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Correlation of Knowledge and Training with the Implementation of Standard Operational Procedure (SOP) of Quality Control for Glucosemeter

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Abstract **- Glucosemeter is widely used as a tool for monitoring glucose levels in Diabetes mellitus patients. To ensure the accuracy and precision of the examination results, a Standard Operational Procedure (SOP) of Quality Control (QC) for glucosemeter is required. The implementation of SOP of QC for glucosemeter is related to the level of knowledge and training that medical laboratory technologies has attended. Currently, all primary health care in Palembang City have used this tool but it is not yet known how the SOP QC glucometer is applied. Purpose: to determine the correlation of knowledge and training with the implementation of SOP of QC for glucosemeter. Methods: analytic research with cross sectional approach. The number of respondents was 41 medical laboratory technologies personnel who were taken by total sampling. Results: There were 25 (61%) respondents who did not implementation of SOP of QC for glucosemeter, 21 (51.2%) respondents with a good knowledge level and 27 (65.9%) respondents who had never attended QC glucosemeter training. There is no correlation of knowledge with the implementation of SOP of QC for glucosemeter (p value = 0.44). There is no correlation of training with the implementation of SOP of QC for glucosemeter (p value = 0.75). Conclusion: There is no correlation of knowledge and training with the implementation of SOP of QC for glucosemeter. Suggestion : ATLM is advised to open training and provide education for officers to continue to increase knowledge, especially about the dangers that can arise when working without SOPs and increase awareness to work according to SOPs.**

Keywords: Knowledge, training, SOP, QC, glucosemeter.

I. INTRODUCTION

To ensure the accuracy and precision of laboratory examination results, laboratory quality assurance activities must be carried out. Laboratory quality consolidation activities to monitor the quality of public health center laboratory examination procedures are carried out through *Quality Control* (QC) examinations. QC is an analytical step to meet the standard of accuracy and precision of laboratory examination results. [1] The use of a glucosemeter to determine glucose levels must work on control materials so that the accuracy and precision of each test can be monitored and its validation is guaranteed. Therefore, in the operation of laboratory services, it is always necessary to have a guide as a guide for officers to reduce the risk of errors in examination results.

In carrying out its services, laboratory personnel need to follow established work procedures, especially when handling patient samples. This is important to ensure the safety of the laboratory personnel. This procedure is usually outlined in the form of a *Standard Operating Procedure*, which is abbreviated as SOP [2]. SOPs are a series of instructions that describe documenting activities that are carried out repeatedly in an organization so that the results are in accordance with the expected conditions. [3] In addition, SOPs can also provide convenience to health workers in carrying out their duties so that they can provide quality and quality health services, as well as avoiding the risk of being

exposed or contracting diseases. Knowledge and training are important things that health workers must have in implementing these SOPs, so that they no longer underestimate every applicable SOP [1].[2]. Knowledge plays an important role in influencing someone to adopt work so that someone must know in advance what the benefits of work are for him or others [4].

From the survey that has been conducted, all laboratories at the Palembang City Public Health Center have a glucosemeter to handle Diabetes Mellitus patients. However, there are still many who have not implemented Quality Control SOPs so this is a crucial problem because it will affect the accuracy and precision of the examination results. Based on this background, this paper was written to determine the between knowledge and training and the application of the QC glucosemeter SOP.

II. METHODS

This type of research is analytic with a cross-sectional study design. The data source used is primary data obtained from the questionnaire results. The population in this study were 41 medical laboratory technologies in the working area of PublicHealth center in Palembang city. Samples were taken by total sampling.

Data analysis used univariate and bivariate analysis, namely describing knowledge and training in applying the SOP QC glucosemeter tabulated form. The correlation between the two variables was tested statistically with the Chi Square test.

III. RESULTS

Table 1. Characteristics of Respondents

Characteristics of Respondents	Frequency (F)	Percentage (%)
Age (years)		
<=30	17	41.5
31-44	19	46.3
>=45	5	12.2
total	41	100
Gender		
Male	3	7.3
Female	38	92.7
total	41	100
Education		
D3 Health Analyst	40	97.5
D4 Health Analyst	1	2.5
total	41	100

From table 1 above, it can be seen that the age of the largest respondents is in the age range 31-44 years (46.3%). The number of male respondents was less (7.3%) than female (92.7%). and almost all respondents (97.5%) graduated from Diploma Three in Health Analyst

Table 2. Frequencysthe implementation of SOP of QC for glucosemeter

The implementation of SOP of QC for glucosemeter	Frequency (F)	Percentage (%)
yes	16	39
no	25	61
total	41	100

Based on table 2 of 41 respondents in this study, it was found that 16 (39%) respondents the implementation of SOP of QC for glucosemeter and 25 (61%) respondents who did not the implementation of SOP of QC for glucosemeter.

Table 3. Frequencysof knowledge of QC for glucosemeter

knowledge of QC for glucosemeter	Frequency (F)	Percentage (%)
bad	20	48.8
good	21	51.2
total	41	100

From table 3, it can be seen that the level of knowledge of the respondents tends to be the same, namely as many as 20 (48.8%) respondents with bad knowledge and 21 (51.2%) respondents with good knowledge.

Table 4. Frequencys of training of QC for glucosemeter

Training of QC for glucosemeter	Frequency (F)	Percentage (%)
ever attended	14	34.1
never attended	27	65.9
total	41	100

From table 4, it can be seen that there are 14 (34.1%) respondents who have attended QC Glucosemeter training and 27 (65.9%) respondents have never attended POCT QC training.

Table 5. Correlation of knowledge with the implementation of SOP of QC for glucosemeter

Knowledge of QC for glucosemeter	The implementation of SOP of QC for glucosemeter				Total	%	p value
	yes		no				
	n	%	n	%			
Bad	9	45	11	55	20	100	0,44
Good	7	33.3	14	66.7	21	100	
Total	15	39	25	61	41	100	

Table 5 shows that of the 20 respondents who had bad knowledge who did not the implementation of SOP of QC for glucosemeter there were 9 people (45%) and 11 people who had good knowledge (55%). Meanwhile, of the 21 people who had good knowledge, 7 (33.3%) the implementation of SOP of QC for glucosemeter and 14 (66.7%) did not the implementation of SOP of QC for glucosemeter. Based on the statistical test, the value of p = 0.44 was obtained, so it can be concluded that there is no correlation between knowledge and the implementation of SOP of QC for glucosemeter.

Table 6. Correlation of training with the implementation of SOP of QC for glucosemeter

Training of QC for glucosemeter	The implementation of SOP of QC for glucosemeter				Total	%	p value
	yes		no				
	n	%	n	%			
ever attended	5	35.7	9	64.3	14	100	0.75
never attended	11	40.7	16	59.3	27	100	
total	16	39	25	61	41	100	

Table 6 shows that of the 14 respondents who had attended the glucometer QC training, there were 5 people (3.7%) who the implementation of SOP of QC for glucosemeter and 9 people (64.3%) who did not the implementation of SOP of QC for glucosemeter. Meanwhile, of the 27 respondents who had attended the glucometer QC training, 11 (40.7%) had the implementation of SOP of QC for glucosemeter and 16 (59.3%) did not the implementation of SOP of QC for glucosemeter. Based on the statistical test, the p value was obtained = 0.75, so it can be concluded that there is no correlation between training and the implementation of SOP of QC for glucosemeter.

IV. DISCUSSION

The results of this study indicate that knowledge does not correlation with the implementation of SOP of QC for glucosemeter. This research is in line with that conducted by Suci Rizkika, who stated that there is no relationship between the knowledge of the Clinical Pathology laboratory staff on the application of SOPs for the Management of Infectious Materials at Arifin Ahmad Hospital, Riau Province. This can happen because officers are busy with their routines so that they do not have enough time to read and increase knowledge, besides that no officer has ever attended training on SOPs, so their knowledge of the importance of implementing SOPs while working is still lacking.

However, this study is not in line with the results of Musdalifah HS's (2018) research which states that the higher the knowledge, the better ATLM compliance in applying Standard Operating Procedures (SPO) for handling sputum specimens. Other research conducted by Rosliana Hardiyanti also shows that there is a relationship between the knowledge of posyandu cadres with the level of accuracy and precision of weighing results for toddlers at the posyandu.

Many factors influence a person's level of knowledge, including length of work, education, information, economy, experience and environment [3]. Knowledge serves as a basic driving factor for a person to want to know, to seek reasoning, and to organize his experiences. Knowledge as a result of the learning process is greatly influenced by time since obtaining exposure. Knowledge will be stored for a long time in memory if it is repeated by recalling it when needed [5]. Laboratory staff who have good knowledge have the opportunity to apply the SOP QC to the glucometer in the laboratory examination process. The better the knowledge of the laboratory staff, the better the results of glucose testing with a glucometer [6].

The results of this study also indicate that the training is not related to the implementation of SOP of QC for glucosemeter. This research is not in line with Dwi Agustina's research which states that there is a relationship between training for pulmonary TB laboratory personnel at the Puskesmas and the error rate of sputum examination results for pulmonary TB suspects in Lahat Regency in 2019 [7]. [8].

But these results are in line with the results of Devayan's research which states that training status has no relationship with reading errors of laboratory examination results in suspected tuberculosis and the error rate value in Simeulue Regency in 2018 [9].

There is no relationship between training and the application of this SOP. This can be possible because even though the officers have attended training, the training that is followed is not often enough, namely only once, in a short time and even then it is not about quality control of laboratory examination results but only training on how to use it. glucosemeter only. In

addition, after receiving training, they have never been retrained as an effort to refresh their knowledge. Good knowledge, supported by frequent training frequencies, will further increase the compliance of officers in implementing SOP QC glucosemeter.

V. CONCLUSION

There is no relationship between knowledge and the application of SOP QC glucometer (p value = 0.44). There is no relationship between training and the application of SOP QC glucometer (p value = 0.75)

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