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DESIGNING SYSTEM FOR ENFORCING DIAGNOSIS ON PENDING CLAIM FILES FOR INPATIENT BPJS HEALTHCARE USERS USING THE AGILE METHOD

[1]Tazki Ahmad Fauzi, [2]Yuda Syahidin, [3]Yuyun Yunengsih
[1]Health Information Management
[1]Politeknik Piksi Ganesha, Bandung, Indonesia

Abstract : Claims problems for inpatient BPJS Healthcare customers are the focus of this project, which seeks to develop a method to enforce diagnoses. The study aims to improve health services, particularly in resolving claims for inpatient BPJS Healthcare users, by using the Agile Software Development method, an advanced approach from the SDLC (System Development Life Cycle) that facilitates the development of applications with a shorter development time and a higher success rate relative to application development. The designed system is also expected to be used as a communication medium between doctors and medical recorders to determine diagnosis codes. In addition to providing solutions to problems in the claiming process, this system is created to minimize other issues, such as inefficient work due to having to open many applications, search for and open patient medical records and other necessary data, causing medical recorders to not focus on a single work activity. To ensure the system can be operated well, it is necessary to socialize and introduce every feature within this system. Regular system checks and development are also essential for the system's continuity to ensure users feel comfortable with the system created.

Keywords **– BPJS Healthcare Claims, Codification, Diagnosis Enforcement, Diagnosis Reselection.**

INTRODUCTION

To improve public health levels, it is necessary to have support for equitable health services. There are a minimum number of services that hospitals are required to offer, including but not limited to: emergency care, general medicine, nursing, surgery, outpatient care, inpatient care, nutrition, sterilisation, records, administration, management, public health education, mortuary services, laundry, ambulance, facility maintenance, and waste management. [1]. In line with the demand for services that can reach all levels of society, hospitals cooperate with BPJS Kesehatan to implement payment for patient care and treatment [2]. Everyone has the right to receive good health services and facilities because health is a crucial factor for human survival [3]. According to PERMENKES NO. 24 of 2022, medical records are files that provide information about patients, including their identities, diagnoses, treatments, and outcomes. An essential part of every hospital's infrastructure for patient care is the medical records unit, which is in charge of all patient records. Whether the medical records include medical data, social data, or any form of service activities provided to patients by doctors, nurses, or other medical personnel, whether recovered or deceased from admission to discharge [4].

With the advancement of technology, many health service facilities have started to implement digital information systems in all their activities. An information system is a collection of elements that interact to achieve a goal. Systems process information in order to provide data that people may use. A process or system is defined in depth via design, which entails using a variety of methodologies and concepts. Designing a system with its users' requirements in mind and producing a detailed blueprint for the programmers and other technical specialists who will be building it are the two main objectives of the design process. [5]. Implementing a digital information system in the JKN claim management process using INA-CBGs not only brings efficiency in claim administration but also provides opportunities to improve accuracy and transparency in the process healthcare service payments. Rapid and accurate document verification is now possible thanks to BPJS Healthcare's integrated information system. This will keep the claim administration process running smoothly and under budget for all BPJS Healthcare participants. [6]. The patient insurance financing scheme at Hospital X uses a casemix system with INA-CBGs packages, where the main diagnosis serves as the basis for calculating service costs. An first step in the payment process for INA-CBGs arranged by BPJS Healthcare is the verification of supporting documents. Prior to being submitted to BPJS Healthcare participants, claims are verified by BPJS verifiers. This process ensures that healthcare institutions are responsible for maintaining service quality and cost efficiency. The hospital will submit the patient care charges for BPJS members to BPJS Healthcare as a group, and BPJS Healthcare will bill them

monthly for this. The hospital will need to produce supporting papers in order to obtain these charges when they file their claim. For the service cost reimbursement procedure to go well, it is essential that the JKN claim submission paperwork be filled out completely. Parts of the patient's medical records, including the primary diagnostic code, or participation criteria might affect how comprehensive JKN claim papers are. [7].

The delay in BPJS claims for inpatient cases is caused by constantly changing claim requirements and administrative conditions, leading to many claim documents being returned by verifiers, which hampers the process. This issue is related to the human resources within the organization. Human factors also contribute to delays in BPJS claim processing, such as initial completeness checks not being thorough, doctors not completely filling out resumes, and coding officers [8]. Claim submissions to BPJS Healthcare must use medical resumes with diagnoses referring to ICD-10 or ICD-9-CM. The manual process tends to be vulnerable to subjectivity due to the personal interpretation of the coding doctor. In some cases, there is a possibility that two responsible doctors could provide different codes for the same condition. Medical recorders are prone to errors when manually recording and classifying medical information. Even one wrong number or letter can cause significant differences in meaning and classification of the condition [9].

Previous research on the accuracy of diagnosis reselection and primary diagnoses includes: Research on methods and guidelines for proper diagnosis reselection based on health insurance financing rules, aiming to improve the quality of health services, highly depends on the availability of accurate, reliable data and timely presentation. This research showed that information systems could help solve problems like data accuracy because they are managed by a system. Agile software development is an advanced approach from SDLC (System Development Life Cycle) to facilitate the development of applications that require short timeframes and offer better application development success rates [10]. Seeing the need for a medium that can connect medical recorders with doctors, designing a diagnosis enforcement system developed with Microsoft Visual Studio 2010 and Microsoft Access as the database can be an alternative to improve the accuracy of existing data.

RESEARCH METHOD

2.1 Data Collection Methods

The author chose a qualitative analysis method with a descriptive research approach. Qualitative research uses direct data sources or respondents to conduct research [11].

2.1.1 Interviews

To gather information for qualitative studies, interviews are the gold standard. Members of the inpatient claims department's medical record personnel were interviewed face-to-face by the author. Structured, semi-structured, or unstructured interview formats are available, with the choice dependent on the degree of framework that has been previously defined. [12].

2.2 Development Method

The system development involves an in-depth analysis of descriptive data with a focus on interpretation and understanding of the context. Data samples were obtained from the hospital where the author conducted an internship. The obtained data is then re-analyzed for use in the system creation. This allows developers to minimize data discrepancies with the system being developed. The stages of the Agile Software Development method are as follows:

Figure 1. Stages of Agile Software Development Method

Figure 1 illustrates the stages involved in using the Agile Software Development method:

1. Planning

The planning stage is specifically tailored to the needs of Hospital X. Interviews are conducted with the heads of relevant sub-units at Hospital X to gather the necessary information.

2. Implementation

The author needs to develop a system for managing patient medical records, particularly for claim processing.

3. Software Testing

Tests are conducted on each feature developed within the system to ensure that the output meets the required specifications.

4. Documentation

This involves creating records of both the system's conformity and non-conformity once it is operational.

5. Deployment

Direct testing is carried out between the author and the institution within a limited scope.

6. Maintenance

Regular system maintenance is performed to enhance features, check data security, and address any issues that may arise once the system is in operation.

2.2.1 Flowmap

The flowmap diagram (Figure 2) illustrates the circulation of data and information between components affiliated with the system [13]. It contains information about the series of processes within the system.

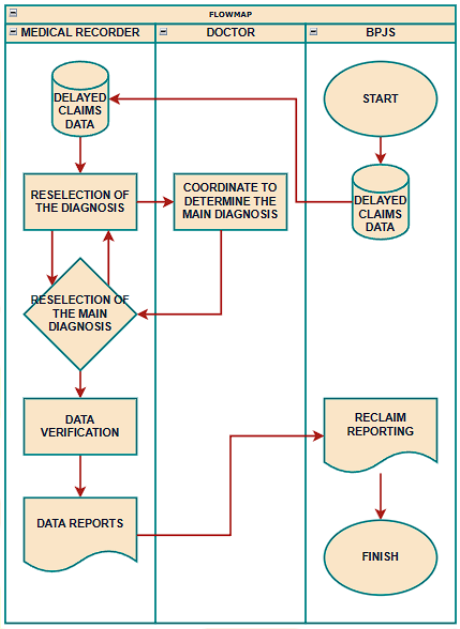


Figure 2. Flowmap

2.2.2 Use Case Diagram

This is a context diagram that encompasses processes and describes the scope of the inpatient medical record completeness information system at the Occupational Health General Hospital.

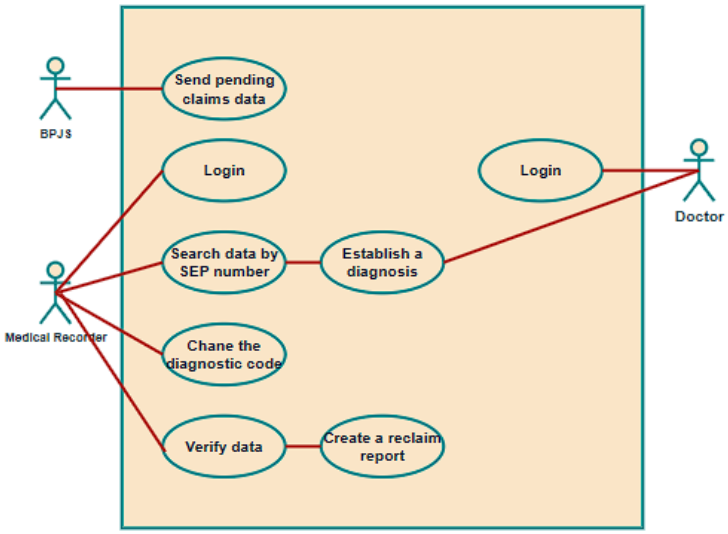


Figure 3. Use Case Diagram

2.2.3 Activity Diagram

A visual rendering of various interrelated functional processes; this can include manual operations, computer-based tasks, or a combination of both.

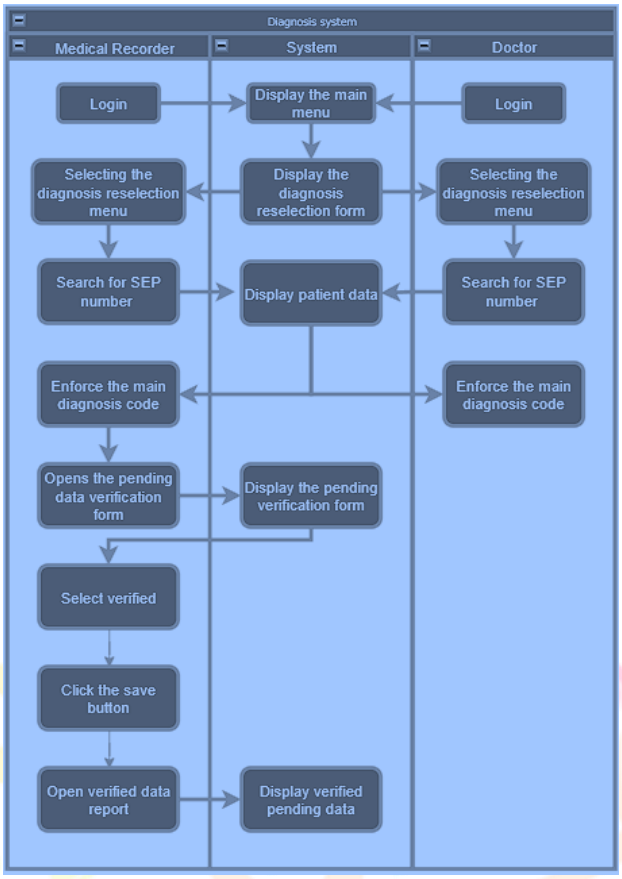


Figure 4. Activity Diagram

RESULTS AND DISCUSSION

3.1 Discussion

The results of this system design indicate that initially, medical record officers manually input patient data. After research, the information system design for medical record completeness is as follows:

1. **Login Menu**
   The login menu is used to initiate the use of the system application. The image shows the login menu.

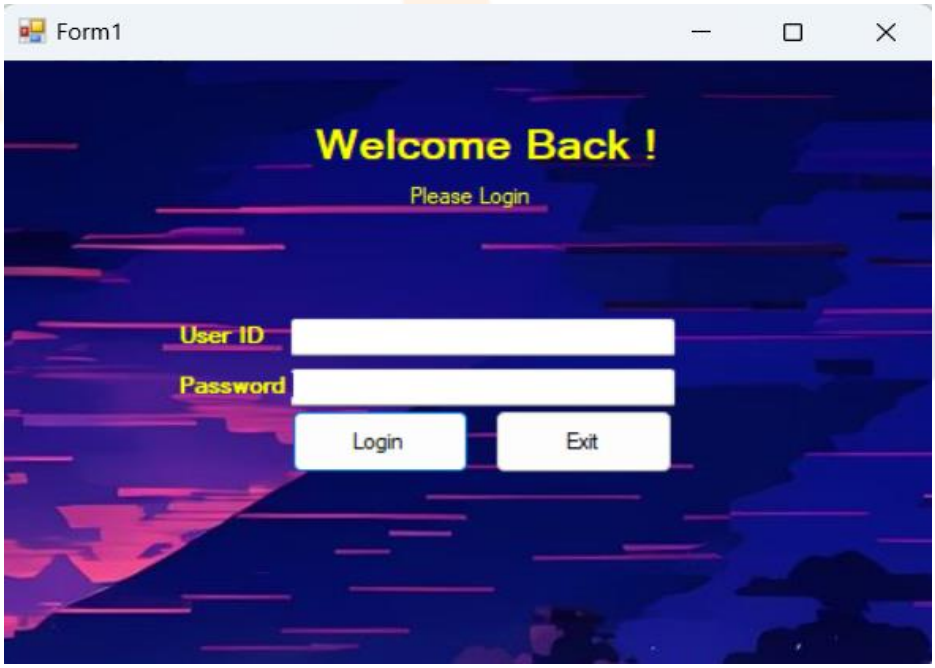


Figure 5. Login Menu

2. **Main Menu**
   The main menu of the outpatient medical record completeness information system is depicted below. The main menu is used to select the appropriate menu according to the user's needs.

Figure 6. Main Menu

3. Diagnosis Re-selection Form

The diagnosis re-selection form is the main form in this system. Search data by SEP number, then the status, SEP date, discharge date, type of service, card number, name, diagnosis code, INA CBG's code, submission fee, and remarks will appear.

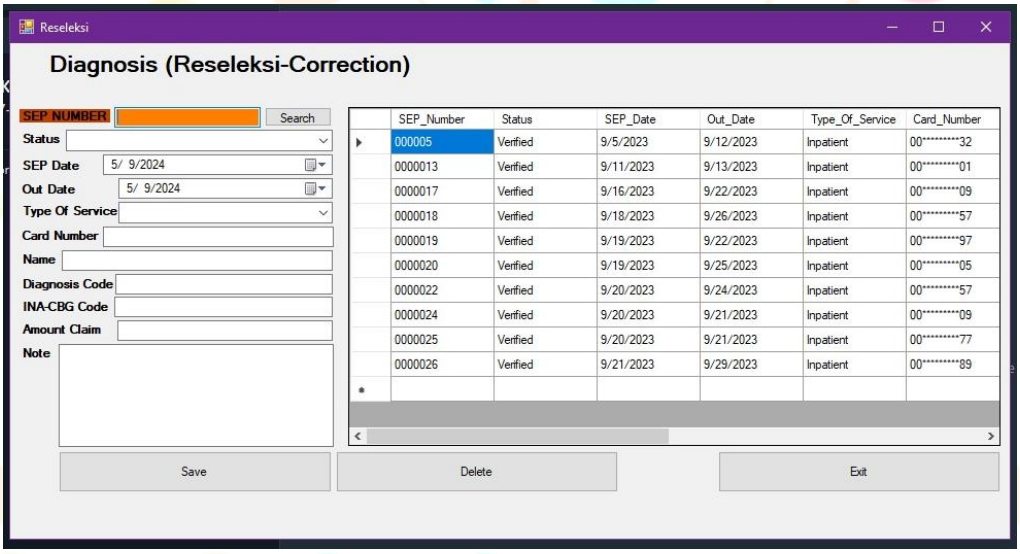


Figure 7. Diagnosis Re-selection Form

4. Pending Verification Form

The pending verification form is the final form used to store and sort data that has and has not been verified by medical record officers before reporting.

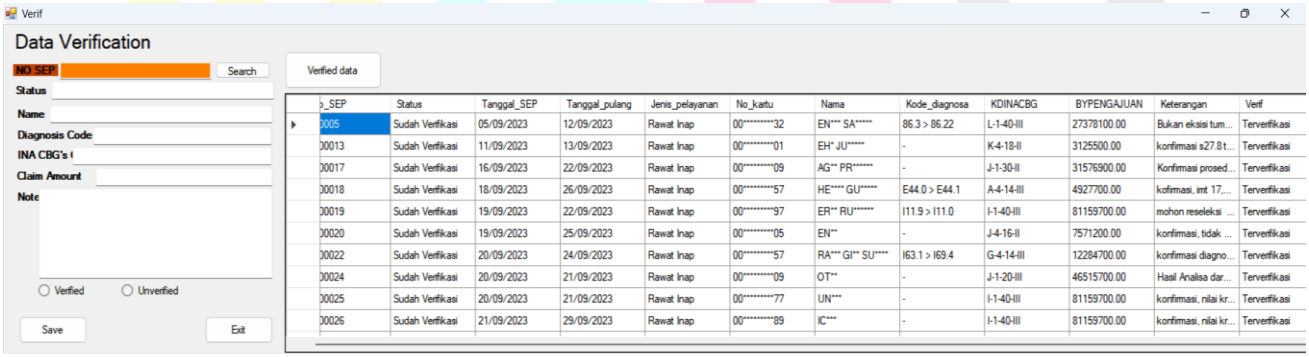
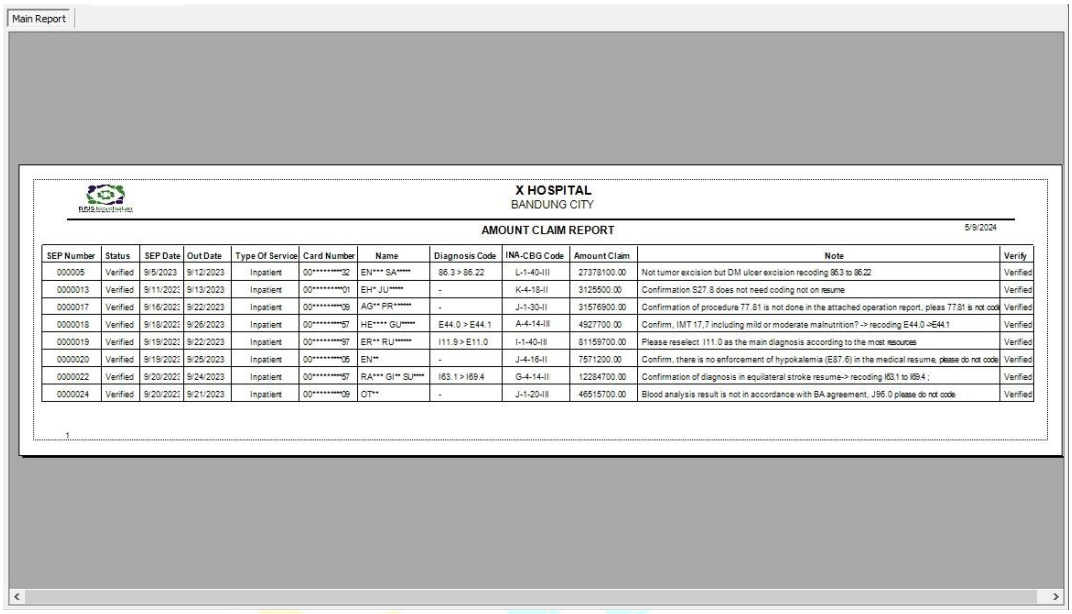


Figure 8 . Pending Data Verification Form

5. Verified Data Report Form

The result of this research is the creation of a diagnosis enforcement system using Microsoft Visual Studio 2010. The following image shows the result of the data correction process and the result of the main diagnosis that has been determined for re-claiming.


Main Report

X HOSPITAL
BANDUNG CITY

AMOUNT CLAIM REPORT

5/9/2024

SEP Number	Status	SEP Date	Out Date	Type Of Service	Card Number	Name	Diagnosis Code	INA-CBG Code	Amount Claim	Note	Verify
0000005	Verified	9/5/2023	9/12/2023	Inpatient	00*********32	EN*** SA*****	86.3 > 86.22	L-1-40-III	27378100.00	Not tumor excision but DM ulcer excision recoding 86.3 to 86.22	Verified
0000013	Verified	9/11/2023	9/13/2023	Inpatient	00*********01	EH* JU*****	-	K-4-18-II	3125500.00	Confirmation S27.8 does not need coding not on resume	Verified
0000017	Verified	9/16/2023	9/22/2023	Inpatient	00*********39	AG** PR******	-	J-1-30-II	31576900.00	Confirmation of procedure 77.81 is not done in the attached operation report, pleas 77.81 is not code	Verified
0000018	Verified	9/18/2023	9/26/2023	Inpatient	00*********57	HE**** GU*****	E44.0 > E44.1	A-4-14-III	4927700.00	Confirm, IMT 17,7 including mild or moderate malnutrition? -> recoding E44.0 >E44.1	Verified
0000019	Verified	9/19/2023	9/22/2023	Inpatient	00*********97	ER** RU******	I11.9 > E11.0	I-1-40-III	81159700.00	Please reselect I11.0 as the main diagnosis according to the most resources	Verified
0000020	Verified	9/19/2023	9/25/2023	Inpatient	00*********05	EN**	-	J-4-16-II	7571200.00	Confirm, there is no enforcement of hypokalemia (E87.6) in the medical resume, please do not code	Verified
0000022	Verified	9/20/2023	9/24/2023	Inpatient	00*********57	RA*** GI** SU****	I63.1 > I69.4	G-4-14-II	1228470.00	Confirmation of diagnosis in equilateral stroke resume-> recoding I63.1 to I69.4 ;	Verified
0000024	Verified	9/20/2023	9/21/2023	Inpatient	00*********39	OT**	-	J-1-20-II	46515700.00	Blood analysis result is not in accordance with BA agreement, J96.0 please do not code	Verified

1

Figure 9. Verified Dara Report Form

CONCLUSION

Healthcare equity is a key component of public health improvement initiatives. Along with BPJS Healthcare, hospitals provide a wide range of medical and non-medical services to make healthcare more accessible. To improve administrative efficiency and healthcare service payments, digital information systems may be used to manage JKN claims. Enhancing the precision of medical record data and BPJS Healthcare claim procedures is possible via the implementation of an Agile Software Development methodology and the creation of an integrated information system, which eliminates problems such data inconsistencies in claim criteria. Overall, it improves healthcare quality by connecting medical recorders with clinicians and minimizing human mistakes..

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