



Infection Control Risk Assessment at The Central Sterile Supply Department at Dental and Oral Hospital Universitas Muhammadiyah Semarang

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KEYWORDS

Sterilization, Risk Assessment, Patient Care

SUBMITTED 21 April 2022

ACCEPTED 19 May 2022

PUBLISHED 31 July 2022

ABSTRACT

Nosocomial infection or HAIs (Healthcare Associated Infections) is an infection that occurs during a patient's hospitalization or other health care facility. ICRA (Infection Control Risk Assessment) which is a process that serves to control infections that can be measured continuously by looking at the probability of infection control applications in the field and the results can be accounted for. Central Sterile Supply Department (CSSD) is the proper service installation in an effort to suppress the incidence of infection. The main role of CSSD is to provide clean and sterile instruments for patient care in hospitals. This research is to describe how the picture of the application of standardized instruments of ICRA at the CSSD RSGM Unimus. The type that used in this research was a combination of quantitative and qualitative methods with cross sectional research designs. The suitability of the instrument with the hospital facility demography section was 86%, infrastructure 59%, and direct observation 41%, while the risk of infection for Infrastructure was 55.30% and Observation was 78.88%. An infection risk assessment using the ICRA instrument for outpatient settings by the CDC met conformity by 67.09% indicating that the risk of infection is included in the moderate risk category.

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I. INTRODUCTION

Nosocomial infection or what is currently commonly referred to as infection associated with facility services Health Care-Associated Infections (HAIs), are infections that are currently causing serious problems for public health and causing concern in many countries. HAIs are diseases that patients get while undergoing treatment procedures and medical procedures at health institutions more than 48 hours and less than 30 days after leaving the health institution (1). The incidence of this infection can increase morbidity and mortality rates in the world (2). HAIs data is still rarely found in Indonesia, because Indonesia does not yet have a standard tool to assess infection risk control. Therefore, the research shows that the

incidence of HAIs is quite high, between 6-16%, with an average of 9.8% (3).

ICRA is an ongoing infection control process and is based on opportunities for infection control applications in the field whose results can be accounted for (4). The Centres for Disease Control and Prevention (CDC) in conducting infection risk control assessments have four assessment tools for ICRA, namely Acute Care Hospital, Haemodialysis Facilities, Long Term Care Facilities, and Outpatient settings that can be used according to the health facility to be assessed (3).

In an effort to reduce the risk of infection in hospitals and other health facilities, it is necessary to carry out Infection Prevention and Control (PPI) (5). The risk of transmitting infection can be minimized by proper cleaning, disinfection and

reprocessing of equipment. The Central Sterile Supply Department (CSSD) or Central Sterilization Installation is an appropriate service installation in an effort to suppress the incidence of infection (6). In detail, the functions of CSSD include receiving, processing, producing, sterilizing, storing and distributing medical instruments to rooms in the hospital for the benefit of patient care. Based on the above background, the researcher intends to conduct research with the formulation of the problem "How is the application of standardized Infection Control Risk Assessment (ICRA) instruments at the Central Sterile Supply Department (CSSD) at Dental and Oral Hospital Universitas Muhammadiyah Semarang?".

2. MATERIALS AND METHODS

The type of research used is a combination of quantitative and qualitative methods with a cross sectional research design. The data obtained in this study were obtained from document searches, interviews, and direct observations at the CSSD Dental and Oral Hospital Universitas Muhammadiyah Semarang. This research was conducted on CSSD at Dental and Oral Hospital Universitas Muhammadiyah Semarang. The subjects taken in this study were the PPI management, the Head and staff in the CSSD unit, and the director of the Dental and Oral Hospital Universitas Muhammadiyah Semarang. The object of this research is documents and infrastructure in the CSSD unit of Dental and Oral Hospital Universitas Muhammadiyah Semarang. The research was conducted from July to August 2021.

2.1 Research procedures include:

Research Preparation Stage

Submitting a request for an ethical statement from the Ethics Committee of the Unimus Faculty of Medicine number 083/EC/FK/2021. Then the researcher submitted a letter of application for the implementation of research at the Unimus Hospital by asking for a copy from the Unimus Faculty of Dentistry.

Research Implementation Stage

1. Determination of research subjects and objects. The research subjects included the Infection Prevention and Control Committee (PPI), the Head and staff of the CSSD unit, and the director of the Unimus Hospital. While the objects in this study are documents and infrastructure in the CSSD unit of Dental and

Oral Hospital Universitas Muhammadiyah Semarang.

2. Explanation of research procedures
3. Filling in informed consent
4. The process of collecting data taken from document tracing to documents related to CSSD by filling out a questionnaire about ICRA at Dental and Oral Hospital Universitas Muhammadiyah Semarang which includes infection control programs and infrastructure as well as direct observation of facility practices
5. If there is confusion and doubt, an interview will be conducted to correct the document to an expert and according to the related profession, such as the hospital director, the head of the CSSD unit and the head of the PPI.
6. Direct observations were made by researchers using ICRA instrument guidelines, then observing CSSD behaviour and infrastructure.
7. The results of the observations are discussed by the researcher and the research team. Furthermore, the data were analysed in a panel discussion which was attended by the researcher and the research team. The number of discussion participants is at least 5 people with the aim of avoiding the subjectivity of the data results.
8. Data Processing and Data Analysis Stage

Data analysis in this study is univariate analysis which explains the characteristics of the variables contained in the study. Data processing and data analysis are processed based on the frequency distribution and presented in tabular form. Assessment of infection prevention and control is further conserved 1%-100%. The percentage 50% describes the application of infection control is lacking and the risk of infection is high (high risk), 51% - 75% describes the application of infection control is quite good and the risk of infection is moderate (medium risk), 76%-100% describes the application of infection control is good and the risk low infection (low risk).

3. RESULTS

3.1 Frequency Distribution Based on Characteristics of Respondents.

3.1.1 Characteristics of Respondents by Gender in Health Workers

Table1. Characteristics of Respondents by Gender in Health Workers at Dental and Oral Hospital Universitas Muhammadiyah Semarang

Position at Dental and Oral Hospital Universitas Muhammadiyah Semarang	Amount	Gender	
		Man	Woman
Infection Prevention and Control Committee (PPI)	4	3	1
Staff managing CSSD unit	5	1	4
Board of Directors of RSGM Unimus (Director and Deputy Director)	2	0	2
Total	11	4	7

Based on table 1, it is known that the majority of respondents in this study were female as many as 7 respondents. While the male respondents were 4 respondents.

3.1.2 Characteristics of Respondents by Age in Health Workers

Table 2. Characteristics of Respondents by Age in Health Workers at Dental and Oral Hospital Universitas Muhammadiyah Semarang

Age Group	Gender		Total
	Man	Woman	
20-30	3	5	8
31-40	1	1	2
>40	0	1	1

Based on table 2, it is known that the majority of respondents are health workers aged 20-30 years as many as 8 people. While the least respondents are in the age group of more than 40 years as many as 1 person.

3.2 Percentage of ICRA Instrument Conformity for outpatient setting on CSSD

Table 3. Validity Test Results for Facility Demographic Variables (Administrative Measures).

Instrument Group	%
Unusable question	14
Questions that can be used with modifications	14
Questions that can be used without modification	71
Total instruments that can be used	86

Based on Table 3, it is found that the total assessment instrument that can be used in the Facility Demographic section is 86 percent. With questions that can be used with a modification of 14 percent. Questions that can be used without modification are 71 percent.

Table 4. Results of Program Variable Validity Test and Infection Control Infrastructure.

Instrument Domain Group	%
Infection Control Program and Infrastructure	
Instruments that can be used	75
Unusable instrument	25
Infection Control Training and Competence	
Instruments that can be used	100
Unusable instrument	0
Health Workers Safety	
Instruments that can be used	63
Unusable instrument	38
Disease Monitoring and Reporting	
Instruments that can be used	33
Unusable instrument	67
Hand Hygiene	
Instruments that can be used	100
Unusable instrument	0
Personal protective equipment (APD)	
Instruments that can be used	100
Unusable instrument	0
Injection Safety	
Instruments that can be used	0
Unusable instrument	100
Cough etiquette	
Instruments that can be used	0
Unusable instrument	100
Tes point-of-care	
Instruments that can be used	0
Unusable instrument	100
Environmental Hygiene	
Instruments that can be used	44
Unusable instrument	56
Device Sterilization	
Instruments that can be used	100
Unusable instrument	0
Total instruments that can be used	59

Based on Table 4, it is found that the total assessment instrument that can be used in the Infection Control Program and Infrastructure section is 59 percent. The instruments that can be

used are 100 percent in the instrument domain of Infection Control Training and Competence, Hand Hygiene, Personal Protective Equipment (PPE), and Device Sterilization.

Table 5. Variable Validity Test Results Direct Observation of Facility Practice

Instrument Domain Group	%
Hand hygiene	
a. Instruments that can be used	0
b. Unusable instrument	100
Personal protective equipment	
a. Instruments that can be used	67
b. Unusable instrument	33
Injection Safety	
a. Instruments that can be used	0
b. Unusable instrument	100
Cough etiquette	
a. Instruments that can be used	0
b. Unusable instrument	100
Tes point-of-care	
a. Instruments that can be used	0
b. Unusable instrument	100
Environmental Hygiene	
a. Instruments that can be used	75
b. Unusable instrument	25
Instrument Reprocessing	
a. Instruments that can be used	100
b. Unusable instrument	0
Reusable Instrument Sterilization	
a. Instruments that can be used	100
b. Unusable instrument	0
High Level Disinfection of Reusable Tools	
a. Instruments that can be used	0
b. Unusable instrument	100
Total instruments that can be used	41

Based on Table 5, it is found that the total assessment instruments that can be used in the Direct Observation of Facility Practices section are 41 percent. With 100 percent reusable instruments it is in the instrument domain Instrument Reprocessing and Reusable Instrument Sterilization. Meanwhile, instruments that are 100 percent unusable are in the domains of hand hygiene, injection safety, cough etiquette, and point-of-care tests.

4. DISCUSSION

4.1 ICRA Instrument Assessment for Outpatient Settings

4.1.1 Facility Demographics

The ICRA assessment for outpatient setting section 1 Facility Demographics contains 11 instrument points that can be used. By issuing 2 points that do not match the conditions in the CSSD unit. These points are found on the National Healthcare Safety Network (NHSN) ID points and are related to the number of doctors and patients in the CSSD unit. There are 71% or 9 points that can

be assessed directly and 14% or 2 points that can be assessed with modifications.

4.1.2 Infection Control Program and Infrastructure

In part 2 of the Infection Control and Infrastructure Program there are 32 instrument points that can be used and 22 instrument points that cannot be used in conducting ICRA assessments in the CSSD Unit. There are assessment domains that cannot be used, namely, injection safety, cough etiquette and point-of-care tests. This is because the CSSD unit is not a place for patient care.

4.1.3 Direct Observation of Facilities

In the instrument Part 3 Direct Observation of Facilities, there are 9 domains with a total of 29 points of instruments that can be used for research and 42 points that cannot be used.

4.2 ICRA Instrument Assessment for Outpatient Settings on CSSD at RSGM UNIMUS

4.2.1 Facility Demographics

Observations were made by researchers when the CSSD Unit was operating without notifying the health workers beforehand. The goal is that researchers can do a true assessment of what CSSD officers do.

In the CSSD Unit at Dental and Oral Hospital Universitas Muhammadiyah Semarang there is already PPE available and easily accessible by health workers when doing their work. Health workers have also used PPE in the form of gloves and medical gowns when sterilizing. Environmental Hygiene has been implemented well; from the results of the assessment, it is included in the low-risk category. Officers have carried out environmental hygiene appropriately and used PPE when cleaning the environment.

In the tool re-management process, it has been carried out properly, there are policies, procedures and sterilization instructions that are adjusted to the manufacturer's instructions. In the CSSD Unit, there is also a defined sterilization flow. Sterilization is carried out in accordance with the policies and SOPs that have been made, and the CSSD Unit already has a log in and out of the sterilized equipment.

5. CONCLUSIONS

Based on the research that has been carried out by the Infection Control Risk Assessment at the Central Sterile Supply Department (CSSD) at Dental and Oral Hospital Universitas Muhammadiyah Semarang, it can be concluded that:

1. The assessment of the risk of infection in CSSD at Dental and Oral Hospital Universitas Muhammadiyah Semarang using the ICRA for outpatient settings instrument issued by the CDC met the conformity of 67.09 percent, which indicates that the risk of infection is in the moderate risk category.
2. Implementation of ICRA's standardized instrument for the demography section of facilities in CSSD at Dental and Oral Hospital Universitas Muhammadiyah Semarang us, there are instruments that cannot be used because they are not in accordance with the conditions at the facility. Dental and Oral Hospital Universitas Muhammadiyah Semarang has not been accredited but is in the process of preparing for accreditation.
3. Implementation of ICRA standardized instruments for infection control program and infrastructure in CSSD at Dental and Oral Hospital Universitas Muhammadiyah Semarang by 55.30 percent which is included in the category of moderate infection risk.
4. Implementation of the ICRA standardized instrument for direct observation of the use of facilities in CSSD at Dental and Oral Hospital Universitas Muhammadiyah Semarang amounted to 78.88 percent which was included in the low infection risk category.

ACKNOWLEDGMENTS

We thank for the people who contributed their help and effort to retrospectively collect and arrange the data for the project. We are immensely grateful to Dental and Oral Hospital Universitas Muhammadiyah Semarang for allowing us to use their facilities to conduct this research. design or analysis, or guidance through a study area, or who provided advice on the language, edited, or proofread the article.

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