



Determinants Implementation of Management Information System in the Health Department of Keerom, Papua

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Abstract

This study aims to determine whether the management information system has been implemented to see the effect of the completeness of the data on the implementation of management information systems, the effect of the human resources field of information technology on management information systems, the effect of the allocation of funds to the management of information systems and the effect of the information technology (Hard Ware and Soft Ware) on the implementation of management information systems. This research was conducted at the Department of health and health centers in Keerom 2015. The method used in this research is to transmit a questionnaire to a hundred and twenty officers are responsible for reporting on duty at the Health Department and Community Health Center as respondents. Questionnaires distributed to respondents using a scale Gutman. This research method using a cross sectional study (CSS). Data were analyzed using statistical analysis through cross tabulation (Crosstab) followed by chi - square and then analyzed using Multiple Logistic Regression.

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The results showed that the implementation of information systems management has not fulfilled 100% with an assessment of the implementation of new information systems reached 35.2%, the influence of the completeness of the data with good data 90.74%. Assessment of human resources 17.9% field of new IT implementation, allocation 19.1% of new funds and the implementation of IT devices of 24.1% implementation. Thus, to speed up the implementation of information systems, human resources in IT, allocation of funds and IT devices become part must be repaired and improved.

Keywords: Influence of management; implementation; Information Systems.

1. Introduction

Information has become a necessity of life of every person and an important part and cannot be separated in all aspects of life. A good information, quickly and accurately will be very useful in making a decision, so the decision was made to be right on target. To get good information would require a good process and assuredness that are not hampered information flow of resources (Informant). In order to obtain good information, fast and accurate, so it needed an information system that is built to be able to continuously be used by everyone to get the data - the data that is in need [1]. Health Information System (HIS) is the soul of health institutions, (Ministry of Health 2012) which is being developed by the Ministry of Health of the Republic of Indonesia in order to provide data and information and actual quality. To build a health information system that ideal is not an easy job and without a challenge, given the extent of the Homeland and the diversity of geographical challenges. All efforts to develop SIK still refer to the mandate of Law Number 36 of Article 168 of Chapter XIV of health and describe the PP number 46 of 2014 on Health Information Systems.

The need for rapid and actual information is a challenge that must be answered by each of activists and health workers. Demands and high expectations of the public to obtain all the information about health in order to meet the needs receive quality health services cannot be delayed and must be realized by all human health [1]. Given still so fragmented data and the majority are still done manually, it is the policy of the Ministry of Health is a tremendous breakthrough to speed up the flow of information health data on which to base decisions and policies (evidentbase) [2], which in turn obtained a decision and policies appropriate to the needs and expectations of society. The gap between expectations and reality of quality data and consistent basis for decision making is also an issue that must be resolved.

Communication flow of data from the data source either direct services such as health centers, community health clinic, IHC, and clinics there are expected to be better and regularly every month. The change from manual to computerized system also started with a variety of constraints. Commitment from central and regional governments is realized with financial support for the implementation SIK SIKNAS ONLINE application so that data communication between Health Office and the Ministry of Health can be realized. The greatest hope in the implementation SIKNAS - Online is better information, better decision, and better health even though it was realized that until now the data is still very fragmented. The magnitude challenges is in the field of health information system to support SIKNAS - ONLINE in providing data as evident base to take any decisions or policies in the health sector is the trigger spirit to overcome so that the quality of data available in the field of

health for Healthy Indonesia as their dreams of independence [2].

Papua Province which is an integral part of the Unitary Republic of Indonesia was also obliged to provide good service and quality to the community in Papua. In the current era of decentralization is an important issue is how prosperous society in an area can be seen on the degree of health and life expectancy, which is the success of a local chief in the lead and realize the vision and mission. The characteristics of Papua Province which consists of mountains, valleys, coastal areas and islands is a challenge that is not easy to conquer. Papua community access to health facilities is far from ideal has not added problem of health personnel and means of transportation. Data from Papua Provincial Health Office show there are more than 368 health centers in the province of Papua in 29 District / City. Uskesmas as the spearhead of first-level health care becomes a source of data that is vital [3].

The services provided at health centers both inside the building and outside the building is an integral part of the national health system. Health center health center services with good management becomes imperative in realizing the availability of good quality data. Policy changes contained in Permenkes number 75 of 2014 makes the function of the maximum health center. To support the clinic to a data source that is good then it takes the right policies. The rapidly evolving information technology today allows the opening of insulation - insulation isolation region. Data from the Center for Data and Information of the Ministry of Health in Papua of 29 District / City since 2012 all have been installed SIKNAS ONLINE communications network with the installation of Visat (100%). To support the communication flow of data from data sources that the health center and its network to Health Department / Municipal, Provincial Health Office and the Ministry of Health through the Center for Data and Information. But on condition that there is a new 8 (27.59%) Regency / City that fills the data needed by the application Siknas Online. Meanwhile labor data manager that there are still far from hope to be able to provide data that dibutuhkan. 8 Department of Health new districts / cities 3 (37.5%) who filled in with complete data [3].

Keerom which is the result of expansion of Jayapura district as mandated by Act No. 26 of 2002, with the consequences of managing their own household are included in the health field. Public Health Service which is the regional work units (SKPD) assumed direct responsibility to organize, manage and provide health services to the community in Keerom to realize a healthy society and a prosperous independent in accordance with the vision of Keerom District Health Office[4]. In order to realize this vision, the DHO Keerom committed to support and implement the policy of the ministry of health in health information systems policy programs to support national health information system online (Online Siknas). Policies are made as to fulfill the mandate of Law No. 36 of 2009 (Ministry of Health 2009) on health and the Government Regulation (PP number 46 of 2014) regarding the health information system (PP - SIK).

Keerom District Health Department which is also part of the health system in Indonesia is of 8 (eight) 27.59% of districts / cities that already populate the data on Siknas online but not complete and has not been timely in the delivery of the required data. With 8 health centers and networks that are owned, Keerom district health office since the launch of Online Siknas policy also takes an active role.

Data in Keerom District Health data transmission via the monthly report is still fragmented and new 3 health center (37.5%) [5], which sends monthly reports in a timely and complete although manually. 4 health centers (50.0%) were sent a report is not timely and are incomplete and one health center (12.5%) who did not send a report to the routine as well as incomplete [5].

Existing data management officers at health centers as the spearhead implementation Online SIKnas also do not meet the required qualifications. From 8 health centers 100% no background in Information Technology but 30% have been trained with the material reporting and data processing. 37.5% who already have management employee data. Power source that there is a new four health centers (50.0%) with a flow of PLN and 3 health centers (37.5%) with a power generator which is only 6 hours a day and 1 health center (12.5%) that there is no power source. All forms of local policies are made to the success of the national policy.

Legal products has also been made with the adoption of Regulation No. 75 of 2009 on the organization and structure of the area where the work unit for the affairs of health information systems (HIS) to Section Health Information Systems with Echelon IV. Policies made by Keerom District Health Department also remarkable by allocating funds to install a network of V - SAT in 2013- 2014 in 4 (50%) health centers valley areas namely Puskesmas Arso Keerom City, Arso West, East Arso and Skanto to support policies Online SIKnas implementation. This policy is taken to support the provision of realtime data via Generic SIKDA applications. Of 4 health centers are expected to support the regular flow of data in real time and in fact has not materialized, so the installation of V - SAT in Puskesmas impressed wasting funds [6, 7].

2. Materials and Methods

This research is quantitative data collection by observation (observation) directly and data collection by filling the questioner with independent variable data completeness, HR IT field, Allocation and IT devices. The data have been collected and conducted analysts described (quantitative analytical) design with a cross-sectional study (CSS). Descriptive meaning that researchers want to know the relationship overview of the factors affecting the management of the implementation of the Department of Information Systems in Keerom.

Engineering analysis performed using logistic regression berganda. untuk know how strong the relationship factors - these factors influence it.

3. Results and Discussion

4. Research Results

4.1 Univariate analysis

Univariate analyzes performed on each of the study variables. On this analysis will produce a frequency distribution. The variable is the completeness of the data, the field of health human resources, allocation of funds and the information technology (hard ware and software)

Table 1: Characteristics within Table 1 are from the Public Health Office Kab. Keerom year 2015

No	Explanation	Total
1.	District	7
2.	Sub district / village	61
3.	Health centre	10
	a. In PHC	8
	b. Out PHC	2
4.	Co- Health centre	41
5.	Village health pos	13
6.	Posyandu	80
7.	Staffs	374
	a. Health staff	325
	b. Non health staff	49

1. Distribution of respondents by response data completeness.

Based on the results, the distribution of respondents based on answers completeness of data, can be seen in the table below:

Table 2: Distribution of respondents by the completeness of the data in Puskesmas and DHO Kab. Keerom 2015

No	Data completeness	n	%
1	Good	98	90,7
2	Less	10	9,3
Number		108	100

Based on table 2, it can be seen that the completeness of the data with the answer either category amounted to 98 (90.7%) and completeness of data to answer less category totaled 10 (9.3%).

2. Distribution of respondents based on answers to HR in IT

Based on the results, the distribution of respondents based on answers HR IT field, can be seen in the table below:

Table 3: Distribution of respondents answer human resources in IT field of health centre and DHO Keerom Regency 2015

No	Human resources for IT	n	%
1	Sufficient	30	27,8
2	Less Sufficient	78	72,2
Number		108	100

Based on table 3 it can be seen that the field of IT human resources with sufficient answer category were 30 (27.8%) and HR IT field with an answer less category totaled 10 (9.3%).

3. Distribution of respondents based on answers to the allocation of funds.

Based on the results, the distribution of respondents based on answers to the allocation of funds, can be seen in the table below:

Table 4: Distribution of Respondents answers the allocation of funds in Health centers and district health office. Keerom 2015

No	Budget allocation	<i>n</i>	%
1	Sufficient	40	37,0
2	Less Sufficient	68	63,0
Number		108	100

Based on table 3.4, it can be seen that the allocation of funds to answer enough categories numbered 40 persons (37.0%) and the allocation of funds with less category amounted to answer 68 (63.0%).

4. Distribution of respondents based on answers to IT devices

Based on the results, the distribution of respondents based on answers to IT devices, can be seen in the table below:

Table 5: Distribution of respondents answer in the IT devices health centers and district health office.

No	IT Facility	<i>n</i>	%
1	Sufficient	29	26,8
2	Less	79	73,2
Number		108	100

Based on table 3.5, it can be seen that the IT device to answer a great category amounted to 29 (26.8%) and IT devices with the answer less category amounted to 79 persons (73.2%).

4.2. Analysis Bivariat

a. Relationship between Data Completeness by Implementation of Information Systems.

Table 6: The relationship between the completeness of the Data Information System Implementation in Keerom District Health 2015

Data completeness	Information system Implementation				Total		p_value	RP
	Already		Not yet					
	n	%	n	%	n	%		
Good	36	36.7	62	63.3	98	100	0,479	1,83
Less	2	20.0	8	80.0	10	100		
Number	38	35.2	70	64.8	108	100		

Based table 6 note that of the 98 respondents who answered the completeness of data both 36 people have already expressed implementation information systems and 62 respondents have not implementation. Meanwhile, of the 10 respondents who stated completeness of the data is less 2 people already implementation of information systems and 8 have not been implementation of information systems. The test results with chi square statistic in the table above, note that the p_value is 0.479 ($p > 0.05$) means that there is no significant relationship between the completeness of the data with the implementation of health information systems.

b. Relationship Between HR IT field with the Implementation of Information Systems.

Based on the table 3.7 in mind that of the 30 respondents who answered HR IT pretty 24 people have already expressed Implementation information systems and 6 respondents had implementation. Meanwhile, from 78 respondents who expressed HR in IT approximately 14 people already implementation of information systems and 64 have not been implementation of information systems. The test results with chi square statistic in the table above, note that the p_value 0.000 ($p < 0.05$) means that there is a significant relationship between HR IT field with the implementation of health information systems. While calculating the prevalence ratios obtained values of 4.45 ($RP > 1$). This means that HR IT field Quite risk factors was 4.45 times greater for Implementation health information systems as compared with the field of IT human resources that are lacking in the implementation of information systems.

Table 7: The relationship between HR IT field with Information System Implementation in Keerom District Health 2015.

Human resource for IT	Information system implementation				Total		p_value	RP
	Already		Not yet					
	n	%	n	%	n	%		
Sufficient	24	80,0	6	20,0	30	100	0,000	4,45
Less	14	17,9	64	82,1	78	100		
Number	38	35,2	70	64,8	108	100		

c. Relationship Between HR IT field with the Implementation of Information Systems.

Table 8: The relationship between the Budget allocation to the Implementation of Information Systems in Keerom District Health 2015

Budget allocation	Information system Implementation				Total		p_value	RP
	Already		Not yet					
	n	%	n	%	n	%		
Sufficient	25	62,2	15	37,5	40	100	0,000	3,26
Less	13	19,1	55	80,9	68	100		
Number	38	35,2	70	64,8	108	100		

According to the table 3.8 in mind that of the 40 respondents who answered Allocation quite 25 people have already expressed Implementation information systems and 15 respondents have not implementation. Meanwhile, from 68 respondents who stated Allocation less 13 people already implementation of information systems and 55 have not been implementation of information systems. The test results with chi square statistic in the table above, note that the value p_value 0.000 ($p < 0.05$) means that there is a significant relationship between Funds allocation with the implementation of health information systems.

While calculating the prevalence ratio values obtained 3.26 ($RP > 1$). This means that if the allocation of enough funds have risk factors for 3.26 times greater for Implementation health information systems as compared to the allocation of funds which are lacking in the implementation of information systems.

d. Relationship Between HR IT field with the Implementation of Information Systems.

Table 9: The relationship between IT devices with the Implementation of Information Systems in Keerom District Health 2015.

IT facilities	Information system implementation				Total		P value	RP
	Already		Not yet					
	n	%	n	%	n	%		
Good	19	65,5	10	34,5	29	100	0,000	2,72
Not	19	24,1	60	75,9	79	100		
Number	38	35,2	70	64,8	108	100		

According to the table 3.9 in mind that of the 29 respondents who answered Tools IT Nice 19 people have already expressed Implementation information systems and 10 respondents have not implementation.

Meanwhile, of the 79 respondents stated IT is not good device 19 people already implementation of information systems and 60 have not been implementation of information systems. The test results with chi square statistic in the table above, note that the p_value 0.000 ($p < 0.05$) means that there is a significant relationship between IT devices with the implementation of health information systems.

While calculating the prevalence ratios obtained values of 2.72 ($RP > 1$). This means that when the device is good IT risk factors of 2.72 times greater for the implementation of health information systems in comparison with IT devices that are not in the implementation of information systems.

4.3 Multivariate Analysis

a. Selection of candidate variables multivariate

For answers where the dominant factor affecting management information system, it is necessary to multivariate analysis. Multivariate analysis stage is included: the selection of candidate variables multivariate modeling and analysis of interaction. This analysis using multiple logistic regression with enter method, at 95% significance level. Variables that are used as candidates in the logistic regression is a variable of chi square test results with $p_value < 0.25$. Results of bivariate analysis between the independent variables and the dependent are presented in the following table:

Table 10: Results Bivariate analysis between Independent Variables and Dependent

No	Variable	p_value
1	data completeness	0,479
2	human resources of IT	0,000
3	budget allocation	0,000
4	IT facility	0,000

Based on the above table variable with $p_value < 0.25$ will be included in the modeling. Variable is the field of IT human resources, allocation of funds and IT devices.

b. Multivariate modeling

In this study, there are three independent variables which escapes the bivariate analysis and a candidate in the multivariate analysis, SDM IT, allocation of funds and IT devices. In the multivariate analysis aims to get the best model in determining the factors that influence the management of information systems. In this modeling all the variables tested with the same candidates. Selection of the model is done in a hierarchical manner all independent variables that have passed the sensor is inserted into the model, then the variable will be removed from the model sequentially starting from the largest p value.

Table 11: List of Candidates Variable Multiple Logistic Regression Model Analysis First 95.0% Exp (B)
95.0% Exp (B)

Variable	B	S.E	Wald	df	Sig	95.0% Exp (B)		
						Exp(B)	Lower	Upper
Data cpl	-1.032	1.184	.759	1	.384	.356	.035	3.631
.IT HR	-3.184	.689	21.344	1	.000	.041	.011	.160
Budget alloc	-2.236	.631	12.576	1	.000	.107	.031	.368
IT facility	-1.855	.660	7.895	1	.005	.156	.043	.571

Based on the results in Table 4:11 multivariate analysis showed that the variables of data completeness p_value = 0,384 (the largest) so that in subsequent modeling completeness variables removed from the model and the results can be seen in the table below:

Table 12: candidate variables Logistic Regression Analysis 95.0% C.I.forExp (B) Variable B SE Wald df Sig
Exp (B) Lower Upper

Variable B	S.E	Wald	df	Sig	Exp(B)	95.0% C.I.for Exp (B)		
						Lower	Upper	
.IT HR	-3.169	.688	21.192	1	.000	.042	.011	.162
Budget alloc	-2.213	.624	12.587	1	.000	.109	.032	.371
IT facility	-1.836	.655	7.857	1	.005	.159	.044	.576

After completeness variable data released from the model, then compare the changes in the value of exp B) to determine whether attitudinal variables as confounding variables (confounding) on the implementation of information management systems can be seen in the table below:

Table 13: Comparison Value Exp (B) After Completion variable data released

Variable	Exp (B) Complete Variable	Exp (B) after exceeded	Changes Exp (B)
.IT HR	.041	.042	-0,37%
Budget alloc	.107	.109	-0,002%
.IT facility	.156	.159	-0,003%
Data complete	.384		

The above table shows that there was no change in the value of $\exp(B) > 10\%$ so that it can be interpreted that the modeling has been completed. Results of the final model of multivariate analysis can be interpreted as follows:

Table 14: The model Final Multivariate Analysis

Variable	B	S.E	Wald	df	Sig	Exp(B)	95.0% C.I. for Exp (B)	
							Lower	Upper
.IT HR	-3.169	.688	21.192	1	.000	.042	.011	.162
Budget alloc	-2.213	.624	12.587	1	.000	.109	.032	.371
IT facility	-1.836	.655	7.857	1	.005	.159	.044	.576

Table shows that is significantly the most dominant factor affecting the implementation of management information system is a human resources IT field.

5. Conclusion

Results of this study conducted to the 108 officers responsible for making the report obtained the following conclusions:

1. There is the influence of the field of IT human resources to the implementation of management information systems of human resource assessment field of IT with the statistical test $p = 0.000$.
2. There is the influence the allocation of funds to the implementation of management information systems of an assessment of the allocation of funds to the statistical test $p = 0.000$.
3. There is the influence of the use of IT devices to the implementation of management information systems of assessment use of IT devices with the statistical test $p = 0.005$.
4. There is no influence of the completeness of data on the implementation of management information system seen from the results of an assessment of the statistical test $p = 0.479$.

6. Suggestion

From the research that has been done, it can be suggested as follows:

1. It should be done recruit employees with a background in information technology and human resource when the field of informatics is still lacking the capacity to officers reporting issuer must immediately implemented by training and internships in the health service who have to implement management information systems.
2. It needs a strong commitment from decision makers and policy to allocate sufficient funds contained in the Budget Implementation Document (DPA), which also accommodates an incentive for managers of data.

3. Keep the procurement of information technology (Hard Ware and Soft Ware) were good according to the specifications and data management at regular intervals Up grade.
4. Keep doing further research on the consistency of the completeness of data on the implementation of management information systems in Keerom District Health Office and update the data regularly (quarter, semester and annual)

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