



Design of JKN Claim Information System for Outpatient BPJS Patients with SDLC Method

Diana Khoirunnisa^{1*}, Fitri Mardiani Rahayu², Yuda Syahidin³, Irda Sari⁴, Neneng Yuniarty⁵

¹⁻⁵ Politeknik Piksi Ganesha Bandung Indonesia

*Corresponding Author, email: dianakhsa497@gmail.com

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Abstract

BPJS claim is the submission of all BPJS patient care costs by the Hospital to the BPJS Health, carried out collectively and billed to the BPJS Health every month through the verification process. BPJS Health is a legal entity established to administer the Health Insurance program. Health Insurance is a guarantee in the form of health protection so that participants obtain health maintenance benefits and protection in meeting basic health needs provided to everyone who has paid contributions or whose contributions are paid by the government. This study aims to design a medical record management system to support JKN claims for outpatients at Muhammadiyah Bandung Hospital. The research method used in this research is qualitative with a descriptive approach. The data collection techniques used were interview, observation and literature study. The results showed that there were problems that occurred, namely unclear resumes, illegible SEPs, missing referral letters, and there was still 1 outpatient period that was mixed up so that coding officers found it difficult to read it and became an obstacle to claiming. Based on this research, it can be concluded that there is a need for a quality audit of specific medical resume writing and incomplete BPJS patient requirement files.

Keywords: BPJS claim; Hospital; BPJS Health; Health Insurance; Medical record management system

Introduction

In the Preamble of the 1945 Constitution of the Republic of Indonesia, health is recognized as one of the fundamental human rights and is enshrined in Article 28H(1) which stipulates that everyone has the right to access healthcare services (Anam dan Riyanta 2022; Irawan dan Haris 2022). In its implementation, the State is also required to fulfill its obligation as stated in Article 34(3) of the 1945 Constitution to be responsible for providing adequate healthcare facilities and public services (RI 2002). Therefore, the Indonesian Government established the National Health Insurance (JKN) with the aim of

providing comprehensive social health protection for the people. To carry out this program, a legal entity is required to be the organizer of health insurance, namely the Health Care and Social Security Agency (BPJS Kesehatan) (Putri 2021).

BPJS is a legal entity established to implement health insurance programs and directly coordinated by the government. The Social Security Administrator Agency for Health (BPJS) has developed health systems, service quality systems, and healthcare payment systems to enhance efficiency and effectiveness (Putra 2015).

The Ministry of Health Regulation No. 71 of 2013 regarding Healthcare Services under the National Health Insurance states that health insurance is a form of protection that ensures participants receive the benefits of health maintenance and protection to meet their basic health needs. It is provided to every individual who has paid the premium or whose premium is paid by the government (RI 2013).

The BPJS claim is a request for reimbursement of healthcare costs incurred by BPJS participants, submitted by the hospital to BPJS Health on a collective basis and invoiced to BPJS Health on a monthly basis (Ardhitya 2015). The completeness of the JKN claim documents is crucial for the smooth process of reimbursement (Nugraheni 2018; Purba 2019). The completeness of the BPJS claim documents submitted by the hospital to BPJS includes supporting patient documents consisting of participant eligibility letter (SEP), medical resume/patient status report/diagnosis explanation from the attending physician, and other required supporting documents (BPJS Kesehatan 2014; Rismawati dan Sari 2021).

Based on the results of research conducted at Muhammadiyah Bandung Hospital by Yasifa, Syahidin, dan Herfiyanti (2022), there are still incomplete patient BPJS requirement files. The process of submitting BPJS Health claims at a hospital can be hampered due to incomplete requirements. The causes of delayed BPJS claims often include errors in referral letters, lack of doctor's diagnosis or signature, and lack of photocopy of BPJS card

Based on the research conducted at RSUD Leuwiliang Bogor, Dwi

Astuti, Chotimah, dan Khodijah Parinduri (2021) stated that the claim process flow at RSUD Leuwiliang is already quite good. However, there are several obstacles in the process, such as the lack of medical supporting results, including radiology, laboratory results, ultrasound results, CT-scan results, X-ray results, EKG results, and others, doctor's signature, insufficient BPJS requirements, incomplete claim files, coding errors, unclear doctor diagnosis, incomplete resume content, and others.

Based on the research conducted at Panti Nugroho Hospital, (Noviatri dan Sugeng 2016) found that the BPJS claim process is running smoothly, but there are still some claims that are incomplete or delayed. The factors causing this are found in the initial completeness verification officers who are not careful in checking patient requirements, incomplete doctor's resumes, and encoding officers who engage in other activities. In addition, the changing requirements and administrative claim regulations often result in many claims being returned by the verification officer, which hampers the process.

The Muhammadiyah Hospital in Bandung provides services to patients with BPJS, where operational adjustments must be made to the system in the era of JKN. One of them is related to the completeness of the BPJS patient claim documents. Research has shown that medical record management at the Muhammadiyah Hospital in Bandung has not been running smoothly due to incomplete requirements or incomplete resumes, coding errors, or coding that does not match the resume, so the BPJS verifier must return the claim requirements to the doctor to request completion of the document filling. This study aims to design a medical record management system to support JKN claims for outpatients and to identify the SOPs for outpatients as well as the obstacles that occur in implementing BPJS claims at the hospital. The results of this research are expected to serve as consideration material to develop the BPJS claim process and support smooth claim processing.

Method

The research method employed by the author is qualitative research with a descriptive approach (Sugiyono 2018), aimed at exploring in-depth the Design of the JKN Claim Information System for Outpatient BPJS Patients using the

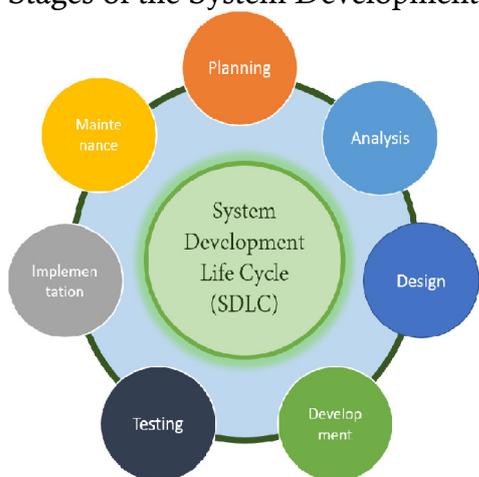
SDLC Methodology. For this study, the author obtained a total sample population of 126 from the available data of BPJS outpatient services conducted in December 2022. The author studied and comprehended relevant theories from scientific books and literature related to the final project's title. Moreover, the author conducted direct Q&A with the Casemix department and its staff in the Medical Record Unit of Muhammadiyah Hospital Bandung. Additionally, the author conducted direct observations at Muhammadiyah Hospital Bandung, which yielded relevant data and information regarding the research topic.

Figure 1
Outpatient BPJS Claim Implementation Flowchart



The development method used is the System Development Life Cycle (SDLC), or known as the System Development Life Cycle in Indonesian. According to Setiatin dan Syahidin (2017), Sofyan, Puspitorini, dan Yulianto (2016) dan Simarmata (2010), SDLC refers to the models and processes used to develop software systems and describes the process where developers transition from problem identification to solution implementation.

Figure 2
Stages of the System Development Life Cycle (SDLC)



Result And Discussion

The population in question refers to the total number of claim requirements submitted for verification to the JKN verifier in December 2022, using a random sampling method based on the Lameshow formula. A total of 126 samples were obtained, and the verification data form from patient service administration was used as a reference, as they are interrelated in processing the claims. Out of the 5 items in the analysis table for completeness of patient service administration, two items showed incompleteness. Specifically, there were 40 cases (31.8%) of incompleteness in the SEP number, and 27 cases (25.4%) of incompleteness in the resume sheet.

Table 1
Results of Analysis of Completeness of Patient Service Administration

No	Item	Status				Total N
		Complete		Incomplete		
		n	%	n	%	
1	Nomor SEP	86	68,2	40	31,8	126
2	USG	124	98	2	2	126
3	CT Scan	116	92	10	8	126
4	Resume	94	74,6	32	25,4	126
5	Reference	125	99	1	1	126

In Table 2, it is shown that there is a relationship between the completeness of claim requirements, as indicated by 88 files being approved for claiming, with 59 of them (68.2%) having complete medical records, compared to 29 (31.8%) with incomplete records. Based on the expected frequency values, which are less than five (<5), and the obtained chi-square (X²) statistical test result with a p-value of 0.003 ($\alpha = 0.05$), it can be concluded that H₀ (null hypothesis) is rejected. Upon reviewing the results in Table 2 below, it can be observed that there is a correlation between the completeness of claim submissions based on the administration of outpatient care under the National Health Insurance (JKN) and the approval of claims by JKN verifiers at Muhammadiyah Hospital Bandung. Files that are not approved do not necessarily mean they are rejected, but rather require further improvement according to the completeness rules. The JKN personnel who have verified and matched the claim files will return them to the JKN verifier for further action.

Table 2
Complete Patient Administration Crosstabs with Approval of Claims

No	Component	Verification				Total		P value 0,003
		Agree		Disagree		N	%	
		n	%	n	%			
1	Complete	59	68,2	15	41,1	72	60	
2	Incomplete	29	31,8	23	58,9	52	40	
	Total	88	100	38	100	126	100	

The research describes the flowmap of the existing system, which begins with the retrieval of files by the Casemix officer, who then hands them over to the billing department to create a single billing. Next, the files are sent to the medical record verifier to check for completeness. Once the files are complete, they are then given to the Outpatient Coding Officer for coding, and after coding is completed, they are handed over to the scanner officer to be sent to the Casemix coordinator before being forwarded to the Central BPJS verifier as Yasifa et al. (2022) and (Dwi Astuti et al. 2021) found.

The context diagram is a comprehensive depiction of a system that encompasses various processes and illustrates the scope of a system. In the above context diagram, it demonstrates the input and output of the BPJS Outpatient Care claim system, which appears to be straightforward. According to Kristanto (2018), Data Flow Diagram (DFD) is a logical model of data or processes that is created to depict the origin and destination of data, where data is stored, the processes that generate the data, and the interactions between stored data and the processes applied to that data.

Figure 3
BPJS Claim Flowm

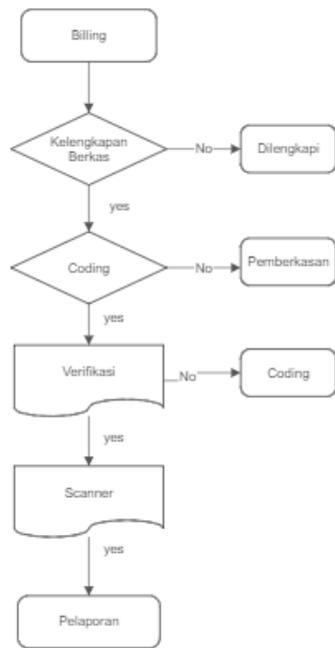


Figure 4
Context diagram of a running system

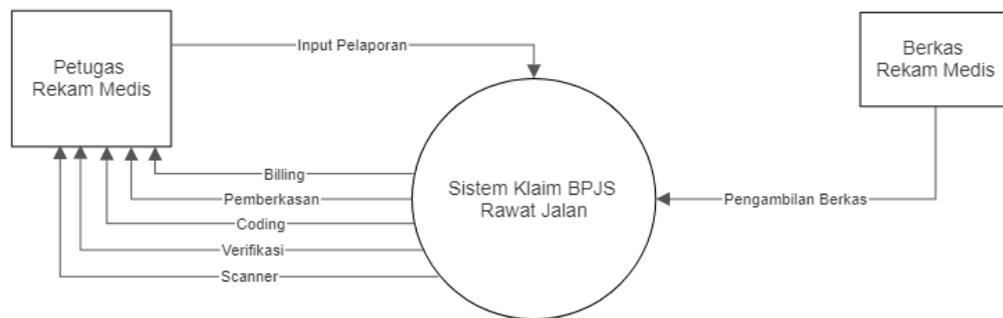


Figure 5
Outpatient BPJS Data Flow Diagram (DFD)

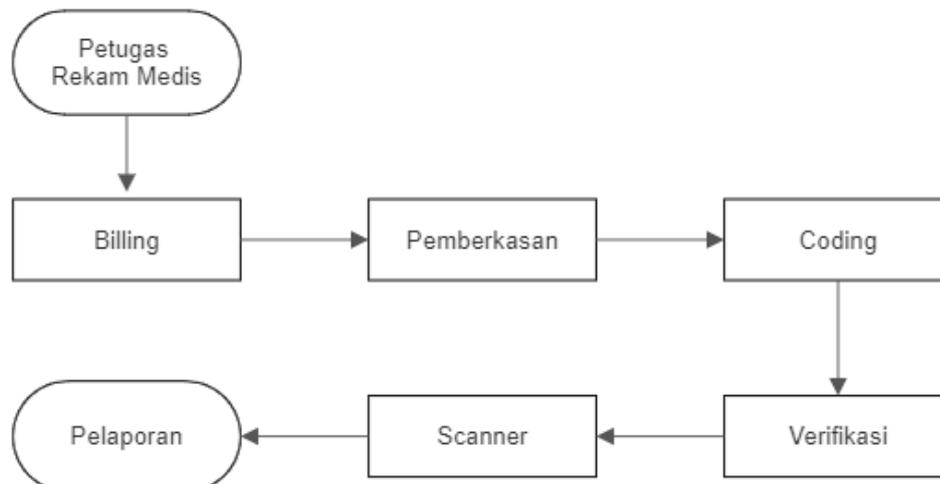
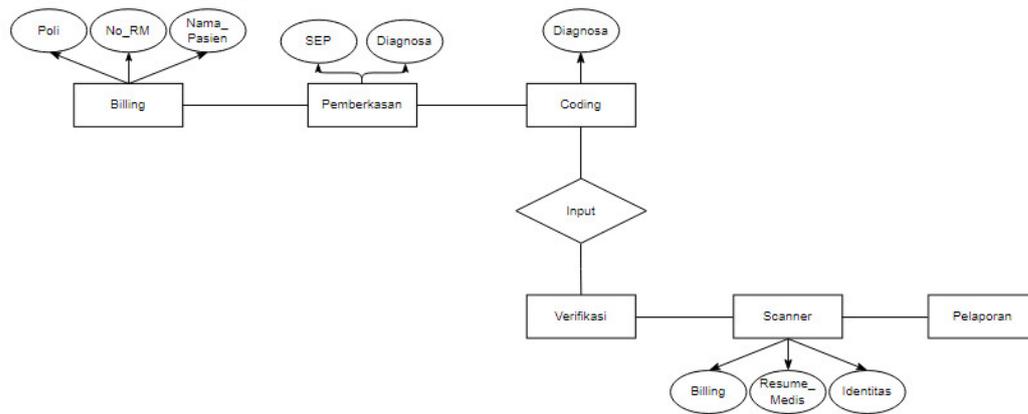


Figure 6

Entity Relationship Diagram (ERD) BPJS Outpatient



In the design of an Entity Relationship Diagram (ERD), a conceptual model is formed that describes the relationships between entities used, allowing for data access from each entity in the structure of a database within a system. According to Dalimunthe (2020), an Entity Relationship Diagram (ERD) is a documentation of data that identifies data entities by illustrating the relationships that exist among these entities.

The implementation of the design results in a depiction of outpatient coding personnel during the process of inputting diagnoses into the Microsoft Visual Studio 2012 application (Setiatin dan Syahidin 2017). However, the current running program at the hospital still has some shortcomings, as the diagnostic code does not appear automatically during input. The system design is outlined as follows:

Figure 7
Login Form and Main Menu

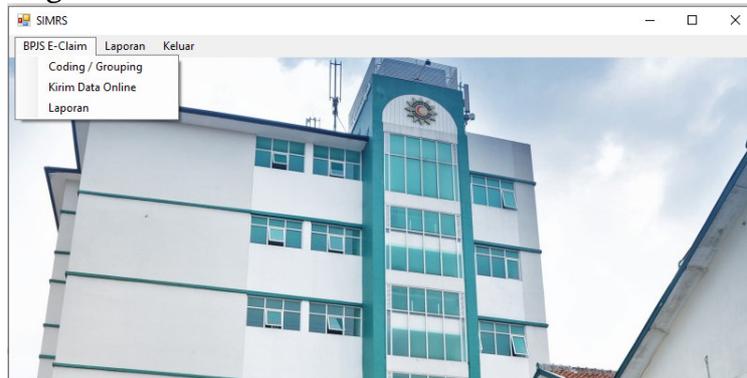


Figure 8
Diagnostic Coding Input Form

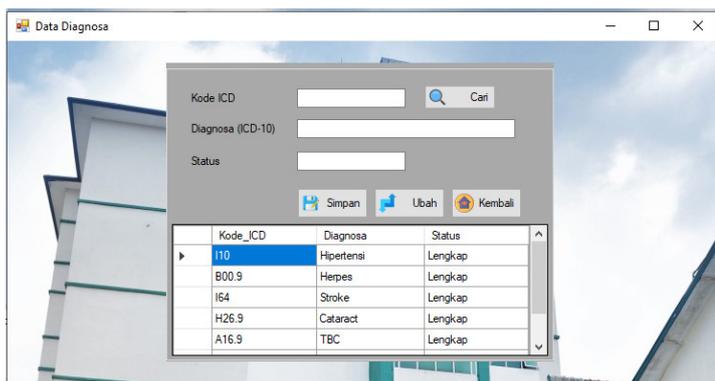


Figure 9
BPJS File Verification Report Form

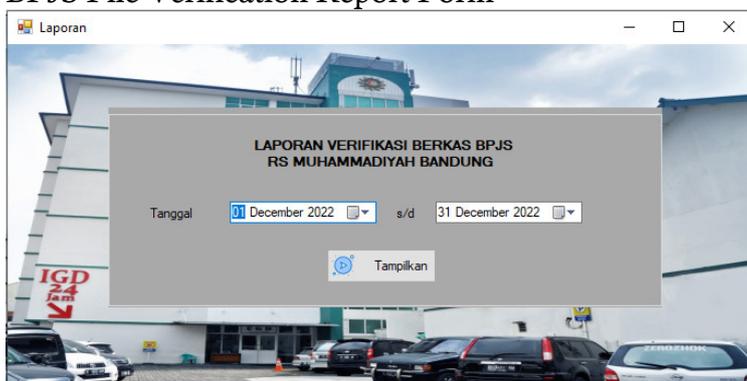


Figure 10
December Report Display for BPJS Patients



RS MUHAMMADIYAH BANDUNG
Jl. K. H. Ahmad Dahlan No. 53 Bandung 40264 Jawa Barat Indonesia
Tlp: (022) 7301062, 7323548

LAPORAN DATA BULAN DESEMBER PASIEN BPJS

No	Tgl Masuk	Lengkap	Tidak Lengkap	SEP	USG	CT-Scan	Resume	Rujukan
1	01/12/2022	126	3	2	0	0	0	1
2	02/12/2022	126	2	2	0	0	0	0
3	03/12/2022	126	4	1	0	0	3	0
4	04/12/2022	126	0	0	0	0	0	0
5	05/12/2022	126	4	3	0	0	1	0
6	06/12/2022	126	7	4	0	0	3	0
7	07/12/2022	126	3	2	0	0	1	0
8	08/12/2022	126	5	1	0	2	2	0
9	09/12/2022	126	4	2	0	0	2	0
10	10/12/2022	126	4	4	0	0	0	0
11	11/12/2022	126	0	0	0	0	0	0
12	12/12/2022	126	10	4	1	2	3	0
13	13/12/2022	126	3	1	0	0	2	0
14	14/12/2022	126	7	2	0	1	4	0
15	15/12/2022	126	1	1	0	0	0	0
16	16/12/2022	126	1	0	0	1	0	0
17	17/12/2022	126	2	2	0	0	0	0
18	18/12/2022	126	0	0	0	0	0	0
19	19/12/2022	126	5	3	0	1	1	0
20	20/12/2022	126	4	3	0	0	1	0

Conclusion

Based on the research findings, it can be concluded that there are issues

of incompleteness in the patient service administration for BPJS claims at Muhammadiyah Bandung Hospital. Specifically, the SEP number and resume sheet showed significant incompleteness. The analysis revealed a correlation between the completeness of claim requirements and the approval of claims by JKN verifiers. Files with incomplete records had a lower approval rate compared to files with complete records.

It is recommended that a quality audit be conducted for specific medical resume writing and BPJS patient requirement files to ensure completeness. This audit can help identify and address the issues of unclear resumes, illegible SEPs, missing referral letters, and mixed-up outpatient periods. Improving the completeness of claim submissions will enhance the efficiency and effectiveness of the JKN claim process and can become further research

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