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Hospital Readiness for Covid 19 Pandemic in Bekasi District Hospital

Arda Yunita Subardi[1]✉, Wiku Bakti Bawono Adisasmito[1]
[1)]Fakultas Kesehatan Masyarakat, Universitas Indonesia

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✉**Coresponding author:**
arda.ys0804@gmail.com

Abstrak

Background*:* In the beginning of Covid-19 pandemic, most of hospitals were unplanned to handle this pandemic. The purpose of this study's are to analyze the hospital readiness to cope with pandemic circumstances by evaluating hospital strategies as well as action which implement by the hospital. **Methods*:*** The study employs a method approach that includes both mix quantitative and qualitative methods. Quantitative design use main data while score and percentage as an outcome of response from checklist based on WHO Rapid Hospital Readiness as a quantitative study supported with qualitative study by in-depth interview utilize response from 12 different components on the checklist. Measurement of Hospital Readiness was carried out in Bekasi District Hospital and responses were obtained three times within seven months duration. **Results*:*** The results are as follows, first period as a baseline data in December 2020, the average score assessed is 69%, second period were taken on April 2021 average score slightly improve to 81% and the last period in July 2021 result increased to 90%. In the last period among other component, Component 10 have the lowest percentages (60%). By accomplishing the strategy for each period and continuously evaluated, the score or percentage by assessment of surge capacity readiness due to the Covid-19 pandemic has increased in Bekasi District Hospital, indicating the hospital is more ready to deal with surge capacity, and hospital *perseverance* is good enough. **Conclusion*:*** The checklist of the hospital readiness can be used as a baseline and a tool for hospital and health facilities evaluation.

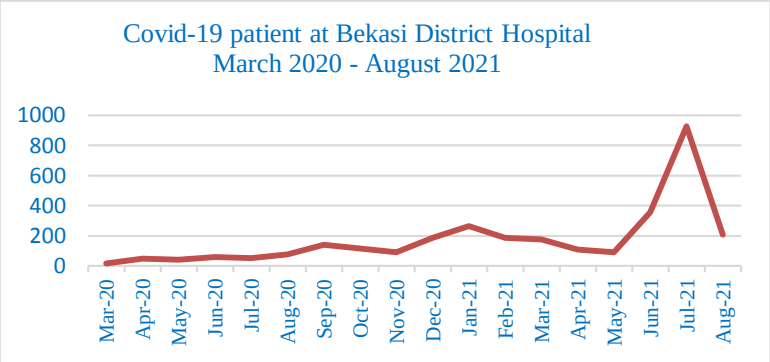
INTRODUCTION

The Director-General of the World Health Organization (WHO), declared the coronavirus disease 2019 (COVID‐19) outbreak to be a global public health emergency of international concern under the International Health Regulations on 30 January 2020, on recommendation of The IHR Emergency Committee on 11 March 2020 announced that Covid-19 as a Global Pandemic [1]. The WHO 2019 novel coronavirus (2019-nCoV): "strategic preparedness and response plan outlines the public health measures that need to be considered by countries to prevent, prepare for and respond to the COVID-19 pandemic" [2]. The President of The Republic of Indonesia released "Presidential Decree Number 12 to declare Covid-19 as a National Disaster", under categorized as Non Natural Disaster On 13 April 2020, [3].

The government has defined 835 hospitals as a referral hospital for handling Covid-19 with details of the national referral hospital by the Governor [4]. Every hospital must be ready for emergency response in disaster situation. The hospital design must be considered to handle disaster patients, and disaster planning must be included in the hospital's service system. Hospitals need to form a disaster-related information network, conduct simulations, and monitor disasters' effects on patients handled by the hospital [5]. Most of hospitals were outfitted, in relation to infrastructure, resources as well as financial capability to cope with Covid-19 effects [6]. The Rapid Hospital Readiness (RHR) Checklist for evaluation and analysis in this study based on Guidance from Ministry Of Health Republic Indonesia, Director General of Health Services adapted from WHO Interim Guidance [4].

This Covid-19 cases growth so fast in certain area which considered as Red zone and force down major hospital nearby being ready with this pandemic wave. In the condition of capacity surge such as isolation and medical treatment, they must be able to help Covid-19 patients as well as regular patients [7]. Therefore hospitals were driven to have prompt plan on top of flexibility to cope with fast growth of this pandemic cases. To review preparation and alertness of Bekasi District Hospital as a referral hospital in West Java Province and to look on how they overcome the second wave of Covid-19. The covid-19 patient in BDH can see on figure 1. This study is to measure with a rapid assessment, can hospital evaluate and analyze strategy in order to get through pandemic situation.

Figure 1. Covid-19 patient at Bekasi District Hospital March 2020-August 2021



Source: Medical Record and Information Department BDH, 2021.

METHOD

The study was carried out by a method with embedded design, in which the main quantitative methods were used and mix with qualitative method as supplement [7]. The hospital readiness was assess by Rapid Hospital Readiness Checklist adopted by WHO Interim Guidance [1], [4]. The results of completing checklist is a quantitative study with predefine formula which show score and percentage, this value criteria based on availability according to associate follow-up action from each of component, as described in the Table. 1 [1]. 12 components on the checklist that will be evaluated are: "(1) Leadership and incident management system, (2) Coordination and Communication, (3) Surveillance and Information management, (4) Risk communication and communication engagement, (5) Administration, Finance and Business continuity, (6) Human Resources, (7) Surge Capacity, (8) Continuity of essential support services, (9) Patients management, (10) Occupational health, Mental Health, and Psychosocial Support, (11) Rapid Identification and Diagnosis, (12) Infection Prevention and Control". This study is a cross-sectional research. Combining method both quantitative, where using a determined score on every question and then qualitative approach. Results of each answer evaluated within the 12 components in the percentage, which come out as a spider web graph [1], [4].

In this study, the subsequent verification of the strategy in achieving checklist-based readiness was conducted through an in-depth interview with the source person who familiar with the process in the face of the peak capacity of Covid-19. The research was conducted at Bekasi District Hospital, West Java, within period of June up to September 2021. The information provider was selected by purposive sampling [7]. By completing Rapid Hospital Readiness checklist at each period, scores and percentages was shown accordingly. Period was assess in 3 (three) times, at the beginning of pandemic in December 2020 (baseline data), and then Period 1 in April 2021, and last period in July 2021 (Period 2). Recommended action has been identified based on evaluation and analysis on information provider data along with other documentation obtained by researches[1].

Table 1. Status, Operational Definitions and Score

Status on Aspects	Operational Definitions	Score / Colour
Not available	Planned but not yet started / none	0 - red
Partially functional	There is but not comprehensive enough to achieve all the core elements necessary to perform	0.5 - yellow
Fully functional	Operate effectively and efficiently, in accordance with the standard approach	1 - green

Source: RHR Checklist, WHO, 2020

RESULT

In response to the COVID-19 pandemic circumstances which mainly to cope with peak of capacity, Hospital Readiness can be assessed using a determined checklist provided by The Ministry of Health (MOH) Republic of Indonesia which adopted from WHO RHR checklist [1], [4], [8]. The checklist is a self-assessment instrument commonly used in hospital worldwide. Measurements were obtained 3 times in order to see evaluation of progress continuation. The checklist evaluation results of BDH performed within period December 2020 up to July 2021 are shown in Table 2. By accomplished the checklist, automatically the Graph has been drawn as well as illustrate in spider web form. The dedicated team had been assigned to fill out the checklist based on each component and were held to provide answer for each component. In addition, the information provider can use all collected data as the basis for review and analysis of subsequent strategies.

Table 2. Rapid Hospital Readiness Measurement in Bekasi District Hospital 2021

`	Component	Baseline		Period 1		Period 2	
		Score	%	Score	%	Score	%
1	Leadership and incident management system (7 recommendation)	5	71%	6	86%	6,5	93%
2	Coordination and Communication (6 recommendation)	4	67%	5	83%	5,5	92%
3	Surveillance and Information management (6 recommendation)	4,5	75%	4,5	75%	5	83%
4	Risk communication and communication engagement (4 recommendation)	2,5	63%	3,5	88%	4	100%
5	Administration, Finance and Business continuity (8 recommendation)	5	63%	6	75%	6,5	81%
6	Human Resources (8 recommendation)	4,5	75%	5	83%	5,5	92%
7	Surge Capacity (5 recommendation)	3	60%	4	80%	5	100%
8	Continuity of essential support services (6 recommendation)	4,5	75%	5	83%	6	100%
9	Patient management (6 recommendation)	3	75%	3,5	88%	3,5	88%
10	Occupational health, Mental Health, and Psychosocial Support (5 recommendation)	2	40%	2,5	50%	3	60%
11	Rapid Identification and Diagnosis (6 recommendation)	4,5	75%	5	83%	5,5	92%
12	Infection Prevention and Control (16 recommendation)	13,5	84%	15	94%	16	100%
	Total Score / Percentage	4,67	69%	5,42	81%	6,00	90%

As shown in Table 2, each component gradually increased from baseline, period 1 and period 2. Previously 69% average percentage increased to 81% in period 1 and then 90% in period 3. When the recommendations that have not been met in the beginning have been accomplished either partially or fully in period 1, there is 10% growth present. The results increase 10% to be 90% at the period 3. This because almost all of 12 components have dealing with the listed recommendations.

The results illustrate BDH readiness from 2020 to 2021 in the process of finalizing what it takes as medical facility based on WHO checklist. This evaluations in order to know the hospital resilience due to the disaster such as Covid-19 pandemic [9]. The lowest score is component 10 (60%) respectively because there are recommendations that have not been

fully implemented. It is shown at Figure 2 that each component improved in different period and the percentage describe the hospital readiness. These graphs will be compared with the national data as a report of hospital readiness in May 2021 from Ministry of Health, Republic of Indonesia. "Occupational Health, mental health and psychosocial support" as Component number 10 is the lowest component as illustrated that the percentage have not reached 100%.

FIGURE 2. Rapid Hospital Readiness: 12 key performance, Baseline data and 1st period at BDH

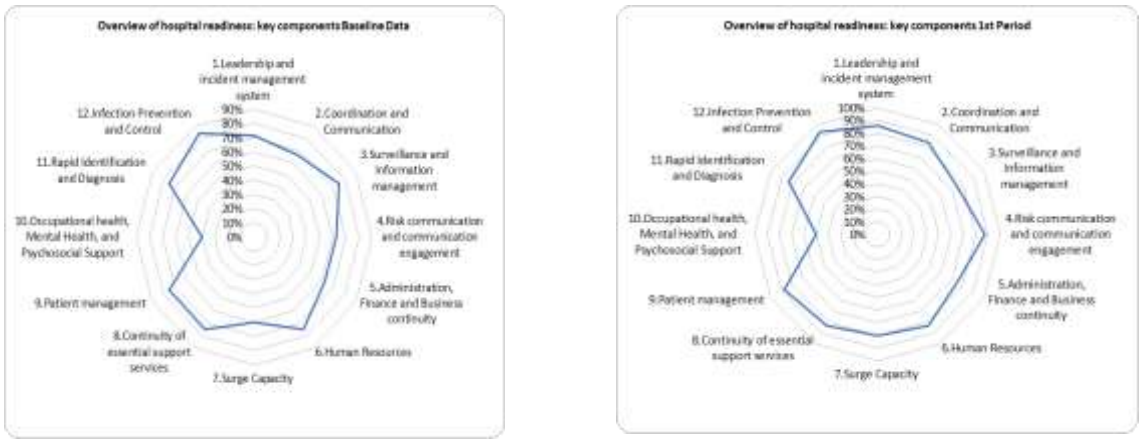
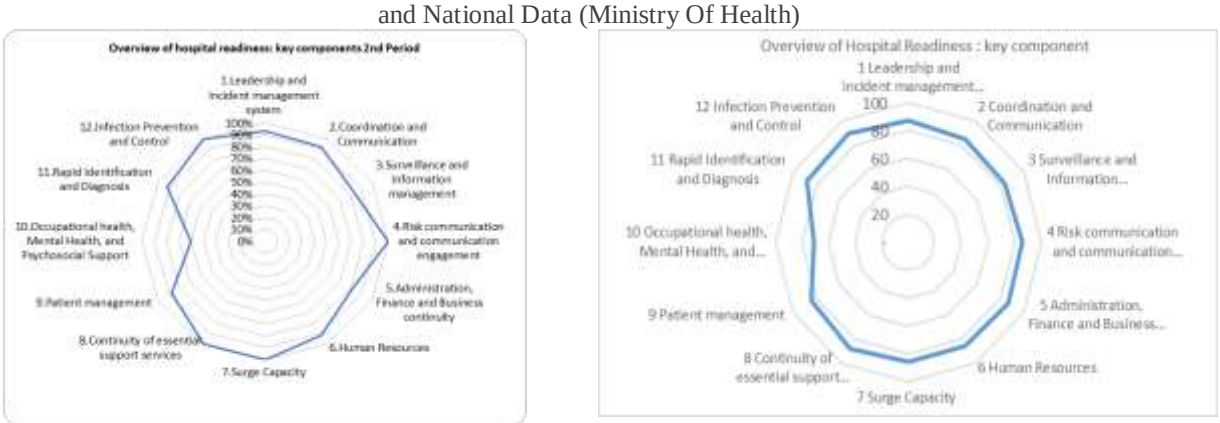


Image source: RHR Assessment of BDH, 2020-2021

Web graphics showed that a more perfect round shape meaning that the percentage is 80-100%. It indicates the hospital was ready to withstand the Surge of Covid-19. Overview for each period, showing changes and gradually become perfectly rounded. From analysis in qualitative research, it was found out that components 10 have not been fulfilled recommendation which sub component in component 10 contains criteria : "all hospital staff have been trained in Health and Safety Occupation and psychological first aid, and know when to seek support services when needed". BDH has been accomplished the training, but for "psychological first aid training" is not implemented to all workforce. It is implemented as a part of the first assessment from the patient during the process of history taking. The Mental Health screening of staff has also never been done. Then the criteria assessment is still mentioned as partially functional. Hence in general this does not affect Covid 19 patient health services and most hospital services. In National level, Director of Quality and Accreditation The Indonesian Ministry Of Health (MOH), presented data from the evaluation of hospital readiness. All hospital especially referral hospitals were considered ready to face Covid-19 pandemic in Indonesia. However still need recommendations for improving the services.

FIGURE 3. Rapid Hospital Readiness: 12 keyperformance, 2nd period in (BDH) and National Data (Ministry Of Health)



(a) Period 2 (b) National Data (Ministry Of Health) May, 2021

Image source: Assessment of BDH, Juli 1, 2021 (a) and National Data, Ministry of Health, May, 2021 (b)

In results of In-depth interviews as well as document data compiled during verification of accomplish the checklist and implement follow-up strategies conducted by selected information provider, it is found out that previously Bekasi District Hospital was a public hospital and did not considered as referral

hospital appointed by the Governor of West Java to handling Covid-19 patients. Due to the Bekasi District Hospital capable to demonstrate readiness by ability to upgrade capacity along with convert isolation rooms in accordance with applicable regulations, for handling Covid-19, Bekasi District Hospital finally assigned as a Center of Referral Hospital by The West Java's Governors Decree Number 1/III/2020. At the previous, the results were not available or partially functioning, by the third assessment, the results were more complete. The Informant mentioned that strategies implemented includes fulfillment of human resources shortage, ensure the availability of equipment and supplies, run the system well and also prepare structure rapidly to providing space for the large volume invasion of patients during the surge events. According to the 12 components checklist, the things to be completed are very complicated, including negative pressure rooms, medical equipment and instruments, medicines, auxiliary inspections, personnel and another support, example such as body identification, infection control and prevention, medical waste management, infectious disease laundry, nutrition, good communication and built effective coordination within internal and also external parties, stake holder and related institutions. The realization is carried out in phases according to the needs with very rapid preparation, especially in the face of overpressure conditions.

DISCUSSION

There is still much to understand about COVID-19 and its impact in different contexts. Preparedness, readiness and response actions will continue to be driven by rapidly accumulating scientific and public health knowledge [10]. There is 4 functions must be carried out to evaluate hospital readiness based on 12 components, which is categorized as: "(1) internal communication, (2) coordination and external communication, (3) supervision, (4) Hospital Information Management" [1][8]. By implementing the 4 function properly, can assemble strengthen and flexibility to perform hospital functions in the face of disasters or shocks event. It is not only use for Covid-19 pandemic but also for another disaster situation [9]. The hospital will know how to do better preparation, to avoid collapse and able to survived. WHO generate a checklist which can be applied globally with no alternation necessity even to the conditions and the needs of each country, also to the region and to hospital themselves, therefore by completing the checklist; the researchers perceive and observe 4 functions application in the Bekasi District Hospital accordingly.

Internal Communication intensively is the key factor to handling the situation. Successful leaders communicated with their staff via a combination online and offline meetings. It means, leadership remained visible among the staff and the importance of this fact cannot be overstated [11]. Leaders built a good communication and external coordination with the stakeholder. In setting strategy, leaders are required to be one step ahead of events, indeed overprepared. Hospitals also need to compile existing Human Resources plans and recruit health personnel and volunteers from the community if at any time there is a rapid spike in Covid-19 patients and their health workers are infected too [12].

Health system improvement by WHO is based on 4 phases of the Shock Cycle, namely Phase 1: Preparation; Phase 2: Shock invasion and alertness; Phase 3: Managing Shock effect; and Phase 4: Recovery and Learning. To be more resilient, Hospitals whom cope with disasters or shock waves will understand these phases, generally starts with well preparation and also continuous learning and then evaluation. [13]. Considering Covid-19 as latest virus which all countries still struggling to find out the most suitable anticipation and medication. Hospital strategic management will be very dynamic, particularly with rapid and extensive dissemination of Covid-19 virus, end of this pandemic still unfeasible. As mention in the VUCA theory "Volatile, Uncertain, Complexity and Ambiguous", a good leadership is essential to overcome conditions of uncertainty as described [14].

Emergency- and disaster-preparedness was an important issue and a global problem. Due to the disaster-related resource shortage, most hospitals could not maintain their routine work for a week [15]. In July 2021 cases increase quickly as a rapid spike and need rapid hospital preparedness. Surge capacity is a critical component to respond to large-scale disasters, "the ability to expand care capabilities in response to sudden or more prolonged demand" [16].

Surge capacity has four main components: staff, stuff (in example, equipment and supplies), system, and structure [17]. The RHR checklist can represent 4 components of Surge Capacity: Component 12,3,4,5,11 can represent The System, component 6 and 10 represent the Staff, component 8,9 The Stuff, component 7 and 12 The Structure. As mention of the informant, that strategies implemented in BDH includes fulfillment of human resources shortage (Staff), ensure the availability and continuity of medicine, equipment and supplies (Stuff), run the system well (System) and also prepare structure rapidly to providing space for the

large volume invasion of patients during the surge events (Structure). Staff refers to personnel, stuff consists of supplies and equipment, structure refers to facilities, and systems include integrated management policies and processes [18]. Hospital needs to have an alternatives supply chain and a guarantee from supplier during the surge situation to ensure continuity business process. The COVID-19 outbreak stretched the capacity of health resources such as staff, beds, medical supplies, and PPE [19]. Enormous demand for handling the COVID-19 outbreak challenged both the health care personnel and the medical supply system [15]. Staff will also have to consider how to reuse disposable equipment, such as gloves, gowns, and masks [20]. It will be important to ensure that a supply chain exists, especially for pharmaceuticals [21]. Effective systems planning will consider internal and external communication processes. [21]. As determined in the RHR checklist, the component of internal communication and also coordination and external communication are very important.

A comprehensive result of assessment checklist practice can be taken as a lesson learned to improve hospital functions during pandemic or other disaster challenge. With regular checklist practice implementation, recommendations can be modified to the latest disaster however also need to highlight several factor from shock phases of the Hospital Disaster Resilience [22]. Although some of the recommendations in the checklist have not been met, verification process and then analysis process of the approach from that completed checklist is suitable.

CONCLUSION

Measurement of readiness in managing the Covid-19 spread out in Hospital can be check by self-assessment RHR checklist adopted from WHO which contain of 12 components. Rapid Hospital Readiness in Bekasi District Hospital is shown good results (90%) after the third evaluation (period 3) by implemented the follow-up strategy. They constantly increased preparedness during the Covid-19 pandemic. RHR checklist is an effective tool to manage each disaster condition and should be implemented to hospital condition, areas or by hospital type in Indonesia with considerable effort to complete all the subcomponents detail in timely manner. A Good leadership is essential to overcome conditions of uncertainty and key success factor to manage the surge capacity challenge.

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Conflict of Interest: The authors have no conflicts of interest to disclose.

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