



## Health and Safety Risk Analysis with JSA Method (Job Safety Analysis)

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### Abstract

Occupational safety and health in hospitals as health services is an important thing to pay attention to. Nurses as one of the medical personnel in the hospital have risks and hazards that are quite vulnerable in every process of their work. Data found from the PPI (Infection Prevention and Control) committee at DR Tadjuddin Chalid General Hospital Makassar as many as 17 cases of needle stick accidents in the last 5 years, there was 1 case of a slip/fall accident when an inpatient co-worker took the patient to the operating room. The purpose of this study is to describe the level of occupational safety and health risks that can occur in nurses at DR Tadjuddin Chalid General Hospital Makassar. The research design used is qualitative in nature with the approach method, namely risk management with interview guide instruments, observation, cameras for documentation and Job Safety Analysis to identify the risks and hazards of nurses' work. Risk assessment uses a semi-quantitative method. The results of this study indicate that the highest risk in the Emergency Room with a score of 300 (Priority 1) is at the anamnase stage and the patient's vital signs, there is a risk of danger of droplet contact contracting the patient's infectious disease and during infusion there is a risk of needle sticks. The results in the ICU show a risk level with a value of 300 (Priority 1) in the administration of injection drugs, infusion with a risk of needle pricks and in personal hygiene activities with a value of 90, there is a risk of contact with the patient's body fluids, and the results in ordinary hospitalization show a high level of risk with a value of 300 (Priority 1) on the examination of the patient's vital signs with a risk of danger of contact with the patient's body fluids, installation of infusion and administration of injection drugs, risk of needle stick hazard. The conclusion from the research results obtained is that there is a need for technical improvements, it is hoped that better supervision in the implementation of SOPs for nursing actions and the active role of K3 Hospitals in identifying deeper stages of nurse work in hospitals.

**Keywords:** Health and Safety, Risk Analysis, Job Safety Analysis

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## 1. Introduction

Occupational Safety as stated in Law No. 1 of 1970 that every worker has the right to protection for safety in carrying out work for the welfare of life and to increase national production and productivity. Law No. 23 of 1992 article 23 concerning occupational health states that occupational health efforts must be organized to realize optimal work productivity, including occupational health services, prevention of occupational diseases and occupational health requirements and must be held in all workplaces. One of the health facilities in Indonesia is the hospital as a health facility, both organized by the government and the private sector which plays a role in carrying out basic health efforts on referral health and supporting health efforts in the community. Because of that, it is possible for work accidents to occur in hospitals. Therefore, hospitals are required to be able to provide and implement an effort so that all human resources in the hospital can be protected from both occupational diseases and accidents (Ivana, Widjasena & Jayanti, 2014). Potential hazards in the hospital, apart from infectious diseases, there are also other potential hazards that affect the situation and conditions in the hospital, namely accidents (explosion, fire, accidents related to electrical installations, and other sources of injury), radiation, materials - hazardous chemicals, anesthetic gases, psychosocial and ergonomic disorders. All of the potential hazards mentioned above are clearly life-threatening and life-threatening for employees at the hospital, patients and visitors in the hospital environment (Ministry of Health, 2006). WHO (2013) notes, of the 39.47 million health workers worldwide, 66.7% are nurses. Based on 2017 PPSDM data, the number of health human resources in Indonesia is 1,149,437 people and nurses are the largest part of the health workers who work in hospitals, which is around 47.08% and interact the most with patients (RI Ministry of Health, 2014).

The Employment Social Security Administration Agency (BPJS) notes that the number of work accidents in Indonesia alone recorded 147,000 work accident cases throughout 2018, or 40,273 cases occur every day (BPJS, 2018). Meanwhile, based on data from the Ministry of Health in 2010 in Indonesia, the number of accidents caused by needle stick injuries reached 38-73% of the total health workers. (Ministry of Health RI, 2010). In the South Sulawesi region, the number of work accidents according to data from the Social Security Administration Agency (BPJS) shows data that in 2015 the number of work accidents was 780 cases, then in 2016 there were 747 cases, this has decreased, but in 2019 the number of work accidents has increased as many as 943 cases (BPJS, 2019).





Tadjuddin Chalid Makassar Hospital is a hospital which by Decree of the Minister of Health of the Republic of Indonesia Number: 200/Menkes/III/2009 RS. Dr. Tadjuddin Chalid became a Type A Special Hospital. Then he began to provide public services based on the decision of the Director General of Health Efforts at the Ministry of Health of the Republic of Indonesia Number HK.03.05/I/2835/10 until 2012 concerning the organization and work procedures of Dr. Tadjuddin Chalid Makassar as a General Hospital.

## 2. Research Method

The research design used is qualitative in nature with the approach method, namely risk management AS/NZS 4360:2004 with the tools of interview guidelines, observation, cameras for documentation and JSA (Job Safety Analysis) to identify the risks and hazards of nurses' work. Risk assessment uses a semi-quantitative method.

## 3. Results And Discussions

### a. Result

In research conducted at RSUP Dr. Tadjuddin Chalid Makassar that the informants interviewed were nurses from the emergency room, nurses from the ICU and regular inpatient nurses. The informants have the same profession, namely graduates from nursing, although there are differences at the educational stage (D-III, S1, to Nurse). For each nurse interviewed, there were different age levels and career paths. Overall, the nurses who were interviewed were 1 person with 27 years of age and 2 years of work, 2 people over 30 years of age with more years of service. of 2 years and 12 years, and there are 2 nurses aged over 40 years and 52 years of age with a working period of about 7 months and 5 years respectively. For each work process carried out as a nurse, the informants, in this case the nurse, claimed to have an SOP for each work action and admitted that until now there had never been a mistake in nursing actions carried out on patients, because they had been provided with socialization in each SOP, including frequent receiving training or training in the hospital. All nurses said they had never experienced a work accident such as falling, being pricked by a needle, or being exposed to a disease as a result of work while in the hospital, but from the results of interviews, 1 informant in the ICU said that he had heard a story from a friend in his profession who had been pricked by a needle like a needle. insulin injections but did not say exactly how many times this incident had occurred, 1 informant who was hospitalized used to say that 1 of his fellow professionals had slipped/falled while delivering and pushing a patient with a bed to





the operating room, then there was also 1 person nurses in 2022 experience needle sticks at work and have already made a report to the K3RS department.

Regarding the type of work each shift, the average nurse in the ICU, ER and inpatient has jobs such as collaborating with doctors regarding patient treatment, injecting drugs, administering drugs, monitoring patient conditions through checking vital signs (TTV), performing wound care. , stitching wounds, receiving patients and returning patients, caring for patient hygiene (personal hygiene), monitoring patient intake/output. For initial anamnase activities it is more often carried out by nurses in the ER, during treatment in the ICU the activity is more visible the difference is that the patient is under close monitoring according to the unit, namely the intensive section, in normal inpatient care the nurse will carry out repeated treatments according to the patient's condition and monitor his condition day to day until the patient will experience recovery so that he can be declared home in a healthier or cured condition. For each work shift of nurses in the ICU, Emergency Room and Inpatient Unit, each unit in each job has the same number of shifts, but nurses also state that there is a difference in the morning where conditions are slightly busier, such as accompanying doctors to visit patients, receive incoming patients and the patient's discharge is also more frequent in the morning shift, then the afternoon shift nurse will continue the instructions that have been given to the morning nurse by understanding the patient's nursing status and the patient's medication list, so there are no mistakes, the afternoon shift will also overwork again with the nurse who will come on the night shift. So it's more to pay attention and be alert and thorough in understanding the actions that need to be taken on patients every work shift.

## b. Discussion

Inpatient services are services to cure a disease requiring a certain process. The process that each patient must undergo is not the same, depending on the type and severity of a disease. So for types that require a long process and careful handling, a temporary residence is needed until the illness can be cured, where the treatment carried out in the ICU is thorough and closely monitored, in accordance with the Republic of Indonesia Minister of Health (2008) regarding the implementation of ICU services. From the results of observations made by researchers in the ICU inpatient care, it was found that several work actions on patients who have hazards and risks such as physical hazards, biological hazards, ergonomic hazards.

From the results of interviews with informants in the ICU, several actions/stages of work that are usually carried out are found as follows:





Ns. SY: "Normally what is done is the same, such as administering drugs from injections, checking vital signs through monitors, as well as personal hygiene (cleanliness). Only in the morning the nurses are more busy because they meet and bring the doctor to the patient during the visit, later there will be suggestions for example what action is needed, what medicine to give, what medicine to continue, that means collaboration, that's what, then there is also treating wounds but not every day."

Ns. SU: "The work is the same every shift, giving medicine, monitoring the IV fluids, sometimes putting in IVs. (Interview)."

#### 4. Conclusion

1. After identifying the working stages of the ER, ICU and Ordinary Inpatient nurses, analyzing the risks and hazards and determining the value of the level of risk carried out by the nurses, the following conclusions can be drawn:
2. The most common stages of work performed by nurses in the Emergency Room, ICU, Ordinary Hospitalization are carrying out TTV and anamnase examinations, setting up infusions, administering injection (IV) drugs, wound care, Personal Hygiene, escorting/pushing patients for radiological examinations and washing equipment health.
3. The results of risk and hazard identification were found using JSA (Job Safety Analysis) at the stages/work processes of ER, ICU and Ordinary Inpatient nurses, namely physical, biological and ergonomic hazards.
4. The results of the analysis found using risk management AS/NZS 4360:2004 in emergency room nurses, ICU and normal hospitalization, namely the risk of needle sticks, the risk of being scratched by drug ampoules, the risk of being pinched by medical devices when using/cleaning such as tweezers/scissors, the risk of slipping, and the risk of repetitive movements/awkward postures. Then the dangers that can occur are the danger of injuries, the danger of contracting typhoid, diarrhea, the danger of hepatitis, HIV / AIDS, the danger of low back pain (LBP).

Result value and risk level

- a) In the Emergency Room Unit the highest risk and hazard with a score of 300 is Priority level 1 on patient anamnase and TTV measures related to the risk of patient droplet contact contracting infectious diseases TB, Typoid, Diarrhea, then during infusion there is a risk of being pricked by a used needle in a patient infected with an infectious disease such as Hepatitis, HIV/AIDS and the dangers





of ergonomics from acting in awkward positions while working risk the occurrence of Low Back Pain.

- b) In the ICU unit the risks and hazards are the highest with a score of 300, namely Priority 1 level in the work of nurses administering injection drugs and infusions to patients with risks of physical and biological hazards.

## 5. Compliance with ethical standards

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### Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.

### Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

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