



## Electronic Retrieval System Design for Outpatient Medical Record Filling at Puskesmas Lubuk Buaya Padang

Hendra Nusa Putra  
STIKES Dharma Landbouw  
Padang, Indonesia  
[nusahendra@gmail.com](mailto:nusahendra@gmail.com)

Maisharoh  
STIKES Dharma Landbouw  
Padang, Indonesia  
[maisweetz86@gmail.com](mailto:maisweetz86@gmail.com)

Ns. Dian Sari  
STIKES Dharma Landbouw  
Padang, Indonesia  
[dian\\_sari83@yahoo.co.id](mailto:dian_sari83@yahoo.co.id)

### ABSTRACT

*Retrieval or what is known as a delay in returning medical record files is often the result of delays in patient care. The results of a survey conducted at the Lubuk Buaya puskesmas found that the implementation of retrieval was still not optimal and there was a lack of supervision at the manager level. The purpose of this study was to design an electronic retrieval system for medical record filling at Puskesmas Lubuk Buaya Padang. The research was conducted at Puskesmas Lubuk Buaya Padang using the Research and Development (R&D) method. Researchers interviewed 4 people consisting of 1 head of medical records and 3 medical record officers to get an overview of the problems in the retrieval process manually and to test the retrieval application. The results of the study obtained a design with development using the Unified Modeling Language (UML), namely the Use Case, Activity Diagram, Class Diagram, Sequence Diagram which ultimately produces an electronic retrieval application. Researchers find that the lack of supervision of the process of returning medical records and SOPs is running fully so it is increasingly necessary to apply electronic retrieval. The electronic retrieval application has been designed and tested. Positive responses from officers where this application can be easily operationalized so that problems in delays in returning medical record files can be minimized. The application is expected to be used in other health centers with feasibility trials at each puskesmas.*

**Keywords:** *Medical Record, Design, Application, Electronic Retrieval*

### I. INTRODUCTION

The medical record at the puskesmas is the center of one of the health service institutions which becomes the fulcrum of useful information for recipients. Medical Record is a file containing notes and documents about patient identity, examination, treatment, actions and other services that have been provided to patients. A complete medical record is a medical record that has been completed completely by a doctor in less than 24 hours after the completion of outpatient services or after an inpatient is decided to go home. The return of medical record documents is declared late if the time limit for returning is a maximum of 2x24 hours after the patient is discharged from the hospital. This delay will hinder the implementation of the duties of the medical record assembling section which can have an impact on the obstruction of patient services due to the return of medical records. The patient's medical record file that has been filled in by the doctor must be returned to the medical record unit no later than 2 x 24 hours. The admissions officer checks the completeness of the medical record file and writes in the expedition book the medical record file acceptance from the room. (Depkes RI, 2006). The problem that is often found in retrieving medical records (Retrieval) is that medical records are not found when the storage staff searches for or retrieves the required medical



records on the storage shelf, thus overwhelming the officers in looking for medical records when medical records are needed. Information technology is any form of technology that is applied to process and transmit information in electronic form. Information technology has also been applied to the medical field. Many health care facilities use information systems for transactions related to patient medical personnel, one of which is an information system used to record medical records electronically. The computerized medical record system can reduce human errors (human error) in doing its work and can improve the quality of services provided to each patient who is treated. Based on the results of the interview the author did on March 30, 2019 at the Lubuk Buaya puskesmas. The data shows that the implementation of the medical record return (Retrieval) is still not running according to the established SOP. This made it difficult for the officer to check whether the file had returned to the filing section. This is because the retrieval process has not been carried out, because the process of returning medical records has not been carried out according to the established SOP. Researchers have encountered several problems with the file return system from poly to the medical record room, namely files that have returned from poly, there is no record that the file has returned to the medical record filling room, there is no register book to record that the file has returned to the room, there is no electronic system in order to make it easier for officers to find missing files and the lack of manpower in medical records causes the process of recording medical record file returns in the filling room not to be carried out. Based on the description above, the researcher conducted research on “Designing an Electronic Retrieval System in Medical Record Filling at the Lubuk Buaya Public Health Center, Padang in 2019”.

## II. RESEARCH METHOD

This research was conducted using research and development methods (Research and Development). According to Sugiyono (2016: 297) Research and development is a research method used to produce certain products and test the effectiveness of these products. Researchers conducted research on Electronic Retrieval System Design for Medical Record Filling at Puskesmas Lubuk Buaya Padang in 2019. The research design in scientific writing is formulated with the aim of having a clear direction and targets to be achieved in research. A research design can also be called a sketch and a design as a research plan, so that research is clear and well formulated, the research design in this proposal uses the stages of the Research and Development (R&D) method.

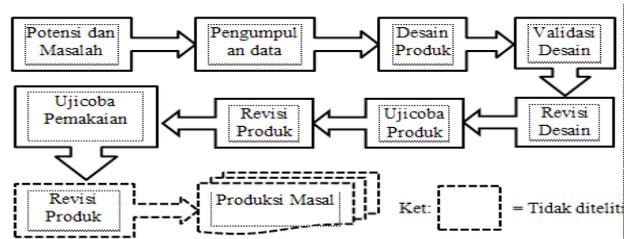


Figure. 1

Stages of Research in Designing Electronic Retrieval System Applications in Medical Record Filling at Puskesmas Lubuk Buaya Padang

## III. RESULT AND ANALYSIS

Systems Development Method

Use Case Diagram

The system development in this study was carried out using the Use Case Diagram, which in this study the actor was a medical record officer who was carrying out the process of retrieval of medical record files.

Database Specifications

In the medical record retrieval system that is designed, there are three tables as a storage area or database, namely.

**Electronic Retrieval System Design**

Field Name	Data Type
IDUSER	Text
NAMA	Text
STATUS	Text
PASSWORD	Text

**Figure.2** User Table View Design

Field Name	Data Type
NO_RM	Text
NAMA	Text
TGL_LAHIR	Date/Time
JENIS_KELAMIN	Text
ALAMAT	Text
NAMA_KK	Text
KELURAHAN	Text
KODE_KELURAHAN	Number

**Figure.3** User Table View Design

Field Name	Data Type
NO_RM	Text
NAMA_PEMINJAM	Text
TGL_PEMINJAM	Date/Time
TUJUAN_PEMINJAM	Text

**Figure.4** Design of View Table Distribution of medical records

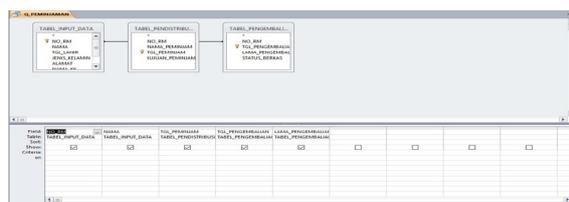
Field Name	Data Type
NO_RM	Text
TGL_PENGEMBALIAN	Date/Time
LAMA_PENGEMBALIAN	Text
STATUS_BERKAS	Text

**Figure. 5** Design of View Table of Medical Record Returns

Field Name	Data Type
NO	Number
NO_RM	Number
TGL_PEMINJAMAN	Text
TGL_PENDISTRIBUSIAN	Text
KETERANGAN	Text

**Figure. 6.** Design View Table Search for medical records

**Query Design**



**Figure.7.** Query Design

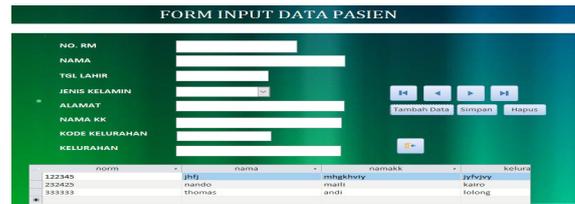
**Electronic Retrieval Application Display**



**Figure. 8** Login Form Display



**Figure. 9** Main Menu Form Display



**Figure. 10** Display Data Input Form



**Figure. 11** Display of Medical record Distribution Form



**Figure. 12** Display Medical record Return Form



ID	Tanggal	Status	Status Kembali
333333	08/08/2019	-1	Kembali Kembali
454342	09/08/2019		Belum Kembali

**Figure. 13** Display Medical record Search Form

#### A. Database Analysis

The administration of medical records is a process of activity that begins at the time of receipt of a patient and is continued with recording the patient's medical data. As long as the patient gets medical services at the health center and. Puskesmas Lubuk Buaya Padang has not used a computerized retrieval system. System development in this research, namely, system design with Microsoft access/ which functions in searching and controlling medical records to minimize files that are not found, with the electronic retrieval application it is hoped that it can help officers in monitoring the return and borrowing of medical record files from the polyclinic. Planning for the electronic retrieval application at Puskesmas Lubuk Buaya Padang, has the data needed, such as data input tables that are used to enter complete patient data, the medical record distribution table in the application has a function to enter medical record borrower data, a rm return table that has a function to enter medical record status data that has returned to the medical record unit, a medical record search table which has a function to facilitate the work of officers whose function is to search and monitor the status of medical records whether they have returned to the medical record unit.

#### B. System Design Planning

*System design is to find problem-solving strategies and develop the best solutions to*

*these problems to be implemented. At this stage the researcher designed the system using several stages (Huliyah & Subiyakto, 2011). Puskesmas Lubuk Buaya Padang is currently using the Next Generation E-Puskesmas system which is integrated with the City Health Office but only for outpatient care, while in the filing section there is no computerized system so that development and design must be carried out to optimize services in the filing section. . The system development in this research is system design with Microsoft Access which functions to monitor the return of medical record files from polyclinic to filling or vice versa.*

#### C. Use Case

A Use Case diagram states a visualization of the interactions that occur between the user (actor) and the system. This diagram can be a good illustration to explain the context of a system so that the boundaries of the system are clear (Larman, 2005). There are 2 important elements that must be described, namely actors and UC. An actor is anything that interacts directly with the system, either a person (indicated by his role and not his name / personnel) or another computer system. Actors are denoted by the symbol of a person (stick-man) with the name of the noun at the bottom representing the role / system. Actors can be primary, namely those who initiate the running of a UC, or secondary, namely those who help run a UC. UC is denoted by an ellipse symbol with the active verb name inside that represents the activity from the perspective of the actor. It is possible for each actor to interact with the system in multiple UCs. On the other hand, each UC can be run by more than one actor (Kurniawan, 2018). Use cases are modeling for the behavior of an information system to be created. Use case describes

an interaction between one or more actors with the information system to be created. Roughly speaking, use cases are used to find out what functions are in an information system and who has the right to use those functions. The use case in designing this electronic expedition application describes an interaction of the medical record officer as an actor who will run this expedition system with various system functions, in this use case the system has actors running logins, master data, polyclinics, doctors, patient data input, input distribution, and input data returns.

#### D. Activity Diagram

Activity Diagram an activity diagram describes the workflow or activity of a system or business process. The activity diagram depicts system activity not what actors do, so activities can be carried out by the system (Setiady, n.d.). Activity diagrams describe the workflow (work flow) or activities of a system or business process or menu in the software. The activity diagram in designing the electronic expedition application describes the activities of the electronic expedition system, such as the initial system from the system login to the master data, the master data system has several more sub-systems, such as in the activity diagram table in the research results chapter. The activity diagram that needs to be considered here is that the activity diagram depicts the activity of the system, not what the medical record officer (actor) does, so the activity can be carried out by the system

#### E. Flowmap

According to Al Bahra Bin Ladjamudin (2006: 265) flowmap is a chart that shows a sequence of instructions depicted with certain symbols to solve problems in a program. Flowmap is a model to describe

a chart that shows the process in the system showing the media input, output and type of medical storage in the data processing process.

#### F. Application Trial

The trial on this electronic retrieval application is to provide direct socialization to medical record officers who will operate this electronic retrieval application. Testing on this application was carried out to determine the ability of the electronic retrieval application and responses from officers and the head of the Lubuk Buaya Padang Medical Record. The process of testing the electronic retrieval application is carried out by direct observation by running the application with medical record officers with various system stages that will be carried out by medical record officers. The stages in running this electronic expedition application starts from when we open the application we enter the login view, login here functions on the first page when you want to open the application by entering the username and password, after successful login goes directly to the main menu in which there is a data input item, medical record distribution, medical record return, medical record search and exit. Furthermore, the data input stage functions to enter general patient data, then the medical record distribution stage functions to enter medical record borrower data, where the officer enters the norm data, the name of the borrower, the date of the loan and the purpose of the loan. Furthermore, the medical record return stage functions to enter medical record status data that has returned to the medical record unit, where the officer enters the medical record number data, return date, return time, and file status. The last stage is the search for medical records, which functions to search and monitor the status of the medical



records, whether they have returned to the medical record unit by means of the officer entering the medical record number. When the overall process of operating this application has no problems and officers can easily run this application, then it has a good impact because it can reduce obstacles in the process of returning medical records and can help in seeing all activities from medical records and it is very good if applied at Puskesmas Lubuk Buaya.

#### IV. CONCLUSION

The implementation of the return has not been carried out properly at the Puskesmas Lubuk Buaya Padang, both in terms of recording in the return book, and also monitoring. The development and design of the system using use cases, activity diagrams, and flow maps has been carried out and conducted trials of electronic expedition applications that will be utilized by the Puskesmas Lubuk Buaya Padang in implementing retrievals.

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