



Readiness Management in Handling COVID-19 Pandemic and Early Detection in The Referral Hospital in East Nusa Tenggara Province

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Abstract

Covid-19 pandemic that is occurring now has rapidly and widely spread throughout the world. Various efforts are made to handle or suppress the number of cases, including readiness management in the emergency department until 7th May 2020. This study aimed to investigate readiness management in handling the Covid-19 pandemic in a referral hospital in Kupang, East Nusa Tenggara Province. This research represented a mix-method study. The samples were 20 emergency nurses at a Covid-19 referral hospital in Kupang. Data were collected using an interview that was distributed to respondents through Google forms. The questionnaire consisted of 12 questions about hospital readiness and 8 questions about early detection of Covid-19. Results showed that 90% of emergency nurses had performed early detection of Covid-19. The hospital readiness management in handling the Covid-19 pandemic was adequately good. Some obstacles were found during its implementation, such as the lack of personal protective equipment and health support tools, as well as patients' dishonesty of traveling and contact history with COVID-19 patients.

Introduction

Covid-19 is the disease caused by the new coronavirus that attacks the respiratory organs in humans. This virus was first discovered in Wuhan, China at the end of 2019 (Chatterjee et al., 2020) and spread very rapidly among humans through droplets (Mei and Hu, 2020). This rapid rate of outbreak causes more than 100 countries in the world infected within a few weeks (Phillips et al., 2020). Currently, Covid-19 has spreaded to 215 countries with a total incidence of 3,595,662 confirmed cases. In Indonesia, there were 12,438 confirmed cases with a total recovery of 2,317 (Covid-19, 2020). This rate has increased rapidly since the first incident reported on 2 March 2020 in Jakarta. Meanwhile, in East Nusa Tenggara, 11 cases were confirmed (Covid-19, 2020).

Data from the World O Meters showed that, until 7 May 2020, the total death toll in the world is 265,116. The highest rate occurs

in the United States with a total number of 74,809 deaths. In Indonesia, 895 deaths are reported so far with zero fatalities in East Nusa Tenggara Province (World O Meter, 2020). This pandemic has strongly affected the health care system in most countries in the world. Italy, which has sophisticated health support system equipment, is reported to be overwhelmed in handling Covid-19 patients. Patients are treated in hospital corridors, while doctors and nurses have increased workload that causes them to work out of their expertise (Phillips et al., 2020). Many nurses and other healthcare workers experienced psychological problems due to high workloads (Lai et al., 2020), as well as people's stigma of the disease. Nurses and doctors had to choose to save patients with a higher level of life following the existing guidelines.

The management of the Covid-19 pandemic should be based on the guidelines

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provided by the government and health agencies (Mahmood et al., 2020). The World Health Organization is one of the world health agencies that issued guidelines for handling the disease. Similarly, the Indonesian Ministry of Health also issued a guideline on handling Covid-19 in the country (Indonesia, 2020). These guidelines were issued to reduce the disease spread and increase readiness. Research showed that 104 (57%) out of 182 countries have a good functional capacity in handling pandemics at both national and sub-national levels. Meanwhile, 32 (18%) countries reported low readiness and are in emergent need of external resources to help deal with the disease (Jacobsen, 2020). Such low readiness can trigger stress and panic in the community, and therefore, the real focus now is on increasing readiness in handling the Covid-19 pandemic (Jacobsen, 2020). This study aimed to investigate the readiness management in handling the Covid-19 pandemic in Kupang City, East Nusa Tenggara Province.

Method

A mix-method study was utilized to meet the purpose of the study. The study variables included the readiness in handling the Covid-19 pandemic and the early detection of Covid-19 by emergency nurses. The data collection technique used is total sampling. All respondents have filled out informed consent via Google Form to protect the rights as research participants. Data were collected in one of the referral hospitals in East Nusa Tenggara through a questionnaire that was distributed by Google forms to 20 emergency nurses for quantitative data and Interviewed for qualitative data. The questionnaire was adopted from the Covid-19 Handbook by the Indonesian Ministry of Health (Ministry of Health Republic of Indonesia, 2020).

The questionnaire asked for the readiness of nurses and hospitals in handling Covid-19 patients in Indonesia. It consisted of 12 questions about the readiness and 8 questions about the early detection with Yes and No answers. Qualitative data were tested using interpretative analytic phenomenology. The results of the interview were made into a transcript to take keywords. The keywords found were translated

using the Indonesian Dictionary to find themes. Then, the quantitative data is tested to find the frequency and percentage. The collected data were processed using the SPSS. This article gets through the ethical test with the number of ethical clearance 120/EC-KEPK-SB/X/2020.

Result and Discussion

Table 1. Distribution of Respondent Characteristics

Variable		f	%
Age	26-35 years old	10	50
	36-45 years old	8	40
	46-55 years old	2	10
Gender	Male	12	60
	Female	8	40
Education	DIII	12	60
	Undergraduate	8	40
Length of work	0-2 years	4	20
	3-6 years	2	10
	6-9 years	4	20
	>10 years	10	50
Clinical Level	PK 1	1	5
	PK 2	15	75
	PK 3	4	20

Source: Primary Data, 2021

Based on table 1 it shows the age of respondent most of the respondents who are young adults. Most of the respondents are male. Level of education is mostly a Diploma III nursing with a length of work more than 10 years. Most career paths as nurses are Clinical Nurses II.

East Nusa Tenggara is one of the provinces that has the lowest incidence rate of Covid-19 in Indonesia. Since the first emergence of the case until the present time, the number of human resources in the emergency unit, which included doctors, nurses, and laboratory analysts, had not been increased. In handling the pandemic, China had increased the number of nurses in an intensive care unit until 30 nurses. It is in contrast to the Great Britain which lack of medical staff in one of its hospitals (Gudi and Tiwari, 2020).

One of the reasons is that the number of the incidence is still minimal so that there is no need for additional members for the emergency room. Human resources are urgently needed during the Covid-19 pandemic, especially

laboratory personnel (Lai et al., 2020). When the cases in Italy increased in number, the government urgently requested the addition of 300 doctors and nurses to help provide services in hospitals (Phillips et al., 2020).

This study found that there was no special observation room in the emergency unit. Patients who were suspected of being the ODP (person in monitoring) would be directed to the Covid-19 isolation room. There was a special room for Covid-19 patients. The room has been arranged in such a way to distinguish from the room for ODP, PDP (patient in observation), and patients with Covid-19. There were 10 beds prepared for COVID-19 patients completed with a monitor and oxygen supply. Patients with certain critical conditions would be directed to the ICU.

The number of beds and facilities should be increased especially in the intensive care unit to prevent stress and overcome the overwhelming burden of the hospital staff when there is a significant increase in hospitalized and critical patients (Timmis and Brüssow, 2020). The intensive care unit will only serve patients with severe respiratory failure that requires patients to use mechanical ventilators (Di Gennaro et al., 2020). The triage which was performed in the emergency unit when patients were admitted showed to be very helpful as it helped hospital staff determine which patients had to be taken to the intensive care unit, the isolation room for the Covid-19, or patients that required intubation (Phillips et al., 2020; Ravikumar et al., 2020). Patients infected with the coronavirus should have a special treatment room (Lai et al., 2020).

Covid-19 patients should be provided with a special room for their treatment. Patients with severe infection should be given intensive care. However, to prevent fluctuations in hospitals, some countries determine to manage patients with mild to moderate infections to undergo treatment and isolation at home (Timmis and Brüssow, 2020; Watkins, 2020). Covid-19 patients need a special treatment room to isolate themselves so that they can receive basic medical care and close observations (Timmis and Brüssow, 2020).

Special ambulances for Covid-19 patients were not yet available, but the hospital had turned

the regular ambulances for use in handling Covid-19 patients. The number of operating ambulances was insufficient to meet the needs when there is a high increase in the number of cases. This condition can lead to suboptimal management of the patients. Ambulances were a vital means to pick up patients from home to a specified referral hospital. Some countries with increased incidence of Covid-19 showed that asymptomatic patients would do independent isolation at home, and they would receive treatment facilities if they experienced complications in the respiratory tract (Phillips et al., 2020). Ambulances are vital means when patients have experienced complications and require intensive care. A shortage and delay of the ambulance in picking up patients when they are in a critical condition can lead to patient death (Phillips et al., 2020).

Patients and families who came to the hospital were checked for the temperature by using a thermal scanner. Hyperthermia patients would be further examined for their history of traveling to the red zone and signs of severe respiratory infection. If the patients were determined as the people under control or known as ODP, the patients would be taken to the special isolation room. A thermal scanner is a medical tool that can detect body temperature efficiently. This tool is often used to detect patients with Covid-19. However, measurement of temperature alone is not enough to reduce the spread rate of the disease (Lai et al., 2020).

Cross-sectoral communication tools for Covid-19 cases from the emergency unit are not yet available. All information regarding Covid-19 will be carried out by the Covid-19 task force and will be forwarded to the relevant health office. Cross-sectoral tools are needed in handling Covid-19 to help reduce its spread so that collaboration with policymakers is required (Lai et al., 2020). This cross-sectoral collaboration is useful for sharing information and helping each other to solve problems. Besides, cross-sectoral collaboration also helps good coordination in communication, coordination, and implementation of Covid-19 management strategies (Jacobsen, 2020). Cross-sectoral collaboration is urgently needed during the Covid-19 pandemic to prevent the destruction of global health. The government is

obliged to issue rules for social isolation, keeping distance and stopping all activities in and out of the affected areas. Learning from the case in Italy, the government should not only provide lockdown rules but cooperates with other parties including pre-hospital asymptomatic patients and post-hospital patients to continue treatment at home (Phillips et al., 2020).

Life-saving medicines were all available in hospital pharmacies and complementary pharmacies such as Kimia Farma and were easily accessed. Supportive drugs in caring for Covid-19 patients are vital as no vaccine can treat this disease (Jacobsen, 2020). Therefore, the focus of healing is to treat complications or symptoms that appear due to the infection. Pandemic readiness requires drug distribution for prophylactic therapy (Timmis and Brüssow, 2020). Appropriate strategies for medication management can help prevent patients from experiencing critical problems. Supporting drugs needed by patients include Glucocorticoids, Remdesivir, Chloroquine, and Hydroxychloroquine, especially in combination with Azithromycin, Tocilizumab, Lopinavir-ritonavir, Baraticinib, Non-steroidal anti-inflammatory, and Angiotensin-converting enzyme 2 (Di Gennaro et al., 2020). Other adjunctive therapies that can be used include tocilizumab and corticosteroid. Pharmacological treatments in which risks outweigh benefits are Ribavirin With or Without Interferon and Oseltamivir and Baloxavir (McCreary and Pogue, 2020).

Health supporting tools were not adequately available. The number of ventilators was lacking and other respiratory support systems were only available in the intensive care unit. Ventilators are needed to increase the capacity, especially in the intensive care unit (Lai et al., 2020). A country in Africa is reported to have only three ventilators; and this inadequacy is a very serious problem, besides personal protective equipment (Phillips et al., 2020). The machine for swab test analysis was not available yet so that the waiting time in the lab test got longer, indicating that the RT-PCR should be increased (Lai et al., 2020). Adequate diagnostic facilities enable proper management so that a larger number of cases can be handled more effectively (Timmis and Brüssow, 2020).

The RT-PCR (reverse transcription-polymerase chain reaction) test showed a sensitivity level of 32%-93%, depending on the source of the clinical specimens (Mossa-Basha et al., 2020). This can help sort out the patients and reduce the incidence rate. Covid-19 patients with severe infection need medical equipment that helps support life, namely ventilators, intubation, and oxygen cylinders (Timmis and Brüssow, 2020).

Personal protective equipment for emergency nurses was still lacking as the current focus was on the Covid-19 isolation room. Personal protective equipment is used to prevent medical personnel from getting infected with virus from patients and spreading the virus to others. WHO standards of personal protective equipment against the Covid-19 are masks (surgery and breathing), gloves, dresses, shoes, headgear, and eye protection (Assadi et al., 2020). Research shows that personal protective equipment in some countries is still lacking, including Indonesia. Some nurses at the beginning of the pandemic even used a raincoat made of plastic. This has become one of the causes of many cases of infections and deaths that occur among nurses and doctors in Indonesia. Some countries have also experienced this incident since the end of January 2020. They are overwhelmed with the best personal protective equipment for health professionals (Timmis and Brüssow, 2020). Thus, there should be an understanding that personal protective equipment is prioritized for medical staff, especially doctors and nurses.

The Indonesian government has ruled all people to use masks. These people are not required to use surgical masks but cloth masks. Surgical masks will be for medical staff and all supporting teams at the hospital. N95 masks are for medical workers, doctors, and nurses who provide direct care in the isolation room. N95 masks are equipped with better protection than ordinary surgical masks, but it is still unclear whether 95% of protection is enough to avoid medical personnel from viral infections (Friese et al., 2020). Gloves are a part of the personal protective equipment, and latex gloves are highly recommended. Latex-based gloves can protect against bacteria and viruses and provide a virus penetration rate of <1%.

Latex gloves are suitable for protecting hands from biological hazards and water-based fluids and can be used for up to 16 hours (Assadi et al., 2020). Other forms of personal protective equipment are robes and masks that can be used for eight hours, as long as they are not removed before eight hours of use. However, the use of personal protective equipment may cause fatigue, difficulties in breathing, speaking difficulty due to breathlessness, and unclear hearing to what is said by peers and patients (Phillips et al., 2020).

Patients with a history of traveling from red zones and did not show any symptoms will undergo independent quarantine at home for 14 days. The patients are asked for their address and telephone number, and this information is documented. Patients will further be directed to the Covid-19 unit and given health education related to the disease. Patients will also be provided with a label or alert card for identification. However, the health alert card is not yet available so it is not used in the hospital. Health alert card functions as a sign to distinguish patients who have a history of traveling from the red zones.

In this study, the procedures in the management of Covid-19 followed the protocols established by the Indonesian Ministry of Health. These protocols become the basis for creating relevant operational standards for patient care management in the hospital. One of the operational standards is related to ethics in determining patients who are eligible to receive a ventilator. These procedures can also help eliminate psychological burdens from nurses after such decision making (Phillips et al., 2020). Standard operational procedures are important components in the readiness management of Covid-19, especially for the hospital management. Standard procedures are developed by focusing on patient safety and minimizing the spread of infection (Mahmood et al., 2020).

Operational standards developed by hospitals should not only focus on Covid-19 management but also other health services, such as the fact that surgical services require SOPs for surgical patients during the Covid-19 pandemic (Bhangu et al., 2020). Other protocols also need to be developed, for example,

protocols in critical care in the form of intubation, use of high-flow oxygen, and consultation of infectious diseases and cardiac arrest (Griffin et al., 2020). The protocols are developed by focusing on clinical decisions of intubation, the use of high flow oxygen, consultation of infectious diseases, and cardiac arrest.

In this study, supporting nutrition logistics were not optimally available; most of them were voluntarily provided by social institutions. Additional logistics for nurses on duty were not available. All nurses used their own money to get meals and drink. Nutrition is one of the important things in the treatment of this pandemic. During the pandemic, the government should do proper logistical management, including food stocks, personal protective equipment, and medicines (Jacobsen, 2020). Logistic quality control at the beginning of the crisis is very important to help save lives. Some of the efforts made may include opening hospital facilities and close other supporting facilities, i.e., security, logistics and even closing the research centers (Timmis and Brüssow, 2020).

Communication and education media were always provided to patients and families using leaflets at the hospital and also audiovisual media broadcasted using the televisions in the hospital. The Indonesian government also provides health promotion media and an official health education website at <https://www.covid19.go.id>. Besides, there is also a contact number linked to the website that can be connected to the WhatsApp application. The information provided by this account includes the present situation of the Covid-19 in Indonesia, definition of Covid-19, the symptoms of Covid-19, how to protect oneself from Covid-19, how to protect others, the use of cloth masks, what is a rapid test, Covid-19 rapid test, how to isolate yourself, how to do physical distancing, and emergency numbers that can be contacted.

The community should keep updated with actual information and knowledge about this pandemic (Timmis and Brüssow, 2020). Current health promotion media should use tele-health to support prevention from Covid-19 (Mahmood et al., 2020). By using

this tele-health, patients can have a better understanding of the symptoms they develop and do the initial treatment at home, as well as know when it is time to get treatment in the

hospital (Mahmood et al., 2020). Tele-health will also avoid people from hoaxes that trigger stress and panic.

Table. 2 Covid-19 Early Detection in the Emergency Unit

No	Variable	f	%
1	Patients are assessed for signs of severe upper respiratory tract infection.	19	95
2	Patients are also asked about fever, respiratory problems, and the history of traveling to the affected area within the past 14 days	20	100
3	Patients were assessed for any contacts with the Covid-19 patients	19	95
4	The management is based on the standard operating procedures	19	95
5	Report the case if there are signs of Covid-19	20	100
6	Taking specimens	19	95
7	Case Reporting	19	100
8	The presence of clear communication standards	18	90

Source: Primary Data, 2021

Table 2 shows that the early detection of Covid-19 by nurses was around 90-100%. Early detection measures are one of the hospital's permanent procedures during this pandemic. Early detection can help diagnostic by classifying patients based on symptoms or travel history. Early detection is conducted by asking for a contact history with patients who have respiratory symptoms (Aluga, 2020), traveling to an infected area, or having a history of fever and dry cough during the last 14 days.

Based on the guidelines in handling Covid-19 in Indonesia issued by the Indonesian Ministry of Health, patients are categorized into three: (1) people under observation (ODP) who show symptoms of fever, cough/runny nose/throat pain and have a history of traveling to the affected area in the last 14 days before the symptoms appear; (2) patients under monitoring (PDP) who have symptoms of fever/history of fever, cough / runny nose/sore throat/mild to severe pneumonia according to clinical symptoms and radiological features, as well as having the history of travel to infected areas or exposure or contact with the Covid-19 patients; (3) patients with positive Covid-19, in which patients have shown symptoms and also positive results of the swab test (Indonesia, 2020).

The early detection of patients in hospitals should be performed at the entrance or the emergency unit. Patients will be screened and given a surgical mask to prevent transmission. The specimens for RT-PCR

testing during a pandemic should not only be taken from patients with the ODP or PDP categories but also all patients for any reason as an early step of detection (Mossa-Basha et al., 2020). Long and medium-term management in handling Covid-19 is diagnostics (Jee, 2020). Proper diagnostics requires early detection of every patient who comes to the emergency department.

Covid-19 patients with mild symptoms come to the hospital with complaints of flu, coughing or fever, and mild shortness of breath, and about 10% of patients show severe symptoms (Coccolini et al., 2020). Pediatric patients also have similar symptoms of fever, cough, dyspnea, malaise, myalgia, headache, nausea, vomiting and diarrhea, pharyngeal erythema, and tachypnea (Ravikumar et al., 2020). If the results of the early detection at the hospital found that a patient is suspected for Covid-19, the task force of Covid-19 is to do tracking to find out whom this patient is socializing with to identify risk cases to prevent the incidence larger pandemics, such as in Italy (Carinci, 2020). The communication program during this pandemic requires accurate information that can improve human understanding, change behavior, and make decisions during emergencies (Lohiniva et al., 2020). This is an effort to shape the character of society, especially in Indonesia since many incidences of infected doctors and nurses occurred due to patients' dishonesty as a result of their fear and anxiety.

Conclusion

The hospital readiness in handling the Covid-19 pandemic was still lacking. Supports in the forms of personal protective equipment, supporting medical equipment, and human resources are therefore required. The health promotion media was an excellent effort to help develop community understanding; however, community behaviors were not completely changed as expected. In this study, some other problems might also occur when more cases developed; unfortunately, no significant improvement was made on the facilities and infrastructures, leading to more deaths in future times. The majority of people were apathetic and not honest with their travel history or contact history with infected people. Many people were still gathering without wearing masks and ignoring social distancing.

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