

# Hospital Disaster Management Plan at Sayang Rakyat Hospital during Response phase in Central Sulawesi Disaster

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## INTRODUCTION

Hospitals play a critical role in health care infrastructure. Hospitals have a primary responsibility of saving lives, they also provide 24/7 emergency care service and hence public perceive it as a vital resource for diagnosis, treatment and follow-up for both physical and psychological care. Hospitals are central to provide emergency care and hence when a disaster strike the society falls back upon the hospitals to provide immediate succor in the form of emergency medical care.<sup>1</sup>

Hospital disaster management provides the opportunity to plan, prepare and when needed enables a rational response in case of disasters/ *mass casualty incidents (MCI)*. Disasters and mass casualties can cause great confusion and inefficiency in the hospitals. They can overwhelm the hospitals resources, staffs, space and or supplies. Lack of any tangible plan to fall back upon in times of disaster leads to a situation where there are many sources of command, many leaders, and no concerted effort to solve the problem. Everyone does his/ her own work without effectively contributing to solving the larger problem of the hospital. Therefore, it is essential that all *Hospital Emergency Plans* have the primary feature of defining the command structure in their hospital, and to extrapolate it to disaster scenario with clear cut job definitions once the disaster button is pushed. Chaos cannot be prevented during the first minutes of a major accident or disaster. But the main aim of *Hospital Emergency Plan* should be to keep this time as short as possible.<sup>1</sup>

The emergency plan for smaller hospitals such as community health center may actually only focus around providing either mobile emergency care on the site of incident or providing intermediate stabilization and forward referral of serious patients to the nearest networked hospital. Since the disasters do not strike at the vicinity of only bigger hospitals, it is imperative that all hospitals whether small or big providing emergency care have an emergency plan. In most mass casualty incidents it has been observed that majority of the victims are not seriously injured and come in the walking wounded category. Such small centers can provide immense help in case of disasters/*MCI* by providing definitive care to such victims who are not seriously injured. The emergency plan of such small hospitals would largely depend upon the concept of hospital networking.<sup>2</sup>

December 28<sup>th</sup> 2018 marks the occurrence of a tectonic earthquake which hit *Donggala* district and affected *Palu city* an *Parigi Moutong Regency* as well. The *earthquake* was subsequently followed by a *tsunami* that swept away significant amount of parts of *Palu city* and *Parigi Moutong City*. The preceding *earthquake* and *tsunami* results to *liquefaction* in *Palu, South Palu* and *Sigi* district. Collateral damage after the disaster made local hospitals overloaded after receiving massive flow of patients and assistance from the network hospitals were crucial in delivering treatment to patients.

Sayang Rakyat Hospital is a type C hospital in South Sulawesi, located 9,2 km away from Hasanuddin International Airport. The hospital did emergency plan such as community health center focus around providing either mobile emergency care on the site of incident or providing intermediate stabilization and forward referral of serious patients to the nearest networked hospital.<sup>3</sup> In this mass casualty incidents it has been observed that majority of the victims are not seriously injured and come in the walking wounded category. And also providing definitive care to such victims who are not seriously injured.

## METHOD

This paper will be described by using realist approach (*Pawson and Tilley 1997*).<sup>4</sup> Pawson and Tilley argued that in order to be useful for decision makers, evaluations need to identify ‘what works (1) in which circumstances (2) and for whom (3)?’, rather than merely (3) ‘does it work?’

Based on this theory it is important to look at the context of *Palu earthquake* specifically and possess deep understanding upon the characteristic of incident in order to determined solution. In order to create a complete understanding to the disaster and its management plan, this writing will cover these following discussions.<sup>5</sup>

- Overview on *Palu Earthquake*
- Evacuation and First Aid Report
- Role of Sayang Rakyat Hospital in disaster management.

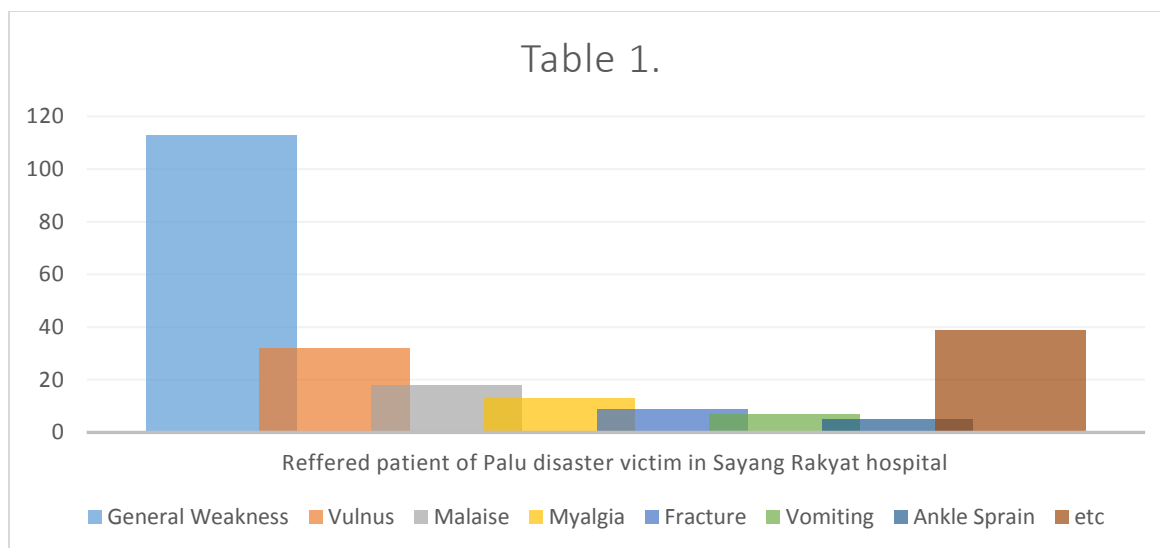
Three discussions above were generated through a combination of the triangulation method using the multiple sources of evidence. Primary sources of data were collected through *in-depth interviews*, focus group discussions, quantitative data collects with key stakeholders that were directly involved in the response efforts after the October 2018 disaster.

The data used are quantitative, collected with aim to reveal the diagnosis with highest frequency of occurrence in type-c hospital as the output. The output is resulted from processing the data, that is, analyzing the number of victims registered in Sayang Rakyat Hospital.

## RESULT

Hospital Disaster Management executed by Sayang Rakyat Hospital has managed to run in a systematically-supervised order. Palu’s earthquake victims referred to Sayang Rakyat Hospital during the four-days period between September 29<sup>th</sup> 2018 to October 2<sup>nd</sup> 2018 are 236 patients in total. The final data indicate the patients with *general weakness* diagnosis (47,88%) make up as the majority, and various wounds such as *vulnus laceratum*, *vulnus excoriatum* diagnosis follow (13,55%) most filled the bed emergency room. Some of these patients receive inpatient care, and the remainings are allowed to undergo outpatient care. The patients distributed to and accepted at Sayang Rakyat Hospital are properly cared with sufficient manpower and infrastructure in success rate. Therefore, the distribution of patient is qualified to be declared successful. (Table 1.)

Table 1.



## DISCUSSION

Traditionally, an ideal *Hospital Disaster Management* requires the city where the disaster takes place to be self-sufficient with emergency preparedness.<sup>1</sup> However, it is learned from the latest Palu disaster that it is inevitable for other provinces in the same geographical proximity to also hold prominent role in helping the crisis management, that is to say that other provinces near from the area of disaster shall be vigilant by preparing their hospital disaster management plan. In the last year's chaos, it turned out /it has been recorded that Sayang Rakyat Hospital which is located 841,4 km away from the incident becomes one of the prominent referral center hospital.

- Overview on *Palu earthquake*

A 7.7 magnitude earthquake hit Donggala District Central Sulawesi, Indonesia on 28th September 2018, followed by aftershocks. The epicenter is at 8 km northwest Donggala with the depth of 10 Km. A *tsunami* hit Palu City, province capital of Central Sulawesi, around 15 minutes after the quake. *Liquefaction* has been reported in *Petobo village* in Palu, with black mud rising up to five meters and reportedly burying nearly one hundred people alive. *Liquefaction* has also been reported in south Palu, Biromaru (Sigi district) and Sidera village (Sigi district). Landslides from Toboli to Palu have been reported. Access to Palu is difficult. Road access to the affected area from North side (Manado and Gorontalo Province) is inaccessible due to the damage. Access road from the South (from Makassar-South Sulawesi and Poso-South East Sulawesi) has started to be cleared. Mutiara Sis al-Jufri Palu Airport has been opened on 3rd October as an alternative access for humanitarian operations.<sup>6</sup>

To date, a total of 1 407 persons have died, 7 113 people have been injured, 113 people are missing and dozens of houses have been damaged across 934 affected villages. The number is estimated to rise, as rescue operations are still being carried out. Estimated exposed population is more than 310 000 in Donggala regency, near the epicenter. The nearest major city, Palu, has the most number of exposed population of more than 350 000.<sup>6</sup>

There are currently 70 821 displaced people in 141 sites. The number of *internally displaced persons (IDPs)* is expected to continue to rise As of 30 September, 122 foreign nationals are reported to have been affected by the earthquake; the majority are safe and well, although five individuals from four countries are still missing. Assistance for foreign nationals is being managed by the *Ministry of Foreign Affairs*. Twenty-one health facilities are affected, whereas damage to other health facilities is being assessed. Electricity and telecommunication network are temporarily cut off.<sup>7</sup>

- Evacuation and First Aid Report

In the case of patients' condition do not meet the facilities required or numbers of patients exceeding the capacity of hospitals in Palu, some patients will be flown to Makassar using *Hercules Plane* provided by collaboration of *Government with Indonesian Army (TNI)*. By the time the plane arrives, triage would have been readied by Type-A regional hospital. The triage will determine the allocation of patients across hospitals in Makassar, it is authorized by the director of type-A hospital as the incident control.

Patients with severe injuries who are in need of advanced facilities such as but not limited to *CT-Scan* and additional examination are referred to Wahidin Sudirohusodo Hospital as type-A regional hospital in South Sulawesi. Meanwhile, the patients with minimal trauma, and mild injury are referred to small hospitals, Sayang Rakyat Hospital belongs to this category.

- Role of Sayang Rakyat Hospital in disaster management.

Responding to the incoming notification on the referral of patients to Sayang Rakyat Hospital, the management of the hospital will arrange these following coordination (Figure 1.):

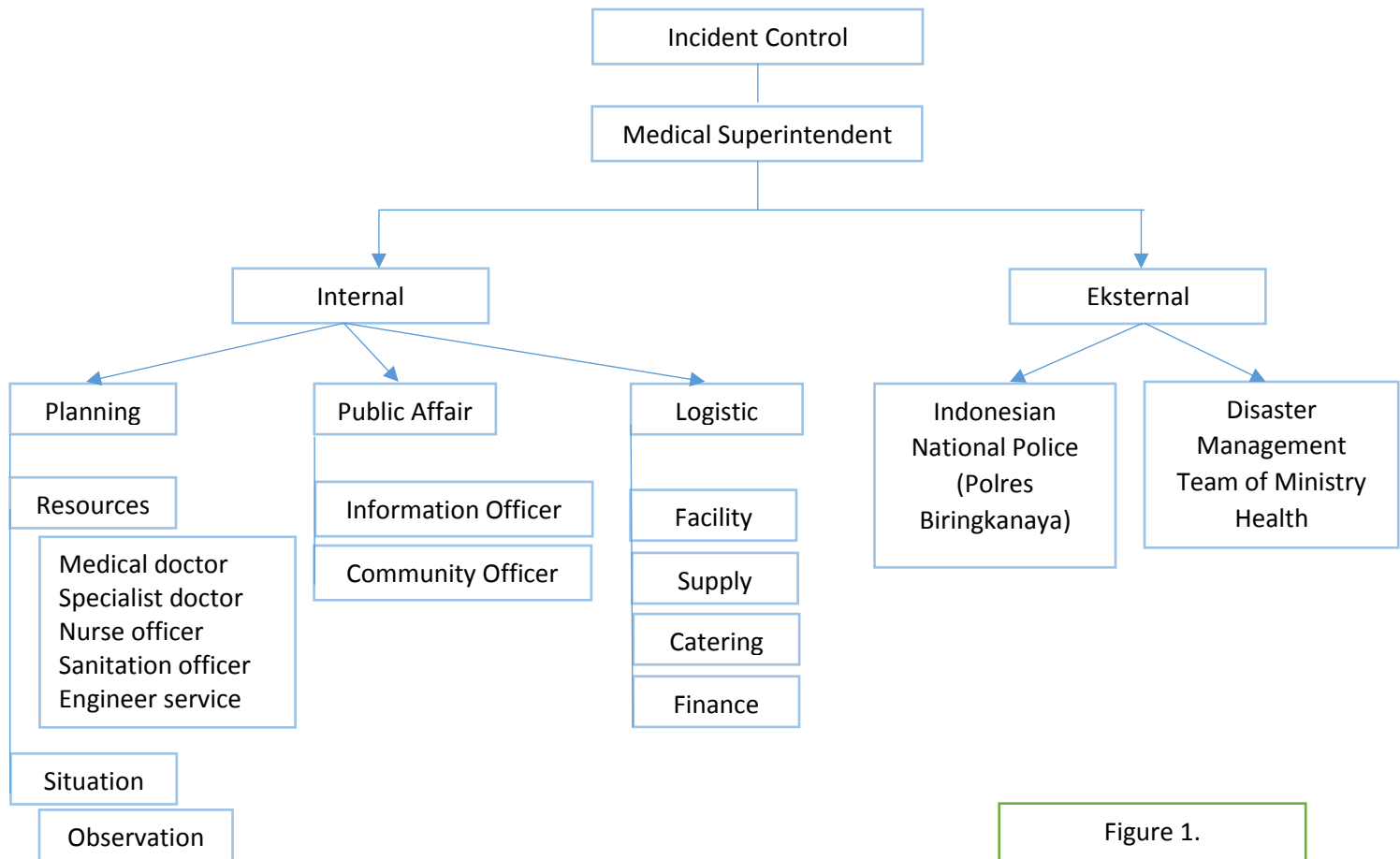


Figure 1.

## Internal

*Medical superintendent* is chaired by *Incident Control* of the hospital, who also acts as the chief of operations during disaster in hospital. Medical superintendent position is occupied by the incumbent director of hospital. The other members include deputy medical superintendents as member conveners, senior faculty representatives from the departments of *general surgery, internal medicine, orthopedics* and *anesthesia*. In addition, the committee comprises chief security officer (CSO), chief nursing officer (CNO), sanitation officer (SO) and head engineer services. The main responsibility of the committee is to decide and document the prevention & mitigation tactics as per the threat perception, situational and *SWOT analysis* of the organizational capability. A deliberate organization of activities between hospital units during the massive arrival of patients is essential. Therefore, all hospital units such as, but not limited to *Emergency Care, Surgical Room, ICU* , and medical ward have to be coordinated to facilitate the appropriate delivery of service. The first thing to coordinate is the arrangement of manpower and additional beds, realizing that, Sayang Rakyat Hospital upgraded their Emergency Care's bed capacity from 12 units to 20 units, in addition the hospital management prepares three doctors and six nurses at minimum in each work shift. The role of specialist doctor is crucial in accommodating the various condition of patients. Hence, some specialist doctors are scheduled on duty. *Gen/eral surgeon and orthopedic surgeon* are scheduled for 24 hours work duty, while other specialist doctors are serving *on-call*.

Secondly, the hospital reserves an area which is prepared to accommodate the storage of donation and other logistics which will be distributed to the authorities. Some donated supplies stored in this place are also going to be directly provided to disaster victims who have arrived at the hospital.

Lastly, the management of the hospital also put the Public Affair as the assisting role within this operation. Public Affair supports the operation with serving as the informant regarding data of victims, this department is responsible to recapitulate all of the collected data.

## External

As a means to gain external support which is essential for the efficiency of the cooperation. Some coordination with other social institutions have to be made. The first cooperation is between the hospital and law enforcement. Therefore, Sayang Rakyat Hospital works in tandem with *Indonesian National Police (Polres of Biringkanaya)* in creating order and security in time of emergency response.

Service efficiency should not settle for less if patients satisfaction is the priority, therefore Sayang Rakyat Hospital also arranges a cooperation of medical workers. The medical workers selected for this partnership are specialist doctors who are general surgeon, orthopedist, anesthetist, and nurses. These individuals serve as additional manpower, they come from a hospital from East Java which is part of *Disaster Management Team of Ministry of Health*.

Generally, the patients are properly treated with complete patients care are accomplished with little to no issues. Only some minor cases are noted that few patients require more advanced care and are referred to other facilities. Nonetheless as suggested from the data, it is safe to say that the executed hospital disaster management have managed to deliver satisfactory care to patients.



Picture 1.

City mayor is visiting to supervise the referred patients from Palu being treated.



Picture 2.

Coordination between medical intendent and Polres of Biringkanaya



Picture 3.

Sayang Rakyat Hospital visitors are seeking out information on their family's whereabouts.



Picture 4.

Storage of logistics donated by the volunteers.

## Referensi

1. Chaffe, M. W. & Oster, N. S. (2006). The Role of Hospitals in Disasters. In G. R. Ciottone, P. D. Anderson, I. Jacoby, E. A. Der Heide, E. Noji, R. G. Darling, *et al.* (eds.), *Disaster Medicine* (3rd ed., pp. 34-42). Philadelphia: Mosby Elsevier.
2. Lim GH, Lim BL, Vasu A: Survey of factors affecting health care workers' perception towards institutional and individual disaster preparedness. *Prehosp Disaster Med.* 2013; 28 (4): 353-8
3. Government of India- United Nations Development Programme (GOI/UNDP). (2002). *Guidelines for Hospital Emergency Preparedness Planning* . India: UNDP.
4. Pawson, R. and Tilley, N. (1997) *Realistic Evaluation*. London: Sage.
5. Association for Professionals in Infection Control and Epidemiology (APIC) ; Centre for the Study of Bioterrorism and Emerging Infections (CSB & EI). (s.a). *Mass Casualty Disaster Plan Checklist: A Template for Healthcare facilities*.
6. WHO Country Office for Indonesia. Sulawesi earthquake and tsunami. SitRep no. 4. 1October 2018
7. AHA Center. SITUATION UPDATE NO. 12 M 7.4 EARTHQUAKE & TSUNAMI Sulawesi, Indonesia. Tuesday, 15 October 2018, 18.00 hrs (UTC+7). Available at [https://ahacentre.org/wpcontent/uploads/2018/10/AHA-Situation\\_Update-no4-Sulawesi-EQ-final2.pdf](https://ahacentre.org/wpcontent/uploads/2018/10/AHA-Situation_Update-no4-Sulawesi-EQ-final2.pdf)
8. Taaaffe KM, Kohl R, Kimbler DL. Hospital evacuation: issues and complexities. In: Kuhl ME, Steiger NM, Armstrong FB. Proceedings of the 2005 Winter Simulation Conference. San Diego. 2005