



2nd ICHMS & 2nd LSC

PROCEEDING

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The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

*"Towards a Better Quality of Life
through Interdisciplinary Research"*

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

ISBN: 978-602-757-793-0



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**The 2nd International Conference of Medical & Health Sciences
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**Chair person of The 2nd International Conference of Medical and
Health Sciences and The 2nd Life Sciences Conference 2016**



Welcome to Jogja, sugeng rawuh!

For the second time, the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta is going to conduct the 2nd International Conference of Medical and Health Sciences (ICMHS) this December in vibrant Yogyakarta, Indonesia. This year we are going to collaborate with the Life Sciences Society of Pakistan for their 2nd Life Sciences Conference (LSC) with Dr. Zahid Iqbal as the general secretary.

This year's conference theme "Towards a better quality of life through interdisciplinary research" will be celebrating an era of seamless interdisciplinary integration and collaboration in scientific innovations with the involvement of more extensive topics and disciplines in the conference. We aim to exhibit the products of that kind of approach in solving challenges, improving the quality of life, and creating sustainable developments. We are happy to announce that our conference is filled with Invited speakers from Pakistan, United States of America, Uni Emirates Arab, Malaysia and Indonesia. Presentations will be conducted in oral as well as poster that covers topics from medicine, public health, dentistry, pharmacy, biomedical to agriculture. To put more credibility to the conference we are collaborating with Isra Medical Journal and the Asian Journal of Agriculture and Biology to publish selected papers from the event. Other paper will be published in the ISBN Proceeding book.

The last but not least, enjoy the conference, start networking and sharing ideas, and let immerse yourself to the heritage cultural ambient of Jogja, sumonggo!

Yogyakarta, 1st December 2016

dr. Iman Permana, M.Kes, Ph.D.

**The 2nd International Conference of Medical & Health Sciences
and
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**Dean of Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta**



Assalamu'alaikum Wr. Wb.

Science, especially in the areas of health and life growing more rapidly. We need to work together in the research of various disciplines to the advancement of science and to provide benefits to human life.

After successfully organized international scientific meeting last year, the Faculty of Medical and Health Sciences Universitas Muhammadiyah Yogyakarta, held the second scientific meeting ICMHS along with "2nd Life Sciences Conference". In this second scientific meeting, FKIK UMY collaborates with various researchers, among others from Pakistan, Malaysia, and the United States. Taking the theme "Towards a better quality of life through interdisciplinary research" we hope to establish cooperation with various parties to be able to contribute ideas to the civilization of human life.

Finally, we congratulate the scientific meeting in the city of Yogyakarta Indonesia. Enjoy the beautiful city of Yogyakarta with priceless historical relics. We hope that this meeting can run smoothly and provide benefits to the advancement of knowledge.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 1st December 2016

dr. Ardi Pramono, M.Kes, Sp.An.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Rector of Universitas Muhammadiyah Yogyakarta



Assalaamu'alaikum Wr. Wb.

Ladies and Gentlemen,

Welcome to the 2nd International Conference on Medical and Health Science in conjunction with the 2nd Life Sciences Conference 2016

Welcome to Yogyakarta City of Tolerance

Our Faculty of Medicine and Health Sciences has been doing such international conference almost every year for the last ten years. This and other previous conferences are the things that supporting our vision as an excellence and Islamic university, a young and global university. We will always try to keep monitoring the development of science through sending more lecturers to do the sabbatical leave overseas, doing international research collaborations and also the international conference. Each department should do this strategy of internationalization so that each department has its own network. Faculty of medicine and health science is one of the most progressive units in implementing this strategy by inviting international experts on a regular basis. This program will certainly strengthen our vision.

International conference on medicine and health sciences is a smart choice to offer our lecturers access to the most recent development of the subjects. The participants will also gain the same knowledge and latest information on medicine and health sciences. As everyone knows that the development of science and technology are faster today compared to the previous period. Information technology, computer, and other development havefastened the transformation of medicine and health science into the different and more complex stage.

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Cellular technology, for instance, can be used for several functions including those that directly impacts our daily life. There is no long distance call anymore today because cellular phone can do everything we need to contact other people far from where we stand anytime anywhere. People will finally innovate cellular phone for the sake of personal health services. We will in the future using our simple cellular phone to detect our body temperature, blood pressure, even how much fat we have in our body and how much it is supposed to be. We may also be able to check the health of our body without leaving our house and order medicine without going into the drug store. Everything is almost possible as long as we think hard for the better of people in the future. Enjoy the conference and don't forget to visit our rich tourist destinations, mountains, beaches or caves (underground waterways).

Thank you

Wassalaamu'alaikum Wr. Wb.

Prof. Dr. Bambang Cipto, MA

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Keynote Speech

**by Head of Provincial Health Office Special Region of Yogyakarta
in International Conference
of Medical and Health Sciences and Life Sciences Conference**

The Alana Hotel and Convention Center, Yogyakarta, December 9-10, 2016

The honorable:

- Rector of Muhammadiyah University of Yogyakarta,
- The Dean of Medical and Health Sciences Muhammadiyah University of Yogyakarta,
- The chairman of organizing committee of the international conference of medical and health,
- Distinguished guests and colleagues.

Assalamu'alaikum Warahmatullahi Wabarakatuh,

First of all, we thank God for His blessings that today we may attend the International Conference of Medical Health Towards a Better Quality of Life Through Interdisciplinary Research in Yogyakarta.

My distinguished colleagues,

In Indonesia National Long Term Development Plan (2005-2024), the Indonesian Ministry of Health have determined a paradigm shift that have governed health services in health development plan. There has been a shift from Curative Health Services to Preventive and Promotive Health Services.

Recently, Indonesia suffers from a triple burden of diseases as health development challenges. The triple burden of diseases are: 1) the backlog of common infections, undernutrition, and maternal mortality; 2) the emerging challenges of non-communicable diseases (NCDs), such as cancer, diabetes, heart disease; and 3) mental illness, and the problems directly related to globalization, like pandemics and the health consequences of climate change.

Dear colleagues,

Here are some data that show several health problems in Indonesia:

1. Maternal mortality rate in 2015 is 4,809 cases, infant mortality rate in 2015 is 22,267 cases;
2. Regarding to children under the age of five, the national stunting rate is 37.2% which consists of 18% for very short dan 19.2% for short (Riskesdas 2013);

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3. HIV testing coverage is 14% dan antiretroviral (ARV) therapy coverage is 65.58% (Directorate General of Disease Control and Prevention Ministry of Health, 2015);
4. Tuberculosis (TB) notification rate in 2015 is 73.5% and tuberculosis treatment success rate is 72% (Directorate General of Disease Control and Prevention Ministry of Health, 2015).

Distinguished guests,

Indonesia Health Development Program in 2015-2019 strengths in improving human quality life through Health Indonesia Program with family approach. The Indonesian Ministry of Health issued The Minister of Health Regulation (Permenkes) No. 39 Year 2016 as a Guideline of Implementation of Health Indonesia Program with Family Approach. This program has 12 main indicators as markers of a family health status. Currently, many health programs have been implemented by Indonesian Ministry of Health, Provincial Health Offices, and District Health Offices. However, many health problems, some as mentioned above, still become health burdens. We may ask a question whether the programs that we conducted have answered the health problems we have in Indonesia.

It would be better if all health programs that we implement based on scientific health research, especially interdisciplinary research. The research should be related to detection, prevention, and treatment of diseases or problem solving for better health.

My dear colleagues,

Being a province with speciality, Special Region of Yogyakarta placed Traditional Medicine as one of the priority programs in Provincial Medium Term Development Plan (2017-2022). We still encounter many challenges in developing Traditional Medicine, especially in providing services which are based on scientific evidence.

Distinguished colleagues,

We look forward to results of interdisciplinary research which would support health problem solving, especially by developing traditional medicine in Yogyakarta. We believe that collaboration in interdisciplinary research would improve quality of human life.

Finally,

Thank you for your attention. We wish you a successful conference.

Wassalamu'alaikum Warahmatullahi Wabarakatuh,

On behalf of
the Head of Provincial Health Office
Special Region of Yogyakarta

Drg. Pembajun Setyaningastutie, M.Kes

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**SPEAKER OF
INTERNATIONAL CONFERENCE**

Zahid Iqbal

Al-Nafees Medical College Isra University Islamabad Campus Islamabad, Pakistan
"One Health Program for Public Health Benefit"

Prof. Dr. Abdul Khaliq

Professor, Department of Agronomy, University of Agriculture, Faisalabad
"Role of Agriculture in Poverty Alleviation of Rural Areas"

Fitri Arofati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Continuing Professional Development of Practicing Nurses in Indonesia"

Tri Wahyuliati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Diabetic Neuropathy - A Chance Towards A Better Treatment"

Mohammad Khalid Ashfaq

University of Mississippi, USA
"Natural Products –Use or Misuse"

Muhammad Mukhtar

American University of Ras Al Khaimah, United Arab Emirates
"Emerging Biotechnologies and Genomic Medicines in Human Health and Well-Being"

Muhammad Sasmito Djati

Brawijaya University Malang, Indonesia
"Herbal Medicine a Holistic Approach: in case of food supplement formulation of Sauropusandrogynus and Elephantopuscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

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REVIEWER

1. Dr. Zahid Iqbal, Ph.D (Isra University, Islamabad, Pakistan)
2. Prof. Dr. Abdul Khaliq (University of Agriculture, Faisalabad)
3. Dr. Mohammad Khalid Ashfaq, DVM, DTVM, MS, Ph.D (University of Mississippi, USA)
4. Dr. Muhammad Mukhtar, Ph.D (American University of Ras Al Khaimah, United Arab Emirates)
5. Dr. Ir. Muhammad Sasmito Djati, MS. (Brawijaya University Malang, Indonesia)
6. Fitri Arofiati, S.Kep., Ns., MAN., Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
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13. Dr. drg. Tita Ratya Utari, Sp. Ort (Universitas Muhammadiyah Yogyakarta, Indonesia)
14. Dr. dr. Tri Wahyuliati, Sp.S, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
15. Dr. Elsy Maria Rosa, M.Kep (Universitas Muhammadiyah Yogyakarta, Indonesia)
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19. Dra. Lilis Suryani, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
20. Drh. Tri Wulandari K, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
21. Dr. dr. Wiwik Kusumawati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
22. Sabtanti Harimurti, S.Si., M.Sc., Ph.D., Apt. (Universitas Muhammadiyah Yogyakarta, Indonesia)

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**SPEAKER OF
INTERNATIONAL CONFERENCE**

ICMHS-O-1-29

Analysis of Compliance on Implementing Standard Precautions on Dental Health Service at PKU Muhammadiyah Gamping Hospital of Yogyakarta

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Abstract

Compliance to standard precautions is still low including hand hygiene, PPE, sharps injury prevention and instrument sterilization. The dental health practitioners should comply in implementing standard precautions in dental health service. The aim to describing the compliance level of dental health practitioners in implementing standard precautions, analyzing the influence of factors associated with compliance in the implementation of standard precautions. The study used a mixed method. Quantitative was applied using observation quantitative with survey approach and cross sectional design, qualitative method with a case study approach. Population consisted of all dental health practitioners. The data required were collected by using interviews, questionnaires, observations, documentary study. Quantitative data analysis used multiple linear regression. The compliance level based on the questionnaire for 9 elements show that the dental health practitioners have mostly been compliant with elements of standard precautions (83,39%). There was a significant influence between the factors associated with compliance to the implementation of standard precautions (98,3%). Result of the observations: 22.52% were not compliant in implementing standard precautions. Result of the interviews: moments and procedures for hand hygiene were not applied properly; PPE, the safety goggles was not available; the health workers who have not been vaccinated during working. $Y=16,144 + 1,129X1 + (-)0,145X2 + (-)743X3 + 0,202X4 + 0,883X5 + (-)0,226X6 + 0,053X7$, $R=0,992$; $R^2=0,983$; $F=0,925$; $p=0,000$. There were the dental health practitioners who were not honest in giving answers on questionnaires and still do not comply in implementing standard precautions; there is the influence between the compliance factors with the implementation of standard precautions.

Keywords: compliance, compliance factors, standard precautions

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INTRODUCTION

Job in the medical sector is at risk of accidents which result in the exposure to diseases that can harm health.¹ Health care workers exposed to blood at a very potential when running task and therefore they have the risk of infected with a disease caused by germs to pathogen, such as HIV, hepatitis C virus and hepatitis B virus to blood exposure. It can occur through percutaneous injuri (pricked by a needle or other sharp objects), the incidence of mucocutaneous (splashing of blood or body fluids blood mingled on the eyes, nose or mouth) or blood contact with a normal skin.² Dentists are often exposed to bloodborne and respiratory pathogens via saliva, blood, splashes, and inhalation of aerosols. The Centers for Disease Control and Prevention has developed infection control guidelines that apply in the dental health care setting based on universal and standard precautions. These guidelines aim to prevent the transmission of pathogens between patients and health care workers.^{3,4,5}

Research conducted in one of the faculties of dentistry at Glasgow reported that the number of clinical students who are infected with Epstein-Barr virus is high compared to the pre-clinical students.⁶ Research conducted by Cardoso in Brazil on nurses at hospital showed that the average of compliance to standard precautions is still low including hand washing with an average of 29,7%, the use of gloves of 41,4%, the disposal of sharps instruments properly was as many as 88.8%.^{7,8}

Based on WHO estimation (2002) there were between 35 million health workers worldwide, around three million have experienced exposure to the virus carried by the percutaneous blood every year (two million HVB, HCV HIV 300.000 and 900.000). This occurrence is estimated to result in hepatitis C infection becomes 16.000, 66.000 hepatitis B and 200 – 5000 HIV. More than 90% of these infections occur in low-income countries and whereas in developed countries can prevent.²

A research conducted in Nigeria involving as many as 421 health workers shows that a majority of 77,9% describes the standard precautions and infection control correctly.⁹ A total of 3,3% has a disposal system of sharp objects in the workplace, as many as 98,6% of respondents report that the main reason people are not compliant is a matter of the incompleteness of facility equipment.⁹ According to Nursalam, one of infection control strategies is to use the universal precaution. A universal precaution is infection control measures undertaken by all health workers to reduce the risk of spread from infection. Based on the issues above, it is expected that the compliance of dentistry service is be able to implement a good standard precautions of dental health service.^{10,11} Cardoso mentions that it is in accordance with what is targeted by the WHO in 2020, namely to increase the number of competent health services to recognize and reduce the risk of infectious disease transmission in the environment of dental and oral health services.⁷

There is still low compliance to standard precautions implementation in the practice of dental and oral health care. Based on the considerations above, the researcher are interested in examining the issue with this title.

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MATERIALS AND METHODS

This study used a mixed method. For quantitative, a quantitative approach of observational research was used with survey approach as well as cross sectional design. It also used qualitative approach with case study approach. The aims of this study are: describing the compliance level of dental health practitioners in implementing standard precautions; describing the factors affecting dental health practitioners in implementing standard precautions for preventing and controlling infection; analyzing the influence of factors associated with compliance in the implementation of standard precautions.

In terms of qualitative; interviews, observation and document study, both primary and secondary data were used. The qualitative data of research instrument was the researcher itself who conducted deep observation. Data obtained through direct observation by the researcher were recorded in the study and were given sheets of check list, in which researcher paid attention to every act of compliance of health workers in implementing standard precautions for 19 times of filling observation sheet, then the data was collected, processed, and presented in a frequency distribution table. The interview was focused on the compliance in implementing standard precautions of the dental health worker. The quantitative problem used questionnaire with Likert scale of 1-5.^{12,13} The entire study population was the dental health workers in Dental Department at PKU Muhammadiyah Gamping Hospital of Yogyakarta, used total sampling. This study was conducted from May to July 2016.

RESULT

1. *Results of Questionnaire*

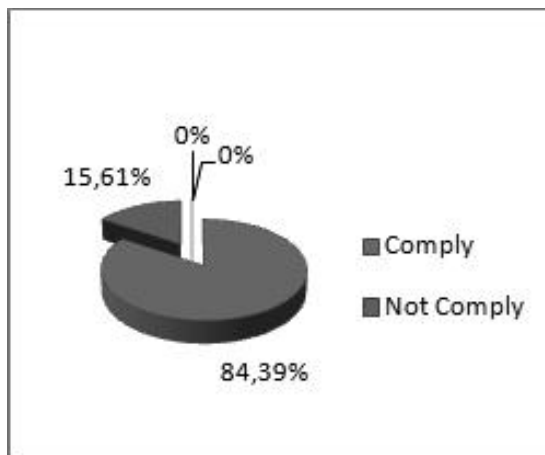


Figure 1. Result of questionnaire about the compliance level in implementing standard precautions.

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Table 1. Results of questionnaire, compliance level in implementing standard precautions

N u	Standard Precautions actions for prevention and control of infection	Observation		Observation	
		Do		Not do	
		N	%	N	%
1	Hand Hygiene : Wash their hands using SOAP under running water before doing any treatment of patients	25	32,89%	51	67,11%
2	Wash their hands using SOAP under running water after making any treatment of patients	37	48,68%	39	51,32%
3	Wash their hands using SOAP on the flowing water using 11 steps or do handrub technique 8 steps	0	0,00%	76	100%
4	PPE : Using sterile gloves while doing the treatment	76	100%	0	0,00%
5	Using a mask while doing the treatment	74	97,37%	2	2,63%
6	Using a mask when doing a treatment for one patient (one mask for one patient) or replace the mask between patients if the quality is reduced	0	0,00%	76	100%
7	Using safety goggles/face protector while doing every treatment	19	25%	57	75%
8	Using safety goggles/face protector while doing every treatment and disinfected every turn of the patient	0	0,00%	76	100%
9	Using protective suits then cleaned per work shift	76	100%	0	0,00%
10	Textile and Laundry : Using a dental bib for each patient (one patient one dental bib)	56	73,68%	18	23,68%
11	Environmental Management : Appear presentable using work clothes in clean condition and always washed according the specified time.	76	100%	0	0,00%
12	The dental room is well presentable and clean	76	100%	0	0,00%
13	The ventilations are clean, lighting and state of the dental room for working area standars	76	100%	0	0,00%
14	Cough Etiquette : Provide masks to the people (patients) who were coughing	-	-	-	-
15	Safe injection practice : Giving instruction before treating each patient and documenting their implementation on the patient card	45	59,21%	0	0,0%
16	Sharps and injury prevention : Putting any infectious waste in a container and separately from non infectious waste	74	97,37%	1	1,32%
17	Using the technique of single handed recapping method	11	14,47%	34	44,74%
18	Sterilization and handling Instruments : Basic instruments used in the patient's mouth on sterile condition	75	98,68%	1	1,32
19	Diamond burs, bones burs, scaler that is used in clean and sterile for single patient then cleaned, sterilized or replaced per patient	26	34,21%	36	47,37%
20	(Highspeed Handpiece, handpiece straigh lowspeed, two/three-way syringe properly disinfect in every turn of the patient	11	14,47%	47	61,84%
21	Preparing instruments and materials that would be used before giving a treatment for every patient	76	100%	0	0,00%
22	Using a disposable glass gargle for each patient	76	100%	0	0,00%
23	Using a dental bib for each patient (one patient one dental bib)	56	73,68%	18	23,68%
24	Using a disposable suction for each patient	76	100%	0	0,00%
25	Instructed to rinse antiseptic before treated	0	0,00	76	100%
26	For invasive action, doing the giving of antiseptic on the area of operation	45	59,21%	0	0,00%
27	Soaking instruments with disinfectant solution before it is cleaned	76	100%	0	0,00%
28	Cleaning all instruments after used with SOAP and running water	76	100%	0	0,00%
29	Using gloves, masks (PPE) while washing and cleaning the instruments	76	100%	0	0,00%

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N u	Standard Precautions actions for prevention and control of infection	Observation			
		Do	Not do		
		N	%	N	%
30	Make sure that all instruments are clean before performed by the officer to the sterilization room (CSSD)	76	100%	0	0,00%
31	Perform disinfection on the chairs and lights of dental unit	10	13,16%	66	86,84%
32	Do disinfection for non critical instruments after used	51	67,11%	25	32,89%
	Total Compliant = 47,72% Not compliant = 21,56%	1451		69 9	

Results of the questionnaire for 9 elements of standard precaution showed that 84,39% were compliant and 15,61% were not compliant with the application of standard precautions.

2. Results of Questionnaire Percentage of Compliance Factors on the Implementation of Standard Precautions

Table 2. Distribution of Compliance Factors to the Standard Precautions

Variable	Category	%
Knowledge	Low	12,96
	High	87,04
	Total	100
Attitude	Good	100
	Less	0
	Total	100
Constraints	High	22,22
	Low	77,78
	Total	100
Safety climate	Good	100
	Less	0
	Total	100
Leadership support	High	66,67
	Low	33,33
	Total	100
Facility	Complete	61,11
	Incomplete	38,89
	Total	100
Training	Good	41,15
	Less	51,85
	Total	100

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3. Result of Interview

Table 3. Results of Interview

No	Element Of Standard Precautions	Result of Interview
1	Hand Hygiene	<ul style="list-style-type: none"> - The moments and procedures for hand hygiene were not applied well and rightly. - The facilities for hand hygiene in hospital were available and used in accordance with the prevailing standard.
2	Personnel Protective Equipments	<ul style="list-style-type: none"> - For the standard precaution of personal protective equipment, the protective glasses were not available in dental health service at PKU Muhammadiyah Gamping Hospital of Yogyakarta. - The personal protective equipment of practice cloth was worn once shift and the cleaning were transferred into the textile and laundry unit of hospital. Glove was used once, masker was used many times (for a reason of cost), but there are still lack of equipment, i.e. protective glasses were unavailable in dental health service of hospital. - The coding of patients with infectious disease was done separately with the principle of the application of relevant standard precautions.
3	Textile and Laundry	<ul style="list-style-type: none"> - The textile and laundry handling was transferred to the textile and laundry unit of hospital and was carried out well. - The cleanness of textile and laundry was in accordance with expectation of health personnel and applied well in accordance with the prevailing standard
4.	Environment Control	Health personnel felt that work environment has always been clean, security and comfort in working.
5	Cough Etiquette	Patients or medical personnel that has cough should be in accordance with the procedure of hospital related to cough etiquette. Sign is made in medical record, masker is given to patient, and patients with cough were put first in treatment.
6	Safe Injection Practice	<ul style="list-style-type: none"> - The hospital management ever given socialization or direction about a safe injection practice, but it is not clear whether or not the socialization or direction was given periodically by the hospital management by health personnel. - Health personnel generally known the procedures related to safe injection, but it was related to the work interest/ specialization separated in each work.

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No	Element Of Standard Precautions	Result of Interview
7	Sharps Injury Prevention	<ul style="list-style-type: none"> - Sharps injury prevention in dental room should provide safety box for used sharp object, related unit of sanitation that will manage the collection and the destruction procedure is outsource to the third part. - Health personnel generally said that they did know the incidence of getting stabbed by needle among the employee of hospital. There is the follow-up procedure of handling patients after exposure or getting stabbed by needle, there is a reporting system related to the incidence to be processed in accordance with the provision of hospital.
8	Personnel Health Protection	<ul style="list-style-type: none"> - The hospital management should take into account the standard precaution of employ safety such as medical checkup and vaccination for new employee as well as periodical check up and vaccination for old employee, for example: hepatitis vaccination.
9	Sterilization and intrument handling/ processing	<ul style="list-style-type: none"> - The handling of instrument after use was sterilization in accordance with the procedures to CSSD unit, while non-critical equipments can be disinfected in dental health room using disinfectant/alcohol solution. - The management of dental unit in dental health service included desinfection, periodically routine service, and damage report.

4. Results of The Observation for The Nine Elements of Standard Precaution

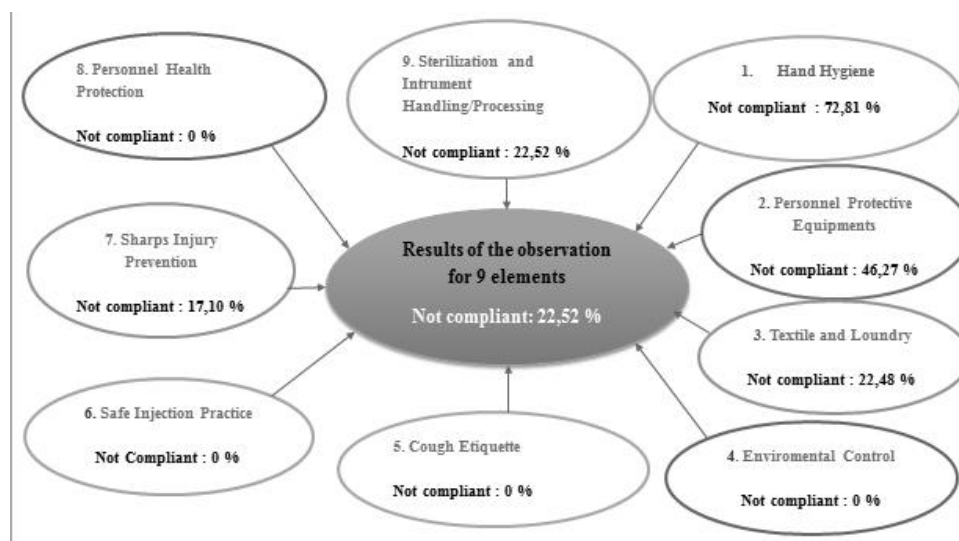


Figure 2. Results of the observation for the nine elements of standard precaution

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Based on Figure 2. from the observation of implementation of 9 standard precautions elements on the dental health personnel, the percentage obtained is as follow: hand hygiene is 72,85% not-compliant, PPE is 46,27% not-compliant, linen is 22,48% not compliant, environmental management of 0% not-compliant, safe injection is 0% not-compliant, waste and sharps management is 17,10% not-compliant, sterilization and handling of dental instruments is 22,52% not-compliant. In overall, the total for 9 observation elements is 47,72% compliant, 21,56% not-compliant.

Data Quality Test

One Sample Kolmogorov-Smirnov test is used by using a significance level of 0,05. The data is stated as normal distribution if the significance is greater than 0,05. The test is conducted with the help of SPSS 17.0 for Windows which shows that the data distribution is normal since the Kolmogorv-Smirnov value has a greater significance level, namely $0,863 > 0,05$. After testing the normality of the data, then the test on linearity of the data is performed, to determine whether the variables in this study have a linear relationship or not significantly (Wibowo, 2012: 61-62).¹⁴ Results of testing on the linearity of the data shows that there is a linear relationship between attitudes (X_1) and the implementation of standard precautions (Y) which is indicated by the greater significant value on the deviation from linearity than the significance level, i.e. $0,955 > 0,05$. The results of testing of the linearity of the data indicates that there is a linear relationship between knowledge (X_2) and the implementation of standard precautions (Y) which is indicated by the greater significant value on the deviation from linearity than the significance level, i.e. $0,385 > 0,05$ until X_7 .

Multiple linear regression analysis

Table 4. Results of multiple linear regression analysis

Model		Unstandarized		Standarized	T	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	16.144	10.665		1.514	.158
	X1_Attitude	1.129	.070	1.015	16.086	.000
	X2_Knowledge	-.145	.410	-.136	-.353	.731
	X3_Training	-.743	.786	-.607	-.946	.365
	X4_Safetyclimate	-.202	.233	.150	.870	.403
	X5_Contrains	.883	.486	.630	1.816	.097
	X6_Support	-.266	.097	-.149	-2.753	.019
	X7_Facilities	.053	.049	.047	1.082	.302

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Thus, the equation form is:

$$\hat{Y} = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 \quad (24,25).$$

$$\hat{Y} = 16.144 + 1.129X_1 + (-)0.145X_2 + (-)743X_3 + 0.202X_4 + 0.883X_5 + (-)0.226X_6 + 0.053X_7$$

Analysis of Determination

This coefficient shows how much percentage of variation of the independent variables is able to explain the variation of dependent variable. From the results of the regression analysis, it can be seen in the model summary output which is presented below:

Table 5. Results of Analysis of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.992 ^a	.983	.973	2.71952

Based on the table above, obtained the value of R² (R Square) of 0,983 or 98,3%. It shows that there is a very strong relationship between compliance factor with the implementation of standard precautions by 98,3% and the remaining 1,7% is influenced by other factors which are not examined in this study.

Hypothesis Testing

Hypothesis testing is used by F test to determine whether the independent variable (X) significantly affect the dependent variable (Y). Effect of X₁, X₂, X₃, X₄, X₅, X₆ and X₇ factors on the implementation of standard precautions (Y)

(18)

From the output results of regression analysis, the F value is known as in the following table:

Table 6. Result of Linear Regression Analysis (F_{count}) Effect of Compliance Factors on The Implementation of Standard Precautions (Y)

ANOVA ^b				
	Model	Mean Square	F	Sig.
1	Regression	684.393	92.538	.000 ^a
	Residual	7.396		
	Total			

Then value of F_{count} = 92,538 is consulted with the value of F_{table} on the degree of freedom (df) turn out that the F_{table} (df1= N-1=19; df2= N-M-1= 19; a = 0,05) = 1,50)^(24,25). Since F_{count} > F_{table}, the effect of factors on the implementation of standard precautions (Y) is proved as significant at 95% of confidence level.

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DISCUSSION

Compliance Level. Hand Hygiene. Based on the questionnaire results, interview and directly observation the dental health workers were not compliant is 16,63%. Hand washing should be performed at the anticipated time when the germs transfer will occur in accordance with WHO. Hand hygiene becomes an important element as it is also linked to Pronovost that the process taking place in health treatment is the prevention of infection and the hand is part of the body that is directly in contact with the patient, then hand hygiene is an important thing that should not be missed.¹⁵

It is also in accordance with the research done indicates that as much as 86,7% of operators were not washing their hands before doing a treatment of patients. They use their gloves after charging medical record and preparation instrument without washing their hands first. As much as 50% of the operator's hand washing after doing patient care, none (0%) that hand washing using the seven steps.¹⁶

This research still relevant to the study of Yuliana, which in RSKO Jakarta there was 15,4% health care personnels did not wash their hands before doing any treatment of patients.¹⁷ Therefore, according to PPI standards, health workers should perform hand hygiene measures to prevent hospital-acquired infection.

PPE. This research still relevant with Ramadhani *et al* that none (0%) who used the sterile gloves, 6,7% were compliant to use safety goggles while scaling.¹⁶ Relevant with to the study of Yuliana which in RSKO Jakarta there was 43,6% health care personnels i.e. nurses rarely or did not use safety goggles because of the low spark of blood or body fluids to the eye, because of the low risk of splashing blood and in Nigeria 56,5% of health workers did not wear safety goggles.^{18, 17}

Nichol reveals that the use of masks is an important thing that should be performed by health workers in order to protect them from the threat of infection or spread of disease. Change masks between patients or if the mask moist or wet and stained during the treatment to the patient. Mask will lose its protection quality when in wet condition. Remove the mask if the treatment has been finished. The health workers of dental health services are required to use protective eyewear to avoid the possibility of infection due to contamination of aerosols and splashes of saliva and blood. These glasses must be decontaminated with soap and water then disinfect whenever changing patients.^{19, 20}

Textile and Laundry. There are the dental health personnels still did not comply in this element. The same thing also in accordance with the results of this research are still relevant in research Ramadhani *et al.*, (2015),¹⁶ that there were still operators were not compliant to give dental bib for every patient 0%; 0% instructed to rinse antiseptic before treated. Refer to the opinion of Loveday *et al* who mention that the cleanliness of linen is closely related to the patient's health care, for linen is the attribute that is

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often used by health care workers and patients during the treatment. In addition, by maintaining the cleanliness of linen, it will help the protection of patients, hence it is important for the hospital management to evaluate routinely the handling of linen procedures.²¹

Sharps Injury Prevention. This result complies with Ramadhani et al. (2015),¹⁶ that none (0%) who disposing of infectious waste in a separate container with non infectious waste, also complies with the research done to nurses and midwives in PMI Bogor Hospital found as much as 77,8% of nurses who install back cover syringe.^{16,22} It is important for the health workers to comply with the procedures of waste and sharps management. This is in accordance with the opinion of Loveday *et al* who suggest that any use of sharps should be performed in accordance with procedures and even its use must be in accordance with the applicable rules. There are several conditions that have been regulated with regard to the use of sharps in the health service as follows: (1) any way to hold sharp objects must be performed properly and correctly; (2) the existence of education to every health workers of the importance of prudence in the use of sharp objects; (3) syringe that has been used is not supposed to be used again; (4) the hospital must evaluate each use of sharp objects in the health service.²¹

Instrument Sterilization. This result in accordance with the research performed Ramadhani et al. (2015),¹⁶ that 100% did not use thick gloves, aprons, protective goggles, and masks when cleaning instruments as well as doing no disinfection on dental unit after doing patient care.¹⁶

This is a reference in an effort to improve the quality of dental and oral health care. It is important to implement dental health hygiene standards which consist of sterilization standard of medical device maintenance, such as (a) a statement (prepare and sterilize dental instruments that will be used for treatment, sterilize and store the instruments after the performance); (b) rational (instrument is clean, sterile, stored in its place); (c) input criteria (the existence of non-critical, semi-critical and critical of dental instruments, as well as sterilizers, disinfectants materials and storage cabinets); (d) process criteria (wash and dry the non-critical, semi-critical and critical dental instruments, sterilize non-critical dental instruments by disinfectant, sterilizing boiled for semi critical dental instruments, sterilizing the critical dental instruments with autoclave, sterilization is repeated at least 2 weeks when not used, and organize then store non-critical, semi-critical and critical instruments in place in accordance with the terms of storage); and (e) output criteria (instrument is sterile and can be used, instruments are arranged neatly in place).¹⁹

Compliance Factors and the effect on the Implementation of Standard Precautions. **Attitude**, here the dental health workers have a good attitude towards patients in implementing standard precautions. This research is still relevant to Dejoy

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et al. (2000),²³ which conclude that there is a good relationship between the attitude of health workers towards patients and the implementation of standard precautions.

Knowledge, here the dental health workers with high of compliance level shows that they are influenced by the amount of information obtained or knowledge of standard precautions in their practices. In accordance with the opinion of Green et al. (1980),²⁴ which states that knowledge is one of the factors relating to the health behavior of a person, i.e. someone compliance on the implementation of nosocomial infection management program.

Contrains, here most of the six health workers have the view that the contrains in the workplace are low. This study is still relevant to Dejoy et al. (2000),²³ who said that the lower of obstacles perceived by medical health workers, the higher the compliance to standard precautions.

Leadership Support, in the implementation of standard precautions there are 33.33% of people who do not get support from the leaders. This proves that the implementation of standard precautions is still not fully supported by the leaders. Leaders sometimes give less motivation or less support to the subordinates so there are still the dental health workers who have not been compliant in implementing standard precautions. These results are consistent with the view of Dejoy et al. (2000),²³ who state that the organizational climate truly affects the individual's performance.

Availability of Facilities, from the findings on the field note, it is found that 61,11% of facilities are complete, while 38,89% answer incomplete. This leads to delays in the implementation of standard precautions in health care to the patients. As stated by Efstathiou (2011),²⁵ the number of nurses in Cyprus did not implement the standard precautions because the unavailability of PPE in their workplace.

Training, it is where the health workers who under go training especially on the standard precautions become more compliant in implementing standard precautions as compared to 51,85% who have never attended the training. Health workers who obtain new information in the training are likely to implement standard precautions compared to those who rarely attend the training. The results are consistent with the opinion of McGoven et al. (2000),²⁶ who state that the higher of information obtained from the training/education, the infection prevention behavior in the service of dentistry and oral health will be higher.

It is proved by the results of multiple correlation analysis of the seven supports above on the implementation of standard precautions which the value of r^2 is 0,983. When it is converted to a percentage, it can be seen that the effect of the seven supports on the implementation of standard precautions is in the very strong category and gives the relative contribution of 98,3%. From the percentage of the relative contribution, after hypothesis test is performed using F test, the result of F_{count} is 92,53 and after the

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consultation with F_{table} value, the F_{table} value is 1,50. Finally, it can be concluded that the $F_{count} > F_{table}$.

CONCLUSION

There were the dental health practitioners who were not honest in giving answers on questionnaires. There are the dental health practitioners still did not comply in implementing standard precautions. There is the influence between the compliance factors with the implementation of standard precautions.

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