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OVERVIEW OF THE PERCENTAGE OF ACCURACY IN CODING PNEUMONIA DIAGNOSES BASED ON ICD-10 ACCORDING TO PNPK 2023 AT THE UDAYANA TYPE II HOSPITAL IN DENPASAR CITY

GAMBARAN PERSENTASE KETEPATAN KODING DIAGNOSIS *PNEUMONIA* BERDASARKAN ICD-10 MENURUT PNPK 2023 DI RUMAH SAKIT TK.II UDAYANA KOTA DENPASAR

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DOI: https://doi.org/10.62567/micjo.v2i4.1271

Article info:

Submitted: 10/09/25 Accepted: 16/10/25 Published: 30/10/25

Abstract

The accuracy of disease diagnosis coding is an important indicator in the management of medical records and health service claims. This study aims to determine the percentage of accuracy in coding pneumonia diagnoses based on ICD-10 according to the 2023 National Medical Practice Guidelines (PNPK) at Udayana Hospital II in Denpasar. The research method used was quantitative descriptive with a total sampling approach of 72 medical records of pneumonia patients during the period from October 1, 2024, to December 31, 2024. The research instrument was a checklist for assessing the accuracy of diagnosis codes based on the provisions of ICD-10 and PNPK Pneumonia 2023. The results showed that 51 files (70.8%) were coded accurately, while 21 files (29.2%) were coded inaccurately. The inaccuracy in coding was due to a lack of supporting tests, such as microbiological tests, as well as the excessive workload of the coders. These findings indicate the need for an analysis of coders' workload to measure the effectiveness and efficiency of their tasks, time management, and priorities. This study is expected to serve as evaluation material to improve the quality of service and efficiency of hospital administration.

Keywords**:** Coding accuracy, ICD-10, PNPK 2023, pneumonia, medical records

Abstrak

Keakuratan pengkodean diagnosis penyakit merupakan indikator penting dalam pengelolaan data rekam medis dan klaim pelayanan kesehatan. Penelitian ini bertujuan untuk mengetahui gambaran persentase ketepatan koding diagnosis pneumonia berdasarkan ICD-10 menurut

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Pedoman Nasional Praktik Kedokteran (PNPK) 2023 di Rumah Sakit Tk.II Udayana Kota Denpasar. Metode penelitian yang digunakan adalah deskriptif kuantitatif dengan pendekatan total sampling terhadap 72 berkas rekam medis pasien pneumonia pada periode 1 Oktober 2024 hingga 31 Desember 2024. Instrumen penelitian berupa lembar checklist penilaian ketepatan kode diagnosis mengacu pada ketentuan ICD-10 dan PNPK Pneumonia 2023. Hasil penelitian menunjukkan bahwa 51 berkas (70,8%) dikode dengan tepat, 21 berkas (29,2%) tidak tepat. Ketidaktepatan pengkodean disebabkan oleh kurangnya pemeriksaan penunjang seperti pemeriksaan mikrobiologi, serta beban kerja berlebihan petugas koder. Temuan ini menunjukkan perlunya analisis beban kerja petugas untuk mengukur efektivitas serta efisiensi tugas, manajemen waktu dan prioritas petugas. Penelitian ini diharapkan menjadi bahan evaluasi untuk meningkatkan mutu pelayanan dan efisiensi administrasi rumah sakit.

Kata kunci: Ketepatan koding, ICD-10, PNPK 2023, *pneumonia*, rekam medis

1. INTRODUCTION

Medical records are used as a reference for future patient visits, especially when the patient returns for treatment; the medical record must be readily available. Healthcare professionals will face difficulties in providing treatment or therapy before knowing the patient's medical history, past treatments, or therapies, which are contained in the medical record file. An essential aspect of medical records is their availability when needed and the completeness of their documentation. Complete documentation of medical records by healthcare providers will facilitate other healthcare professionals in delivering treatment or therapy to patients (Handynata, 2022).

The Decree of the Minister of Health of the Republic of Indonesia No: HK.01.07/MENKES/312/2020 concerning the Professional Standards for Medical Recorders and Health Information states that one of the competencies required of medical recorders is clinical classification skills, coding of diseases and other health problems, as well as clinical procedures (HK.01.07, 2020). According to the World Health Organization (2010), the accuracy of coding the primary diagnosis of a disease is influenced by the specificity of the primary diagnosis statement. Each diagnosis statement must be informative and easy to understand in order to classify the condition into the highly specific ICD-10 category. The quality of the coding process depends on the completeness of the diagnosis, the professionalism of coding officers and physicians, and the legibility of the physician's handwriting.

If the patient's disease diagnosis is not coded accurately, the resulting information will have a low level of data validity. This may lead to inaccuracies in reporting, such as outpatient morbidity reports, top ten disease reports, or BPJS claims (Sukawan et al., 2023)

This is supported by research conducted by (Dea et al., 2022). Based on the study results, the accuracy of pneumonia case coding in 72 sampled medical record files showed that 0 codes were in the accurate category, 57 codes were in the fairly accurate category, and 15 codes were in the inaccurate category. Accuracy in assigning diagnosis codes is a matter that must be carefully considered by medical recorders, as the precision of diagnostic data is crucial in clinical data management, reimbursement, and other matters related to healthcare services.

Another study by (Budiarti et al., 2023) examined the accuracy of inpatient pneumonia diagnosis coding at Dr. M. Yunus Hospital in Bengkulu using a checklist. The findings revealed that out of 65 medical record files, 54 (70%) pneumonia diagnosis codes were accurate, while

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11 (30%) were inaccurate.

Coding errors and inaccuracies in diagnosis codes occur because attending physicians often write unclear or insufficiently specific diagnoses, making it difficult for coders to identify the correct diagnosis code, which may lead to coding errors. Coding officers must ensure accuracy in assigning diagnosis codes. Diagnostic data accuracy plays a key role in clinical data processing, billing to BPJS, and other issues related to healthcare services (Ramdhani & Gunawan, 2024).

Based on the above, the researcher is interested in conducting a study entitled: "Overview of the Percentage Accuracy of Pneumonia Diagnosis Coding Based on ICD-10 According to PNPK 2023 at Udayana Level II Hospital, Denpasar City."

2. RESEARCH METHOD

The method used in this study is a quantitative descriptive study. According to *Research Methodology* (Winarto, 2018), a quantitative descriptive study is a research method aimed at creating an objective description of a situation.

3. RESULTS AND DISCUSSION

Based on the results of the study at Udayana Level II Hospital Denpasar on casemix coders in the BPJS Control Unit and the Medical Record Department, an overview of casemix coders in the BPJS Control Unit can be seen in Table 4.1, and an overview of coders in the Medical Record Department can be seen in Table 4.2.

Table 4.1 Casemix Coders in the BPJS Control Unit at Udayana Level II Hospital Denpasar

No	initials	Gender	Age	Education	Training
1	D F	Female	48 years	SLTA Plus	SLTA Plus (Medical Records Training + INA-CBGs Training + No ICD 9 and ICD 10 training)
2	dr. K S	Male	36 years	S1 Medical Profession	Medical Records Training + INA-CBGs Training + No ICD 9 and ICD 10 training.
3	Y P	Female	31 years	DIII Nursing	Medical Records Training + INA-CBGs

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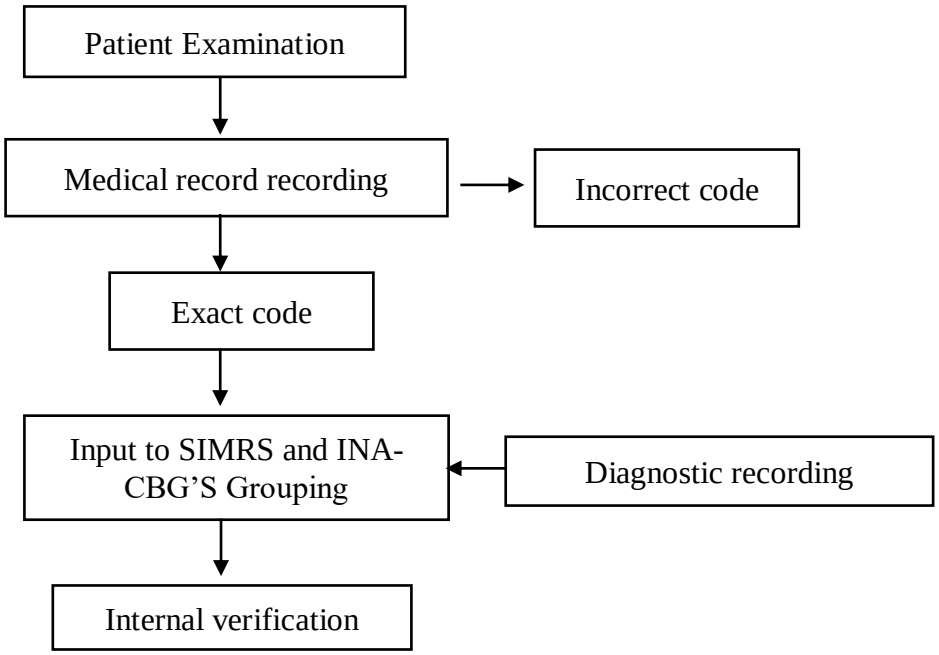
					Training + No ICD 9 and ICD 10 training.

Table 4.2 Medical Records Installation Coder Officer at Udayana Class II Hospital, Denpasar

No	initials	Gender	Age	Education	Training
1	R M	Female	29 years	S1 Medical Recorder	Medical Record Training + Hospital Reporting Training + No ICD 9 and ICD 10 training.

Based on table 4.1 and table 4.2 above, it can be seen that 4 BPJS control coders and Medical Recorders have a Bachelor's degree in medical recorders, 1 person, while the remaining 1 person has a Bachelor's degree in Medical Profession, 1 person has a Diploma III in Nursing, 1 person has a High School Plus.

Based on the results of research at Udayana Denpasar Class II Hospital, it is known that the coding flow in the BPJS Control Room and Medical Records Installation is as follows:



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Fiture 4.1 Coding Flow

4.2. Percentage of Accuracy in Pneumonia Diagnosis Coding at TK.II Udayana Hospital, Denpasar City

Based on the results of the study conducted at TK.II Udayana Hospital Denpasar on 190 medical record files of pneumonia cases during the period of October 1, 2024 – December 31, 2024, the percentage of coding accuracy in the medical records can be seen in Table 4.3.

Table 4.3 Percentage of Accuracy in Pneumonia Coding at TK.II Udayana Hospital, Denpasar City

No	Code Accuracy	Frequency	Persentage
1	Appropriate	51	70.8%
2	Not exactly	21	29.2%
	Total	72	100

Based on Table 4.3 above, it can be seen that out of 72 medical record files with a pneumonia diagnosis, 51 medical record files were coded correctly with a percentage of 70.8%, while 21 medical record files were coded incorrectly with a percentage of 29.2%.

4.3 Research Discussion

4.3.1 Discussion on Coders in the BPJS Control Room and the Medical Records Unit at TK.II Udayana Hospital, Denpasar City

Based on the flow in Figure 4.1, it can be explained that the process begins with patient examination, followed by medical record documentation by healthcare workers. Subsequently, the medical record data are used by coders to perform diagnosis coding (ICD-10 and ICD-9-CM), which greatly determines coding accuracy. This accuracy affects the INA-CBG's grouping in the Hospital Information System (SIMRS). If the diagnosis codes used are inaccurate, for example due to incomplete information, misinterpretation, or non-compliance with the National Guidelines for Medical Practice (PNPK), then errors in tariff groupings will occur, ultimately affecting claims to BPJS Health.

The findings of this study show that inaccurate diagnosis codes still exist, caused by a lack of attention to detail among coders, excessive workload, limited training, and irrelevant educational backgrounds. These conditions have the potential to cause claims to be rejected, reduced, or returned.

In this study, the researcher assumes that the cause of inaccurate diagnosis coding is due to the lack of accuracy and excessive workload of medical record coders. Coders are often assigned additional tasks such as assembling, registration counter services, and scanning medical record files. As a result, coders are less focused on coding diagnoses according to patient conditions. This finding is supported by Utami et al. (2024), who state that coders not only perform coding but also assembling of medical records, which reduces coding accuracy. The heavier the coding workload, the higher the risk of coding inaccuracies. Kusumawati (2019) also emphasizes that coders' accuracy in reading diagnoses affects the accuracy of diagnosis codes. Accuracy is crucial to translate diagnoses into ICD-10 codes by adhering to coding rules, thereby avoiding errors caused by non-compliance or mistakes in the coding process.

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In line with Syifani et al. (2024), the level of coding accuracy may depend on the workload borne by coders. Workload refers to the total number of tasks assigned to a position or organizational unit, calculated as the product of task volume and standard time. If the workload is too heavy, it will affect coding quality due to decreased performance, making coders less attentive.

Based on the results of this study, the researcher concludes that inaccuracies in diagnosis coding are closely related to excessive workload and a lack of accuracy among medical record coders. In practice, many coders not only perform diagnosis coding but are also assigned other administrative duties such as assembling, registration counter services, and scanning medical record files. These conditions disrupt coders' focus and concentration during the coding process, increasing the risk of errors in selecting codes that match patients' clinical conditions. Therefore, the researcher concludes that reducing workload and adjusting coders' responsibilities are essential to improve coding accuracy, which in turn will enhance the quality of medical record data and the success of health service claims.

4.3.2 Discussion on the Percentage of Pneumonia Diagnosis Coding Accuracy at TK.II Udayana Hospital, Denpasar City

Based on the study conducted at TK.II Udayana Hospital Denpasar, out of 72 medical record documents with a pneumonia diagnosis, 51 were coded correctly and 21 incorrectly. The inaccuracies were caused by incomplete use of the fourth character of the code and improper code selection that did not reflect the patient's condition. For example, the code written was J18.-, while the correct diagnosis for pneumonia should be J18.9, in accordance with the coding audit at TK.II Udayana Hospital Denpasar. The dash (.-) indicates that a fourth character must be identified in the appropriate category, and coders should consult Volume 1 to determine the correct category details, ensuring more specific coding.

This finding is supported by previous studies on pneumonia diagnosis coding accuracy. From 65 medical record files, 54 (70%) were coded correctly, but 11 (30%) were not (Budiarti et al., 2023). Similarly, research at Dr. M. Yunus Hospital Bengkulu showed that out of 65 medical records, 54 (70%) pneumonia cases were coded accurately, while 11 (30%) were not, using a checklist form (Budiarti et al., 2023).

This study is also consistent with research at Assalam Gemolong General Hospital, which found that inaccuracies in diagnosis coding due to missing fourth characters occurred because the ICD-10 2010 version was still in use and had not been updated. Other contributing factors included coders' lack of attentiveness when analyzing medical records and their excessive workloads. As explained by Maryati & Sari (2019), workload, defined as the volume of tasks multiplied by standard time, can negatively affect coding quality if it becomes excessive, reducing coders' accuracy.

From the results of this study, the researcher believes that this issue must be a primary concern for hospital management and related institutions to improve coders' competencies. Continuous education and training on ICD-10, particularly on specific coding rules, must be prioritized. Additionally, placing coders with an appropriate educational background in medical records will significantly improve coding accuracy. Overall, the study highlights the need for updated coding systems, improved human resources, and stricter supervision in the diagnosis coding process. By doing so, the quality of medical record data can be enhanced, supporting more accurate and effective healthcare services.

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4. CONCLUSION

The conclusions of the study titled *Overview of the Percentage of Pneumonia Diagnosis Coding Accuracy Based on ICD-10 According to PNPK 2023 at TK.II Udayana Hospital, Denpasar City* are as follows:

1. The cause of inaccurate diagnosis coding is the lack of accuracy and the excessive workload of medical record coders.
2. The percentage of pneumonia diagnosis coding accuracy at TK.II Udayana Hospital Denpasar shows that out of 72 medical record files with a pneumonia diagnosis, 51 files (70.8%) were coded correctly, while 21 files (29.2%) were coded incorrectly.

Coders are expected to pay closer attention when selecting pneumonia diagnosis codes, ensuring that codes are accurate in accordance with ICD-10 and the patient's condition.

For Future Researchers

Further research is encouraged to explore additional variables related to the accuracy of diagnosis coding in compliance with ICD-10 standards.

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