# Enhancing the Effectiveness of Midwifery Services Through UI/UX Design of an Electronic Medical Record System in Independent Midwife Practices

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## ABSTRACT

The implementation of medical records at the Qopitinia Independent Midwife Practice is still carried out manually, making the service process and patient data management inefficient. This study aims to design a User Interface (UI) and User Experience (UX) for a web-based electronic medical record system specifically for independent midwife practices. The research method used is Research and Development (R&D) with the Activity-Centered Design (ACD) approach, which focuses on user activities, and includes a design evaluation using the User Experience Questionnaire (UEQ). The results indicate that the designed web-based electronic medical record application can assist midwife practices in managing registration, examination, and reporting data digitally and in an integrated manner. The UEQ evaluation showed good to excellent scores, with Perspicuity obtaining the highest rating. In conclusion, the application designed using the UI/UX approach and user-activity focus demonstrated a very good user experience, particularly in the Perspicuity dimension, which received the highest score in the Excellent category. It is recommended that the Qopitinia Independent Midwife Practice implement the electronic medical record system to improve data recording and reporting.

Keywords: Electronic Medical Records (EMR); UI/UX, Independent Midwife Practice (IMD); Activity Centered Design (ACD); User Experience Questionnaire (UEQ)

## INTRODUCTION

Independent Midwife Practices (PMB) are health facilities managed individually by midwives and serve as centers for various maternal and child health services (Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2017 Tentang Izin Dan Penyelenggaraan Praktik Bidan, 2017). Although the number of PMB in Indonesia once reached 42,288, it significantly decreased to 14,386 in 2022 due to the impact of the COVID-19 pandemic and regulatory changes(Portal Satu Data Indonesia, 2024). Furthermore, only 2,506 PMB are registered as partners of the national health insurance system (BPJS), indicating low involvement in national healthcare financing (Muchtar et al., 2016). As authorized health professionals, midwives are required to create medical records as a basis for providing examinations, treatment, and care in accordance with their practice license (Ilmi et al., 2024)..

Medical records contain patient identity data, examination results, treatments, and other services provided, and must always be available to ensure continuity of care (Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 Tentang Rekam Medis, 2022). However, many PMBs still use paper-based medical records, which are inefficient and prone to problems such as difficulty retrieving information, document mixing, and data duplication. A study conducted by Perbawa and Meyliana (Perbawa & Meyliana, 2022) at PMB Sri Sayekti Kebumen reported issues such as difficulty finding patient files and the presence of duplicate data caused by scattered documentation. These challenges highlight the need for Electronic Medical Records (EMR) to improve data accuracy, availability, and efficiency.

Electronic Medical Records offer significant advantages over paper records, including better accessibility, increased data security, and improved efficiency (Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 Tentang Rekam Medis, 2022). However, the effectiveness of EMRs highly depends on the quality of the User Interface (UI) and User Experience (UX), as these factors influence usability and user acceptance (Wasilah, 2023). Previous research indicates that EMRs can enhance healthcare service quality

when supported by well-designed UI/UX systems (Saefulloh et al., 2023).

The Activity-Centered Design (ACD) method is considered effective in UI/UX development because it focuses on user activities as the basis of design(Rojiyyah, 2021). The ACD process includes the stages of requirement, design, implementation, and evaluation, enabling developers to align system features with actual workflow needs (Maulana & Meriska, 2024). Additionally, system evaluation can be conducted using the User Experience Questionnaire (UEQ), which measures aspects such as attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty (Sadewa et al., 2024).

Although EMR implementation is increasing nationally, a survey by the Indonesian Hospital Association (PERSI) in 2022 reported that only 50% of hospitals have adopted EMR systems, and only 16% implemented them effectively (Rubiyanti, 2023). At the primary healthcare level, including facilities in Malang Regency, digitalization remains limited. PMB Qopitinia Nurul Alfika in Kepanjen Subdistrict is one of the facilities that has not yet implemented EMR. Patient registration is still paper-based before being re-entered into Microsoft Excel, resulting in duplicate work, long processing times, and difficulties in summarizing service data. These conditions support the need for a web-based EMR designed according to user activities and workflow to improve service effectiveness in midwifery practice. Therefore, the aim of this research is to design the User Interface (UI) and User Experience (UX) for web-based electronic medical records in the Independent Midwife Practice.

Despite the growing adoption of Electronic Medical Records in Indonesia, there is a clear research gap regarding the design and evaluation of EMR user interfaces and user experiences specifically for Independent Midwife Practices (PMB), particularly those developed using an Activity-Centered Design (ACD) approach. Existing studies on EMR implementation largely focus on hospitals or primary health centers, with limited attention to the unique workflows, service characteristics, and resource constraints of PMBs. Moreover, few studies have explicitly integrated midwives' daily activities into the UI/UX design process to ensure system usability and acceptance. This study addresses this gap by focusing on PMB Qopitinia Nurul Alfika in Kepanjen Subdistrict as a specific case context and proposes a web-based EMR UI/UX design grounded in actual midwifery workflows using the ACD method. The novelty of this research lies in translating activity-based requirements into a tailored UI/UX design for PMBs and evaluating the design using the User Experience Questionnaire (UEQ), thereby contributing practical and context-specific insights for improving EMR usability in independent midwifery services.

**METHOD**

This research is a Research and Development study that aims to design the UI/UX of a website-based electronic medical record at PMB Qopitinia Nurul Alfika. The method used is Activity Centered Design (ACD). The ACD method is used as a method for designing a medical record system because in addition to this method being rarely used, this method focuses on the activities carried out by users therefore the ACD method helps create a more effective, efficient and user-friendly medical record system(Gay, 2017). UI/UX design evaluation was carried out using the User Experience Questionnaire (UEQ) to measure user experience from six aspects: attractiveness, clarity, efficiency, reliability, stimulation and novelty(Schrepp, 2023). This research was conducted at PMB Qopitinia Nurul Alfika, Kepanjen District, Malang Regency. This research involved all human resources (HR) who use the electronic medical record website at PMB Qopitinia, namely 1 midwife and 1 Registration officer, as the population and sample. The research procedure was carried out in four main stages. The first stage is requirement, where data was collected through semi-structured in-depth interviews and direct observation to understand the manual workflow and identify existing obstacles. The second stage is design, where the results of the needs analysis are translated into User Interface (UI) and User Experience (UX) designs in the form of high-fidelity prototypes using the Figma application (Suhendri, 2024). The third stage is implementation. The final stage is qualitative usability testing, where interactive prototypes are presented to each user in individual, moderated sessions. In these sessions, users are given common usage scenarios and asked to provide in-depth verbal feedback while interacting with each screen to explore perceptions, identify potential pain points, and

evaluate the suitability of the design flow to their needs. All qualitative data collected from the interviews and validation processes are analyzed using a qualitative descriptive approach.

## RESULTS

### Requirement stage

The users' activities and needs were analyzed through interviews and observations conducted on March 13, 2025. The interviews and observations were carried out to understand the service flow and identify problems in the implementation of manual medical record management. Based on the interview results, it was found that the existing issue is the paper-based patient registration process, which tends to be ineffective. This occurs because staff must draw gridlines on the register book before registering patients, and then re-enter the data into Microsoft Excel. This process is not only time-consuming but also requires considerable effort from the staff, particularly during data processing and transferring information from the register book to Microsoft Excel. As a result, staff must be extremely meticulous during data recapitulation because the data are used for external reporting to the public health center. However, inconsistencies and non-sequential data are still frequently found. This indicates that the manual recording system currently in use is not yet optimal, as stated in the interview with the staff at PMB Qopitinia Nurul Alfika. Based on the observation results, it was found that the patient registration process at PMB Qopitinia Nurul Alfika is carried out by the administrative staff, where registration data are recorded in a register book. The available register books at PMB Qopitinia Nurul Alfika include the general register, ANC register, INC register, PNC register, Pap smear register, and laboratory register. The data recorded in these register books consist of patient identity information and examination results. The reporting process at PMB Qopitinia Nurul Alfika involves monthly external reporting to the Kepanjen Public Health Center, which includes family planning (KB), ANC, INC, neonatal, and toddler service reports. Based on the interview and observation findings related to the recording activities, it was identified that there is no Standard Operating Procedure (SOP) used as a reference for documentation. Consequently, the recording process is carried out based on the available forms.

### Design

Based on the observation results, the patient registration process at PMB Qopitinia Nurul Alfika is conducted by administrative staff, in which registration data are manually recorded in a register book. The types of register books available at PMB Qopitinia Nurul Alfika include the general register, ANC register, INC register, PNC register, Pap smear register, and laboratory register. These forms contain patient identity information as well as examination results. The reporting process at PMB Qopitinia Nurul Alfika consists of monthly external reporting to the Kepanjen Public Health Center, covering services such as family planning (KB), ANC, INC, neonatal care, and toddler health services. Furthermore, the interview and observation findings indicate that there is no Standard Operating Procedure (SOP) used as a reference for documentation activities. As a result, the recording process is carried out solely based on the available forms.
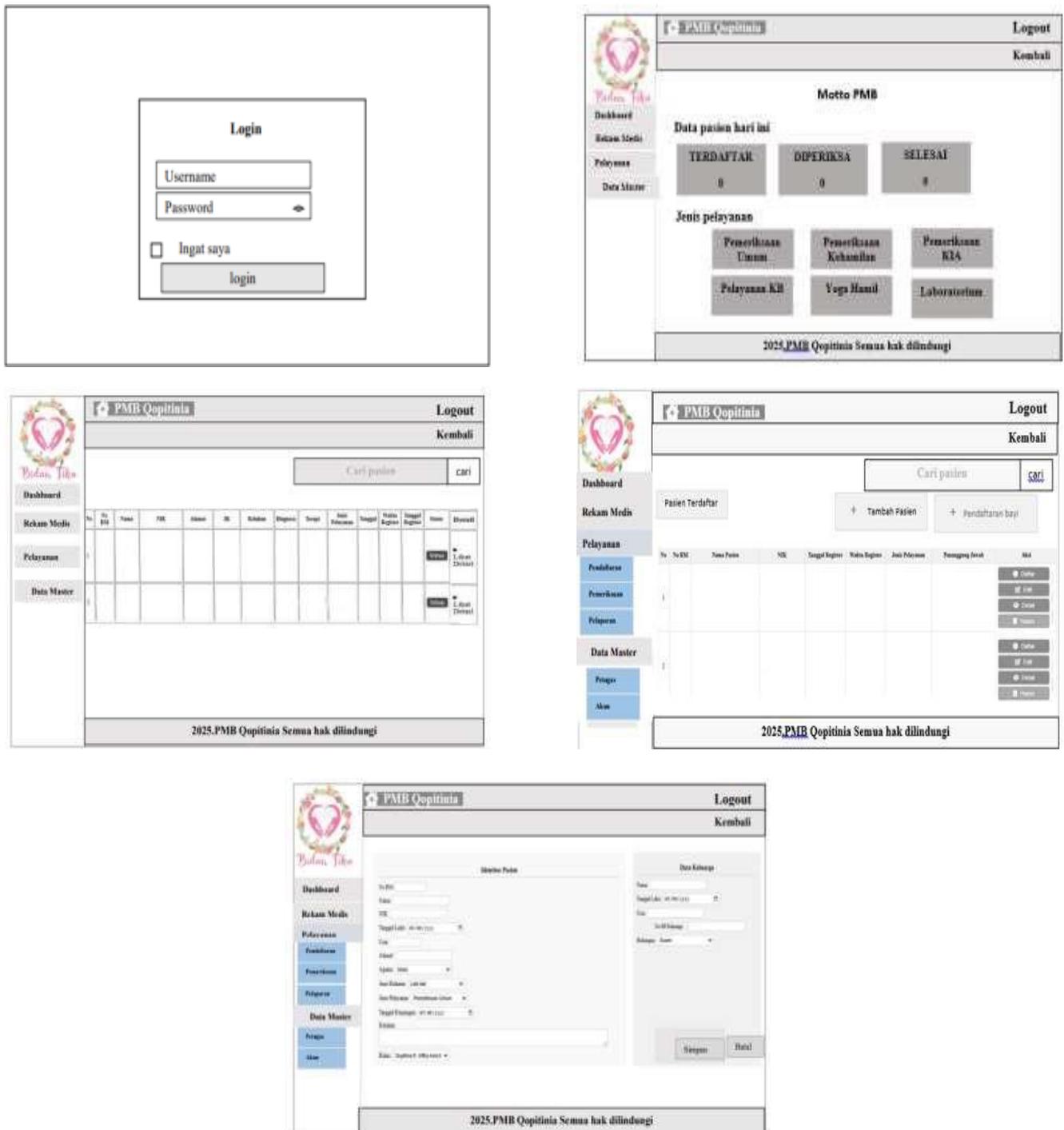
**Figure 1**. Wireframe Design

**Implementation**

The final outcome of this process is an interactive prototype that directly addresses the three main problems identified. The following section presents the results of the prototype design.
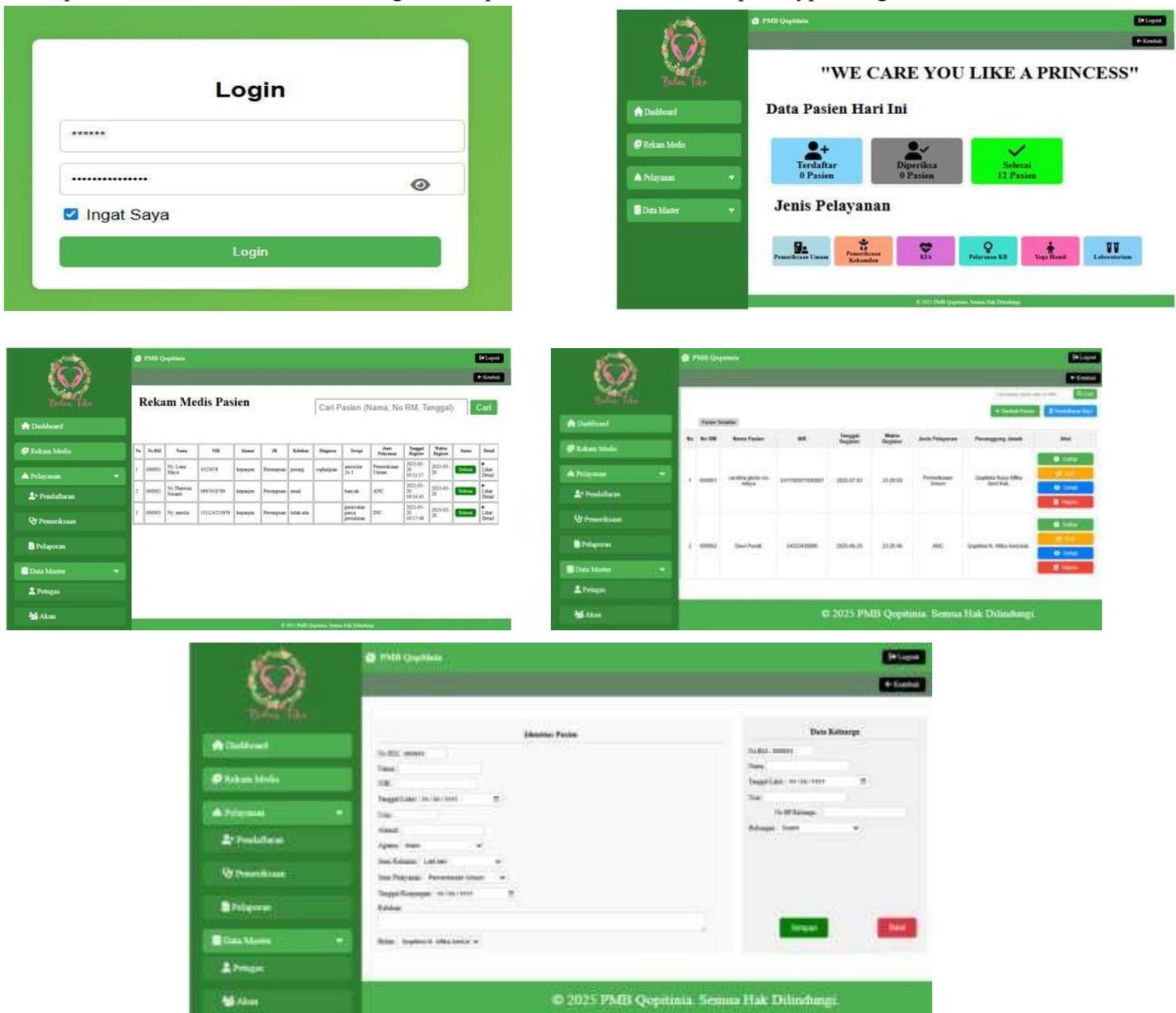


**Figure 2**. Prototype design

**Evaluation**

The final stage of the design process is evaluation. The design evaluation was conducted by testing the developed prototype using the User Experience Questionnaire (UEQ). The User Experience Questionnaire (UEQ) is an evaluation method used to measure user experience through a standardized questionnaire (Schrepp, 2023). UEQ assesses the prototype based on six main dimensions: attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. The UEQ results for the web-based EMR design that was developed are presented in the following table.

**Table 1**. Results of the UEQ Aspect Average Scores

| Aspect | Result |
|---|---|
| Attractiveness | 2,083 |
| Perspicuity | 2,250 |
| Effeciency | 1,875 |
| Dependability | 1,750 |
| Stimulation | 1,750 |
| Novelty | 1,750 |

Based on Table 1, all aspects obtained an average score above +1.00, with the highest score found in the Perspicuity aspect at 2.250. This value indicates that the Perspicuity (clarity) aspect falls into the Excellent category(Fitriana & Yanto, 2020). It signifies that the designed interface is easy to understand, not confusing, and aligned with user expectations. The Attractiveness aspect ranks second-highest with a score of 2.083, which is also classified as Excellent. Meanwhile, the Efficiency aspect falls into the Good category with a score of 1.875, indicating that the system is considered efficient but can still be improved to provide a more optimal user experience. The Dependability, Stimulation, and Novelty aspects each scored 1.750. Although these values are not as high as the Efficiency aspect based on the UEQ benchmark scale, all three still fall within the Excellent category.

The six UEQ aspects are then grouped into three categories as shown in Table 1, namely Attractiveness, Pragmatic Quality, and Hedonic Quality, in accordance with the evaluation structure established by the UEQ. The Attractiveness category consists of only one aspect, Attractiveness itself, with a score of 2.08. The Pragmatic Quality category includes three aspects—Perspicuity, Efficiency, and Dependability. The average value of this category is calculated by summing the three scores and dividing them by three, resulting in an average of 1.96. The Hedonic Quality category consists of two aspects, Stimulation and Novelty, whose scores were summed and divided by two, producing an average score of 1.75. Based on these three grouped categories, Attractiveness obtained the highest score, indicating that users give a highly positive assessment of the overall impression of the interface.
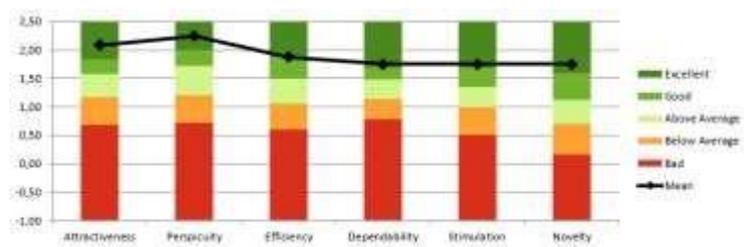


**Figure 3**. Results of the Benchmark Scale Comparison

## DISCUSSION
### Interpretation of Key Findings

PMB Qopitinia Nurul Alfika is one of the healthcare facilities located in the Kepanjen District. As a healthcare provider, PMB Qopitinia is obligated to maintain medical records. The medical record management system implemented at PMB Qopitinia is still manual, in which patient data are recorded directly in a register book. This practice is not yet aligned with government regulations on

medical record management, as mandated in the Ministry of Health Regulation (PMK) No. 24 of 2022, which requires all healthcare facilities to implement electronic medical records. The process of implementing electronic medical records (EMR) must be carried out from the patient's initial visit until the completion of services, including discharge, referral, or death.

The documentation of medical records at PMB Qopitinia has not yet been carried out based on written Standard Operating Procedures

(SOP). The recording process is performed manually by referring to the available forms. All medical record documentation activities are conducted according to long-standing practices, without a systematic guideline that regulates the workflow and content of healthcare documentation. This condition does not comply with the government regulation stated in the Ministry of Health (Kemenkes RI, 2022), which requires all healthcare facilities to have clear SOPs for medical record management.

The continued use of manual medical record management at PMB Qopitinia is due to the absence of a digital system that supports electronic recording and storage of patient data. Manual documentation requires a high level of accuracy and is time-consuming. Additionally, paper-based records are prone to errors such as misplaced data, missing documents, or difficulties in retrieving information. This makes manual medical record documentation less efficient. This finding is in line with (Wahyuni et al., 2025), who stated that manual medical record usage tends to be ineffective, particularly regarding longer data retrieval times and difficulties in consolidating fragmented and non-integrated patient information. Therefore, the implementation of electronic medical records is necessary to address these issues, as electronic systems offer advantages over conventional paper records, particularly in terms of efficiency. (Ikawati, 2024) further explained that the implementation of electronic medical records (EMR) ensures data integrity and accuracy and serves as a strategic solution for improving financial efficiency, accessibility, and the quality of hospital services. EMRs enable faster and easier access for healthcare providers, reduce the risk of data loss or duplication, and enhance care coordination among professionals.

The design of the electronic medical record application was developed based on the activities performed by users at PMB Qopitinia. The development of the electronic medical record application takes into account the aspects of User Interface (UI) and User Experience (UX), as UI and UX play a crucial role in shaping the user's initial impression and overall interaction with the system. A well-designed UI supports the creation of an optimal User Experience (UX) (Hanifa, 2022). The design of the electronic medical record system at PMB Qopitinia was carried out because the facility still relies on manual medical record documentation.

User Interface (UI) and User Experience (UX) can be designed using various design methodologies, one of which is the Activity-Centered Design (ACD) method that focuses on user activities. The ACD method consists of several stages, one of which is implementation. Implementation is the stage where the software that has been designed is applied and fully executed. At this stage, the system is ready to be operated by the client who requires the application.

The implementation of the electronic medical record application at PMB Qopitinia was carried out through the deployment of a web-based system developed according to the activities and needs of the healthcare practice. The implemented system is an interactive prototype designed to realistically represent the main functions of the application. This prototype includes features such as login, dashboard, patient registration, examination, reporting, and logout, all of which reflect the actual service workflow within the practice environment.

These features were designed to support service efficiency, reduce manual documentation, and facilitate digital access to patient information. This aligns with the findings of Ikawati (Ikawati, 2024), who stated that the implementation of Electronic Medical Records (EMR) is essential for healthcare management in addressing medical record challenges, as it ensures data integrity and accuracy, and serves as a strategic solution to improve financial efficiency, accessibility, and service quality. EMRs enable faster and easier access for healthcare professionals to retrieve necessary information, reduce the risk of data loss or duplication, and improve coordination of care between professionals. The implemented UI/UX of the electronic medical record system is expected to be an appropriate solution for PMB and assist in streamlining documentation and reporting activities at PMB Qopitinia.

The final stage of the design process is evaluation. The design evaluation was carried out by testing the developed prototype using the User Experience Questionnaire (UEQ). The UEQ is an evaluation method used to measure user experience through a standardized questionnaire (Schrepp, 2023). UEQ was selected by the researchers because it is capable of evaluating the system design from various aspects and rating scales, providing more comprehensive evaluation results. The UEQ assessment was performed by inputting the

questionnaire responses into the provided Microsoft Excel scoring tool. Based on the data analysis, the highest score was obtained in the Perspicuity aspect. The Perspicuity aspect measures how easily the UI can be understood and operated by users. A high score in this aspect indicates that the system design provides clear navigation and information, enabling users to quickly understand the functions and workflow without confusion. High clarity is essential to improve comfort and effectiveness in user interaction with the system (Jain et al., 2016).

The average scores for each UEQ aspect were obtained from the questionnaire responses completed by the participants. The six aspects were then grouped into three main categories: Attractiveness, Pragmatic Quality, and Hedonic Quality(Kinanthi & Setiyawati, 2021). The Attractiveness category stands alone and does not consist of sub-aspects. Pragmatic Quality is formed by three aspects—Perspicuity, Efficiency, and Dependability—while Hedonic Quality consists of two aspects, Stimulation and Novelty. The Attractiveness score is taken directly from its average value(Syahbaniar et al., 2025). The Pragmatic Quality score is calculated by summing the average values of its three aspects and dividing them by three. The Hedonic Quality score is calculated by summing the values of its two components and dividing them by two(Pratiwi et al., 2023).

Based on the comparison of the average scores with the UEQ benchmark scale established by Yudhanto (Yudhanto & Susilo, 2024), the highest score was found in the Perspicuity aspect, with a score of 2.25, which falls into the Excellent category. This indicates that the system is highly easy for users to understand. Three other aspects—Dependability, Stimulation, and Novelty—also fall into the Excellent category with scores of 1.75, reflecting that the system is reliable, engaging, and provides a pleasant experience. Meanwhile, the Efficiency aspect obtained a score of 1.88, categorized as Good, indicating that the system is fairly fast and efficient to use. Since most aspects fall into the Excellent category, it can be concluded that the system delivers a very good user experience and has successfully met its design objectives.

## CONCLUSION

This study demonstrates that PMB Qopitinia still relies on manual medical records, which are inefficient and prone to errors, indicating the need for a web-based electronic medical record system to improve accuracy and service efficiency. The designed EMR system was developed according to user activities and needs, with a strong focus on UI/UX principles. The evaluation results using the UEQ show that the Perspicuity aspect achieved the highest score in the Excellent category, indicating that the system is easy to understand and operate. Other aspects Attractiveness, Dependability, Stimulation, and Novelty also fall within the Excellent category, while Efficiency is categorized as Good. Overall, the system provides an excellent user experience and successfully meets the intended design objectives. Future researchers are expected to continue this study by conducting the hosting process for the web-based EMR application so that the system can be accessed online by users anytime and anywhere. This is essential to improve flexibility, ease of access, and to support the smooth operational workflow of PMB Qopitinia in delivering healthcare services.

From a practical perspective, the findings of this study provide important implications for the management of Independent Midwife Practices and the development of EMR systems in primary healthcare facilities. The proposed UI/UX design can serve as a reference model for other PMBs seeking to transition from manual to electronic medical records by aligning system features with actual service workflows. However, several limitations should be acknowledged. This study was conducted in a single PMB setting, which may limit the generalizability of the design to other practices with different operational characteristics. In addition, the EMR system has not yet been implemented in an online hosting environment or integrated with broader health information systems. Therefore, future development should focus on system deployment, online accessibility, and interoperability to ensure wider applicability and sustainable implementation in primary healthcare services.

## BIBLIOGRAPHY

Fitriana, D., & Yanto, A. (2020). Analisis User Experience (Ux) Fitur Marketplace Facebook. *Jurnal Ekonomi Dan Teknik Informatika*, *8(2)*, 2579–3322. https://e-journal.polsa.ac.id/index.php/jneti/article/view/151/99

Gay, G. (2017). *Activity-Centered Design: An Ecological Approach to Designing Smart Tools*. MIT Press.

Hanifa, R. (2022). *Perancangan User Interface (UI) Berdasarkan User Experience (UX) Pada Aplikasi Perpustakaan UIN Jakarta Menggunakan Metode User Centered Design*. Universitas Islam Negeri Syarif Hidayatullah Jakarta.

Ikawati, F. R. (2024). Efektivitas Penggunaan Rekam Medis Elektronik Terhadap Peningkatan Kualitas Pelayanan Pasien di Rumah Sakit. *Ranah Research : Journal of Multidisciplinary Research and Development*, *6(3)*, 282–292.

Ilmi, L. R., Barokah, L., & Zolekhah, D. (2024). Rekam Medis: Desain, Manfaat dan Penerapannya di Praktik Bidan Mandiri Ummu Hani Yogyakarta. *Indonesian of Health Information Management Journal (INOHIM)*, *12(01)*, 58–65.

Jain, R., Dutta, R., & Tandon, R. (2016). *Clear, Concise and Effective UI: Opinion and Suggestions*. Mc Graw.

Peraturan menteri kesehatan Republik Indonesia nomor 28 tahun 2017 tentang izin dan penyelenggaraan praktik bidan, (2017).

Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 Tentang Rekam Medis, (2022).

Kemenkes RI. (2022). *Peraturan Menteri Kesehatan Republik Indonesia No.6 Tahun 2022 tentang Penggunaan Jasa Pelayanan Kesehatan Dan Dukungan Biaya Operasional Pelayanan Kesehatan Dalam Pemanfaatan Dana Kapitasi Jaminan Kesehatan Nasional Pada Fasilitas Kesehatan Tingkat Perta*. Kemeneterian Kesehatan RI.

Kinanthi, W. C., & Setiyawati, N. (2021). Perancangan dan Evaluasi User Experience Aplikasi Virtual Event Menggunakan User Experience Questionnaire. *Jurnal Sains Komputer & Informatika (J-SAKTI*, *5*(2), 973–987.

Maulana, M. D., & Meriska, D. . (2024). Perancangan UI/UX aplikasi penjualan alat bulutangkis berbasis mobile menggunakan metode activity center design (ACD). *Merkurius : Jurnal Riset Sistem Informasi Dan Teknik Informatika*, *2(5)*, 52–61.

Muchtar, A., Rumiatun, D., Mulyat, E., & Nurrochmi, E. (2016). *Buku Ajar Kesehatan Ibu dan Anak*. Pusat Pendidikan dan Pelatihan Tenaga Kesehatan.

Perbawa, D. S., & Meyliana, A. (2022). Rancang Bangun Aplikasi Sistem Pendaftaran Rekam Medis Rawat Jalan di Bidan Praktik Mandiri Sri Sayekti Kebumen. *Journal Speed-Sentra Penelitian Engineering Dan Edukasi*, *14(2)*, 14–20. https://repository.bsi.ac.id/repo/files/341202/download/759-992-1-SM.pdf

Portal Satu Data Indonesia. (2024). *Data Statistik Jumlah Praktik Bidan Mandiri*.

Pratiwi, M. A., Syahbaniar, D., & Robbani, A. H. (2023). WIDYA (Web Information Dialog Your Assistant): AI-powered chatbot for library online service innovation. *Jurnal FPPTI*, *1(1)*, 42–52.

Rojiyyah, U. (2021). *Perancangan user interface dan user experience pada video conference jitsi meet menggunakan REACTJS*. Universitas Hasanuddin.

Rubiyanti, N. S. (2023). Penerapan Rekam Medis Elektronik di Rumah Sakit di Indonesia : Kajian Yuridis. *ALADALAH: Jurnal Politik, Sosial, Hukum Dan Humaniora*, *1*(1), 179–187.

Sadewa, M., Sujaya, M., Gunawan, I., & Indrawan, G. (2024). Evaluasi Pengalaman Pengguna Website PPID Undiksha Dengan Metode User Experience Questionnaire (UEQ). *INSERT: Information System and Emerging Technology Journal*, *5(1)*, 1–11. https://doi.org/https://doi.org/10.23887/insert.v5i1.70383

Saefulloh, F. R., Ferdiansyah, M. S., Abdussalaam, F., & Sari, I. (2023). Desain Tata Kelola Rekam Medis Berbasis Elektronik Dalam Sistem Sensus Harian

Rawat Jalan. *JUSIFO (Jurnal Sistem Informasi)*, *9(1)*, 23–32.

Schrepp, M. (2023). *User Experience Questionnaire Handbook.* https://doi.org/https://doi.org/10.13140/RG.2.1.2815.0245

Suhendri, D. S. (2024). *Desain User Interface (UI)/User Experience (UX) Menggunakan Figma*. Penerbit Adab.

Syahbaniar, D., Wulandari, I., Agustin, A. G., Zulfa, I., & Pratiwi, M. A. (2025). UI/UX Design of Website-Based Electronic Medical Records in Midwife Independent Practices. *International Journal of Medical Information and Knowledge Insights*, *1(1)*, 1–10.

https://ijmiki.org/index.php/IJMIKI/article/view/1

Wahyuni, F. A., Jamil, N. M., Firdaus, D., Kesehatan, I., Tinggi, S., & Kesehatan, I. (2025). Faktor Penghambat Penerapan Rekam Medis Elektronik di Rawat Jalan Puskesmas Balen Bojonegoro. *Jurnal Pendidikan Tambusai*, *9*, 24481–24490.

Wasilah, L. A. (2023). *Perancangan Dan Evaluasi Ui / Ux Rekam Medis Klinik Dengan Metode Task Centered System*. Universitas Islam Negeri Syarif Hidayatullah.

Yudhanto, Y., & Susilo, S. A. (2024). *Panduan UI/UX Aplikasi Digital*. Elex Media Komputindo.