Journal of Medical Record and Infomation Technologi (JOMRIT)
Vol. 1, No. 1, December 2023,

Web-Based Medical Record Information System Design at Amanah Clinic in Padang City

Nurul Abdillah[1], Herman Susilo[2], Muhammad Ihksan[3]
[1,2,3]Sekolah Tinggi Ilmu Kesehatan Syedza Saintika, Padang, Sumatera Barat, Indonesia

Article Info

Article history:

Received Augtus 26, 2023
Revised Sept 1, 2002
Accepted December 28, 2023

Keywords:

The Role of Information Systems
Medical records
Clinic

ABSTRACT

Implementation of computers for data archiving at Amanah Clinic in Padang City has become a necessity, including managing the outpatient registration process. However, after conducting interviews with clinic staff, it was revealed that the existing registration system is still not optimal in addressing patient needs, and the archived data is difficult to process. The registration process takes place slowly, causing patients to experience longer waiting times than necessary. To address this issue, an information system is required that can efficiently manage the outpatient registration process. The goal of designing this information system is to create a platform capable of accelerating the outpatient registration process while providing additional options for more detailed data processing. The system development is carried out using the Waterfall method, implementing Data Flow Diagrams (DFD) to clearly understand the data flow in the clinic. The result of this research is a web-based information system application that not only facilitates patient data processing but also improves system performance compared to the previous software. This system is expected to provide significant benefits to the clinic in enhancing operational efficiency and patient services.

Corresponding Author:

Nurul Abdillah
Program Studi Manajemen Informasi Kesehatan, Sekolah Tinggi Ilmu Kesehatan Syedza Saintika
Jl. Prof. Dr. Hamka No. 228 Air Tawar Timur, Padang, Sumatera Barat, Indonesia
E-mail: Abdillahadik15@gmail.com

1. INTRODUCTION

Health is a crucial aspect that impacts the quality of life in society. Increasing awareness of the importance of health and the need for effective healthcare services drives the implementation of information technology in this field [1]. Clinics, as healthcare providers, play a vital role in providing care and diagnoses to patients [2]. In this context, efficient data management is essential to support day-to-day operations.

Medical records are vital documents that record every aspect of a patient's health history. The existence of well-structured and accurate medical records is crucial in supporting treatment processes, medical research, and decision-making [3-4]. Effective management of medical records is a primary challenge in providing quality healthcare.

In the digital era, web-based information systems emerge as a modern solution to address the challenges of data management. This model allows more efficient data management and provides high accessibility through web platforms, accelerating and improving service quality [5-6].

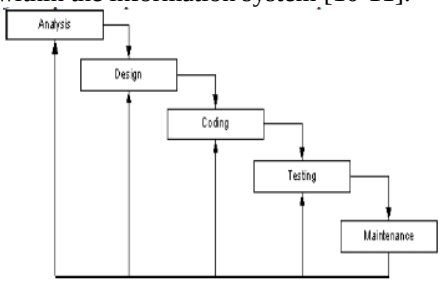
Web-based medical record information systems are integrated into modern healthcare services. They have the potential to improve operational efficiency, enhance data accuracy, and provide better accessibility to medical information [6-7].

Amanah Clinic, located in Padang, West Sumatra, is responsible for continually improving service standards. However, challenges persist in managing medical records and registration systems, including issues of efficiency, data accuracy, and service speed. Therefore, this research carries the title "Design of Web-Based Medical Record Information System at Amanah Clinic" with the aim of designing a system that can address these issues and contribute positively to the development of healthcare services at Amanah Clinic, especially in Padang, West Sumatra.

2. METHOD

The research method employed in this study is a qualitative method with a descriptive approach. Data collection was carried out through interviews and literature review. Interviews were conducted from September to November, and the analysis of the registration system at Amanah Clinic was performed by examining the implementation of the system used in the clinic. Interviews were also conducted with staff to identify challenges faced while using the existing information system. After understanding the constraints and shortcomings of the system, the author decided to redesign the registration information system, producing more accurate data, and facilitating the registration process with comprehensive patient data storage.

The software development method utilized in this study is the Waterfall model, incorporating Data Flow Diagrams (DFD) as a software design tool [8-9]. The Waterfall model is a linear approach, starting from the planning stage to maintenance, with each stage needing completion before progressing to the next. DFD is employed to model the data flow within the information system [10-11].



Picture 1. Model *Waterfall* [12]

The stages of the Waterfall method used include:

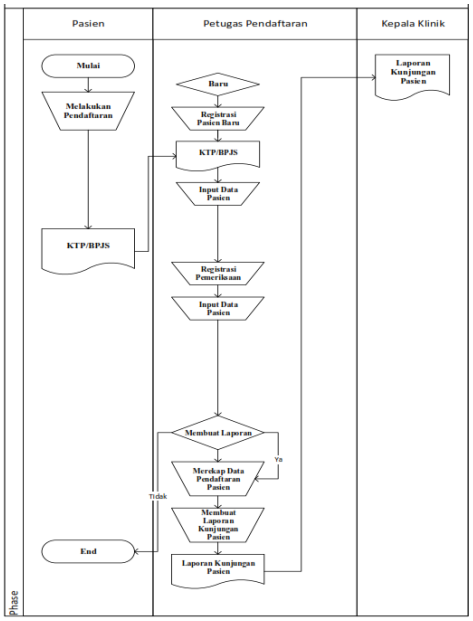
1. Analysis: The analysis process is conducted periodically to facilitate program development.
2. Design: The design stage involves creating a plan or arrangement for designing, including data structure, software architecture, and interface design.
3. Coding: This stage involves creating program code based on the design results.
4. Testing: Testing is conducted to ensure that the system operates as desired and without issues.
5. Maintenance: The final stage is maintenance, where the system can be fixed if there are errors or changes needed.

Based on the analysis and evaluation at Amanah Clinic, it was found that:

1. Medical record and registration staff are considered to have a shortage of human resources that need immediate attention from the clinic.
2. The clinic lacks an efficient program to assist registration staff in performing their duties.

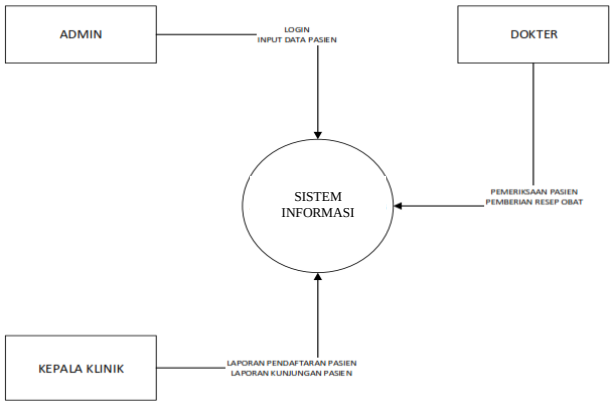
Based on the research results, the author recommends the creation of a web-based outpatient registration information system using HTML and CSS to ensure optimal and efficient results. Here is the system design.

1. Flowmap: Flowmap is used to determine the movement of a system from one location to another. The designed flowmap explains the steps from patient registration to the examination process by the doctor [13].



Picture 2. Designed Flowmap

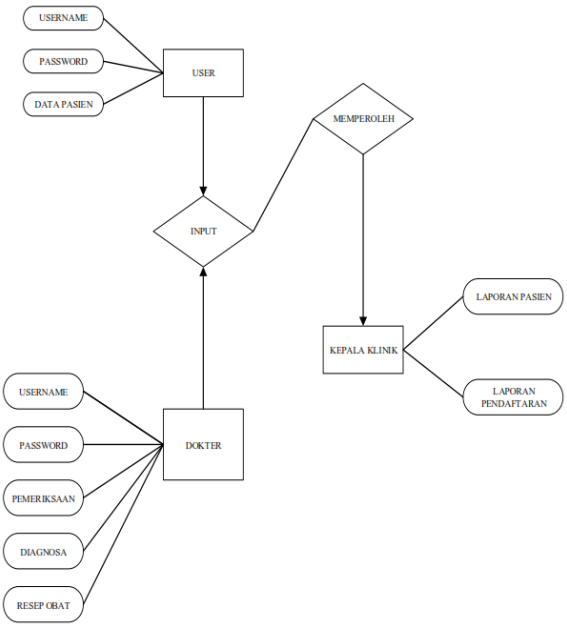
2. Context Diagram: The context diagram is used to illustrate the interaction between users and the system [14]. This diagram explains the tasks of each user, such as staff, doctors, and the clinic head.



Picture 3. Designed Context Diagram

3. Entity Entity Relationship Diagram (ERD): ERD is used to model the structure of the database [15]. This diagram includes entities such as staff, doctors, and the clinic head along with attributes and relationships between entities.

With the implementation of the new information system design, it is expected to improve the efficiency of the outpatient patient registration process at Amanah Clinic, provide better healthcare services, and meet user needs.



Picture 4. Entity Relationship Diagram

3. RESULTS AND DISCUSSION (10 PT)

3.1. Planning

1. Input Design

   The input design in the information system design begins with displaying a login form: the initial step for the admin to access and input data into the system, which will be processed to generate reports.

3. Output Design

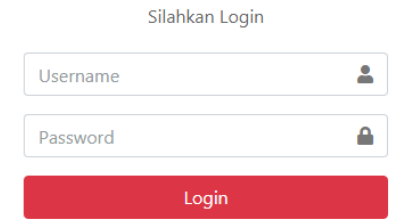
   The output design provides an overview of the outputs generated by the designed system. In this case, the author designs a web-based outpatient information system using HTML and CSS at Rancajigang Medika Clinic. The output produced by the author's information system design is a report on paper media (printout) derived from database processing.

3.2. Implementation

The depiction of the information system output that has been designed using HTML and CSS is as follows:

1. Login Page

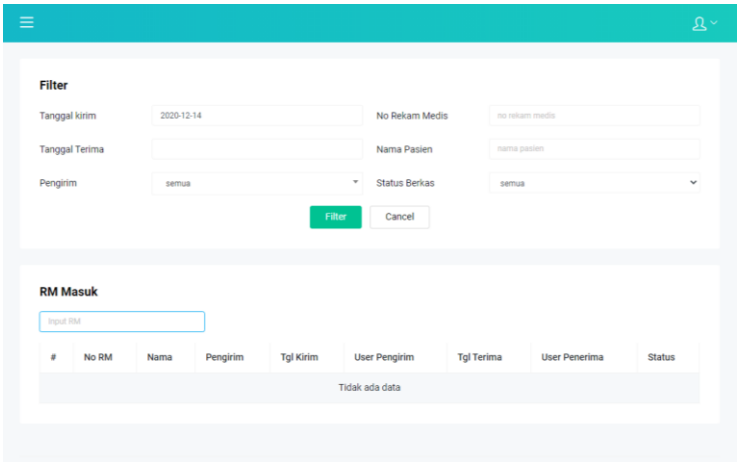
   Picture 5. Login form page for admin or doctor, requiring a username and password to access the form it.



Picture 5. Login Form Page

2. Main Menu Display

   Picture 6 contains various menus, including form inputs and reports.



Picture 6. Main Menu Display

4. CONCLUSION

Based on the conducted research, analyzing and observing the information system used in the clinic, and supported by relevant theories and tools, it can be concluded that implementing a web-based information system will facilitate the clinic in processing patient data. This Outpatient Information System can be effective and efficient in reducing the time spent on patient registration and avoiding data redundancy. The system can store the medical history of patients in a database.

REFERENCES

[1] Gunadhi, E., & Indra, A. (2017). Rancang Bangun Sistem Informasi Kesehatan Berbasis Website di Kabupaten Garut. *Jurnal Algoritma*, *14*(2), 553-562.

[2] Akbar, J., & Yaqin, A. (2021). Sistem Informasi Rekam Medis Berbasis Web Pada Klinik Risa Rafana Menggunakan Metodologi Extreme Programming. *Infotek: Jurnal Informatika dan Teknologi*, *4*(2), 270-279.

[3] Akbar, J., & Yaqin, A. (2021). Sistem Informasi Rekam Medis Berbasis Web Pada Klinik Risa Rafana Menggunakan Metodologi Extreme Programming. *Infotek: Jurnal Informatika dan Teknologi*, *4*(2), 270-279.

[4] Prabowo, D. W. S., & Triono, J. (2021). Rancang Bangun Sistem Informasi Rekam Medis Berbasis Web. *JURNAL PILAR TEKNOLOGI Jurnal Ilmiah Ilmu Ilmu Teknik*, *6*(1), 8-14.

[5] Putranto, Y. Y., Putra, T. W. A., & Hakim, F. N. (2017). Rancang Bangun Sistem Informasi Rekam Medis Klinik Berbasis Web (Studi Kasus: Klinik Utama Meditama Semarang). *Jurnal Informatika Upgris*, *3*(2).

[6] Nadhiva, K. S., Triayudi, A., & Handayani, E. T. E. (2022). Implementasi Sistem Informasi Rekam Medis Berbasis Web Klinik Gigi menggunakan Metode Waterfall dan PIECES Framework. *JUSTIN (Jurnal Sistem dan Teknologi Informasi)*, *10*(1), 168-174.

[7] Halimah, N., & Abdullah, S. (2022, February). Perancangan Sistem Informasi Rekam Medis Berbasis Web Menggunakan Metode Waterfall (Studi Kasus: Klinik Medika Cikidang, Kabupaten Sukabumi): Perancangan Sistem Informasi Rekam Medis Berbasis Web Menggunakan Metode Waterfall (Studi Kasus: Klinik Medika Cikidang, Kabupaten Sukabumi). In *Seminar Nasional Teknologi Informasi, Mekatronika, dan Ilmu Komputer (SENTIMETER)* (Vol. 1, No. 1).

[8] Brawijaya-UBSI, H. (2020). Perancangan Sistem Informasi Rekam Medis Berbasis Web Pada Klinik Caritas Bogor (Desktop & Web Programing). Indonesian Journal of Networking and Security (IJNS), 9(1).

[9] Pasaribu, J. S., & Sihombing, J. (2017). Perancangan Sistem Informasi Rekam Medis Pasien Rawat Jalan Berbasis Web Di Klinik Sehat Margasari Bandung. Jurnal Ilmiah Teknologi Infomasi Terapan, 3(3).

[10] Prasetyo, A., & Azis, M. S. (2018). Perancangan sistem informasi rekam medis pada puskesmas jomin berbasis web. Jurnal Interkom: Jurnal Publikasi Ilmiah Bidang Teknologi Informasi Dan Komunikasi, 13(2), 31-38.

[11] Halimah, N., & Abdullah, S. (2022, February). Perancangan Sistem Informasi Rekam Medis Berbasis Web Menggunakan Metode Waterfall (Studi Kasus: Klinik Medika Cikidang, Kabupaten Sukabumi): Perancangan Sistem Informasi Rekam Medis Berbasis Web Menggunakan Metode Waterfall (Studi Kasus: Klinik Medika Cikidang, Kabupaten Sukabumi). In Seminar Nasional Teknologi Informasi, Mekatronika, dan Ilmu Komputer (SENTIMETER) (Vol. 1, No. 1).

[12] Imran, Y. V., & Setiatin, S. (2021). Perancangan Sistem Informasi Rekam Medis Pasien Rawat Jalan Berbasis Web Di Rsud Pasaman Barat. Explore: Jurnal Sistem Informasi dan Telematika (Telekomunikasi, Multimedia dan Informatika), 12(2), 153-165.

[13] Susilo, H., Abdillah, N., Ihksan, M., Morika, H. D., & Darma, I. Y. (2023). ANALISA DAN PERANCANGAN SISTEM INFORMASI BOOKING ANTRIAN PELAYAN PADA KLINIK MEDIKA SAINTIKA BERBASIS WEBSITE. *Jurnal Kesehatan Medika Saintika*, *14*(1), 344-352.

[14] Abdillah, N., & Ihksan, M. (2021, October). Design of Web-Based Patient Registration Information System at Asy-Syifa Medika Clinic. In *2nd Syedza Saintika International Conference on Nursing, Midwifery, Medical Laboratory Technology, Public Health, and Health Information Management (SeSICNiMPH 2021)* (pp. 295-299). Atlantis Press.

[15] Ihksan, M., Susilo, H., & Abdillah, N. (2023). *BASIS DATA 2023: Konsep Dasar Membangun Database*. Suluah Kato Khatulistiwa.