

# Factors That Affect Coding Quality Clinical Neoplasm Case for BPJS Claims at "Dharmais" Cancer Hospital

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**Keyword:** Clinical Coding Quality, Clinical Coder, Knowledge, Attitude, Training.

**Abstract:** The diagnosis code has a very important role for health care providers as a basis for making statistics to find out trends in disease and is the basis for determining the cost of health services. Accurate diagnosis codes are very important because inaccuracies in the diagnosis code can slow the process of claiming JKN or BPJS because they have to be revised first. In 2018 at "Dharmais" Hospital the pending outpatient file is 2782 (2%), while the pending file is hospitalized as many as 58 files (1.5%). The purpose of this study was to analyze the influence of knowledge, attitudes and clinical coder training with the quality of clinical coding of the Neoplasm Case for BPJS claims. The study design used is cross-sectional with 14 respondents (total population). The results with multiple linear regression analysis, there was an influence between the knowledge and attitudes of clinical coders on the quality of clinical coding (p-value = 0.013). The regression equation formed is Clinical Coding Quality = -94,664 + 8,360 (Knowledge) + 4,490 (Attitude). Knowledge is the biggest influence on the quality of clinical coding.

## 1 INTRODUCTION

The diagnosis code has a very important role for the health service provider as a basis for making statistics to determine disease trends. In addition, the diagnosis code is also the basis for determining the cost of health services. Code diagnosis that is not quality will cause harm to the hospital both financially and in policymaking. (WHO 2010).

Factors that can affect the quality of the diagnosis code include doctors, other medical personnel (nurses) and medical record personnel (encoders). Doctors and nurses are responsible for the quality of the patient's medical record documents and the encoder is responsible for the quality of the diagnosis code based on the medical data. (Kemenkes RI 2008).

Good coding skills and knowledge among coders are very important in efforts to reduce inappropriate coding. However, the involvement of doctors in ensuring better documentation in admission forms and refill summaries is also needed to reduce inappropriate coding in hospitals (Zafirah et al. 2018).

Republic of Indonesia Decree No. 377 /Menkes /SK/III/2007 concerning the competency standards

of the medical record profession and health information states that a medical recorder must be able to determine disease codes and actions appropriately according to the classification in force in Indonesia (ICD-10) regarding diseases and actions in medical services and health management. The role of coding is used to index disease records, input to medical diagnosis reporting systems, facilitate the process of storing and retrieving data related to diagnosis of patient and service provider characteristics, basic ingredients in the grouping of DRG's (diagnosis-related groups) for billing systems for payment of service fees, national and international reporting morbidity and mortality, tabulation of health service data for the evaluation process of planning medical services, determining the form of services that must be planned and developed according to the needs of the times, analysis of health service financing, as well as for epidemiological and clinical research. (Hatta 2014)

Based on an interview conducted with one of the BPJS claim coding verifiers at the "Dharmais" Cancer Hospital, the official stated that an accurate diagnosis code was very important, because the inaccuracy of the diagnosis code could slow the JKN or BPJS claim process. After all, it had to undergo a revision first. At the "Dharmais" Cancer Hospital

there are still medical record files that must be revised because the code is inaccurate or inaccurate. The number of files that must be revised due to inaccuracies in "Dharmais" Cancer Hospital. In 2018 the outpatient file is 2782 or around 2%, while the inpatient file is 58 files or about 1.5%.

## 2 RESEARCH METHODS

This study is a quantitative study with a cross-sectional design where exposure variable knowledge, attitude and training and outcome variables (clinical coding quality) are examined simultaneously. Tools used by using questionnaires given to Clinical Coder and observation sheets to determine factors that influence the clinical coding quality of neoplasm cases for BPJS claims at the "Dharmais" Cancer Hospital. The population of this study is outpatient Clinical Coder and inpatient Clinical Coder who is active at the "Dharmais" Cancer Hospital with BPJS claim file of 10% of the performance targets per day of each Clinical Coder. Data collection using questionnaires, methods or statistical techniques used in this study is multiple linear regression analysis with the dependent variable is the quality of clinical coding and the independent variables are knowledge, attitudes and training. with the help of an application on a computer.

## 3 RESULTS

### 3.1 Clinical Coder Knowledge

Knowledge is the result of knowing a clinical coder on clinical coding, clinical coding implementation and BPJS system. The following is the frequency distribution of answers to knowledge variables (Table 1).

Table 1: Calculation of Total Respondents Answer Scores Regarding Clinical Coder Knowledge in 2019.

Clinical Coder Knowledge	Scores
Mean	8.21
95% Confidence Interval Lower Bound	7.12
95% Confidence Interval Upper Bound	9.30
Std. Deviation	1.888
Median	9.00
Minimum	4
Maximum	11

From the results of data processing in table 1, an average score of data obtained is 8.21 with an estimated interval at a 95% confidence level ranging from 7.12 to 9.30 with a standard deviation of 1.888. The median value is 9 and the minimum value is 4 and the maximum value is 11.

### 3.2 Clinical Coder Attitude

Attitude is the response of a clinical coder in responding to an object that is organized through experience in carrying out clinical coding of neoplasm cases. Here is the frequency of answers about attitude variables (Table 2).

Table 2: Scores Regarding Clinical Coder Attitudes in 2019.

Clinical Coder Attitude	Scores
Mean	21.86
95% Confidence Interval Lower Bound	20.18
95% Confidence Interval Upper Bound	23.53
Std. Deviation	2.905
Median	22.50
Minimum	16
Maximum	25

From the results of data processing in table 2, an average score of 21.86 was obtained with an estimated interval at a 95% confidence level ranging from 20.18 to 23.53 with a standard deviation of 2.905. The median value is 22.50 and the minimum value is 16 and the maximum value is 25.

### 3.3 Clinical Coder Training

Training deals with the skills and abilities needed for the work done. The following is the frequency distribution of training variables (Table 3):

Table 3: Calculation of Total Respondents' Answer Scores Regarding 2019 Clinical Coder Training.

Clinical Coder Training	Scores
Mean	4.07
95% Confidence Interval Lower Bound	2.78
95% Confidence Interval Upper Bound	5.36
Std. Deviation	2.235
Median	3.00
Minimum	0
Maximum	9

From the results of data processing in table 3, an average score of data is obtained at 4.07 with an estimated interval at a 95% confidence level ranging from 2.78 to 5.36 with a standard deviation of 2.235. The median value is 3.00 and the minimum value is 0 and the maximum value is 9.

### 3.4 Quality of Clinical Coding

Clinical coding data is used for various purposes. Among them are benchmarking, financing, clinical and financial decision making, public health tracking, health policy, research. The following is the frequency distribution of clinical coding quality variables (Table 4).

Table 4: Calculation of Total Scores Regarding Quality of Clinical Coding in 2019.

Quality of Clinical Coding	Scores
Mean	72,14
95% Confidence Interval Lower Bound	56,96
95% Confidence Interval Upper Bound	87,32
Std. Deviation	26,291
Median	75.00
Minimum	0
Maximum	100

From the results of data processing in table 4, an average score of 72.14 was obtained with an estimated interval at a 95% confidence level ranging from 56.96 to 87.32 with a standard deviation of 26.291. The median value is 75.00 and the minimum value is 0 and the maximum value is 100.

### 3.5 Bivariate Analysis

Table 5: Relationship between Knowledge, Attitudes and Clinical Coder Training with Quality of Clinical Coding.

Variable	R	P-Value
Knowledge	0,548	0,043
Attitude	0,432	0,123
Training	0,121	0,681

Based on table 5 it is known that:

- a. There is a significant relationship between clinical coder knowledge with clinical coding quality with  $p\text{-value} = 0.043 < 0.05$ . The relationship of knowledge with clinical coding quality shows a strong relationship ( $r = 0.548$ ) and is positively patterned meaning that the

more the level of clinical coder knowledge the greater the value of clinical coding quality. (Ifalahma 2013).

- b. There is no significant relationship between clinical coder attitude with the quality of clinical coding with  $p\text{-value} = 0.123 > 0.05$ . The results of this study are in line with research by Zubaedah (2007) which states that there is no relationship between attitude and performance of DBD Working Group officials with a value of  $p = 0.279$  (Zubaedah 2007).
- c. There was no significant relationship between clinical coder training and clinical coding quality with  $p\text{-value} = 0.681 > 0.05$ . (Ali 2019)

### 3.6 Multivariate Analysis

#### 3.6.1 Multivariate Modeling

Multivariate analysis was performed for the selection of variables included in the model. When it is included in the multivariate model, then the variables included in the multivariate model are variables that have a  $p\text{-value} < 0.05$ . If the variable  $p\text{-value} > 0.05$  means it does not enter the multivariate model. The method used is the backward method which means looking at the value of adjusted R square.

Table 6: Model Multivariate Method Backward.

No	Model	R <sup>2</sup>	Adjusted r <sup>2</sup>
1	Knowledge, Attitude,	0,550	0,415
2	Knowledge and Attitude	0,543	0,460

Based on the results of the table 6, it is known that the adjusted value of  $r^2$  model 1  $<$  model 2 ( $0.415 < 0.460$ ) therefore the researcher chooses the best model used is model 2.

#### 3.6.2 Assumption Test

After knowing the variables included in the multivariate model, the next step is the assumption test. The assumptions made are, Normality Test, Heteroscedasticity Test, Multicollinearity Test and Autocorrelation Test.

#### 3.6.3 Regression Equation

Table 7: Linear Regression Equations.

Variable	B	t	P-Value
Constant	-94,664	-1,924	
Knowledge	8,360	2,931	0,014
Attitude	4,490	2,421	0,034

Based on table 7 t test results (partial), it can be explained as follows:

#### 1) KnowledgeVariable

The results of the statistical test analysis revealed the significance value (P-Value) of the knowledge variable amounted to = 0.014. Because the P-value = 0.014 < 0.05, it can be concluded that there is a significant influence between clinical coder knowledge and clinical coding quality. The results of this study support previous research conducted by Alias (2018) that knowledge has a positive and significant effect (p-value = 0.039) on the performance of employees at the Makassar Branch BPJS Employment Office (Alias and Serang 2018).

#### 2) AttitudeVariable

The results of the statistical test analysis revealed the significance value (P-value) of the attitude variable amounted to = 0.034. Because the P-value = 0.034 < 0.05, it can be concluded that there is a significant influence between the clinical coder attitude and the quality of clinical coding. This is in line with research conducted by Wahyudi (2011) showing that attitude significantly influences the quality of medical records with a significant value of 0.001 (Wahyudi 2011).

Based on the results of the F test (simultaneously) it can be seen that the value of F = 6.547 and the significance value (P-value) is equal to 0.013. Because the P-value of 0.013 < 0.05, it can be concluded that there is a significant influence between knowledge and attitudes simultaneously on the quality of clinical coding. Based on research by Tamara (2019) also states that there is a significant influence between knowledge, attitudes and work experience of employees simultaneously on the performance of employees of Islamic microfinance institutions in Tulungagung with a significance value = 0,000 (Tamara 2019). This is in line with research conducted by Suprapti (2004) showing that of the three variables tested namely knowledge, skills and attitude variables jointly influence (p-value = 0,000) on performance variables with indicators of quality, quantity, ability, initiative and collaboration (Suprapti 2004).

It is found in Table 7 Value (a) = -94,664 and the value of the regression coefficient (b1) = 8.360 and the regression coefficient (b2) = 4.490 to obtain the regression equation, namely:

$$Y = a + b1.X1 + b2.X2$$

$$\text{Quality of Clinical Coding} = -94,664 + 8,360(\text{Knowledge}) + 4,490 (\text{Attitude})$$

Based on the results of the above equation can predict the quality of clinical coding using clinical coder knowledge and attitudes. The meaning of the coefficient, namely:

- 1) Every knowledge of a clinical coder increases by 1 point on condition that the value of a constant attitude, then the quality of clinical coding will increase by 8.360.
- 2) Every attitude of a clinical coder increases by 1 point on condition that the value of knowledge remains constant, then the quality of clinical coding will increase by 4.490.

In the above results it can be concluded that the variable with the greatest effect on the quality of clinical coding is the knowledge variable.

## 4 CONCLUSION

- a. The results of the scores of 14 respondents who filled out the questionnaire regarding knowledge obtained an average score of data of 8.21 with an estimated interval at a 95% confidence level ranging from 7.12 to 9.30 with a standard deviation of 1.888. The median value is 9 and the minimum value is 4 and the maximum value is 11.
- b. The results of the score of 14 respondents who filled out questionnaires about attitudes obtained an average score of 21.86 data with an estimated interval at a 95% confidence level ranging from 20.18 to 23.53 with a standard deviation of 2.905. The median value is 22.50 and the minimum value is 16 and the maximum value is 25.
- c. The results of the scores of 14 respondents who filled out the questionnaire regarding training obtained an average score of data of 4.07 with an estimated interval at a 95% confidence level ranging from 2.78 to 5.36 with a standard deviation of 2.235. The median value is 3.00 and the minimum value is 0 and the maximum value is 9.
- d. The results of the BPJS claim file assessment of the quality of clinical coding from 14 respondents obtained an average data score of 72.14 with an estimated interval at a 95% confidence level ranging from 56.96 to 87.32 with a standard deviation of 26.291. The median value is 75.00 and the minimum value is 0 and the maximum value is 100.
- e. The influence of variable knowledge and clinical coder attitude partially on the quality of clinical coding for BPJS claims at the "Dharmais" Cancer Hospital, with a significance value of less than 0.05.

- f. The influence of knowledge variables and clinical coder attitude simultaneously on the quality of clinical coding for BPJS claims at the "Dharmais" Cancer Hospital, with a significance value of 0.013.

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