

Optimization of Casemix System to Increase Revenue of Bunda Medika Jakabaring Hospital

Nadya Ayu Saraswati¹, Purwadhi², Yuniati Lestari³

¹ Universitas Adhirajasa Reswara Sanjaya, Bandung; Indonesia; nadya.ayuisha@gmail.com

² Universitas Adhirajasa Reswara Sanjaya, Bandung; Indonesia; purwadhi@ars.ac.id

³ Universitas Adhirajasa Reswara Sanjaya, Bandung; Indonesia; yuniatilestari61@gmail.com

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ABSTRACT

This study aims to determine the procedures for implementing the casemix system at Bunda Medika Jakabaring Hospital and its impact on hospital revenue, as well as to identify challenges and strategies for optimizing the casemix system to increase revenue. The method used is descriptive research with a qualitative approach, involving participants from various hospital units directly related to the operation and implementation of the casemix system. The research findings indicate that the implementation of the casemix system involves structured administrative and technical processes, from patient data validation to claim submission to BPJS, supported by information technology to ensure smooth operations. The casemix system changes the payment pattern for services to be based on case complexity, directly impacting hospital revenue by requiring meticulous documentation and coding. Key challenges include incomplete data, coding errors, lack of coordination between units, as well as limitations in human resources and technical constraints in the information system. Optimization strategies focus on strengthening documentation, regular training for medical staff, internal audits, comprehensive data validation, and enhancing cross-unit collaboration, along with information technology support to accelerate the claims process and sustainably increase revenue.

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Corresponding Author:

Nadya Ayu Saraswati

Universitas Adhirajasa Reswara Sanjaya, Bandung; Indonesia; nadya.ayuisha@gmail.com

1. INTRODUCTION

The implementation of National Health Insurance (JKN) since 2014 has changed the pattern of financing health services in Indonesia. Hospitals, as the main service providers, are now highly dependent on the claim system to BPJS Kesehatan as a source of operational funding, especially in type C private hospitals that serve a large number of patients but with limited resource capacity (Ministry of Health of the Republic of Indonesia, 2021).

The implementation of the JKN program has brought significant changes, especially in the payment of health facilities, especially hospitals (Purwadhi Purwadhi et al., 2024). The payment pattern to hospitals that was previously *fee-for-service-based*, in the JKN era was carried out through the diagnosis related group (DRG) pattern known in Indonesia as INA-CBGs (*Indonesian Case Based Group*) (Nurwahyuni & Setiawan, 2019).

Based on several previous studies on *the casemix* system and hospital revenue optimization, it was found that the implementation of the mixed tariff policy for INA-CBGs cases regulated in the Regulation of the Minister of Health No. 59 of 2014 has caused Pabatu Hospital to suffer losses. This mixed rate policy, which combines different types of rates for different groups of cases, turns out not to be always favorable for all hospitals. In the case of Pabatu Hospital, the system could not cover the operational costs incurred, resulting in financial losses (Hafiz et al., 2020). On the contrary, research by Dina shows that the implementation of the INA-CBGs system in hospitals has resulted in significant improvements in several aspects. Hospitals have made notable progress in terms of more adequate and skilled human resources, improvements in medical records, and improvements in available facilities. In addition, this system has made a positive contribution to the increase in hospital revenue. With the increase in revenue obtained from the INA-CBGs system, hospitals are now able to better cover operational and other costs. This confirms that, despite the challenges in its implementation, the INA-CBGs system has great potential to improve the financial and operational performance of hospitals if implemented effectively (Ode et al., 2016). This is in line with Romadhon's research, which shows that the change from a *fee-for-service* payment system to a case-based system (*INA-Case Base Groups*) provides greater benefits for hospitals. The INA-CBGs system offers additional advantages because the tariff is adjusted to the tariff standards that apply throughout Indonesia. This rate adjustment allows hospitals to obtain payments that are more commensurate with the cost of care and reduce the variability that can arise from a *fee-for-service* system. With these adjustments, hospitals can reap more stable financial benefits and can manage their resources more efficiently, supporting operational sustainability and improving service quality (Romadhon & Suryani, 2020).

At Bunda Medika Jakabaring Hospital, a type C private hospital in the city of Banyuasin, 95% of the patients served were BPJS Kesehatan participants, 3.8% of general insurance patients, and 1.2% of insurance guarantee patients. This dependence makes the claim process a crucial factor in maintaining the hospital's financial sustainability. However, in the last three months, Bunda Medika Jakabaring Hospital has experienced an increase in the number of pending claims to an average of 39% of the total monthly claims. The problem of pending claims is caused by 63.29% of administrative problems, 28.18% of coding rules and 8.53% of service standard problems. The pending claims cause payment delays and decrease hospital revenue.

This condition shows that effective claims management is needed, and one of the keys lies in optimizing the casemix system. A well-run casemix system can reduce pending claims through improved coding accuracy, proper medical documentation, and compliance with INA-CBGs tariff standards. With this system, the claim verification process can be accelerated and hospital revenue from JKN services can be significantly increased. However, in the field I saw that the casemix system at Bunda Medika Jakabaring Hospital was not running optimally. There are still many obstacles stemming from limited human resources, lack of coordination between units, and weak internal supervision and evaluation.

The selection of this topic is based on the actual conditions that occur in the field, where the high number of pending claims has a direct impact on the continuity of hospital operations. As a private hospital where most of its patients come from the JKN program, success in maintaining income stability is highly dependent on the effectiveness of the casemix system. However, the implementation of this system is still not running optimally due to the lack of integration between units, limited human resources, and weak internal supervision and evaluation functions. Therefore, it is important to take an in-depth look at how the casemix system is implemented, its impact on hospital revenue, the challenges faced in the claims process, and the strategies that can be used to optimize the system.

The casemix system was chosen as the focus of the research because it is the main component in the INA-CBGs package-based payment mechanism in the JKN program. This system not only covers the technical aspects of the grouping of disease cases, but also involves complex and cross-unit processes, such as medical records, medical services, finance, and claims administration. Poor management of the casemix system can trigger high pending claims and have an impact on declining hospital liquidity levels. On the contrary, if this system is run well, then hospitals can not only avoid financial losses but can also grow sustainably in the midst of competition and limited-service rates.

2. METHOD

This study uses a qualitative method with a descriptive design that aims to understand in depth the application of the casemix system at Bunda Medika Jakabaring Hospital and its effect on hospital income. This approach allows researchers to explore phenomena that occur in the field through direct interaction with participants who have a strategic role in the casemix system, such as directors, service managers, casemix teams, doctors, and administrative staff. Fadli (2021) states that qualitative research emphasizes direct observation of the social meanings interpreted by subjects in their natural context. This approach allows for a richer and more contextual understanding of the dynamics of the implementation of the casemix system in type C hospitals where the majority of patients are BPJS Kesehatan participants.

Data collection was carried out through in-depth interview techniques, direct observation, and documentation, including medical record data and casemix unit reports. The researcher himself becomes the main instrument in this process by playing a direct role in collecting and interpreting data from primary sources. Data analysis was carried out qualitatively using an interactive model from Sugiyono (2008), which consisted of three main stages: data reduction, data presentation, and conclusion/verification. Data reduction focuses on filtering information relevant to the research, presenting data in the form of narratives and visual schemes to facilitate understanding, while drawing conclusions is based on patterns of findings that emerge and are systematically verified to maintain validity.

The study participants were selected purposively, i.e. based on their direct involvement in the operation of the casemix system. Bunda Medika Jakabaring Hospital was chosen as the location because it faced significant problems related to pending BPJS claims, which affected the continuity of hospital revenue. The research lasted from May to July 2025. By focusing on a single hospital, the study highlights the complexity of implementing a casemix system from a variety of perspectives, from administrative to technical aspects, as well as identifying key challenges such as coding inaccuracies, weak information system integration, and lack of ongoing training. The results of this study are expected to be able to provide a comprehensive overview of the casemix optimization strategy to increase hospital efficiency and revenue in the era of National Health Insurance (JKN).

3. FINDINGS AND DISCUSSION

Result

Procedure for Implementing the Casemix System at Bunda Medika Jakabaring Hospital

The casemix system at Bunda Medika Jakabaring Hospital is implemented as an effort to manage hospital financing and revenue in a more structured and proportionate manner, especially considering that the majority of patients are BPJS participants. The system groups patients based on diagnosis, procedure, and severity of cases so that service payments can be tailored to the complexity of the care provided. This approach requires strict coordination between units and increased accuracy in medical documentation and claims administration so that the payment process runs smoothly and the hospital's cash flow remains stable.

The hospital director assessed that the casemix system had a great effect on hospital revenue, especially in the context of BPJS patients. He stated:

"This system helps regulate service payments based on the complexity of cases, so conceptually this is good because hospitals are compensated more proportionately for the services provided. But frankly, this is my first experience leading a hospital in collaboration with BPJS, income is very dependent on the smooth claims system, and this casemix system is one of the main determinants."

The finance manager added that the casemix system has a huge impact on the hospital's financing and revenue planning, but it also poses challenges when claims are pending:

"If there are pending claims that are increasing as in the last three months, of course it has an impact on hospital cash flow. All pending claims are like hanging funds that should have been used for hospital operations."

The medical service manager explains the changes in the service process that doctors must follow:

"After the implementation of the casemix system, we did make some adjustments, especially in terms of documenting medical services. Now everything has to be more structured and detailed, from the anamnesis, the examination, the diagnosis, to the action."

The medical support manager emphasized the importance of rigor in documenting medical support outcomes to support claims:

"If there are laboratory or radiology results that do not enter the system or do not match the doctor's diagnosis, then the claim can be delayed or even rejected. So supporting services now have a strategic role in hospital revenue."

The head of the casemix unit explained the main tasks of his team in ensuring the completeness and accuracy of the data and monitoring the claims process:

"We ensure the completeness and accuracy of patient medical record data, verify the suitability between clinical documentation and the code entered into the BPJS system, and monitor the claim submission process until it is disbursed, including following up if there is a pending or rejection."

The inpatient code is responsible for correctly encoding the inpatient data and completing the supporting documents:

"We ensure that all inpatient data is correctly encoded in accordance with INA-CBG and verify the completeness of the documents before claims are submitted to BPJS."

Outpatient data entry is tasked with ensuring that outpatient data is complete and correctly input into the system:

"We must ensure that supporting documents such as lab results or surgery reports have been uploaded in electronic medical records before the data is sent to BPJS."

Internal verifiers are in charge of verifying claims submitted and handling problematic claims:

"I verify the compatibility between the diagnosis and the action in the medical record with the submitted INA-CBG code, and monitor pending or rejected claims to find solutions."

The head of the medical record unit emphasized the increase in the strict management of medical record documents:

"Since the casemix system began to be optimized, the role of medical records has become much more crucial. Everything should be completed within 2x24 hours after the patient discharges and the diagnosis should be more detailed."

Customer service said that patients rarely ask about the casemix system directly, but feel the impact especially on BPJS patients:

"If you ask directly about the casemix system, it is rare, but the impact is quite felt, especially for BPJS patients who sometimes complain about services that are not directly covered because of the casemix package system."

The administrative staff explained the now stricter and more detailed registration procedures, including biometric validation:

"We have to be more thorough to ensure that patient data, referrals, and SEP information are completely complete and accurate, the enrollment time is now 2-3 minutes longer per patient."

Internal medicine specialists acknowledge the limited understanding of the casemix system but are aware of its impact on hospital revenue:

"I don't really understand the casemix system in detail, but I realize that what I write in the medical records, especially the primary diagnosis and comorbidities, can affect hospital revenue."

Neurosurgeons see the casemix system as helping to standardize medical documentation:

"I record diagnoses in more detail and make sure every action is properly documented because incomplete records have an impact on hospital revenue and our medical services."

Emergency room doctors revealed the challenges of implementing the casemix system in emergency situations:

"Patients come to the emergency room, but we have to think about the right diagnostic code, even though the important thing is stabilization first."

The head of the IT team stated that the integration of the casemix system with open source electronic medical records is quite challenging but overcome:

"The IT team is used to working with open source platforms, so we can customize and integrate the casemix into our existing systems."

This is in line with the results of an interview by BPJS which said that:

"We encourage partner hospitals to implement a casemix system in a disciplined manner so that the claims submitted can be more accurate and in accordance with the services provided. With this system, the verification process becomes more efficient and transparent, so that payments to hospitals can also run more smoothly."

The Impact of the Implementation of the Casemix System on the Revenue of Bunda Medika Jakabaring Hospital

The implementation of the casemix system at Bunda Medika Jakabaring Hospital has a significant influence on hospital revenue, especially since the majority of patients are BPJS participants. This system helps to regulate service payments based on the complexity of the case so that hospital revenues become more proportionate and transparent. However, challenges such as pending claims and the need to improve administrative accuracy also affect cash flow and overall hospital operations.

The hospital director is optimistic about the prospects of the casemix system as a tool to maintain the hospital's financial sustainability:

"I believe, if we can manage this system well, neatly, and disciplined, then casemix can actually be a tool that really helps hospitals in maintaining financial sustainability, I believe that in the next one or two years, we can run this system much more efficiently and of course have a more positive impact on hospital revenue."

Financial managers emphasized the significant impact on the financial recording and reporting process which is now more structured and accurate:

"Before there was a casemix system, recording relied more on standard service rates, while now we have to make sure every claim that is worthy is in accordance with the services provided because this affects the payment of doctors' medical services, although this adds a little bit of workload to the team, but in the future I believe this will help us in maintaining transparency and accountability in hospitals."

The medical services manager stated that the casemix system added administrative pressure but forced increased discipline in recording and reporting:

"There is additional pressure so that all actions must be recorded and proven administratively, we try not to disturb patient satisfaction, the existence of a casemix system forces us to further improve discipline in recording and reporting."

The medical support manager revealed significant changes in the service that now has to be stricter in the verification of examination data:

"We have to make sure that all data goes into the RME system in real-time, and that every examination has a clear medical basis, we also started to tighten up tracing test requests because if it doesn't fit the casemix group, the claim can be problematic."

The head of the casemix unit explained the important role of his team in ensuring the completeness of data and monitoring claims that have a direct impact on hospital cash flow:

"Our main task is to ensure the completeness and accuracy of patient medical record data, verify the conformity between clinical documentation and the code input into the BPJS system, and monitor the claim submission process until liquidated, pending or rejected claims greatly affect the hospital's cash flow."

Inpatient coders convey a rigorous coding process and the challenges of completing data to support claims:

"We ensure that all inpatient data is correctly coded according to INA-CBG and verify the completeness of the documents before claims are submitted to BPJS, the biggest challenge is that doctors sometimes write diagnoses that are too general so we have to confirm to complete the data."

Outpatient data entry is in charge of ensuring that patient data is complete and entered correctly, although it sometimes faces problems with document completeness:

"We check the completeness of the documents, if there is anything that has not been uploaded to the RME, we help upload it, the challenge is that most often doctors do not complete the RME documents, lab or radiology results that have not been input into the RME."

Internal verifiers verify claims filed and deal with problematic claims that have increased in recent times:

"We verify the compatibility between the diagnosis and the action in the medical record with the submitted INA-CBG code, the biggest challenge is the inconsistency between the diagnosis and the action as well as changes in BPJS rules that sometimes do not reach us quickly."

The head of the medical records unit emphasized the increase in the strict management of medical record documents to support the casemix system:

"The role of medical records has become much more crucial, everything has to be completed within 2x24 hours after the patient goes home and the diagnosis has to be more detailed."

Customer service conveys the impact of the casemix system on the perception of patients who sometimes feel that service is limited:

"The casemix system makes services more standardized and compliant, but from the patient side sometimes they feel restricted, the challenge is how to explain in simple language but not create the impression that the hospital is restricting services."

Internal medicine specialists admit that they do not understand the casemix system in detail, but are aware of the impact of documentation on hospital revenue:

"I don't really understand the casemix system in much detail, but I realized that what I wrote in RME, especially major diagnoses and comorbidities, could affect hospital revenue."

Neurosurgeons appreciate the casemix system that helps standardize documentation but faces clinical pathway synchronization challenges:

"This system helps in standardizing documentation, the main challenge is to ensure that the clinical pathways we use can be synchronized with the INA-CBG-based casemix classification."

Emergency room doctors revealed the difficulties of implementing the casemix system in emergency situations:

"Patients come to the emergency room, but we have to think about the right diagnostic code, the biggest challenge is the understanding and application that is less flexible with the conditions in the emergency room."

The head of the IT team stated that the casemix system improves the rigor of data management and helps with the clarity of claims even if there are still pending claims:

"We need to be stricter in managing patient data, casemix provides more clarity in terms of claims, and will be very helpful in getting more revenue in line with the services provided."

This is in line with the results of an interview by BPJS which said that:

"With the casemix system, we can ensure that claim payments are fairer according to the severity and type of service. However, we also emphasize the importance of complete data and documents so that the payment process is not delayed, as lack of documents is often the main cause of pending claims."

Challenges and Obstacles to the Implementation of the Casemix System at Bunda Medika Jakabaring Hospital

The implementation of the casemix system at Bunda Medika Jakabaring Hospital faces various challenges and obstacles that affect the smooth process of claims and hospital revenue. The main problems that arise are related to the completeness and accuracy of data, coordination between units, limited human resources, and technical obstacles in the systems used. This has led to an increase in pending claims that have an impact on hospital cash flow and demand continuous improvement efforts from various parties.

The hospital director stated that delayed claims have been the most noticeable obstacle in the past three months, largely due to data input errors and incomplete documents:

"One of the most noticeable obstacles at the moment is the pending claims and the number is quite large in the last three months. After we searched, it turned out that most of them were due to data input errors, diagnostic code errors, or incomplete documents, I requested that there be retraining for staff involved in the claims process."

The financial manager revealed that claims that are not in accordance with regulations and lack of data synchronization between departments are suppressing the hospital's cash flow:

"Pending or unpaid claims because they don't match, either because the data is incomplete or out of sync between sections, in the last three months, pending claims have increased quite drastically, and that puts pressure on our cash flow, there is a gap in understanding between the medical team and the administration about the importance of detail in filling out medical records."

Medical service managers highlight human resource constraints, especially the lack of detailed documentation habits among physicians:

"Not all doctors are familiar with the casemix system, so sometimes awareness and habits of documentation lack detail recorded in medical records, our pending claims increase, mostly because they are considered not to meet service standards, lack of understanding of general practitioners in the emergency room about BPJS regulations."

The medical support manager cited technical issues with the KSO tool and data input delays as the main challenges:

"There are often input delays or data integration problems, the results of certain machines are not directly connected to the RME, so they have to be manually re-input and this can trigger errors, the data volume is very high, while the claim submission deadline is very tight."

The head of the casemix unit explained the constraints of mismatch of medical record data with field services and the limitations of coding understanding among doctors:

"What we most often encounter is the inconsistency between the data written in the medical records and the reality of services in the field, doctors are still late in completing medical records and still do not understand the rules of coding, the use of KSO tools which sometimes have to be manually input so it is time-consuming and has the potential for errors."

The hospitalization code revealed the challenges in completing specific data and sudden changes in BPJS rules:

"Doctors sometimes write diagnoses that are too general, such as 'kidney failure' without CKD staging, sudden changes in BPJS rules, sometimes we only find out after the claim is rejected, we often remind the doctor to be more detailed and immediately confirm to the doctor if something is not clear."

Outpatient data entry faces the constraints of document completeness and the time-consuming upload process:

"The most common challenge is that doctors do not complete the RME documents, lab or radiology results that have not been input into the RME, this file must be completed 2x24 hours after the patient goes home but sometimes it is also delayed, we have to call or WA the doctor or related unit to complete the data."

Internal verifiers convey increased workload due to pending claims and mismatches of diagnoses and actions:

"Since there has been an increase in pending in the last 3 months, we have done more work because we have to re-check problematic claims, the biggest challenge is the mismatch between diagnosis and action as well as changes in BPJS rules that sometimes do not reach us quickly."

The head of the medical records unit mentioned system glitches and input errors as frequent technical obstacles:

"There is a system down 2-3 times a month which interferes with the claims process, sometimes there is data lost when transferring data to casemix, and there are still officers who input the wrong because they are not familiar with the system."

The administrative staff highlighted data synchronization issues and technical glitches when bridging to BPJS:

"Sometimes there are still obstacles in synchronization, especially when patient data changes at any time, technical problems such as slow systems or errors when bridging to BPJS also sometimes make data not enter perfectly."

Internal medicine specialists acknowledge the lack of training and the challenges of adjusting the clinical pathway to the BPJS code:

"I have not understood the casemix system in detail, there has never been any special training or workshop on casemix, the biggest challenge we face is ideally a clinical pathway based on medical needs, but now we are forced to adjust to the code covered by BPJS."

The neurosurgeon stated the need for a basic understanding of INA-CBG grouping and the challenges of clinical pathway synchronization:

"I regularly discuss with the casemix team case by case, doctors also need to get a basic understanding of INA-CBG grouping so that they can be more involved in the documentation process, the main challenge is to ensure that the clinical pathway we use can be synchronized with the casemix classification."

The emergency room doctor revealed the difficulties of implementing the casemix system in emergency conditions and changes in BPJS rules:

"Patients come to the emergency room, but we have to think about the right diagnosis code, BPJS rules have changed, yesterday ordinary ISPA patients could, today they were rejected, the training is only one orientation time, the time is too short."

The head of the IT team conveyed the challenges of synchronizing the system with BPJS regulations and the limitations of technical support on open source RME:

"The biggest challenge we face is synchronization between the existing system and BPJS regulations which sometimes change, open source RME has limitations in terms of technical support, we have to be more proactive in finding solutions because there are not always vendors who are ready to help immediately."

This is in line with the results of an interview by BPJS which said that:

"We understand that the main obstacle in the field is the completeness of data and coding understanding at the hospital level. We continue to provide assistance and training, but we still need a commitment from hospitals to improve the quality of documentation and coordination between units so that claims are not delayed."

Casemix System Optimization Strategy to Increase Revenue of Bunda Medika Jakabaring Hospital

The optimization of the casemix system at Bunda Medika Jakabaring Hospital is carried out through various strategies that focus on increasing documentation compliance, coordination between units, staff training, and strengthening data management and claims processes. These strategies aim to make claims processed faster and more accurately so that hospital revenues increase sustainably.

The hospital director emphasized the importance of consistency in documentation and reporting flows as well as inter-departmental cooperation:

"We encourage all units to comply with the documentation and reporting flow according to casemix standards, strengthen cooperation between medical records, finance, IT teams, and medical teams, improve claim SOPs and provide internal assistance for units that have difficulty entering data."

Financial managers implement periodic claims reviews and the development of monitoring dashboards for data transparency:

"I encourage the team to review rejected or pending claims so that they can be corrected immediately, compile a claim monitoring dashboard so that leaders can see their financial position in real-time, our strategy is data transparency, communication between teams, and strengthening internal training."

Medical service managers focus on internal training and audits to improve the quality of records:

"We conduct regular socialization and training to medical personnel on recording standards according to the casemix, make documentation checklists in each unit, collaborate with the casemix and medical records team for an internal audit of the medical records to be claimed."

The medical support manager prioritizes standardization of internal data reporting and validation as well as two-way communication with the casemix team:

"We create a standard format for lab and radiology results so as not to confuse the casemix team, form an internal validation team to check data before entering the system, actively communicate with the casemix team and medical records so that the claims process runs smoothly and supporting services support increased revenue."

The head of the casemix unit explained clear SOPs and internal training as key to data and claims management:

"We already have an SOP for the coding flow until the file is sent to BPJS, our system is integrated so that we can see doctor's diagnoses, lab results, actions, and drugs in one system, routinely hold internal coding training and weekly discussions to equalize perceptions and avoid coding errors."

The inpatient code performs quality control data and coordinates with the doctor to complete the documents:

"We ensure that the data of inpatients is encoded in accordance with INA-CBG and verify the completeness of the documents before making a claim, often remind the doctor to write a more detailed diagnosis and immediately confirm if there is something unclear."

Outpatient data entry ensures completeness of data and helps upload unentered documents:

"We check the completeness of the documents, help upload them if they have not been uploaded to RME, the file must be completed 2x24 hours after the patient goes home."

Internal verifiers perform claims verification and random audits to ensure standards are met:

"We verify the suitability of diagnosis and action with the INA-CBG code, the head of the unit conducts a random audit of 10% claims per week to maintain the quality of claims."

The head of the medical records unit mentioned coding training and understanding of the casemix system for officers:

"Some officers have received coding training and a basic understanding of the casemix system, both from internal training and the health office."

Customer service plays a role in bridging communication between patients and related units to avoid miscommunication:

"We often coordinate to clarify BPJS patients who are confused or feel that they are not in accordance with their rights, our role is important to ensure that the information conveyed to patients is correct and appropriate."

The administrative staff affirmed the discipline of initial data verification and quick coordination with the relevant teams:

"We are more disciplined in verifying data at the beginning, checking the patient's identity, the validity of referrals, BPJS membership status in real time, and often having quick discussions with the casemix or IT team if there is a data discrepancy that affects claims."

IT team heads rely on claims verification process management support and automation to improve speed and accuracy:

"The management support is very large, we are automating the claim verification process to be faster and less human error, planning to upgrade the system to be faster in the claims and verification process and adapting to changes in BPJS regulations."

This is in line with the results of an interview by BPJS which said that:

"We strongly support efforts to optimize the casemix system in hospitals, especially in terms of HR training and data integration. With good coordination and the use of technology, the claims process becomes more efficient and accurate, so that hospitals can get payments on time and revenue increases."

Discussion

The implementation of the casemix system at Bunda Medika Jakabaring Hospital is carried out through a structured procedure with strict administrative and technical steps. Patients must go through a detailed registration process, including validation of referral data and Participant Eligibility Letter (SEP), to ensure complete patient data before medical services and records are performed. After the patient discharges, the coding of the diagnosis and actions follows the INA-CBG system carefully to avoid misclassification. Verification of administrative and medical documents must be completed within 2x24 hours to speed up the claim submission process. This procedure is in line with the theoretical stages described by Herdiani et al. (2024), which emphasize the importance of data validity and completeness of documents before entering the claim verification process.

This casemix system brings great challenges in data management and administration, especially in medical record recording and claims reporting that must be recorded in detail and complete in the Electronic Medical Record (RME) system. Administrative workloads are increasing from data entry, diagnosis coding, to final verification of claims. Errors or incompleteness in data processing can cause delays in the disbursement of claims that greatly affect the hospital's financial management. Strict data processing deadlines make the speed of post-service data management very important so that claims are not delayed.

Information technology and hospital data management are very crucial aspects in the implementation of this casemix. Medical service data must be input in real-time and accurately because it is the main basis for submitting funding claims. Delays or inaccuracies in data inputs such as laboratory or radiology results can hamper the claims process, which directly lowers hospital revenue. While this system improves the clarity and accountability of claims, technical constraints and reliance on data completeness remain significant challenges in hospital financial success in the casemix era.

The change in the role of health workers can also be seen with the demand for more standardization and documentation in services, so as to support the improvement of quality and equitable distribution of services. While clinical flexibility is reduced, documentation precision encourages evidence-based and guideline-compliant services. However, in order for the positive impact of this system to be maximized, education, motivation, and continuous monitoring are needed for all parties involved, in accordance with the theory of Herdiani et al. (2024). This is important to minimize the risk of inefficiencies due to inaccurate data and non-compliance with procedures.

The problem of coordination between units is one of the main weaknesses in the implementation of this system at Bunda Medika Jakabaring Hospital. Lack of understanding of casemix principles and standards leads to misalignment between the medical team and administration, which has an impact on low compliance in filling out medical records and hinders the claims validation process. This condition is in accordance with the theoretical findings of Herdiani et al., which show that low adherence to the clinical pathway lowers the quality of data and claims. The lack of training and socialization related to coding and clinical pathways also exacerbates this problem.

To improve the quality of recording and claims, Bunda Medika Hospital conducts routine training for medical personnel on recording standards according to the casemix system. Each unit is required to follow a complete documentation checklist to avoid omissions in coding. Collaboration between medical teams, casemix, and medical records is strengthened through internal audits to maintain the quality of claimed data. The implementation of this system shows similarities with the study of Hafiz et al. (2020) which highlighted financial losses due to late BPJS payments and inconsistencies in INA-CBG rates, although the mitigation strategies are different, with Bunda Medika Hospital using a real-time monitoring system compared to the top-up mechanism at other hospitals.

4. CONCLUSION

In conclusion, the implementation of the casemix system involves structured administrative and technical procedures with the support of information technology to ensure the completeness and accuracy of patient data, which is very important so that BPJS claims can be processed smoothly and hospital revenues are maintained. This system changes payment patterns to be based on case complexity so that transparency increases, but demands high documentation discipline because errors or inaccuracies can delay or reject claims, impacting the financial stability of the hospital. Key challenges include incomplete data, coding errors, poor coordination between units, as well as limited resources and technical constraints that complicate the claims process. Optimization efforts are carried out by strengthening documentation, routine training of medical personnel, internal audits, and the use of monitoring technology to accelerate claims and improve the quality of hospital data and revenue in a sustainable manner.

REFERENCES

- Abdussamad, Z. (2022). *Buku Metode Penelitian Kualitatif*. <https://doi.org/10.31219/osf.io/juwxn>
- Adlini, M. N., Dinda, A. H., Yulinda, S., Chotimah, O., & Merliyana, S. J. (2022). Metode Penelitian Kualitatif Studi Pustaka. *Edumaspul: Jurnal Pendidikan*, 6(1), 974–980. <https://doi.org/10.33487/edumaspul.v6i1.3394>
- Ambarita, A. T., & Nurwahyuni, A. (2024). Analisis Case Mix Index Pelayanan Rawat Inap Rumah Sakit Yang Bekerja Sama Dengan BPJS Kesehatan Tahun 2019–2020. *Jurnal Ekonomi Kesehatan Indonesia*, 8(2).
- Fadli, M. R. (2021). Memahami desain metode penelitian kualitatif. *HUMANIKA*, 21(1), 33–54. <https://doi.org/10.21831/hum.v21i1.38075>
- Habriyanto, H., Kurniawan, B., & Firmansyah, D. (2021). Pengaruh Modal dan Tenaga Kerja terhadap Pendapatan UMKM Kerupuk Ikan SPN Kota Jambi. *Jurnal Ilmiah Universitas Batanghari Jambi*, 21(2), 853. <https://doi.org/10.33087/jiubj.v21i2.1572>
- Hafiz, M., P. Nadapdap, T., & Muhammad, I. (2020). Analisis Implementasi Kebijakan Case Mix INA-CBG'S (Indonesian Case Base Groups) Berdasarkan Permenkes NO. 59 Tahun 2014 Di Rumah Sakit Pabatu Kabupaten Serdang Bedagi. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 3(2), 113–122. <https://doi.org/10.56338/mppki.v3i2.1080>
- Herdiani, E., Aziz, A., & Subardi, A. Y. (2024). Analisis Implementasi Manajemen Casemix Dalam Peningkatan Pendapatan Di RSUD X. *Jurnal Penelitian Kesmas*, 7(1).
- Latifah, E., & Umah, K. A. (2022). Moderasi Beragama: Optimalisasi Lembaga Sosial Ekonomi Keagamaan dengan Filantropi Islam. *Proceedings of Annual Conference for Muslim Scholars*, 6(1), 98–103. <https://doi.org/10.36835/ancoms.v6i1.397>
- Nurwahyuni, A., & Setiawan, E. S. (2020). Kinerja Rumah Sakit Swasta dengan Pembayaran INA-CBGs di Era Jaminan Kesehatan Nasional: Casemix, Casemix Index, Hospital Base Rate. *Jurnal Ekonomi Kesehatan Indonesia*, 4(2). <https://doi.org/10.7454/eki.v4i2.3822>
- Ode, D. W. W., Karimuna, S. R., & Munandar, S. (2016). Studi Penerapan Sistem Pembayaran Layanan Kesehatan dengan Sistem Diagnosis Penyakit (Indonesia Case Based Groups / INA-CBGs) di Ruang Rawat Inap Rumah Sakit Umum Bahteramas Kota Kendari Tahun 2015. *Media Neliti*.
- Pratama, M. R. R., Pamungkas, M. R. H., & Febiana, C. (2021). Analisis Tarif RS dan INA-CBGs Kasus Reproduksi Pria pada Rawat Inap di RS X. *Jurnal Kesehatan Tambusai*, 2(3), 23–31. <https://doi.org/10.31004/jkt.v2i3.1924>
- Purwadhi Purwadhi, Widjaja, Y. R., Masuni, E., & Firdausa, K. E. (2024). Analisis Strategi Dalam Menghadapi Era BPJS Kesehatan Yang Di Berlakukan Di Rumah Sakit. *Innovative: Journal Of Social Science Research*, 4(5).

- Rifa'i, Y. (2023). Analisis Metodologi Penelitian Kualitatif dalam Pengumpulan Data di Penelitian Ilmiah pada Penyusunan Mini Riset. *Cendekia Inovatif Dan Berbudaya*, 1(1), 31–37. <https://doi.org/10.59996/cendib.v1i1.155>
- Romadhon, A., & Suryani, E. (2020). Pemodelan Simulasi Sistem Dinamik untuk Meningkatkan Jumlah Pendapatan Unit Rawat Inap Rumah Sakit Islam Surabaya A.Yani. *Jurnal Teknologi Informasi Dan Ilmu Komputer*, 7(3), 581. <https://doi.org/10.25126/jtiik.2020703126>
- Saputra, I., Aljunid, S. M., & Muhammad Nur, A. (2020). The Impact of Casemix Reimbursement on Hospital Revenue in Indonesia. *Jurnal Sains Kesehatan Malaysia*, 18(02), 1–8. <https://doi.org/10.17576/jskm-2020-1802-01>
- Sari, A. I., Syaifuddin, M., & Andriani, T. (2023). Optimalisasi Manajemen Strategis Prasarana Pendidikan. *Jurnal Ilmu Multidisplin*, 1(4).
- Sondakh, R. W., Sambiran, S., & Kimbal, A. (2019). Optimalisasi Dinas Perdagangan dalam Meningkatkan Pendapatan Asli Daerah Kota Bitung. *Eksekutif (Jurnal Jurusan Ilmu Pemerintahan)*, 3(3).
- Sudiman, S., & Fahrudin, W. A. (2021). Perancangan Efektivitas dan Efisiensi untuk Peningkatan Produktivitas Lini Produksi Wellhead dengan Metode Objective Matrix. *Jurnal INTECH Teknik Industri Universitas Serang Raya*, 7(1), 15–22. <https://doi.org/10.30656/intech.v7i1.2590>
- Syafrawati, Roza, S. H., & Sari, A. F. (2023). *Asuransi dan Jaminan Kesehatan*. CV. Mega Press Nusantara.
- Utomo, Y., & Markam, H. (2020). Pengaruh Kompetensi PMIK Terhadap Kualitas Koding Klinis Di RSU Vertikal Kementerian Kesehatan DKI Jakarta. *Jurnal Manajemen Informasi Kesehatan Indonesia*, 8(2), 106. <https://doi.org/10.33560/jmiki.v8i2.264>