Analysis of Hospital Preparedness Provincial Government Post-Disaster Central Sulawesi, Indonesia

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ABSTRACT

Methods - This study aimed to analyze the preparedness of government hospitals after natural disasters 28 September 2018.

Methods - This research uses descriptive quantitative research design using primary data from questionnaires Hospital Safety Index 2015. The sampling technique used purposive sampling. The sample in this research were 102 people comprising members of the Disaster Management Team in hospitals. Torabelo, Undata Hospital, Hospital Anutapura, and

Result - The results of this study indicate Torabelo Hospital has a score of 0.37, hospitals Undata has a score of 0.45, and hospitals Anutapura has a score of 0.46.

Conclusion: Third hospital included in the Classification B (0.36-0.65). Classification B hospital that can function in emergency response but did not function optimally because disaster management is not ready so in the near term should be evaluated and carried out repairs

Keywords: Preparedness, Disaster, Hospital. Torabelo, Undata Hospital, Hospital Anutapura


INTRODUCTION

Indonesia is geographically located in between meetings of the Eurasian plate, Indo-Australian plate and the Pacific plate, which led to Indonesia vulnerable to the threat of geological disasters, one of which is the earthquake. This led to Indonesia at risk of earthquake disaster tinggi(Kurniawan et al., 2016)(Kaban et al., 2019).

On 28 September 2018 an earthquake measuring 7.4 on the Richter scale at a depth of 10 km that shook the Donggala regency and cause tsunami waves as high as 0.5-3 meters. The impact of the earthquake is not only felt in Donggala district, but is also felt in the town of Palu affected very badly. According to data released by BNPB toll is pertanggal 21 October 2018, the death toll as many as 2,256 people, missing as many as 1,309 people, 4,612 inhabitants were seriously injured, slightly injured 36 393 inhabitants and the number of displaced as many as 223 751 people. This disaster is not only fatal, but also damage a variety of means ranging from roads, educational facilities and even some co-damaged health facilities. A total of 50 units of health centers, 1 unithospital, 18 units and 5 units poskesdes pustu has experienced the impact of the disaster year(Depkes, 2009b).

Hospitals are at the forefront of medical services in the event of a disaster as well as the chain of Integrated Emergency Management System (SPGDT) in everyday situations and disasters. With this system, should medical services more quickly and precisely from the handling of pre-hospital until further treatment that requires care specialist, but the fact that the opposite is true hospitals do not seem to show readiness adequate to cope with disasters and ironically, whenever a natural disaster hit obstacles and deficiencies faced constantly repeated by hospital (Mahfud & Rossa, 2017).

METHOD

This research uses descriptive method with quantitative approach carried out in three hospital in the province of Central Sulawesi, namely hospitals Undata, Anutapura hospitals, and hospitals Torabelo. This research was conducted in June and September 2019. The population in this study is that all members of the disaster response team on each hospital and the sample in this study is that all members of the population who meet the inclusion and exclusion criteria.

Based on the inclusion and exclusion criteria obtained a sample of 102 people, of which at hospitals Undata are as many as 34 people, hospitals Anutapura A total of 37 people, and hospitals Torabelo many as 31 people. The instrument used to collect data in this study is a questionnaire prepared by Hospital Safety Index issued by the World Health Organization (WHO) in 2015 that had previously been conducted validity and reliability.

All data obtained and compiled from research and then processed in accordance with the calculation of Hospital Safety Index questionnaire score 2nd Edition 2015 and then the results are interpreted in levels: Low (0 - 0.35), Medium (0.36 - 0.65), and High (0.66 - 1).

RESULTS

During the study period the researchers managed to collect 31 respondents on Torabelo Hospital, 34 respondents in hospitals Undata and 37 respondents in hospitals Anutapura (Table 1, Table 2, and Table 3).
### Table 2. Distribution of Respondents’ Hospitals Undata

<table>
<thead>
<tr>
<th>Respondents</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disaster response team leader</td>
<td>5</td>
<td>14.7</td>
</tr>
<tr>
<td>Quick Response Team</td>
<td>8</td>
<td>23.5</td>
</tr>
<tr>
<td>Medical Care Support</td>
<td>7</td>
<td>20.6</td>
</tr>
<tr>
<td>Health Care Disaster Response</td>
<td>14</td>
<td>41.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

### Table 3. Distribution of Respondents Hospitals Anutapura

<table>
<thead>
<tr>
<th>Respondents</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The team leader respondents Hospital Disaster</td>
<td>3</td>
<td>8.11%</td>
</tr>
<tr>
<td>Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents brigade teams of disaster preparedness and trauma</td>
<td>6</td>
<td>16.22%</td>
</tr>
<tr>
<td>Respondents medical services section</td>
<td>8</td>
<td>21.62%</td>
</tr>
<tr>
<td>Respondents Supporting services section</td>
<td>3</td>
<td>8.11%</td>
</tr>
<tr>
<td>Respondents part of social services</td>
<td>2</td>
<td>5.41%</td>
</tr>
<tr>
<td>Respondents parts logistics</td>
<td>6</td>
<td>16.21%</td>
</tr>
<tr>
<td>Respondents were part of planning</td>
<td>5</td>
<td>13.51%</td>
</tr>
<tr>
<td>Respondents finance section</td>
<td>4</td>
<td>10.81%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

### Table 4. Score of Submodules Disaster Emergency Response Plan and the Recovery Hospital

<table>
<thead>
<tr>
<th>Submodules</th>
<th>Question</th>
<th>Total score</th>
<th>Score</th>
<th>Interpretation (classification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Disaster Management Coordination</td>
<td>8</td>
<td>2.73</td>
<td>4.02</td>
<td>4.03 0.34 0.50 0.50 C B B</td>
</tr>
<tr>
<td>Disaster Emergency Response Plan and the Recovery Hospital</td>
<td>5</td>
<td>1.85</td>
<td>2.16</td>
<td>2.58 0.37 0.43 0.51 B B B</td>
</tr>
<tr>
<td>Communication and Information Management</td>
<td>4</td>
<td>1.42</td>
<td>1.83</td>
<td>1.89 0.35 0.45 0.47 C B B</td>
</tr>
<tr>
<td>Human Resources</td>
<td>5</td>
<td>2.18</td>
<td>2.16</td>
<td>2.31 0.44 0.43 0.46 B B B</td>
</tr>
<tr>
<td>Logistics and Finance</td>
<td>4</td>
<td>1.13</td>
<td>1.65</td>
<td>1.58 0.28 0.41 0.39 C B B</td>
</tr>
<tr>
<td>Patient Care and Support Services</td>
<td>9</td>
<td>3.34</td>
<td>4.26</td>
<td>4.06 0.37 0.47 0.45 B B B</td>
</tr>
<tr>
<td>Evacuation, Decontamination and Security</td>
<td>5</td>
<td>2.13</td>
<td>2.38</td>
<td>2.32 0.43 0.47 0.46 B B B</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>40</td>
<td>2.11</td>
<td>2.63</td>
<td>2.68 0.37 0.45 0.46 B B B</td>
</tr>
</tbody>
</table>

DISCUSSION

Hospital Torabelo

Based on the results of the study, hospitals Torabelo has a score of 0.34 on Disaster Management Coordination submodules hospital. Hospitals have not had a disaster management team, hospital will make the team as well as the mapping of disaster-prone locations and is still in the making. Disaster management coordination chaired by the director of the hospital without any coordinated team and the appointment of the staff as coordinator. According to Depkes R.I (2009), each hospital must have an organizational structure Disaster Management Team hospital formed by the Drafting Team and established by the hospital management, the basic principle made a disaster response team that is organizational disaster response team should be adapted to the existing hospital organization as well as disaster response team should work in accordance with the duties and functions that have been defined. The task of its own management team which is preparing for the disaster alerting planning guidelines hospital (P3B-RS), plan and organize training and disaster simulation once a year (Depkes, 2009b).

In submodules Disaster Emergency Response Plan and the Recovery Hospital, Hospital Torabelo has a score of 0.37 (Table 4). Hospital does not have an emergency response plan and specific plans danger in the form of a document in a pinch, Recovery hospital still in the stage of recovery, there are still buildings have not been repaired, while the part of hospital services has been restored and running properly. Disaster management in order to focus the work of disaster management and risk reduction by identifying hazards, vulnerabilities, capacities and ratings, or better known as the hazard assessment (Norazam, 2018). Hospitals can identify deficiencies and limitations that could be improved to be more resilient in the face of disaster. According Talati (2014) an agency hospital has a component of disaster response cycle includes a response, rescue, recovery, mitigation, risk reduction, prevention and preparedness (Talati, 2014).

The most important component of emergency planning cycle time of disaster including preparation manual that discusses disaster action plan. In the Communication and Information Management submodules Torabelo Hospital has a score of 0.35. Hospitals have good internal communications when emergencies. The hospital also has contacts external stakeholders or inter-agency agreement (MoU) it's just not relevant stakeholders involves the entire disaster. The hospital has a patient information storage procedures were good but a disaster when they do not have procedures for emergency patients during a disaster according to UNDP (2008) in the management of a disaster, especially in hospital or other agencies that good communication is needed to ensure the smooth disaster relief efforts (Omar, 2008). The communication can be grouped, namely communication between disaster management team, communication between staff hospital, communication to the public about hospital as well as communication with external parties, both nationally and internationally (Putra, 2018).

In submodules Human Resources (HR) Torabelo Hospital has a score of 0.44. Hospitals are not recruiting staff or have a current emergency response procedures, while hospital do not assign tasks to the staff, they just do the appropriate emergency response training and knowledge they know. The training they do is just training for the fire disaster and not all staff training. According to Samah (2018) Disaster management requires skilled and trained personnel, it is necessary a good training or coaching staff of hospitals as well as the surrounding community hospital (In the form of socialization practices of the field) (Norazam, 2018). The
training is meant as an understanding of risk management, an understanding of disaster by type and general knowledge regarding the benefits in order to raise awareness of disaster when emergency disaster occurs.

In the Logistics and Financial submodules Hospital Torabelo get a score of 0.28, the hospital does not own or have a written partnership with suppliers of medicines and equipment needed during emergencies. The hospital also did not have enough financial budget emergencies when a disaster occurs. According to Mahfud (2017) a disaster can not be tackled effectively and quickly if it is not supported by adequate infrastructure and logistics, specific means to cope with the impact of disasters is a means of communication (telephone central to hospital, Speakers, wireless for security), PPE, tools rescue, medical transportation, medical equipment, logistics such as food, beverages, pharmaceuticals and others (Mahfud & Rossa, 2017; Salikunna & Towidjojo, 2011).

In submodules Patient Care and Hospital Support Services Torabelo has a score of 0.37. Hospitals already have continuity between patient care services with support services in emergency response, continue to function and provide medical services with the assistance of medical personnel and medical equipment from some of the Center of Medical Education and NGOs. According Talati (2014) disasters pose a challenge to any care facilities in terms of infrastructure, capacity and readiness (Talati, 2014). A hospital while experiencing a disaster and when the patient load far exceeds the ability of emergency departments to provide emergency care hospital then apply additional resources to provide care to a large number of victims.

In submodules evacuation, decontamination and hospitals Security Torabelo has a score of 0.43. The hospital has a location and procedures for triage tags to victims, and has a post-mortem procedures, hospital also do not have an extra room, but because no assistance from government agencies and tents from several other departments, so it can be used as additional space for treatment and care of patients. According to the UNDP (2008) security in disaster management may include tasks and functions by working with local police, maintain order inside and outside the hospital, keeping vehicle traffic evacuate or carrying patients to and from hospitals, to protect the installation (space maintenance, office space, a source of energy / generator, water supply sources, and others - others) and to protect hospital staff and patients (Omar, 2008). According Talati (2014) the main component in disaster management plan is to maintain the influx of patients and maintain the triage area, special care, resuscitation room, hospital Other and non-governmental organizations as well as making the information desk to address the family and the media (Talati, 2014).

**Hospital Undata**

Undata Hospital has a score of 0.50 on Disaster Management Coordination submodules Hospital. Hospitals have had a team of disaster management which has not been revised since 2017 and now hospitals Undata has changed Hospital Director since 2018, there is a team member who has moved to another part, transferred to another hospital, had stopped working and there is also team members who do not know him as a member of the hospital disaster response team. According to the Depkes R.I (2010) every hospital must have an organizational structure Hospital Disaster Management Team formed by the Drafting Team and established by the hospital management, made basic principle of a disaster response team that is organizational disaster response team should be adapted to the existing hospital organization as well as disaster response team should work in accordance with the duties and functions that have been defined. The task of its own management team...
which is preparing a disaster alerting planning guidelines for hospitals (P3B-RS), plan and organize training and disaster simulation once a year submodules (Depkes, 2010) (Yennizar, 2015). Plan On Disaster Emergency Response and Recovery Hospital Undata Hospital has a score of 0.43. Hospital already has an emergency response plan and specific plans danger in the form of documents, but the plan is not implemented and not updated at least 1 year. The hospital also has procedures to enable and disable the response plan but only a procedure, never tested or updated annually.

In the Communication and Information Management submodules Undata Hospital has a score of 0.45. Hospitals have a communication system that does not work after natural disasters 28 September 2018 due to power cuts and not his electric generator due to lack of fuel available in the first week after the occurrence of a natural disaster, the hospital also did not have the. In submodules Human Resources Undata Hospital has a score of 0.43. Hospitals do not have procedures for mobilization and recruitment of staff for emergency response, never tested or updated annually.

In the Logistics and Financial submodules Undata Hospital has a score of 0.41. Hospitals do not have the cooperation in writing with local suppliers for the delivery of drugs and equipment required in an emergency, ambulances and vehicles of hospital operations is not operating at the first days after a natural disaster 28 September 2018 due to the lack of fuel obtained to help fuel coming from outside the city of Palu.

In submodules Patient Care and Hospital Support Services Undata has a score of 0.47. In the aftermath of 28 September 2018, RS continues to function in the midst of the limitations that exist primarily RS limited human resources, power loss and communication so that emergency operations and support services can not be done in the early days after the disaster. RS has a post mortem procedures already exist, but the procedure is not run with the maximum, triage procedures also do not run with the maximum. RS continues to function and provide medical services because of the many assistance of medical personnel and medical equipment from Medical Education Center and several non-government organizations. In submodules Evacuation, Decontamination, and Hospital Security has a score of 0.47. The hospital has had an evacuation plan, but the plan never simulated simulated evacuation plan is not done on a regular basis at least 1 year once implemented (Febriawati et al., 2017).

**Hospital Anutapura**

Hospital Anutapura Palu has a score of 0.50 on Disaster Management Coordination submodules Hospital. Hospital Anutapura Hammers have had a disaster response team called Team Hospital Disaster Plan, chaired by the deputy director of field services and oversees four areas: logistics, planning, finance and operations covering medical services, support services, social services, each member of the field coming of several parts and people who have a structural position the hospital. This team has not been revised since 2017 and is currently Anutapura Palu Hospital has undergone a reshuffle in the organizational structure, where there is a team member who has moved other part, stopped working, and died in 2018.

In September of natural disasters submodal emergency response plans and recovery hospitalis at 0.51. Palu Anutapura Hospital already has an emergency response plan and specific plans danger but only limited document, and not performing well and not update at least once a year. Hospital Anutapura also has procedures to activate and deactivate the emergency response plan, but only a document and never tested or updated annually. the hospital also has a recovery plan in the form of documents but not implemented and updated at
least once a year. The existence of an emergency response plan and specific plans of this danger in accordance with Kepmenkes Decree No. 432 / Menkes / SK / IV / 2007 on Guidelines for Management of Health and Safety (K3), which states that absolutely require hospital Emergency Response System as part of the K3 management of the hospital (Keputusan Menteri Kesehatan Republik Indonesia No. 432/MENKES/SK/IV/2007 Tentang Pedoman Manajemen Kesehatan Dan Keselamatan Kerja (K3) Di Rumah Sakit., 2007).

Submodel score 0.47 in communication and information management. Hospitals have communication and information systems are not run well after the earthquake due to inadequate electricity sources and operators who are not trained in emergency conditions. This is not in accordance with the Depkes R.I (2009) which states that in case of disaster required a unified communications system that consists of a communications Submission of information, communication, coordination and control communication (Depkes, 2009a). The hospital also has a directory of external stakeholders, but the data is not updated more than 3 months since the last data collection it is not in accordance with the DEPKES in 2009, where 47 on submodel communication and information management where hospital shall have coordination between units hospital and among agencies outside the hospital (Another, Police, Fire, Red Cross, NGOs, BMKG, BPBDs, Department of Health, BNPB, and institutions related units) can be shaped MoU realization or by regular meetings held continuously (Depkes, 2009a). Procedures for communication with the public and the media as well not exist and there is no designated spokesperson. The hospital has procedures for the management of patient information in an emergency with the procedure trained but resources are not available. Medical records storage procedures in emergencies is also available but there are no resources.

0.46 score in submodules Human Resources, hospital has had a staff contact list and has been updated regularly. The hospital has not had the procedure mobilization and recruitment of staff for the mobilization of emergency response in question is the hospital has had a remedy and implement procedures to mobilize staff on duty and has and implement procedures for recruiting volunteers to assist in an emergency. The hospital also did not have a place that can be used by hospital staff during emergencies, especially during natural disasters last September 2018. It is also in because there is a hospital building collapsed. Air Sum Manpower available during natural disasters September 2018 and is also very less, this is because the human resources Anutapura Hospital also become victims of so many traumatized human resources so as to prioritize to save themselves and their families. Hospitals have been assigned tasks to the hospital staff in emergency and recovery process, but the task was limited to documents, not all staff are aware and trained on the job. This is not in accordance with the Ministerial Regulation No. Per-05 / MEN / 1996 on SMK3 annex II point 6. 7. 3. And 6.7.4 which states that "Labor received instruction and training on emergency procedures appropriate levels of risk, as well as officers handling emergencies are given special training (Peraturan Menteri Tenaga Kerja Nomor : PER.05/MEN/1996 Tentang Sistem Manajemen Keselamatan Dan Kesehatan Kerja, 1996). Disaster relief requires a trained and skilled personnel, it is necessary a good training or coaching staff of Hospitals have been assigned tasks to the hospital staff in emergency and recovery process, but the task was limited to documents, not all staff are aware and trained on the job. The training is meant as an understanding of risk management, an understanding of disaster by type and general knowledge regarding the benefits in order to raise awareness of disaster when emergency disaster occurs. hospital nor do they have a resting place, food, drinks, places of worship and meet the individual needs of each staff in emergencies.
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On the logistical and financial submodules Anutapura Hospital has a score of 0.39. The hospital did not have a written partnership with the hospital premises local suppliers for the delivery of drugs and equipment used. In an emergency several operational vehicles are available and may be used, but not in sufficient quantities. As happened during natural disasters 28 September 2018 operational vehicles and ambulances can not be used to the maximum in the first days after the disaster. The food and drinks during a state of disaster is only available for a capacity of less than 72 hours, but hospital also got a lot of help from volunteers so that the needs of the food and drink during the disaster can still be overcome. The hospital also has not put together a program and budget for disaster emergencies hospital. A disaster can not be dealt with effectively and quickly if it is not supported by the infrastructure and adequate logistics, special facilities to cope with the impact of disasters is a means of communication (telephone central, speakers, wireless for security), PPE, tools rescue, medical transportation, medical equipment, logistics such as food, beverages, pharmaceuticals and others. Without the support of infrastructure, logistics and budget that has been prepared by hospital the form of documents, it is definitely disaster relief efforts could be hampered even fail (Nursaadah et al., 2013).

Hospitals get a score of 0.45 for the submodule patient care and support services. Hospitals have to have continuity between patient care services with support services in emergency response but is not always available at all times, during natural disasters last 28 September 2018, the hospital still perform its function in the service and care amid limitations. Power outages and the unavailability of fuel hamper health service support in the early days after the disaster however, hospitals can function and provide medical services after the arrival of medical assistance and medical equipment from some of the Center of Medical Education and NGOs. The hospital did not have an extra room for mass casualties, emergency surgery and for the treatment of patients, but because there is help from BPBDs form of tents and marquees of some of the other agencies. The hospital already has a triage site and procedures and personnel that have been trained, but the procedure has not been tested triage in emergency response. Triage tags and other logistical supplies are also not available until the arrival of aid. The hospital also has a referral procedures, transfer and reception of patients with medical personnel had been trained, but the procedure has not been tested in triage in emergency response.

In addition, there are procedures to provide psychosocial services to patients, families and hospital staff. This is due to the lack of trained human resources to provide such services. The hospital also has a storage procedure corpse if an incident occurs mass death but only a document, the hospital has not conducted training for staff regarding the procedure. At the submodules evacuation, decontamination and security with a score of 0.46, Anutapura hospitals already have an evacuation plan, personnel have been trained in accordance with the procedures, but simulation is not done regularly. The evacuation plan is meant hospitals have evacuation procedures vertically, horizontally, and partial to patients, hospital staff and visitors to a safer place in case of disaster. It is based on the Law No. 1 of 1970 on Occupational Safety Article 3, paragraph 1 (d) states that “Giving an opportunity or a way to save themselves at the time of fire or other events harmful” (Cut, 2012). The hospital also has a supply of equipment self-protection and insulation for infectious diseases but is only available for less than 72 hours, there are also areas of insulation, but the training and the testing staff not
routinely hospitals already have security procedures in an emergency, where the procedure in the mean is procedures to ensure the safety of patients up to the meeting points in case of disasters such as the availability of traffic procedures the patient to a rallying point, the location of triage and emergency coordination center.

CONCLUSION

Torabelo Hospital has a score of 0.37 (Classification B), Hospital Undata has a score of 0.45 (Classification B), and hospitals Anutapura has a score of 0.46 (Classification B), and which is the average score of 7 submodules. Classification B according to the Hospital Safety Index is a 2015 2nd Edition hospital which can function in an emergency after a disaster but the health services are not going well for disaster management and health facilities are not yet ready to be in a high risk of damage, so in the near term should be immediately evaluated.

Given this research, it is expected from the third-party hospital can be input and improve existing HDP document and adapted to the points of 7 submodules Hospital Safety Index 2nd Edition, 2015 to be able to become operational documents in the hospital in disaster preparedness.

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