285 nurses, 66 midwives and 26 laboratory assistants per 100,000 population. In Central Java, there are 17 doctors, 133 nurses, 68 midwives and 12 laboratory assistants per 100,000 population. In West Java there are 11 doctors, 77 nurses, 43 midwives and 6 laboratory assistants per 100,000 population, and Banten there are 11 doctors, 76 nurses, 42 midwives and 6 laboratory assistants per 100,000 population.

Nationally, the availability of health workers is not adequate, the ratio of doctors of 0.4 doctors per 1,000 population. It meant Indonesia only has 4 doctors serving 1000 population (Table 7) (Kata Data, 2020).

Table 7 Indonesia Doctor Ratio per 1000 Population Across ASEAN Countries, 2017

No	Country	Doctor ratio per 1000 population	No	Country	Doctor ratio per 1000 population
1	Singapore	2,3	7	Vietnam	0,8
2	Brunei	1,8	8	Timor Leste	0,7
3	Malaysia	1,5	9	Laos	0,5
4	Philippines	1,3	10	Indonesia	0,4
5	Myanmar	0,9	11	Cambodia	0,2
6	Thailand	0,8			

Source: Kata Data, 2020

When Indonesia faced the surge of Covid-19 cases in June-July 2021, the availability of health worker was become a crucial-issues. For example, active cases reached 63,045 di West Java need 40 to 50 doctors, but only 11 doctors per 100,000 population. In Central Java, active cases reached 39,447, it needed around 30-40 doctors, but 17 doctors were available. The Indonesian Doctors Association (IDI) reported an increasing trend of health worker deaths in Indonesia. During the pandemic, the death of health workers reached 376 deaths, mostly doctors (598) and nurses (503).

Detection Implementation. Implementation of Covid-19 detection from high to low, namely, Jakarta (75.60%) followed by Banten (64.5%), Central Java (56.9%), West Java (60.74%) and Banten (60.2 %). The data showed that Covid-19 testing is still low. Low testing causes many cases of infection undetected. As of August 3, 2021, the total number of tests per 1 million population in Indonesia is 97,080, while Singapore has reached 2,665,383, Malaysia has reached 560,740, Brunei, 347,114, the Philippines has

reached 151,621, Vietnam has reached 120.97, Thailand, 116,185, Cambodia, 107,439, Timor Leste, 70,951 and Myanmar, 58,057 (Worldometer, WHO, 2 August 2021).

The main factor caused low testing is the high price of Covid-19 tests, namely 1.RT PCR (Real Time Polymerase Chain Reaction); 2. Molecular Rapid Test (TCM) and Rapid Test. There is a price difference between government hospitals and private hospitals, commonly, private hospitals putting price between 1-3 million rupiah. Low testing causing low tracking of Covid-19 infection cases. Nationally, as of August 6, 2021, vaccination has reached 23.79%. The highest coverage of the first dose vaccination in 34 provinces in Indonesia which was given to the target population (which met the requirements) was DKI Jakarta followed by some provinces namely Bali, Riau Islands, Yogyakarta, North Sulawesi, Jambi and East Java and East Java.

Vaccination Program Implementation. The implementation of vaccination has not yet met the national target. Nationally, the total target population for vaccines is 208,265,720, consisting of health workers, the elderly, public officials, vulnerable communities and the general public as well as children aged 12-17 years. Until August 6, 2021, the total vaccination dose 1 was 49,542,688 (23.79%) and dose 2 23,082,021 or 11.08%. Giving dose 3 as much as 39,689 or 2.70% (Covid-19 Task Forces, 2021).

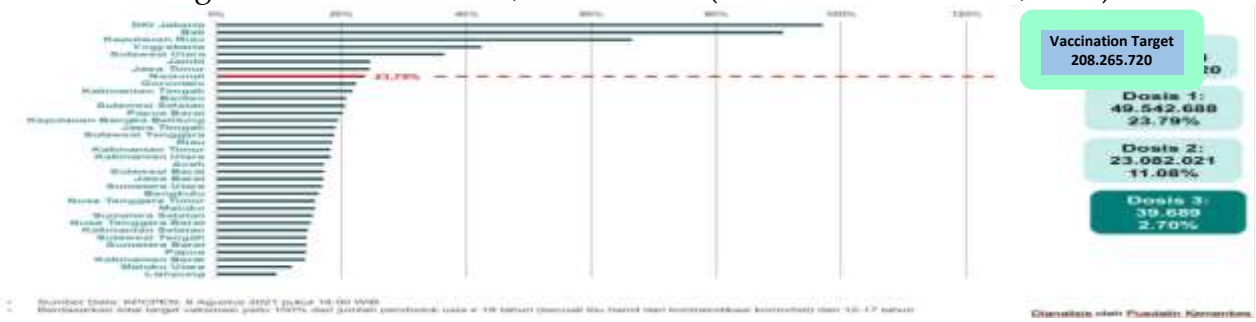

Figure 2 National Vaccination per 6 August 2021

Sources: Covid-19 National Task Forces

Nationally, on August 6, 2021, vaccination has reached 23.79%. The highest coverage of the first dose vaccination in 34 provinces in Indonesia which was given to the target population (which met the requirements) was DKI Jakarta followed by Bali, Riau Islands, DI Yogyakarta, North Sulawesi, Jambi and East Java and East Java. Globally, 29.7% of the population have received the vaccine dose 1 and 15.3% have received the complete vaccine. Indonesia is still below the global vaccination rate, therefore the government needs to accelerate vaccination. Among ASEAN Countries, the achievement share of people who have been vaccinated in Indonesia is 4,6 (full vaccine/2 dose) and 4,3 (partly/1 dose) which is below Singapore (35%-16%) and Malaysia (5,3%-5,8%) (OurWorld Data, 2021).

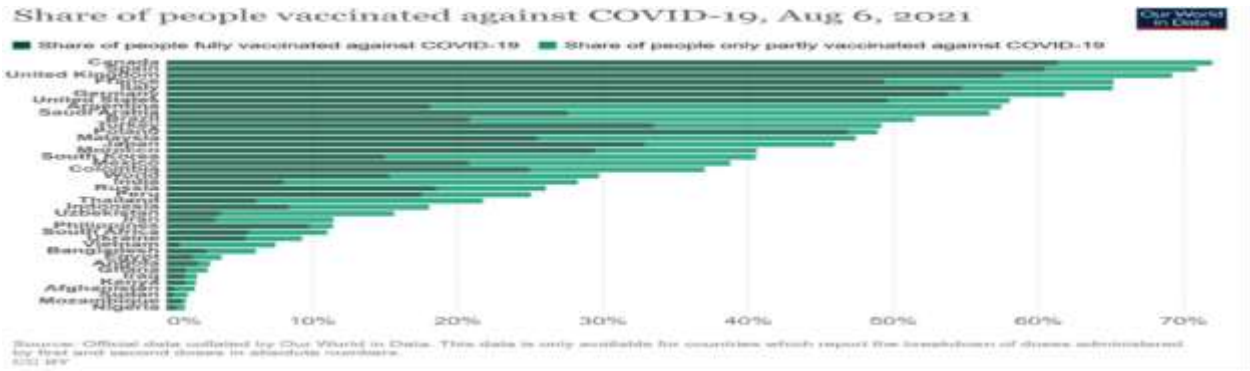

Figure 2. Share of People vaccinated against Covid-19, August 6, 2021
Sources: Our World Data (2021)

E. CONCLUSION

However, the operational capacity to support the handling of the Covid-19 pandemic was deemed not optimal. These can be seen from the low of bed to population, lack of medical equipment, low of availability health worker, low of covid-19 detection and vaccination target. It is important, Government has to set up new policy framework to increase the operational capacity. Therefore, the Government needs to strengthen operational capacity, as follows: The recommendations of the study are: 1) Compile data on the availability of hospital beds according to standard requirements; 2) Improvement of laboratory capacity; 3) Develop a liaison network for producers, donors, and users, supply medical equipment and medicines; 4) Intensify testing and tracing; 5) Evaluating the needs of health workers and setting standards for their safety protection; 6) Increase vaccination targets, especially for the elderly.

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