The "E-UKGM" Model as an Effort to Improve the Quality of Recording and Reporting Community Oral Health Efforts (UKGM) in Community Health Centers

Ayu Wulandari[1*]
[1]Oral Health Therapist, Postgraduate Program
Health Polytechnic of Semarang Ministry of Health,
Indonesia

Supriyana[2*]
[2] Health Therapist, Postgraduate Program
Health Polytechnic of Semarang Ministry of Health,
Indonesia

Lanny Sunarjo[3*]
[3] Health Therapist, Postgraduate Program
Health Polytechnic of Semarang Ministry of Health,
Indonesia

Diyah Fatmasari[4*]
[4] Health Therapist, Postgraduate Program
Health Polytechnic of Semarang Ministry of Health,
Indonesia

Abstract:- UKGM is a dental health service activity carried out by the community through guidance from the health center. The obstacle to the implementation of UKGM is that the recording and reporting applied so far at the Community Health Centers is still manual. In the Bulukumba Regency area, recording and reporting of UKGM activities is still carried out manually, reports on UKGM activities are combined with other health reports, and there is no data on ongoing actions from the results of examinations on UKGM activities. Efforts are needed to improve the quality of recording and reporting of UKGM at Community Health Centers based on information systems. Objective: To prove that the E-UKGM model is effective as an effort to improve the quality of UKGM recording and reporting at Community Health Centers. Methods: *Research and Development* with *Pre-experiment one Group Pretest-Posttest Design research* design. The research sample was TGM working at the health center totaling 20 people who were given the E-UKGM model . Data collection techniques are interviews and questionnaires. Data were processed with non-parametric tests. Results: The expert validation test of the E-UKGM model obtained an average of 82% with a very feasible category and *r> 0.726*. The recording and reporting mechanism, and the quality of data and information improved after being given the E-UKGM model compared to the previous *p-value of* 0.000 (*p<0.05*). Conclusion: The application of the E-UKGM model is effective in improving the quality of recording and reporting UKGM at the Community Health Centers.

Keywords:- Recording and Reporting; Information System; UKGM.

I. INTRODUCTION

Community Dental Health Efforts (UKGM) are dental health service activities carried out by the community through guidance from the Community Health Centers so that the community has the desire and ability to carry out actions in dealing with oral health problems. This activity depends on community participation by actively involving health workers to guide and provide optimal oral health services [1].

The implementation of UKGM often experiences obstacles, this is due to the limited facilities, personnel, funds, and facilities of the Community Health Centers. Another obstacle that hinders the implementation of UKGM is the recording and reporting of UKGM activities applied so far at the Community Health Centers is still manual at the end of the year using a combined form between the dental health report and the health center report. Manual recording and reporting, especially in the district area, has several shortcomings. First, the process of sending the report results to the Community Health Centers is often delayed. Second, the reports sent are still incomplete. Third, the health center needs to recapitulate one by one the data sent by UKGM officers in each posyandu (Herawati et al, 2016). This has hampered evaluation and monitoring activities on the implementation of UKGM at the Community Health Centers [2]. Evaluation and monitoring are important to monitor that health program policies and plans are implemented in accordance with predetermined objectives. The shortcomings of a program can be minimized by carrying out regular evaluation and monitoring [3]

Based on preliminary studies through interviews with the head of the DPC PTGMI Bulukumba district, it was stated that the recording and reporting of UKGM activities in the Bulukumba area was still carried out manually, reports on UKGM activities were combined with other health reports so

that there was no special evaluation for UKGM activities on their own, the period of implementation of UKGM activities was not carried out routinely and was only carried out once a year, and there was no data on sustainable action or referral from the results of the examination in UKGM activities. The preliminary study through interviews with dental and oral therapists at the Community Health Centers, stated that the implementation of UKGM in the Community Health Centers work area is often hampered because UKGM itself is a development program at the Community Health Centers so that there is no special budget for UKGM activities and resources such as health workers in the dental clinic, of which there is onlyone person, making it difficult for health workers to carry out activities outside the dental clinic, oneof which is UKGM activities, besides that the limitations of facilities and infrastructure for implementing UKGM are still very limited.

Efforts need to be made to improve the recording and reporting of UKGM activities. The support of the latest technological developments can be used as a solution to manual recording and reporting activities which are transferred to an information system. The quality of recording and reporting activities at the Community Health Centers must be oriented towards the quality of human resources and the quality of individual health in accordance with the industrial resolution 4.0 so that it needs to be managed thoroughly through an integrated information system [4].

Health information system as an integrated management used to guide decisions and actions related to information, data, procedures, technology, indicators, and human resources in the health development process (MOH RI, 2014). The benefits of health information systems above are trying to be realized by relying on technology that is easy to apply to improve the quality of recording and reporting UKGM at Community Health Centers.

Information systems to improve the quality of UKGM can describe activity standards, success factors, and management of UKGM activities [3]. Based on the explanation above, the researcher sees the need to develop an information system, namely a web-based information system

model in improving the quality of UKGM recording and reporting at the Community Health Centers , which in the future will increase the motivation of dental and oral therapists in implementing UKGM activities at the Community Health Centers.

II. METHODS

The method in the research to be carried out is the *Research and Development* method with 5 stages including: 1) data collection; 2) Model design; 3) Expert validation and revision; 4) Model trials and 5) product results. at the model trial stage, researchers used a *pre-experimental one group pre-posttest design*. This study was conducted with the aim of knowing the effectiveness of using the "E-UKGM" system developed in improving the quality of UKGM data and information as well as the UKGM recording and reporting mechanism.

The target in this study were dental health workers at the Community Health Centers who ran the UKGM program. the sample needed in the test of the developed system was obtained from the purposive sampling technique so that a total sample of 20 dental therapists at the Community Health Centers was obtained.

III. RESULTS

The research results are divided into five stages, namely: information gathering, product/model design, expert validation and revision, product/model testing, and product/model results.

A. Informating Gathering

At this stage, information was collected through interviews with the Head of the Bulukumba District Health Office, the Dental and Oral Health Coordinator of the Bulukumba District Health Office, the Head of the Public Health Center, Dentists, and Dental and Oral Therapists. The conclusions from the respondents' answers are described as follows:

Table 1. Information Gathering Results

Question	Answer Summary
How is the current implementation of UKGMactivities?	The implementation of UKGM has been going well. Activities are carried out based on the guidelines for the implementation of UKGM from the Ministry of Health in 2004. Activities are always monitored and evaluated after the activities are completed and the implementation of activities is carried out together with cross-sectors.
What obstacles have been experienced during theimplementation of UKGM so far?	Obstacles to the implementation of UKGM experienced are the lack of UKGM implementing staff and the absence of special funds for UKGM activities themselves, as well as the absence of data on ongoing actions from the results of the examination because patients referred to the Community Health Centers do not come to the Community Health Centers.
What do you think about the system used for recording and reporting the implementation of UKGM so far?	The system used for recording and reporting UKGM activities is still manual, the obstacle of the manual system is that reports can be scattered or tucked between other activity documents and the process of sending reports is often delayed.
What do you think about the transfer of recording andreporting of UKGM activities to information systems?	The transfer of recording and reporting of UKGM activities to the information system can be carried out so that UKGM activities can be carried out optimally.

It was found that the implementation of UKGM activities that had been running so far was going well, but there were obstacles in recording and reporting activities that were still carried out manually so that the reports produced were not optimal and the process of sending reports to be verified by the Community Health Centers which were then continued to the Health Office often experienced delays. This causes monitoring and evaluation of UKGM activities to experience obstacles.

B. Model Design

So far, the reporting system in the implementation of UKGM is carried out manually at the end of the year using a form that is combined with the health center report, making it difficult to monitor and evaluate the implementation of UKGM. The "E-UKGM" model was created as a tool in the implementation of UKGM activities, which previously took the form of a manual into a website-based information system that would facilitate TGM in recording and reporting UKGM activities.
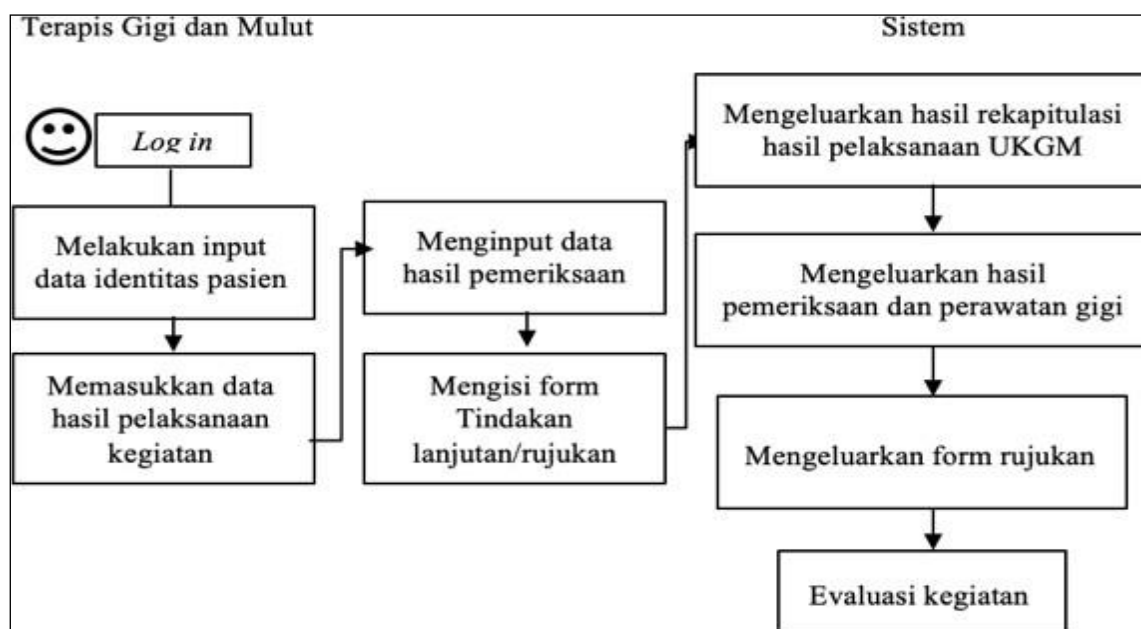

Fig 1 Flowchart of System Usage

C. Expert Validation

After developing a UKGM information system model, an expert validation test was carried out on 4 experts consisting of experts in information technology, dental and mucous health experts, oral health management experts, and health promotion experts. so that the following results were obtained.

Table 2 Expert validation results

Expert Validation				
Expert Initials	Value	F(%)	Average(%)	*r**
IT Expert	73	91		
Dental and Oral Health Expert	40	50	82%	0,726
Health Management Expert	74	92		
Health Promotion Expert	75	93		

*Interclas correlation

Based on the assessment results from expert validators, the average feasibility value is 82% with a very feasible category. The results of expert validity show that the value of *r> 0.726*, which means that the E-UKGM model is feasible as an effort to improve the quality of recording and reporting UKGM at the Community Health Centers.

D. Test Run

The model trial in this study was conducted on 20 large-scale research respondents who were dental and oral therapists working at Community Health Centers throughout Bulukumba Regency as an intervention group.

Table 3 Frequency Distribution of Respondents

Variables	Dental and Oral Therapist	
	N	(%)
Age		
17-25 years old	8	40,0
26-35 years old	10	50,0
36-45 years old	2	10,0
Length of Employment		
≤ 5 years	14	70,0
> 5 years	6	30,0

Table 3 shows the frequency distribution data of the characteristics of respondents with age17-25 years as many as 8 people, age 26-35 years as many as 10 people and age 36-45 years amany as 2 people. The length of work of respondents ≤ 5 years as many as 14 people and > 5 years as many as 6 people. then carried out an effectiveness test to test differences in the assessment of the UKGM recording and reporting mechanism and differences in the assessmentof UKGM data and information.

Table 4 Assessment of Recording and Reporting Mechanisms and AssessmentUKGM Data and Information Results

Variables	Mean±SD Pre test	Mean±SD Post test	p-value*
UKGM Recording andReporting Mechanism	3,85± 1,59	7,15±0,93	0,000
UKGM data and information	21,35±2,49	33,95±4,32	0,000

Wilcoxon test

Table 4 shows that the *p-value* before and after the application of the model on the UKGMdata and information variable is *p-value* 0.000 ($p<0.05$), meaning that the "E-UKGM" model is effective in improving the UKGM recording and reporting mechanism at Community Health Centers and improving the quality of UKGM data and information at Community Health Centers.

E. Product Results

Researchers innovated an information system-based UKGM model that is expected to provide benefits to overcome the problems and program constraints faced by UKGM implementing officers. The information system developed by researchers can be accessedthrough the link: https://e-ukgm.com/,
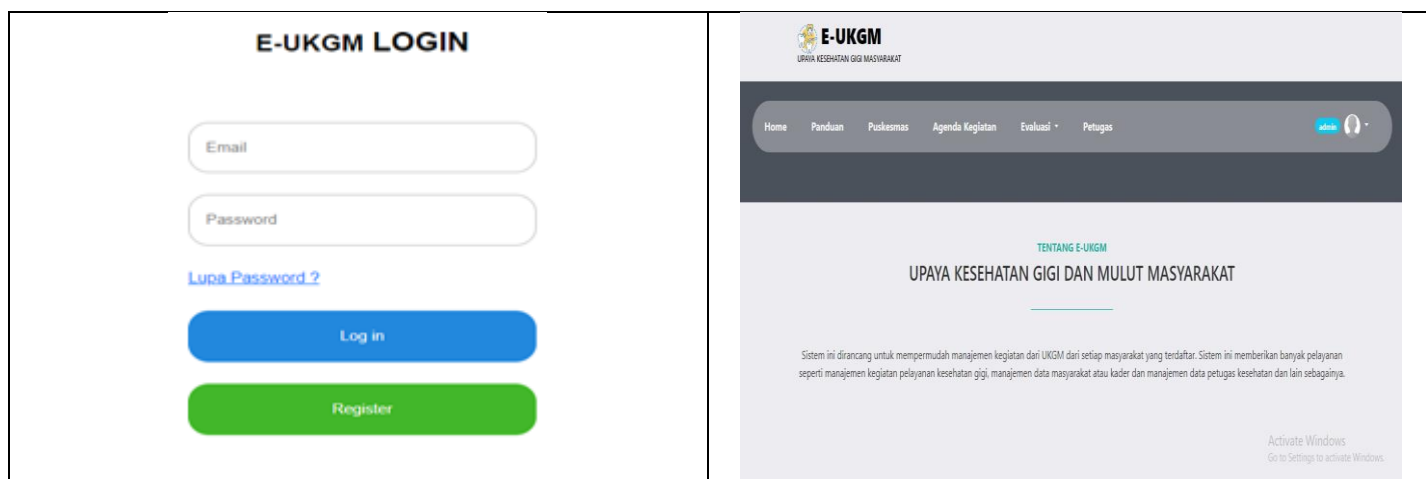

Fig 2 E-UKGM Page View

IV. DISCUSSION

The implementation of an oral health program in the community requires a reporting indicator that can be used as the scope of monitoring and evaluation of the implementation of UKGM in a Community Health Centers working area [5]. This activity is carried out so that UKGM activities can be carried out properly in accordance with the objectives to be achieved. UKGM must be carried out optimally so that the community gets optimal oral health services in the form of promotive and preventive efforts according to the needs of each UKGM target.

One of the processes that can be used to improve performance and enable various activities to be carried out quickly, precisely, and accurately so that it will increase productivity is to utilize technological advances. One of the impacts of advances in information technology is people's dependence on information generated by a system that is developed so that it can be more effective and efficient. In line with this, 2020 research explains that management information systems provideaccurate and timely information needed to facilitate the decision-making and problem-solving processes that enable the implementation of planning, control, and operational functions to run effectively [6].

The development of the "E-UKGM" model as an effort to improve the quality of UKGM recording and reporting at Community Health Centers is expected to improve the UKGM recording and reporting mechanism and produce the data and information needed to facilitate health workers in making decisions in this case monitoring and evaluation of activities. The use of information systems for data processing in the implementation of health services is very necessary, because it can provide several advantages and conveniences in services such as speeding up services, more accurate information, faster data searches, faster report generation, and the monitoring and evaluation process can be carried out properly [7]. Prior to the implementation of use to dental therapists, a validation test was carried out. Based on the assessment results from expert validators, it is known that the average feasibility value is 82% with a very feasible category. The results of expert validity show that the value of $r > 0.726$, which means that this E-UKGM model is feasible to use as an effort to improve the quality of recording and reporting UKGM at the Community Health Centers .

Based on the results of using E-UKGM, data on the age and length of service of dental and oral therapists were obtained. Age is considered important to know in this study because it is related to the use of technology and age allows influence in work stability and allows health workers to work optimally, including in increasing work ability in TGM at the Community Health Centers. Based on research conducted in 2021, it is known that the largest number of respondents were aged 20-35 years, namely 38 respondents (44.7%), in general, the ability of health workers is good, this is because the majority of health workers at the Sidrap Regency Health Office are still at an adult age [8]. In addition to age, a person's tenure can have a positive and negative impact on health workers, a longer tenure usually makes a person more experienced in carrying out their work. The negative impact of a long working period causes health workers to fatigue [9].

Recording and reporting of health centers is the activity of collecting data and information at the health center level, both the main factors and other supporting personnel concerning the health center to be sent to the health office. All activities carried out both inside and outside the health center building must be recorded. The recording and reporting mechanism applied at the Community Health Centers is now still manual, which means that the process takes longer because it has to wait for reports from each program holder then after the reports are collected they are recapitulated and bound into one which will then be checked by the head of the Community Health Centers [10].

The results of the effectiveness test of the UKGM recording and reporting mechanism data on paired test variables using the *Wilcoxon* test have increased after being given the "E-UKGM" model compared to before being given the model. This is evidenced by the *p-value* ($p < 0.05$), which meansthat the "E-UKGM" model is effective in improving the UKGM recording and reporting mechanismat the Community Health Centers. Indicators of assessment of this model on recording and reporting mechanisms are seen from the ease and speed of the recording and reporting process. The

utilization of information systems in the UKGM recording and reporting mechanism at the Community Health Centers can facilitate the process of recording and reporting activities this is because this information system is integrated between the officers implementing the activities and officers at the Community Health Centers and the health office. This is in line with research conducted in 2016 stating that information systems can facilitate and assist district health offices in managing reports from all health centers so that they can be used as material for evaluating the success of activities at the health center [11].

The use of information systems at the Community Health Centers for processing patient data is very useful and can provide an increase in service speed, more accurate information and faster data collection [12]. The results of the effectiveness test of data and information quality data on paired test variables using the *Wilcoxon* test have increased after being given the "E-UKGM" model compared to before being given the model. This is evidenced by the *p-value* ($p < 0.05$), which meansthat the "E-UKGM" model is effective in improving the quality of UKGM data and information at the Community Health Centers. Indicators of effective assessment in this model on the quality of data and information are seen from the completeness of data, timeliness, accuracy, suitability, and security of data and information.

Completeness of data and information includes all information needed by users of the information system [13]. Complete in terms of containing the meaning of clear, detailed, and sequential. Clear means how sharply the data and information can be understood. Detailed means that the data and information displayed are as needed. Sequence means that the presentation of data and information must pay attention to the order of the data and information presented, making it easier for users. The completeness of the data and information required in the "E-UKGM" model is important in determining the next action [1 4].

The accuracy of data and information refers to data collected within a timeframe appropriate to UKGM activities to shorten the time required for decision-making. The presentation of information generated by "E-UKGM" will be more timely than the manual system. If a system has optimal timeliness in processing data and information, it is worth saying that the system has good quality [15].

V.   SUMMARY

Based on the research conducted, the resulting "E-UKGM" model is feasible to use as an effort to improve the quality of recording and reporting UKGM activities at the Community Health Centers. This is evidencedby the results of the system feasibility assessment based on 6 ISO 9126 characteristics by information technology experts, health management experts, dental health experts, and health promotion experts. The "E-UKGM" model is effective in improving the UKGM recording and reporting mechanism. This is evidenced by changes before and after the application of the model on indicators of speed and ease of the process or

mechanism of recording and reporting UKGM at the Community Health Centers . The "E-UKGM" model is effective in improving the quality of data and information on UKGM activities. This is evidenced by changes before and after the application of the model on indicators of data completeness, timeliness, accuracy, suitability, and security of UKGM data and information at the Community Health Centers.

ACKNOWLEDGMENT

REFERENCES

[1]. Sadimin, Prasko, Sariyem, Sukini. Cadre Training with Learning Methods on Understanding UKGMD in Posyandu Activities. J Kesehat Gigi. 2020;7(2):127-32.

[2]. Ministry of Health RI. Implementation of Data Communication in Integrated Health Information System.2014;

[3]. Yuniar AA, Santoso B, Rasipin, Fatmasari D, Edi IS. Information System For Monitoring Community Dental Health Efforts (SIP-UKGM) to Improve The Quality of Community Dental Health Centers. Int J Innov Res Sci Technol. 2021;6(8):1230-4.

[4]. Fuad A. Innovation and Utilization of Digital Technology in the Health Sector. FKKMK Univ GadjahMada [Internet]. 2019;

[5]. Tahir M, Sukarta A, Kassaming. Training and Assistance for Health Center Level Planning. J Community Engagem Heal [Internet]. 2022;5(2):226-30.

[6]. Adisel, Thadi R. Organizational Management Information System Its Role in Decision Making and Problem Solving. J Adm Educ Manag. 2020;3(2):145-53.

[7]. Wibisono S, Munawaroh S. Health Center Management Information System (SimCommunity Health Centers) based on Cloud Computing. J Teknol Inf Din [Internet]. 2012;17(2):141-6.

[8]. Nur M, Syarifudin Y, Rusman ADP. Analysis of Improving the Performance of Health Workers Through Human Resource Development (Sdm) at the Sidrap District Health Office. J Ilm Mns And Kesehat. 2021;4(2):190-200.

[9]. Krisdiana H, Ayuningtyas D, Iljas J, Juliati E. The Relationship between Health Workers'Workload and Work Fatigue at the Community Health Centers of Sukmajaya District, Depok City during the Pandemic. J Biostat Population, and Health Inform. 2022;2(3):136.

[10]. Daniyanti ES, Firdaus N. Analysis of the Integrated Health Center Recording and ReportingSystem (SP2TP) in the Grajagan Health Center Working Area, Purwoharjo District, Banyuwangi Regency. J Science of nursing. 2020;11(3):85-92.

[11]. Herawati S, Purnomo MA. Design of Integrated Recording and Reporting Information System for Health Center. Multitek Indonesia. 2016;10(1):39. Ministry of Health RI. Indicators of Public Health Programs in RPJMN and RENSTRA Ministry of Health 2020-2024. 2019.

[12]. Mangamba Y, Sentinuwo SR, Karouw S, Elektro T, Sam U, Manado R, et al. Analysis and Design of Manado Smart City Health Center Portal. J Tek Inform. 2020;15(4):333-44.

[13]. Youlanda M. Quality of Health Services at Palembang City Hospital Dental Clinic. 2018;17(3):1-16.

[14]. Mudiono DRP, Roziqin MC. Evaluation of SIMRS Implementation Viewed from the Aspects of Information Quality, System Use and Organization at Dr. H. Koesnadi Bondowoso Hospital. J Kesehat. 2019;7(3):103-10.

[15]. Widyadinata Y, Toly AA. The Effect of System Quality, Information Quality, Timeliness, and Confidentiality on Taxpayer Satisfaction with E-FILLING. Tax Acounting Rev. 2014;4(1):1-13.