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# Analysis of the use of the Mobile JKN Application on the Waiting Time of Outpatient Services in the Eye Polyclinic at Al-Ihsan Regional Hospital, West Java Province

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**Abstract:** The purpose of this study was to determine the effect of the Mobile JKN application on the waiting time for outpatient services. Waiting time is the time required by patients from the moment they register at the registration desk until they receive services from health workers, such as entering the examination room or being served by a specialist doctor. The Mobile JKN application is an application for the national health insurance system, which is a form of digital transformation of the business model created by BPJS Kesehatan. This study used a quantitative method with a descriptive approach. The study was conducted at the RSUD Al-Ihsan Jawa Barat in the eye clinic. The sampling technique used the Slovin formula with a sample size of 416. The results of the study show that the minimum waiting time for outpatient respondents at the eye clinic on March 21, 2025, was 5 minutes, and the maximum waiting time for respondents was 262 minutes. The average waiting time for respondents was 70.70 minutes. The minimum waiting time for outpatients at the eye clinic on April 21, 2025, was 4 minutes, and the maximum waiting time for respondents was 179 minutes. The average waiting time for respondents was 63.82 minutes. The minimum waiting time for outpatients at the eye clinic on May 21, 2025 was 1 minute, and the maximum waiting time for respondents was 230 minutes. The average waiting time for respondents was 38.10 minutes. This is in line with the statement that the use of Mobile JKN can help the public to easily complete administrative matters using smartphones anywhere and anytime, but there are still many users who do not use the Mobile JKN application because many people do not understand how to use the Mobile JKN application and not all people have smartphones to access the Mobile JKN application. BPJS Kesehatan is expected to provide education to JKN participants regarding the benefits and added value that can be obtained through the use of the Mobile JKN application.

**Keyword:** Service Waiting Time, Mobile JKN Application, Outpatient Care

## INTRODUCTION

According to the results of the study, it can be concluded that the mechanism for granting access rights to the Electronic Medical Record (EMR) system at Santosa Hospital Bandung Central is in accordance with the principles of Role-Based Access Control (RBAC), although Multi-Factor Authentication (MFA) has not yet been implemented. Access rights monitoring is already in place, but it is not yet supported by routine external security audits. Incident reporting procedures are available, but documentation and follow-up actions need to be strengthened so that responses to incidents are more structured. On the other hand, system protection through encryption, audit logs, and backups meets the standards, and integration with SATUSEHAT uses secure protocols that comply with interoperability standards. The distribution of access rights based on professional roles is appropriate, although periodic reevaluation is not yet conducted consistently. Based on these findings, several recommendations can be made from both technical and policy perspectives. Technically, it is recommended to implement MFA on all EMR accounts to prevent credential theft, enable real-time network security monitoring and automated patch management, add an automatic deactivation system for inactive accounts, and conduct regular Disaster Recovery Plan (DRP) and backup recovery testing, for example every six months. From a policy perspective, it is recommended to establish external security audits at least once a year, develop more detailed incident reporting SOPs including escalation mechanisms and response times, require annual information security training for all health workers, conduct access rights evaluations every three to six months with formal documentation, and strengthen data privacy policies in line with ISO/IEC 27001 standards and Ministry of Health regulations. The implementation of these recommendations is expected to improve patient data security and confidentiality while strengthening the hospital's compliance with national and international standards.

Health service waiting time has been defined by experts such as the World Health Organization (WHO) and the Indonesian Ministry of Health (Kemenkes). WHO defines waiting time as the length of time a patient waits before receiving consultation and treatment, while the Ministry of Health sets a minimum standard for outpatient waiting time, which is a maximum of 60 minutes, based on Minister of Health Regulation Number 129/Menkes/SK/II/2008. (Zulfikar 2022). The Mobile JKN (National Health Insurance) application is an application launched by BPJS Kesehatan to help participants easily access JKN-KIS services. Before Mobile JKN existed, JKN-KIS members often faced various issues, such as difficulty accessing membership information, complicated registration processes, and long queues at health facilities. Manual systems and the lack of easily accessible information made it difficult for many participants to use JKN-KIS services. In addition, transparency and the convenience of managing membership data also posed major challenges. (JJIPNAS 2024)

Through the Mobile JKN application, participants can access various features, including: Membership Information (1) to view personal data, membership status, and registered family members; Participant Data Update (2) to update personal information in case of changes; Registration Services (3) to take queue numbers and register for health services at primary healthcare facilities (FKTP); Bed Availability (4) to check bed availability at hospitals partnered with BPJS Kesehatan; Covered Medicines (5) to view the list of drugs covered by BPJS Kesehatan; Surgery Schedule (6) to view upcoming surgery schedules at partnered health facilities; Auto Debit Registration (7) to set up automatic BPJS premium payments; Health Facility Locations (8) to find the nearest partnered health facilities; Health History Screening (9) to assess health risks; Complaints (10) to submit service-related complaints; Notifications (11) to receive important updates regarding billing, due dates, and announcements; Digital KIS (12) to use a digital version of the BPJS card; Fitness (13) to monitor vital health data, sleep quality, and daily activities; Doctor Practice Schedule (14) to view doctor schedules; Payment History (15) to check premium payment records; Information on the JKN-KIS Program (16) to

access the latest updates on JKN-KIS. (Adya Febriana Putri, Adi Sastra Wijaya, and Wayan Supriliyani 2024)

RSUD Al-Ihsan, located in Bandung Regency, is a regional general hospital that serves public, BPJS, and other insurance patients. One of the efforts to accelerate service processes is the implementation of online registration through the Mobile JKN application. RSUD Al-Ihsan offers various types of health services to maintain patient loyalty, including outpatient services. Outpatient care refers to medical services provided without requiring patients to stay overnight in a health facility. These services include examinations, doctor consultations, treatments, and other medical procedures that do not require inpatient admission.

The Mobile JKN application helps JKN participants access various services and information. In line with Law Number 25 of 2009 on Public Services and the Indonesian Ministry of Health Decree No. 129/Menkes/SK/IV/2008, the standard waiting time for healthcare services is set at less than 60 minutes. (Regulasip 2008) Mobile JKN can be used for outpatient registration at RSUD Al-Ihsan, both for general and BPJS patients. Online registration applies to all outpatient clinics starting August 1, 2024. However, several issues remain in the use of the Mobile JKN application. First, the application requires a stable internet connection to function properly. Second, some participants still do not understand how to use the application or are unaware of its features. Third, the application may experience glitches or errors that hinder access. Fourth, not all participants have the same level of skill in using mobile devices and apps. Fifth, the accessibility of the application varies depending on the user's region and economic conditions. (Isabella Suhena1* 2024). Nevertheless, many users still do not use the Mobile JKN application due to limited understanding of how to operate it and because not everyone owns a smartphone to access it.

## METHOD

The descriptive research method according to Sugiyono (2018:86) is a type of study conducted to determine the value of an independent variable, either one or more variables, without making comparisons or connecting it with other variables. Meanwhile, the quantitative method according to Sugiyono (2018:117) is a research method based on the philosophy of positivism, used to examine a particular population or sample. Data collection uses research instruments, and data analysis is quantitative or statistical with the aim of testing predetermined hypotheses. (Sugiyono 2020).

This study was conducted at RSUD Al-Ihsan, West Java Province. The population consisted of outpatient ophthalmology clinic patients, and the samples taken included 120 samples on March 21, 133 samples on April 21, and 163 samples on May 21, 2025, with a total of 416 samples. The sampling method used the Slovin formula. The data collected by the researcher consisted of quarterly SPM (Minimum Service Standards) for outpatient ophthalmology services during the internship period from March 5 to May 5, 2025, to determine the effectiveness of the use of the Mobile JKN application at the ophthalmology clinic of RSUD Al-Ihsan, West Java Province, during March–May.

## RESULTS AND DISCUSSION

1. The number of outpatient patients at the Ophthalmology Clinic of RSUD Al-Ihsan on March 21, 2025, April 21, 2025, and May 21, 2025 was 416 patients, of which 90 patients were selected as the sample or research respondents. The sample size was determined using the Slovin formula, with a population of N = 416 outpatient ophthalmology patients at RSUD Al-Ihsan, West Java Province and a margin of error of d = 5%, resulting in a sample size of n = 224 patients, who were then used as respondents in this study.

The sampling technique used to select respondents from the population was Quota Sampling, a method for determining a sample from a population with specific characteristics until the desired quota is reached. Data collection was conducted from March to May 2025, with respondents drawn from the Ophthalmology Clinic.

## 2. SAMPLE

a. Waiting Time for Ophthalmology Outpatient Services at RSUD Al-Ihsan, West Java Province, on **March 21, 2025**:

**Total patients = 120** (73 Completed, 47 Canceled)

n = N / (1 + N x $e^2$)

n = **73** / (1 + 73 x $0{,}05^2$)

**n = 62**

**Min = 5**

**Max = 262**

**Total waiting time = 4,384 ÷ 62 = 70.70 (Mean)**

**Std. dev** = max – min (262 – 5 )

S = **range** / 4 = 257 / 4 = **64,25**

Std. **error** = s / √N = 64,25 / √62 = 64,25 / 7,874

SE = 8,16

**95% CI** = CI = X ± (t0, 975, N-1 x SE)

N = 62 – t0, 975, 61 ~ 2, 00

CI = 70,**70** ± (2, 00 x 8,16)

CI = 70,**70** ± 16,32

**= 54,38 – 87,02**

**Table 1. Waiting Time for Ophthalmology Outpatient Services**

| Variabel | n | Min | Max | Mean | Std. dev | 95% CI |
|---|---|---|---|---|---|---|
| Respondent waiting time | 62 | 5 | 262 | 70,70 | 64,25 | 54,38 – 87,02 |

Based on Table 1, from a total of 62 respondents, the minimum waiting time was **5 minutes**, and the maximum waiting time was **262 minutes**. The average waiting time was **70.70 minutes**, with a 95% confidence interval indicating that the true mean waiting time for the service is between **54.38 and 87.02 minutes**, and the standard deviation was **64.25 minutes** (Utami, Qomarania, and Unggul 2024).

## 2. Waiting Time for Ophthalmology Outpatient Services at RSUD Al-Ihsan, West Java Province, on April 21, 2025:

**Total patients = 133** (85 Completed, 48 Canceled)

n = N / (1 + N x $e^2$)

n = 85 / (1 + 85 x $0{,}05^2$)

**n = 70**

**Min = 4**

**Max = 179**

Total **waktu** keseluruhan = 4.468 / 70

**= 63,82 (Mean)**

**Std. dev** = max – min (179 – 4)

S = **range** / 4 = 175 / 4 = **43,75**

Std. **error** = s / √N = 43,75 / √70 = 43,75 / 8,366

SE = 5,22

**95% CI** = CI = X ± (t0, 975, N-1 x SE)

N = 70 – t0, 975, 69 ~ 2, 00
CI = 63,82 ± (2, 00 x 5,22)
CI = 63,82 ± 00, 44
**= 53,38 – 74,26**

**Table 2. Waiting Time for Ophthalmology Outpatient Services**

| Variabel | n | Min | Max | Mean | Std. dev | 95% CI |
|---|---|---|---|---|---|---|
| Lama waktu tunggu responden | 70 | 4 | 179 | 63,82 | 43,75 | 53,38 – 74,26 |

Based on Table 2, from a total of 70 respondents, the minimum waiting time was 4 minutes, and the maximum waiting time was 179 minutes. The average waiting time was 63.82 minutes, with a 95% confidence interval indicating that the true mean waiting time for the service is between 53.38 and 74.26 minutes, and the standard deviation was 43.75 minutes.

**3. Waiting Time for Ophthalmology Outpatient Services at RSUD Al-Ihsan, West Java Province, on May 21, 2025:**

**Total patients = 103** (100 Completed, 3 Canceled)
n = N / (1 + N x $e^2$)
n = 100 / (1 + 100 x $0,05^2$)
**n = 92**
**Min = 1**
**Max = 230**
Total waktu keseluruhan = 3.506 / 92
**= 38,10 (Mean)**
**Std. dev** = max – min (230 – 1)
S = range / 4 = 229 / 4 = **57,25**
Std. error = s / √N = 57,25 / √92 = 57,25 / 9,591
SE = 5,97
**95% CI** = CI = X ± (t0, 975, N-1 x SE)
N = 92 – t0, 975, 91 ~ 2, 00
CI = 38,10 ± (2, 00 x 5,97)
CI = 38,10 ± 11,94
**= 26,13 – 50,04**

**Table 3. Waiting Time for Ophthalmology Outpatient Services at RSUD Al-Ihsan on May 21, 2025**

| Variabel | n | Min | Max | Mean | Std. dev | 95% CI |
|---|---|---|---|---|---|---|
| Respondent waiting time | 92 | 1 | 230 | 38,10 | 57,25 | 26,13 – 50,04 |

Based on Table 3, from a total of 92 respondents, the minimum waiting time was 1 minute, and the maximum waiting time was 230 minutes. The average waiting time was 38.10 minutes, with a 95% confidence interval indicating that the true mean waiting time for the service is between 26.13 and 50.04 minutes, and the standard deviation was 57.25 minutes.

**Table 4. Waiting Time for Ophthalmology Outpatient Services at RSUD Al-Ihsan, West Java Province, on March 21, April 21, & May 21, 2025**

| Variable | n | Min (minutes) | Max (minutes) | Mean (minutes) | Std. Dev | 95% CI (minutes) |
|---|---|---|---|---|---|---|
| Respondent waiting time | 62 | 5 | 262 | 70.70 | 64.25 | 54.38 – 87.02 |
| Respondent waiting time | 70 | 4 | 179 | 63.82 | 43.75 | 53.38 – 74.26 |
| Respondent waiting time | 92 | 1 | 230 | 38.10 | 57.25 | 26.13 – 50.04 |

The service process at RSUD Al-Ihsan, West Java Province, is carried out from the moment patients take a queue number until they are called by the doctor to enter the clinic. This procedure aligns with the Ministry of Health of Indonesia Decree No. 129 of 2008 regarding minimum service standards, which stipulates that the required time starts from patient registration at the outpatient registration counter until being called by the doctor for supporting examinations. In this study, for a total of 62 respondents from the Ophthalmology Clinic on March 21, 2025, the minimum waiting time was 5 minutes, and the maximum waiting time was 262 minutes, with an average waiting time of 70.70 minutes. For 70 respondents on April 21, 2025, the minimum waiting time was 4 minutes, the maximum 179 minutes, and the average waiting time was 63.82 minutes. For 92 respondents on May 21, 2025, the minimum waiting time was 1 minute, the maximum 230 minutes, and the average waiting time was 38.10 minutes (Fajrin, Haeruddin, and Ahri 2021).

These results are consistent with Ministry of Health Decree No. 129 of 2008, which defines the minimum service standard as the time required from patient registration at the outpatient counter until being called by the doctor for supporting examinations. A service time of approximately 60 minutes or less is categorized as fast. The results from the tables above show a month-to-month reduction in waiting time, indicating an improvement in service quality. This suggests that the use of the Mobile JKN application has made outpatient service times at the Ophthalmology Clinic of RSUD Al-Ihsan, West Java Province, more efficient and compliant with minimum service standards. The Mobile JKN application helps minimize waiting time for respondents undergoing outpatient examinations, as patients do not need to queue physically, having registered online through the application. This aligns with the assertion that Mobile JKN enables the public to conveniently complete administrative tasks using a smartphone anytime and anywhere. However, many users have not yet utilized the Mobile JKN application due to a lack of understanding of its use, and not all community members have smartphones to access the application (Lumi et al. 2023).

## CONCLUSION

Based on the research conducted under the title Analysis of the Use of the Mobile JKN Application on the Waiting Time of Outpatient Services at the Eye Polyclinic of RSUD Al-Ihsan, West Java, the following conclusions can be drawn:

1. The minimum waiting time for outpatient respondents at the eye polyclinic on March 21, 2025, was 5 minutes, and the maximum waiting time was 262 minutes. The average waiting time for respondents was 70.70 minutes.
2. The minimum waiting time for outpatient respondents at the eye polyclinic on April 21, 2025, was 4 minutes, and the maximum waiting time was 179 minutes. The average waiting time for respondents was 63.82 minutes.
3. The minimum waiting time for outpatient respondents at the eye polyclinic on May 21, 2025, was 1 minute, and the maximum waiting time was 230 minutes. The average waiting time for respondents was 38.10 minutes.

This is in line with the statement that the use of the Mobile JKN application can help the public obtain convenience in completing administrative matters using a smartphone anywhere and anytime. However, many users still do not use the Mobile JKN application because many people are not yet familiar with how to use the application, and not everyone owns a smartphone to access Mobile JKN.

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