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### Model of the utilization of discipline and quality ethical subcomites to improve knowledge in radiographers' professionalism (study of the role and function of the radiographer's sub-committee in RSUD Prof. Dr. Margono Soekarjo Purwokerto)

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#### ABSTRACT

On the medical support committee, RSUD Prof. Dr. Margono Soekarjo Purwokerto sub-committee on ethics of discipline has no guidelines in disciplining and guiding the ethics of the radiographer profession. In the professional quality sub-committee there are also no guidelines in the flow of incident reporting that are not expected to be related to the quality of radiographers' services. This is the background for research on the use of the disciplinary ethics subcommittee and the quality of the radiographer. The purpose of this study is to develop a model for the use of the discipline and quality ethics subcommittee and analyze the feasibility and effectiveness to increase knowledge in the professionalism of radiographers.

This research uses the Research and Development (R&D) method, to create a model for the utilization of the disciplinary ethics subcommittee and the quality of the radiographer. Using a one group pre-post test research design without a control group. The research subjects consisted of 33 radiographers from RSUD Prof. Dr. Margono Soekarjo Purwokerto. Data collection in the form of research questionnaire with Guttman scale questions. Data analysis techniques are using the analysis of Wilcoxon Signed Rank Test data.

The results showed that the module is very feasible to increase knowledge in radiographers' professionalism with a feasibility percentage of 87.5%, while the model is feasible to increase knowledge in professionalism of radiographers with an Aiken V coefficient value of 0.95, and the model is also effective in increasing knowledge in radiographers' professionalism by p value of 0,000.

**Keywords:** Model for the utilization of a discipline and quality ethics subcommittee, Knowledge, Radiographers' Professionalism

#### INTRODUCTION

Radiographers are health workers who are given the task, authority and responsibility to carry out radiographic and imaging activities in the health service unit, [1] as well as a health professional on

diagnostic imaging technology that has been trained in higher education institutions and works with sophisticated technology for X-ray examination., CT (computed tomography) examination, MRI (magnetic resonance imaging) examination and produce medical images that can

help the radiologist in establishing the diagnosis. In some special diagnostic imaging techniques, radiographers carry out radiation therapist and medical dosimetric activities in radiology services, [2] so that the public wants an increase in the quality of radiology services.

Health services are carried out by various health professions that synergize with each other, work together in carrying out their roles and functions, so that the quality of service is always improved, maintained, and can guarantee and protect patient safety, so that according to Presidential Regulation Number 77 Year 2015 the director as head of the hospital is in accordance with his function in Establishing hospital organization policies, it is necessary to have a committee which is a forum for various health professionals in non-structural organizations [3] .

Committees of health workers in hospitals have a role in upholding professionalism and functioning in carrying out credentials, maintaining quality, competence, ethics, behavior and taking disciplinary action for health workers, through the implementation of good clinical governance so as to maintain a culture of accountable professionalism [3-5]. The professionalism of health workers must always be improved by applying new technologies and new clinical knowledge in accordance with the development and improvement of health services and professional practices that are continuous, ethical and behavior, responsible for patients, the profession, and the community, [6] and increasing knowledge and skills [7, 8].

Other health workers 'committees in the radiographers' profession are carrying out their duties assisted by three sub-committees, consisting of credentials, ethical discipline and professional quality. Credential sub committees in the radiographers profession have a role and function as protectors of patient safety by ensuring that in conducting radiology services in a professional and accountable manner, having clinical authority, and maintaining their reputation and credibility. The professional discipline ethics subcommittee has a role and function in providing services carried out in accordance with the requirements and standards, as well as maintaining and improving the quality of professionalism. Professional quality sub committees have a role and function in maintaining professional quality; the services are carried out in a quality, competent manner [10].

Preliminary study at RSUD Prof. Dr. Margono Soekarjo Purwokerto, there are three committees namely medical, nursing and medical support. The medical support committee consists of clusters of other professional health workers who have the main task of increasing professionalism, as well as having the role and function of carrying out credentials, maintaining the quality of the profession, as well as maintaining ethical discipline, the behavior of the medical support professional profession and the radiographer profession including one in it.

Other health workers' committees named medical support committees in the implementation of activities do not yet have work programs and only refer to the job descriptions of each subcommittee, credentials, ethical discipline and professional quality. For radiographers' credentials, there are two radiographers who previously worked in radio diagnostic services by management rotated to radiotherapy services and immediately performed services without re-credentials related to their competence in radiotherapy services. While related to disciplinary ethics there are no rules or standard operating procedures as a reference in disciplining and guiding professional ethics of radiographers such as negligence in carrying out services that are not in accordance with the code of ethics, radiographer profession standards, and operational procedures for radiology services.

In this regard, organizing guidelines for implementing activities require a work program to establish implementation steps, direct and act as starting points for the process of controlling activities, [9] furthermore, planning for needs and placement of radiographers in hospitals must also consider competency factors, [6] through the process credentials to obtain clinical authority with clinical assignments from the director in conducting radiology services, [10] which must be in accordance with the code of ethics, radiographers' professional standards, radiology services and operational procedures, as well as providing work information and respecting patient rights [11, 12].

Researchers can strive to overcome existing problems by training professional radiographers through learning models for the use of discipline and quality subcommittees in the development of human resources through a training process to

increase knowledge, abilities and skills specifically, in increasing professionalism [13].

Professional radiographers' competence in the future places more emphasis on the education system and continuous quality improvement in clinical practice to make competent radiographers contained in the knowledge component and relate to patient performance and safety [14]. Radiographers will apply their combined knowledge and learning strategies with critical thinking and encouraging independent and accountable professional radiographers [15]. Radiographers' knowledge of disciplinary ethics and professional quality is expected to provide radiology services according to the requirements and standards, which do quality, competent, ethical and professionally and provide the principle of justice for radiographers [10].

## **MATERIALS AND METHODS**

This study uses the Research and Development (R & D) method, which aims to create a model for the use of a discipline and quality ethics subcommittee in enhancing radiographers knowledge. This research was conducted at RSUD Prof. Dr. Margono Soekarjo Purwokerto with 33 research subjects as radiographers

This method can be accounted for by the research process in developing a new product and perfecting existing products [16]. Research and development procedures include 5 main steps, including: data collection, product design or model, expert validation and revisions, product or model trials and product or model results [17, 18].

### **Data collection**

Includes needs analysis by identifying and analyzing problems in the discipline and quality ethics subcommittee through efforts to:

- a. Methods of observation and interviews with hospital management, chair of the medical support committee, discipline ethics subcommittee, professional quality subcommittee, radiographers, and professional organizations of the Indonesian Radiographers Association (PARI).
- b. Literature study is conducted to support the data or information obtained.
- c. The results of the data are used as a reference in making models for the use of the discipline and quality ethics subcommittee.

### **Model design**

The results of the data collection were used to design a model for the use of the discipline and quality subcommittee to improve knowledge in radiographer professionalism with modification and replication of Willian N. Dunn's 2015 policy analysis, which includes problem structuring, forecasting, prescription, monitoring and evaluation [19].

### **Expert validation and revision**

The validation test of the design of the model for the use of the discipline and quality ethics subcommittee was carried out by experts aiming to test the feasibility of the model before it was used on radiographers. The test was carried out by a total of 3 people consisting of expert radiographers in the field of radiology, including practitioners, professional organizations of the Indonesian Radiographers Association (PARI) and resource persons who often followed material about other health workforce committees. Data collection techniques have done by distributing questionnaires, then revising the use of the utilization model subcommittee on ethics of discipline and quality.

Expert validation and revision tests were carried out for the effectiveness of the model with Aiken's V coefficient [20] and using the percentage scale Arikunto, 2006 [21] to determine the module's feasibility.

## **TEST MODEL**

### **Research design**

The design of this study used quasi-experimental research (quasi experimental design) with one group pre-posttest design without a control group [22]. This design is used to analyze the effectiveness of the discipline and quality ethics subcommittee utilization model for enhancing radiographers' knowledge. To calculate the Guttman Scale property, we must find the error value of each of the research questionnaire questions. Error obtained from the score of questions that are not in line with expectations. The Guttman scale is highly dependent on the level of difficulty of items by identifying the level of difficulty of items that is sorted according to the level of difficulty theoretically [23, 24]. The validity test of the Guttman scale research

questionnaire was carried out using the formula of reproducibility coefficient and scalability coefficient. The instrument reliability test in conducting this research was carried out as an effort to measure the level of consistency in the data collection instruments in the form of research questionnaires and to be reliable when used repeatedly. The reliability test on the instruments in this study used the Kuder-Richardson20 formula [25] A difference test was performed between two groups of pairs for the measurement scale of the ordinal variable using the non-parametric Wilcoxon signed rank test [26].

### **Implementation of disciplinary and quality ethics subcommittee utilization models**

Measurement of radiographers' knowledge related to discipline ethics subcommittee policies and pre-test quality. Implement the learning model on the use of the discipline and quality subcommittee by training modules. Measurement of radiographers' knowledge related to the disciplinary ethics subcommittee policy and the quality of the post-test.

### **Product or model results**

The resulting model is a model for the utilization of the discipline and quality ethics subcommittee.

## **RESULTS AND DISCUSSION**

In the analysis of information needs of existing problems in the discipline and quality ethics subcommittee at RSUD Prof. Dr. Margono Soekarjo Purwokerto, the observation of the absence of professional behavior guidelines for health workers and guidelines for violations of discipline of health workers that apply. In its implementation activities, the roles and functions of the disciplinary ethics and professional subcommittee have not monitored the implementation of performance, monitoring the quality of services and efforts to discipline professional behavior.

In the interview results obtained information that the formation of disciplinary and quality ethics subcommittee on the support committee has not been followed by work programs and hospital management policies that have not been socialized, radiographers do not understand the ethical ethics subcommittee and professional quality, the role and function of the subcommittee has not gone well.

Broadly speaking, disciplinary violations involve the implementation of incompetence, neglect in professional duties and responsibilities towards patients and behave in a disgraceful manner that damages the martabak and honor of the profession, so that the disciplinary committee or assembly that handles in his profession is tasked with: receiving complaints, examining, and deciding cases of disciplinary violations and formulate guidelines and procedure for handling. Someone profession in a case of disciplinary infringement can be declared innocent or guilty, which then carried out disciplinary sanctions. Disciplinary sanctions can be in the form of: giving written warnings, recommendation to revoke registration certificate or license to practice, and or obligation to attend education or training [27].

Audits on health services aim to improve the quality and standardization of services carried out through the design of audits in their implementation with the following steps: selection of topics to be audited, setting standards and criteria, determining the number of cases to be audited, comparing standards / criteria with service standards, conduct case analysis that is not in accordance with the standards / criteria, corrective actions, re-audit plan [28].

The results of information gathering are used to design a model for the utilization of the discipline and quality ethics subcommittee carried out by developing a modified and replicating model of Willian N. Dunn policy analysis, 2015, covering problem structuring, forecasting, prescription, monitoring and evaluation [19].

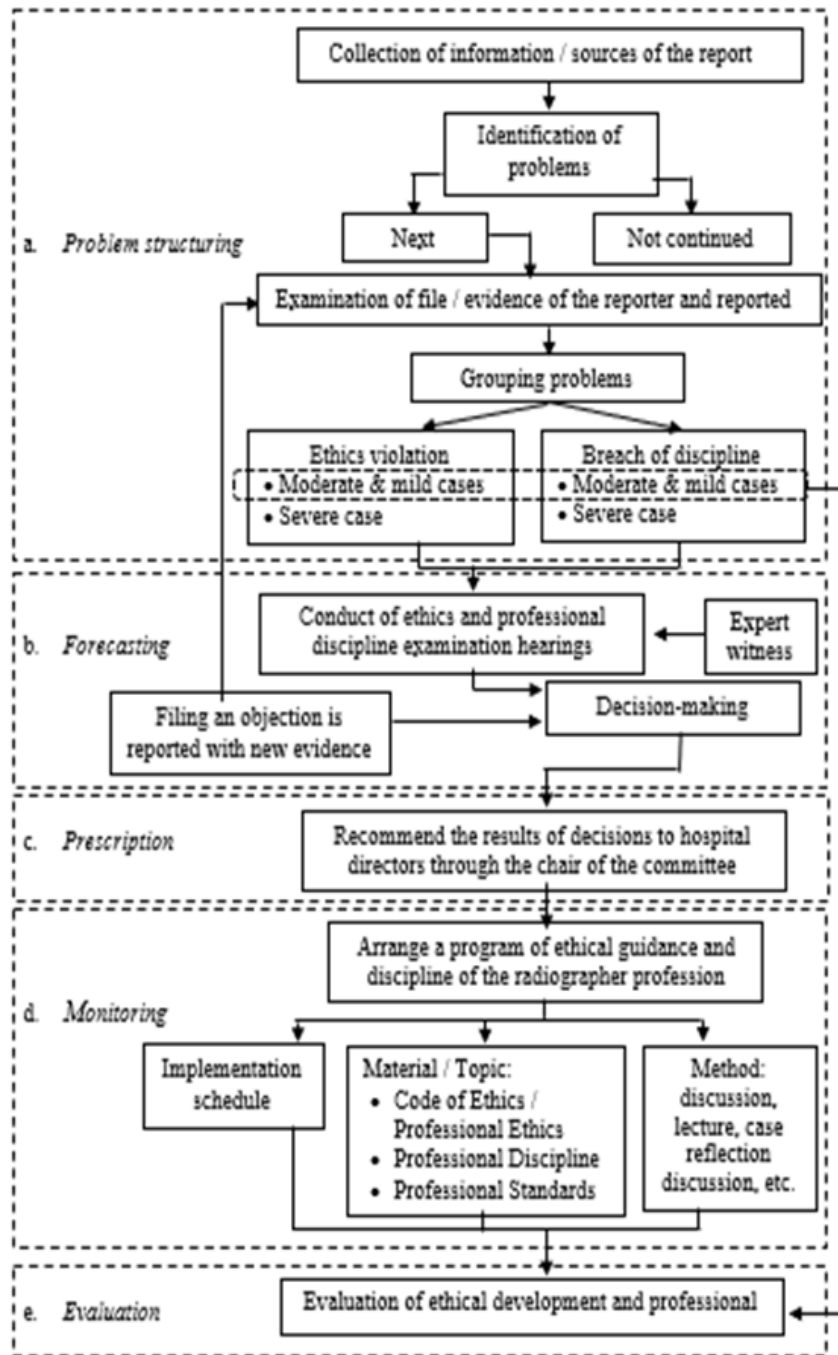
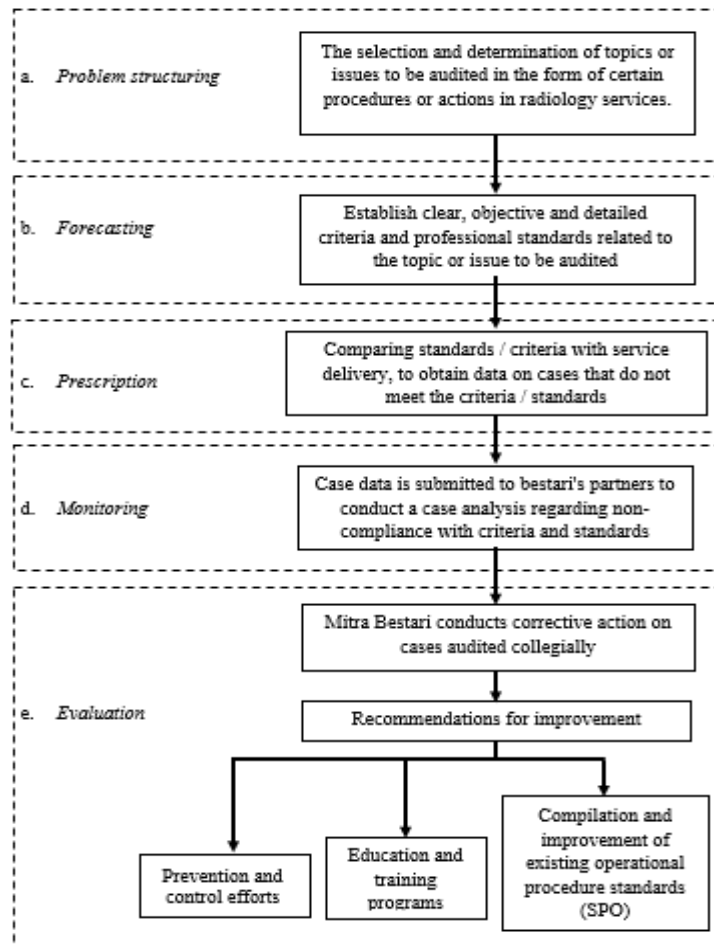


Figure 1. Flowchart for developing a model for the use of an ethical subcommittee and modified radiographers discipline and replication of policy analysis



**Figure 2. Flowchart for developing a model for utilizing modified radiographers' quality subcommittees and replicating policy analysis**

Furthermore, the design model for the use of the disciplinary ethics sub-committee and the quality of the radiographers was validated and revised by 3 experts, the first was a program and policy planning expert (the head of medical support in a hospital, the head of the professional development and cadre formation at the Indonesian Radiographers Association), second is a health

book drafting expert (head of education and training at the Indonesian Association of Radiographers, compiler of radiographers' credential books), the third is a health care expert (chair of the submission of another health workforce committee at a hospital, competency assessor at the National Professional Certification Board).

**Table1. The results of expert validation related to the content / contents of the disciplinary ethics utilization model and radiographer quality**

No.	Assessment aspects	Indicator	Expert validator			Score	Validity coefficient
			1	2	3		
1	Hint / guide	1	4	3	4	11	.89
	Display aspect	2	4	4	3	11	.89
2	The purpose of the utilization model	3	4	4	4	12	1,00
3	Fill in the material	4	4	4	4	12	1,00
4	Method efficiency	5	4	3	4	11	.89
5	The usefulness of the method	6	4	4	4	12	1,00
Total			24	22	23		

Aiken's coefficients range from 0-1, for content validity test items of 0.89 (item 1), 0.89 (Item 2), 1.00 (Item 3), 1.00 (item 4), 0, 89 (item 9), 1.00 (item 10), while the average has a score of 0.95 so it can be said that the instrument used has high validity above 0.30 [29]. The result of expert

validity shows that the validity value is above 0.30 which means that the ethical and disciplinary subcommittee utilization model and quality are feasible as an effort to increase knowledge in radiographer professionalism.

**Table2. The results of the expert validation are related to the module for the use of the discipline ethics subcommittee and the quality of the radiographer**

No.	Assessment aspects	Expert validator			That score observed	That score expected	Percentage Appropriateness (%)
		1	2	3			
1	Media quality and attractiveness	4	3	4	11	12	91.67
2	Layout	4	3	4	11	12	91.67
3	Color match	4	3	3	10	12	83.3
4	Language	4	3	4	11	12	91.67
Total number					42	48	87.5

The result of expert validity shows that the percentage score = 87.5%, based on the percentage scale of Arikunto eligibility, 2006 [21] means that the module for the use of the ethical and disciplinary subcommittee and quality is very appropriate as a guideline for increasing knowledge and attitudes in radiographers professionalism.

The 33 radiographers' answers to the research questionnaire question resulted in a total error of 84 and hence the error value was used in the formula for reproducibility coefficient and scalability coefficient.

From the results of calculations using the formula of reproducibility coefficient obtained a value of 0.9152, it can be concluded that the research questionnaire instrument with the guttman scale used in this study has an appropriate accuracy, because the magnitude of the value obtained above the conditions of acceptance of the reproducibility coefficient value of  $> 0,90$

From the results of calculations using the scalability coefficient formula obtained value of 0.8269 then it can be concluded that the amount of value obtained above the conditions of acceptance of the scalability coefficient value of  $> 0.60$ , this can be interpreted as an error value that appears on the results of the scalability coefficient can be tolerated or does not have a significant effect on the accuracy of instrument measurements.

The results of the analysis conducted on the two coefficients mentioned above, namely the

reproducibility coefficient has shown the appropriate degree of accuracy and the scalability coefficient shows that the error value can also be tolerated so that the conclusion of the research questionnaire instrument that has been used in this study is guaranteed validity

Based on the calculation of the reliability value using the Kuder Richardson20 formula above, a value of 0.7327 is obtained. After the value is adjusted to the range of reliability categories that have been stated by Guilford, it can be concluded that the research questionnaire instrument used in this study can be categorized as high reliability, so based on that data collection instrument in the form of a research questionnaire is declared reliable.

Product trials or models for the use of disciplinary ethics subcommittee and radiographers' quality were carried out on 33 radiographers at RSUD Prof. Dr. Margono Soekarjo Purwokerto with the level of knowledge of radiographers in good categories ( $\geq 76$ ), sufficient (60–75) and less  $\leq 59$ , the level of knowledge of pretest radiographers showed that 3 radiographers were in good category, 14 radiographers were in good category and 16 radiographers were in poor category. While the post-test shows that 31 radiographers are in good category, 2 radiographers are in adequate category and there are no radiographers in poor category.

**Table3. Test results on the effectiveness of the ethics and discipline subcommittee knowledge and the quality of the radiographer**

	N	Mean Rank	Sum of Ranks	Asymp. Sig. (2-tailed)
Post Test - Pre Test				
Negative Ranks	0	.00	.00	
Positive Ranks	31	16.00	496.00	.000
Ties	2			
Total	33			

\* *Wilcoxon Signed Ranks Test*

In the table above shows that there is no radiographer who experienced a decrease (reduction) from the pre-test value to the post-test value. Meanwhile there were 31 radiographers who experienced an increase from the pre-test value to the post-test value, the mean rank or average increase was 16.00 while the number of positive rankings or sum of ranks was 496.00. Furthermore, as many as 2 radiographers have the same value between the post test and the pretest.

Based on the calculation of the Wilcoxon Signed Rank Test, the value of the result of the significance of p value 0,000 (p value <0.05) so that the conclusion there is a significant difference in the knowledge of the radiographer on the use of the ethical and disciplinary subcommittee and the quality between the pretest and posttest.

The product or model for the use of the disciplinary ethics subcommittee and the quality of the radiographers is the output of the development of the roles and functions of the disciplinary ethics subcommittee and the quality subcommittee of the radiographer profession. The implementation of the disciplinary ethics sub-committee model and the quality of the radiographer is carried out by increasing knowledge in health services in the field of radiology in a professional manner and increasing knowledge on the implementation of policies related to the disciplinary ethics subcommittee and the quality of the radiographer.

Based on the research results obtained data that the formation of discipline and quality ethics subcommittee has not been followed by work programs and hospital management policies that have not been socialized, so that the roles and functions, work mechanisms, implementation of supervision, guidance of professional behavior, evaluation of professional performance, evaluation of service quality through the audit process carried out by the disciplinary ethics sub-committee and the quality of the profession has not been carried out in a structured and programmatic manner

making the radiographer's knowledge related to this matter lacking.

These conditions can affect the effectiveness of services, because knowledge on the implementation of the main tasks and functions of the optimal fields and committees such as coordination, supervision and decision making can improve service effectiveness.[30] To overcome this can be done by increasing the knowledge of radiographers in the discipline ethics subcommittee and the quality of the profession by making models for the use of the disciplinary ethics subcommittee and the quality of the profession.

The result of expert validity shows that the coefficient value of Aiken's V is 0.95 which means that the ethical and disciplinary sub-committee utilization model and quality are feasible as an effort to increase knowledge in radiographer professionalism.

The result of expert validity shows that the percentage score = 87.5%, which means the module on the use of the ethical and disciplinary subcommittee and quality is appropriate as a guideline for increasing knowledge and attitudes in radiographer professionalism.

The expert validation process is very important to be done in testing the feasibility of the utilization model of the disciplinary ethics subcommittee and the quality of the radiographer before the radiographer is implemented which will be the target of the model trial program. The process of expert validation is very important to do in developing the model so that it can produce a model that is useful in improving the quality and the process of expert validation in the development of the module is very important so that the module produced as a learning medium or learning resource [31].

The use model of the discipline ethics subcommittee and the quality of the radiographer is implemented through learning so that it is expected to increase the knowledge of radiographers in the



services of radiology professionals. The application of problem-based learning models can improve knowledge and skills [32].

The results showed that the ethical and disciplinary subcommittee utilization model and the effective quality of increasing knowledge in radiographers' professionalism were seen to be  $p$  value 0,000. This indicates that by learning the use of the subcommittee model, the radiographer has increased his knowledge of the rules and / or provisions of scientific application in the implementation of his professional discipline in accordance with existing operational procedure standards, as well as applying professional ethics in practice in radiology services in a professional manner, this is proven research (Wasisto B, 2004) which states that ethical discipline is very necessary in working so that it must behave and act professionally [33] which is also supported by research (Ginting, 2017) by giving provision both ethically and discipline to every health worker, [34] because discipline is very influential on the implementation of performance [35]. So according to research (Nesia, 2017) an increase in ethical knowledge and discipline is needed to pay more attention to the obligations of health professionals who are responsible and to continue to improve and improve the quality of performance [36].

According to (PMK No. 316, 2020) radiographers' knowledge of the ethics of professional disciplines can provide an overview in providing health services that meet the requirements and standards in maintaining and improving the quality of professionalism by carrying out professional behavior development and disciplinary programs based on a code of ethics that will function as a radiographer's guide to be able to evaluate their professional behavior related to patients, health care consumers, employers, colleagues, and other health team members. This code of conduct is intended to assist radiographers in maintaining high levels of ethical behavior and in providing patient protection, safety and comfort [10, 37]. According to Perpres No. 86 2019 for the function of guiding health workers and carrying out their professional practices and improving the quality of health services in accordance with their fields of work, the radiographer is under the auspices and guidance of the biomedical engineering council [38].

Knowledge of health workers on quality according to the results of research (Dalifah, 2012) has a positive relationship with performance directly and also influences innovation and contributes to performance [39]. According to (PMK No. 316, 2020) knowledge on the quality of this profession can provide a radiographic picture of protection patients to always be handled by qualified, competent, and professional radiographers and provide the principle of fairness for radiographers to get the opportunity to develop clinical competence and authority, and ensure the quality of services provided by radiographers is carried out through empowerment efforts, continuous evaluation of professional performance or evaluation of sustainable performance focused, through other health workforce audits and continuing professional development, [10, 39] health workers according to the results of the study (Pinaria, 2012) need to know that the hospital management is also expected to open up opportunities for all health workers to continue their education and provide opportunities for training according to their fields in increasing resources [40].

Knowledge of health workers is influenced by this information in accordance with research (Supriadi, 2012) that the delivery of good policy information, delivered in an actual, factual, objective, thorough and accurate manner, even before it is submitted is discussed first so that it is not misinformed, the media used in communicating must be representative with various alternative facilities to obtain the media so that they can bridge communication in general and the information can be effectively received equally by radiographers [41]. The method of delivering information can be done verbally in the form of meetings or coordinator meetings, by telephone, written in the form of letters, or through internet media [42].

Information and communication determine the success of achieving the objectives of effective policy implementation, so that each policy decision and implementation regulation must be communicated to the appropriate section or field. In addition, the policies communicated must also be precise, accurate and consistent. Communication is needed so that decision makers and implementers are more consistent in implementing every policy that will be applied [43].

One's knowledge on policy implementation related to disposition / attitude is also needed according to (Tawaris M, 2015) will give an idea as the attitude of the executor who has important consequences for effective policy implementation. If the implementers have a positive tendency or attitude that is through the support given to the implementation of the policy, then there is a high probability that the implementation of the policy will be carried out in accordance with the initial decision [44].

One's knowledge on the implementation of bureaucratic-related policies according to research (Fahturrahman, 2017) describes in detail the tasks, responsibilities and obligations of a particular position, which must be done, how to do it and the reason for the work to be carried out by the implementer? Bureaucracy in the implementation of policies requires implementing laws and regulations quickly and thoroughly and is carried out by professionals who are educated and trained in accordance with applicable laws and regulations. Bureaucracy is formed because there is an organization that demands structure, apparatus,

authority, duties and responsibilities [45]. The people in the bureaucratic structure will build communication. As a medium of shared learning and media to reach mutual consensus. The formation of a bureaucratic structure will also be able to improve the quality of existing resources, both human resources and available facilities [46].

## CONCLUSIONS

Based on the results of the study, it can be concluded that the module for the use of the ethical and disciplinary subcommittee and quality is appropriate as a guideline for increasing knowledge in the professionalism of radiographers with a feasibility percentage of 87.5%. The ethical and disciplinary subcommittee and quality utilization model is feasible as an effort to increase the professional knowledge of radiographers with Aiken's V coefficient of 0.95. The ethical and disciplinary subcommittee use model and effective quality increase knowledge in the professionalism of radiographers with a p value of 0,000.

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