



# Risk Management Maturity in Radjak Hospital Salemba Renovation Project

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## ABSTRACT

Hospitals as providers of health services must be able to provide complete services from every side, including facilities and infrastructure. By having facilities and infrastructure with guaranteed quality and reliability, it is expected to be able to provide optimal services to people who need health services. On the basis of this, RadjakHospitalSalemba upgrades facilities and infrastructure while the operational conditions of the service are still running. It is necessary to implement Risk Management in the implementation of the renovation activities in order to achieve zero accidents quality standards.

The research technique used is the quality method with data collection techniques with descriptive design. The sample used is 30 people, namely the parties involved in PCRA (pre construction risk assessment) and ICRA (infection control risk assessment).

Most of the risk allocation is allocated to the owner with the owner's risk management maturity level dominantly still at level 3 (medium). The variables of safety, cleanliness, and comfort have a positive influence on the achievement of the established quality standards.

**KEYWORDS:** Hospital, Descriptive, Risk Management.

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## I. PRELIMINARY

Radjak Hospital Salemba, formerly known as MH Thamrin Salemba Hospital, is a class B private hospital that was built in 1996, has 11 floors and has a capacity of 161 beds. Since 1997 until now, Radjak Hospital Salemba and Hospital MH Thamrin Salemba have been registered as health care facilities, so they can provide health services to all Indonesian people.

Radjak Hospital Salemba is located among private hospitals such as ST Hospital. Carolus, Evasari Hospital, Jakarta Heart Hospital and government hospitals namely Dr.Cipto Mangunkusumo Hospital and the Army Government Hospital. From a business perspective, this is both an opportunity and a threat to the business continuity of Radjak Hospital Salemba.

Radjak Hospital Salemba sees the existing threats as opportunities. One of the ways is to improve the quality standards of the quality of health services from all aspects, including aspects of facilities and infrastructure. Since changing its name to Radjak Hospital Salemba, modernization of facilities and infrastructure continues to this day.

Modernization of facilities and infrastructure carried out is upgrading medical equipment and medical technology, as well as physical renovation which includes civil works (facade work, canopy work), electrical work, air conditioning system work, plumbing work, mechanical work, and architectural work (building interior renovation).

In carrying out the work of modernizing facilities and infrastructure, Radjak Hospital Salemba continues to provide optimal health services to the community. This certainly poses a risk for building users such as patients, patient families, visitors, employees, and management. Risk management and risk management maturity are very necessary in mitigating the risk of the implementation of the modernization work in order to achieve zero accident quality standards.

## II. LITERATURE REVIEW

### Rules Used

1. Law No. 02 of 2017 concerning Construction Services;
2. Law No. 01 of 1970 concerning Occupational Safety;
3. Decree of the Minister of Health of the Republic of Indonesia No. 1087 of 2010 concerning Occupational Health and Safety Standards in Hospitals.
4. Regulation of the Minister of Health of the Republic of Indonesia No. 11 of 2017 concerning Patient Safety;
5. Regulation of the Minister of Health of the Republic of Indonesia No. 66 of 2016 concerning K3RS;
6. Regulation of the Minister of Health of the Republic of Indonesia No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure;
7. Minister of Manpower Regulation No. 05 of 1996 concerning Occupational Health and Safety Management System;
8. Instruction of the Minister of Public Works and Public Housing No. 02 of 2020 concerning the Protocol to Prevent the Spread of Covid-19 in the Implementation of Construction Services;
9. Circular of the Directorate General of Human Settlements No. 19 of 2020 concerning Procedures for Preventing the Spread of Covid-19 in the Implementation of Labor Intensive Activities;
10. Decree of the Director of the Hospital Dr. Abdul Radjak Salemba No. 0993/SK-Dir/RSAR-S/X/2019 Regarding Pre-Construction Risk Assessment Guidelines;
11. Decree of the Director of the Hospital Dr. Abdul Radjak Salemba No. 0994/SK-Dir/RSAR-S/X/2019 Regarding Guidelines for Quality Improvement and Patient Safety.

### Risk management

K3RS risk management is a gradual and continuous process to prevent accidents and occupational diseases in a comprehensive manner in the hospital environment. Risk management is a clinical and administrative activity carried out by hospitals to identify, evaluate and reduce occupational safety and health risks. This will be achieved through collaboration between K3RS managers who assist management in developing and implementing Occupational Health and Safety programs, with the cooperation of all parties in the Hospital.

K3RS risk management aims to minimize safety and health risks in hospitals so as not to cause adverse effects on the safety and health of hospital human resources, patients, patient companions, and visitors. K3RS risk management as must be carried out comprehensively which includes:

- Preparation/determining of the context of the activities to be managed the risk;
- Identification of potential hazards;
- risk analysis;
- risk evaluation;
- Risk management.

### Determination of Actions and Risk Bands

#### A. Impact assessment

| RISK LEVEL | DESCRIPTION     | IMPACT   |
|------------|-----------------|--|
| 1          | Not significant | No impact  |
| 2          | Minor           | a. Mild impact<br>b. Can be handled easily   |
| 3          | Moderate        | a. Medium impact<br>b. Reduced effectiveness and efficiency of project implementation.<br>c. Every case that affects cost, quality, and time |
| 4          | Major           | a. Wide/heavy impact<br>b. Swelling of costs, quality degradation, and project delays  |

|   |              |   |
|---|--------------|---|
| 5 | catastrophic | Losses are systematic, massive, and affect the company's future |
|---|--------------|---|

**B. Probability assessment**

| LEVEL RISK | DESCRIPTION                             |
|------------|---|
| 1          | Very rare / Rare (> 1 month / time)     |
| 2          | Rarely / Unlikely (1-2 months/time)     |
| 3          | Possible/Possible (> 2-5 times/month)   |
| 4          | Often / Likely ( Several times / week ) |
| 5          | Very often / Almost certain (every day) |

**C. Determination of risk bands**

| Probability                             | Not significant | Minor    | Moderate | Major       | catastrophic |
|---|-----------------|----------|----------|-------------|--------------|
|   | 1               | 2        | 3        | 4           | 5            |
| Happens very often (Daily) - 5          | Moderate        | Moderate | Tall     | Extrem<br>e | Extreme      |
| Often occurs (Multiple times/week) - 4  | Moderate        | Moderate | Tall     | Extrem<br>e | Extreme      |
| Possible (>2-<5 times / month) - 3      | Low             | Moderate | Tall     | Extrem<br>e | Extreme      |
| Rarely happening (1-<2 times/month) - 2 | Low             | Low      | Moderate | Tall        | Extreme      |
| Very rare (>1 mth/time) - 1             | Low             | Low      | Moderate | Tall        | Extreme      |

**D. Action determination**

| LEVEL / BANDS       | ACTION   |
|---------------------|--|
| Extreme (very high) | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 3 days requiring immediate action, attention goes to the Director,                         |
| High (high)         | High risk, RCA (root cause analysis) is carried out for a maximum of 3 days, reviewed in detail & requires immediate action and requires top management attention, |
| Moderate (medium)   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                            |
| Low (low)           | Low risk, a simple investigation is carried out in a maximum of 1 week completed with the procedure  |

**Maturity Risk Management**

| Value Interval | Maturity Level         | Information  |
|----------------|------------------------|--|
| 4.21 - 5.00    | Level 5 - Optimal      | Risk management is carried out optimally, with principles and processes that have been integrated into business processes                          |
| 3.41 - 4.20    | Level 4 - Fine         | There is a monitoring system for the implementation of risk management, the principles have been implemented, accompanied by periodic improvements |
| 2.61 - 3.40    | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training  |
| 1.81 - 2.60    | Level 2 - Weak         | Risk management has been organized informally, but there is no training or communication yet   |
| 1.00 - 1.80    | Level 1 - Very Weak    | Risk management is carried out intuitively and there has been no effort to formalize risk management   |

**Hypothesis**

- H1: Occupational safety based on SNARS MFK 2, 3, 4, and 7 accreditation affects the achievement of zero accident quality standards.

- **H2:** Cleanliness of the work environment based on SNARS MFK 2, 4, and 5 accreditation affects the achievement of zero accident quality standards.
- **H3:** Work comfort based on SNARS MFK 2, 3, and 4 accreditation affects the achievement of zero accident quality standards.
- **H4:** Safety, Cleanliness, and work comfort affect the achievement of zero accident quality standards.

### III. METHODOLOGY

#### Research Place

In accordance with the basics of thinking on the background of the problem, the research location which is the object of this research is Radjak Hospital Salemba which is located at Jl. Central Salemba No 24-28, Paseban, Central Jakarta

#### Data Types and Data Sources

Sources of data used in this study, namely:

- Primary data sources obtained from respondents. Primary data collection using a questionnaire/questionnaire.
- Sources of secondary data obtained from literature studies and previous research related to risk management.

#### Research Stages

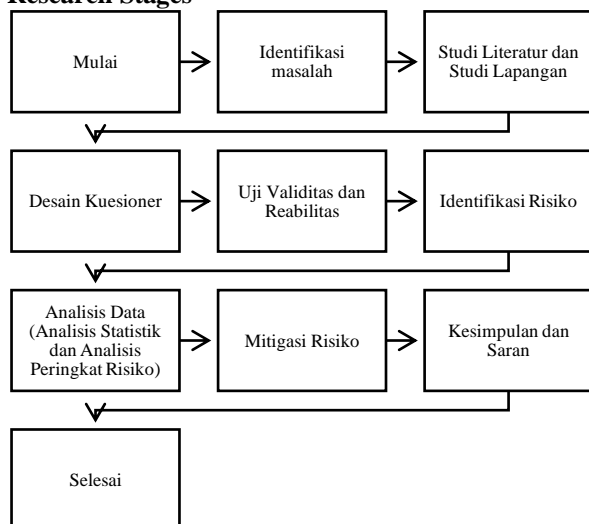


Figure.1 Stages of research

#### Data collection technique

This research has a descriptive design with a qualitative approach, so that researchers will collect data from respondents using an instrument in the form of a questionnaire. In this questionnaire, various questions have been prepared regarding the variables to be studied.

#### Respondent Sampling

Respondents in this study were parties involved in the preparation of PCRA (pre-construction risk assessment) and ICRA (infection control risk assessment), namely the Technical Team of PT. Indo Husada Utama (PEC), Engineering Division, PPI Committee, K3 Committee, customer care, legal and renovation contractor Radjak Hospital Salemba.

### IV. RESULTS AND DISCUSSION

#### Respondent Profile

Below is the profile of the research respondents:

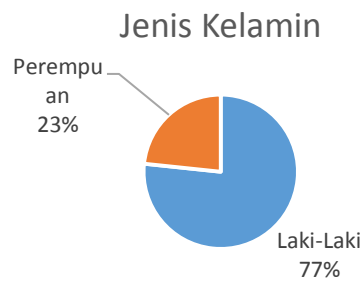


Figure.2 Profile of respondents by gender

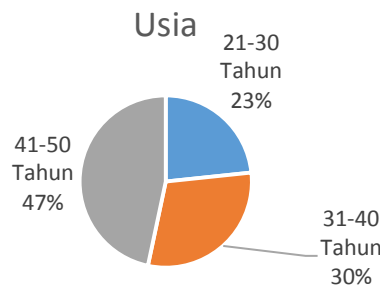


Fig.3 Profile of respondents by type of age

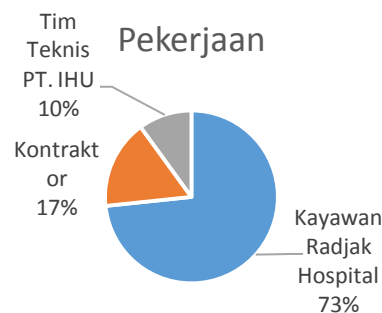


Figure.4 Profile of respondents by type of work

**Risk Identification**

| No  | Variable    | Question Items   | Potential Hazard   |
|-----|-------------|--|--|
| X3  | cleanliness | The toilets for visitors and workers are different             | - Cross infection' - The waiting time for the toilet becomes longer - Toilet cleanliness - The smell of the toilet - Covid-19 transmission   |
| X4  |             | Contractor beds apply 5R                                       | - Lost items - Difficult to find work equipment - Reduced work effectiveness and efficiency - Occupational diseases - Covid-19 transmission - Ignorance of health protocols  |
| X11 | Comfort     | Access different visitors and artisans                         | - Frequent contact with patients - Physical threats - Cross infection - Dirty access - Elevator waiting time increases - Elevator cleanliness - Access cleanliness - Ignoring health protocols - Covid-19 transmission |
| X15 | Safety      | Contractors use exhaust to minimize dust                       | - Dust - respiratory infections - reduced visibility - cleanliness of the work area  |
| X20 |             | There is a K3 team from the contractor                         | - Not implementing SMK3 properly - Not implementing Covid-19 prevention protocols - Implementing health protocols not going well   |
| X21 |             | Synchronization between construction OHS team and hospital OHS | - K3 implementation is not going well - PCRA and ICRA processes are not going well - Covid-19 Task Force team is not functioning   |
| X23 |             | Separate contractor power source with RS                       | - electric short circuit- electric power trip- electrocution- fire-explosion   |
| X24 |             | The construction K3 team has a certificate                     | - Lack of understanding of K3 standardization - K3 implementation is not going well - Health protocol implementation is not going well   |
| X25 |             | Welders have certification                                     | - Fire- Electric short circuit- Reduced quality  |

**Risk Evaluation**

| No | Risk  | Risk Bands | Action  |
|----|---|------------|---|
| 1  | Electric short                                    | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 2  | electric power trip                               | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 3  | Shocked   | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 4  | Fire  | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 5  | Explosion   | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 6  | Frequent contact with patients                    | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 7  | Physical threat                                   | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 8  | Cross infection                                   | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 9  | Elevator waiting time increases                   | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 10 | Elevator cleanliness                              | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 11 | Dust  | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 12 | Respiratory tract infection                       | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 13 | Reduced visibility                                | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 14 | Cleanliness of the work area                      | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 15 | Not implementing SMK3 properly                    | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 16 | The waiting time for the toilet is getting longer | Low        | Low risk, a simple investigation is carried out in a maximum of 1 week completed with the procedure   |
| 17 | Toilet cleanliness                                | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 18 | Toilet smell                                      | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 19 | Lack of understanding of K3 standardization       | Tall       | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 20 | K3 implementation is not going well               | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 21 | Lost item   | Moderate   | Moderate risk, a simple investigation takes at least 1 week, the relevant manager should assess the impact on costs and manage the risk                             |
| 22 | Difficult to find work equipment                  | Low        | Low risk, a simple investigation is carried out in a maximum of 1 week completed with the procedure   |
| 23 | Reduced work effectiveness and efficiency         | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 24 | Occupational illness                              | Tall       | High risk, RCA (root cause analysis) is carried out for a maximum of 30 days, reviewed in detail & requires immediate action and requires top management attention, |
| 25 | PCRA and ICRA processes are not working well      | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 26 | Covid-19 transmission                             | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 27 | Not implementing Covid-19 prevention protocols    | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 28 | Health protocol implementation Not going well     | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |
| 29 | Not functioning Covid-19 Task Force               | Extreme    | Extreme risk, RCA (root cause analysis) is carried out for a maximum of 30 days requiring immediate action, attention to the Director,                              |

**Risk Allocation**

| No | Risk   | Risk Allocation |            |
|----|--|-----------------|------------|
|    |  | Owner           | Contractor |
| 1  | Electric short                                 |                 | X          |
| 2  | electric power trip                            |                 | X          |
| 3  | Fire   | X               |            |
| 4  | Explosion                                      | X               |            |
| 5  | Cross infection                                | X               |            |
| 6  | Dust   | X               |            |
| 7  | Respiratory tract infection                    | X               |            |
| 8  | Not implementing SMK3 properly                 |                 | X          |
| 9  | Lack of understanding of K3 standardization    |                 | X          |
| 10 | K3 implementation is not going well            |                 | X          |
| 11 | Reduced work effectiveness and efficiency      |                 | X          |
| 12 | Occupational illness                           |                 | X          |
| 13 | PCRA and ICRA processes are not working well   |                 | X          |
| 14 | Covid-19 transmission                          | X               |            |
| 15 | Not implementing Covid-19 prevention protocols | X               |            |
| 16 | Health protocol implementation Not going well  | X               |            |
| 17 | Not functioning Covid-19 Task Force            | X               |            |

**Risk Management**

| No | Risk                | Owner/K3RS   | Expert   | Reference   |
|----|---------------------|--|--|---|
| 1  | Electric short      | Separation of the contractor's electrical power from the hospital building. The contractor provides his own power source through the generator.  | - The contractor makes a distribution panel that is connected directly to the LVMDP panel and separated from the power supply of another room, so it can be categorized as class 15. The panel is connected in 4 wires for RST and Neutral and 1 grounding. The breaker must use the MCCB. The maximum power used is 80% of the MCCB power.  | - Permenkes RI No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - Guidelines for the implementation of IPSRS Class B - Minister of Health Regulation No. 2306 of 2011 concerning Technical Guidelines for Hospital Electrical Installation Infrastructure             |
| 2  | electric power trip | - Separation of the contractor's electrical power from the hospital building. Contractors provide their own power source through generators - Ensure that the power source is greater than the power used. Calculate power requirements during construction both for equipment and for test commissioning. | - The contractor makes a distribution panel that is connected directly to the LVMDP panel and separated from the power supply of another room, so it can be categorized as class 15. The panel is connected in 4 wires for RST and Neutral and 1 grounding. The breaker must use the MCCB. The maximum power used is 80% of the MCCB power.  | - Permenkes RI No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - Guidelines for the implementation of IPSRS Class B - Minister of Health Regulation No. 2306 of 2011 concerning Technical Guidelines for Hospital Electrical Installation Infrastructure             |
| 3  | Fire                | Separation of the contractor's electrical power from the hospital building. The contractor provides his own power source through a generator. Provide fire extinguishers at each work location. Coordinate with K3RS team for disaster plan  | - The contractor makes a distribution panel that is connected directly to the LVMDP panel and separated from the power supply of another room, so it can be categorized as class 15. The panel is connected in 4 wires for RST and Neutral and 1 grounding. The breaker must use the MCCB. The maximum power used is 80% of the MCCB power.- The contractor and building owner must ensure | - Permenkes RI No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - Guidelines for the implementation of IPSRS Class B - Minister of Health Regulation No. 2306 of 2011 concerning Technical Guidelines for Hospital Electrical Installation Infrastructure - Technical |



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|   |                 |   |  |   |
|---|-----------------|---|--|---|
|   |                 |   | that the building's active and passive fire protection systems function properly. This is evidenced by testing at least once a month for each existing fire protection system. In addition, in the work area, CO2-class fire extinguishers must be provided, including in the electricity distribution panel for the supply of work. - Create a disaster emergency response team consisting of the hospital and the contractor. Determine the team that functions to evacuate the fire,  | Guidelines for Hospital Infrastructures for Active Fire Protection Systems - Ministerial Decree No. 26 of 2008 concerning Technical Requirements for Building and Environmental Fire Protection Systems   |
| 4 | Explosion       | Separation of the contractor's electrical power from the hospital building. The contractor provides his own power source through a generator. Provide fire extinguishers at each work location. Coordinate with the K3RS team for disaster plans. | - The contractor makes a distribution panel that is connected directly to the LVMDP panel and separated from the power supply of another room, so it can be categorized as class 15. The panel is connected in 4 wires for RST and Neutral and 1 grounding. The breaker must use the MCCB. The maximum power used is 80% of the MCCB power.- The contractor and building owner must ensure that the building's active and passive fire protection systems function properly. This is evidenced by testing at least once a month for each existing fire protection system. In addition, in the work area, CO2-class fire extinguishers must be provided, including in the electricity distribution panel for the supply of work. - Create a disaster emergency response team consisting of the hospital and the contractor. Determine the team that functions to evacuate the fire, | - Permenkes RI No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - Guidelines for the implementation of IPSRS Class B - Minister of Health Regulation No. 2306 of 2011 concerning Technical Guidelines for Hospital Electrical Installation Infrastructure - Technical Guidelines for Hospital Infrastructures for Active Fire Protection Systems - Ministerial Decree No. 26 of 2008 concerning Technical Requirements for Building and Environmental Fire Protection Systems |
| 5 | Cross infection | Changing and differentiating access between workers and non-workers. Changing and differentiating access hours between workers and non-workers.   | - Education on emergency codes, especially Code Blue through posters or TV advertisements - Regular medical check-ups once a month for every worker  | - Kepmenkes No. 1407 of 2002 concerning the Impact of Air Pollution- Kepmenkes No. 1204 of 2004 concerning Hospital Environmental Health Requirements - Technical Guidelines for Hospital Air Conditioning - Regulation of the Minister of Health of the Republic of Indonesia No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - RI Minister of Health Regulation No. 66 of 2016 concerning K3RS- Government Regulation No. 66 of 2014 concerning Environmental Health       |
| 6 | Dust            | Installation of exhaust in every work area. There is a routine medical check-up once a month for each worker. Restrictions on work areas and public areas   | - There is a check for air quality in the hospital - The use of exhaust that uses a 99.97% filter with a minimum of 2 filter layers, namely a hepa filter and a medium filter. The medium filter is replaced every 3 months and the hepa filter every 6 months   | - Kepmenkes No. 1407 of 2002 concerning the Impact of Air Pollution- Kepmenkes No. 1204 of 2004 concerning Hospital Environmental Health Requirements - Technical Guidelines for Hospital Air Conditioning - Regulation of the Minister of Health of the Republic of Indonesia No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - RI Minister of Health Regulation  |



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|    |  |  |  |   |
|----|--|--|--|---|
|    |  |  |  | No. 66 of 2016 concerning K3RS- Government Regulation No. 66 of 2014 concerning Environmental Health  |
| 7  | Respiratory tract infection                  | Installation of exhaust in every work area. There is a routine medical check-up once a month for each worker. Restrictions on work areas and public areas      | - There is a check for air quality in the hospital - The use of exhaust that uses a 99.97% filter with a minimum of 2 layers of filters, namely a hepa filter and a medium filter. The medium filter is replaced every 3 months and the hepa filter every 6 months - There is a routine medical check-up once a month for every worker | - Kepmenkes No. 1407 of 2002 concerning the Impact of Air Pollution- Kepmenkes No. 1204 of 2004 concerning Hospital Environmental Health Requirements - Technical Guidelines for Hospital Air Conditioning - Regulation of the Minister of Health of the Republic of Indonesia No. 24 of 2016 concerning Technical Guidelines for Hospital Buildings and Infrastructure - RI Minister of Health Regulation No. 66 of 2016 concerning K3RS- Government Regulation No. 66 of 2014 concerning Environmental Health |
| 8  | Not implementing SMK3 properly               | Establishment of a certified construction K3 team. Every briefing is always taught by SMK3 to every worker.  | - Establishment of a construction K3 team with 1 middle expert and 1 young expert - Conducting safety promotions, save working practices, and safety inspections   | - Permenkes RI No. 66 of 2016 concerning K3RS- Law no. 02 of 2017 concerning Construction Services- PermenPU No. 05 of 2014 concerning Guidelines for SMK3 in the Construction Sector - Government Regulation no. 50 of 2012 concerning the Implementation of SMK3  |
| 9  | Lack of understanding of K3 standardization  | Establishment of a certified construction OHS team. Every briefing is always taught SMK3 to every worker. OHS signage installation                             | - Establishment of a construction K3 team with 1 middle expert and 1 young expert - Conducting safety promotions, save working practices, and safety inspections   | - Permenkes RI No. 66 of 2016 concerning K3RS- Law no. 02 of 2017 concerning Construction Services- PermenPU No. 05 of 2014 concerning Guidelines for SMK3 in the Construction Sector - Government Regulation no. 50 of 2012 concerning the Implementation of SMK3  |
| 10 | K3 implementation is not going well          | Establishment of a certified construction OHS team. Every briefing is always taught SMK3 to every worker. OHS signage installation                             | - Establishment of a construction K3 team with 1 middle expert and 1 young expert - Conducting safety promotions, save working practices, and safety inspections   | - Permenkes RI No. 66 of 2016 concerning K3RS- Law no. 02 of 2017 concerning Construction Services- PermenPU No. 05 of 2014 concerning Guidelines for SMK3 in the Construction Sector - Government Regulation no. 50 of 2012 concerning the Implementation of SMK3  |
| 11 | Reduced work effectiveness and efficiency    | Apply the 5R principle in every work area. There is a special officer in charge of implementing the 5R.  | - Establishment of a construction K3 team with 1 middle expert and 1 young expert - Conducting safety promotions, save working practices, and safety inspections   | - Government Regulation No. 66 of 2014 concerning Environmental Health- Kepmenkes No. 1204 of 2004 concerning Hospital Environmental Health Requirements  |
| 12 | Occupational illness                         | Apply the 5R principle in every work area. There is a special officer in charge of implementing the 5R. Regular medical check up for workers.                  | - Establishment of a construction K3 team with 1 middle expert and 1 young expert - Conducting safety promotions, save working practices, and safety inspections   | - Permenkes RI No. 66 of 2016 concerning K3RS- Permenkes RI No. 12 of 2012 concerning Hospital Accreditation- Law no. 01 of 1970 concerning K3- Law no. 44 2009 concerning Hospitals- Law no. 36 2009 on Health   |
| 13 | PCRA and ICRA processes are not working well | Coordination meeting between PPI team, PCRA, IHU Technical Team, and contractors. There is a special team that oversees and ensures all activities run well.   | - Make PCRA and ICRA for each type of work - Ensure the results of PCRA and ICRA are implemented by reporting the results directly to the Director   | - Permenkes RI No. 66 of 2016 concerning K3RS - Government Regulation no. 50 of 2012 concerning the Implementation of SMK3  |
| 14 | Covid-19 transmission                        | - Service providers carry out early detection for every worker and project guest every day - Help prepare health facilities for workers infected with Covid-19 | - Periodic checks for workers - Screening of workers before work - Early detection for all stakeholders - There is a special line for workers that does not cross with patients or   | - Permenkes RI No. 66 of 2016 concerning K3RS- Instruction of the Minister of Public Works and Public Housing No. 02/IN/M/2020 regarding the  |

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|    |  |   |   |  |
|----|--|---|---|--|
|    |  |   | hospital visitors - Implementation of 5M  | Protocol to Prevent the Spread of Covid-19 in the Implementation of Construction Services  |
| 15 | Not implementing Covid-19 prevention protocols | - Formation of the Covid-19 Task Force team consisting of K3 Construction, K3RS, and appointed related parties - Conduct periodic evaluations related to the implementation of the Covid-19 prevention protocol | - Providing health facilities for workers - Providing vitamins and nutrition for workers - Monitoring workers' health conditions - Conducting inspections related to the potential for Covid-19 transmission to workers - Socialization and education   | - Permenkes RI No. 66 of 2016 concerning K3RS- Instruction of the Minister of Public Works and Public Housing No. 02/IN/M/2020 regarding the Protocol to Prevent the Spread of Covid-19 in the Implementation of Construction Services |
| 16 | Health protocol implementation Not going well  | - Formation of the Covid-19 Task Force team consisting of K3 Construction, K3RS, and appointed related parties - Conduct periodic evaluations related to the implementation of the Covid-19 prevention protocol | - Forming a Covid-19 Task Force team - Providing socialization and education - Installing signage related to health protocols   | - Permenkes RI No. 66 of 2016 concerning K3RS- Instruction of the Minister of Public Works and Public Housing No. 02/IN/M/2020 regarding the Protocol to Prevent the Spread of Covid-19 in the Implementation of Construction Services |
| 17 | Not functioning Covid-19 Task Force            | - Formation of the Covid-19 Task Force team consisting of K3 Construction, K3RS, and appointed related parties - Conduct periodic evaluations related to the implementation of the Covid-19 prevention protocol | - Establishment of a Covid-19 prevention task force - Carry out socialization, education, technical promotion, coordinate with the local COVID-19 task force, monitor the health condition of workers, carry out inspections related to the potential for Covid-19 infection, provide vitamins and nutrition, and prepare health facilities, provide reports to related parties | - Permenkes RI No. 66 of 2016 concerning K3RS- Instruction of the Minister of Public Works and Public Housing No. 02/IN/M/2020 regarding the Protocol to Prevent the Spread of Covid-19 in the Implementation of Construction Services |

**Risk Management Maturity Assessment**

| No | Description   | Maturity Level         | Information   |
|----|---|------------------------|---|
| 1  | Commitment of company owner   | Level 4 - Fine         | Risk management has been standardized, there are written principles accompanied by basic training |
| 2  | Field implementation and or K3 officers                                   | Level 2 - Weak         | Risk management has been organized informally, but there is no training or communication yet      |
| 3  | Acceptable risk level and tolerable risk level                            | Level 4 - Fine         | Risk management has been standardized, there are written principles accompanied by basic training |
| 4  | Risk aware culture  | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training |
| 5  | Resource  | Level 2 - Weak         | Risk management has been organized informally, but there is no training or communication yet      |
| 6  | Risk identification, analysis and response                                | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training |
| 7  | Continuous and updated stages of the company's risk management process    | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training |
| 8  | Taking risks as opportunities   | Level 2 - Weak         | Risk management has been organized informally, but there is no training or communication yet      |
| 9  | Risk communication  | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training |
| 10 | Oversight, review and improvement of enterprise risk management framework | Level 3 - Intermediate | Risk management has been standardized, there are written principles accompanied by basic training |

**Model Interpretation**

From the results of the SPSS output, the regression equation in this analysis or research is as follows:  
 $Y = 6.411 + 0.068X_1 + 0.481X_2 + 0.608X_3$ .

**V. CONCLUSION**

Based on the results of the analysis above, the authors conclude as follows:

1. Of the 29 potential risks, potential safety-related risks occupy the highest position in the risk bands. This explains that the safety variable is the most important variable in supporting the achievement of zero accidents quality standards.
2. The risk allocation preferences are as follows:
  - The risk allocated to the owner is 53%, namely:

- Covid-19 transmission
  - Not implementing Covid-19 prevention protocols
  - The implementation of health protocols is not going well
  - Not functioning Covid-19 task force
  - Fire
  - Explosion
  - Cross infection
  - Respiratory tract infection
  - PCRA and ICRA processes are not working well
  - The risk allocated to contractors is 47%, namely:
    - Electric short
    - electric power trip
    - Dust
    - Not implementing SMK3 properly
    - Lack of understanding of K3 standardization
    - K3 implementation is not going well
    - Reduced work effectiveness and efficiency
    - Occupational illness
3. Based on the results of the classical assumption test, both the normality test, multicollinearity test, and heteroscedasticity test meet the requirements, so it is feasible to do multiple linear regression analysis;
4. Risk Management maturity level at PT. Indo Husada Utama is still dominantly at level 3 (medium) which means implementation of risk management has been standardized but the process of implementation, monitoring, and evaluation has not run optimally.
5. The multiple linear regression analysis equation obtained is  $Y = 6.411 + 0.068X_1 + 0.481X_2 + 0.608X_3$ , which means that there is a positive influence from each variable, namely cleanliness, comfort, and safety. For the hygiene variable, there is an increase of 6% every 1 cleaning procedure is carried out. For the convenience variable, there is an increase of 40% every 1 convenience procedure is executed. Meanwhile for the safety variable, there is an increase of 61% for every 1 safety procedure that is carried out.
6. Of the three variables, safety has an influence of 82%, while comfort is 15%, and cleanliness is 3%. This shows that all variables have a positive role to achieve the specified quality standards and the safety variable is the most influential variable. In addition, this shows that the hypothesis is proven.

### **SUGGESTION**

1. In future research, it is necessary to conduct research that is taken from the point of view of the contractor or supervisory team.
2. In conducting the Risk Management analysis, it is necessary to use other methods so that the results obtained can be more varied.
3. In future research, it is expected to be able to correlate the relationship between the respondent's profile and the results of the study.

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