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Original Article

SWOT Analysis Strategy to Improve Topography Code Accuracy in Malignant Neoplasms Cases at Ibnu Sina Hospital Makassar

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ABSTRACT
Background: Neoplasm insurance claims are one of the most pending cases in the claim submission process. Pending claims are caused by inaccurate neoplasm topography codes. This disrupts hospital operational costs, increases the workload of coders and affects the quality of disease statistical data.
Objective: This study aims to improve the accuracy of topography codes in malignant neoplasm cases using SWOT analysis.
Method: The type of research is descriptive, the sample size is 110 patient medical records, data collection is by means of observation and interviews.
Results: The results of the study showed that the completeness of medical information was 32.6% and incomplete 67.4%, the accurate topography of neoplasms code was 21.8% and inaccurate 78.2%. The causes of inaccuracy were delays in the results of the Anatomical Pathology laboratory 53.2%, no writing of the site of neoplasms on the medical record sheet 33%, and coders did not pay attention to the morphology of neoplasms code 13.8%. The results of the SWOT analysis show strength and opportunity factors, namely the educational qualifications of coders according to their competencies, using the most updated ICD-10 book. Weakness and threat factors are incomplete medical information, no SOP for coding neoplasms and no periodic coding audits. Strategies to improve the accuracy of diagnostic codes by optimizing internal and external factors by conducting coding audits, preparing SOPs and improving clinical coding skills in coders.

INTRODUCTION

Malignant neoplasm disease (cancer) is one of the significant health challenges in Indonesia and is recorded as the second highest cause of death after cardiovascular disease. Based on data from Globocan 2020, Indonesia recorded 396,914 cancer cases with a total of 234,511 deaths in 2020, while the cancer incidence rate in Indonesia in 2023 is 136 people per 100,000 population, with a prevalence rate of 1.2 per 1,000 population. The most common cancers in Indonesia are breast, cervical, lung, colorectal and liver cancers.

The number of cancer patients is also followed by the amount of costs incurred by government health insurance known as the BPJS (Social Security Organising Agency). By 2022, it will be the second highest cost claim after heart disease. Nationally, cancer costs IDR 4.5 trillion with 3.15 million cases. Types of cancer covered by BPJS Kesehatan, according to medical indications and payment in accordance with the Indonesian-Case Based Groups Tariff, hereinafter referred to as the INA-CBG Tariff, which is the amount of claim payment by BPJS

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Kesehatan to health facilities for service packages based on groupings of disease diagnoses and procedures, including all hospital resources used in both medical and non-medical services. (Kemkes.go.id, 2024)

BPJS Health Claim is the submission of BPJS participant patient care costs by the hospital to the BPJS Health which is carried out collectively and billed to the BPJS Health every month. After that BPJS Kesehatan will approve the claim and make payments for files that are indeed eligible, but for files that are not eligible for claims or pending (unclaimed) must be returned to the hospital to be re-examined. (Nabila et al., 2020)

Related to the problem of pending claims, many are still found in hospitals that work with BPJS. The results of research by (Mursyid et al., 2023)show that the factors causing pending claims for inpatients are caused by several factors, namely code inaccuracy, incomplete administrative files, not attaching the results of supporting examinations, enforcing diagnoses not according to criteria, differences in perceptions of diagnostic enforcement standards between DPJP and BPJS Health, incomplete medical resumes, knowledge of claims implementing officers, facilities and infrastructure in the claims section and incorrect input in the BPJS Health claims application (e- claim).

Pending claims can occur in all cases in the hospital including malignant neoplasm cases. The coding of malignant neoplasm cases requires a higher level of accuracy due to the complexity that must be coded starting from the topography code, morphology, paying attention to the site of neoplasm and the results of the Anatomical Pathology (PA) laboratory examination. Some research results show that inaccuracies in neoplasm codes are often found, especially in topography codes. Research by (Ida Nurhasanah, 2022) found that of 62 patient medical record samples, the percentage of accurate topography codes was 45 (72.58%) and inaccurate codes were 17 (27.42%). It was found that there were still some documents that were not correct because the coding officer was less careful and sometimes there was a doctor's writing that was not clear, making it difficult to read the diagnosis. Similarly, research by (Kamilia, et al 2024) from 96 medical records studied the percentage of accuracy of the topography code for neoplasm cases was 54 (56.25%) and 42 (43.75%) codes were incorrect. This is due to the absence of the results of anatomical pathology reports in some medical records, resulting in coding errors by officers in determining diagnosis codes.

Based on preliminary observations at Ibnu Sina Hospital Makassar on 11 medical records of neoplasm cases, 4 medical records were found that the coding of topography code diagnoses was accurate and 7 medical records were inaccurate. Inaccuracies found, for example, in the diagnosis of Mammary Tumour, listed code C79.8, while in ICD-10 Mammary tumours are stated as tumours of uncertain or unknown behaviour with code D48.6. The next example is the diagnosis of Benign Tumor of Ovary, listed code C56, while in ICD-10 it is stated as a benign behaviour with code D27. The existence of code inaccuracies causes cases of pending neoplasm claims to occur frequently, which results in non-payment of health services by BPJS Health so that the hospital's cash flow is disrupted because almost 90% of hospital patients are BPJS Health patients.

METHOD

This type of research is descriptive. The samples in this study were patient medical records of malignant neoplasm cases in the first quarter of 2024 with a total sampling of 110 patient medical records. Data collection was carried out by observation and interview using a check list format and interview guidelines. Data analysis was carried out using the SWOT approach (Strength, Weakness, Opportunity and Threat).

RESULT

Completeness of Medical Information on Medical Record Sheets for Malignant Neoplasm Cases

The completeness of medical information was obtained from the data contained in the Patient Admission and Discharge Summary Form, Patient Discharge Summary, Anamnesis and Physical Examination Results and Anatomical Pathology Laboratory Examination Results. Observations were made of 110 patient medical records obtained complete medical information as many as 36 (32.6%) and incomplete as many as 74 (67.4%). These results can be seen in the following diagram:

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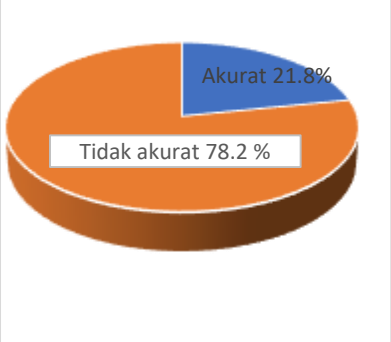
Figure 1. Completeness of medical information in medical record documents for malignant neoplasm cases at Ibnu Sina Hospital Makassar 1st Quarter Period 2024.

Accuracy of Topography Codes for Malignant Neoplasm Cases

Based on observations of 110 medical records of patients with malignant neoplasm cases, there were 24 (21.8%) accurate topography codes and 86 (78.2%) inaccurate ones. These results can be seen in the following diagram:

Figure 2. The accuracy of the topography of neoplasm code at Ibnu Sina Hospital Makassar January - June 2024.



Causes of Topography of Neoplasm Code Inaccuracies

The causes of inaccuracies in the topography of neoplams code based on observations and interviews are shown in the table below:

Table 1. Causes of topography of neoplasm code inaccuracies

No	Causes of Inaccuracy	Total	Persentage
1	Delay in Anatomical Pathology laboratory examination results	59	53.2
2	No site of neoplasm at diagnosis	36	33
3	Coder did not pay attention to the behaviour code in the morphology of neoplasm code.	15	13.8
		110	100

Based on the table above, it can be seen that the cause of the inaccuracy of the topography of neoplasm code is the delay in the results of the Anatomical Pathology laboratory examination as many as 59 (53.2%), there is no site of neoplasm in the diagnosis as many as 36 (33%) and the Coder does not pay attention to the behaviour code in the morphology of neoplasm code as many as 25 (13.8%).

Analysis of the accuracy of topography of neoplasm codes based on SWOT Analysis. Based on the results of interviews with coders related to the accuracy of the topography of neoplasm code, using the SWOT problem solving cycle, the results are as follows:

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Table 2. Internal and external factors of topography of neoplasm code accuracy with SWOT analysis

Strength (S): a. Number of coding officers (coders) according to workload needs, namely 4 people b. Coder 2 people with D-3 RMIK education qualification c. Using the ICD-10 book d. Doctors can be confirmed regarding medical information e. There is an internet facility to access medical information that is not understood by the coder	**Weakness (W):** a. There are 2 coders who do not meet the educational qualifications b. There is no specific Standard Operating Procedure related to neoplasm coding c. Incomplete medical information on the medical record diagnosis sheet d. Delay in anatomical pathology examination results e. No coding evaluation in the form of coding audit f. Coder did not pay attention to the behaviour code in the morphology code.
Opportunity (O): a. Preparation of Standard Operating Procedures b. Rotation of officers with a background in medical records and health information education c. Code verification by the insurance company d. Improvement of knowledge and skills through training e. Utilisation of information technology to assist in code verification f. Collaboration with other hospitals to share experiences related to neoplasm coding	**Threat (T):** a. Inaccurate code b. Pending claim occurs c. Costs paid do not match the claim submission d. Inappropriate decision making e. Inaccurate morbidity reporting f. Time pressure to complete work quickly

Table 3. Strategy Analysis based on Problem Solving Cycle SWOT

	Strength	**Weakness**
Opportunity	**SO strategy:** a. Develop SPOs and involve coders in the preparation of SPOs, using the latest ICD-10 book references. b. Use the verification results from the BPJS as evaluation and improvement material in the coding process c. Rotating officers by placing officers with a medical record education background and who are more experienced in coding. d. Conducting periodic performance evaluations e. Developing coder skills by including them in coding training.	**WO strategy:** a. Improve coordination with doctors regarding the completeness of medical information. b. Conduct regular follow-ups that the results of anatomical pathology laboratory examinations are immediately attached to the patient's medical record. c. Conduct periodic coding audits d. Allocating funds for human resource development through coding training
Threat	**ST strategy:** a. Recommend coders to join online discussion forums to discuss with other coders in solving complex cases related to neoplasm coding.	**WT strategy:** a. Improve coordination with anatomical pathology laboratory staff to speed up the examination process. b. Design a tracking system for Anatomical

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	b. Standardise a clear medical record format that is easily understood by all staff involved in filling out medical records. c. Involve coders in analysing coding results d. Make periodic reports on the results of neoplasm coding e. Teaching coders to prioritise their work f. Remind the coder that quality of coding is more important than quantity	Pathology laboratory examination results so that the examination results are processed immediately. c. Design and implement a double verification system to ensure code accuracy before claims are submitted. d. Collaborate with BPJS Insurance to obtain feedback on coding quality and resolve pending claims issues.

DISCUSSION

Completeness of Medical Information on Medical Record Sheets for Malignant Neoplasm Cases

Completeness of medical information in the patient's medical record form is a very important factor in determining the accuracy of disease codes. The correct disease code will support correct diagnosis, selection of appropriate medical measures, and optimal patient care planning. In addition, complete medical information can be used to identify disease patterns, conduct epidemiological analysis, and evaluate the effectiveness of medical measures. Based on observations made of 110 patient medical records at Ibnu Sina Hospital Makassar, by looking at the completeness of medical information on each medical record sheet, it was found that the completeness of complete medical information was 36 (32.6%) and incomplete as many as 74 (67.4%).

Incomplete medical record forms are the Patient Entry and Discharge Summary and Patient Discharge Summary. These forms contain social data, patient medical data, results of history taking, physical examination, ancillary examination, main diagnosis, other diagnoses and medical treatment. Completeness of both forms is very important to ensure the accuracy of the patient's disease code. The more complete the information recorded in the Patient Discharge Summary, the higher the likelihood that the disease code received will be accurate. Research results (Maryati et al., 2018) stated that there was a relationship between the completeness of medical information in the discharge summary and the accuracy of the disease code. Similarly, research by (Nur Hidayat et al., 2023) File completeness is a barrier, especially where incomplete discharge summaries are associated with claim delays. This is because doctors and medical staff have limited time compared to the large number of patients in both outpatient and inpatient settings. Another thing is the lack of understanding of the Doctor in Charge of Patients (DPJP) regarding the requirements for the completeness of medical resumes related to claims.

Other forms that have incomplete medical information are the Anamnesis and Physical Examination Forms. According to (Joegijantoro, 2023) Anamnesis is the process of collecting detailed medical information about a patient's medical history and current complaints from a doctor or other medical personnel. Anamnesis includes medical history, family history, social history, as well as gathering information about the patient's symptoms and complaints. Anamnesis is an important part of the patient's diagnosis and treatment process. Through anamnesis, doctors or medical personnel can gather important information to help understand the patient's complaints and symptoms, determine the right diagnosis, and determine a treatment plan that suits the patient's needs.

A structured and systematic history taking process can help doctors or other medical personnel to understand the patient's health condition and decide on the right action to address the complaints and symptoms experienced by the patient. If anamnesis is carried out in detail, information that is really needed in the health service will be obtained. Therefore, medical personnel or doctors who treat patients must write a complete history in order to obtain the right information in establishing a diagnosis. Complete and precise medical information from the results of the history will assist the coder in determining a specific and accurate diagnosis code according to the patient's condition.

Furthermore, the Anatomical Pathology Laboratory Examination Result Form. Anatomical pathology laboratory examination results play a crucial role in the disease diagnosis process. Laboratory examination results such as biopsy, histopathology, and microscopy can provide direct evidence of the presence of lesions or tissue damage associated with a particular disease. In order to improve the accuracy of disease codes, anatomical pathology laboratory examination results should be comprehensively included in the medical record. The completeness of this information will allow the coder to code more accurate diagnoses, thereby improving the overall health data management system. (Harmanto et al., 2021). Thus, the completeness of medical information contributes significantly to improving the quality of accuracy of disease diagnosis codes including topography of neoplasm diagnosis codes.

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Accuracy of Topography Codes for Malignant Neoplasm Cases

Based on observations made, that one of the causes of inaccuracies in the topography of neoplasm code is the delay in the results of the Anatomical Pathology (PA) laboratory. Anatomical pathology examination helps in the definitive diagnosis of cancer and also predicts prognosis and chooses the right therapy for cancer patients. Therefore, the PA results help the coder in determining the accuracy of the topography of neoplasm diagnosis code. The study showed that there was a 53.2% delay in the PA examination results in the patient's medical record and there was no writing of the site of neoplasms on the medical record sheet 33%, so the resulting code was inaccurate. The following are some of the diagnoses found with inaccurate topography of neoplasm codes:

Figure 3. Summary of medical information in the Patient Discharge Summary

Medical Record Number: 2488XX
Main Diagnosis: Carcinoma Mammae Sinistra
Other diagnoses: Diabetes mellitus
Supporting examination and medical treatment: Thorax X-ray, mastectomy, biopsy.
Anatomical pathology examination results: -
Main diagnosis code listed: C50.9

The diagnosis code above shows the inaccuracy of the topography of neoplasm code because the resulting code is C50.9. Based on the explanation in the ICD-10 Volume 1 Book (Tabular List) that code C50.9 states Malignant Neoplasm of Breast, Unspecified. The statement 'unspecified' indicates that the specific location of the malignant neoplasm of the breast is unknown. If reviewed from the results of the supporting examination, a thorax examination and biopsy have been carried out which should have identified a more specific location. For the diagnosis of Carcinoma Mammae, more specific sites can be identified in several areas as listed in the following ICD-10 Volume 3 Alphabetical Index book:

Neoplasm, neoplastic – *continued*

	Malignant	
	Primary	**Secondary**
- breast (connective tissue) (glandular tissue) (soft parts)	C50.9	C79.8
- - areola	C50.0	C79.8
- - axillary tail	C50.6	C79.8
- - central portion	C50.1	C79.8
- - ectopic site	C50.8	C79.8
- - inner	C50.8	C79.8
- - lower	C50.8	C79.8
- - lower-inner quadrant	C50.3	C79.8
- - lower-outer quadrant	C50.5	C79.8
- - midline	C50.8	C79.8
- - outer	C50.8	C79.8
- - skin	C44.5	C79.2
- - tail (axillary)	C50.6	C79.8
- - upper	C50.8	C79.8
- - upper-inner quadrant	C50.2	C79.8
- - upper-outer quadrant	C50.4	C79.8

Figure 2. Specific code of malignant neoplasm of breast

In the picture above, it can be seen that there is a specific site of malignant neoplasm of breast, so that the resulting code is also more specific and accurate.

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Figure 4. Summary of medical information in the Patient Discharge Summary

Medical Record Number: 2522XX Main Diagnosis: Cervix Cancer Other diagnoses: - Supportive examination and medical treatment: HPV test, biopsy. Anatomical Pathology examination results: - Main diagnosis code listed: C53.9

The diagnosis code above shows the inaccuracy of the topography of neoplasm code because the resulting code is C53.9. Based on the explanation in the ICD-10 Volume 1 Book (Tabular List) that code C53.9 states Malignant Neoplasm of Cervix Uteri, Unspecified. The statement 'unspecified' indicates that the specific location of the malignant neoplasm of the cervix uteri is unknown. If reviewed from the results of supporting examinations, the Human Papillomavirus (HPV) Test and biopsy should have been able to identify a more specific location. For the diagnosis of Uterine Cervix Cancer, more specific sites can be identified in several areas as listed in the following ICD-10 Volume 1 book:

C53	Malignant neoplasm of cervix uteri
C53.0	Endocervix
C53.1	Exocervix
C53.8	Overlapping lesion of cervix uteri *See note 5 at the beginning of this chapter*
C53.9	Cervix uteri, unspecified

The picture above shows that there are more specific sites of malignant neoplasm of cervix uteri, namely in the endocervix, exocervix or the possibility of overlapping lesion of cervix uteri.

Another factor causing code inaccuracy is that the coder did not pay attention to the morphology of neoplasms code as much as 13.8%. The following are some of the diagnoses found whose topography of neoplasm codes were inaccurate:

Figure 5: Summary of medical information in the Patient Discharge Summary

Medical Record Number: 2541XX Main Diagnosis: Metastatic Carcinoma Clavicula Other diagnoses: - Supportive examination and medical treatment: CT-Scan, biopsy Anatomical Pathology examination results: Invasive Carcinoma of Bone (Clavicle) Grade III Main diagnosis code listed: C41.3

The diagnosis code above shows the inaccuracy of the topography of neoplasm code because the resulting code is C41.3. Based on the explanation in the ICD-10 Volume 1 Book (Tabular List) that code C41.3 states Malignant Neoplasm of Ribs, sternum and clavicle, for the primary site.

When viewed from the main diagnosis and the results of the Anatomical Pathology laboratory examination, invasive carcinoma of the clavicle is listed, which means that the carcinoma is a metastasis or secodary site. The code selected for this condition is as follows steps listed in the ICD-10 Volume 3 book:

Lead term:
Carcinoma (M8010/3) - see also Neoplasm, malignant.
- Metastasis (M8010/6) - see Neoplasm, secondary
Neoplasm Table
- Clavicle ◊ ---------- select secondary malignant with code C79.5
So the selected code should be C79.5, Secondary malignant neoplasm of bone and bone marrow

The cause of code inaccuracy occurred because the coder did not pay attention to the morphology of neoplasm code on the metastatic indentation listed, namely M8010/6. In this code, the behavior of neoplasm code

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is listed, namely /6 which means malignant metastatic or secondary site. In addition, in the Clavicle site neoplasm table, there is a sign or symbol ◊ (diamond), which means note number 3 applies as listed at the beginning of the following neoplasm table:

The Note states that for any type of neoplasm Carcinoma and Adenocarcinoma except intraosseous or odontogenic, which has a ◊ symbol on the site, should be considered as a metastatic neoplasm from an unspecified primary site and coded with C79.5.

It is clear that the code that should be selected is C79.5, Secondary malignant neoplasm of bone and bone marrow.

Other examples of cases found are:

Figure 6: Summary of medical information in the Patient Discharge Summary

Medical Record Number: 2482XX
Main Diagnosis: Caput Pancreas Tumor (malignant) Std 4
Other diagnoses: Anemia
Supporting examination and medical treatment: CT-Scan, Endoscopy, Biopsy
Anatomical Pathology examination result: Malignancy neoplasm of ductus Santorini Grade 3
Main diagnosis code listed: D37.7

The diagnosis code above shows the inaccuracy of the topography of neoplasm code because the resulting code is D37.7. Based on the explanation in the ICD-10 Volume 1 Book (Tabular List) that code D37.7 states Neoplasm of Uncertain or Unknown Behavior of Other Digestive Organs including Pancreas.

When viewed from the main diagnosis and laboratory examination results of Anatomical Pathology, it is listed as Malignancy neoplasm of ductus Santorini Grade 3, which means that the tumor, which was originally uncertain or unknown behavior, has turned into malignant behavior. It is also listed in the main diagnosis in brackets maligna or malignant. The code selected for the condition is as per the steps listed in ICD-10 Volume 3 below:

Lead term:
Tumor (M8000/1) – see also Neoplasm, uncertain behaviour
- *Malignant (M8000/3) – see also Neoplasm, malignant*

Neoplasm Tabel
- *Pancreas*
- *- duct (of Santorini) (of Wirsung) --------- pilih Malignant, primary site kode* ***C25.3***

Tabular List C25.3

C25	Malignant neoplasm of pancreas
C25.0	Head of pancreas
C25.1	Body of pancreas
C25.2	Tail of pancreas
C25.3	Pancreatic duct

The cause of the code inaccuracy occurred because the coder did not pay attention to the morphology of neoplasm code on the malignant indent. The coder only focused on the morphology code of the Tumor diagnosis listed M8000/1 with the behavior code /1 meaning uncertain or unknown behavior so that the resulting code was D37.7, the morphology code that should have been used was Malignant M8000/3, with the behavior code /3 meaning Malignant, Primary Site so that the topography of neoplasm code became C25.3, Malignant Neoplasm of Pancreatic Duct.

Based on the description above, one of the causes of the inaccuracy of the topography of neoplasm code at Ibnu Sina Hospital Makassar is that the coder is less careful or pays less attention to the morphology of neoplasm code. This is also in line with the findings of research by (Nur Hidayat et al., 2023) which states that one of the

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causes of pending claims in hospitals is coder inaccuracy. This error can occur due to the large number of files, so that coders work on coding and entering data in a hurry.

Strategies to Improve The Accuracy of Topography of Neoplasm Codes With SWOT Analysis

Based on the results of the SWOT analysis at Ibnu Sina Hospital Makassar, it is known that the most dominant thing causing inaccuracies in the topography of neoplasm code is the delay in the results of the Anatomical Pathology laboratory examination and the absence of the site of neoplasm in the diagnosis. The Anatomical Pathology (PA) laboratory examination results have a very important role in determining an accurate diagnosis for patients. Through the analysis of tissues and body fluids, anatomical pathology helps doctors identify various diseases, including malignancies such as tumors and cancer (Nora Ramkita, 2022).

The delay in PA results causes doctors to not be able to clearly diagnose the topography of the neoplasm so that the code generated by the coder is dominant in unspecified site. If the code shows unspecified site, the impact that occurs is the rejection of claims by BPJS. Codes that are unclear or not detailed make it difficult for BPJS verifiers to validate claims, so they have the potential to return file claims to hospitals for improvement or even refuse payment altogether, another impact is that hospitals can experience significant financial losses due to claim returns, because payments received from BPJS insurance may not be in accordance with the medical actions provided, even some cases hospitals have to bear losses of up to tens of millions of rupiah due to errors in coding (Irmawati, 2019).

The strategy that can be done to overcome the delay in PA examination results and the inclusion of the site of neoplasm is by implementing strategies based on SWOT analysis on the Weakness-Opportunity (WO) strategy, namely increasing coordination with doctors regarding the completeness of medical information by writing in the summary of the site of neoplasm home, conducting regular follow-up of anatomical pathology laboratory examination results immediately attached to the patient's medical record and designing a tracking system for Anatomical Pathology laboratory examination results so that the examination results are processed immediately.

Other factors found due to code inaccuracies based on SWOT analysis are related to Standard Operating Procedures (SPO) factors, human resources and no evaluation in the form of coding audits. The importance of Standard Operating Procedures (SPO) in determining the correct disease diagnosis code cannot be taken for granted. SPO serves as a guideline for medical personnel and coders in managing and coding diagnoses in accordance with applicable standards based on ICD-10. In the Minister of Health Regulation Number 1438/MENKES/PER/IX/2010 concerning Medical Service Standards, Article 1 point 2 states that the definition of SPO is a standardized set of instructions/steps to complete certain routine work processes, or the correct and best steps based on mutual consensus in carrying out various activities and service functions made by health care facilities based on professional standards (Matippanna, 2022).

At Ibnu Sina Hospital Makassar, the existing SPO only lists the flow of data processing starting from assembling, analyzing, coding and indexing. There is no SPO that contains the correct coding steps according to ICD-10. The ICD-10 Volume 2 Instruction Manual book describes eight coding steps that must be taken to code correctly. Coding using ICD-10 serves as a statistical classification of morbidity and mortality. The code generated by the coder becomes a source of data that will be processed and used as reporting and decision-making material.

If the resulting code uses .9 or unspecified, it indicates poor quality of service. (Hozisah, 2020). The strategy that can be chosen to overcome this problem based on SWOT analysis on the Strength-Opportunity (SO) Strategy is to prepare SPO and involve coders in the preparation of SPO, using the latest ICD-10 book references and on the Strength-Threat (ST) Strategy is to recommend coders to join online discussion forums to discuss with other coders in solving complex cases related to neoplasm coding, the results of this discussion can be used as a reference in preparing SPO.

Next is the Human Resources (HR) factor, in this case the coder staff. SWOT analysis shows that Ibnu Sina Hospital has four coders who are sufficient to meet the needs, but from an educational background only two people have a Medical Records and Health Information education background. In addition, the experience and tenure of the two people have not been long so they still need a lot of knowledge and skills in doing proper coding. Factors of knowledge, skills, length of service and educational background can affect competence. This is in accordance with research by (Maimun, 2016) which states that the determinants of the accuracy of diagnosis codes depend on the competence of coder officers, namely the coder has sufficient qualifications related to educational

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background and training, knowledge of the types of actions, medical terminology, anatomy, and physiology of disease and skills in determining codes accurately.

In order to overcome this problem, the strategy that can be used by Ibnu Sina Hospital Makassar based on the Strength-Opportunity (SO) strategy analysis is to rotate officers by placing officers with a medical record education background and who are more experienced in coding. This can be done considering that in the hospital the number of officers with a background in Medical Records and Health Information education is placed in the Patient Registration Registration section, which this section may be occupied by other health workers. The next strategy is to develop coder skills by including them in coding training, teaching coders to prioritize their work and reminding coders that coding quality is more important than quantity, facilitating coders to utilize information technology to assist in code verification, collaborating with other hospitals to share experiences related to neoplasm coding and allocating funds for human resource development.

The results of the next SWOT analysis are that one of the factors that cause inaccurate topograhpy of neoplasm codes is the absence of performance evaluation in the form of coding audits. According to (Nasution, 2020) The audit of disease coding and medical actions aims to ensure that the diagnosis and action coding process carried out by medical record officers (coders) is accurate, precise, and timely. Some of the benefits obtained by this coding audit are improving the quality of clinical data, evaluating validity, reliability, completeness, timeliness, identifying types of errors that often occur and can reduce pending claims. To overcome the problems at Ibnu Sina Hospital Makassar, the recommended strategy of the Weakness-Opportunity strategy is (WO) namely conducting periodic coding audits. From the results of this coding audit, the existing findings are identified so that a standardized medical record format can be created that is clear and easily understood by all officers involved in filling out medical records, designing and implementing a double verification system to ensure code accuracy before claims are submitted and collaborating with BPJS Insurance to get feedback on the quality of coding and solve the problem of delayed claims.

CONCLUSION

1. Completeness of medical information on complete medical record sheets 32.6% and incomplete 67.4%. The types of incomplete forms are the Admission and Discharge Summary Form, Patient Discharge Summary Form, Anamnesis and Physical Examination Form and Anatomical Pathology Examination Result Form.Keakuratan kode *topography of neoplasm* yang yang akurat 21.8% dan yang tidak akurat 78.2%.
2. The causes of code inaccuracies are the delay in Anatomical Pathology laboratory results 53.2%, there is no writing of the site of neoplasms on the medical record sheet 33%, coding officers do not pay attention to the morphology of neoplasms code 13.8%.
3. The results of the SWOT analysis show strength and opportunity factors, namely the educational qualifications of coding staff in accordance with their competence, using updated ICD-10 books. Weakness and threat factors are incomplete medical information, no SPO coding neoplasms and no regular coding audits.
4. Strategies to improve the accuracy of diagnosis codes by optimizing internal and external factors by conducting periodic coding audits, preparing SPOs and improving clinical coding skills in officers.

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