

Analysis of Perceived Contributing Factors to Pending Claims in The Inpatient Department of Hospital X: A Fishbone Diagram Study

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ABSTRACT

Background: Pending claims in Indonesia's National Health Insurance (BPJS Kesehatan) occur when claim documents are returned for failing to meet administrative or technical requirements, affecting hospital cash flow. This study analyzed the perceived contributing factors to inpatient BPJS Kesehatan pending claims at Hospital X using a fishbone diagram approach. **Methods:** This qualitative case study collected data through a fishbone-based questionnaire (six dimensions, 23 items), in-depth interviews, and review of 779 pending inpatient claim documents from June 2024 to May 2025. Three informants were selected using total sampling. Given the small sample (n=3), Likert scores were interpreted descriptively rather than as generalizable estimates. Data were analyzed using method triangulation. **Result:** Perceived contributing factors included unequal staff competency from limited coding training (Man); incomplete records, inaccurate coding, and duplicate-claim risk (Material); reactive, unstructured evaluation (Measurement); regulatory changes with limited internal dissemination (Environment); absence of written coding SOPs (Method); and information systems lacking a document-completeness screening tool (Machine). **Conclusion:** Regular coding training, written coding SOPs, structured monitoring, and stronger internal dissemination of BPJS Kesehatan regulations are recommended to reduce pending claims.

Keywords: Diagnosis-Related Groups, Inpatients, Insurance Claim Reimbursement, National Health Programs, Root Cause Analysis.

INTRODUCTION

Indonesia's National Health Insurance (Jaminan Kesehatan Nasional/JKN) program, launched in January 2014, was established to provide equitable and affordable healthcare services for all Indonesian citizens. The program offers comprehensive healthcare services without direct financial burden on participants, as healthcare costs are covered through the national health insurance system (1). In accordance with Presidential Regulation No. 59 of 2024 concerning National Health Insurance, all Indonesian residents are required to enroll in the JKN program. Membership coverage is one of the key indicators used to evaluate the successful implementation of the JKN program (2). The program is administered by BPJS Kesehatan (Social Security Administering Agency for Health), which is responsible for providing healthcare access to the Indonesian population. Among the available healthcare services, inpatient care is one of the most frequently utilized by JKN participants (3).

The implementation of the JKN program is supported by BPJS Kesehatan, which is responsible for collecting member contributions, managing the national health insurance fund, and ensuring the provision of high-quality and sustainable healthcare services. To achieve this objective, BPJS Kesehatan collaborates with various healthcare facilities, including community health centers (Puskesmas), clinics, and hospitals. Through these partnerships, BPJS Kesehatan reimburses healthcare services provided to JKN participants in accordance with applicable regulations. Hospitals serve as the primary healthcare facilities for delivering curative and rehabilitative services covered by BPJS Kesehatan. JKN participants are categorized into three membership groups: Contribution Assistance Recipients (PBI), Wage-Earning Workers (PPU), and Non-Wage-Earning Workers (PBPU). Contributions for PBI participants are fully subsidized by the government, whereas PPU participants share contribution payments with their employers, and PBPU participants pay their contributions independently (4). In its reimbursement mechanism, BPJS Kesehatan applies the Indonesian Case-Based Groups (INA-CBGs) payment system, which reimburses hospitals based on predetermined case-based tariffs (5). This payment system is intended to improve efficiency, transparency, and the sustainability of healthcare services for all JKN participants.

The implementation of the INA-CBGs payment system requires hospitals to deliver healthcare services efficiently while maintaining compliance with established standards to ensure high-quality care despite limited financial resources. The INA-CBGs tariffs are regulated under the Minister of Health Regulation (Permenkes) No. 3 of 2023 on Standard Healthcare Service Tariffs for the Implementation of the National Health Insurance Program, which serves as the basis for hospitals in submitting reimbursement claims to BPJS Kesehatan. Under this payment system, hospitals are reimbursed based on predetermined package tariffs for each diagnosis group through the casemix system, which classifies diseases according to similarities in clinical characteristics, resource utilization, and medical procedures (6). This reimbursement mechanism is expected to promote transparency and accountability in the utilization of national health insurance funds while ensuring the sustainability of the JKN program. Furthermore, the implementation of the INA-CBGs system encourages hospitals to improve resource management efficiency and strengthen medical record documentation, thereby supporting timely and accurate claim submission.

In the INA-CBGs reimbursement system, hospitals are required to submit reimbursement claims to BPJS Kesehatan for healthcare services provided to JKN participants. The submitted claims are verified by BPJS Kesehatan claim verifiers, who are responsible for reviewing the claim documents and determining the reimbursement amount requested by healthcare facilities (7). However, not all submitted claims are approved for reimbursement. Based on the verification process, claims are classified as either eligible or ineligible (pending) according to the requirements and document completeness stipulated by BPJS Kesehatan (8). Pending claims generally result from incomplete medical or administrative documentation, inaccurate diagnosis or procedure coding, issues related to episodes of care, and errors in INA-CBGs grouper data entry (9).

Pending claims do not occur without underlying causes. They arise from various administrative and regulatory issues, including incomplete medical record documentation, discrepancies between diagnosis codes and supporting clinical evidence, frequent changes in BPJS Kesehatan regulations, and the need to monitor potential duplicate claims involving the inappropriate use of multiple Participant Eligibility Letters (Surat Eligibilitas Peserta/SEP) for outpatient and inpatient services within the same episode of care. These issues have significant financial and operational implications for hospitals. Consistent with the findings of (10), pending claims may adversely affect hospital financial performance by disrupting cash flow and limiting the availability of medical equipment and pharmaceutical supplies. Furthermore, pending claims increase the workload of case mix officers and clinical coders, who must repeatedly revise claim submissions, thereby increasing the risk of claim rejection. These challenges are particularly significant for Type C hospitals, where the timely reimbursement of BPJS Kesehatan claims plays a crucial role in maintaining operational sustainability and ensuring the quality of healthcare services (11).

The issue of JKN pending claims has become an increasingly serious concern in Indonesia. According to national data, as of the end of 2024, the total value of pending claims reached IDR 5.92 trillion, involving approximately 3.69 million claim cases, representing a substantial increase from IDR 2.16 trillion reported in 2023 (12). The proportion of pending claims has also shown an upward trend. A survey involving 211 hospitals across Java, Bali, and Kalimantan conducted between August and October 2024 reported an increase in the pending claim rate from 14.0% in August to 19.6% in October 2024, with a total claim value of IDR 575.4 billion (13).

A preliminary study conducted at Hospital X revealed an average pending claim rate of 19.39% during the period of June 2024 to May 2025. In this study, the monthly pending claim rate was calculated as the number of pending claims divided by the total number of submitted claims in that month, expressed as a percentage. A pending claim was operationally defined as a submitted claim returned by the BPJS Kesehatan verifier for revision due to incomplete or non-compliant administrative or technical documentation, prior to reprocessing for reimbursement. The highest pending claim rate was recorded in July 2024 (35.58%), whereas the lowest was observed in March 2025 (9.60%). The substantial increase in pending claims in July 2024 coincided with the implementation of new BPJS Kesehatan regulations for inpatient services, which were officially introduced on June 4, 2024. The updated policy introduced two major changes that significantly affected healthcare service delivery and the reimbursement process in the inpatient department. First, patients who were discharged against medical advice (Discharge Against Medical Advice [DAMA]) were no longer eligible for BPJS Kesehatan coverage and were subsequently classified as self-paying patients. Second, postoperative patients were eligible for reimbursement for only one follow-up visit, while subsequent follow-up visits were required to be referred to Primary Healthcare Facilities (Fasilitas Kesehatan Tingkat Pertama/FKTP) or community health centers (Puskesmas), unless documented postoperative complications were present. These policy changes substantially modified the reimbursement eligibility criteria. Consequently, claim submissions that continued to follow the previous reimbursement procedures no longer met the updated verification requirements, resulting in an increased number of pending claims.

Although the new policy was disseminated on June 4, 2024, its impact on the increase in pending claims became evident only in July 2024. This finding suggests the presence of an implementation lag at the operational level, during which clinical staff, medical record officers, and clinical coders required time to understand, adapt to, and consistently implement the new regulations in the claim submission process. Following this initial adjustment period, the data demonstrated a consistent downward trend, with the pending claim rate declining to 9.60% by March 2025. This pattern indicates that healthcare facilities required approximately two to three months to successfully adapt to the newly implemented BPJS Kesehatan regulations.

However, the fluctuations observed in the subsequent months indicate that regulatory changes were not the sole factor contributing to pending claims in the inpatient department of Hospital X. Pending claims are a multifactorial issue that may arise from various dimensions, including human resources, medical record documentation systems, compliance with clinical procedures, and internal monitoring mechanisms. Therefore, a comprehensive and systematic analytical approach is required to identify the underlying root causes and to understand the interrelationships among these contributing factors. One of the most appropriate and widely used quality management tools in healthcare settings is the fishbone diagram, also known as the Ishikawa diagram.

Fishbone diagrams are graphical tools used to visualize the various factors contributing to a problem or nonconformity and to facilitate the identification of its underlying root causes (14). In the context of pending claims, the fishbone diagram categorizes contributing factors into six dimensions: Man, Method, Machine, Material, Measurement, and Environment. The main problem is represented by the head of the fish, while the contributing factors, barriers, and root causes are illustrated as interconnected bones extending toward the fish head (15). Conceptually, the diagram consists of a central horizontal line (the backbone) connected to several branches representing sub-causes that contribute to a particular problem or outcome (16). By systematically identifying and categorizing the contributing factors, the fishbone diagram serves as an effective quality improvement tool for determining appropriate corrective actions and preventing the recurrence of similar problems.

Several previous studies have investigated pending claims in hospitals from different perspectives. (17) analyzed pending claims resulting from discrepancies in diagnosis and procedure coding among inpatients and reported that 31% of pending claims were attributable to coding-related issues, including inaccurate determination of the principal diagnosis, the need for join codes, and the requirement for confirmation of procedure codes and supporting clinical documentation. Similarly, (18) examined the factors contributing to inpatient JKN pending claims using a fishbone diagram at Dr. Kariadi Central General Hospital and found that the primary contributing factors included human factors related to staff inaccuracy (Man), technical issues involving application systems (Machine), and methodological factors arising from differences in interpretation between hospital coders and BPJS Kesehatan claim verifiers (Method). Furthermore, (19) investigated the determinants of inpatient JKN pending claims at Kanjuruhan Regional General Hospital and reported that medical factors accounted for the largest proportion (57%), followed by coding factors (33%) and administrative factors (10%). The dominant medical-related causes included inadequate supporting clinical documentation, insufficient explanation of patient management, and incomplete documentation of indications for inpatient admission.

Consistent findings have also been reported by (20) at Airlangga University Hospital and (21) at dr. Soepraoen Army Hospital, both of which identified incomplete claim documentation and coding errors as the predominant causes of inpatient JKN pending claims. Likewise, (22) reported that the most common reason for returned inpatient claim documents was the lack of consistency between the documented diagnosis, clinical management, and supporting examination results. Their findings further indicated that Man factors were associated with staff competency, whereas Material factors were related to inaccurate diagnoses documented in electronic medical discharge summaries, leading to coding errors. In addition, (23) reported that 176 of 3,219 submitted inpatient claims (5.46%) were classified as pending, of which 68.18% resulted from coding-related errors, including incorrect code selection, the need for code reselection, and duplicate diagnosis codes.

Although several previous studies have investigated the factors contributing to inpatient pending claims, these studies have generally examined the problem from a partial perspective by focusing on only one or two specific aspects and have not systematically analyzed the interrelationships among contributing factors using a fishbone diagram approach. Therefore, this study aimed to comprehensively analyze the factors contributing to pending claims in the inpatient department of Hospital X using a fishbone diagram approach to develop targeted recommendations for quality improvement.

METHODS

This study employed a qualitative research design using a case study approach. The study was conducted at Hospital X, a Type C hospital located in the Surakarta region. The research instruments consisted of two types of interview guides, namely a questionnaire and an in-depth interview guide:

Questionnaire

The questionnaire was developed based on the fishbone diagram framework, which comprises six main dimensions: Man (Human Resources), Method (Procedures), Material (Supporting Documents), Machine (Information System), Measurement (Evaluation), and Environment (Work Environment), with a total of 23 items. The Man dimension consisted of five items assessing staff competency, training, understanding of regulations, workload, and work accuracy. The Method dimension included four items related to standard operating procedures (SOPs), verification procedure documentation, interdepartmental communication, and the consistency of follow-up actions for pending claims. The Material dimension comprised three items evaluating the completeness and appropriateness of supporting claim documents. The Machine dimension included three items assessing data accessibility, information system support, and system disruptions. The Measurement dimension consisted of three items related to routine evaluation, coordination of follow-up activities, and monitoring mechanisms to prevent recurring pending claims. Finally, the Environment dimension included three items assessing team coordination, workload, and the availability of supporting facilities.

The 23-item questionnaire was developed by the researcher based on the six dimensions of the fishbone diagram framework described above. As no standardized instrument specific to inpatient pending claims was available, the questionnaire items were constructed to reflect the operational context of claim administration at Hospital X. Prior to data collection, the questionnaire underwent expert judgment review by the research supervisor, with two rounds of revision to improve item clarity and content relevance before being administered to the informants. Each item was rated using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). A mean score below 3 on a given item was interpreted as indicating a potential problem area, whereas scores of 3 and above were interpreted as reflecting adequate or favorable conditions.

In-depth Interview Guide

The in-depth interview guide was developed to obtain comprehensive information regarding the factors contributing to JKN pending claims. It consisted of a set of guiding questions covering the main topics of the study while allowing flexibility for the researcher to explore additional issues based on the informants' responses and experiences. The questionnaire was administered first to all three informants. As the resulting scores were identical across nearly all items, individually tailored interview guides were subsequently developed for the coordinator and the two staff members, based on the research supervisor's recommendation, to enable deeper, role-specific exploration of the underlying issues. The casemix unit at Hospital X is structured into separate inpatient and outpatient divisions. This study focused specifically on inpatient claim administration; therefore, total sampling was employed within this scope, including all personnel directly responsible for inpatient claim administration, namely one casemix coordinator and two inpatient casemix staff members, representing the complete population of relevant staff within the inpatient scope of the study. The three informants had varying levels of professional experience in claim administration: the casemix coordinator had 20 years of work experience, while Staff 1 and Staff 2 had 9 years and 3 years of experience, respectively. This range of experience was considered to provide complementary perspectives, from long-term institutional knowledge to more recent operational practice, thereby supporting the depth and credibility of the qualitative findings despite the small number of informants. In-depth interviews were conducted asynchronously via WhatsApp due to the limited availability of the informants' schedules. The interview guide was sent in written form to all three informants, who provided their responses in writing. Responses were compiled and organized manually for analysis. This study was part of a supervised undergraduate research project (penelitian payung) conducted under faculty guidance; the researcher was not affiliated with Hospital X and accessed the research site through official research permission. Participant confidentiality was maintained by anonymizing informant identities (coded as Coordinator, Staff 1, and Staff 2) throughout data recording, analysis, and reporting.

In addition, inpatient reimbursement claim documents submitted between June 2024 and May 2025 were reviewed as documentary data, comprising 779 pending claim records. This study period was selected because it coincided with the implementation of new BPJS Kesehatan regulations introduced on June 4, 2024, allowing the collected data to capture the impact of these regulatory changes on the occurrence of pending claims.

To enhance the credibility of the findings, this case study employed methodological triangulation by integrating three data collection techniques: questionnaires, in-depth interviews, and document review.

The study was conducted in several stages, as illustrated in Figure 1:

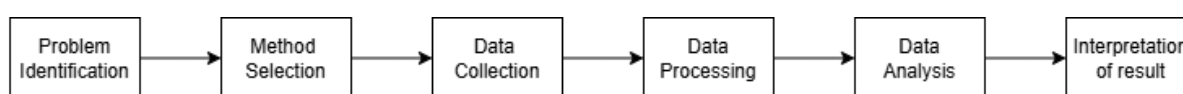


Figure 1. Research Flow Diagram

Source: Primary Data

The research procedure consisted of six stages. The first stage was problem identification, which involved identifying and defining the research problem based on phenomena observed in the field to ensure that the selected issue was relevant and appropriate for in-depth investigation. The second stage was method selection, which included identifying the key informants and developing the questionnaire and in-depth interview guide as data collection instruments. The third stage was data collection, which involved administering the questionnaire, conducting in-depth interviews with the informants, and reviewing inpatient reimbursement claim documents at Hospital X. The fourth stage was data processing, during which the interview data and documentary evidence were organized and prepared for analysis. The fifth stage was data analysis, in which the fishbone diagram approach was applied to identify the perceived contributing factors of pending claims based on the six dimensions of the fishbone diagram (Man, Method, Machine, Material, Measurement, and Environment). The final stage was interpretation of the findings, which involved drawing conclusions regarding the factors contributing to pending claims in the inpatient department of Hospital X and formulating targeted recommendations for quality improvement.

Data processing involved tabulating the questionnaire responses, transcribing the in-depth interview responses, and compiling data on the number of submitted claims, approved claims, and pending claims obtained from the inpatient reimbursement claim records for the period of June 2024 to May 2025. These data were then systematically organized to facilitate analysis. Data analysis was conducted using the fishbone diagram approach by categorizing the perceived contributing factors of pending claims into six dimensions: Man, Method, Machine, Material, Measurement, and Environment. The findings from the questionnaires, in-depth interviews, and document review were subsequently integrated to comprehensively identify and map the perceived contributing factors within each dimension.

This study was conducted under an official research permit issued by Hospital X. Formal ethical clearance from an institutional ethics committee was not obtained, as this study did not involve clinical interventions or direct participation of patients, and it was assessed by the research supervisor as posing minimal risk to participants. Instead, the study involved questionnaires and in-depth interviews with inpatient casemix staff regarding the reimbursement claim administration process. Prior to participation, all informants were informed about the objectives of the study and provided informed consent, documented in writing given that interviews were conducted via WhatsApp. The confidentiality and anonymity of all participants and research data were maintained throughout the study.

RESULTS

The results showed the pattern of inpatient reimbursement claim submissions and claim resolution from June 2024 to May 2025. As shown in Figure 2, the number of submitted claims remained relatively stable throughout the study period, ranging from 281 to 387 claims per month, with no substantial fluctuations observed.

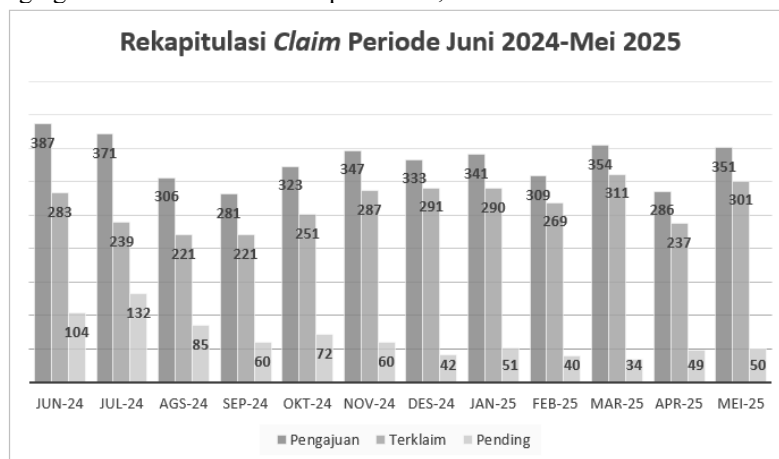


Figure 2. Inpatient Claim Recapitulation (June 2024-May 2025)

Source: Primary Data

As shown in Figure 2, the gap between submitted claims and resolved claims gradually narrowed over the study period. At the beginning of the observation period, particularly in June and July 2024, a considerable difference was observed between the two. However, from December 2024 onward, this gap became progressively smaller. In contrast, the number of pending claims showed a downward trend. Pending claims, which peaked at 132 cases (35.58%) in July 2024, gradually declined to their lowest level of 34 cases (9.60%) in March 2025.

To assess the perceptions and experiences of the casemix staff regarding the factors contributing to pending claims, a structured questionnaire was administered to all study participants. The questionnaire was self-administered by all three informants on the same day. The questionnaire was developed based on the fishbone diagram framework, encompassing six dimensions: Man (Human Resources), Method (Procedures), Material (Supporting Documents), Machine (Information System), Measurement (Evaluation), and Environment (Work Environment). Each questionnaire item was assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree),

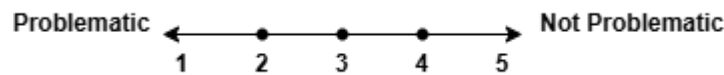


Figure 3. Likert Scale

A score of 1 indicated the least favorable condition, whereas a score of 5 indicated the most favorable condition. The summarized questionnaire results are presented in Table 1.

Table 1. Questionnaire Result

No	Questionnaire Item	Coordinator	Staff 1	Staff 2
MAN (Human Resources)				
1.	I have received training/education on JKN claims	5	5	5
2.	I have sufficient experience and training in verifying inpatient claims	4	4	4
3.	I understand the regulations for inpatient claims under JKN	4	4	4
4.	The current number of casemix officers is sufficient to handle the workload	5	5	5
5.	I carry out my work carefully and responsibly	5	5	5
	Mean Respondent Score	4,6	4,6	4,6
	Mean Dimension Score	4,6 (not problematic)		
METHOD (Procedures)				
1.	The Hospital's Claim SOP is prepared in accordance with the standards set by BPJS	5	5	5
2.	The inpatient claim verification procedure is well documented	5	5	5
3.	Inter-unit communication flow (doctor, coder, casemix) runs effectively in the claim process	5	5	5
4.	The follow-up procedure for pending claims has been consistently established	5	5	5
	Mean Respondent Score	5	5	5
	Mean Dimension Score	5 (not problematic)		
MATERIAL (Supporting Document)				
1.	I always receive complete supporting documents for claims	2	2	2
2.	I always receive supporting documents that comply with standards	2	2	2
3.	There are clear guidelines on the documents required for inpatient claims	2	2	2
	Mean Respondent Score	2	2	2
	Mean Dimension Score	2 (problematic)		
MACHINE (Information System)				
1.	I can easily access medical record and administrative data	5	5	5
2.	The Hospital Information System supports the needs and facilitates the claim verification process	5	5	5
3.	System disruptions frequently occur, hindering the claim submission process	3	3	3
	Mean Respondent Score	4,3	4,3	4,3
	Mean Dimension Score	4,3 (not problematic)		
MEASUREMENT (Evaluation)				

No	Questionnaire Item	Coordinator	Staff 1	Staff 2
1.	I receive regular feedback or evaluation from the hospital regarding pending claims	2	2	2
2.	Follow-up on pending claims is carried out with good coordination	4	4	4
3.	There is a monitoring mechanism in place to prevent recurring pending claims	2	2	2
	Mean Respondent Score	2,6	2,6	2,6
	Mean Dimension Score	2,7 (problematic)		
ENVIRONMENT (Work Environment)				
1.	The work environment supports communication and coordination among teams related to claims	5	5	5
2.	My workload allows me to focus and be thorough in handling claims	4	4	4
3.	The facilities and resources provided by the hospital are adequate to support the claim process	4	4	4
	Mean Respondent Score	4,3	4,3	4,3
	Mean Dimension Score	4,3 (not problematic)		

As presented in Table 1, the questionnaire results provide an initial overview of each dimension examined. The Man, Method, Machine, and Environment dimensions obtained mean scores of 4.6, 5.0, 4.3, and 4.3, respectively, indicating that these dimensions were not problematic. In contrast, the Material and Measurement dimensions obtained lower mean scores, indicating problems related to the completeness and appropriateness of supporting claim documents, as well as the absence of routine and structured evaluation and monitoring mechanisms for pending claims. Notably, the three informants provided identical scores across nearly all items. Given the very small sample size (n=3) and the possibility that informants discussed their responses with one another during self-administration, these scores should be interpreted with caution as descriptive impressions rather than independent measurements. This pattern motivated the subsequent use of individually tailored interview questions to further probe and validate each informant's perspective, as described in the Discussion.

Based on the triangulation of questionnaire and in-depth interview data, pending claims in the inpatient department of Hospital X were found to be primarily associated with four dimensions: Man, Material, Measurement, and Environment. In addition, the Method and Machine dimensions were identified as secondary contributing factors.

In the Man dimension, all casemix staff had an educational background in medical records and health information management. The hospital management had facilitated coding training for several casemix staff members. However, access to formal coding training had not been evenly distributed, as one staff member had never participated in formal coding training. To maintain and update coding knowledge, the staff member regularly attended online seminars. The interview excerpts below illustrate these findings.

“All coding staff have an educational background in medical records because it is relevant to their job responsibilities.” (Informant 1)

“Yes, I have attended formal coding training, including the ‘Value-Based JKN Payment System (Hospital Value-Based/HVB): Optimizing Digital Claims Using the SIAP and ASIK Applications’ held at Grand Quality Hotel, Yogyakarta, on July 28, 2019. I also participated in an in-house training entitled ‘INA Grouper and Indonesian Modification (IM) Coding: Bridging E-Claim V6 of the Ministry of Health and BPJS Kesehatan VClaim Version 2,’ held at Sahid Jaya Hotel, Surakarta, on February 11–12, 2022.” (Informant 2)

“I have never attended formal coding training. I have only participated in several online seminars organized by universities.” (Informant 3)

These findings indicate that the history of formal coding training varied among the casemix staff. Casemix Staff 1 had attended two formal coding training programs in 2019 and 2022, whereas Casemix Staff 2 updated their knowledge by participating in online seminars and webinars.

In the Material dimension, the main issues identified were related to the completeness and appropriateness of claim documents. Incomplete medical record documents remained a frequent finding, particularly missing triage forms and radiology reports. In addition, discrepancies between the submitted diagnosis codes and the

supporting clinical documentation were identified as contributing factors to pending claims, together with coding accuracy, the appropriateness of clinical management, and the fulfillment of inpatient admission indications. The following interview excerpts illustrate these findings.

“Incomplete medical record documents are still frequently encountered, such as missing triage forms and radiology reports.” (Informant 2)

The casemix coordinator added:

“Medical records are sometimes incomplete. In addition, the submitted diagnosis codes may not correspond to the supporting claim documents. Other contributing factors include coding accuracy, the appropriateness of clinical management, and fulfillment of the indications for inpatient admission.” (Informant 1)

In the Measurement dimension, the existing evaluation mechanism was not conducted proactively or in a structured manner. Evaluations were carried out only when problems arose rather than as part of a routine and scheduled monitoring process. These findings indicate that a continuous monitoring system for the claim submission process had not yet been implemented. The following interview excerpt illustrates this finding.

“Evaluation is conducted only when problems occur, and it is carried out through discussion.” (Informant 1)

In the Environment dimension, external factors, particularly changes in BPJS Kesehatan regulations, were identified as contributing factors to pending claims. Frequent regulatory changes made it difficult for the hospital to ensure that submitted claims fully complied with the current requirements. In some cases, claims that had been prepared in accordance with the applicable regulations were still returned because additional supporting documents were required by BPJS Kesehatan. The following interview excerpts illustrate these findings.

“The regulations change frequently.” (Informant 1)

This statement was supported by Informant 3:

“Claims may not comply with the applicable BPJS Kesehatan policies or regulations. In some cases, even when the claims comply with the regulations, they are still returned because BPJS Kesehatan requires additional supporting documents.” (Informant 3)

In the Method dimension, the workflow and coordination among units involved in the claim submission process were generally well established. However, one important issue was identified: the hospital had not yet developed a specific Standard Operating Procedure (SOP) for coding activities. At present, coding practices are carried out based on the ICD-10 and ICD-9-CM coding guidelines without a formal written SOP. The following interview excerpt illustrates this finding.

“A specific SOP for coding has not yet been developed. Currently, coding is performed based on the ICD-10 and ICD-9-CM coding guidelines.” (Informant 1)

In the Machine dimension, the Hospital Information System (HIS) and the e-Claim application generally functioned well in supporting the claim submission process. However, the hospital did not have a dedicated tool for independently screening claim documents before submission. At present, the hospital relied solely on the Digital Validation (DIVA) application provided by BPJS Kesehatan as the primary tool for validating claim documents. The following interview excerpt illustrates this finding.

“The hospital only uses the DIVA (Digital Validation) application provided by BPJS Kesehatan because there is no dedicated tool available to screen claim documents before submission.” (Informant 1)

A more detailed illustration of the perceived contributing factors of pending claims is presented in the fishbone diagram shown in Figure 4:

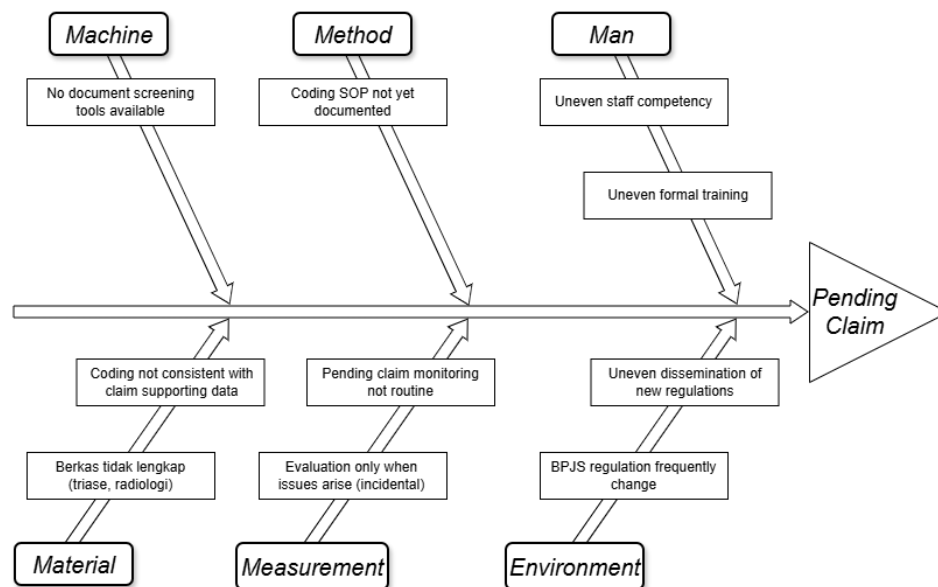


Figure 4. Fishbone Diagram of the Root Causes of Pending Claims
Source: Primary Data

Based on the results of the in-depth interviews, pending claim issues were identified in four main aspects: Man, Material, Measurement, and Environment. In the Man aspect, formal coding training was found to be unevenly distributed among casemix officers. Casemix Staff 2 had never participated in formal coding training but actively updated their knowledge through seminars and online webinars, while Casemix Staff 1 had last attended formal training in 2022. In the Material aspect, the main obstacles included incomplete medical record documents, such as triage sheets and radiology results, as well as inconsistencies between diagnosis coding and claim supporting data. In the Measurement aspect, performance evaluation and monitoring of pending claims were only conducted incidentally when problems arose, without a structured and routine mechanism. In the Environment aspect, frequently changing BPJS regulations emerged as an external factor consistently mentioned by all informants as a significant cause of pending claims. Regarding the Method aspect, although workflow and inter-unit coordination were considered to be running well, it was found that the coding SOP had not yet been documented in writing. Meanwhile, the Machine aspect was rated relatively good, as the Hospital Management Information System (SIMRS) and e-claim application functioned properly, although a dedicated tool for screening document completeness was not yet available.

DISCUSSION

Based on the results of the analysis using a fishbone diagram, it was found that the perceived contributing factors of pending claims in the Inpatient Installation of Hospital X were centered on four main aspects: Man, Material (Supporting Documents), Measurement (Evaluation), and Environment (Regulations). These factors were primarily identified through in-depth interviews and corroborated by questionnaire responses; the review of 779 pending claim documents served to confirm the scale and context of the issue rather than to independently classify the specific reasons for each pending claim. This finding is in line with the study by (18), which examined the factors causing pending JKN inpatient claims using a fishbone diagram at RSUP dr. Kariadi, with results showing that the Man factor, in the form of staff inaccuracy, and the Method factor, resulting from differing perceptions between hospital coders and BPJS Kesehatan verifiers, were the main contributing factors of pending claims.

In the Man aspect, although the average questionnaire score of 4.6 indicates a generally good condition, the in-depth interview results revealed that formal coding training had not been evenly distributed among casemix officers. Casemix Staff 2 had never participated in formal coding training and updated their knowledge through seminars and online webinars, while Casemix Staff 1 had last attended formal training in 2022. Given the continuously evolving BPJS Kesehatan regulations, this uneven access to formal training has the potential to create gaps in understanding regarding changes in coding rules and current claim provisions. This finding is supported by (24), who stated that human resource capacity, staff competency, workload, and continuous training are important factors influencing the accuracy of documentation and the precision of the claims process. Limitations in these aspects can increase the risk of administrative and coding errors, which ultimately lead to

delays or pending claims. In line with this finding (19) reported that coding factors were the second most dominant cause of pending claims, accounting for 33%, in which staff understanding of regulations and coding rules significantly determines the quality of claim submissions. As an improvement effort, hospitals need to provide training to enhance staff knowledge (25). Investment in such training is essential, as the funds allocated represent a form of skill development rather than merely a cost. In addition, fostering motivation and a culture of mutual reminders among staff can serve as a practical solution to maintain consistent understanding of claim regulations. This is further reinforced by (26), who concluded that improving the competency of coding staff through training and the dissemination of claim policies is a key effort in reducing the rate of pending claims caused by coding inaccuracies.

In the Material aspect, the main problem was the incompleteness of medical record documents received by the casemix unit, including triage sheets and radiology reading results that were often unavailable, as well as inconsistencies between diagnosis coding and claim supporting data. This finding is in line with (17), who found that 31% of pending claim cases originated from coding issues, including inaccuracies in determining the primary diagnosis and the need for procedure code confirmation. A case study by (27) on inpatient claims for circulatory system diseases also found that approximately 30% of files were returned due to coding inaccuracies by coders and a lack of supporting diagnostic examinations. This finding is consistent with (28), who found that of 79 returned claim files, 44 files (55.7%) were caused by inaccurate diagnosis coding, and 35 files (44.3%) were caused by incomplete supporting evidence, such as radiology and ECG results not yet available at the time of submission. These results were further reinforced by (29), who demonstrated that the completeness of medical information has a significant relationship with the accuracy of diagnosis codes in INA-CBGs claims. Complete medical documentation was approximately 10 times more likely to produce accurate diagnosis codes compared to incomplete documentation, thereby supporting a smoother claim verification process and reducing the risk of pending claims. In addition, a study by (19) also stated that medical factors were the dominant cause of pending claims, accounting for 57%, with the largest contributors being a lack of supporting diagnostic documentation and unmet inpatient care indications. As a solution, (30) recommended developing an electronic medical record (EMR) module that integrates all claim documents, along with periodic supervision by an internal verification team to ensure the completeness of clinical documentation before claim files are submitted.

In the Measurement dimension, the findings indicate that performance evaluation and pending claim monitoring at Hospital X have not been conducted in a structured and routine manner. Evaluations are performed only when problems arise, without a scheduled monitoring mechanism. This reactive approach may delay the identification of the perceived contributing factors of pending claims and increase the likelihood of recurring claim returns. These findings are consistent with those of (31), who emphasized that routine and systematic evaluation involving all units engaged in the claim process is essential for identifying recurring deficiencies and ensuring compliance with BPJS Kesehatan regulations. Furthermore, (32) reported that consistent monitoring and evaluation can improve the efficiency of the claim submission process and reduce repeated pending claims. Therefore, Hospital X should implement a structured and periodic monitoring system, including monthly claim evaluation meetings involving the casemix coordinator, coders, and other related units. This recommendation is supported by (33), who suggested that regular coordination meetings between hospitals and BPJS Kesehatan are necessary to identify claim-related problems early and develop effective solutions before they affect subsequent claim submissions.

In the Environment dimension, frequent changes in BPJS Kesehatan regulations were identified by all informants as a significant external factor contributing to pending claims. Regulatory changes that were not consistently accompanied by comprehensive dissemination across all service units resulted in claim documents prepared under previous regulations no longer meeting the verification requirements. This finding is consistent with the preliminary data of the present study, which showed a substantial increase in the pending claim rate to 35.58% in July 2024 following the implementation of new BPJS Kesehatan regulations in June 2024. Similar findings were reported by (9), who identified frequent changes in BPJS Kesehatan regulations and policies as important external factors contributing to pending claims in healthcare facilities. These findings highlight the importance of ensuring timely and comprehensive dissemination of regulatory updates to all personnel involved in the claim submission process to facilitate rapid adaptation and minimize claim returns.

In the Method dimension, the questionnaire results yielded a mean score of 5.0, indicating that respondents generally perceived the claim submission procedures and inter-unit communication to be well implemented and consistent with BPJS Kesehatan standards. However, the in-depth interviews revealed a discrepancy between respondents' perceptions and actual practice. The casemix coordinator acknowledged that a written Standard Operating Procedure (SOP) for coding had not yet been developed, and coding activities were performed based solely on the ICD-10 and ICD-9-CM coding guidelines without a formal written protocol. This discrepancy between the high questionnaire score and the documented absence of a written SOP may be explained by several factors. First, social desirability bias may have led informants to rate existing procedures favorably, as they

perceived the workflow to be functioning smoothly in daily practice despite the absence of formal documentation. Second, the questionnaire items may not have adequately distinguished between informal, experience-based routines and formally documented procedures, making it difficult for respondents to recognize the absence of a written SOP as a deficiency. This finding illustrates a broader limitation of Likert-based self-assessment in capturing gaps between perceived and actual organizational practice, and underscores the importance of qualitative triangulation in identifying such discrepancies. Furthermore, the workflow had not been fully standardized. The absence of a written coding SOP may lead to inconsistencies in coding practices among staff members, particularly when new personnel are recruited or existing staff are replaced. Therefore, although the Method dimension was not identified as the primary cause of pending claims, it remained a secondary contributing factor. These findings are consistent with those reported by (34), who found that RS Mardi Waluyo Lampung had not yet established an official SOP for BPJS claim submission in the case mix and inpatient coding units. Consequently, claim processing relied on informal work practices rather than standardized procedures, which may contribute to procedural inconsistencies and increase the risk of pending claims.

In the Machine dimension, the questionnaire results yielded a mean score of 4.3, indicating that the Hospital Information System (HIS) and the e-Claim application generally functioned well in supporting the claim submission process. This finding was consistent with the casemix coordinator's statement that both systems effectively supported claim processing. However, the hospital did not have a dedicated tool for independently screening the completeness of claim documents before submission, relying solely on the Digital Validation (DIVA) application provided by BPJS Kesehatan. This limitation may allow incomplete claim documents to proceed to the submission stage without being detected during internal verification. Therefore, the development of a supporting system capable of automatically screening document completeness prior to claim submission should be considered. This recommendation is supported by (35), who developed a web-based internal audit application for the casemix unit that facilitated document completeness screening, improved the internal verification process, and identified potential causes of pending claims before claim submission to BPJS Kesehatan. Similar systems may enhance the efficiency and accuracy of the claim submission process. Furthermore, (34) reported that limited information system integration, manual processing, SIMRS errors, and disruptions to the V-Claim system during maintenance contributed to pending claims. Likewise, (36) found that interruptions to the INA-CBG application, particularly during system updates, could delay claim data entry and increase the risk of pending claims when data had not been properly saved before the update process.

This study has several limitations that should be acknowledged. First, in-depth interviews were conducted asynchronously in written form via WhatsApp rather than face-to-face, which may have limited the depth of probing and spontaneous elaboration compared to in-person interviews. Second, the questionnaire was self-administered by all three informants on the same day, and the possibility of informal discussion among informants, which may explain the identical scores observed across most items, cannot be excluded; these scores should therefore be interpreted as descriptive impressions rather than independent measurements. Third, this study did not undergo formal ethical clearance from an institutional ethics committee, as it was assessed by the research supervisor as posing minimal risk; future studies involving human participants are encouraged to obtain such clearance to strengthen methodological rigor and participant protection. Finally, as this study was limited to a single hospital and three informants within the inpatient scope, the identified contributing factors reflect the perceptions of this specific setting and require further confirmation using a larger sample of informants and claim records, ideally across multiple hospitals, before broader generalization.

CONCLUSION

This study identified the perceived contributing factors to BPJS Kesehatan pending claims in the inpatient department of Hospital X using the fishbone diagram approach. The findings showed that the primary contributing factors were related to the Man, Material, Measurement, and Environment dimensions, while the Method and Machine dimensions acted as secondary contributing factors. The main issues included unequal access to formal coding training, incomplete medical record documentation, inaccurate diagnosis coding, unstructured monitoring and evaluation mechanisms, frequent changes in BPJS Kesehatan regulations, the absence of a written coding SOP, and the lack of a dedicated tool for screening claim document completeness. As this study was limited to a single hospital and three informants, these findings require further confirmation using a larger sample before broader generalization. Based on these findings, Hospital X should prioritize, first, establishing a written coding SOP and strengthening staff competency through regular coding training; second, implementing structured and proactive monitoring of pending claims and improving dissemination of regulatory updates; and third, as a longer-term measure, developing an internal document screening system to reduce recurring pending claims.

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REFERENCE

1. Setyaningrum OR, Putri IRR, Anwar C. Sosialisasi Tentang Jaminan Kesehatan Nasional (Jkn) Bagi Masyarakat Dusun Bujet, Jambewangi. *J Pengabd Masy Med*. 2023;41–51.
2. Fadila R, Agung A, Citra I, Poltekkes D, Malang K. Faktor Yang Berhubungan Dengan Rendahnya Kepesertaan Program Jkn Di Kota Malang the Factor of Low Community Participation Toward Jkn Program in Malang City. *J Inf Kesehat Indones*. 2022;8(2):179–89.
3. Hidayat D, Adang B. Analisis Manajemen Kendali Biaya Pelayanan Rawat Inap Pasien BPJS Kesehatan. *Syntax Idea* [Internet]. 2024;6(4):1974–82. Available from: <https://jurnal.syntax-idea.co.id/index.php/syntax-idea/article/view/3259/2040>
4. Mulyawan F, Yulinda K. BPJS KESEHATAN MENURUT HUKUM ISLAM. 2021;1(3):329–42.
5. Restiana EY, Nugroho RH. Analisis Penyebab Keterlambatan Verifikasi Klaim Bpjs Pada Pembiayaan Pasien Di Rumah Sakit Umum Mitra Paramedika. *J Permata Indones*. 2022;13(1):43–53.
6. Susilawati S, Yantih N, Aritonang A. Analisis Biaya Satuan Pada Pasien Bedah Orthopedi Tindakan ORIF Antara Tarif Rumah Sakit dan INA CBG's di RSUD Pasar Rebo. *J Manaj dan Adm Rumah Sakit Indones*. 2024;8(1):44–53.
7. Susanto A, Hadsari R, Pramesty A, Hidayat MR. Efektivitas Verifikasi Klaim Bpjs Kesehatan Antara Rawat Jalan Dan Rawat Inap Di Rsjd Surakarta. *Pros Semin Inf Kesehat Nas*. 2024;453–9.
8. Bella CR, Pratama A, Abidin AZ. Gambaran Penyebab Pending Claim BPJS Kesehatan Akibat Ketidaktepatan Kode Diagnosis di Rumah Sakit Universitas Sebelas Maret (UNS). <https://rammikpubmediaId/IndexPhp/Rmik>. 2024;3(2):7–17.
9. Amri AAU, Nurwahyuni A. Analisis Klaim Pending, Verifikasi dan Audit Pascaklaim Jaminan Kesehatan Nasional. *J Ekon Kesehat Indones*. 2024;9(2).
10. Mulya S, Sonia D, Putra DH, Yulia N. Analisis Pending Klaim BPJS Kesehatan Pasien Rawat Inap Di Rumah Sakit Islam Jakarta Pondok Kopi Tahun 2023. *Sehat Rakyat J Kesehat Masy*. 2024;3(3):140–52.
11. Pertiwi J, Andriani R, Sartika I. Gambaran Pending Klaim di Instalasi Rawat Inap Rumah Sakit Tipe C. *J Manaj Inf dan Adm Kesehat* [Internet]. 2025;8(2). Available from: <https://journal.univetbantara.ac.id/index.php/jmiak-rekammedis/article/view/7585>
12. Ishaqi AM al. *Bisnis.com*. 2025 [cited 2025 Nov 12]. BPJS Kesehatan Tunda Pembayaran Klaim ke RS Rp5,92 Triliun pada 2024, Ini Alasannya. Available from: https://finansial.bisnis.com/read/20250526/215/1880165/bpjs-kesehatan-tunda-pembayaran-klaim-ke-rs-rp592-triliun-pada-2024-ini-alasannya?utm_source=desktop&utm_medium=search#goog_rewarded
13. Putra HR. *Tempo.co*. 2025 [cited 2025 Nov 12]. Klaim Mandek di BPJS Kesehatan Melonjak 20 Persen, Rumah Sakit: Kami Hampir Tenggelam. Available from: <https://www.tempo.co/ekonomi/klaim-mandek-di-bpjs-kesehatan-melonjak-20-persen-rumah-sakit-kami-hampir-tenggelam-1193864>
14. Aristriyana E, Fauzi RA. Analisis Penyebab Kecacatan Produk Dengan Metode Fishbone Diagram Dan Failure Mode Effect Analysis (Fmea) Pada Perusahaan Elang Mas Sindang Kasih Ciamis. *J Ind Galuh*. 2023;4(2):75–85.
15. Saputri OB, Huda N, Hannase M. Analisis Rencana Elektrifikasi Keuangan Daerah dalam Memperluas Kontribusi Zakat dengan Pendekatan Fishbone Diagram Analysis. *Al-Muzara'Ah*. 2022;10(1):1–17.
16. Monoarfa MI, Hariyanto Y, Rasyid A. Analisis Penyebab bottleneck pada Aliran Produksi briquette charcoal dengan Menggunakan Diagram fishbone di PT. Saraswati Coconut Product. *Jambura Ind Rev*. 2021;1(1):15–21.
17. Listyorini P, Ramadhan NA. Analysis of Pending Claims Due to Incompatibility of Diagnostic and Action Codes in Inpatients in Hospitals. *Proceeding Int Conf Sci Heal Technol*. 2022;393–400.
18. Listiyawati, Wijayanti RA. FAKTOR PENYEBAB PENDING CLAIM RANAP JKN DENGAN FISHBONE DIAGRAM DI RSUP DR KARIADI. *J Manaj Inf Kesehat Indones*. 2022 Oct 4;10(2):190.
19. Ni'mah F, Ardhiasti A, Hariyanto S. GAMBARAN FAKTOR PENYEBAB KLAIM PENDING RAWAT INAP PASIEN JAMINAN KESEHATAN NASIONAL (JKN) DI RSUD KANJURUHAN MALANG AN OVERVIEW OF FACTORS CAUSING PENDING INPATIENT CLAIMS FOR JKN Poltekkes Kemenkes Malang , Jawa Timur , Indonesia RSU Universitas Muhamm. 2025;20(2):112–8.
20. Maulida ES, Djunawan A. Analisis Penyebab Pending Claim Berkas BPJS Kesehatan Pelayanan Rawat Inap Rumah Sakit Universitas Airlangga. *Media Kesehat Masy Indones*. 2022;21(6):374–9.
21. Salima NIF, Zein ER. Analisis Faktor Penyebab Terjadinya Klaim Pending Pasien Rawat Inap Bpjs

- Kesehatan Di Rumah Sakit Tentara Dr. Soepraoen Tahun 2023. *J Inf Kesehat Indones*. 2023;9(2):1–23.
22. Sander A, Indawati L, Widjaja L, Rumana NA. Tinjauan Faktor Penyebab Pengembalian Klaim BPJS Pasien Rawat Inap di RSKD Duren Sawit Jakarta Timur Tahun 2021. *Sehat Rakyat J Kesehat Masy*. 2022;1(4):387–98.
 23. Widaningtyas E, Novinawati FP, Asmorowati A. ANALISIS PENDING KLAIM BPJS RAWAT INAP DI RUMAH SAKIT QIM BATANG TAHUN 2022. *J Heal Res*. 2024;7(1):42–53.
 24. Rasid S, Listiowati E. ACCURACY OF INA-CBGS CLAIM DOCUMENTATION AND ITS ASSOCIATION WITH REIMBURSEMENT DELAYS IN HOSPITALS: A SYSTEMATIC REVIEW. *Indones J Glob Heal Res*. 2026;8(3):1231–42.
 25. Swari SJ, Verawati M. Faktor Penyebab Ketidaklengkapan Pengisian Rekam Medis Pasien Rawat Inap Di Rumah Sakit. *J-REMI J Rekam Med dan Inf Kesehat*. 2022;3(4):269–75.
 26. Pratama A, Fauzi H, Nur Indira Z, Purnama Adi P. Analisis Faktor Penyebab Pending Klaim Rawat Inap Akibat Koding Rekam Medis Di Rumah Sakit Umum Daerah (RSUD) Dr. Soedirman Kebumen. *J Ilm Perekam dan Inf Kesehat Imelda*. 2023;8(1):124–34.
 27. Indawati L. Analisis Akurasi Koding Pada Pengembalian Klaim BPJS Rawat Inap Di RSUP Fatmawati Tahun 2016. *J Manaj Inf Kesehat Indones*. 2019;7(2):113.
 28. Tuzzahra R, Hakim AO, Romodon D, Gunawan G. Penyebab Pengembalian Berkas Klaim BPJS Kesehatan Pasien Rawat Inap Ditinjau Dari Syarat-Syarat Pengajuan Klaim di RSUD Majenang. *J-REMI J Rekam Med dan Inf Kesehat*. 2024;6(1):29–39.
 29. Yuliani N, Noor HL, Maryati W. QUALITY OF MEDICAL RECORD DOCUMENTATION AFFECTS ACCURACY OF DIAGNOSIS CODES IN INA-CBGS CLAIMS IN HOSPITALS. *Indones J Glob Heal Res*. 2024;6(5):3237–3242.
 30. Helwinofira, Jak Y, Istiqlal H. Analisis Penyebab Pending Klaim Pasien JKN Rawat Inap Pasca Implementasi RME di RSIA Permata Bunda Solok Tahun 2024. *J Manaj dan Adm Rumah Sakit Indones*. 2026;10(1):387–407.
 31. Ais PLR, Akhrruddin A. Analisis Pending Claim Badan Penyelenggara Jaminan Sosial (BPJS) Rawat Jalan pada Rumah Sakit XY di Wilayah Jawa Timur. *MES Manag J [Internet]*. 2024;3:749–60. Available from: <https://www.mes-bogor.com/journal/index.php/mesman/article/view/615/540>
 32. Diniari S, Ulfah A. Analisis Data Pending Rawat Inap Jaminan BPJS terhadap Kelancaran Pengajuan Klaim di RS Hermina Arcamanik. *J Kesehat Masy*. 2024;8:4218–26.
 33. Syahira N. Strategi Optimalisasi Klaim Jaminan Kesehatan Nasional Di Unit Casemix Rumah Sakit “X” Blitar. *J ARSI Adm Rumah Sakit Indones*. 2024;10(2).
 34. Putri AF, Novratilova S. Analisis Faktor Penyebab Pending Klaim BPJS Rawat Inap Di Rumah Sakit Mardi Waluyo Lampung. *J Kesehat Trop Indones [Internet]*. 2025;03(04):244–70. Available from: <https://journal.larpainstitute.com/index.php/jkti/article/view/127/126>
 35. Yastori, Khumaira NF, Suyatno MK, Ariffin NAN. Design of a Web-Based Internal Claim Audit Application in the Casemix Unit in a Hospital to Minimize Pending Claims. *INFOKES J Ilm Rekam Medis dan Inform Kesehat*. 2026;16(1):94–104.
 36. Fadillah PR, Soelistijaningroem M, Nuraeni YA. Evaluasi Pelaksanaan Vedika Terhadap Efektivitas Pelayanan Bpjs Kesehatan Di Rsud Al Ihsan Dengan Fishbone Diagram. *J Hosp Manag Serv Student*. 2023;1(2):52–8.