

## IMPLEMENTATION OF THE FIRE EMERGENCY RESPONSE SYSTEM AT DR. TADJUDDIN CHALID MAKASSAR

Ahmad Sulaiman<sup>\*1</sup>, Elvira Wanda Rizkya<sup>2</sup>, Muhammad Hosni Mubarak<sup>3</sup>

Universitas Megarezky Makassar<sup>1,2</sup>

Universitas Sulawesi Barat<sup>3</sup>

[ahmadsulaiman1704@gmail.com](mailto:ahmadsulaiman1704@gmail.com)<sup>1</sup>, [elvirawanda236@gmail.com](mailto:elvirawanda236@gmail.com)<sup>2</sup>,

[mhosnimubarak@unsulbar.ac.id](mailto:mhosnimubarak@unsulbar.ac.id)<sup>3</sup>

Received: 15-06-2024

Revised: 25-06-2024

Approved: 28-06-2024

### ABSTRACT

*The growth and arrangement of existing buildings is often not balanced with the readiness of building infrastructure or gives the impression of forced development so that the resulting physical buildings pay little attention to fire hazards. Fire prevention is a building system that aims to save lives and property from the dangers of fire. Preparedness and handling before a fire occurs is a very important factor in preventing fires. The aim of this research is to see whether the implementation of the emergency response system at RSUP Dr. Tadjuddin Chalid Makassar is in accordance with standards. This research method uses qualitative research with a descriptive approach through in-depth interviews. The informants for this research are the person in charge of K3RS, Head of Sanitation Installation, members of the hospital emergency response team, hospital fire brigade team, hospital management team and Head of Facilities and Infrastructure Maintenance. The research results showed that RSUP Dr. Tadjuddin Chalid Makassar has implemented a fire emergency response system that is in accordance with standards, but it is not yet optimal, such as evaluation of training and education that has not been implemented, in the active fire system there are still APARs that have expired and several hydrants that are not attached with instructions for use, then in the system passive fires, there are still gathering places that are still used as parking lots and there are no emergency stairs specifically for patients who use wheelchairs.*

**Keywords :** System, Response, Emergency, Fire, Hospital

### INTRODUCTION

According to the National Fire Protection Association, fire is defined as an oxidation event involving three elements, namely fuel, oxygen, and an energy source or heat which results in property loss, injury and even death. Fire is a problem that cannot be separated from human activities and occurs beyond human capabilities and desires (Ramlia, 2010 in Musyafak, 2020). As city development continues to increase, buildings continue to experience growth both vertically and horizontally (Olii et al., 2019). The growth and arrangement of existing buildings is often not balanced with the readiness of the building infrastructure or gives the impression of forced development so that the resulting physical buildings pay little attention to fire hazards (Rijal, 2019). Hospitals as service facilities that operate in the field of health services have a variety of complex workforce problems with various risks of work-related diseases and even work-related accidents according to the type of work, so they are obliged to implement efforts to develop Hospital Occupational Health and Safety (K3RS) (Maringka et al., 2019).

This effort is carried out so that there is no risk of work accidents, looking at the current development of hospitals, medical support facilities are also increasingly developing so that the potential dangers and problems are becoming more complex, so there is a need for protection for health workers to ensure safety and health when carrying out work activities (Enne et al., 2023). According to Kurniawam et al., (2021)

one aspect of safety is safety against fire hazards. Buildings are expected to have a fire protection system that meets the requirements (Noor et al., 2012), namely being able to prevent the emergence of fire, prevent the spread of fire and smoke, extinguish fire and provide safe evacuation facilities for building users. The aim of implementing building safety regulations regarding fire hazards is to ensure the safety of building users and prevent damage to buildings due to fire itself. In the fire emergency response system there are several facilities/infrastructure that support a process of efforts carried out in public services, because if these two things are not available then all activities carried out will not be able to achieve the expected results as planned, such as directional signs and Exits, emergency stairs, emergency doors, emergency lighting and *assembly points*. Based on the online media Detik.com, data obtained specifically on world scale hospital fires starting from 2017-2019, there are several cases, such as Brazil's Rio De Janeiro Hospital with 11 deaths, Taiwanese Hospital with 9 victims, and South Korean Hospital with 11 deaths. 41 people died. A fire incident also occurred on January 26 2018 at Sejong Hospital in Mieryang, South Korea. In this incident 33 people died, 13 people were seriously injured and 66 others suffered minor injuries. Based on information from two nurses, the fire suddenly appeared and spread, allegedly due to an electrical short circuit in the Emergency Unit (ER) (CNN Indonesia, 2018).

Meanwhile, in Indonesia itself there have been several cases of hospital fires. These include Natuna Hospital, Gambiran 2 Hospital, Kediri City, Saiful Anwar Hospital in Malang, Mintohardjo Hospital, Central Jakarta, Mayapada Hospital, South Jakarta, Kurnia Hospital in Cellegon, Banten, Dr. R Soedarsono Hospital in Pasuruan, Wahidin Sudirohusodo Hospital in Makassar and several buildings in the city of Riau in 2018 there were 147 cases of building fires. Cases of building and building fires in Riau are generally caused by various factors and the most common is human negligence such as short circuits and poor building electrical installations (Damkar Prov. Riau, 2018).

Based on the results of observations and interviews conducted by researchers at Dr. Tadjuddin Chalid Hospital Makassar, several data were found, including 1) Fire simulation training which is quite good because it is held at least once a year and has been carried out since 2015, and in 2022, 3 fire simulation trainings have been carried out, 2) There is implementation of an active fire protection system including: fire alarms located in every building, fire extinguishers but are in poor condition (*expired*), hydrants located outside the building and inside the building multi-story, *smoke detectors* and *sprinklers* located in every corridor and inpatient room. 3) The implementation of a passive fire protection system including: evacuation routes, emergency doors, emergency stairs already exist but there is no special route for emergency patients who can only use wheelchairs and patient bodies and *assembly points* also exist but there are some meeting places located too close to buildings and some are even used as motorbike parking lots so that when there is an emergency situation they are not effective as meeting places. Based on the background above, this research aims to find out how the fire emergency response system is implemented at Dr. Hospital. Tadjuddin Chalid Makassar.

## **RESEARCH METHODS**

This research uses qualitative research methods with observation and in-depth interviews. The approach used in this research is a narrative approach with the *Snowball technique*. This type of research obtains data by direct survey and conducting in-depth interviews, conversations and discussions. This research was located at RSUP



Dr. Tadjuddin Chalid Makassar. The informants in this research consisted of three informants, namely one Key Informant and two Ordinary Informants including 1 Informant Responsible for K3RS, 1 Informant Head of Sanitation Installation, and 1 Informant Head of Facilities and Infrastructure Maintenance.

**RESEARCH RESULT**

***Fire Protection Management***

The following are the results of field observations carried out regarding fire protection management implemented at RSUP Dr. Tadjuddin Chalid Makassar.

**Table 1.**  
**Observation Results of Fire Protection Management**

No	Reduction	Information
1.	Emergency organization / Disaster team board	
2.	Disaster team officer helmet	




Based on the results of interviews with the three research informants, it can be stated that there has never been a fire that resulted in losses at RSUP Dr. Tadjuddin Chalid Makassar, however, once almost had a fire at a nutrition installation but there were no victims and it could be immediately extinguished using an APAR. Then regarding the emergency response system at RSUP Dr. Tadjuddin Chalid Makassar and the stages in the event of a fire, the results show that there is already a fire emergency response system in the hospital such as an SOP that handles the emergency response itself. The results of the interview regarding the organization and fire management team at RSUP Dr. Tadjuddin Chalid Makassar found that there was a K3RS team but it was not



very active, then a disaster team was already in every ward, but there were still some officers who usually did not change their names because the officers were the same.

**Active Fire Protection System**

The following are the results of field observations carried out regarding the active fire protection system implemented at RSUP Dr. Taddjuddin Chalid Makassar:

**Table 2.**  
**Active Fire Protection System Observation Results**

No	Reduction	Information
1.	APAR that has <i>expired</i>	
2.	Hydrants that do not have usage procedures	
3.	Building hydrants	


4.	<i>Water Sprinkler</i> Not Installed	
5.	<i>Smoke Detector</i>	





Based on the results of interviews regarding the implementation of audits of equipment at RSUP Dr. Tadjuddin Chalid Makassar is as good as the APAR which is inspected every month, only there is a problem with the electricity at the hydrant but it is currently being repaired. Then the results of the interview regarding the inspection and testing of fire protection equipment at RSUP Dr. Tadjuddin Chalid Makassar found that inspections and trials are always carried out every year. Based on the results of interviews with three research informants regarding *smoke detectors* at RSUP Dr. Tadjuddin Chalid Makassar found that the smoke detector was still functioning well and had collaborated with the Ministry of Manpower to test the function of *the smoke detector* and *heat detector* . As for the results of interviews regarding protection systems that were not functioning properly, the results showed that everything was still functioning properly, but there were still problems with the electricity on the hydrants and some of the quality had deteriorated but they were still usable.

***Passive Fire Protection System***

The following are the results of field observations carried out regarding the active fire protection system implemented at RSUP Dr. Tadjuddin Chalid Makassar.

**Table 3.**  
**Observation Results of Passive Fire Protection Systems**

<b>No</b>	<b>Reduction</b>	<b>Information</b>
1.	Emergency Stairs	

2	There are still items stored under the emergency stairs.	
3.	Emergency door	
4.	The gathering point is still used as a parking location	
5.	Draw evacuation routes	

Based on the results of interviews with the three informants regarding evacuation route signs, it was found that the evacuation route was installed correctly and could be seen from one another and the route led to the assembly point. Then, the results of interviews regarding special emergency stairs for patients who use chairs showed that there were no special emergency stairs for patients who used wheelchairs.

Based on the results of interviews with the three informants regarding whether the meeting place was far from the hospital building, it was found that the meeting place was still close to the building, but the size of the meeting point had been adjusted to the condition of the building. The results of the interview regarding the use of emergency doors at RSUP Dr. Tadjuddin Chalid Makassar obtained the results that the door functions as basically it can only be accessed from 1 side and is not used for daily activities, only if there is work in a multi-storey building, the emergency door is used.

## **DISCUSSION**

### ***Fire Protection Management***

The results of the research showed that small fires occurred in nutritional installations due to oil clumping around the stove and causing the fire to grow. There is a fire emergency response system in hospitals such as SOPs that handle the emergency response itself. There is an organization and a fire management team as well as existing human resources including the K3RS team but it is not very active and the disaster team is on the disaster team board located in each ward or installation. The research results regarding education and training have been carried out well because they have been carried out at least once a year and are aimed at all parties, from staff to *cleaning services*. However, after training and education was carried out at the hospital, there was no re-evaluation of the employees so there were still some employees who forgot about the steps in the event of an emergency.

This research is in line with the theory discussed by Ramli et al., (2023) that handling emergencies requires adequate human resources both in terms of number and competence and ability. Many problems arise when a disaster occurs because the resources involved in response are inadequate or they do not know their duties and responsibilities. Therefore, before developing a good emergency or disaster management system, the human resource needs needed for the response team must first be identified.

This research is also in line with research Karsa et al., (2018) explaining that fire management organizations are the foundation established for handling fires. A fire emergency response organization was formed with the task of handling fires in the workplace. The fire management organization is contained in the fire management policy which includes fire management procedures, organizational structure, job descriptions and responsibilities of each personnel. This is in accordance with Minister of Public Works RI Regulation NO.20/PRT/M/2009, that every building, especially public buildings, must have emergency response procedures in the context of preventing and handling fires and also the main elements of a building fire response organization consisting of the person responsible, communications personnel, firefighters, rescuers, engineering and security experts. Fire emergency response organization is one component of fire protection management that must be implemented by every building, namely a team or group of people selected as the implementing team in the event of a fire emergency. Thus, fire protection management has been implemented at RSUP Dr Tadjuddin Chalid Makassar, such as the existence of SOPs that regulate fire emergency response, then there are human resources and a disaster team to handle fire incidents and education and training have been carried out, but evaluations have not yet been held after the education and training have been carried out. training.

### ***Active Fire Protection System***

The results of the research show that the availability of APAR is still not optimal because even though a checklist has been carried out every month and inspections every month also by K3RS. However, several APARs were still found that were no longer suitable for use or had expired but were still displayed and still in use. The total number of APARs is 146 and there are 3 types of APARs, each type of APAR is placed according to the fire classification or class, such as the powder type is placed in offices, the carbon dioxide type is placed in rooms where there are chemicals, oil, electronics and so on

and the type of foam used in nutritional installations. Then regarding *the smoke detector* at RSUP Dr. Tadjuddin Chalid Makassar is still functioning well and has collaborated with the Ministry of Manpower to test the function of *smoke detectors* and *heat detectors*

Next, regarding *the water sprinkler* at RSUP Dr. Tadjuddin Chalid Makassar is in every building and is located close to *smoke detectors*, but there are still rooms where *water sprinklers are not installed*, such as in the DIKLAT room. Then regarding *the hydrant* at RSUP Dr. Tadjuddin Chalid Makassar already has 2 types of *hydrants*, namely building *hydrants* which are located in multi-storey buildings and courtyard *hydrants* which are located in building courtyards. The total number of *hydrants* is 26, however there are still some that are no longer functioning, such as in front of the CSSD building and all *hydrants* are currently in the process of being repaired due to electrical problems. This research is in line with research Marantika et al., (2023) which explains that fire protection facilities are a system of equipment and facilities that are installed and constructed in a building to minimize the danger of fire in the building and environment (Enne et al., 2023). The results of in-depth interviews with key informants stated that the active protection system at X Sragen General Hospital was a light fire extinguisher. This research is also in line with theory Saputra et al., (2022), based on the location, each building must have 2 types of *hydrants*, namely building *hydrants which are hydrants* located inside the building and the systems and equipment provided and installed in the building/building.

This is also in accordance with Minister of Public Works Republic of Indonesia Regulation NO.26/PTR/M/2008 which discusses *water sprinklers*, which states that a *water sprinkler* is a water emitting device for fighting fires which has a hood in the form of a *deflector* at the end of the nozzle, so that water can radiate into all directions equally. And also in accordance with Permenakertrans No. 04 of 1980 which states that a Light Fire Extinguisher (APAR) is a device that is light and easy to serve by one person to extinguish a fire when a fire occurs, the type of APAR is divided into 4, namely the liquid type (water), the type foam, dry powder type, and gas type (halogenated hydrocarbons and so on).

This research is also in accordance with Minister of Health Regulation No. 24 of 2016 which states that the implementation of an active protection system is based on the function, classification, area, height, volume of the building, and/or the number and condition of occupants in the Hospital Building. Active protection systems include: fire extinguishing systems, fire detection and alarm systems, and fire smoke control systems. This, the implementation of the active fire protection system is not optimal and is not in accordance with existing standards. It can be seen from several existing problems such as fire extinguishers, *water sprinklers* and *hydrants*.

### ***Passive Fire Protection System***

The results of the research show that the evacuation routes have been installed correctly and can be seen from one another and the routes lead to the assembly point. Then the research results also showed that emergency stairs were available. However, there are no emergency stairs specifically for patients using wheelchairs and elderly patients. And this is very necessary because several inpatients at RSUP Dr. Tadjuddin Chalid Makassar is located in a multi-storey building so special emergency stairs are needed for people with disabilities and the elderly who are being treated at the hospital.

Then regarding the meeting place, the results showed that the meeting place was still close to the building, but the size of the meeting point had been adjusted to the condition of the building and there were still several meeting places that were still used as parking areas for cars and motorbikes, so that it could hinder the process of evacuating victims to a safe place. when a fire occurs. The results of research regarding emergency doors at RSUP Dr. Tadjuddin Chalid Makassar obtained the results that the door functions like basically it can only be accessed from 1 side and is not used for daily activities, only if there is work in a multi-storey building, the emergency door will be used as entry and exit access. The condition of exits is a very important aspect in building planning if it is seen that on average 1 person dies among 4 occupants of a burning building just because of the difficulty of reaching an exit. Based on Minister of Public Works Regulation No.26/PRT/M/2008, a passive protection system is a system or design that is part of the system so that it does not need to be actively moved. Self-rescue means are one part of the passive protection system. Every building must be equipped with means of escape that can be used by building occupants, so that they have sufficient time to escape safely without being hampered by things caused by emergencies.

This is in accordance with Minister of Health Number 24 of 2016 which states that the implementation of a passive protection system is based on the function/classification of fire risk, room geometry, installed building materials, and/or the number and condition of occupants in the hospital building. Passive protection systems must meet: performance requirements, level of fire resistance and stability, type of fire resistance construction, required type of construction, fire compartmentation and protection of openings. This research is also in line with research conducted by (Mangindara, 2020) regarding the implementation of passive fire protection systems (gathering points) where the implementation does not comply with specified regulations. Thus, the implementation of the passive fire protection system has not been implemented optimally because there are still assembly points that are still used as car parking areas and there are no emergency stairs specifically for disabled patients and the elderly who are being treated in hospitals.

## **CONCLUSIONS**

That the implementation of the fire emergency response system is not in accordance with implementation standards. As with active fire protection systems and passive fire protection systems, there are still several systems that have not been implemented optimally.

## **BIBLIOGRAPHY**

- Enne, Suharni, & Samsualam. (2023). Analisis Implementasi Standar K3 Rumah Sakit Pada Rumah Sakit Dr . Tadjuddin Chalid Makassar Tahun 2022. *Journal of Muslim Community Health (JMCH)*, 4(3), 176–186.
- Karsa, A., Sitorus, H., & J, T. G. (2018). Role Of Regional Military Commands In The Framework Of Forest And Land Fires In Kodim 0415/Batang Harl. *Jurnal Strategi Dan Kampanye Militer*, 4(2), 23–50.
- Kurniawam, R., Asril, & Endang. (2021). *Evaluasi Sistem Tanggap Darurat Kebakaran Dan Preparedness (Kesiapan) Sebagai Langkah Penanggulangan Kondisi Darurat Kebakaran Di Rumah Sakit 3m Plus Tembilahan. 1*, 225–240.
- Mangindara, Z. (2020). *Analysis Of Hospital Preparedness In Efforts To Deal With Fire*

- Disasters At Haji Hospital, South Sulawesi Province Zulkifli1, 21(1), 1–9.*
- Marantika, H., Zainuddin, & Nurjaddin, R. (2023). Strategi peningkatan penanggulangan bencana kebakaran di kabupaten sumbawa barat. *Jurnal Ganec Swara, 17(4), 2182–2190.*
- Maringka, F., Kawatu, P. A. T., & Punuh, M. I. (2019). Analisis Pelaksanaan Program Kesehatan Dan Keselamatan Rumah sakit mempunyai banyak potensi bahaya yang dapat mengancam jiwa dan kehidupan khususnya untuk karyawan di rumah sakit , para pasien dan para pengunjung yang ada di lingkungan rumah s. *KESMAS, 8(5), 1–10.*
- Musyafak, A. M. H. (2020). Sistem Manajemen Kebakaran di Rumah Sakit. *Higeia Journal of Public Health Research and Development, 4(1), 158–169.*
- Noor, P., Fitriyanti, Q., H, A. R., Nurmayadi, D., Teknik, F., Tasikmalaya, U. P., & Tasikmalaya, K. (2012). Evaluasi Sistem Proteksi Kebakaran Pada Bangunan Gedung Hotel Bertingkat. *Jurnal Ilmiah Teknik Sipil, 01(01), 43–52.*
- Olii, G., Pinontoan, O. R., & Kawatu, P. A. . (2019). Gambaran Penerapan Standar Pelayanan Keselamatan Dan Kesehatan Kerja Rumah Sakit (K3rs) Di Rsud Datoo Binangkang Kabupaten Bolaang Mongondow. *Kesmas, 8(6), 536–543.*
- Ramli, Adam Idris, & Utomo, H. S. (2023). Kinerja Aparatur Pemerintah Dalam Penanggulangan Bencana Alam di Badan Penanggulangan Bencana Daerah Kabupaten Kutai Barat Ramli 1 , Adam Idris 2 , Heryono Susilo Utomo 3. *System Universitas Mulawarman, 2(2), 287–299.*
- Rijal, K. (2019). Study Keandalan Bangunan Gedung Instalasi Rawat Inap Rumah Sakit Umum Provinsi Nusa Tenggara Barat Terhadap Bahaya Kebakaran. *Jurnal Sangkareang Mataram, 5(4), 26–30.*
- Saputra, H., Ahmad Satria Efendi, & Makomulmin. (2022). Analysis Of Emergency Response Implementation System Fire Disaster At Arifin Achmad Hospital Riau Province. *Media Kesmas (Public Health Media), 2(1), 102–117.*