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Penulis : Nur Khamilatusy Sholekhah, Melinda Savira Ayudyawati, Dwi Windu Kinanti Arti
Koresponden : Nur Khamilatusy Sholekhah

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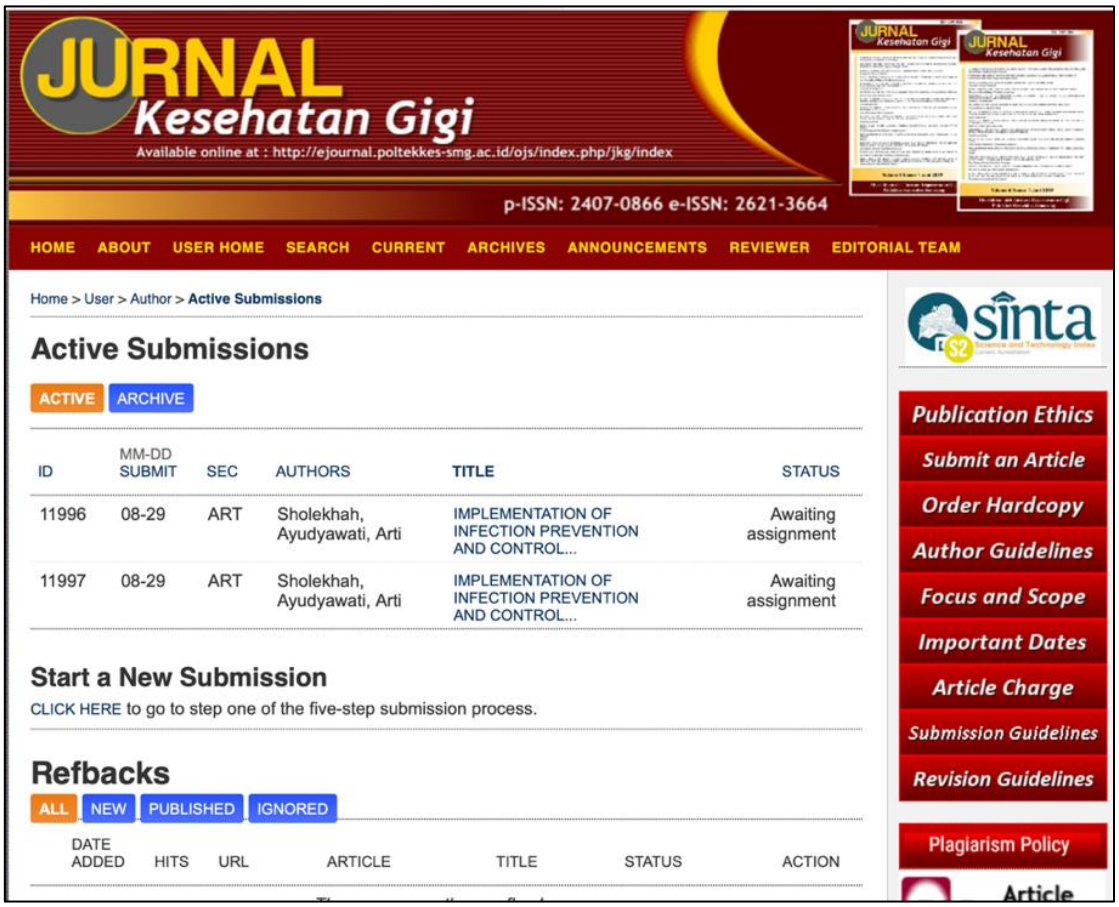

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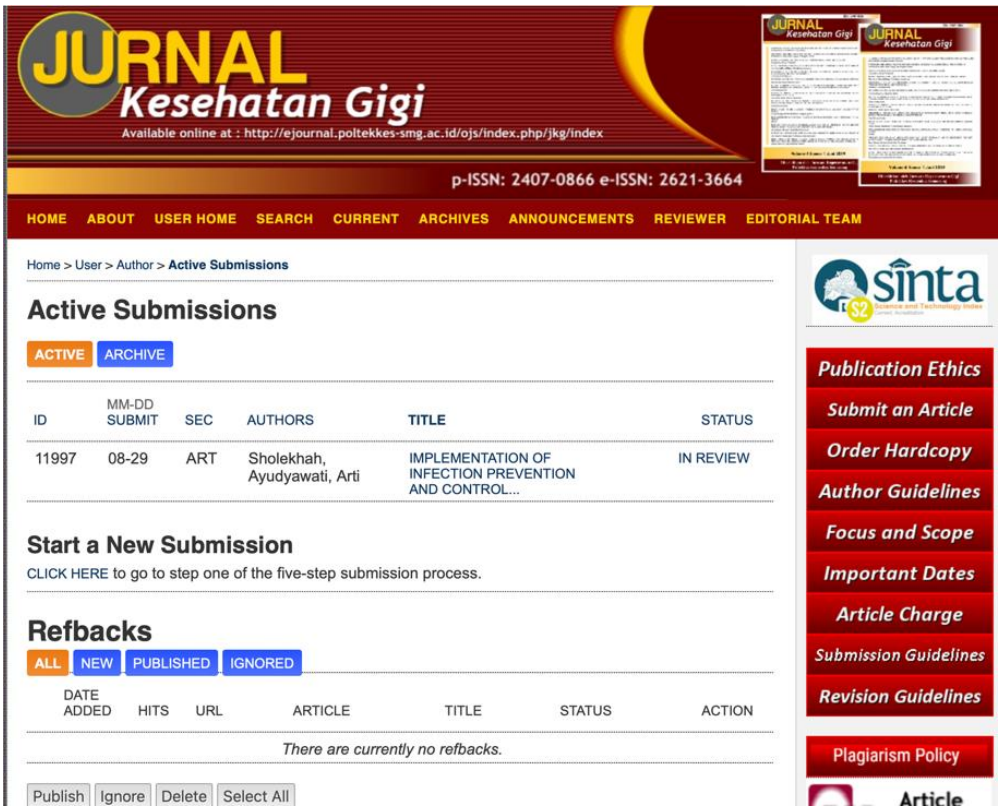

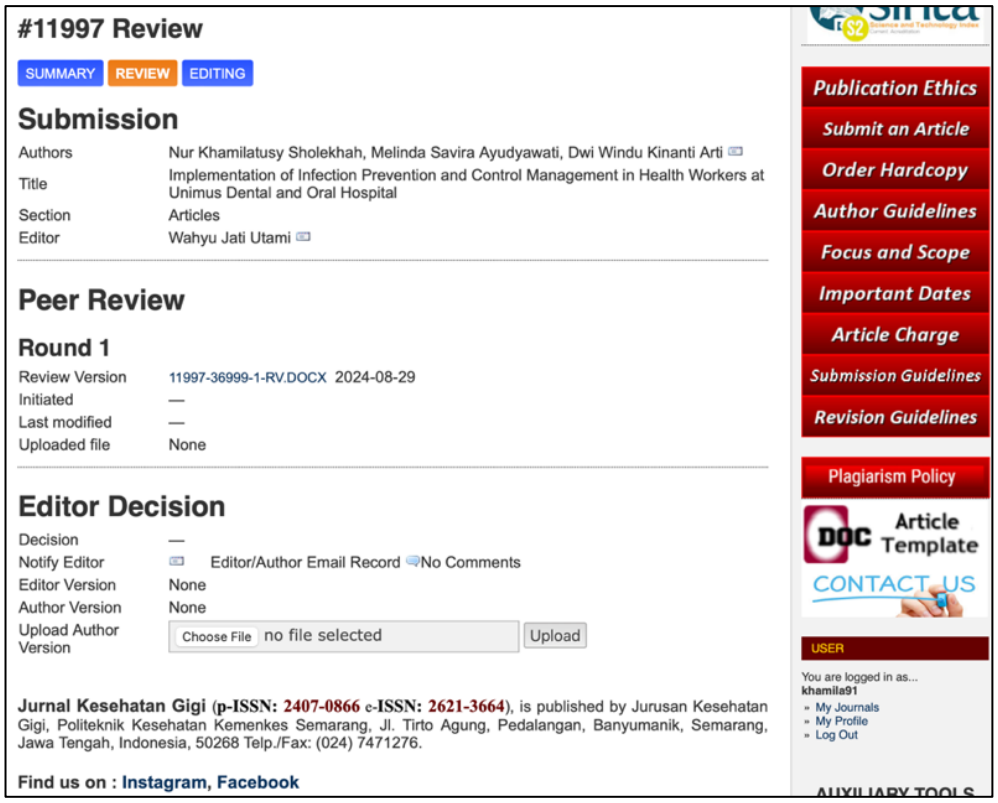

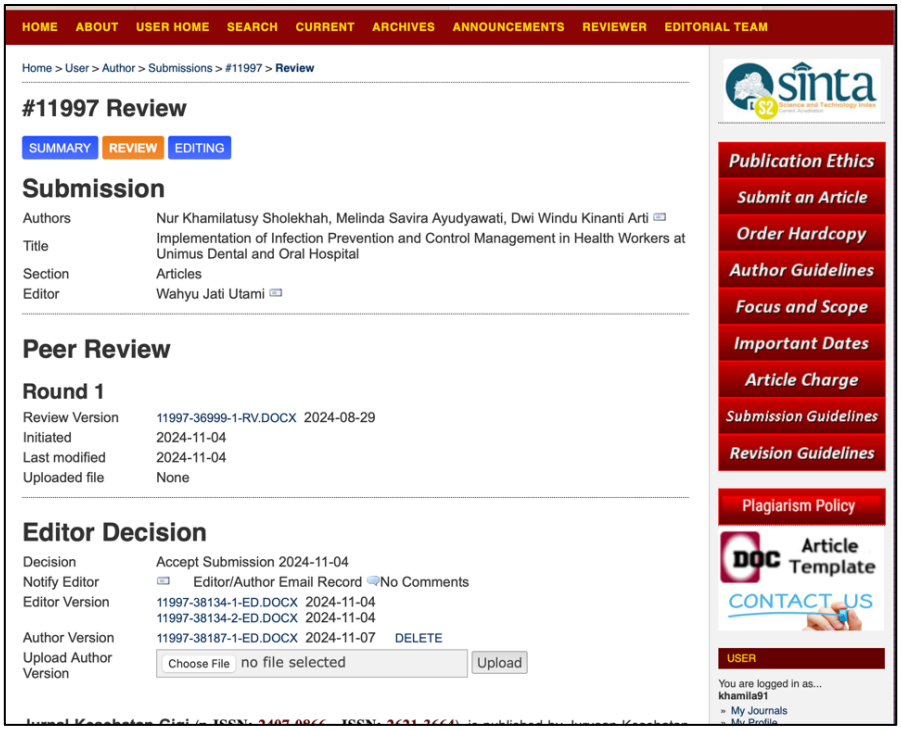

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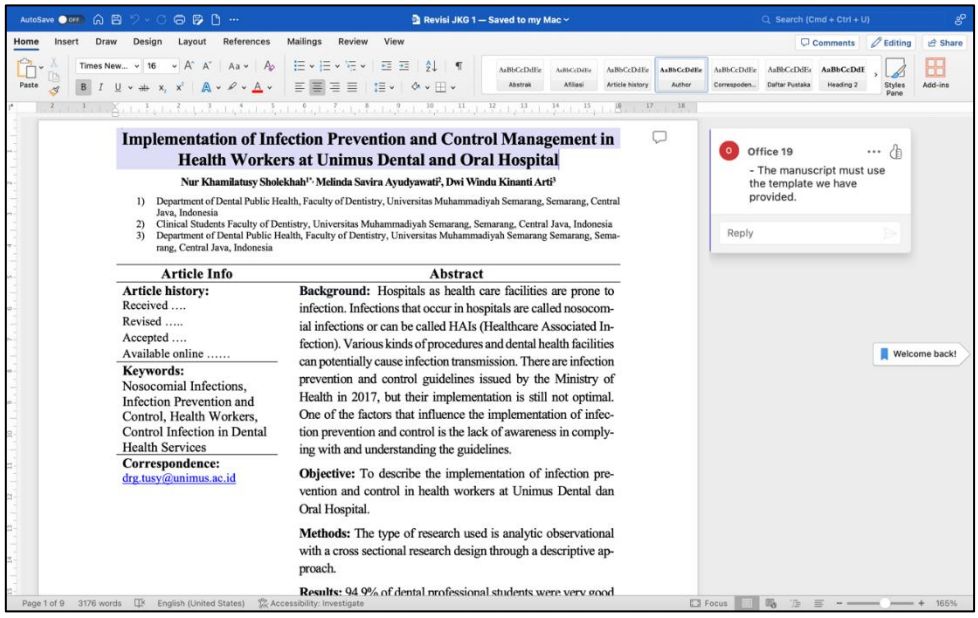

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Implementation of Infection Prevention and Control Management in Health Workers at Unimus Dental and Oral Hospital

Nur Khamilatusy Sholekhah[1*], Melinda Savira Ayudyawati[2], Dwi Windu Kinanti Arti[3]

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Methods: The type of research used is analytic observational with a cross sectional research design through a descriptive approach.

Results: 94.9% of dental professional students were very good

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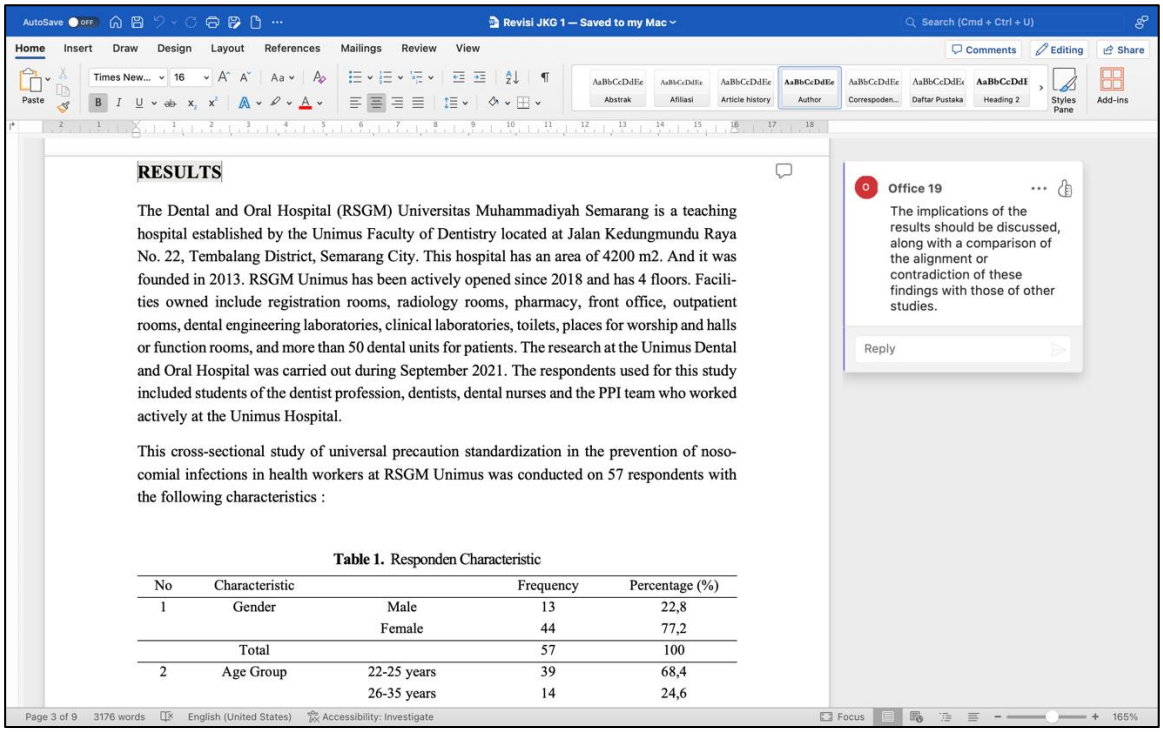

RESULTS

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No	Characteristic		Frequency	Percentage (%)
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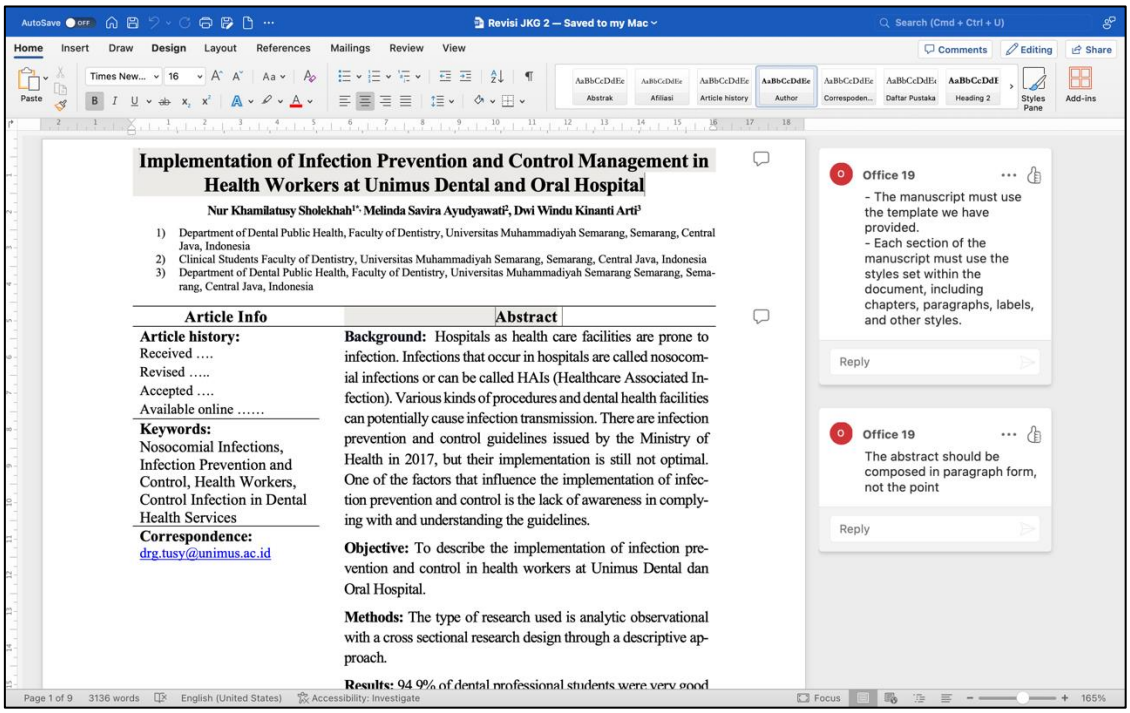

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Methods: The type of research used is analytic observational with a cross sectional research design through a descriptive approach.

Results: 94.9% of dental professional students were very good

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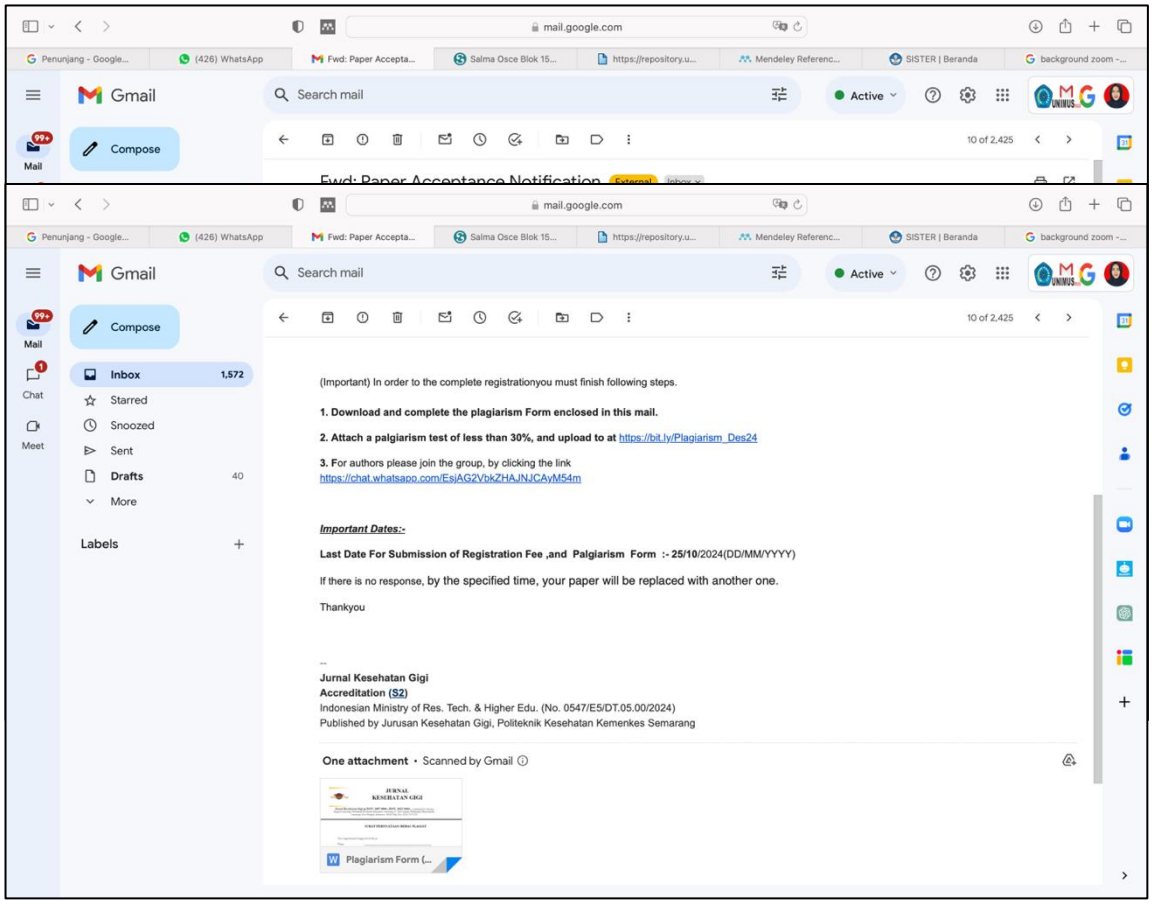
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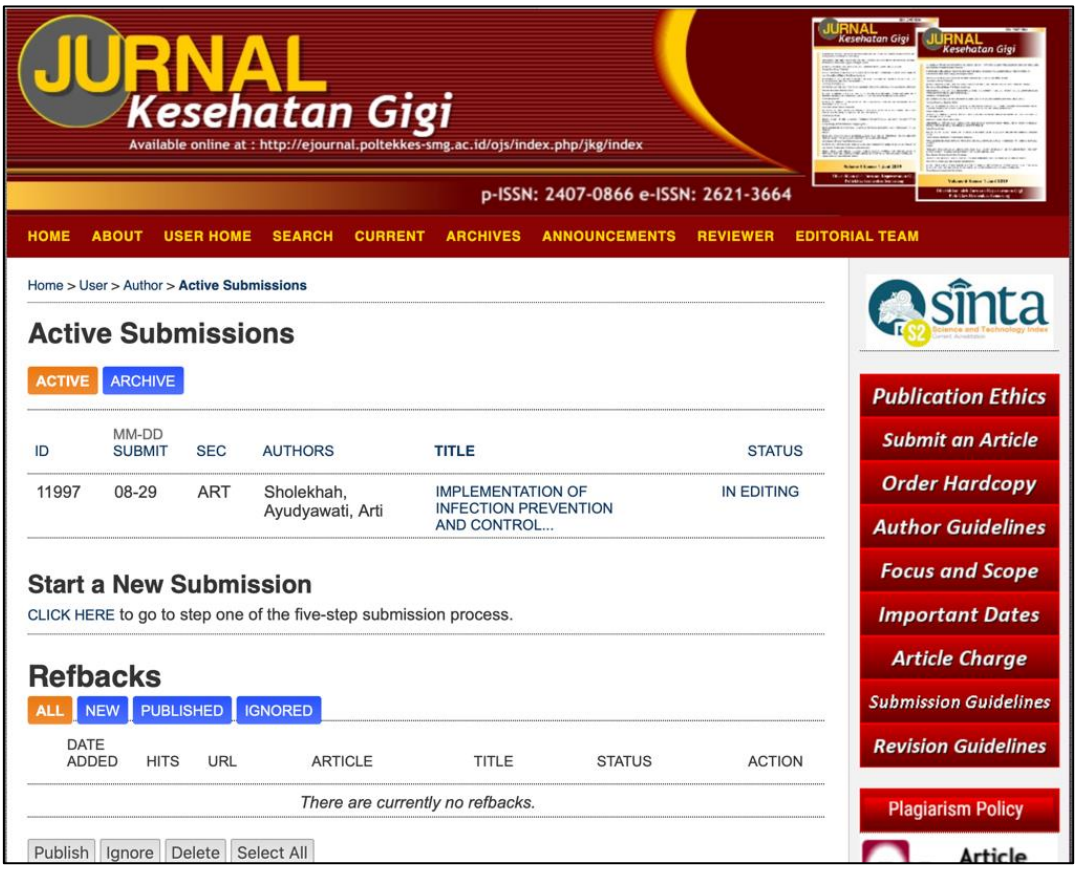
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Hospitals as health care facilities are prone to infection. Infections that occur in hospitals are called nosocomial infections or can be called HAIs (Healthcare Associated Infection). Various kinds of procedures and dental health facilities can potentially cause infection transmission. There are infection prevention and control guidelines issued by the Ministry of Health in 2017, but their implementation is still not optimal. One of the factors that influence the implementation of infection prevention and control is the lack of awareness in complying with and understanding the guidelines. To describe the implementation of infection prevention and control in health workers at Unimus Dental dan Oral Hospital. The type of research used is analytic observational with a cross sectional research design through a descriptive approach. Results: 94.9% of dental professional students were very good at implementing infection prevention and control, but 2.6% were still lacking. As many as 71.4% of dentists are good at implementing infection prevention and control, but 14.3% are still lacking. 50% of dental nurses are very good at implementing infection prevention and control. And 100% of the PPI staff have been very good at implementing infection prevention and control at Unimus Dental dan Oral Hospital. The implementation of infection prevention and control in the Unimus Dental dan Oral Hospital for students of professions, PPI staff, dentists, dentists and dental nurses, the results were 87.7% very good, 7% good and 5.3% not good
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Implementation of Infection Prevention and Control Management in Health Workers at Unimus Dental and Oral Hospital

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Methods: The type of research used is analytic observational with a cross sectional research design through a descriptive approach.

Results: 94.9% of dental professional students were very good at implementing infection prevention and control, but 2.6% were still lacking. As many as 71.4% of dentists are good at implementing infection prevention and control, but 14.3% are still lacking. 50% of dental nurses are very good at implementing infection prevention and control. And 100% of the PPI staff have been very good at implementing infection prevention and control at Unimus Dental dan Oral Hospital.

Conclusion: the implementation of infection prevention and control in the Unimus Dental dan Oral Hospital for students of professions, PPI staff, dentists, dentists and dental nurses, the results were 87.7% very good, 7% good and 5.3% not good.

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INTRODUCTION

The high incidence of infectious diseases causes all health workers, including dentists, to be at risk of exposure to pathogens[1,2]. Saliva and blood are infectious components that have the potential to transmit infection from patients to dentists[3,4]. Transmission of infectious diseases can occur between the patient and the operator or the operator to the patient and can move through the device to the patient or the device to the operator and vice versa[5].

Infectious diseases in Indonesia according to Basic Health Research (RISKESDAS) in 2013 include Tuberculosis and Hepatitis, where the prevalence of hepatitis in 2013 (1.2%) was twice as high as in 2007, besides the incidence of Human Immunodeficiency Virus (HIV) infection every year. The year keeps growing[6]. Dentists in carrying out their profession cannot be separated from the possibility of being infected with various agents from patients[1]. The spread can be through multiple transmissions, direct contact, indirect contact, droplet, and airborne infection[7]. Diseases that are transmitted during dental treatment include tuberculosis, hepatitis, HIV/AIDS, herpes, and rubella[8].

In 2003 the Centers for Disease Control and Prevention (CDC) implemented a standard precautions component regulation as an infection control measure for dentists[3,9]. Universal precautions control strategies in dentistry are needed to reduce the risk of contracting diseases in the dental environment, namely from dentist to patient and from patient to patient, especially transmission of infectious diseases caused by infected blood streams such as HBV and HIV because all patients are infected. cannot be identified by medical records, physical examination or laboratory tests[10].

Universal precautions are very important in the health care environment because the aim is to control the occurrence of infections consistently and prevent the transfer of microorganisms from patients to health workers or vice versa. A research data states that health workers who are obedient in carrying out universal precautions are still relatively low 8. Universal Precaution according to the CDC (Centers for Disease Control) consists of 8 points, namely hand washing, use of PPE, respiratory hygiene or cough etiquette, safe injection practices, infection control special lumbar puncture procedures, sterilization and disinfection of patient care device items, prevention and environmental infection control and sharps safety[11].

Infections can occur anywhere but there are infections that do occur in hospitals that can be transmitted to patients when the patient is receiving treatment at the hospital, the incident is called a nosocomial infection[12]. Microorganisms in hospitals can breed in various places in hospitals such as floors, water, medical and non-medical equipment and air[13]. The various background problems stated above are the reasons for the author to examine the implementation of infection prevention and control management in dental health workers at Unimus Dental and Oral Hospital.

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METHODS

The research design is by measuring the variables and doing it only once at a certain time, namely cross sectional. The approach is through a descriptive method that aims to have an idea of whether health workers have implemented the Universal Precaution Standard Operating Procedure (SOP) in preventing nosocomial infections at RSGM Unimus. The population in this study were health workers at RSGM Unimus consisting of 33 dentists, 88 dental professional students, 5 dental nurses and 5 PPI teams. The samples in this study were dentists, young dentists, dental nurses and the PPI team at RSGM Unimus who met the inclusion criteria.

Determination of the sample using the slovin formula. Sampling using Random Sampling using Stratified Random Sampling technique. Stratified Random Sampling technique is a technique that is used if there is a population consisting of each - each unit that has various characteristics or is heterogeneous. The population in this study was 131 respondents, based on the Slovin formula, the sample size of 57 respondents was obtained. This research was conducted at the Dental and Oral Hospital, University of Muhammadiyah Semarang. The research was carried out in August-September 2021. Research permits and ethical statements from the Ethics Committee of the Faculty of Dentistry, Universitas Muhammadiyah Semarang No. 089/EC/FK/2021.

The data collection stage was carried out by giving a questionnaire about universal precaution standardization, namely a questionnaire regarding the application of universal precaution SPO (Standard Operating Procedures) for health workers based on universal precaution SPO (Standard Operating Procedures) from the CDC (Centers for Disease Control), which has been tested validity and reliability, contains questions related to the variables to be studied. The online questionnaire used is a google form. Is a questionnaire in online form provided by Google that can be used for various activities such as collecting information, determining events or sending surveys in an efficient way.

Assessment of the application of SOP (Standard Operating Procedures) from prevention and control of environmental infection, measured using a questionnaire with 3 questions, each question has another question point, namely air consists of 11 questions, water has 19 questions, environmental services has 19 questions, laundry (laundry) and a bed of 24 questions, and medical waste that is arranged consists of 8 questions. Each question is given a choice of answers (Yes = if the health worker has implemented the procedure, No = if the health worker has not applied the procedure). The assessment of the implementation of the Universal Precaution SOP (Standard Operating Procedure) is converted from 1 to 100%. The percentage of 76-100% indicates that health workers are very good in implementing SOP Universal Precaution, 51-76% indicate that health workers are good in implementing SOP Universal Precaution and <50% indicates that health workers are still lacking in implementing SOP Universal Precaution.

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RESULTS

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The Dental and Oral Hospital (RSGM) Universitas Muhammadiyah Semarang is a teaching hospital established by the Unimus Faculty of Dentistry located at Jalan Kedungmundu Raya No. 22, Tembalang District, Semarang City. This hospital has an area of 4200 m2. And it was founded in 2013. RSGM Unimus has been actively opened since 2018 and has 4 floors. Facilities owned include registration rooms, radiology rooms, pharmacy, front office, outpatient rooms, dental engineering laboratories, clinical laboratories, toilets, places for worship and halls or function rooms, and more than 50 dental units for patients. The research at the Unimus Dental and Oral Hospital was carried out during September 2021. The respondents used for this study included students of the dentist profession, dentists, dental nurses and the PPI team who worked actively at the Unimus Hospital.

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Table 1. Responden Characteristic

No	Characteristic		Frequency	Percentage (%)
1	Gender	Male	13	22,8
		Female	44	77,2
	Total		57	100
2	Age Group	22-25 years	39	68,4
		26-35 years	14	24,6
		36-45 years	2	3,5
		46-55 years	2	3,5
	Total		57	100
3	Position at RSGM Unimus	Dentist	14	24,6
		Dentist assistant	2	3,5
		PPI staff	2	3,5
		Dentist students	39	68,4
	Total		57	100

Source: Sholekhah, 2024

Table 1 shows that most of the respondents are women (77.2%) with the largest age group of respondents being 23-53 years old, namely 68.4% who are also students of the dental profession program at RSGM Unimus.

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Table 2. Description of Standardization of Infection Prevention and Control Management According to Respondents Characteristics

No	Responden Characteristic	Infection Prevention and Control Management			Total
		Low	Good	Very Good	
1	Gender				
	- Male	1 (7,7%)	1 (7,7%)	11 (84,6%)	13 (100%)
	- Female	2 (4,5%)	3 (6,8%)	39 (88,6%)	44 (100%)
2	Age Group				
	- 22-25 years	1 (2,6%)	2 (5,1%)	36 (92,3%)	39 (100%)
	- 26-35 years	0 (0,0%)	1 (7,1%)	13 (92,9%)	14 (100%)
	- 36-45 years	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- 46-55 years	2 (100%)	0 (0,0%)	0 (0,0%)	2 (100%)
3	Position at RSGM Unimus				
	- Dentist	2 (14,3%)	2 (14,3%)	10 (71,4%)	14 (100%)
	- Dentist assistant	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- PPI staff	0 (0,0%)	0 (0,0%)	2 (100%)	2 (100%)
	- Dentist students	1 (2,6%)	1 (2,6%)	37 (94,9%)	39 (100%)

Source: Sholekhah, 2024

Furthermore, in Table 2, which is a description of the standardization of prevention and control of environmental infections, it also shows that between male and female respondents, age groups and according to the position of respondents in RSGM most of them have followed the standard very well. However, there are several respondents from students of the dental profession (2.6%) who are still lacking in standardization of environmental infection prevention and control.

Table 3. Description of Nosocomial Infections According to Infection Prevention and Control Standards

Implementation of Infection Prevention and Control	Nosocomial Infection (n, %)		Total
	No	Yes	
Not Good	3 (100%)	0 (0,0%)	3 (100%)
Good	3 (75%)	1 (25%)	4 (100%)
Very Good	37 (74%)	13 (26%)	50 (100%)

Source: Sholekhah, 2024

Table 3. Is a description of nosocomial infections based on the application of infection control and prevention, which is 26% very good. So it can be concluded that although health workers

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have implemented universal precaution standardization very well, signs and symptoms of nosocomial infection are still found, this is because when filling out the questionnaire there are some health workers who are in a less enthusiastic state so they do not read carefully the questions asked submitted on the questionnaire.

DISCUSSION

Infection Prevention and Control, hereinafter abbreviated as PPI, is an effort to prevent and minimize the occurrence of infections in patients, staff, visitors, and the community around health care facilities in hospitals. Based on the results of this study regarding standardization of infection prevention and control, it was found that 87.7% of respondents were very good, 7% of respondents were good and 5.3% of respondents were not good at standardizing infection prevention and control in hospitals. The incidence of nosocomial infections in the application of infection prevention and control is 26%. This percentage can be categorized as low for the incidence of nosocomial infections because the incidence of nosocomial infections for universal precautions can be said to be low if it has a percentage of < 30% so it can still be said to be in the low category.

Although there are some respondents who are not good at carrying out standardization, but looking at the results of the low incidence of nosocomial infections, it can be concluded that the standardization of prevention and control of environmental infections at RSGM Unimus can be said to be successful. The reason why there are still health workers who are not good at carrying out standardization is because health workers do not understand the questions in this standardization section that were asked in this research questionnaire. So, there are still some respondents who are not good at this standardization.

In health care institutions, namely hospitals, there is an infection that can attack patients with treatment for approximately 72 hours, where the infectious disease has not been found when the patient enters, the infection is called a nosocomial infection or in other words called healthcare-associated infections (HAIs)[14]. Dental and oral health workers cannot be separated from the possibility to come into direct or indirect contact with microorganisms in the oral cavity (including saliva and blood) of patients[15,16]. As a result of repeated exposure to microorganisms present in the oral cavity, the incidence of infection is higher in dental and oral practice[17].

There are many microbiological risk factors in dentistry including prions, viruses, bacteria, protozoa, and fungi. The routes may be blood- borne, saliva droplet infection and direct contact with an infected person[18]. Regular dental treatments using the high speed turbine handpiece and the ultrasonic scalers produce droplets and aerosols, providing possible hazards for dental staff and patients[19]. Infection prevention and control is an effort that must be carried out by every

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health worker with the aim of preventing the transmission of infection to both health workers and patients while dental and oral health care is being carried out[20].

Effective and efficient infection control efforts in dental practice can reduce the spread of infectious diseases in dental and oral health care facilities[21]. In fact, breaking the chain of transmission is the easiest thing to prevent the transmission of infectious diseases, but it must be supported by compliance and obedience in carrying out the procedures set out in the Standard Operating Procedures and In general, government hospital facilities and infrastructure are still unable to support prevention and control efforts. infections in Hospitals, especially in Class C and D Hospitals as is the case in other countries with limited resources[22].

CONCLUSION

Implementation of infection prevention and control in the Unimus Dental and Oral Hospital for students of professions, PPI staff, dentists, dentists and dental nurses, the results were 87.7% very good, 7% good and 5.3% not good. So it can be concluded that although health workers have implemented universal precaution standardization very well, signs and symptoms of nosocomial infection are still found.

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The author would like to thank the director of Unimus Dental and Oral Hospiotal and the dean of Faculty Dentistry Unimus who have given permission for this research and supported the implementation of this research. Thank you to all dental health workers involved in this research.

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Implementation of Infection Prevention and Control Management in Health Workers at Unimus Dental and Oral Hospital

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Abstract

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Background: Hospitals as health care facilities are prone to infection. Infections that occur in hospitals are called nosocomial infections or can be called HAIs (Healthcare Associated Infection). Various kinds of procedures and dental health facilities can potentially cause infection transmission. There are infection prevention and control guidelines issued by the Ministry of Health in 2017, but their implementation is still not optimal. One of the factors that influence the implementation of infection prevention and control is the lack of awareness in complying with and understanding the guidelines.

Objective: To describe the implementation of infection prevention and control in health workers at Unimus Dental dan Oral Hospital.

Methods: The type of research used is analytic observational with a cross sectional research design through a descriptive approach.

Results: 94.9% of dental professional students were very good at implementing infection prevention and control, but 2.6% were still lacking. As many as 71.4% of dentists are good at implementing infection prevention and control, but 14.3% are still lacking. 50% of dental nurses are very good at implementing infection prevention and control. And 100% of the PPI staff have been very good at implementing infection prevention and control at Unimus Dental dan Oral Hospital.

Conclusion: the implementation of infection prevention and control in the Unimus Dental dan Oral Hospital for students of professions, PPI staff, dentists, dentists and dental nurses, the results were 87.7% very good, 7% good and 5.3% not good.

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INTRODUCTION

The high incidence of infectious diseases causes all health workers, including dentists, to be at risk of exposure to pathogens[1,2]. Saliva and blood are infectious components that have the potential to transmit infection from patients to dentists[3,4]. Transmission of infectious diseases can occur between the patient and the operator or the operator to the patient and can move through the device to the patient or the device to the operator and vice versa[5].

Infectious diseases in Indonesia according to Basic Health Research (RISKESDAS) in 2013 include Tuberculosis and Hepatitis, where the prevalence of hepatitis in 2013 (1.2%) was twice as high as in 2007, besides the incidence of Human Immunodeficiency Virus (HIV) infection every year. The year keeps growing[6]. Dentists in carrying out their profession cannot be separated from the possibility of being infected with various agents from patients[1]. The spread can be through multiple transmissions, direct contact, indirect contact, droplet, and airborne infection[7]. Diseases that are transmitted during dental treatment include tuberculosis, hepatitis, HIV/AIDS, herpes, and rubella[8].

In 2003 the Centers for Disease Control and Prevention (CDC) implemented a standard precautions component regulation as an infection control measure for dentists[3,9]. Universal precautions control strategies in dentistry are needed to reduce the risk of contracting diseases in the dental environment, namely from dentist to patient and from patient to patient, especially transmission of infectious diseases caused by infected blood streams such as HBV and HIV because all patients are infected. cannot be identified by medical records, physical examination or laboratory tests[10].

Universal precautions are very important in the health care environment because the aim is to control the occurrence of infections consistently and prevent the transfer of microorganisms from patients to health workers or vice versa. A research data states that health workers who are obedient in carrying out universal precautions are still relatively low 8. Universal Precaution according to the CDC (Centers for Disease Control) consists of 8 points, namely hand washing, use of PPE, respiratory hygiene or cough etiquette, safe injection practices, infection control special lumbar puncture procedures, sterilization and disinfection of patient care device items, prevention and environmental infection control and sharps safety[11].

Infections can occur anywhere but there are infections that do occur in hospitals that can be transmitted to patients when the patient is receiving treatment at the hospital, the incident is called a nosocomial infection[12]. Microorganisms in hospitals can breed in various places in hospitals such as floors, water, medical and non-medical equipment and air[13]. The various background problems stated above are the reasons for the author to examine the implementation of infection prevention and control management in dental health workers at Unimus Dental and Oral Hospital.

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METHODS

The research design is by measuring the variables and doing it only once at a certain time, namely cross sectional. The approach is through a descriptive method that aims to have an idea of whether health workers have implemented the Universal Precaution Standard Operating Procedure (SOP) in preventing nosocomial infections at RSGM Unimus. The population in this study were health workers at RSGM Unimus consisting of 33 dentists, 88 dental professional students, 5 dental nurses and 5 PPI teams. The samples in this study were dentists, young dentists, dental nurses and the PPI team at RSGM Unimus who met the inclusion criteria.

Determination of the sample using the slovin formula. Sampling using Random Sampling using Stratified Random Sampling technique. Stratified Random Sampling technique is a technique that is used if there is a population consisting of each - each unit that has various characteristics or is heterogeneous. The population in this study was 131 respondents, based on the Slovin formula, the sample size of 57 respondents was obtained. This research was conducted at the Dental and Oral Hospital, University of Muhammadiyah Semarang. The research was carried out in August-September 2021. Research permits and ethical statements from the Ethics Committee of the Faculty of Dentistry, Universitas Muhammadiyah Semarang No. 089/EC/FK/2021.

The data collection stage was carried out by giving a questionnaire about universal precaution standardization, namely a questionnaire regarding the application of universal precaution SPO (Standard Operating Procedures) for health workers based on universal precaution SPO (Standard Operating Procedures) from the CDC (Centers for Disease Control), which has been tested validity and reliability, contains questions related to the variables to be studied. The online questionnaire used is a google form. Is a questionnaire in online form provided by Google that can be used for various activities such as collecting information, determining events or sending surveys in an efficient way.

Assessment of the application of SOP (Standard Operating Procedures) from prevention and control of environmental infection, measured using a questionnaire with 3 questions, each question has another question point, namely air consists of 11 questions, water has 19 questions, environmental services has 19 questions, laundry (laundry) and a bed of 24 questions, and medical waste that is arranged consists of 8 questions. Each question is given a choice of answers (Yes = if the health worker has implemented the procedure, No = if the health worker has not applied the procedure). The assessment of the implementation of the Universal Precaution SOP (Standard Operating Procedure) is converted from 1 to 100%. The percentage of 76-100% indicates that health workers are very good in implementing SOP Universal Precaution, 51-76% indicate that health workers are good in implementing SOP Universal Precaution and <50% indicates that health workers are still lacking in implementing SOP Universal Precaution.

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RESULTS

The Dental and Oral Hospital (RSGM) Universitas Muhammadiyah Semarang is a teaching hospital established by the Unimus Faculty of Dentistry located at Jalan Kedungmundu Raya No. 22, Tembalang District, Semarang City. This hospital has an area of 4200 m2. And it was founded in 2013. RSGM Unimus has been actively opened since 2018 and has 4 floors. Facilities owned include registration rooms, radiology rooms, pharmacy, front office, outpatient rooms, dental engineering laboratories, clinical laboratories, toilets, places for worship and halls or function rooms, and more than 50 dental units for patients. The research at the Unimus Dental and Oral Hospital was carried out during September 2021. The respondents used for this study included students of the dentist profession, dentists, dental nurses and the PPI team who worked actively at the Unimus Hospital.

This cross-sectional study of universal precaution standardization in the prevention of nosocomial infections in health workers at RSGM Unimus was conducted on 57 respondents with the following characteristics :

Table 1. Responden Characteristic

No	Characteristic		Frequency	Percentage (%)
1	Gender	Male	13	22,8
		Female	44	77,2
	Total		57	100
2	Age Group	22-25 years	39	68,4
		26-35 years	14	24,6
		36-45 years	2	3,5
		46-55 years	2	3,5
	Total		57	100
3	Position at RSGM Unimus	Dentist	14	24,6
		Dentist assistant	2	3,5
		PPI staff	2	3,5
		Dentist students	39	68,4
	Total		57	100

Source: Sholekhah, 2024

Table 1 shows that most of the respondents are women (77.2%) with the largest age group of respondents being 23-53 years old, namely 68.4% who are also students of the dental profession program at RSGM Unimus.

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Table 2. Description of Standardization of Infection Prevention and Control Management According to Respondents Characteristics

No	Responden Characteristic	Infection Prevention and Control Management			Total
		Low	Good	Very Good	
1	Gender				
	- Male	1 (7,7%)	1 (7,7%)	11 (84,6%)	13 (100%)
	- Female	2 (4,5%)	3 (6,8%)	39 (88,6%)	44 (100%)
2	Age Group				
	- 22-25 years	1 (2,6%)	2 (5,1%)	36 (92,3%)	39 (100%)
	- 26-35 years	0 (0,0%)	1 (7,1%)	13 (92,9%)	14 (100%)
	- 36-45 years	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- 46-55 years	2 (100%)	0 (0,0%)	0 (0,0%)	2 (100%)
3	Position at RSGM Unimus				
	- Dentist	2 (14,3%)	2 (14,3%)	10 (71,4%)	14 (100%)
	- Dentist assistant	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- PPI staff	0 (0,0%)	0 (0,0%)	2 (100%)	2 (100%)
	- Dentist students	1 (2,6%)	1 (2,6%)	37 (94,9%)	39 (100%)

Source: Sholekhah, 2024

Furthermore, in Table 2, which is a description of the standardization of prevention and control of environmental infections, it also shows that between male and female respondents, age groups and according to the position of respondents in RSGM most of them have followed the standard very well. However, there are several respondents from students of the dental profession (2.6%) who are still lacking in standardization of environmental infection prevention and control.

Table 3. Description of Nosocomial Infections According to Infection Prevention and Control Standards

Implementation of Infection Prevention and Control	Nosocomial Infection (n, %)		Total
	No	Yes	
Not Good	3 (100%)	0 (0,0%)	3 (100%)
Good	3 (75%)	1 (25%)	4 (100%)
Very Good	37 (74%)	13 (26%)	50 (100%)

Source: Sholekhah, 2024

Table 3. Is a description of nosocomial infections based on the application of infection control and prevention, which is 26% very good. So it can be concluded that although health workers

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have implemented universal precaution standardization very well, signs and symptoms of nosocomial infection are still found, this is because when filling out the questionnaire there are some health workers who are in a less enthusiastic state so they do not read carefully the questions asked submitted on the questionnaire.

DISCUSSION

Infection Prevention and Control, hereinafter abbreviated as PPI, is an effort to prevent and minimize the occurrence of infections in patients, staff, visitors, and the community around health care facilities in hospitals. Based on the results of this study regarding standardization of infection prevention and control, it was found that 87.7% of respondents were very good, 7% of respondents were good and 5.3% of respondents were not good at standardizing infection prevention and control in hospitals. The incidence of nosocomial infections in the application of infection prevention and control is 26%. This percentage can be categorized as low for the incidence of nosocomial infections because the incidence of nosocomial infections for universal precautions can be said to be low if it has a percentage of < 30% so it can still be said to be in the low category.

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Implementation of Infection Prevention and Control Management in Health Workers at Unimus Dental and Oral Hospital

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Abstract

Background: Hospitals as health care facilities are prone to infection. Infections that occur in hospitals are called nosocomial infections or can be called HAIs (Healthcare Associated Infection). Various kinds of procedures and dental health facilities can potentially cause infection transmission. There are infection prevention and control guidelines issued by the Ministry of Health in 2017, but their implementation is still not optimal. One of the factors that influence the implementation of infection prevention and control is the lack of awareness in complying with and understanding the guidelines. **The aim:** To describe the implementation of infection prevention and control in health workers at Unimus Dental dan Oral Hospital. **Methods:** The type of research used is analytic observational with a cross sectional research design through a descriptive approach. **Results:** 94.9% of dental professional students were very good at implementing infection prevention and control, but 2.6% were still lacking. As many as 71.4% of dentists are good at implementing infection prevention and control, but 14.3% are still lacking. 50% of dental nurses are very good at implementing infection prevention and control. And 100% of the PPI staff have been very good at implementing infection prevention and control at Unimus Dental dan Oral Hospital. **Conclusion:** the implementation of infection prevention and control in the Unimus Dental dan Oral Hospital for students of professions, PPI staff, dentists, dentists and dental nurses, the results were 87.7% very good, 7% good and 5.3% not good.

Keywords: nosocomial infections, infection prevention and control, health workers

Introduction

The high incidence of infectious diseases causes all health workers, including dentists, to be at risk of exposure to pathogens [1,2]. Saliva and blood are infectious components that have the potential to transmit infection from patients to dentists [3,4]. Transmission of infectious diseases can occur between the patient and the operator or the operator to the patient and can move through the device to the patient or the device to the operator and vice versa [5].

Infectious diseases in Indonesia according to Basic Health Research (RISKESDAS) in 2013 include Tuberculosis and Hepatitis, where the prevalence of hepatitis in 2013 (1.2%) was twice as

high as in 2007, besides the incidence of Human Immunodeficiency Virus (HIV) infection every year. The year keeps growing [6]. Dentists in carrying out their profession cannot be separated from the possibility of being infected with various agents from patients [1]. The spread can be through multiple transmissions, direct contact, indirect contact, droplet, and airborne infection [7]. Diseases that are transmitted during dental treatment include tuberculosis, hepatitis, HIV/AIDS, herpes, and rubella [8].

In 2003 the Centers for Disease Control and Prevention (CDC) implemented a standard precautions component regulation as an infection control measure for dentists [3,9]. Universal precautions control strategies in dentistry are needed to reduce the risk of contracting diseases in the dental environment, namely from dentist to patient and from patient to patient, especially transmission of infectious diseases caused by infected blood streams such as HBV and HIV because all patients are infected. cannot be identified by medical records, physical examination or laboratory tests [10].

Universal precautions are very important in the health care environment because the aim is to control the occurrence of infections consistently and prevent the transfer of microorganisms from patients to health workers or vice versa. A research data states that health workers who are obedient in carrying out universal precautions are still relatively low [8]. Universal Precaution accordi to the CDC (Centers for Disease Control) consists of 8 points, namely hand washing, use of PPE, respiratory hygiene or cough etiquette, safe injection practices, infection control special lumbar puncture procedures, sterilization and disinfection of patient care device items, prevention and environmental infection control and sharps safety [11].

Infections can occur anywhere but there are infections that do occur in hospitals that can be transmitted to patients when the patient is receiving treatment at the hospital, the incident is called a nosocomial infection [12]. Microorganisms in hospitals can breed in various places in hospitals such as floors, water, medical and non-medical equipment a l air [13]. The various background problems stated above are the reasons for the author to examine the implementation of infection prevention and control management in dental health workers at Unimus Dental and Oral Hospital.

Materials and Methods

The research design is by measuring the variables and doing it only once at a certain time, namely cross sectional. The approach is through a descriptive method that aims to have an idea of whether health workers have implemented th Universal Precaution Standard Operating Procedure (SOP) in preventing nosocomial infections at RSGM Unimus. The population in this study were health workers at RSGM Unimus consisting of 33 dentists, 88 dental professional students, 5 dental nurses and 5 PPI teams. The samples in this study were dentists, young dentists, dental nurses and the PPI team at RSGM Unimus who met the inclusion criteria.

Determination of the sample using the slovin formula. Sampling using Random Sampling using Stratified Random Sampling technique. Stratified Random Sampling technique is a technique that is used if there a population consisting of each - each unit that has various characteristics or is heterogeneous. The population in this study was 131 respondents, based on e Slovin formula, the sample size of 57 respondents was obtained. This research was conducted at the Dental and Oral Hospital, University of Muhammadiyah Semarang. The research was carried out in gust-September 2021. Research permits and ethical statements from the Ethics Committee of the Faculty of Dentistry, Universitas Muhammadiyah Semarang No. 089/EC/FK/2021.

The data collection stage was carried out by giving a questionnaire about universal precaution standardization, namely a questionnaire regarding the application of universal precaution SPO (Standard Operating Procedures) for health workers based on universal precaution SPO (Standard Operating Procedures) from the CDC (Centers for Disease Control), which has been tested validity and reliability, contains questions related to the variables to be studied. The online questionnaire used is a google form. Is a questionnaire in online form provided by Google that can be used for various activities such as collecting information, determining events or sending surveys in an efficient way.

Assessment of the application of SOP (Standard Operating Procedures) from prevention and control of environmental infection, measured using a questionnaire with 3 questions, each question has another question point, namely air consists of 11 questions, water has 19 questions, environmental services has 19 questions, laundry (laundry) and a bed of 24 questions, and medical waste that is arranged consists of 8 questions. Each question is given a choice of answers (Yes = if the health worker has implemented the procedure, No = if the health worker has not applied the procedure). The assessment of the implementation of the Universal Precaution SOP (Standard Operating Procedure) is converted from 1 to 100%. The percentage of 76-100% indicates that health workers are very good in implementing SOP Universal Precaution, 51-76% indicate that health workers are good in implementing SOP Universal Precaution and <50% indicates that health workers are still lacking in implementing SOP Universal Precaution.

Results

The Dental and Oral Hospital (RSGM) Universitas Muhammadiyah Semarang is a teaching hospital established by the Unimus Faculty of Dentistry located at Jalan Kedungmundu Raya No. 22, Tembalang District, Semarang City. This hospital has an area of 4200 m2. And it was founded in 2013. RSGM Unimus has been actively opened since 2018 and has 4 floors. Facilities owned include registration rooms, radiology rooms, pharmacy, front office, outpatient rooms, dental engineering laboratories, clinical laboratories, toilets, places for worship and halls or function rooms, and more than 50 dental units for patients. The research at the Unimus Dental and Oral Hospital was carried out during September 2021. The respondents used for this study included students of the dentist profession, dentists, dental nurses and the PPI team who worked actively at the Unimus Hospital.

This cross-sectional study of universal precaution standardization in the prevention of nosocomial infections in health workers at RSGM Unimus was conducted on 57 respondents with the following characteristics :

Table 1. Responden Characteristic

No	Characteristic		Frequency	Percentage (%)
1	Gender	Male	13	22,8
		Female	44	77,2
	Total		57	100
2	Age Group	22-25 years	39	68,4
		26-35 years	14	24,6
		36-45 years	2	3,5
		46-55 years	2	3,5
	Total		57	100
3	Position at RSGM Unimus	Dentist	14	24,6
		Dentist assistant	2	3,5
		PPI staff	2	3,5
		Dentist students	39	68,4
	Total		57	100

Table 1 shows that most of the respondents are women (77.2%) with the largest age group of respondents being 23-53 years old, namely 68.4% who are also students of the dental profession program at RSGM Unimus.

Table 2. Description of Standardization of Infection Prevention and Control Management According to Respondents Characteristics

No	Responden Characteristic	Infection Prevention and Control Management			Total
		Low	Good	Very Good	
1	Gender				
	- Male	1 (7,7%)	1 (7,7%)	11 (84,6%)	13 (100%)
	- Female	2 (4,5%)	3 (6,8%)	39 (88,6%)	44 (100%)
2	Age Group				
	- 22-25 years	1 (2,6%)	2 (5,1%)	36 (92,3%)	39 (100%)
	- 26-35 years	0 (0,0%)	1 (7,1%)	13 (92,9%)	14 (100%)
	- 36-45 years	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- 46-55 years	2 (100%)	0 (0,0%)	0 (0,0%)	2 (100%)
3	Position at RSGM Unimus				
	- Dentist	2 (14,3%)	2 (14,3%)	10 (71,4%)	14 (100%)
	- Dentist assistant	0 (0,0%)	1 (50%)	1 (50%)	2 (100%)
	- PPI staff	0 (0,0%)	0 (0,0%)	2 (100%)	2 (100%)
	- Dentist students	1 (2,6%)	1 (2,6%)	37 (94,9%)	39 (100%)

Furthermore, in Table 2, which is a description of the standardization of prevention and control of environmental infections, it also shows that between male and female respondents, age groups and according to the position of respondents in RSGM most of them have followed the standard very well. However, there are several respondents from students of the dental profession (2.6%) who are still lacking in standardization of environmental infection prevention and control.

Table 3. Description of Nosocomial Infections According to Infection Prevention and Control Standards

Implementation of Infection Prevention and Control	Nosocomial Infection (n, %)		Total
	No	Yes	
Not Good	3 (100%)	0 (0,0%)	3 (100%)
Good	3 (75%)	1 (25%)	4 (100%)
Very Good	37 (74%)	13 (26%)	50 (100%)

Table 3. Is a description of nosocomial infections based on the application of infection control and prevention, which is 26% very good. So it can be concluded that although health workers have implemented universal precaution standardization very well, signs and symptoms of nosocomial infection are still found, this is because when filling out the questionnaire there are some health workers who are in a less enthusiastic state so they do not read carefully the questions asked. submitted on the questionnaire.

Discussion

Infection Prevention and Control, hereinafter abbreviated as PPI, is an effort to prevent and minimize the occurrence of infections in patients, staff, visitors, and the community around health care facilities in hospitals. Based on the results of this study regarding standardization of infection prevention and control, it was found that 87.7% of respondents were very good, 7% of respondents were good and 5.3% of respondents were not good at standardizing infection prevention and control in hospitals. The incidence of nosocomial infections in the application of infection prevention and control is 26%. This percentage can be categorized as low for the incidence of nosocomial infections because the incidence of nosocomial infections for universal precautions can be said to be low if it has a percentage of < 30% so it can still be said to be in the low category.

Although there are some respondents who are not good at carrying out standardization, but looking at the results of the low incidence of nosocomial infections, it can be concluded that the standardization of prevention and control of environmental infections at RSGM Unimus can be said to be successful. The reason why there are still health workers who are not good at carrying out standardization is because health workers do not understand the questions in this standardization section that were asked in this research questionnaire. So, there are still some respondents who are not good at this standardization.

In health care institutions, namely hospitals, there is an infection that can attack patients with treatment for approximately 72 hours, where the infectious disease has not been found when the patient enters, the infection is called a nosocomial infection or in other words called healthcare-associated infections (HAIs) [14]. Dental and oral health workers cannot be separated from the possibility to come into direct or indirect contact with microorganisms in the oral cavity (including saliva and blood) of patients [15]. As a result of repeated exposure to microorganisms present in the oral cavity, the incidence of infection is higher in dental and oral practice [16].

There are many microbiological risk factors in dentistry including prions, viruses, bacteria, protozoa, and fungi. The routes may be blood- borne, saliva droplet infection and direct contact with an infected person [17]. Regular dental treatments using the high speed turbine handpiece and the ultrasonic scalers produce droplets and aerosols, providing possible hazards for dental staff and patients [18]. Infection prevention and control is an effort that must be carried out by every health worker with the aim of preventing the transmission of infection to both health workers and patients while dental and oral health care is being carried out [19].

Effective and efficient infection control efforts in dental practice can reduce the spread of infectious diseases in dental and oral health care facilities [20]. In fact, breaking the chain of transmission is the easiest thing to prevent the transmission of infectious diseases, but it must be supported by compliance and obedience in carrying out the procedures set out in the Standard Operating Procedures and In general, government hospital facilities and infrastructure are still unable to support prevention and control efforts. infections in Hospitals, especially in Class C and D Hospitals as is the case in other countries with limited resources [21].

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