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Claim Control Strategies In National Health Insurance: A Scoping Review

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ABSTRACT

Pending and rejected claims within national health insurance systems remain a global concern, particularly in developing countries. This scoping review aims to explore the strategies implemented by various countries to manage their health insurance claims and reduce the occurrence of pending and rejected cases. The protocol of the study has been registered through Open Science Framework (OSF) with this link https://doi.org/10.17605/OSF.IO/BPQYA. The review analyzed articles published from 2016 to 2025 and retrieved from PubMed, Science Direct, Wiley, ProQuest, and Google Scholar databases. Of the 699 titles initially identified, 11 relevant articles were included in the final analysis, originating from India, Tanzania, Ghana, and Indonesia. The results indicate that pending and rejected claims are a common challenge in developing countries, predominantly due to human-related factors, such as input errors, coding inaccuracies, and insufficient training. Implemented strategies to address these issues include utilising blockchain technology, digitization and automation, standardization of processes, capacity building for human resources, coordination among stakeholders, adaptive policy implementation, and cost-efficiency measures. In Indonesia, manual verification is still considered an effective method for reducing problematic claims. The study concludes that training for claim administrators and further research into digital innovations, including blockchain, are essential for optimizing claim management.

INTRODUCTION

Healthcare financing constitutes a crucial component in implementing the National Health Insurance (JKN) scheme, which hospitals administer through claim submission to the JKN organizing body. However, the claim submission process may result in either “approved” or

"pending" statuses (Maulida & Djunawan, 2022). Successful claim impacts hospital cash flow and management efficiency (Mathar & Klevina, 2025; Wijayanti et al., 2023). Disruptions in hospital cash flow may lead to various operational problems, including the inability to procure pharmaceutical supplies, logistics, or medical equipment; delays in payments for health workers' services or incentives; postponement of hospital development programs; and overall operational disturbances (Sari & Hidayat, 2023). These conditions may ultimately contribute to a decline in the quality of care hospitals provide.

With regard to the causes of pending claims, a study in Indonesia analyzing 35 pending cases found that 54.3% (19 cases) involved inaccuracies in principal diagnosis identification, 88.6% (31 cases) had incomplete diagnostic documentation, and 82.9% (29 cases) presented coding inaccuracies (Oktamianiza, 2024). Other studies also report that delayed payments are frequently due to medical issues (78.57%), administrative problems (10.39%), and coding inaccuracies (5.84%) (Amalina, 2023). Incomplete documentation, coding errors, insufficient diagnostic support, and a lack of appropriate therapy-related evidence further contribute to pending claims (Maulida & Djunawan, 2022).

Various strategies have been implemented globally to manage fraudulent, excess, or inappropriate health insurance claims, which can undermine financial stability. The growing number of fraudulent health insurance claims — largely due to manual processing within conventional systems — underscores the need for innovative strategies to aid in their prevention and control (Raza et al., 2025). Proper management of outpatient care payments is recognized as a key factor in preserving hospital financial stability (Ramdhani & Habibi, 2025). Understanding these strategies is crucial for policymakers and administrators of the JKN program. Therefore, this scoping review aimed to map claim control strategies implemented in various countries' national health insurance systems. The results are expected to serve as a reference for claim management in Indonesia, thereby reducing the risk of pending and invalid payments.

LITERATURE REVIEW

The literature review represents the theoretical core of an article. In this section, we will discuss the purpose of a literature review. We will also consider how one should go about to find appropriate literature on which to base a literature review and how this information should be managed. Finally, we will answer four questions that first-time researchers often battle with when compiling a literature review.

These questions are: which aspects should I include in a literature review?; how should I go about synthesizing information in a literature review?; how should I structure a literature review? what writing style should I use when compiling a literature review?

The purpose of a literature review is to "look again" (re + view) at what other researchers have done regarding a specific topic (Leedy & Ormrod 2005:70). A literature review is a means to an end, namely to provide background to and serve as motivation for the objectives and hypotheses that guide your own research (Perry et al. 2003:660)

A good literature review does not merely summarise relevant previous research. In the literature review, the researcher critically evaluates, re-organizes and synthesizes the work of others (Leedy & Ormrod, 2005:84). In a sense, compiling a literature review is like making a smoothie or fruit shake: The end product is a condensed mix that differs totally in appearance from the individual ingredients used as inputs. The key to a successful literature review lies in your ability to "digest" information from different sources, critically evaluate it and resent your conclusions in a concise, logical and reader-friendly" manner.

First-time researchers often naively believe everything they read or are scared to criticize the work of others. However, academic research is all about critical inquiry! It is, therefore, extremely important that you critically evaluate the material that you read. Do you agree with the arguments and conclusions of other researchers? If you disagree, why? Can you identify

contradictory arguments or findings? How could one explain these contradictions? Do the findings of previous studies apply in all contexts or are the findings context-specific? What are the criticisms against the conceptual models or measurement approaches discussed in the literature? Which limitations should be considered when interpreting the results of previous research?

You have to carefully read the most recent available literature to identify specific gaps, inconsistencies and/or controversies that may form the basis of your own research. Always show that you have considered an issue from several angles and that you are aware of the arguments for and against a specific point of view. Many researchers in services marketing, for example, use the SERVQUAL measurement scale without considering existing criticisms against it.

METHODS

Eligibility Criteria, Information Sources, and Search Strategy

The articles included in this literature study addressed at least one intervention implemented by a national health insurance scheme in any country to control and manage health insurance claims. National health insurance refers to the health insurance provided by the government and used by a country to enable its population's access to health care services. The inclusion criteria for this study were as follows: articles address claim control or management interventions for national health insurance, articles published from 2016 to 2025, written in English, based on primary research (quantitative, qualitative, or developmental) conducted in various countries, and with full-text access. The exclusion criteria included editorials, literature reviews, conference abstracts, newspaper articles, and non-full-text articles. The protocol of the study has been registered through Open Science Framework (OSF) with this link https://doi.org/10.17605/OSF.IO/BPQYA.

This study assessed the population of national health insurance systems in various countries (P), and identified strategies and approaches to control health insurance claims (I). It evaluated the outcomes of these strategies regarding the effectiveness of claim management and financial efficiency (O), without requiring the presence of a comparison group (C). The PICO framework for this scoping review was as follows:

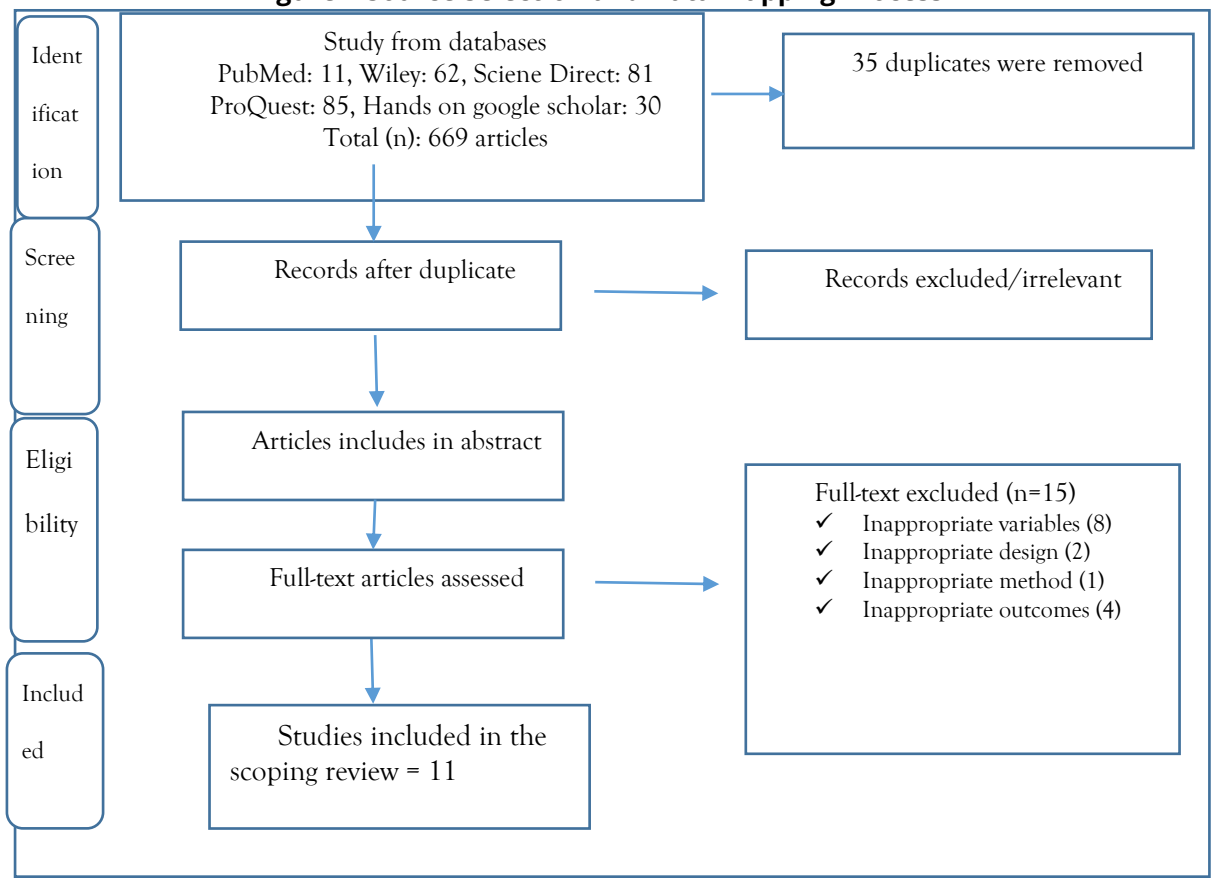
- P (Population) : National health insurance systems administered by governments in various countries.
- I (Intervention) : Strategies or interventions implemented to control and manage health insurance claims (such as claim management, claim auditing, cost containment, and claim denial management).
- C (Comparison) : While there is no explicit comparison group, a comparison may be made implicitly across different countries or by assessing conditions before and after the intervention when applicable.
- O (Outcome) : The effectiveness of claim control strategies is demonstrated by reductions in false claims, cost containment, improved accuracy in claim verification, and financial sustainability of the health insurance scheme.

The researcher retrieved literature from PubMed, Science Direct, Wiley, ProQuest, and Google Scholar. The keywords used in the literature search were implemented in both Indonesian and English. The keywords used were: ("health insurance" OR "healthcare insurance") AND ("claim management" OR "claim control" OR "claims auditing" OR "cost containment" OR "claim denial management") AND ("strategy" OR "strategies" OR "approach" OR "policy") AND ("global" OR "international" OR "worldwide").

Source Selection and Data Mapping Process

After retrieving articles from the five databases, 669 articles were identified. All duplicates were removed before title, abstract, and full-text screening. Subsequently, 45 articles were included in the abstract screening process. From these, 25 articles underwent full-text review, yielding a final total of 10 articles for in-depth analysis. Detailed information regarding the article screening process is presented in Figure 1.

Figure 1 Source Selection and Data Mapping Process



RESULTS

Data extraction

Table 1. Data Extracted from the Reviewed Studies

O	Authors (Year; Country)	Study Aim	Design and Method	Key Points
	Raza, Arora, and Irfan (2025; India)	To analyze the application of blockchain technology in reducing health insurance claim fraud	Research and Development	This study proposes a health insurance claim management system powered by blockchain technology. The system utilizes smart contracts and a distributed ledger to streamline the claim process.
	Dhar & Sharma	To perform a critical review of the	Descriptive, exploratory, and	- Claim handlers should be trained in up-to-date

O	Authors (Year; Country)	Study Aim	Design and Method	Key Points
	(2019; India)	performance of the health insurance industry in India to optimize claim settlements and improve customer satisfaction	analytical study	technology. - Claim denials have legal and financial implications - The claim process should be more transparent, customer-oriented, and professionally managed. - Automating claim processing can help reduce operational costs.
	Ahire & Rishipathak (2020; India)	To measure policyholders' satisfaction with claim settlements and identify potential weaknesses in the process	An exploratory, descriptive study with a sample of 152 policyholders in Pune, Maharashtra	- Insurance policyholders report higher treatment costs - Claim settlements typically take a long time. - Customer education is needed from policy initiation. - The hospital and TPA *(third-party administrator)* should collaborate more closely in verifying documents and communicating with policyholders.
	Gahlyan et al. (2023; India)	To identify patients in hospitals accurately, efficiently, and safely for payments of health insurance claims	Research and Development	- The hospital system generates a unique certificate using government IDs. - The hospital requests authorization for payments. - Patients use their phones to create a digital signature. - This approach saves time and memory and reduces expenses. - Blockchain guarantees authentication for communication between insurers and hospitals.
	Ramdhani & Habibi (2025; Indonesia)	To explore the challenges and strategies to optimize outpatient claim	Qualitative, thematic analysis with in-depth interviews	- Incomplete documents, SEP inaccuracies, manual verification bottlenecks, and limited training

O	Authors (Year; Country)	Study Aim	Design and Method	Key Points
		settlements at RSUD R. Syamsudin, S.H. with a focus on SEP documents		contribute to delayed or denied payments. - Standardized verification, digital integration with BPJS (Badan Penyelenggara Jaminan Sosial), and training for administrators can improve the process.
	Wijayanti et al. (2023; Indonesia)	To propose strategic policy reviews for addressing pending claim settlements under the BPJS healthcare scheme	Qualitative (POAC framework: Planning, Organizing, Actuating, Controlling)	- The availability of sufficient human resources with minimum standard qualifications (Diploma in Health Records) is crucial. - Standard coding SOPs facilitate coordination. - Communication between the coder and verifier must be improved. - The process runs effectively with the aid of applications (INA CBG's Grouper and SIM RS).
	Mathar & Klevina (2025; Indonesia)	To evaluate the effectiveness of standardized manual administration in reducing delayed claim settlements	Quasi-experimental (pre-test, post-test without control group)	- Implementing standardized manual administration reduces delayed payments by strengthening documentation and verification processes. - An internal verification step is crucial before submission.
	Nsiah-Boateng et al. (2017; Ghana)	To evaluate the ability of paper- and electronic-claim review systems to detect fraud and reduce payments after health care reform.	Cross-sectional study	- Paper or electronic submission to the Claims Processing Center (CPC) for review and payments. - Initial fulfillment checks for claim amount and service delivery. - Detailed vetting afterward (patient data, services, procedures, medications, diagnostics). - Electronic submission is

O	Authors (Year; Country)	Study Aim	Design and Method	Key Points
				more effective in detecting invalid payments.
	Haule, Dida & Sam (2019; Tanzania)	To develop a data exchange module between Care2x and NHIF (National Health Insurance Fund) to streamline claim submission, reduce processing time, and improve payments	Research and Development (Quantitative and Qualitative)	- The module enables data exchange between care delivery and insurers. - Operations and functional requirements must be secured. - User authentication controls Role-based access control (RBAC) implemented. - NHIF can process and pay faster due to automated data exchange.
0	Fulla et al. (2024; Tanzania)	To identify patterns of claim denials and strategies implemented by accredited hospitals to address related challenges	Cross-sectional (Quantitative and Qualitative)	- Mitigation strategies include faster verification, training, technology utilization, and internal audits. - Electronic solutions aid in detecting inaccuracies.
1	Mahapatra et al. (2022; India)	To propose a framework for healthcare service delivery where stakeholders collaborate through blockchain	Research and Development	- Blockchain guarantees data distribution, transparency, trustworthy networks, and decentralization. - Security mechanisms protect against attacks (replay attack, man-in-the-middle).

Data synthesis

This literature review summarizes various strategies for health insurance claim control implemented globally. In general, seven main strategic themes have been applied in claim control, as presented in Table 2.

Table 2. Summary of Findings from Reviewed Articles

No	Main Theme	Sub-Theme	Sources
1	Blockchain Technology	a. Smart contracts for automated claim validation b. Distributed ledger for transparency and fraud prevention c. Use of encryption technologies to enhance data security	Raza et al. (2025), Gahlyan et al. (2023), Mahapatra et al. (2022)
2	Automation and	a. E-claim systems to improve	Dhar & Sharma

	Digitalization	efficiency b. Integration of electronic health records c. Real-time claim processing	(2019), Ramdhani & Habibi (2025), Wijayanti et al. (2023), Nsiah-Boateng et al. (2017), Haule et al. (2019), Fulla et al. (2024)
3	Standardization of Administrative Processes	a. Clear claim submission protocols b. Standardized coding and documentation guidelines c. Verification mechanisms prior to submission d. Manual verification	Mathar & Klevina (2025), Ramdhani & Habibi (2025), Wijayanti et al. (2023)
4	Enhancement of Human Resources' Capacity and Education	a. Training for insurers' personnel and claim verifiers b. Policyholder Education c. Technical guidance for coding and claim procedures	Dhar & Sharma (2019), Ahire & Rishipathak (2020), Fulla et al. (2024), Haule et al. (2019)
5	Stakeholder Coordination	a. Collaborative mechanisms between hospitals, third-party administrators, insurers, and social health insurers (BPJS) b. Standard operating procedure (SOP) consolidation across institutions c. Communication and collective problem-solving forums	Ahire & Rishipathak (2020), Wijayanti et al. (2023), Haule et al. (2019)
6	Adaptive Regulations and Policy Improvement	a. Policy revision to align with operational conditions b. Harmonization of ICD codes and universal health coverage procedures c. Improvement of audit and control mechanisms	Nsiah-Boateng et al. (2017), Fulla et al. (2024), Haule et al. (2019)
7	Cost Efficiency and Economic Impact	a. Reduction in operational costs through automation b. Improvement in hospital cash flow c. Enhancement in insurers' profitability	Raza et al. (2025), Dhar & Sharma (2019)

Descriptive Analysis

Of the 11 articles reviewed in this scoping review, five studies were conducted in India, 3 in Indonesia, 1 in Ghana, and 2 in Tanzania. Among these, 5 were developmental studies, while the rest were cross-sectional, employing both quantitative and qualitative approaches.

Thematic Analysis of Claim Management in National Insurance

The thematic analysis of the 11 reviewed articles indicates that researchers in India, Indonesia, Ghana, and Tanzania have implemented various strategies and approaches. In general, seven strategies have been implemented or proposed for the control and management of health insurance claims at the national level, namely: the utilization of blockchain technology

for claim transparency and security, process automation and the use of digital systems, addressing administrative barriers and standardizing processes, strengthening human resource capacity and user education, coordination among stakeholders, the necessity for adaptable policy and regulation, and cost efficiency

Utilization of Blockchain Technology for Claim Transparency and Security

Blockchain technology appears to be popular in Asian countries, particularly in India. The use of smart contracts, distributed ledgers, and cryptographic technologies increases efficiency, reduces fraud, and strengthens the security and transparency of the claim process. This approach enables stakeholders like patients and healthcare providers to interact more securely and transparently. Furthermore, these solutions aim to improve operational efficiency and maintain the integrity of claim processing (Raza et al., 2025).

In a study by Gahlyan et al. (2023), it was explained that when a patient arrives at the hospital for registration, the hospital's system utilized a government-issued identity to generate a certificate. This certificate also included information about the insurance company for additional reference and is stored on the patient's device for future use. When the hospital prepares a claim, a transaction must be added to the insurance company's system. In this process, the system requested authorization from the patient. The patient then generated a digital signature using their phone, and subsequently, the signature is transmitted to the insurance company. The hospital's billing system and the insurance company verify the signature to authenticate the transaction.

Blockchain technology was claimed to provide numerous advantages, such as a well-distributed database, greater transparency, a trustworthy network, decentralized mechanisms, and autonomous connectivity. Authentication and health data privacy were secured by exchanging cryptographic keys using blockchain. This study safeguarded the e-health management system against various cyber attacks, including replay attacks and man-in-the-middle attacks (Mahapatra et al., 2022).

Gahlyan et al. (2023) further explained that their prototype was implemented using JAVA technology, where certificate generation used less memory than authentication processes. The computational resource differences were small, thereby demonstrating its low-cost and low-resource approach. Furthermore, this system enables the generation of certificates to authenticate communication between the insurance company and the hospital's billing system. This framework efficiently and cost-effectively managed patient data while strengthening transaction authentication.

Process Automation and Digital System Utilization

Studies from Indonesia, India, Ghana, and Tanzania show that the automation and digitalization of health insurance claim processing (including integration with electronic health record and e-claim systems) accelerate claim resolution, reduce operational costs, and diminish the number of delayed or rejected claims (Dhar & Sharma, 2019; Ramdhani & Habibi, 2025; Wijayanti et al., 2023; Nsiah-Boateng et al., 2017; Haule et al., 2019; Fulla et al., 2024).

The study by Wijayanti et al. (2023) at Citra Husada Jember Hospital in Indonesia reveals that strategies for clearing pending BPJS (Indonesian Health Insurance) claims were focusing on ensuring the adequacy and competency of human resources, with at least a Diploma 3 in medical record administration. The claim process run effectively with the support of applications such as INA-CBG's Grouper and SIM RS. Furthermore, a bridging system operated smoothly; however, there were technical problems with the Jasa Raharja claim application, which frequently failed to connect with the BPJS platform, thereby delaying the submission of motor vehicle accident-related claims. In addition, supervisors directly oversee and validate the documents before submission to avoid errors and subsequent rejection by BPJS. Other Indonesian studies likewise highlight the importance of digital integration with BPJS Kesehatan

and staff training to maximize process efficiency, improve cash flow, reduce claim rejection, and elevate service delivery (Ramdhani & Habibi, 2025).

Similar to the situation in Indonesia, a study in India showed that health insurers face significant challenges due to growing rejection and delayed settlements of healthcare claims (Dhar & Sharma, 2019). On average, 83.26% of the submitted claims were approved, while 56% of the unsettled ones were subsequently rejected, and 44% remained delayed. This study emphasizes that claim settlements should be more transparent and customer-centric, and rejections should be processed promptly and professionally. These measures are expected to keep the percentage of delayed settlements (more than 30 days) low and reduce customer complaints.

In Ghana, health care providers submitted their claims either physically or digitally (Boateng et al., 2017). The process involved the submission of physical or electronic documents to the Claims Processing Center (CPC) for subsequent review and reimbursement. The first stage ("fulfillment") involved verifying the amount and value of the claim and validating the provider's credentials. If issues arise, the claim may be returned or forwarded to the subsequent ("vetting") stage. Patient data, services rendered, medical procedures, diagnostics, medications, and facility identification are reviewed in depth during this process. Claims may be entirely or partially rejected if there are inconsistencies, a diagnosis inappropriate for the patient's age or sex, or services rendered outside the health facility's authorization. Furthermore, in agreement with the Indonesian study, Nsiah-Boateng et al. (2017) reported that electronic systems were more effective in detecting invalid claims than paper-based ones. The expansion of these systems to all health care providers can reduce costs and contribute to financial sustainability for the National Health Insurance Scheme (NHIS).

In Tanzania, a study involving 46 healthcare facilities (27 public and 19 private) showed significant variation in the average number of rejected claim items — ranging from 0.21 in regional hospitals to 1.21 in zonal hospitals (Fulla et al., 2024). The most frequently cited reasons for rejection include non-compliance with treatment guidelines (17.2% at polyclinics), over-utilization of services (up to 31.8% in district hospitals), and complex NHIF regulations. Mitigation strategies included fast verification, staff training, technology utilization, and internal audits. An electronic solution is needed for the early detection of inaccuracies.

Supporting the study by Fulla et al. (2024), another team (Haule et al., 2019) implemented a data exchange system between healthcare service technologies and health insurance claim management. This team also developed modules that fulfil functional requirements, including data extraction from Care2X, claim validation before submission, and delivering only pre-approved claims. Users can view pending claims, view claim details, and generate reports. Interoperability with NHIF includes data related to clinician license numbers, medication codes, NHIF procedure codes, patient IDs, visit types, and ICD-10 to ICD-9 mapping. Data exchange occurs in JSON format via API and is secured by password authentication, NHIF tokens, and role-based access controls within Care2X.

Administrative Barriers and Standardization Solutions

While the digitalization of claim processes was an attractive innovation, some studies continue to prioritize manual processes and standardization to improve claim validity. This literature review found that filing errors (including inaccuracies in SEP data), incomplete documentation, differences in coding interpretations, and manual procedures contributed to delayed or rejected claims. The solution is standardizing administrative procedures and documentation (Mathar & Klevina, 2025; Ramdhani & Habibi, 2025; Wijayanti et al., 2023). Furthermore, differences in coding perspectives between hospital coders and BPJS verifiers may also pose significant barriers (Wijayanti et al., 2023).

To address these administrative inaccuracies, the implementation of a standardized manual administration model significantly reduced the number of delayed claims from 70.3%

(97/138) in July (before intervention) to 36.2% (50/138) in August and further to 11.6% (16/138) in September (after intervention) (with p = 0.000 and p = 0.003, respectively) (Mathar & Klevina, 2025). Additionally, there was a marked improvement in the completeness of medical records, documentation of diagnostic procedures, and administrative accuracy. The standardized manual administration system effectively reduced delayed payments in the JKN program by strengthening claim verification and documentation processes. This administration system includes internal verification procedures before claim submission (Mathar & Klevina, 2025).

In standardization, standardizing should encompass not only the process of verifying claim data but also standardizing the human resources responsible for administration. Wijayanti et al. (2023) explained that hospitals employed personnel with at least a Diploma III in Medical Records and provided standard operating procedures for coding inpatients to aid in this process. This approach helped avoid the return of documents due to incomplete information.

Improvement of Human Resources' Competencies and User Education

This literature review confirms that training claim staff, educating policyholders, and improving communication among stakeholders (hospitals, third-party administrators, insurers) could collectively enhance claim management and policyholder satisfaction (Dhar & Sharma, 2019; Ahire & Rishipathak, 2020; Fulla et al., 2024; Haule et al., 2019).

Dhar & Sharma (2019) advocated training claim handlers and processing staff in technology-related skills to enable them to appreciate claim settlements' sensitive and significant role within the insurance industry. Claim denials carry financial and legal implications; therefore, insurers must be cautious in denying liability under their policy terms, particularly in assessing whether a claim falls within coverage.

In India, respondents reported that the claim resolution process is typically lengthy, extending up to 45 days (Ahire & Rishipathak, 2020). Due to poor communication and understanding of policy terms, claim decisions fell short of policyholders' expectations. A total of 34% of respondents strongly disagreed, and 15% disagreed, with the fairness of claim denials. This directly affected customer satisfaction and policy renewal decisions. Healthcare providers, as key stakeholders, have an important role in ensuring communication transparency; yet only 22% of respondents felt that sufficient transparency was provided. Therefore, education for both human resources and policyholders is needed to foster greater satisfaction. Policyholders should be adequately-informed about policy exclusions, co-payments, and deductibles at the outset of their policy.

Consistent with the study from India, researchers in Tanzania also found that strategies for mitigating delayed or pending payments include faster verification processes and training for claim handlers (Fulla et al., 2024). Haule et al. (2019) stressed the significance of training to enable stakeholders to understand data exchange modules, ensuring that both functional and operational system requirements are adequately met.

Coordination Among Stakeholders

This literature review further confirms that effective collaboration among hospitals, third-party administrators, and insurers was essential to ensuring the timely and proper processing of healthcare claims (Ahire & Rishipathak, 2020; Haule et al., 2019). The coordination among stakeholders — hospitals, insurers, and third-party administrators — was weak, affecting policyholders' satisfaction. All stakeholders should make greater efforts to collaborate, particularly in the preparation of documents and communication-related to claim submission (Ahire & Rishipathak, 2020).

Such coordination was crucial because differences in coding perspectives between hospital coders and BPJS verifiers can create barriers (Haule et al., 2019). Standard operating procedures for claim processing should be in place to facilitate coordination among stakeholders. Nevertheless, document returns by BPJS due to incomplete information (such as

incident chronologies or proof of equipment usage) still frequently happen. This occurred due to a weak document filtering process within the hospital's care delivery chain involving multiple stakeholders, including administration, coding, verification, and financial staff (Wijayanti et al., 2023). In Tanzania, Haule et al. (2019) explained that data exchange modules must meet functional and operational criteria, requiring extensive coordination among stakeholders. Thus, coordination is of the highest importance.

The Need for Adaptive Policy and Regulation

The complexity of JKN/NHIF policies and inconsistent ICD codes or service guidelines may contribute to claim denials. Therefore, policy reform and code harmonization are needed to improve the efficiency of the system (Nsiah-Boateng et al., 2017; Fulla et al., 2024; Haule et al., 2019).

Haule et al. (2019, Tanzania) explained that the digital claim management system should include the health care provider's license number (practitioner), NHIF codes for medications, procedures, and services, folio IDs (unique claim submission numbers), item IDs (unique claim item numbers), folio numbers (serial folio IDs), the patient's visit type (routine or emergency), and hospital referral numbers. Furthermore, there were differences in the ICD versions used (Care2x: ICD-10; NHIF: ICD-9), requiring code mapping. Therefore, policy intervention was needed to enable all these data elements to be adequately captured within the system. Additionally, the study from Tanzania identified that claim denials were, in many cases, due to the complexity of NHIF policy (Fulla et al., 2024). In Ghana, Nsiah-Boateng et al. (2017) stressed the necessity for strengthening clinical regulations and employing data mining techniques to improve the performance and efficiency of electronic claim systems.

Cost Efficiency and Economic Impact

Technological solutions (such as blockchain and digitalization) and administrative improvements reduced operational costs, improved hospital cash flows, and increased insurers' profitability. Dhar & Sharma (2019) explained that high claim processing costs could undermine insurers' financial performance. Therefore, process automation through claim management software can help reduce operational expenses, particularly for small companies with limited budgets.

DISCUSSION

This scoping review of 11 articles found that all related studies on claim management were conducted in developing countries in Asia and Africa. None of the included studies were from developed countries. The researcher posits that this may be due to the fact that health insurance systems in developed countries are already implemented effectively and efficiently, thereby reducing or eliminating cases of claim rejection or delay. In developed countries, various health insurance options are well managed by the government or through partnerships between the government and the private sector (Ellis et al., 2014). Meanwhile, developing countries currently face significant challenges in claim management, mainly due to manual systems, which are prone to administrative errors and fraud (Raza et al., 2025). In cases of delayed payments, a systematic review in Indonesia shows that human resource factors were most frequently cited as the cause of delayed payments for National Health Insurance (BPJS) (Semarajana & Soewondo, 2019). Therefore, improvements are needed from various perspectives, particularly related to the quality of human resources in developing countries. Furthermore, developing countries can learn from health insurance systems and their management in developed countries and adapt applicable aspects to their respective local conditions.

The thematic analysis also shows that blockchain technology is becoming popular in addressing claim rejections or delays, especially for cases in India. Blockchain is a decentralized

digital record-keeping system. This technology is frequently used in financial, logistics, health care, and insurance sectors due to its ability to maintain data transparency, security, and accuracy without needing control by a single institution (Shouri & Ramezani, 2025). Each transaction is recorded across multiple computers, and each new record is connected to the previous one, forming a chain of data that is difficult to alter or forge (Shouri & Ramezani, 2025). Blockchain-based applications are increasingly used in various aspects of human life to improve security, trust, and reliability, including health care delivery (Haque & Bhushan, 2023). Blockchain also helps improve health information's efficiency, security, privacy, and access control (Saeed et al., 2022).

A systematic review of blockchain applications in health care shows that this technology has been increasingly used in recent years due to its ability to enhance data authenticity and transparency. Through its open, secured, and tamper-proof structure, blockchain helps enable more systematic and trustworthy patient data management and delivery of health care services. However, many hospitals and healthcare providers remain reluctant to implement this technology due to concerns related to data security, interoperability, and a shortage of technical expertise (AbdelSalam, 2023). Furthermore, utilising blockchain can provide greater control over patients' health data while strengthening health information exchanges without compromising patient confidentiality (AbdelSalam, 2023). Although blockchain is popular in India, the researcher found no studies investigating its application in Indonesia. Thus, further studies are needed to explore its potential use in the Indonesian healthcare delivery system.

In the Indonesian context, where the number of pending and rejected claim cases reached 20% (20,000 cases) (Rwanda & Silaban, 2025; Salman, 2025), efforts to address these issues remain largely vary in their approach. RSUD Wonosari, for instance, utilized coordination meetings, routines, and policy compliance (PPK) reviews, alongside strengthening its internal organization (Amalina, 2023). Digital and manual mechanisms were implemented in tandem (Ramdhani & Habibi, 2025; Mathar & Klevina, 2025). While digitalization accelerated processes and improved efficiency, manual mechanisms were valued for reducing errors, strengthening accuracy, and minimizing delayed or rejected payments (Mathar & Klevina, 2025).

In this context, the researchers assume that, given Indonesia’s large population, digitalization might be more effective if implemented alongside standardized human resources (with a minimum education level of Diploma III in Medical Records), standardized processes, standardized coding, and careful oversight by supervisors to minimize errors and maximize claim accuracy. Furthermore, internal verification by trained personnel before submission to the JKN claim system — in coordination with the JKN office — can further improve accuracy and reduce the risk of delayed or rejected payments.

CONCLUSION

This scoping review of 11 articles found that pending and rejected claims constitute significant health system issues in developing countries. Such claims were generally attributed to human resource factors, including input errors, coding mistakes, and insufficient training. Strategies for claim management encompassed using blockchain technology, digitalization and automation of processes, administrative standardization, human resource development and education, stakeholder coordination, adaptive policies, and cost efficiency. In Indonesia, manual verification remained relevant for reducing pending and rejected claims. Training programs on claims administration processes and further research on digitalization—including the development of blockchain applications—are recommended to optimize claim management outcomes.

LIMITATION

This study has limitation, mainly on the application of scoping review. The nature of this study is the flexibility of the review which not require critical assesment using a specific tool to assess the study. Thus, the quality of papers included in this study is less explain. However, despite the limitation, this study provides new insight on how to manage pending claim and rejected claim of insurance. This management might be applied in similar cases in Indonesia.

REFERENCES

AbdelSalam, F. M. (2023). Blockchain Revolutionizing Healthcare Industry: A Systematic Review of Blockchain Technology Benefits and Threats. Perspectives in Health Information Management, 20(3), 1b. https://pmc.ncbi.nlm.nih.gov/articles/PMC10701638/

Ahire, N., & Rishipathak, P. (n.d.). Assessment of Satisfaction levels of Health Insurance Policy Holders with Claims Settlement Process in Pune, Maharashtra. Retrieved May 31, 2025, from https://manuscriptcommunicator.com/assets/files/IJST/1586/2084/af/1076/4-1598251460-163pdf.pdf

Amalina, Nurul .(2023). Analisis Faktor Penyebab Pending Klaim Rawat Inap BPJS Kesehatan Di RSUD Wonosari. Ugm.ac.id. https://etd.repository.ugm.ac.id/penelitian/detail/230442

Budi Ramdhani, & Habibi, M. (2022). Optimizing outpatient claim management: The role of sep and document completeness – a qualitative. Science Midwifery, 13(1), 119–125. https://doi.org/10.35335/midwifery.v13i1.1862

Dhar, P. (2019). CLAIM SETTLEMENT MECHANISM AND INDIAN HEALTH INSURANCE SECTOR A CRITICAL INSIGHT. Quarterly International Journal, VII(63185), 2349–1647. https://iaraindia.com/wp-content/uploads/2019/05/11-CLAIM-SETTLEMENT-MECHANISM-AND-INDIAN-HEALTH-INSURANCE-SECTOR-A-CRITICAL-INSIGHT.pdf

Ellis, R., Chen, T., & Luscombe, C. (2014). Comparisons of Health Insurance Systems in Developed Countries. Elsevier Press., Inc. https://www.bu.edu/law/files/2016/01/EllisPaper.pdf

Fulla, R., Basinda, N., Tupa, T., Chilipweli, P., Kapesa, A., Konje, E. T., Morona, D., & Mshana, S. E. (2025). Patterns and Mitigation Strategies for Rejected Claims Among Health Facilities Providing Services for the National Health Insurance Fund in Mwanza, Tanzania. Healthcare, 13(3), 320–320. https://doi.org/10.3390/healthcare13030320

Gahlyan, M., Mohan, B., Kumar, V., & Mistrean, L. (2023). Block chain based identification and authorization, hospital billing along with Insurance Claim Management. In VII. International Applied Social Sciences Congress. https://ibn.idsi.md/sites/default/files/imag_file/407-419.pdf

Gowanit, C., Thawesaengskulthai, N., Sophatsathit, P., & Chaiyawat, T. (2016). Mobile claim management adoption in emerging insurance markets. International Journal of Bank Marketing, 34(1), 110–130. https://doi.org/10.1108/ijbm-04-2015-0063

Haque, A.K.M.B & Bhushan, B. (2023). Blockchain for medical insurance: Synthesizing current knowledge and problematizing it for future research avenues. Elsevier EBooks, 223–240. https://doi.org/10.1016/b978-0-323-99199-5.00002-1

Haule, A., Ally Dida, M., & Elikana Sam, A. (2019). Towards Data Exchange between Health Information System and Insurance Claims Management System. International Journal of Information Engineering and Electronic Business, 11(2), 28–34. https://doi.org/10.5815/ijieeb.2019.02.04

Mahapatra, S., Noorjahan, Sinha, D., & Kumar Das, A. (2022). A Secure Health Management Framework with Anti-fraud Healthcare Insurance Using Blockchain. Lecture Notes in Electrical Engineering, 491–505. https://doi.org/10.1007/978-981-19-1520-8_40

Maulida, E. S., & Djunawan, A. (2022). Analisis Penyebab Pending Claim Berkas BPJS Kesehatan Pelayanan Rawat Inap Rumah Sakit Universitas Airlangga. MEDIA KESEHATAN MASYARAKAT INDONESIA, 21(6), 374-379. https://doi.org/10.14710/mkmi.21.6.374-379

Nsiah-Boateng, E., Asenso-Boadi, F., Dsane-Selby, L., Andoh-Adjei, F.-X., Otoo, N., Akweongo, P., & Aikins, M. (2017). Reducing medical claims cost to Ghana's National Health Insurance scheme: a cross-sectional comparative assessment of the paper- and electronic-based claims reviews. BMC Health Services Research, 17(1). https://doi.org/10.1186/s12913-017-2054-1

Oktamianiza, O., Rahmadhani, R., Yulia, Y., Ilahi, V., Putri, K. A., & Juwita, F. S. (2023). Penyebab pending klaim berdasarkan aspek diagnosis dan ketepatan kode diagnosis. J-REMI: Jurnal Rekam Medik dan Informasi Kesehatan, 5(4), 282–287. https://publikasi.polije.ac.id/index.php/j-remi

Ramdhani, B., & Habibi, M. (2025). Optimizing outpatient claim management: The role of SEP and document completeness – a qualitative study. Science Midwifery, 13(1), 12–20 Jurnal Riset Rumpun Ilmu Kesehatan Volume 4, Nomor 1, April 2025 p-ISSN: 2828-9366; e-ISSN: 2828-9374, Hal. 473-484 DOI: https://doi.org/10.55606/jurrikes.v4i1.4825

Raza, A. A., Arora, B., & Irfan, M. T. (2025). Securing Health Insurance Claims with Decentralization and Transparency: A blockchain-based Approach. Procedia Computer Science, 259, 1918–1926. https://doi.org/10.1016/j.procs.2025.04.147

Raza, A. A., Arora, B., & Irfan, M. T. (2025). Securing Health Insurance Claims with Decentralization and Transparency: A blockchain-based Approach. Procedia Computer Science, 259, 1918–1926. https://doi.org/10.1016/j.procs.2025.04.147

Revanda, H., & Silaban, M. W. (2025, January 14). Klaim Mandek di BPJS Kesehatan Melonjak 20 Persen, Rumah Sakit: Kami Hampir Tenggelam. Tempo. https://www.tempo.co/ekonomi/klaim-mandek-di-bpjs-kesehatan-melonjak-20-persen-rumah-sakit-kami-hampir-tenggelam-1193864

Saeed, H., Malik, H., Bashir, U., Ahmad, A., Riaz, S., Ilyas, M., Bukhari, W. A., & Khan, M. I. A. (2022). Blockchain technology in healthcare: A systematic review. PLOS One, 17(4). https://doi.org/10.1371/journal.pone.0266462

Salman, G. (2025, January 18). 439 Rumah Sakit Rugi Rp 500 Miliar, Klaim Mandek di BPJS Kesehatan Capai 12.000 Kasus. Harian.disway.id; Harian Disway. https://harian.disway.id/read/849609/439-rumah-sakit-rugi-rp-500-miliar-klaim-mandek-di-bpjs-kesehatan-capai-12000-kasus

Sari, NWAA., & Hidayat, B. (2023). Analisis Faktor Penyebab Klaim Pending Pelayanan BPJS di Era JKN. MEDICINA 54 (1): 5-9 https://doi.org/10.15562/medicina.v54i1.1203

Semarajana, ING., & Soewondo, P. (2019). FACTORS RELATED TO PENDING CLAIM IN INDONESIAN NATIONAL HEALTH INSURANCE (JKN): A SYSTEMATIC REVIEW. Proceedings of the International Conference on Applied Science and Health, 4, 768–780. https://publications.inschool.id/index.php/icash/article/view/700

Shouri, S., & Ramezani, R. (2025). A blockchain-based health insurance model enhanced with quadratic voting. Health Informatics Journal, 31(2). https://doi.org/10.1177/14604582251339422

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., Lewin, S., … Straus, S. E. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Annals of internal medicine, 169(7), 467–473. https://doi.org/10.7326/M18-0850

Vip Paramarta, Deny Teguh Setyaji, & Alexandra DeSousa Guterres. (2025). OPTIMIZING BPJS CLAIMS MANAGEMENT: AN ANALYSIS OF SUBMISSION ACCURACY, ADMINISTRATIVE PROCESS EFFICIENCY AND ITS IMPACT ON HOSPITAL FINANCIAL SUSTAINABILITY. MORFAI JOURNAL, 5(1), 8–13. https://doi.org/10.54443/morfai.v5i1.2513

Wijayanti, R. A., Dewi, R. D. C., Farlinda, S., & Nuraini, N. (2023). BPJS Pending Claim Settlement Strategy In Hospital With Management Approach (Planning, Organizing, Actuating, Controlling). International Journal of Healthcare and Information Technology, 1(1), 28–33. https://doi.org/10.25047/ijhitech.v1i1.3917: