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Hospital Preparedness of the Gatot Soebroto Army Central Hospital and Indonesia's Level 2 Army Hospital in Facing the COVID-19 Pandemic

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Abstract
As an archipelagic nation, Indonesia is at risk of natural disasters, including the possibility of emergency infectious diseases. The worldwide health system is under tremendous strain as a result of the COVID-19 pandemic. Therefore, hospitals spearheading services are critical in preparing to tackle the COVID-19 pandemic. The Indonesian Army Hospital is the primary subject of this study, which attempts to assess hospital preparedness in facing the COVID-19 pandemic. Methods: Our study was a cross-sectional and quantitative analysis of the World Health Organization's 12-item rapid checklist of hospitals' preparedness for COVID-19 from January 2020 to December 2022. This checklist formed the basis of this study's preparation assessment. Data was obtained from 15 people who assessed Army Hospitals from Sumatra to Papua provinces. Hospital preparedness is evaluated using the Preparedness Information System. Result: Every three months, hospital participants had to practice completing a hospital preparedness checklist. The hospital encountered a challenge when manually entering data into the checklist. The results of this study showed that the preparedness of Army hospitals in Indonesia ranges from moderate/medium preparedness degree (if the fulfillment rate is 50-79%) to adequate/high preparedness degree (if the fulfillment rate is more than 80%). Conclusion: Even though meeting the World Health Organization's 12-item rapid checklist of hospitals' preparedness for COVID-19 is tricky, good and continuous cooperation and coordination with the supra system makes it helpful for leaders and health professionals to make policies regarding hospital preparedness to face COVID-19.

Keywords: World Health Organization, Army Central Hospital, World Health Organization, Pandemic, Indonesia Army Hospitals, Covid-19, Hospital Preparedness Checklist

1. Introduction

1.1 Introduce the Problem

On March 11, 2020, the World Health Organization (WHO) announced the new coronavirus (COVID-19) outbreak as a global pandemic. WHO Director-General Dr. Tedros Adhanom Ghebreyesus said during a news conference that the number of countries and cases outside China has increased by three and thirteen times in the previous two weeks. There will likely be more rises. He asked countries to act right away to limit the virus, declaring that the frightening rates of severity and spread and the alarming rates of inaction have the WHO "deeply concerned." He said, "We should double down." "Our aggressiveness needs to increase" (WHO, 2020).

President Joko Widodo officially declared COVID-19 as a national disaster. The Republic of Indonesia Number 12 of the 2020 Presidential Decree (Keppres) decided to designate non-natural disasters related to the spread of COVID-19 as national disasters (BNPB, 2020). Many people in Indonesia still believe in misinformation about COVID-19 (origin, transmission, and preventive measures). The diverse educational and cultural backgrounds of society mean that misinformation continues to grow; even though correct information has been disseminated many times, misinformation is still growing. Errors in receiving information due to incorrect protocols and preventative measures can contribute to Indonesia's rising COVID-19 case transmission (Nasir NM et al., 2020). As of April 24, 2020, 2,626,321 individuals worldwide have tested positive for the virus; in China, there have been 2,239 fatalities and 75,569 recorded cases (Livingston E et al., 2020).

Additionally, there was a spike in COVID-19 cases in Indonesia. On March 2, 2020, Indonesia announced its first COVID-19 case; by May 8, 34 provinces had recorded over 12,776 cases and 930 deaths. Still, modeling studies suggest that about 2 percent of infections have been documented (Unicef, 2020).

Many people continue to doubt Indonesia's original record of zero cases before a worldwide pandemic was declared by the World Health Organization. Even though there were reports of an increase in infections from all nations, Indonesia did not place travelers under any particular travel restrictions or require them to stay in quarantine while they were there., not even from the worst-affected nations like China (De Salazar PM et al., 2020). On January 27, 2020, 238 Indonesian nationals were evacuated from Wuhan, and travel restrictions were imposed from Hubei province, the COVID-19 global epicenter (AA, 2020).

1.2 Explore Importance of the Problem

When infections started to be reported, Indonesia began to understand how severe the problem was. As a result, it enacted several laws and took other steps to solve COVID-19. One of them is by designating on March 3, 2020, one hundred general hospitals serving as referral hospitals. On March 18, 2020, the number of COVID-19 patients increased; there were 227 Referral Hospitals. But the death toll is rising. (Indonesiabaik.id, 2020). Direct information about COVID-19's effects in Indonesia is available from the Republic of Indonesia's Ministry of Health. Coordinated COVID-19 data is available on the newly launched website. Initially, some mainstream media attacked data openness.

However, the public is increasingly critical and demands that the government provide data transparency. The number of incidents may need to be more reported due to unclear data (Bangkit Indonesiaku, Sehat Negeriku, 2020).

"VUCA" was first established by the US Army War College in 1987. Following the conclusion of the Cold War, unstable geopolitical situations were characterized by volatility, uncertainty, complexity, and ambiguity (USAHEC,2020). This abbreviation is commonly used to describe a chaotic, tumultuous, and quickly evolving corporate environment following the fourth industrial revolution. This method may also be applied in other domains to enhance comprehension of the world and the COVID-19 epidemic. Changes that happen quickly and significantly over a certain length of time are referred to as volatile. A situation or occurrence that is ambiguous is said to be uncertain. The term "complexity" describes the interconnectedness of several essential decision

elements. Being more explicit about the necessary course of action is called ambiguity. We live in a VUCA environment regarding health care (Murugan S et al.,2020).

1.3 Describe Relevant Scholarship

The "Ring of Fire," which includes Indonesia, is prone to several natural calamities, including the COVID-19 epidemic. COVID-19 has a comprehensive effect that touches on many facets of life. Hospitals have to run as efficiently as possible during and after a crisis. Hospitals are crucial in delivering health care to afflicted areas by serving as the first line of defense in addressing COVID-19 cases (Mogg R, 2020). Hospital emergency preparedness has long been recognized by the 2015–2030 Sendai Framework for Disaster Risk Reduction (UNDRR, 2015) and the Hyogo Framework for Action, which was developed between 2005 and 2015 and presented at the World Conference on Disaster Reduction 18–22 January 2005 in Kobe, Hyogo, Japan (WCDR, 2005). Both frameworks emphasize the need for efficiency and safety. Because of this pandemic, it is essential to look into and evaluate how prepared Indonesian COVID-19 referral hospitals are to handle the pandemic, which is predicted to last for some time (Firdaus A et al., 2023).

1.4 State Hypotheses and Their Correspondence to Research Design

The World Health Organization released a kit for hospitals to prepare for the COVID-19 pandemic, including the COVID-19 Rapid Hospital Preparedness Checklist. This tool may help assess the overall preparedness of hospitals, evaluate healthcare capacity in the case of a COVID-19 pandemic, and suggest specific, essential actions that must be taken before and during the pandemic. Hospitals worldwide can use this product's twelve essential COVID-19 handling components. The 12 component instruments are as follows: human resources, capacity building, clinical patient management, continuity of critical support, leadership and incident management systems, monitoring and information management, coordination and communication risk communication and community engagement, financial administration and business continuity, and health deficiencies, infection prevention control, quick diagnosis, and mental and psychological support. Many nations have used this tool, sometimes known as a checklist. For instance, Lesotho, Nigeria, and Nepal have all employed assessment evaluations. Hospital self-assessments and provincial assessments are being carried out in other nations in the interim. It is also possible to see improvements in the hospitals undergoing evaluation due to deficiencies in the 12 elements of hospital preparedness for COVID-19. Gaps in the COVID-19 Hospital's 12 components Investigations into preparedness may also result in modifications to the assessed hospitals (WHO, 2020).

Based on the background information provided above, this study aims to enhance hospital resilience throughout the recovery phase by capturing the management perspective of Indonesia's Level-2 Army Hospital and Gatot Soebroto Army Central Hospital regarding the COVID-19 pandemic.

2. Method

2.1 Study Design

This study evaluated hospitals' preparedness for handling the COVID-19 pandemic using a cross-sectional study, which is a quantitative study.

2.2 Sampling Procedure

2.2.1 Data Sampling

The study was carried out in Army hospitals located from the provinces of Sumatra to Papua, in the areas under Indonesia's Regional Military Command, from January 2020 to December 2022. Fourteen level-2 army hospitals located throughout several provinces, including the top referral center, Gatot Soebroto Army Central Hospital, served as sites for the research. Participating hospitals were those that gave their consent to take part. All participating hospitals are authorized to participate in this study by the appropriate authorities. The present

investigation employed a non-probabilistic sampling technique per the study's objectives and authorization from each research location.

The location of the Level-2 Army Hospital is in the 1) Regional Military Command I/Bukit Barisan, 2) Regional Military Command II/Sriwijaya, 3) Regional Military Command III/Siliwangi, 4) Regional Military Command IV/Diponegoro, 5) Regional Military Command V/Brawijaya, 6) Regional Military Command VI/Mulawarman, 7) Regional Military Command IX/Udayana, 8) Regional Military Command XII/Tanjungpura, 9) Regional Military Command XIII/Merdeka, 10) Regional Military Command XIV/Hasanuddin, 11) Regional Military Command XVI/Pattimura, 12) Regional Military Command XVII/Cenderawasih, 13) Jayakarta Regional Military Command, 14) Regional Military Command Iskandar Muda, and 15) Gatot Soebroto Army Central Hospital.

2.2.2 Data Collection

Each participating hospital was given a formal letter, a focus group discussion guide, and questions regarding the checklist's implementation and challenges. A total of 15 hospitals consented to participate in the study. Data on hospital aspects, such as the number of beds available, isolation units, intensive care units (ICU), ventilators, and specialist health personnel related to COVID-19, were gathered using a standardized questionnaire. Hospital preparedness data was collected using an updated WHO COVID-19 hospital preparedness checklist (interim version, February 2020). The WHO preparedness checklist was created to help hospitals identify and start the critical steps required to guarantee a quick response to the COVID-19 epidemic. There were 12 main parts to the original checklist, and each part had questions (or indications) about how well the recommended action for that part was being implemented. The research requirements and questionnaire list have been tested previously at the Gatot Soebroto Army Central Hospital because this hospital is the highest referral hospital and is an ideal example for the hospitals below it. Each participating hospital receives a copy of the questionnaire and checklist in soft copy form. One or more hospital representatives who are knowledgeable about hospital service delivery and COVID-19 pandemic preparation, such as the medical director, head of clinical services, and head of the COVID-19 response team, should fill it out.

The evaluation team, including medical professionals, nurses, and representatives from the hospital's technical, administrative, financial, and managerial divisions, collected the data. Professionals with expertise and training in hospital disaster management make up the study's examiners. All assessors agreed on each element's value and level. Assessors already possess the skills and information to determine whether a hospital is prepared for an emergency. Fifteen hospital assessors filled out the COVID-19 Hospital Preparedness Information System form. As stated earlier, this form utilizes the 12 components of the Rapid Hospital Preparedness Checklist for COVID-19, which the World Health Organization created (WHO, 2020) (Table 1). This instrument has twelve major components with several suggested actions (sub-components).

2.3 *Data Analysis*

The evaluation criteria for each component criterion are displayed by data analysis: 1) Not Available: either no plan exists or a plan exists but has not yet begun; 2) Partially Functional: planning is now available but incomplete; or 3) Fully Functional: planning is complete and effective while adhering to relevant criteria.
The analytical method used in this research is a rapid-based checklist of hospital preparedness for COVID-19 to determine the hospital disaster preparedness. The following scoring criteria are used to assign scores to each checklist subcomponent.

$$ComponentScore = \sum SubcomponentScore$$

The Component Score is then divided by the total number of sub-components in each component using the following calculation:

$$Achievementpercentage = \frac{SubscomponentScore}{\sum SubcomponentScore}$$

The hospital's preparedness for managing the COVID-19 pandemic was then assessed using the Achievement Percentage and the WHO assessment system, which is broken down into three categories as shown in table:

Table 1: WHO Scoring classification of hospital preparedness in facing the COVID-19

Preparedness degree	Percentage fulfilment
Not prepared	If the fulfilment value is less than 50%
Moderate or Medium preparedness degree	If the fulfilment value is 50-79%
Adequate or High preparedness degree	If the fulfilment value is more than 80%

2.4. Ethical Considerations

The ethical clearance number 30/VII/KEPK/2023, which was granted by the ethics committees of Gatot Soebroto Army Central Hospital

3. Results

The research results were obtained based on an evaluation of the achievement scores of 15 Army Hospitals using the COVID-19 Hospital Preparedness Information System checklist, which is sourced from the WHO-created Rapid Hospital Preparedness Checklist for COVID-19 (WHO,2020). This instrument has twelve Key Components, each with many Recommended Actions (sub-components).

The research locations were all Level-2 hospitals in the Regional Military Commands area from Sumatra to Papua provinces, with the Gatot Soebroto Central Army Hospital as the highest referral center, Figure 1.

The location of Army hospital are in the 1) Gatot Soebroto Army Central Hospital 2) Iskandar Muda Hospital at Regional Military Command Iskandar Muda 3) Putri Hijau Hospital at Regional Military Command I/Bukit Barisan, 4) AK Gani Hospital at Regional Military Command II/Sriwijaya, 5) Dustira Hospital at Regional Military Command III/Siliwangi, 6) Moh Ridwan Meuraksa Hospital at Jayakarta Regional Military Command, 7) Dr. Soejono Hospital at Regional Military Command IV/Diponegoro, 8) Dr. Soepraoen Hospital at Regional Military Command V/Brawijaya, 9) Dr. R Harjanto Hospital at Regional Military Command VI/Mulawarman, 10) Udayana Hospital at Regional Military Command IX/Udayana, 11) Kartika Husada Hospital at Regional Military Command XII/Tanjungpura, 12) RW Mongisidi Hospital at Regional Military Command XIII/Merdeka, 13) Pelamonia Hospital at Regional Military Command XIV/Hasanuddin, 14) Prof Dr JA Latumeten Hospital at Regional Military Command XVI/Pattimura, 15) Marthen Indey Hospital at Regional Military Command XVII/Cenderawasih.

Figure 1: The location of the Regional of Military Commands where thelevel 2 hospital were studied.

The distribution of the locations of level 2 army hospitals in Indonesia is depicted in Figure *2*.

Figure 2: Map of Indonesia and fifteen hospitals that took part in theresearch, spread across each province.

The VUCA conditions faced by various hospitals in Indonesia, considering the uncertain nature of the COVID-19 pandemic, mean that the Indonesian Army must play a big role in providing health services because its presence is distributed throughout military regional command areas.

3.1 *Hospital Preparedness of the Gatot Soebroto Army Central Hospital*

Gatot Soebroto Army Central Hospital, as the highest reference and main reference point for the Presidency, must be ready to fight COVID-19 because there were still many unknown things at the beginning of the pandemic. At that time, no one was immune to COVID-19, the emergence of various hoaxes resulted in obstacles in handling it, there was no appropriate medicine, and no country was ready to face a pandemic. The number of cases of infection in various countries increased, and it seemed as if the country had no national borders. There were many questions about whether this was a natural or artificial manufactured infection.

Outpatient and inpatient COVID-19 patients at RSPAD numbered 39,981 people from the beginning of 2020 to 2023. Inpatients have severity levels, namely patients without symptoms (asymptomatic), mild, moderate, and severe. Of all patients, 81 % are inpatients with moderate to severe symptoms. The death rate for inpatients during the three years at RSPAD was 1,051. Preparedness for handling COVID-19 is essential.

The legal standing of RSPAD Gatot Soebroto is based on several regulations: 1) Army Chief of Staff Regulation No. 26 of 2019 concerning the Organization and Duties of RSPAD GS is to support the main tasks of the Army and Armed Forces. 2) Regulation of the Commander of the Armed Forces No. 45 of 2017 concerning RSPAD GS as the Highest Reference for Armed Forces. 3) Presidential Decree no. 18 of 2018 concerning RSPAD as the Main Reference for the Presidency and becoming the Icon Presidential Hospital. 4) Minister of Health Decree Number 169 of 2020 concerning the designation of Referral Hospitals for Handling Certain Emerging Infectious Diseases, and 5) Minister of Finance Decree Number 804/KMK.05/2016 dated November 8, 2016, concerning the designation of RSPAD Gatot Soebroto as a Government Agency that implements the Financial Management Pattern for Public Service Bodies (PPK-BLU).

In carrying out the first key component of the 12 preparedness checklists from WHO, the leadership and incident management system, Gatot Soebroto Army Central Hospital seeks to implement seven recommended actions:

a) Forming an emergency disease management team.
b) Conducting pandemic simulation rehearsals.
c) Establishing various standard operating procedures during a pandemic.
d) Creating a COVID-19 countermeasures post that gives morning reports every day,
e) Carrying out tabletop exercises,
f) Making a hospital disaster plan, and
g) Centralize the treatment room for COVID-19 patients

In implementing the second key component, namely communication and coordination from WHO, internally, Gatot Soebroto Army Central Hospital activated communication and expanded communication tools (mobile phones, WhatsApp, email, and call centers) for all staff, patients, and visitors. Externally, it carried out dissemination and re-education about emergency infectious diseases to various media, training COVID-19 spokespersons, and communicating every day in forums with the supra system (Army Headquarters, Armed Forces Headquarters, Ministry of Health, etc.), reporting daily data and embracing philanthropists and donors to participate in overcoming Covid-19.

Following the recommendation of the third key component, Army Central Hospital will prepare protocols and Standard Operating Procedures (SOP) that are accessible to all employees, patients, visitors, and the general public to understand more about the communication risk regarding infection prevention and control. The hospital has designated personnel to gather, examine, and distribute information on COVID-19 and its services, adhering to the necessary protocols.

Outpatient and inpatient COVID-19 patients at Army Central Hospital numbered 39,981 people from the beginning of 2020 to 2023. Inpatients have severity levels, namely patients without symptoms (asymptomatic), mild, moderate, and severe. Of all patients, 81 % are inpatients with moderate to severe symptoms. The death rate for inpatients during the three years at Army Central Hospital was 1,051. Preparedness for handling COVID-19 is essential.

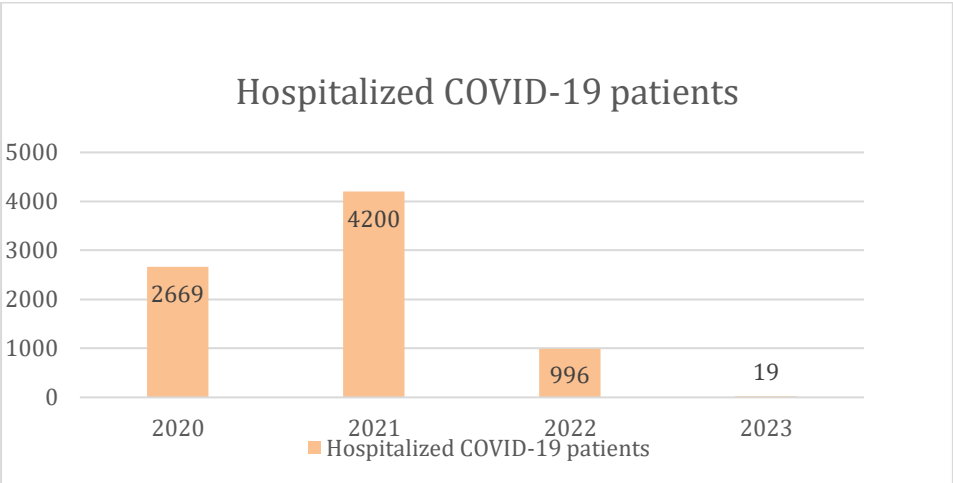


Figure 3: Number of hospitalized COVID-19 patients.

Figure 3 shows the data on COVID-19 patients in Inpatient and Emergency Care Patients. The number of COVID-19 patients in 2020 was 2,669; then, in 2021, there were cases, namely 4,200 patients. In the following year, 2022, Covid-19 patients decreased to 996 and 19 patients. The highest number of cases of hospitalized patients occurred in 2021 (4200).

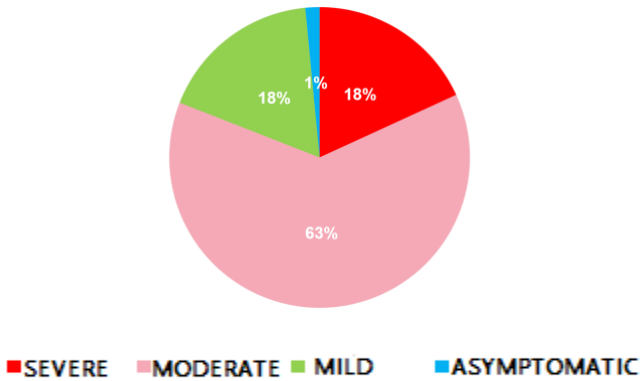


Figure 4: Diagrams of severity level COVID-19 hospitalized patients

In general, 63% of inpatients treated in Gatot Soebroto Army Central hospital had a moderate severity level of condition.

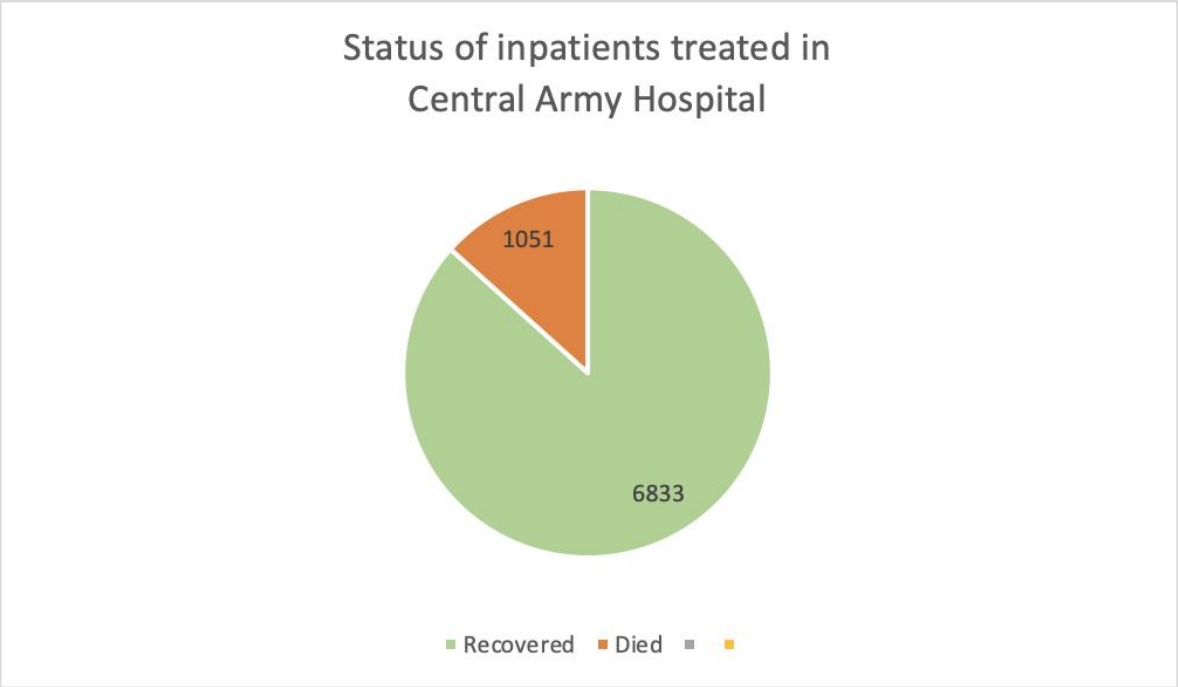


Figure 5: The status of s treated in Army Central Hospital

Case Fatality Rate was 13.3%, occurring in patients with severe level (18%).

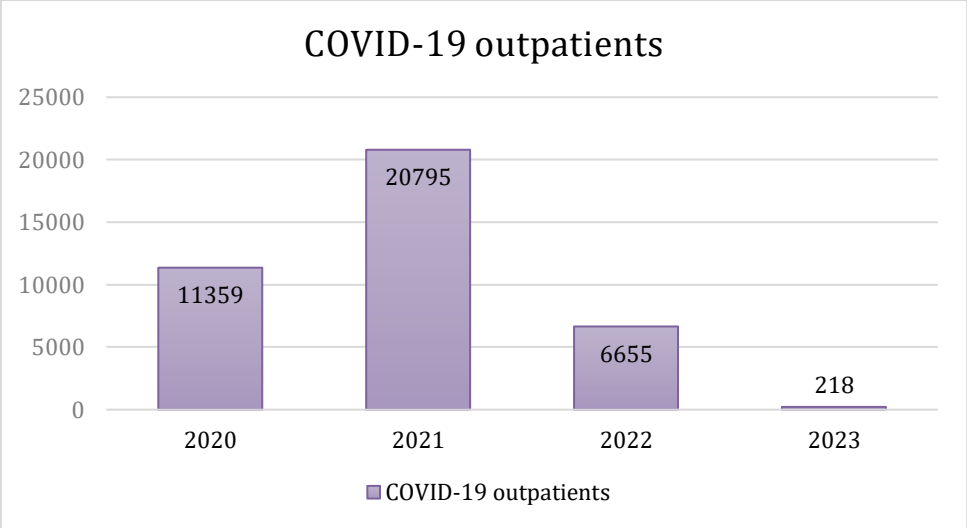


Figure 6: COVID-19 outpatients. The highest outpatient visits occurred in 2021 (20,795).

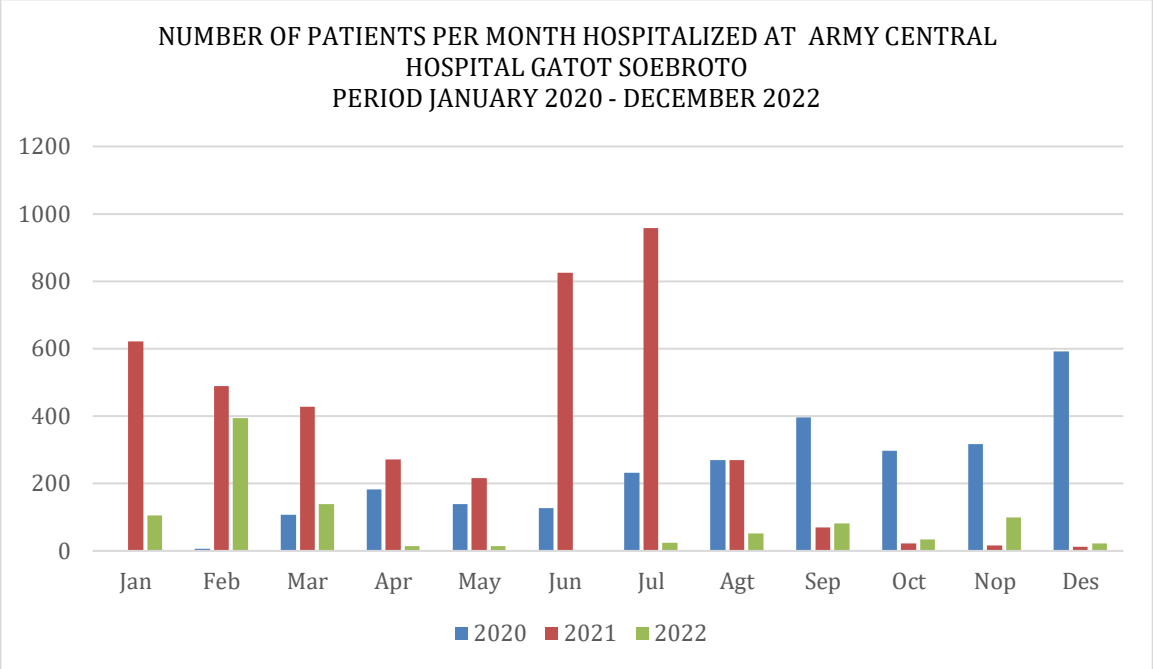


Figure 7: Number of patients per month hospitalized at Army Central Hospital period January 2020 – December 2022. The peak incidence of COVID- 19 occurred in July 2021.

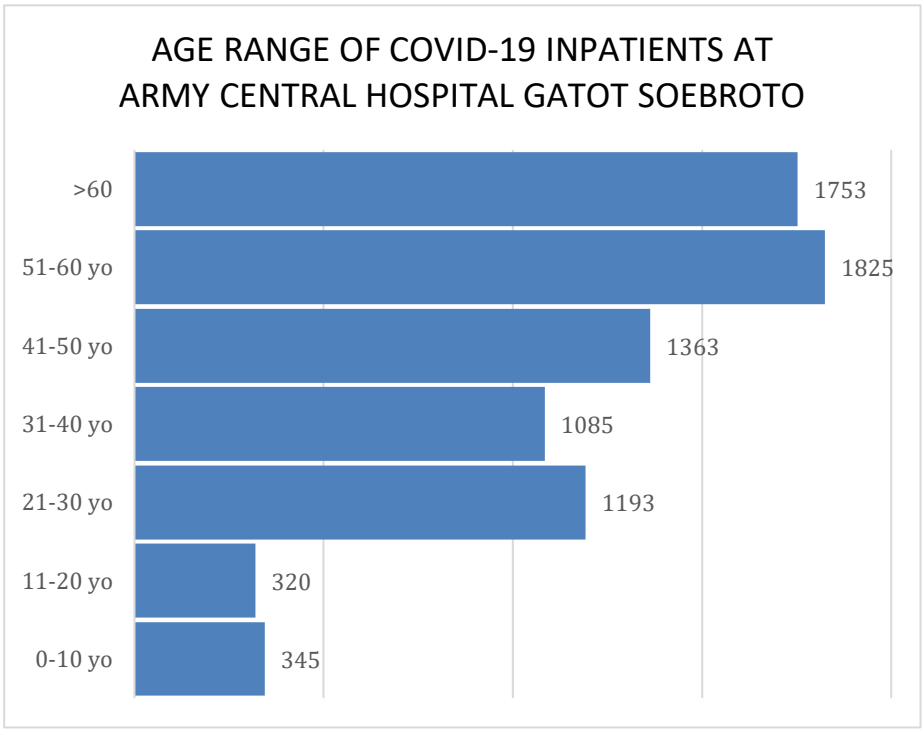


Figure 8: Age range of COVID-19 inpatients at Army Central Hospital

The fourth key components are risk communication and community engagement. Army Central Hospital built a policy of "four healthy, five perfect" (1. Wear a mask and scan body temperature; 2. Hand hygiene and a clean and healthy lifestyle, 3. Physical restrictions, 4. Tools self-protection, 5. Comply with policies according to SOP, Clinical Pathway, and Speak Up Culture). They set up a COVID-19 Call Center and Information Corner, a COVID-19 educational video, an abolition of visiting hours, and a waiting policy with antigen swabs.

The fifth component is financial administration and business continuity. Even WHO suggested that all purchasing, supplying, and required services for COVID-19 management. Army Central Hospital made a system for procuring health equipment and health supplies according to priority scale. The Ministry of Health directly guarantees the management of COVID-19 patients by diverting the state budget. Because Army Central Hospital is a COVID-19 treatment center, medical personnel recruitment from various other health facilities is accompanied by a temporary practice permit. When the escalation of COVID-19 increases, there are restrictions on services for non-COVID-19 patients.

The sixth component is Human Resources, Army Central Hospital updated internal rotation, recruitment of volunteers, organization of education and training and research and development, periodic medical health examination, vaccination, and facilitation of Work from Home for High-Risk Human Resources.

The seventh component is surge capacity. Army Central Hospital developed emergency installations, central surgery installations, hemodialysis capacities, inpatient rooms, and laboratory facilities.

The eighth is continuity of essential service support. Army Central Hospital developed the report system for daily, weekly, and monthly evaluations among the team and hospital leaders through video conferences with the supra system. The top on-duty officers, as representatives of the hospital director, make decisions regarding COVID-19 services.

The ninth component is the clinical management of patients. Army Central Hospital builds daily integrated reports using the satellite method, Telemedicine and VIP patient home visits, Commander hours of distancing, Use of HT for communication between officers in the treatment room, Use of CCTV for patient monitoring, Support from Minister of Defense / Indonesian Army Commander / Head of force units land by building a field hospital TNI/Head of force units land by building a field hospital and We are facing the escalation of COVID-19 patients. The ten components are occupational health, mental health, and psychosocial support. All hospital staff are protected, trained, and equipped with Personal Protective Equipment (PPE) to provide medical services to all patients. The Director supports additional incentives, logistics / extra food, accommodation for health workers, psychosocial and mental health support available for hospital staff, family, and patients, online entertainment, insurance, reward systems, and others.

The eleventh component is rapid identification and diagnosis of COVID-19, including the development of a rapid PCR laboratory, namely the second Army Central Hospital PCR laboratory that is recognized after the Ministry of Health; developed online COVID-19 screening, one-stop COVID-19 outpatient service, drive-thru swab PCR, and home visit PCR swabs. All laboratories and reception areas are equipped with information and posters regarding Personal Protective Equipment (PPE) and biosafety to handle samples, including their disposal safely.
The twelfth component is infection prevention and control. Army Central Hospital is working on COVID-19 service protocols, using PPE according to zoning, outreach, re-education on disease prevention and control, and creating standards for isolation rooms. To prevent transmission, including airborne transmission, create patient service facilities, provide hand hygiene facilities, limit visitors, and maintain distance. Maintain cleanliness and sanitation of the environment and equipment. Manage the bodies of COVID-19 patients.

3.2 *Hospital Preparedness of the Level-2 Army Hospital in Indonesia*

There are 14 Level-2 hospitals within the Indonesian Army, all of which are classified as type B. All of the data are as follows on the information system dashboard after respondents have completed the COVID-19 Hospital Preparedness information system form:

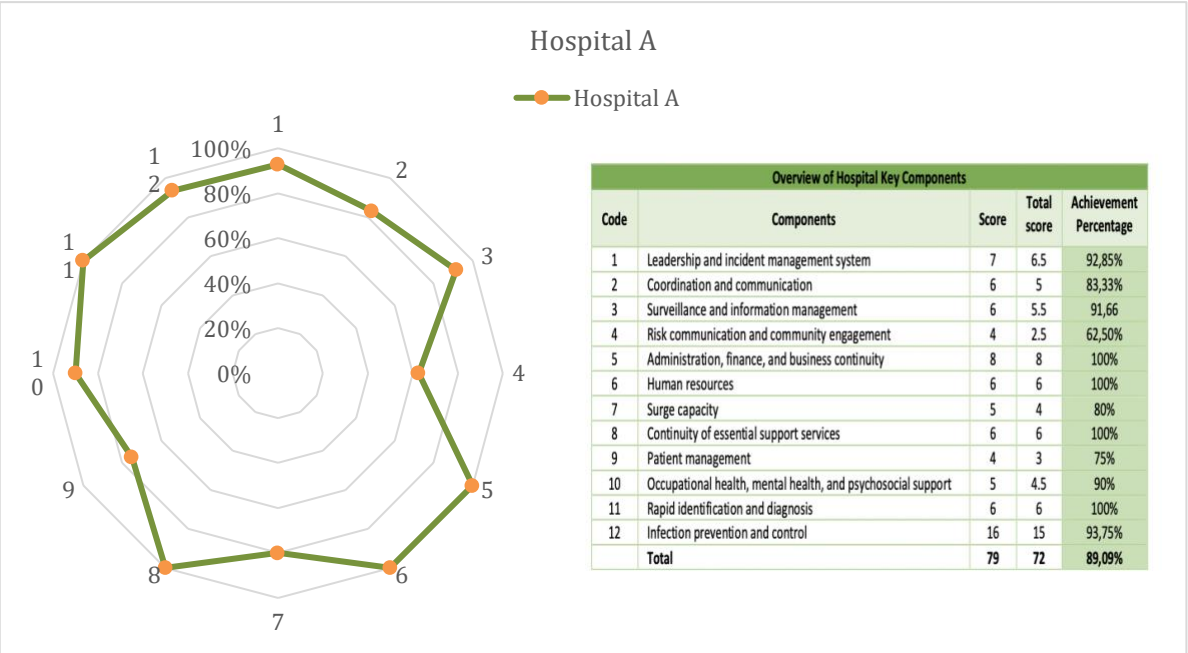
Table 3: Achievement percentage of COVID-19 hospital preparedness at 15 Army hospitals from Sumatera to Papua. (Hospital H and Hospital I); and North Sumatra (Hospital J and Hospital K).

Hospital Achievement Percentage															
Code	**Components**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**
1	Leadership and incident management system	92,8%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%
2	Coordination and communication	83,3%	83,3%	83,3%	100%	100%	100%	100%	83,3%	100%	75%	100%	100%	50%	100%	100%
3	Surveillance and information management	91,6%	83,3%	83,3%	91,6%	100%	100%	100%	91,6%	83,33%	66,6%	100%	100%	50%	100%	100%
4	Risk communication and community engagement	62,5%	100%	100%	100%	100%	100%	100%	62,5%	100%	100%	100%	100%	50%	100%	100%
5	Administration, finance, and business continuity	100%	81,2%	93,7%	87,5%	100%	100%	100%	87,5%	100%	100%	100%	100%	31,2%	100%	100%
6	Human resources	100%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	41,6%	100%	100%
7	Surge capacity	80%	80%	80%	80%	80%	100%	100%	60%	100%	100%	100%	100%	10%	100%	100%
8	Continuity of essential support services	100%	100%	91,6%	100%	100%	100%	100%	83,3%	100%	100%	100%	100%	58,3%	100%	100%
9	Patient management	75%	87,5%	100%	100%	75%	100%	100%	87,5%	75%	75%	87,50%	100%	37,5%	100%	100%
10	Occupational health, mental health, and psychosocial support	90%	40%	100%	70%	100%	100%	100%	100%	80%	90%	100%	100%	30%	100%	100%
11	Rapid identification and diagnosis	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
12	Infection prevention and control	93,7%	90,6%	100%	96,8%	100%	100%	100%	93,7%	100%	100%	100%	100%	96,8%	100%	100%
	Total	**89,1%**	**78,1%**	**94,3%**	**93,8%**	**97,9%**	**100%**	**100%**	**80,1%**	**94,8%**	**92,2%**	**98,95%**	**100%**	**50,4%**	**100%**	**100%**

Table 3 displays the number of hospitals that meet the requirements and the list of 15 Army hospitals that have completed the form for the Not Ready (≤ 50%), Moderate or Moderate Preparedness degree (50-79%), and Sufficient or High Preparedness degree (≥ 80%) categories. From this table, Radar Graph was created which reflects the hospital's preparedness achievements in facing the pandemic. There are 5 hospitals that can carry out the WHO Hospital Preparedness checklist >80% with a score of 100%, there are achievements above 80% but below 100% in 8 hospitals, while the achievement was below 80% there were 2 hospitals.

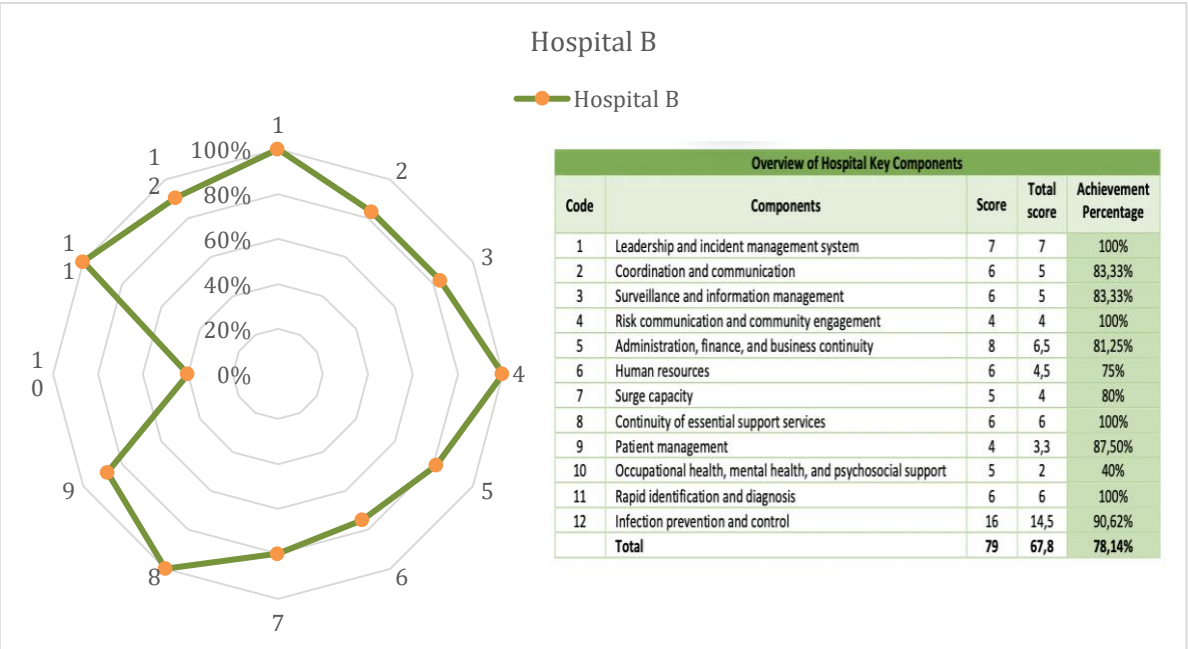
The achievement of hospital preparedness for each hospital that we randomly display is as follows:

1. Hospital A



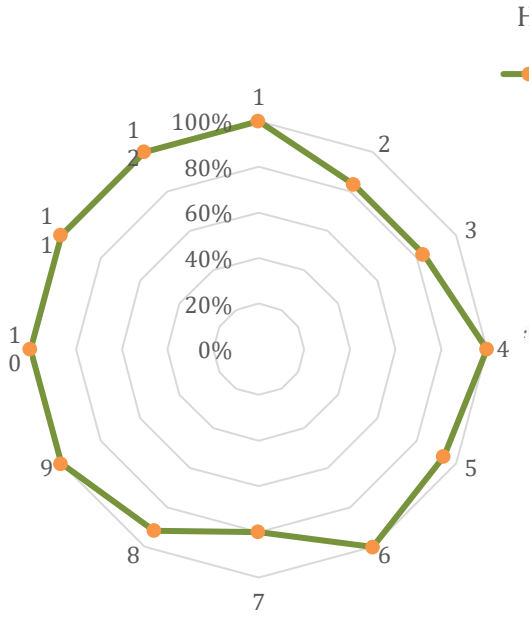
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	6.5	92,85%
2	Coordination and communication	6	5	83,33%
3	Surveillance and information management	6	5.5	91,66
4	Risk communication and community engagement	4	2.5	62,50%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	4	80%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3	75%
10	Occupational health, mental health, and psychosocial support	5	4.5	90%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	15	93,75%
	Total	**79**	**72**	**89,09%**

2. Hospital B



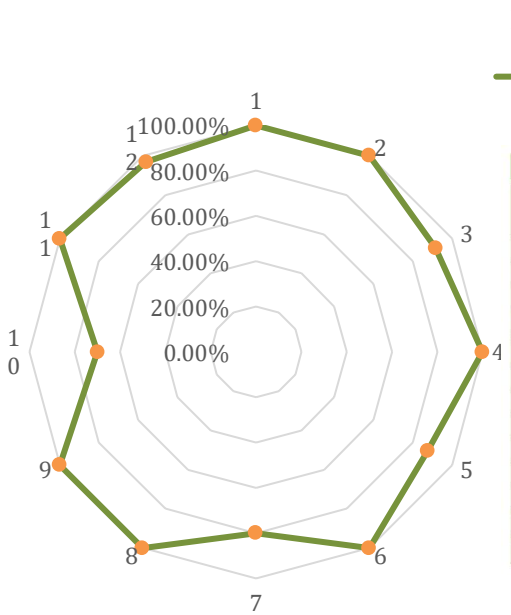
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	5	83,33%
3	Surveillance and information management	6	5	83,33%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	6,5	81,25%
6	Human resources	6	4,5	75%
7	Surge capacity	5	4	80%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3,3	87,50%
10	Occupational health, mental health, and psychosocial support	5	2	40%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	14,5	90,62%
	Total	**79**	**67,8**	**78,14%**

3. Hospital C



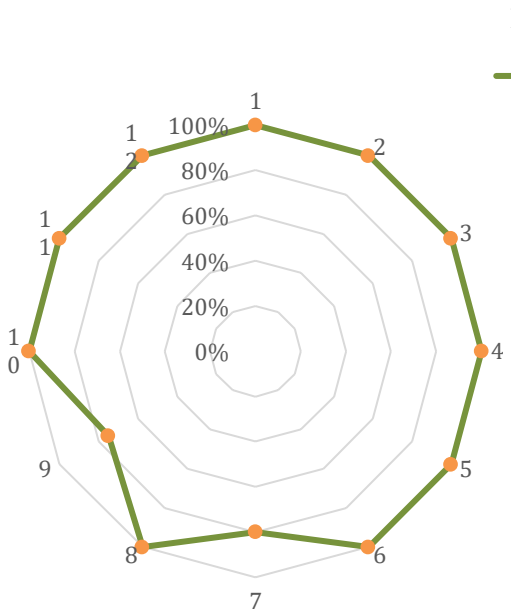
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	83,33%
3	Surveillance and information management	6	6	83,33%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	7,5	93,75%
6	Human resources	6	6	100%
7	Surge capacity	5	4	80%
8	Continuity of essential support services	6	5,5	91,66%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**77**	**94,33%**

4. Hospital D



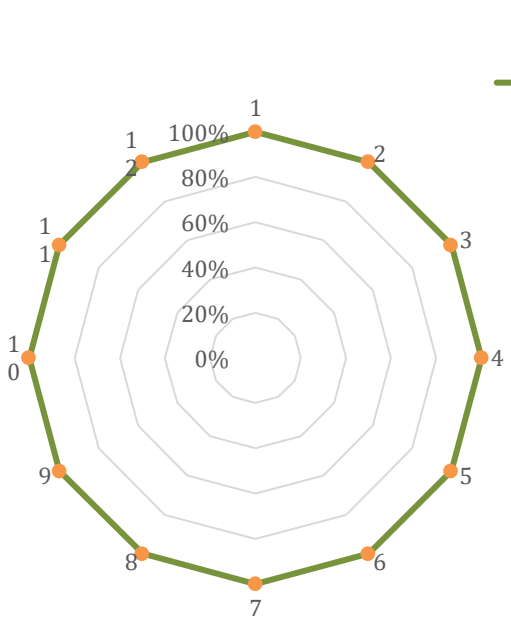
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	5,5	91,66%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	7	87,50%
6	Human resources	6	6	100%
7	Surge capacity	5	4	80%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	3,5	70%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	15,5	96,87%
	Total	**79**	**74,5**	**93,83%**

5. Hospital E



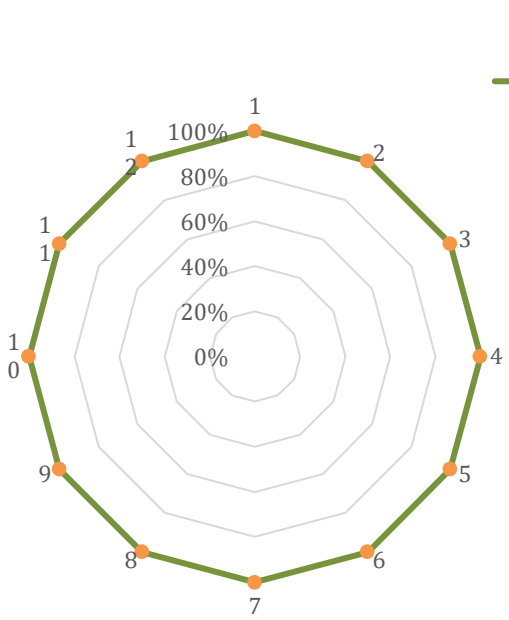
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	S chart and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	3,5	80%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3	75%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**76,5**	**97,91%**

6. Hospital F



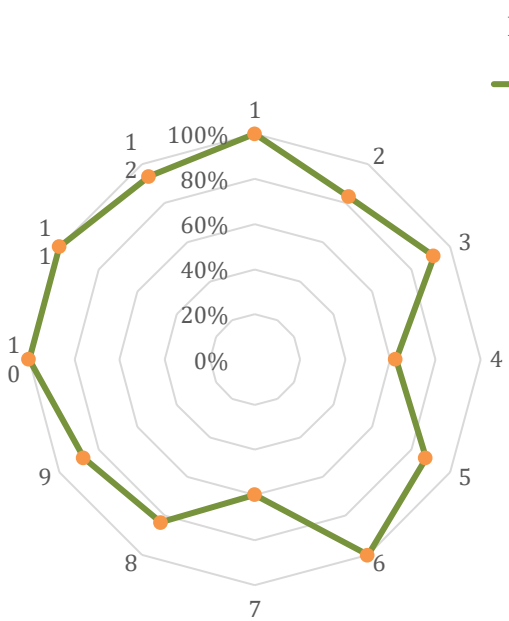
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**79**	**100%**

7. Hospital G



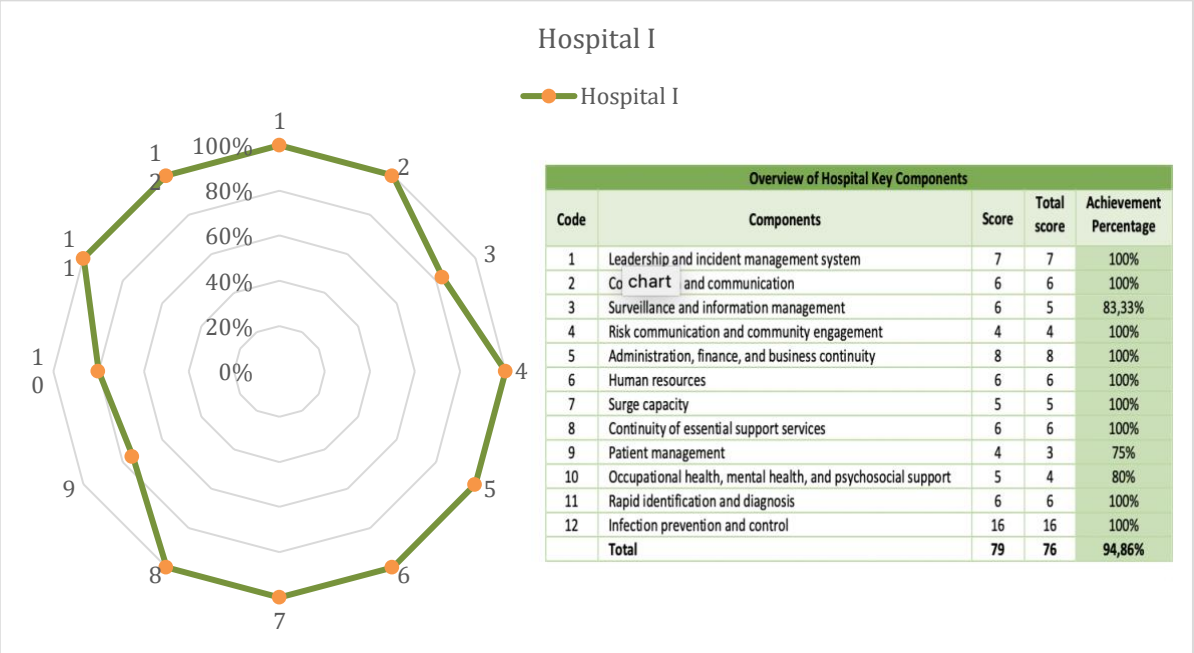
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**79**	**100%**

8. Hospital H



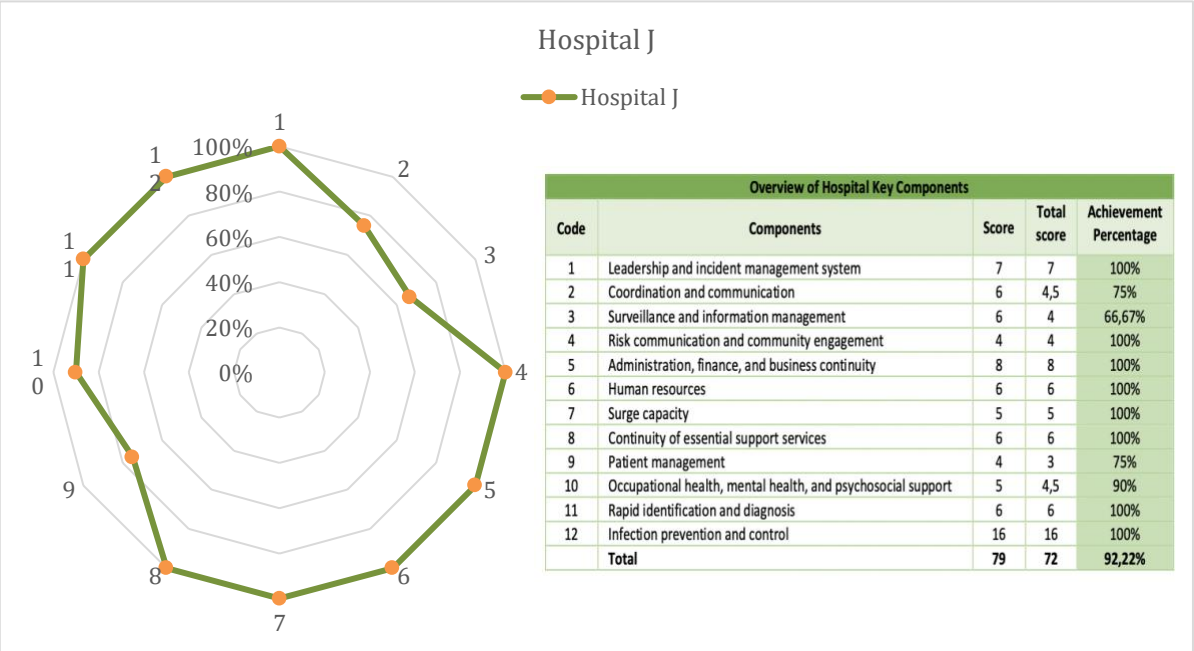
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	6	100%
2	Coordination and communication	6	5	83,33%
3	Surveillance and information management	6	5,5	91,66%
4	Risk communication and community engagement	4	2,5	62,50%
5	Administration, finance, and business continuity	8	7	87,50%
6	Human resources	6	6	100%
7	Surge capacity	5	3	60%
8	Continuity of essential support services	6	5	83,33%
9	Patient management	4	3,5	87,50%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	15	93,75%
	Total	**79**	**69,5**	**80,17%**

9. Hospital I



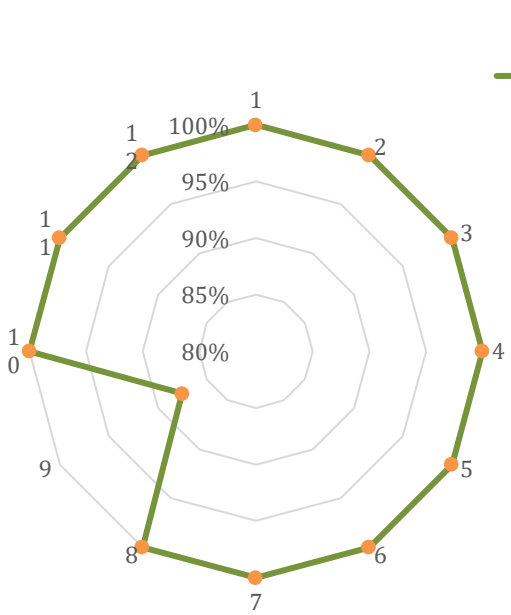
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	5	83,33%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3	75%
10	Occupational health, mental health, and psychosocial support	5	4	80%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**76**	**94,86%**

10. Hospital J



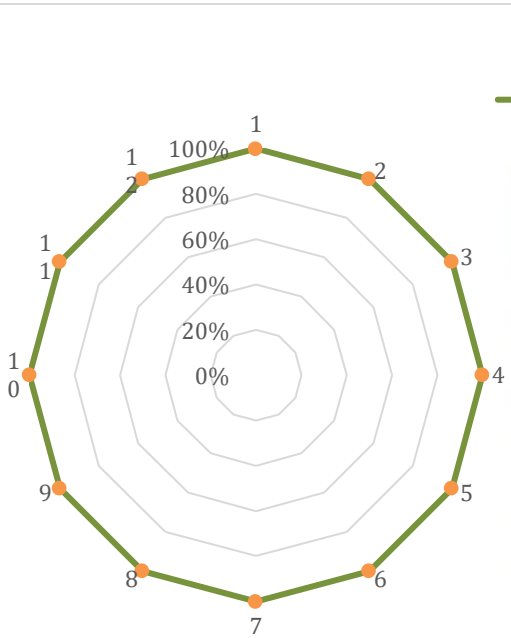
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	4,5	75%
3	Surveillance and information management	6	4	66,67%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3	75%
10	Occupational health, mental health, and psychosocial support	5	4,5	90%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**72**	**92,22%**

11. Hospital K



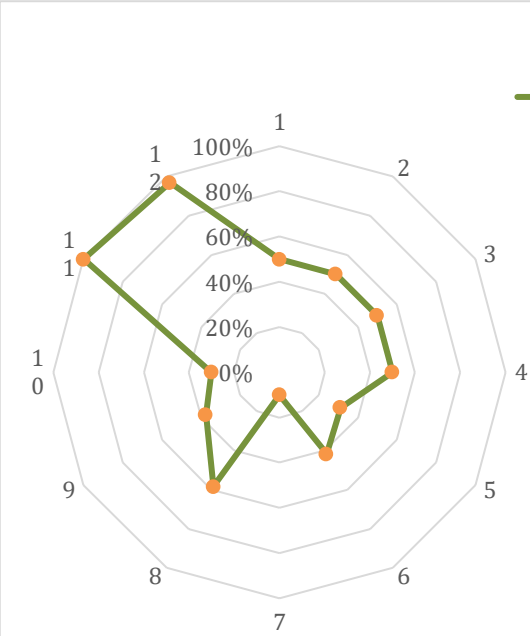
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	3,5	87,50%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**78,5**	**98,95%**

12. Hospital L



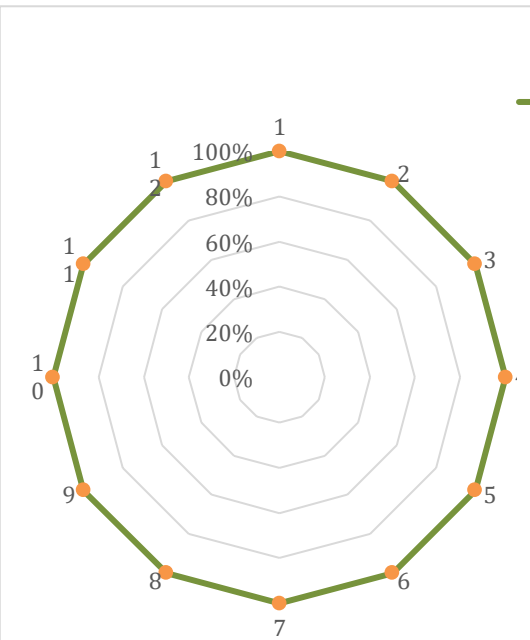
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**79**	**100%**

13. Hospital M



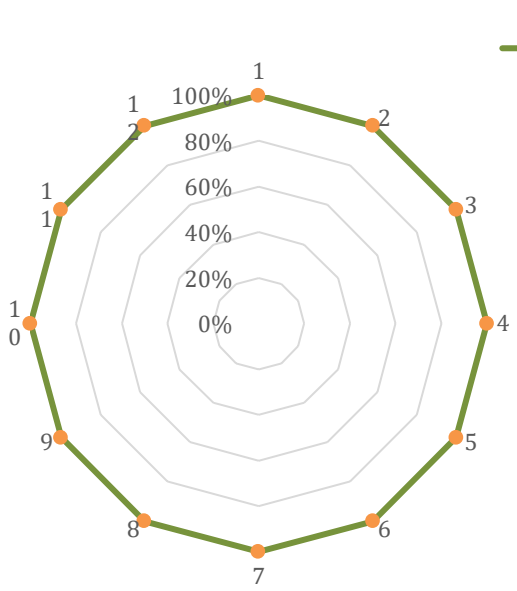
Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	3,5	50%
2	Coordination and communication	6	3	50%
3	Surveillance and information management	6	3	50%
4	Risk communication and community engagement	4	2	50%
5	Administration, finance, and business continuity	8	2,5	31,25%
6	Human resources	6	2,5	41,66%
7	Surge capacity	5	0,5	10%
8	Continuity of essential support services	6	3,5	58,33%
9	Patient management	4	1,5	37,50%
10	Occupational health, mental health, and psychosocial support	5	1,5	30%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	15,5	96,87%
	Total	**79**	**45**	**50,46%**

14. Hospital N



Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**79**	**100%**

15. Hospital O



Overview of Hospital Key Components				
Code	Components	Score	Total score	Achievement Percentage
1	Leadership and incident management system	7	7	100%
2	Coordination and communication	6	6	100%
3	Surveillance and information management	6	6	100%
4	Risk communication and community engagement	4	4	100%
5	Administration, finance, and business continuity	8	8	100%
6	Human resources	6	6	100%
7	Surge capacity	5	5	100%
8	Continuity of essential support services	6	6	100%
9	Patient management	4	4	100%
10	Occupational health, mental health, and psychosocial support	5	5	100%
11	Rapid identification and diagnosis	6	6	100%
12	Infection prevention and control	16	16	100%
	Total	**79**	**79**	**100%**

4. Discussion

4.1 Previous history of research on hospital preparedness in facing the COVID-19 pandemic

A questionnaire created by the WHO Regional Office for the Eastern Mediterranean Region was utilized in previous research carried out in pediatric and adult ICUs at Cairo University and 22 Eastern Mediterranean Region (Labib et al., 2020). Its ten main components are as follows: quick identification, diagnosis, isolation and case management, information, communication, human resources, operational support, logistics and supply management, increased capacity and continuity of critical services, and infection prevention and control (WHO EURO, 2020). These studies show hospitals were only moderately prepared when the COVID-19 pandemic started (Ravaghi et al., 2022).

Comprehensive Hospitals are also used in other investigations. The COVID-19 checklist for preparation was released by the US Centers for Disease Control and Prevention (CDC) (Qarawi ATA et al., 2021). This checklist includes information on making decisions and creating plans, developing written COVID-19 plans, and the entire COVID-19 plan, which includes things like facility communications, durable and consumable medical supplies and equipment, managing sick patients, accessing and moving around facilities, occupational health, education and training, and health services/capacity spike) (Qarawi ATA et al., 2021). By applying this checklist, Qarawi et al. concluded that hospitals must be more prepared to handle COVID-19 services (CDC, 2021).

Initially developed by the WHO regional office for Europe and used in earlier studies conducted in Nigeria, the Hospital Preparedness Checklist for COVID-19 was expanded to include the availability of essential resources and the safety of the staff. There were 13 components and 124 indicators in the modified checklist. After pre-testing the study checklist and questionnaire, one of the COVID-19 treatment centers was removed from the survey. According to the study, most participating Nigerian hospitals were equipped to handle the COVID-19 pandemic (Ogoina D et al., 2021).

The World Health Organization Pan American checklist (PAHO 2019) was standardized and used in another prior study conducted in Mazandaran Province, Iran (PAHO, 2019). The ten components that comprise this checklist are the incident management system, coordination, information management, logistics, finance and administration, detection, diagnosis, isolation, case management, and infection prevention and control. The hospital can manage

the COVID-19 pandemic outbreak since it is well-prepared. Superior quality Hospitals in the province of Mazandaran were well-prepared for the COVID-19 pandemic. However, due to the length of the pandemic and the unpredictability of its end, it is imperative to monitor the critical components to maintain a high degree of preparedness (Hosseini SH et al., 2021).

Data for the study were gathered in Indonesia through focus group talks led by Dhamanti et al. Nine organizations from East Java and Bali provinces participated in the study, which was carried out in October 2021 in East Java, Indonesia. The Data's thematic analysis findings were presented using a narrative format. Participating hospitals must practice filling out a hospital preparedness checklist every three months. The participating hospital faces several difficulties, including manually entering data into the checklist, lack of coordination and communication, and different opinions about the lack of a technical guide, feedback, and the data returning empty due to filling errors. This study, which included hospitals and the health office, detailed the difficulties in determining the program's efficacy. Hospitals and the District Health Office had specific issues with the present system (Dhamanti I et al.,2022).

The World Health Organization's rapid hospital preparedness checklist for COVID-19, which consists of 12 components, was used in a cross-sectional study conducted in Indonesia from March to September 2022 to assess hospital preparedness. During the initial year of the COVID-19 pandemic, the research was conducted on the islands of Sumatra, Kalimantan, Java, Bali-Nusa Tenggara, Maluku, and Papua. According to the findings, hospitals in Yogyakarta's Special Region and Jakarta's Capital Special Region have appropriate levels (≥ 80%). In the meantime, hospitals in North Sumatra and West Java range in preparedness from 50% to 79%, adequate (≥ 80%), and moderate (50 - 79%) to not ready (≤ 50%). According to the findings, only 46% of health services routinely evaluate their COVID-19 operational strategies. The assessment results also show that, in comparison to the other two provinces (West Java and North Sumatra), the hospital preparedness in the Central Special Region of Jakarta and the Special Region of Yogyakarta is generally better in the following areas: administration, finance, and business continuity; human resources; surge capacity; continuity of critical support services; and patient management. Even though practically all hospitals have COVID-19 preparedness guidelines for the pandemic, evaluations of the implementation of these policies or preparedness simulations have not been carried out (Lestari et al., 2023).

4.2 Hospital preparedness in facing the COVID-19 pandemic at Army Central Hospital and Army Hospital Level-2

In implementing 12 hospital preparedness indicators, Army Central Hospital experienced several obstacles due to the spike in COVID-19 cases, which required a lot of isolation in inpatient rooms. For this reason, several inpatient rooms have been used as isolation rooms for COVID-19 patients and a field hospital in the vehicle parking lot.

Based on data on the age range of patients infected with COVID-19, they are generally adults, and most are in the 51-60 year age range, so medical personnel in this age group are advised to work from home. This results in a reduction in medical personnel. The shortage of medical personnel to provide services for COVID-19 cases is supplemented by deploying medical personnel from Army hospitals levels-3 and level-4 and non-medical personnel from regional military command. The still-uncertain management of COVID-19 led to the development of various therapeutic procedures, resulting in the demand for multiple types of non-standardized drugs growing considerably.

During the COVID-19 pandemic, Army Central Hospital documented all activities, including conducting various research on managing COVID-19. Gatot Soebroto Hospital even received an award as the first hospital to conduct convalescent plasma research and the hospital with the most complete documentation of COVID-19.

In addition to carrying out the WHO hospital preparedness checklist, Army Central Hospital also carried out outreach on COVID-19 vaccination. At first, COVID-19 vaccination was very difficult to implement because there were still many pros and cons, but continuous outreach can increase the coverage of people who receive the COVID-19 vaccine. To eliminate doubts in the community regarding the safety of the COVID-19 vaccine, Army

Central Hospital Gatot Soebroto initiated a kick of vaccine, which must first be given to the President of the Republic of Indonesia, Joko Widodo, and disseminated to the entire community. The vaccination program was followed by the COVID-19 vaccination activity, which army hospitals throughout Indonesia spearheaded, followed by all health institutions and the wider community to achieve the herd immunity target in administering the vaccine.

Regional hospitals are overwhelmed by the surge in patients infected with the coronavirus. The difficulties experienced are mainly related to management and infrastructure in providing services. COVID-19 is a deadly infectious disease in a short time. Patients who experience acute respiratory system failure require special facilities and infrastructure such as ICU, special isolation rooms, oxygen, or ventilators, while these facilities are minimal. In implementing the WHO hospital preparedness checklist, various obstacles depend on the condition of each hospital. Two Army hospitals are at a medium preparedness level (50% - 79%), while 13 other hospitals are at a high preparedness level > 80%. The Army Headquarters focuses on supporting facilities and human resources for various army hospitals.

The key component, patient management, has the highest difficulty level. The obstacles in this case are the availability of space for patient care and medicines that must be prepared and the inadequate availability of medical equipment, including ventilators and intensive care rooms.

The information from the COVID-19 Task Force projects that the need for ventilators to treat the coronavirus in Indonesia will reach around 29.9 thousand units. However, the availability of this tool was only 8.4 thousand units as of March 2020. Only four provinces have more than half the ventilator requirements in their region, namely North Kalimantan (72.7%), Bangka Belitung (69.8%), DKI Jakarta (55.9%), and West Sulawesi (51.6%). Meanwhile, availability in other provinces is 20-30% (Databooks, 2020).

The data obtained in this study show that five army hospitals could not achieve 100% of achievement percentage categories on this key component; four hospitals got a score of 75%, and one hospital got a score of 37.5%. One hospital is in the Sulawesi region, one is in Sumatra, two are on the island of Java, and one is in the Maluku region. Another difficulty level is in key component 10: occupational health, mental health, and psychosocial support. Personal Protective Equipment (PPE) is available to provide medical services to COVID-19 patients. Medical supervision of hospital staff, suspected cases in their families, and close contacts because hospital staff serving COVID-19 tend to create stigma. Medical staff must be provided psychosocial and mental health support, including providing more significant incentives. Some hospitals cannot meet the achievement percentage of 100%: one hospital in Sumatra (40%), one in Kalimantan (70%), and one in Maluku province (30%). Hospitals generally face a shortage of PPE for medical staff and cannot provide appropriate incentives due to hospital services being disrupted by this pandemic. The Ministry of Health provides support through incentives for medical officers who provide COVID-19 services based on workload. In the Sumatra, Kalimantan, and Maluku regions, the number of cases is smaller than in the Java island region, so the incentives differ from those who face the burden due to the large number of cases.

The workload faced by nurses in hospitals during the COVID-19 pandemic is that the number of patients is increasing all the time, the workload carried out is uneven, there is concern about exposure to the virus, and there is very little rest time (Bruyneela A et al., 2021). When COVID-19 first appeared, nurses were overworked and under a lot of stress since they had to utilize personal protective equipment (PPE) in their work schedules; they had little downtime and didn't consume any food or drink before the end of the designated working hours at that point. (Siagian E, et al.,2022). The 14-day isolation of nurses who cared for COVID-19 patients precluded them from engaging in their usual social activities, leading to their social distancing from friends, family, and neighbors. Many believe that nurses who care for patients with COVID-19 will also receive a diagnosis (Siagian E et al.,2022).

Another obstacle is the 4th key component: Risk communication and community engagement. Some areas found difficulties in communication channels between hospital staff and referral hospitals. Three hospitals cannot

achieve an Achievement percentage of 100%, namely one hospital in Kalimantan (40%), one hospital in Sumatra (70%), and one hospital in Maluku (30%).

In today's information age, both too much and too little knowledge might be disastrous. Despite facing the same threats, local communities have experienced different impacts during this pandemic. This report further states that risk communication that is not well planned tends to create new risks and disrupt disaster management efforts (Khan S et al., 2020).

From this study, the total of the achievement percentage categories for assessing hospital preparedness in facing COVID-19 in 15 Army Hospitals was obtained: fully functional categories with 100% achievement in hospitals in Sulawesi, Army Central Hospital, hospitals in Aceh, West Java and East Java, while fully functional categories with an achievement value of more than 79% but not reaching 100%: 8 hospitals in the regions of Sumatra, Bali, Sulawesi, Papua, Central Java and Kalimantan. Two hospitals in Kalimantan (78.1%) and Maluku (50.4%) are partially functional categories.

Achievement percentage categories were achieved through various efforts and collaboration with the supra system. The chief of army staff communicates every working day with all 68 army hospitals ranging from level 1 to level 4 and various first-level health service facilities through online meetings to determine how much is needed to overcome the COVID-19 pandemic.

Implementing the hospital preparation checklist from WHO to address the COVID-19 pandemic presents several challenges (WHO,2020); if it is fully implemented, it can help overcome the pandemic more quickly.

5. Conclusions

After implementing the 12 COVID-19 preparedness checklist from WHO, the recovery rate significantly increased while the death rate decreased. The WHO hospital preparedness checklist is beneficial in overcoming the COVID-19 pandemic quickly. However, in its implementation, many obstacles require attention and cooperation from various parties. Even though the hospital preparedness checklist is challenging to implement, the Gatot Soebroto Army Central Hospital and 14 Army hospitals in Indonesia received more attention from the Chief of army staff and the Army supra system by building a PCR laboratory and field hospital and directing personnel from members of the military command. Army headquarters pays excellent attention to Army Central Hospital and Level-2 Army Hospitals as referral centers in their respective regions. Attention from the supra system could support the implementation of the WHO checklist, which can be achieved at an adequate/high preparedness level in 13 hospitals and only two at a moderate/medium preparedness level. The intensive work among the Army Central Hospital Gatot Soebroto and all other Army Hospitals in Indonesia has resulted in new developments and several advantages that help with COVID-19 management.

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