

DESIGN OF A QUANTITATIVE ANALYSIS INFORMATION SYSTEM FOR MEDICAL RECORD DOCUMENTS USING THE V-MODEL METHOD

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A B S T R A C T

The implementation of Electronic Medical Records (EMR) in healthcare facilities is a demand for digital transformation that aims to improve the quality of service, efficiency, and accuracy of health data. However, the main problem that still occurs is the low level of completeness of filling out medical record documents and the absence of a system capable of conducting structured quantitative analysis. This study aims to design a quantitative analysis information system for electronic medical record documents to support the implementation of EMR at the Batauga Community Health Center using Microsoft Access. This design method uses the V-Model method with Use Case design, Activity Diagram Entity Relationship Diagram (ERD), and User Interface Design. The results of the study show that the trial process of this quantitative analysis information system uses functional tests with the Blackbox Testing method with a 100% success rate of the system trial, these test results indicate that the system can function well. The quantitative analysis information system is very helpful for officers in the process of analyzing medical record documents based on user needs.

INTRODUCTION

Community health centers are primary healthcare facilities that play a role in providing comprehensive, continuous, and quality healthcare services to the community. One important element in delivering these services is medical records, which serve as a source of service information, a communication tool between healthcare workers, a basis for quality evaluation, and legal evidence in healthcare services as stated in Ministry of Health Regulation No. 24, (2022). In line with the digital health transformation, all healthcare facilities are required to implement Electronic Medical Records (EMR) to improve service efficiency, data accuracy, and continuity of health information. However, the success of EMR implementation highly depends on the completeness and quality of filling out medical record documents.

Quantitative analysis of medical record documents is an activity done to assess the completeness of patient identification, key reports, authentication, and documentation according to standards. This activity plays a role in maintaining data quality, improving patient safety, and supporting healthcare administration processes. Research by Maharani et al. (2024), states that incomplete medical record data can lead to misdiagnoses, hinder funding claims, and lower the quality of healthcare services. Therefore, quantitative analysis needs to be carried out systematically and continuously.

Some previous studies have shown that managing the completeness of Electronic Medical Records (EMRs) remains a challenge in various healthcare facilities. Masyfufah et al. (2024), reported that the completeness of EMR entries in health centers has not yet met service standards, so regular evaluations are needed. Arie et al. (2024), also found that missing data still occurs in several important medical record components, while Tarigan. (2024), explained that this situation affects the coding, reporting, and service claim processes. Nevertheless, most studies still focus on analyzing document completeness, while research on designing a quantitative analysis information system based on Microsoft Access using the V-Model method at the health center level is still very limited.

Preliminary study results at Batauga Health Center show that quantitative analysis of medical record documents is still done manually and is not yet supported by an information system that can record, process, and present the analysis results in a structured way. This situation causes the monitoring and evaluation of document completeness to not run optimally. Based on this problem, this study aims

to design an information system for quantitative analysis of medical record documents using the V-Model method as an effort to support the implementation of Electronic Medical Records and improve the effectiveness and efficiency of medical record management at Batauga Health Center.

METHODOLOGY

This research is applied research with a qualitative descriptive approach carried out at Batauga Community Health Center. Data was collected through observation, interviews, and document studies. The system development used the V-Model method, which includes stages of requirement analysis, system design, implementation, and testing. The system was designed using Microsoft Access and tested using Black Box Testing to ensure all functions run according to user needs.

RESULTS & DISCUSSION

Needs Analysis

The needs analysis results show that Batauga Health Center has implemented Electronic Medical Records (EMR), but it doesn't yet have an information system that specifically supports quantitative analysis of medical record documents. The analysis process is still done manually through simple checks of document completeness, so the analysis results aren't stored in a database and are hard to use for monitoring or evaluation. Based on observations and interviews, the system being designed should be able to manage doctor data, room data, medical record document data, perform quantitative analysis based on identification components, important reports, authentication, and proper documentation, and automatically generate analysis result reports. Besides those functional needs, the system should also have an easy-to-use interface, be able to keep data secure through a login process, and speed up the analysis process so it's more effective, efficient, and fits the needs of users at Batauga Health Center.

Design Planning

Use Case

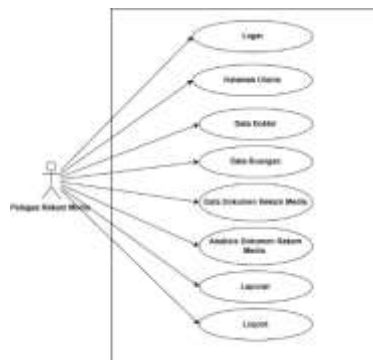
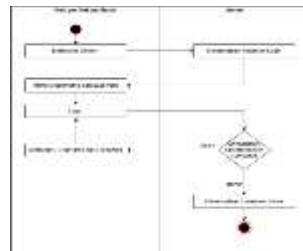


Figure 1. Use Case

Based on the results above in **Figure 1**, the Use Case Diagram explains the interaction between users (medical records staff) and the Electronic Medical Records Document Quantitative Analysis Information System. This diagram shows the main functions that users can perform, including logging into the system, managing doctor data, managing room data, managing medical record document data, performing quantitative analysis of medical record documents, and viewing and printing analysis reports. This use case shows that all processes in the system are integrated to support the management and analysis of the completeness of medical record documents effectively and efficiently.

Activity Diagram

Activity Diagram Login Menu



Activity Diagram Main Page Menu

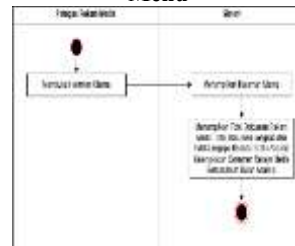
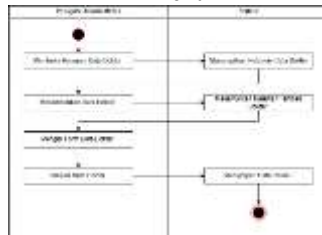


Figure 2. Activity Diagrams Login Menu and Main Page

Activity Diagram Doctor Data Menu



Activity Diagram Edit Doctor Data Menu

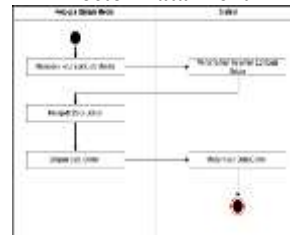
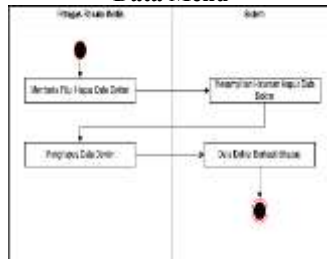


Figure 3. Activity Diagram Doctor Data and Edit Doctor Data Menu

Activity Diagram Delete Doctor Data Menu



Activity Diagram Room Data Menu

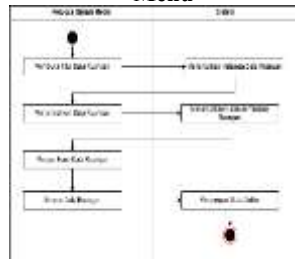
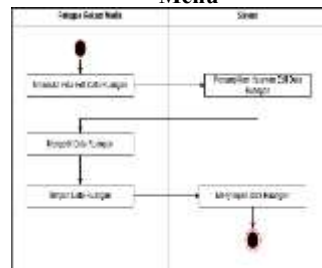


Figure 4. Activity Diagram Delete Doctor Data and Room Data Menu

Activity Diagram Edit Room Data Menu



Activity Diagram Delete Room Data Menu

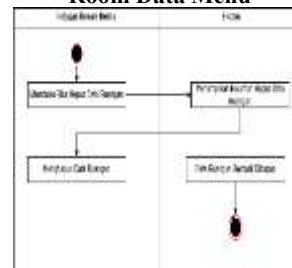
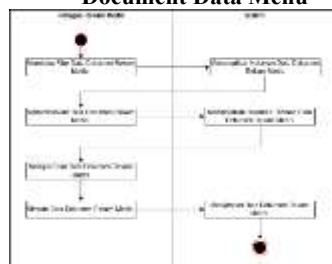


Figure 5. Activity Diagram Edit Room and Delete Room Data Menu

Activity Diagram Medical Record Document Data Menu



Activity Diagram Edit Medical Record Document Data Menu

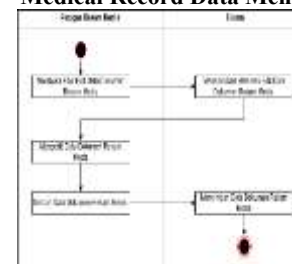
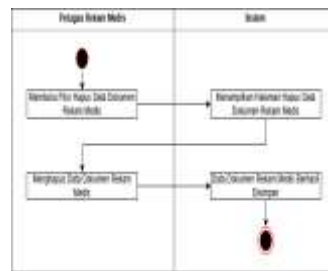


Figure 6. Activity Diagram Medical Record Document Data and Edit Medical Record Document Data Menu

Activity Diagram Delete Medical Record Data Menu



Activity Diagram Analysis Medical Record Document Menu

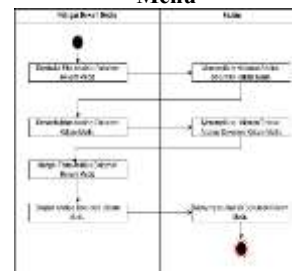
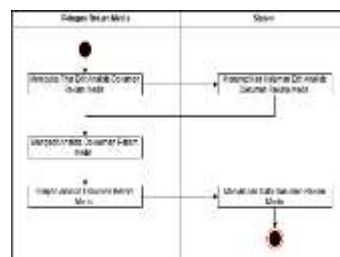


Figure 7. Activity Diagram Delete Medical Record Document Data and Analysis Medical Record Document Data Menu

Activity Diagram Edit and Analysis Medical Record Document Menu



Activity Diagram Delete Medical Record Document Analysis Menu

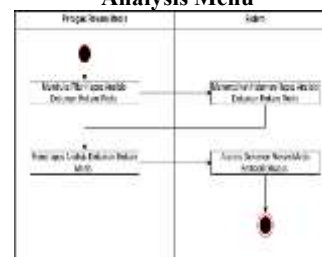


Figure 8. Activity Diagram Editing and Deleting Medical Record Document Analysis

Activity Diagram Report Menu

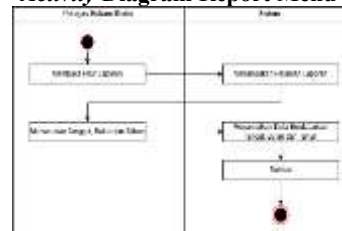


Figure 9. Activity Diagram Report Menu

Based on the results above in **Figure 2**, the activity diagram explains the user login process using a username and password to gain access to the system, then the user is directed to the main page that displays summary information and navigation menus. In **Figure 3**, the activity diagram illustrates the process of managing doctor data, including adding, storing, and updating doctor information to keep the stored data accurate. Next, in **Figure 4**, the activity diagram explains the process of deleting unnecessary doctor data and managing room data through addition and storage of data. In **Figure 5**, the activity diagram shows the process of updating and deleting room data to ensure that room information is always up-to-date as needed. In **Figure 6**, the activity diagram depicts the process of inputting, storing, and updating medical record document data as a basis for carrying out quantitative analysis. In **Figure 7**, the activity diagram explains the process of deleting medical record document data as well as carrying out quantitative analysis based on the completeness components of medical record documents. Next, in **Figure 8**, the activity diagram shows the process of modifying and deleting the results of medical record document analysis so that the analysis data remains accurate. Finally, in **Figure 9**, the activity diagram explains the process of preparing analysis reports based on the period selected by the user, then the reports can be displayed or printed as a material for evaluating medical record document management.

Entity Relationship Diagram

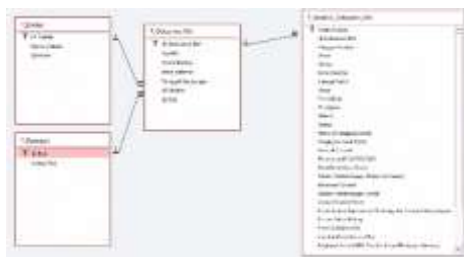


Figure 10. Entity Relationship Diagram (ERD)

The table structure in the database for the quantitative analysis information system design of medical record includes several tables for data storage, as follows:

Table 1. Database Tabel Structure Login

No	Nama Field	Data Type	Size	Description
1	Staff ID	Short Text	6	Primary key
2	Username	Short Text	100	
3	Password	Short Text	100	

Table 2. Database Table Structure Doctor

No	Nama Field	Data Type	Size	Description
1	Doctor ID	Short Text	6	Primary key
2	Doctor's Name	Short Text	100	
3	Specialist	Short Text	100	

Table 3. Database Table Structure Room

No	Nama Field	Data Type	Size	Description
1	Clinic ID	Short Text	6	Primary key
2	Clinic Name	Short Text	100	

Table 4. Database Table Structure RM Document

No	Nama Field	Data Type	Size	Description
1	RM Document ID	Short Text	6	Primary key
2	RM No	Short Text	100	
3	Patient Name	Short Text	100	
4	Gender	Short Text	100	
5	Date of Visit	Date/Time	100	
6	Doctor ID	Short Text	100	
7	Clinic ID	Short Text	100	

Table 5. Database Table Structure RM Document Analysis

No	Nama Field	Data Type	Size	Description
1	Analysis Code	Short Text	6	Primary key
2	RM Document ID	Short Text	20	
3	Analysis Date	Date/Time	20	
4	RM No	Short Text	20	
5	Name	Short Text	20	
6	Gender	Short Text	20	
7	Date of Birth	Short Text	20	
8	Age	Short Text	20	
9	Education	Short Text	20	
10	Employment	Short Text	20	
11	Address	Short Text	20	
12	Status	Short Text	20	
13	Name of Person in Charge	Short Text	20	
14	Initial Patient Assessment	Short Text	20	
15	General Consent	Short Text	20	
16	Odontogram Examination	Short Text	20	
17	Clinical Review of Nursing Re-Examination	Short Text	20	

No	Nama Field	Data Type	Size	Description
18	Outpatient Progress Notes	Short Text	20	
19	Informed Consent	Short Text	20	
20	Physician's Progress Notes	Short Text	20	
21	Nurse/Midwife Notes	Short Text	20	
22	Nursing Care Record Interventions and Progress Notes	Short Text	20	
23	Patient Medical Summary	Short Text	20	
24	Nutrition Care Form	Short Text	20	
25	Medication Reconciliation Form	Short Text	20	
26	Physician's Signature on the Informed Consent Form	Short Text	20	
27	Physician's Signature on the Patient's Medical Summary	Short Text	20	
28	Nurse/Midwife Signature on Developmental Care Record	Short Text	20	
29	Data Input Legibility	Short Text	20	
30	Data Error Correction	Short Text	20	
31	Coding Consistency	Short Text	20	

Based on the results above in **Figure 10**, the Entity Relationship Diagram (ERD) illustrates the database structure of the Medical Records Document Quantitative Analysis Information System along with the relationships between integrated entities. The ERD consists of **Table 1** Login, **Table 2** Doctor, **Table 3** Room, **Table 4** Medical Records Document, and **Table 5** Medical Records Document Analysis. The relationships between entities show that doctor and room data are used as references in medical records document data, while medical records document data serve as the basis for the quantitative analysis process. This design allows storage, management, and retrieval of data to be done in a structured way, supporting the medical records document analysis process effectively and efficiently.

User Interface Design and System Testing



Figure 11. Login Form Display

Table 6. Login Form Testing Scenario

Item Tested	Testing	Objective	Description
Login Button	Click the login button	Ensure the user can log in to the Main page / Homepage	Success
Logout Button	Click the logout button	Ensure the user can log out of the system	Success



Figure 12. Main Page Form Display

Table 7. Main Page Form Testing Scenario

Item Tested	Testing	Objective	Description
System Header	Display the system name and description	Ensure application identity is displayed correctly	Success

Item Tested	Testing	Objective	Description
Navigation Menu	Click on each menu (Main, Doctor, Room, Medical Record Documents, Medical Record Analysis, and Reports)	Ensure all menus are accessible and redirect to the correct page	Success
Data Summary	Display total documents	Ensure the total count of medical record documents is accurate	Success
Complete Documents	Display total complete documents	Ensure complete document data is displayed correctly	Success
Incomplete Documents	Display total incomplete documents	Ensure incomplete document data is displayed correctly	Success
Comparison Chart	Display chart	Ensure complete and incomplete charts are displayed	Success
Page Layout	Access the main page	Ensure layout is tidy and easy to understand	Success



Figure 13. Doctor Data Menu Form Display

Table 8. Doctor Data Form Testing Scenario

Item Tested	Testing	Objective	Description
Form Input	Enter ID, name, and specialty	Ensure the form can receive data input correctly	Success
Add Button	Click the add data button	Ensure the system can prepare the form for new data entry	Success
Save Button	Click the save button after inputting data	Ensure doctor data can be saved to the system	Success
Edit Button	Click the edit button on doctor data	Ensure doctor data can be modified	Success
Delete Button	Click the delete button on doctor data	Ensure doctor data can be deleted	Success
Search Feature	Search doctor data by name	Ensure the system can display data matching the keyword	Success



Figure 14. Room Data Menu Form Display

Table 9. Room Data Form Testing Scenario

Item Tested	Testing	Objective	Description
Form Input	Enter polyclinic ID and polyclinic name	Ensure the form can receive data input correctly	Success
Add Button	Click the add data button	Ensure the system prepares the form for new data entry	Success
Save Button	Click the save button after inputting data	Ensure room data can be saved to the system	Success
Edit Button	Click the edit button on room data	Ensure room data can be modified	Success
Delete Button	Click the delete button on room data	Ensure room data can be deleted	Success
Search Feature	Search room data by name	Ensure the system displays data matching the keyword	Success



Figure 15. Medical Record Document Data Menu Form Display

Table 10. Medical Record Document Data Form Testing Scenario

Item Tested	Testing	Objective	Description
Form Input	Fill in all medical record document data fields	Ensure the form receives complete and correct data input	Success
Add Button	Click the add data button	Ensure the system prepares the form for new data entry	Success
Save Button	Click the save button after inputting data	Ensure medical record document data is saved to the system	Success
Edit Button	Click the edit button on document data	Ensure document data can be modified	Success
Delete Button	Click the delete button on document data	Ensure document data can be deleted	Success
Search Feature	Search data by doctor's name	Ensure the system displays data matching the keyword	Success



Figure 16. Document RM Analysis Menu Form Display

Table 11. RM Document Analysis Form Testing Scenario

Item Tested	Testing	Objective	Description
Patient Identity Data	Display patient data	Ensure identity data is displayed correctly	Success
Analysis Categories	Display identification, important reports, authentication, and correct documentation	Ensure all categories are available	Success
Complete / Incomplete Indicator	Select Complete / Incomplete	Ensure the system accepts assessment input	Success
Analysis Form	Fill in all assessment components	Ensure the form can be used thoroughly	Success
Add Button	Click the add data button	Ensure the system prepares new data	Success
Save Button	Click the save button	Ensure analysis results are saved	Success
Edit Button	Click the edit button	Ensure analysis data can be updated	Success
Delete Button	Click the delete button	Ensure analysis data can be deleted	Success
Search Feature	Search by medical record number	Ensure the system displays data matching the search	Success



Figure 17. Report Menu Form Display

Table 12. Report Form Test Scenario

Item Tested	Testing	Objective	Description
Start Month Filter	Select start month	Ensure the system accepts the start parameter input	Success
End Month Filter	Select end month	Ensure the system accepts the end parameter input	Success
Year Filter	Select year	Ensure the system accepts the year input	Success
Display Data Button	Click the display data button	Ensure the system processes and displays the filtered results	Success
Print Button	Click the print button	Ensure the report can be printed or saved	Success

Based on the results above in **Figures 11 to 17**, the user interface design explains the interface of the Quantitative Analysis System for Medical Record Documents, which is designed to make it easier for users to operate the system. **Figure 11** shows the Login Form as the user authentication page before accessing the system, which according to **Table 6** test scenario results shows that the login and logout functions work well. **Figure 12** displays the Main Page that presents a summary of information, charts, and navigation menus, while **Table 7** shows that all main page components are successfully displayed and can be accessed according to their functions. **Figure 13** explains the Doctor Data Form for managing doctor data, and based on **Table 8**, all features such as input, add, save, edit, delete, and search passed the tests successfully. **Figure 14** shows the Room Data Form used to manage room data, while **Table 9** shows that all room data management functions are running well. **Figure 15** explains the Medical Record Document Data Form as the page for managing medical record document data, and according to **Table 10**, all management features work as needed. **Figure 16** shows the Medical Record Document Analysis Form used to analyze document completeness based on the specified components, while **Table 11** shows that the entire analysis process, from data entry to storage and retrieval, passed the testing successfully. Next, **Figure 17** shows the Report Form used to display and print analysis results based on a specific period, while **Table 12** shows that all reporting functions, from selecting the period, displaying data, to printing the report, work well. Overall, the results of the test scenarios on each view indicate that all system features function as designed and can support the process of quantitative analysis of medical record documents effectively and efficiently.

System Evaluation

Based on the testing results using the Black Box Testing method, all functions in the medical record document quantitative analysis information system have worked according to user needs. Testing on the login menu, main page, doctor data, room data, medical record documents, document analysis, and reports showed a 100% success rate. The evaluation results also show that the system helps medical record staff to perform document analysis faster, more structured, and efficiently, as well as makes it easier to manage, search, and report data. In addition, the simple interface makes the system easy for users to operate. Overall, the system is considered feasible to use as a support for the implementation of Electronic Medical Records (EMR) at Batauga Health Center, although further development is still needed, such as improving data security, web-based development, and integration with the E-Pus system already in use.

CONCLUSION

Needs Analysis

The needs analysis results show that the quantitative analysis of medical record documents at Batauga Health Center is still done manually and is not yet supported by an information system or Standard Operating Procedures (SOP) that specifically regulate its implementation. This situation makes the analysis process less effective, takes more time, and carries the risk of errors in data recording and processing. According to Ministry of Health Regulation No. 24 (2022), medical records must be managed systematically to ensure the quality and continuity of health services. Additionally, Hilmy *et al.* (2026), stated that information systems can improve the speed, accuracy, and precision of data processing as a basis for decision-making. Using a checklist in quantitative analysis is also important to ensure that every component of medical record document is complete, as mentioned by Noor *et al.* (2024). Therefore, the system being designed needs to be adjusted to user needs so that it can manage data in an integrated way, provide automatic analysis features, and make it easier to prepare reports. This is in line with Aulia *et al.* (2024), who stated that needs analysis is an important stage in system

development, and is also supported by Jamidah & Puryana. (2023), who explained that a good information system can improve work efficiency and service quality.

Design planning

The system design results show that the design of the Medical Record Document Quantitative Analysis Information System has been prepared based on the user needs at Batauga Health Center by utilizing Microsoft Access as the development platform. The design was done using Use Case Diagrams, Activity Diagrams, Entity Relationship Diagrams (ERD), and interface designs to illustrate functions, process flows, database structures, and the system's appearance in an integrated manner. According to Samsudin et al. (2023), use case diagrams are used to depict the functional requirements of the system based on user interactions, while Wayahdi & Ruziq. (2023), state that activity diagrams help model workflow so that business processes can be understood more clearly. In addition, Mafirah et al. (2026), explained that ERD plays a role in designing relationships between entities so that data management becomes more structured, while Maulana et al. (2023), emphasized that a good interface should be easy to understand and support ease of use. Thus, this system design has met user needs through structured design, integrated databases, and simple interfaces, which can support the process of quantitative analysis of medical record documents more effectively and efficiently.

System Testing

The test results using the Black Box Testing method show that all features in the Medical Record Document Quantitative Analysis Information System work according to the scenarios designed by Muhammad Jibril et al. (2024). All menus, including login, main page, doctor data, room data, medical record documents, document analysis, and reports, passed the tests successfully. The system can support the medical record document analysis process more quickly, accurately, and systematically compared to manual processes, while also making data management and report preparation easier. Therefore, the system is considered suitable for supporting the implementation of Electronic Medical Records (EMR) at Batauga Health Center, although further development is still needed to support system integration and multi-user access.

System Evaluation

The evaluation results show that the Document Medical Records Quantitative Analysis Information System has been running according to user needs and can support the document analysis process more effectively. The system can help medical records staff manage data, analyze document completeness, and prepare reports faster and more structured compared to manual processes. In addition, the simple interface makes it easy for users to operate the system, which improves work efficiency. This aligns with Sinta et al. (2026), who stated that systems meeting functional needs can support users' work processes, as well as Astuti & Fahyudi. (2023), who explained that a good information system should be easy to use and enhance work effectiveness. Nevertheless, further development is still needed, especially regarding data security, integration with Electronic Medical Records (EMR), and web-based development so that the system can be utilized more optimally (Nugroho et al., 2023).

ACKNOWLEDGMENTS

This research successfully designed a Medical Record Document Quantitative Analysis Information System using the V-Model method at Batauga Health Center based on the results of user needs analysis. The design produced a Use Case Diagram, Activity Diagram, Entity Relationship Diagram (ERD), and interface designs that fit the system's requirements. Testing results using the Black Box Testing method showed that all system features worked according to the test scenarios with a 100% success rate, so the system is considered suitable to support the quantitative analysis process of medical record documents. Even so, this research is still limited to the design stage and functional testing using Microsoft Access, so the system hasn't been implemented directly, doesn't support multi-user access, isn't web-based, and isn't integrated with the E-Pus system. Therefore, further development is needed so the system can be used more optimally to support services at Batauga Health Center.

REFERENCES

- Arie, D. A. L., Novana, F. E., Listiawan, N., Safara, D., & Sutha, D. W. (2024). 10.+Della+Ananda+Lutfiah+Arie. *Jurnal Manajemen Informasi Kesehatan Indonesia*, 12(1), 72–77. <https://doi.org/10.33560/jmiki.v12i1.646>.
- Astuti, N. D., & Fahyudi, A. (2023). Kepuasan Pengguna Sistem Informasi Rekam Medis Elektronik RSUD Tugurejo. *Jurnal Manajemen Kesehatan Indonesia*, 11(3), 289–297. <https://doi.org/10.14710/jmki.11.3.2023.289-297>.
- Aulia, L., Candra Mecca Sufyana, & Irda Sari. (2024). Perancangan Sistem Informasi Rekam Medis Elektronik Dalam Pelaporan 10 Besar Penyakit Rawat Inap. *Decode: Jurnal Pendidikan Teknologi Informasi*, 4(2), 533–546. <https://doi.org/10.51454/decode.v4i2.589>.
- Hilmy, M. R., Puspitaloka Mahadewi, E., Dwi Putranto, R., Setiawan, I., & Shameela, A. (2026). Analisis Integrasi Sistem Informasi Rumah Sakit dan Elektronik Rekam Medik Sebagai Respon Terhadap Permenkes Nomor 24 Tahun 2022. Syntax Literate ; *Jurnal Ilmiah Indonesia*, 11(1), 55–63. <https://doi.org/10.36418/syntax-literate.v11i1.63533>.
- Jamidah, P., & Puryana, P. (2023). Meningkatkan Efisiensi Kinerja Karyawan dengan Komputerisasi Rekam Medis pada Klinik Ava Dental Gatot Subroto. *Jurnal Pendidikan Tambusai*, Volume 7 N (Meningkatkan Efisiensi Kinerja Karyawan dengan Komputerisasi Rekam Medis pada Klinik Ava Dental Gatot Subroto)3602–3611. <https://jptam.org/index.php/jptam/article/download/5771/4850>.
- Mafirah, D., Hary, A., Annisa, L., & Informasi, T. (2026). *Evaluasi Strategi Pemodelan Basis Data melalui Entity Relationship Diagram (ERD) dalam Perspektif Akademik dan Praktik Industri : Literature Review..* 10, 3935–3943. <https://doi.org/10.31004/jptam.v10i1.36705>.
- Maharani, T., Sonia, D., Iqbal, M. F., & Putra, D. H. (2024). *Rawat Jalan Di Puskesmas Tambora*. 7(2), 83–91. <https://perpustakaan.poltekkes-malang.ac.id/assets/file/kti/1604000039/7>.
- Masyfufah, L., Listiawan, N., Yulianita, N. E., Wahyuni, T., Sutha, D. W., & Pribadi, M. S. W. (2024). Kelengkapan Pengisian Rekam Medis Elektronik Pasien di Poli Umum Puskesmas Surabaya Timur. *Jurnal Ilmiah Perekam Dan Informasi Kesehatan Imelda (JIPIKI)*, 9(2), 177–188. <https://doi.org/10.52943/jipiki.v9i2.1689>.
- Maulana, M. R., Utama, M. R. P. A., & Nurdiana, D. (2023). Uji Usability dan User Experience Website Sistem Informasi Akademik Universitas Terbuka (SIA UT) Berdasarkan Perspektif Mahasiswa Menggunakan Metode USE Questionnaire dan Cognitive Walkthrough. *Jurnal Teknologi Sistem Informasi Dan Aplikasi*, 6(4), 713–729. <https://doi.org/10.32493/jtsi.v6i4.34189>.
- Muhammad Jibril, Zulrahmadi, & 3Muhammad Amin. (2024). Pengujian Sistem Informasi E-Modul Pada Smpn 1 Tempuling Menggunakan Black Box Testing. *Jurnal Perangkat Lunak*, 6(2), 327–332. <https://doi.org/10.32520/jupel.v6i2.3326>.
- Noor, F. B., Persadha, G., & Maghfirah, M. (2024). Analisis Kuantitatif Pengisian Rekam Medis Elektronik Rawat Jalan di Poli Kulit Rumah Sakit X. *JEMPOL : Jurnal Elektronik Mahasiswa Polanka*, 2(1), 21–28. <https://doi.org/10.52674/jmpl.v2i1.190>.
- Nugroho, R. H., Siswatibudi, H., Permata, K., & Yogyakarta, I. (2023). *Evaluation Of Security And Confidentiality Aspects Of Electronic Medical Records At Panti Nugroho Hospital Program Studi Diploma Tiga Rekam Medis dan Informasi Kesehatan , Politeknik Ditengah perkembangan era globalisasi dan kemajuan ilmu semakin pesat* 14(November). <https://doi.org/10.59737/jpi.v14i2.265>.
- Permenkes No. 24. (2022). Peraturan Menteri Kesehatan RI No 24 tahun 2022 tentang Rekam Medis. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022*, 151(2), 1–19.
- Samsudin, Anju Alba Sitompul, & Priyamita, A. (2023). Perancangan Sistem Pengarsipan Buku Tanah

Berbasis Web. *Jurnal Ilmiah Sistem Informasi (JUSI)*, 2(1), 20–29. <https://doi.org/10.51903/juisi.v2i1.547>.

Sinta, N. S., Wahyuni, S., Mansyur, A. A., Wicaksono, R. A., Baubau, P., & Ikhsanuddin, U. D. (2026). Designing a Medical Records Student Lab Learning Application for Patient Data Management. *Scientific Periodical of Public Health and Coastal Health*, <https://doi.org/10.30829/contagion.v8i1.26395>.

Tarigan, S. dan H. H. (2024). Efektivitas Rekam Medis Elektronik Berdasarkan Kelengkapan dan Integritas Sistem di RSUD Dr. Soedarso Tahun 2023. *2807-7539, 2807-7547. 03(08)*, Indonesian Scholar Journal of Medical and Health Science 342–347. <https://doi.org/10.54402/isjmhs.v3i08.657>.

Wayahdi, M. R., & Ruziq, F. (2023). Pemodelan Sistem Penerimaan Anggota Baru dengan Unified Modeling Language (UML) (Studi Kasus: Programmer Association of Battuta). *Jurnal Minfo Polgan*, 12(1), 1514–1521. <https://doi.org/10.33395/jmp.v12i1.12870>.