

## Analysis of Patient Safety Management Implementation Towards the Occurrence of Post-Tooth Extraction Infection in Oral Surgery Clinic at RSGM IIK Bhakti Wiyata Kediri

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### ABSTRACT

The holy principles of pests and surgical principles are required when action is taken. Bacterial infection is one of the most common and most frequent complications. In the revocation action of RSGM IIK Bhakti Wiyata Kediri put patient safety as the main priority in health service. Post-tooth extraction infection may occur because the equipment and room are not sterile, the operator does not follow the existing SOP, inappropriate drug administration and the patient's own condition. The purpose of the study is to analyze the implementation of patient safety management on post-tooth extraction infection of Oral Surgery patients at RSGM IIK Bhakti Wiyata Kediri. Method used in this research is quantitative, Descriptive Observational as the process of data collection using Transversal Study design (Cross Sectional). The population of 112 person was taken at the oral surgery clinic of RSGMP IIK Bhakti Wiyata Kediri from 18 January to 18 February 2018. All the respondents were observed and examined from preparation of tooth extraxtion to control. The sampling technique used is Random Sampling by lottery technique By using Slovin formula, error rate of 2% obtained 107 samples. The result of multiple linear correlation analysis was obtained by equipment patient safety (0) ( $p\text{-value} = 0,000 < \alpha = 0,05$ ), place extraction patient safety (X2) ( $p\text{-value} = 0,000 < \alpha = 0,05$ ) ( $p = 0,401 > \alpha = 0,05$ ) post-extraction instruction (X4) ( $p = 0,007 < \alpha = 0,05$ ). There is significant influence of patient safety of equipment (X1), place extraction patient safety (X2 and tooth extraction instruction, while tooth-extraction operator (X3) ) ( $p\text{-value} = 0.401 > \alpha = 0.05$ ) had no significant effect on post-tooth extraction infection. R square value of 38,5%, means that the influence of the 4 variables is 38.5%, and the rest explained other variables that are not studied in this study. It is found that post-tooth extraction infection after the control is 17.8%. The most dominant influence is place extraction variable.

**Keywords:** place extraction patient safety, post-tooth extraction instruction, post-tooth extraction infection, tooth extraction equipment patient safety

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## INTRODUCTION

Dental and oral health is an integral part of other health services, it is in need of comprehensive health care facilities in the form of Dental and Mouth Hospital which is the center of referral, education and research. Dental Hospital and Mouth Education (RSGMP ) Institute of Health Sciences (IHK) Bhakti Wiyata Kediri was established as a means of education and training for IHK dentistry students.

In the initial survey conducted, the total number of patients RSGMP IHK Bhakti Wiyata in 2016 there are 2468 patients, the total patients unplug in Oral Surgery RSGMP IHK Bhakti Wiyata Kediri in 2016 amounted to 728 people. Average perforation of 2016 adult patients each month as many as 60 people, total patients withdraw the last 6 months (April-September 2017) 482 people. The average patient to pull the teeth last 6 months 80 people every month. The incidence of postpartum infection has never been studied / reported.

Tooth extraction is a tooth-removal process from the alveolus, where the tooth can no longer be treated (1). The most common complications in tooth extraction include bleeding, swelling, pain, dry socket, fracture and mandibular dislocation (2). The most frequent postpartum complications include infections that include alveolitis (dry socket), gingivitis, abscesses and osteomyelitis, and most commonly alveolitis (dry socket) (3,4)

In a study conducted in 2013 Priane, at RSGMP drg. Halimah Dg. Sikati FKG UNHAS showed data on the prevalence of complications due to tooth extraction: 16.8% crown fracture, 13.6% root fracture, 4% dry socket, 1.6% bleeding and 1.6% pain (Priana E, 2013). Dry socket is one of the complications that are often found after permanent tooth extraction. The incidence rate of dry socket reported in Indonesia reaches 0.5% to 5% after tooth extraction (Provincial Health Office, 2009).

Complications due to tooth extraction can occur due to several factors and vary also in terms of the resulting. Complications can be classified as intraoperative, (immediately after retraction) and long after retraction (Gordon, 2013).

Principles of pest circumstances (asepsis) and surgery principles are needed during tooth extractions. Bacterial infection is one of the complications that can occur in tooth extraction action. Pathogenic microorganisms in the former site of surgery may increase the risk of infection in the surgical area so that the healing process becomes delayed (1).

In-depth knowledge of dental extraction techniques is absolutely known in performing revocation, especially by surgery, in order to prevent or reduce the occurrence of unwanted side effects / complications. In addition, postoperative care is also an important thing for successful tooth extraction procedures performed successfully (2).

Patient Safety (patient safety) is the responsibility of all parties related to health care providers. Stakeholders have a responsibility to ensure that no action is harmful to the patient. Communities, patients, doctors, nurses, health workers, researchers, professionals, hospital accrediting agencies and governments have a shared responsibility for patient safety (8).

RSGM as a health service facility that provides individual oral and dental services for medical and rehabilitation services without neglecting health improvement and disease prevention services conducted through outpatient services, emergency and medic action (9). Patient safety is a top priority in health care and is the first critical step to improve the quality of service and related to the quality and image of the hospital (10).

Based on that, the researcher is interested to do research on Analysis of Patient Safety Management Implementation with Post-Disease Infection Infection in Patient Oral Surgery in RSGMP IHK Bhakti Wiyata Kediri

## RESEARCH HYPOTHESES

There is an influence between patient safety equipment, unplug, operator unplug and post-pull instructions on post-release infection.

## METODE

The type of research used is descriptive observational where researchers only make observations, without giving intervention on variables to be studied, the design is Cross Sectional. The purpose of this study to observe the relationship between risk factors with the consequences that occur in the form of disease or certain health conditions.

The population in this research is the patient unplug at the part of Oral Surgery of RSGM IIK Bhakti Wiyata on January 18 - February 18, 2018 amounted to 112 patients. The sample size of 107 is calculated by Slovin formula, with a 2% error rate.

## RESULTS

### a. Karakteristik patient safety

The result of identification of patient safety management implementation In RSGM IIK Bhakti Wiyata Kediri obtained result, Patient safety pulling equipment has been done 74,8%, Patient safety place of pull / cube has been executed 57,9%, Patient safety Operator Pull has been done 61,7% Post-pull instructions have been implemented 31.8%.

### b. Identify the occurrence of infection

Tabel. 4.16. Frequency distribution Characteristics Postpartum infection in postpartum patients in Oral Surgery Division RSGMP IIK Bhakti Wiyata 18 January - 18 February 2018

Karakteristik	N	f (%)
Post-extraction infection No Infection	88	82,2
Infection	19	17,8
Total	107	100,0

Sumber: Primary data of research in 2018

Identify the occurrence of infection in postpartum patients in the Oral Surgery Division RSGMP IIK Bhakti Wiyata Kediri, which did not occur 82.2% infection, the incidence of post-release infection of 17.8%.

### c. Cross tabulation

GENERAL DATA	TEST RESULT OF CHI SQUARE
Student status	p = 0,158
Age of Respondent	p = 0,209
Gender Respondents	p = 0,399
Status of APD Assistant	p = 0,000
Type of Teeth in the Revoke	p = 0, 049

## d. Influence simultaneously (F test)

Tabel 4.31 Results of multiple linear regression test of the effects of removal tool / apparatus unplug (X1), cabbage (X2), Operator pull (X3), Post-pull instruction (X4) on Post-Discharge Infection at Mouth Surgery Division RSGMP IIK Bhakti Wiyata 18 January- February 18, 2018.

ANOVA <sup>a</sup>					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13274,289	4	3318,572	16,140	,000 <sup>b</sup>
Residual	20972,440	102	205,612		
Total	34246,729	106			

Source: Primary data of research in 2018

With simultaneous multiple linear regression test (F test) there is significant influence between patient safety tool (X1), patient safety (X2), Patient Safety Operator (X3) and Post Pull Instruction (X4) (p-value = 0,000 ) with post-release infection. Meaning variable X.

## e. Partial influence (Test T)

Tabel 4.32 The result of multiple regression statistic test (T test) between tool / equipment variables (X1), cabbage (X2), Operator pull (X3), and Instructions on postpartum patient (X4) on Post-Discharge Infection in Surgical Section Mouth of RSGMP IIK Bhakti Wiyata dated 18 January- 18 February 2018.

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	246,837	33,449		7,305	,000
tools / equipment	-,577	,156	-,294	-3,691	,000
tempat cabut (kubical)	-,861	,214	-,347	-4,017	,000
Operator Cabut	-,082	,97	-,069	-,842	,401
Intruccion in postpartum patients	-,293	,107	-,226	-2,729	,007

Dependent Variable: Post-Retirement Infection

Source: Primary data of research in 2018

Tabel 4.36 Significant value of variable X

patient safety	p-value
patient safety equipment unplug	0,000
patient safety place unplug	0,000
patient safety operator unplug	0,401
Post-pull instructions	0,007

## f. The magnitude of effect of variable X

To find out the magnitude of the effect of variable Tool / equipment Revoke (X1), Place Catch (kubical) (X2), Operator Revoke (X3), Instructions In Postpartum (X4) Post Post Displacement in Mouth Surgery RSGMP IIK Bhakti Wiyata, multiple regression with SPSS output "Model Summary".

Tabel 4.30 The result of multiple regression statistic test is the influence of tool / equipment variables (X1), cabbage (X2), Operator Pull (X3), Instructions on postpartum patient (X4) on Post-Disease Infection at Mouth Surgery Division RSGMP IIK Bhakti Wiyata odtanggal 18 January-18 February 2018.

<b>Mel Summary<sup>b</sup></b>			
Model	R	R Square	Adjusted R Square
1	.621 <sup>a</sup>	.385	.361

Source: Primary data of research in 2018

R square value of 38.5%, meaning the influence of 4 variables is 38.8%, the remaining 61.2% described other variables that are not examined in this study.

- a. Predictors: (Constant), Instructions on Patient After Pull, Patient Safety Equipment / Equipment, Carrier Pullout, Cabbage (kubical)
- b. Dependent Variable: Post-Retirement Infection
- g. Dominant Influence

Tabel 4.35 Table of dominant influences of independent variables

N0	Variabel	Nilai Beta
1	Patient safety tempat cabut (kubikal) (X2)	-0,347
2	Patient safety peralatan cabut (X1)	-0,294
3	Instruksi pasca cabut (X4)	-0,226
4	Patient safetyoperator cabut (X3)	- 0,082

Signs - on the beta value indicates each has a meaning, every addition of 1 unit of X, it will decrease post-pull infection

## DISCUSSION

The result of identification of patient safety management implementation In RSGM IIK Bhakti Wiyata Kediri obtained result, Patient safety pulling equipment has been done 74,8%, Patient safety place of pull / cube has been executed 57,9%, Patient safety Operator Pull has been done 61,7% Post-pull instructions have been implemented 31.8%.

At the time of the control, 3-7 days after the patient's / respondent's removal was done with 10 signs of infection. If the examination at least there are signs no 3, 7 and 10, then considered an infection. Patients having postpart infection at least have signs of swelling of the gingiva, there are complaints of pain in the wound marks, and the sides of the mouth that there is no traces of scraping can be done to chew. Researchers do not categorize the infection including gingivitis, dry sockets, abscesses or osteomyelitis. Researchers just want to know the presence or absence of post-release infection at RSGM IIK Bhakti Wiyata Kediri. Previous researches usually only examine the number of dry socket events, because the signs are easily observable, whereas other types of infections, especially abscesses and osteomyelitis, require rongent investigation. While gingivitis has a mark and incorporated the process of wound healing, so it is sometimes ignored .. From the above mentioned reviews the study can not be compared with previous research, because the criteria are different.

Identify the occurrence of infection in postpartum patients in the Oral Surgery Division RSGMP IIK Bhakti Wiyata Kediri, which did not occur 82.2% infection, the incidence of post-release infection of 17.8%.

From the result of cross-tabulation of special data with post-extraction infection, the following data were obtained: there was no significant correlation between student status of

integration with post-release infection (Chi Square  $p$ -value = 0,158 > 0,05), age of respondent with post- Chi Square  $p$  = 0.209 > 0), between the sexes with postpartum infection (Chi Square  $p$  = 0.399 > 0.05). There was a significant correlation between APD status of assistant with postpartum infection (Chi Square  $p$  = 0,000 < 0,05), type of respondent's tooth removed with post-unpublished infection (Chi Square  $p$  = 0,049 < 0,05). While the status of APD Assistant and Teeth of respondents who were revoked based on chi square test  $p$  < 0.05, it means something to do with post-release infection.

Personal protective equipment is used by both the operator and the assistant unplug. The sacred principle of pest (asepsis) is required during surgical action. The awareness of the operator in using the complete PPE when revocation is enormous. All operators use full APD, but for the operator assistant as much as 43 (40.2%) do not use the complete APD. Generally they do not use handcuffs. Risk of infection can occur because the assistant helps the operator pick up tools and unplug materials, turn off and turn on the dental lights, adjust the height of the dental unit and insert anesthesia into the syringe. Through a device or material transferred to the operator of pathogenic microorganisms may enter the retard wound and may increase the risk of infection in the area of operation, so that the healing process becomes delayed (8).

Respondent's teeth were revoked, it turns out tooth 13 (Caninus jaw above right) from as many as 9 respondents who were revoked, there were 6 patients that happened infection. Caninus teeth have long roots compared to other teeth. Students of integration who do extraction of teeth with long roots rather difficult, and usually require a long repeal time, and a rather large wound. This is what increases the risk of infection.

With simultaneous multiple linear regression test (F test) there is significant influence between patient safety tool (X1), patient safety (X2), Patient Safety Opetator (X3) and Post Pull Instruction (X4) ( $p$ -value = 0,000 ) with post-release infection. This means that the variable X together has a significant influence with post-release infection.

The result of partial linear correlation analysis partially (T test) got patient safety equipment pull (X1) ( $p$ -value = 0,000 <  $\alpha$  = 0,05), patient safety place pull (X2) ( $p$ -value = 0,000 <  $\alpha$  = 0,05), patient safety operator pull (X3) ( $p$ -value = 0,401 >  $\alpha$  = 0,05) post pull instruction (X4) ( $p$  = 0,007 <  $\alpha$  = 0,05) so there is significant influence patient safety (P3) ( $p$ -value = 0.401 >  $\alpha$  = 0.05) did not significantly influence the postpartum infection.

Value of square equal to 38.5%, meaning the influence of 4 variables is 38.8%, the remaining 61.2% described other variables that are not examined in this study.

Found post-release infection when the control of 17.8%. Considered an infection if found at least 3 signs during the control on days 3-7 are swelling, pain and fungtiolaesia.

The most dominant influence is the variable patient safety where the pull. Because the cubical / unplug is where the action is done. The dental surface of the unit can be the accumulation of infectious material through splashes of saliva and blood. All vulnerable surfaces are contaminated with body fluids, or other infectious material including light switches and dental control units should be coated with a single-layer waterproof layer (10). In RSGM bhakti wiyata kediri there are 3 practice sessions Integration students. Pause between sessions 10 minutes. Each patient's turnover of the protective layer is replaced and the dental surface of the unit is cleaned with disinfectant. Trash is dumped in large trash bins according to the type. Table dental unit needs to be changed by tablecloth. Light switch, low dental unit, hand piece, cuspidor need to be disinfected at intervals. Pause time between sessions needs to be added so that disinfection process in cubic can be done with the correct procedure. Need to add assistant operator unplug 2 people, one assistant part of the transfer tool and one more assistant section set high low dental unit and lamp. Cleaning service workers need to be added so that the cubical can be cleaned, because with the number of dental units that are not enough may not reach the overall cubical safety (11).

SOP for the operator of the pull should be the attention of the instructor in fostering and guiding the integration students while performing extraction / retraction. It is expected that operators and assistants to remind each other about the completeness of SOPs that must be met. Finish the operator take the pull action, then the next step is to give instructions will be things that may or may not be done patients after repeal. It is intended that the patient is able to maintain oral hygiene, so that the healing process is fast and no infection occurs. Instructions after tooth extraction are instructions on what should be done and avoided after tooth extraction aimed at preventing disruption of the wound healing process and possible complications . Patients are required to know and follow the

instructions after tooth extraction, in order to avoid possible complications after removal and disruption of wound healing (12). It is expected that college students as operators of the exit implement instructions to patients completely.

## CONCLUSION

1. Identify the implementation of patient safety management In RSGM IIK Bhakti Wiyata Kediri Patient safety equipment has been unveiled 74.8%..

Patient safety where the pull / cubical has been implemented 57.9%.

Patient safety Operator Cabuts is carried out 61.7%

Post-pull instruction has been implemented 31.8%

2. Identify the occurrence of infection in postpartum patients in the mouth Surgery Mouth RSGMP IIK Bhakti Wiyata Kediri: Which does not occur 82.2% infection, the incidence rate of post-release infection of 17.8%

3. Analysis of patient safety management implementation with the occurrence of post-release infection

- a. From the result of cross-tabulation of special data with post-release infection, it is produced
  - 1) There is no significant correlation between student status of integration with postpartum infection (Chi Square p-value = 0,158 > 0,05), age of respondent with post-release infection (Chi Square p-value = 0,209 > 0,05), type sex with post-release infection (Chi Square p-value = 0.399 > 0.05)
  - 2) There was a significant correlation between APD status of assistant with postpartum infection (Chi Square p = 0,000 < 0,05) type of respondent's teeth revoked with post-release infection (Chi Square p = 0,049 < 0,05)
- b. Simultaneously there is a significant influence between patient safety tool unplug (X1), patient safety place pull (X2), Patient Safety Operator (X3) and Post Pull Instruction (X4) (p-value = 0,000).
- c. Patient safety equipment / equipment (X1), patient safety place / cubic (X2), patient safety Pediatric safety operator (X3) and post-pull instruction (X4) effect on post disposal infection of 38.5% and the rest is 61.5 % explained other variables not studied in this research
- d. Patient safety place / cubical has the most dominant influence on the occurrence of post-exit infection compared with 4 other variables
- e. Partially
- f. There was a significant influence between the patient safety of the removal equipment on the occurrence of postpartum infection (p = 0,000 < 0.05), place / cubic on the occurrence of postpartal infection (p = 0,000 < 0.05) Post-pull instruction on the occurrence of post- p = 0.007 < 0.05). Patient safety The unplug operator has no significant effect on the occurrence of postpartal infection (p = 0,401 > 0,05)

For the management of Oral Surgery RSGM IIK

1. It is expected that with the results of this study into input materials in improving the quality of service at RSGM, especially patient safety Mouth Surgery section associated with post-release infection
2. Should be able to evaluate the patient safety post unplug
3. Need to increase the safety of place / cubical, because the most dominant effect on the occurrence of post-exit infection compared to 3 other variables
4. Instructors unplug (dentist on duty) in the oral surgery should pay more attention to the patient safety student integration who perform actions pull
5. Assistant of the unplug operator should have 2 persons
6. It is necessary to apply the reporting system in case of post-release infection
7. Should apply the patient safety standard in RSGM, especially the oral surgery section

For students of FKG IIK integration:

1. As the execution of revocation should pay more attention to standard patient safety, so that post-pull infection can be minimized
2. Should improve skills about the correct teeth extraction techniques

For other researchers:

1. Need to do further research about other factors that influence the occurrence of post-extraction infection, because there are still causes of other factors of 61.5%
2. It is expected to conduct further research with a broader scope of patient safety with the occurrence of post-release infection with different designs

## DAFTAR PUSTAKA

Gordon, P. W. (2013). Buku Ajar Praktis Bedah Mulut (4th ed ). Jakarta. EGC. p. 36-44. 93-100.

Candra, H. M. (2014). Buku Petunjuk Praktis Pencabutan Gigi (1st ed). Makasar. Sagung Seto.

Tetsch, P. & Wagner, W. (1992). Pencabutan Gigi Molar ketiga ( Operative Extraction of Wisdom Teeth), edisi 1. EGC. Jakarta.

Greendwood, M. & Corbelt, I. (2014). Kedaruratan Dental (Dental Emergencies). EGC. Jakarta.

Priane, E. (2013). Prevalensi Komplikasi Gigi di RSGMP drg. Halimah, dg Sikati, FKG Unhas, Universitas Hasanudin, Makasar.

Dinkes Provinsi Kalsel. (2009). Laporan Hasil Riset Kesehatan Dasar Provinsi Kalimantan Selatan tahun 2007, Dinkes Provinsi Kalsel, Banjarmasin.

Howe, L. Geoffrey. (1971). Minor Oral Surgery (2 nd ed). John wright and Son, London, p 41-45.

Ballard, K. A. (2003). Patient Safety. A Shared Responsibility. On line Journal of Issue in Nursing, volume 2, no. 3.

Peraturan Menteri Kesehatan Republik Indonesia Nomor 1173/Menkes/Per/2004/ Tentang Rumah Sakit Gigi dan Mulut.

Lugito Manuel D. H. (2013). Kontrol infeksi dan keselamatan Kerja dalam Praktek Kedokteran Gigi, Jurnal PDGI.

The Dental Council. (2005). Code of Practice Relating to infection control in Dentistry, p 2-29. Available from URI:[http://www.dentalcouncil.ie/files/infection-control .pdf](http://www.dentalcouncil.ie/files/infection-control.pdf).accessedMay,20,1010.

Pedersen., & Gordon, W. (1996). Buku Ajar Praktis Bedah Mulut, Jakarta. EGC. p28-32.