

## COMPUTERIZED FILING OF MEDICAL RECORD DOCUMENTS

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### Abstract

Filing is a medical record data processing unit that is responsible for the existence of medical record documents. The medical record document is a written record of the patient's medical history used by health workers when the patient's service process causes the medical record document to be quickly available and traceable. PKU Aisyiyah Boyolali Hospital was chosen as a case study in this study. It is often found not to record documents out of filing, do not have tracer, document misfeeds (misfile), return of late medical record documents and difficulties in tracking the existence of medical record documents. The purpose of this study is to build a computer application to process data in the filing unit. Furthermore, making computer applications through stages: (1) identification of problems; (2) designing and; (3) implementation, able to produce computer applications that can produce: (1) tracer; (2) record borrowing medical record documents; (3) record the return of document records medical and; (4) processing loan report, return and control of medical record documents.

**Keywords: computerized, medical record document, patient, application**

### 1. INTRODUCTION

Medical Records contain notes about patient identity, examination, treatment, actions, and services, others that have been given to the patient [1]. The medical record is stored in the filing unit which has the main task of maintaining the security of medical record documents; search, store, provide medical record documents [2]. Medical record documents often come out of filing storage and are borrowed by health workers for a number of purposes between the patient's service process in the clinic, lending for research and emergency services [3]. Rules for documents coming out of medical records are documents that cannot be exited from filing rooms without proof of borrowing (tracer) [4]. Tracer is in the form of triplicate form, one is stored as proof of medical records on the shelf where the medical record is stored and one is left in the polyclinic or section or the person who borrowed the medical record file [5]. Someone who borrows a medical record document must return at the time specified by the hospital [6]. If the medical record document changes hands, the recipient must record the hand transfer card [7]. The availability of medical record documents also affects the speed of service to patients, in accordance with the Service Standards. Minimum takes less than 10 minutes from patients to register until available at the polyclinic [8].

PKU Aisyiyah Boyolali Hospital as a case study of this research is a facility of health service facilities to organize medical record management, storage, loan and return of medical record documents by filing section. There are still obstacles in the processing of filing medical

record data including : (1) There has been no tracer when the process of borrowing medical record documents has resulted in officers having difficulty in knowing the position of medical record documents and misfiles. The filing officer did not know the existence of the medical record document, so when the medical record document was needed, the filing officer had difficulty finding the existence of the medical record document. The absence of medical record documents causes the time to provide medical record documents that are not in accordance with the established standards, and the misplaced placement of documents causes fatigue of filing officers so that services to patients become disrupted. (2) Every time there is a request to borrow a medical record document from the outpatient unit, the medical record officer records the loan in the expedition book by writing the medical record number, date of exit, initial nurse and initial medical record officer, but returning the medical record document from the outpatient unit do not use handover notes between nurses and medical record officers regarding the correctness of the medical record documents returned. The application program for processing the medical record filling data that was built was intended to produce tracer to find out the existence of medical record documents, facilitate the process of borrowing and return medical record documents and produce report reports in the filling section.

## **2. METHODS**

This research is a descriptive study using information system development. The device needed to create an application is a set of computers with a Windows operating system and program and database creation software. Visual Foxpro 9 programming language was chosen as a program creation software and Foxbase database was used as database management software.

The methods used in the study include (1) identification of problems; (2) designing; and (3) implementation. The stages of problem identification are observed regarding the flow of the loan procedure and the return of medical record documents in the filing section, analysis of user requirements. At the identification stage, we also found weaknesses in the running filling management process, namely the absence of tracer, the loan process which is still manual and there is no handover note available at the time of returning the medical record document. Analysis of user needs results in a user requiring a simple computer application from the display and operation side but is able to fulfill the user's needs for recording loans and returning medical record documents. The design stages include designing data processes that are illustrated through data flow diagrams and designing application interfaces. The implementation stage includes coding the program using Microsoft Visual VoxPro 9.0 which will process patient data, borrower data, data on staff processed into loan transactions and returns, then will produce patient data report output, borrower data reports, officer data reports, loan data reports, return data report, medical record document report has not returned, location report on medical record document lending, medical record document control report, delay report on medical record document and tracer returns.

## **3. RESULTS AND DISCUSSION**

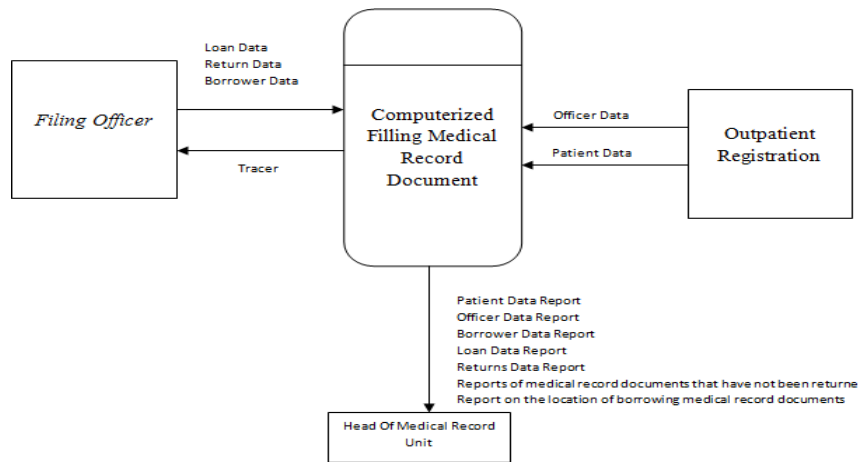
### **a. Flow of Operation of Computer Application Filling Medical Records**

The flow of computer application data filling medical records, namely patient data obtained directly from outpatient registration that storage has been linked to the application filing database. Starting from the filing section as a provider and storage of medical record documents.

When a patient comes for treatment, the medical record document will be borrowed. Print tracer and look for medical record documents on the filing rack. If the medical record document has been found, the medical record document is taken and the position of the medical record document is replaced with tracer. The borrowing process is carried out by recording loans in the loan transaction. Then the medical record document is submitted to the borrower. After the medical record document has been borrowed, it is returned to the filing section to be stored on the filing rack and recorded in the return transaction.

**b. Data Flow Chart**

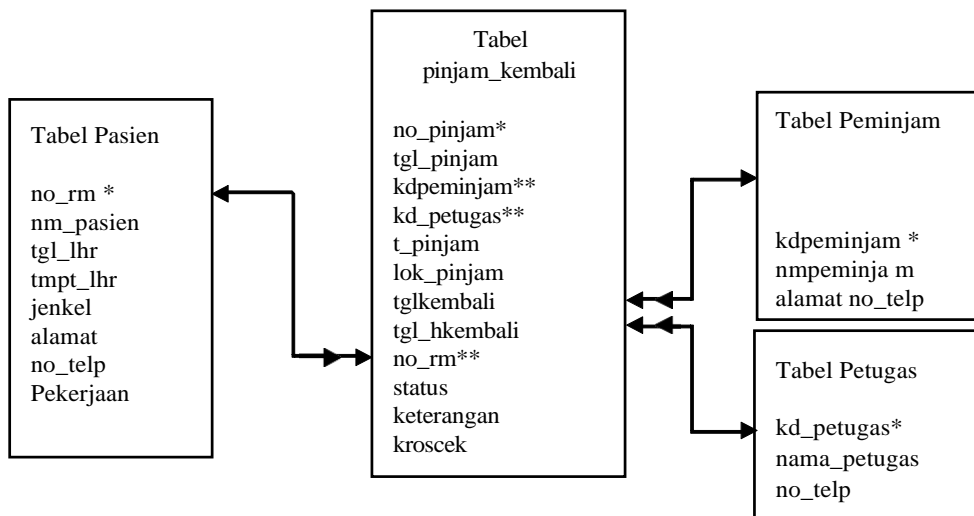
The data flow of the computer application filling the medical record is illustrated through the context diagram in the picture 1.



Picture 1. Context diagram of the application of medical filling record

**c. Relations between Tables**

Database design produces tables that are used for the management process of filling medical record data, these tables are interconnected and related to facilitate the retrieval of data as listed in picture 2 relations between tables.



\* Primary Key    \*\* Foreign Key

Picture 2. Relations Between tables of computer applications data filling medical records

**d. Printout Tracer**

Tracer is the result of a DRM lending transaction that will be printed and serves as a marker that the medical record document has come out of the filing rack. The tracer will be inserted in the filing rack. Tracer is printed in duplicate to be attached to medical record documents and in sub shelf filling.



Picture 3 Tracer medical record documents

**e. The Process of Lending Medical Record Documents**

The recording of borrowing medical record documents is done by registering the borrower, the medical record officer who lends, the need for borrowed medical record documents, the location of the intended medical record document, the medical record number of the borrowed medical record document. When the loan will appear automatically the date the medical record document must be returned.



Picture 4 Recording of Medical Record Document Loans

**f. Process of Returning Medical Record Documents**

The borrowed medical record document must be returned to the filling section before the specified time limit is 1 x 24 hours. The process of recording the return of medical record documents starts from the time the document is returned to the filling room, the officer will look for the no borrowed documents in the application. Borrowing data previously recorded will be renewed. The clerk will record the date of the return of the borrowed medical record document, the medical record officer who received the document and the status of the delay from the document.

Picture 5 Recording of Medical Record Document Returns

**g. Reports**

Computer filling applications can produce reports needed by the medical record unit for processing data. The filling officer can find out the medical record document information that has not been returned to the filling room through a document lending report. In this report, the borrower, the location of the loan, the loan officer is recorded so that the filling officer can trace the existence of the medical record document as shown in picture 6.

No	Nomor Pinjaman	Tanggal Pinjam	Kode Peminjam	No Rm	Nama Pasien	Kode Petugas	Tanggal Harus Kembali	Tujuan Pinjam
1	P00001	15/05/19	F00001	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan
2	P00001	15/05/19	F00002	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan
3	P00001	15/05/19	F00003	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan
4	P00001	15/05/19	F00004	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan
5	P00001	15/05/19	F00005	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan
6	P00001	15/05/19	F00006	000001	Kusuma Purwanto	A00001	16/05/19	Rawat Jalan

Picture 6. Reports on borrowing medical record documents that have not been returned

The filling staff can also find out the list of medical record documents that have been returned, making it easier for filling officers to check the availability of medical record documents on the storage rack as shown in picture 7.

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Jl. Pasar Sapi Baru, Dusun 1, Karanggeneng Boyolali

**LAPORAN PENGEMBALIAN DRM KESELURUHAN**

Tanggal : 16 Mei 2019 Hal: 1

No	Nomor Pinjaman	Tanggal Pinjam	Kode Peminjam	No Rm	Nama Pasien	Kode Petugas Pengembalian	Tanggal Kembali	Tujuan Pinjam	Ket	Kroscek
1	P00001	15/05/19	F0001	00001	Kusuma Purwanto		15/05/19	Rawat Jalan		
2	P00002	15/05/19	F0003	00002	Kusuma Purwanto		15/05/19	Kepentingan Medis		
3	P00003	15/05/19	F0004	00003	Kusuma Purwanto		15/05/19	Penelitian		
4	P00004	15/05/19	F0005	00004	Kusuma Purwanto		15/05/19	Rawat Jalan		

Boyolali, 16 Mei 2019  
Kepala Rekam Medis RS PKU 'Aisyiah Boyolali

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Picture 7. Reports on the return of medical record documents

The filling officer can also find out the list of locations of borrowed medical record documents so that the filling officer can directly contact the person in charge of the clinic / location to coordinate the return of medical record documents.

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**LAPORAN PEMINJAMAN DRM BERDASARKAN LOKASI**

Tanggal : 17 Mei 2019  
Lokasi : Poli Bedah

No	Nomor Pinjaman	Tanggal Pinjam	Kode Peminjam	No Rm	Nama Pasien	Kode Petugas	Tanggal Harus Kembali	Tujuan Pinjam	Status
1	P00001	15/05/19	F0001	00001	Kusuma Purwanto	A00001	16/05/19 07:07:28	Rawat Jalan	DIPINJAM
2	P00002	15/05/19	F0003	00002	Kusuma Purwanto	A00001	16/05/19 07:07:51	Kepentingan Medis	DIPINJAM
3	P00003	15/05/19	F0004	00003	Kusuma Purwanto	A00001	16/05/19 07:08:07	Penelitian	DIPINJAM
4	P00004	16/05/19	F0005	00004	Kusuma Purwanto	A00001	17/05/19 06:42:55	Rawat Jalan	DIPINJAM

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Picture 8. Location of borrowing medical record documents based on location

The filling officer can find out the list of medical record documents that are late returned, the filling officer can find out the date of the document being borrowed and returned, the number of days of delay and other information as shown in picture 9 so that an evaluation can be made of borrowing medical record documents.

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Jl. Pesar Sapi Baru, Dusun 1, Karanggeneng Boyolali

**LAPORAN TERLAMBAT DRM KESELURUHAN**

Tanggal : 16/05/19 Hal 1

No	Nomor Pinjaman	Tanggal Pinjam	Kode Pinjaman	No Rm	Nama Pasien	Kode Petugas Pengembalian	Tanggal Harus Kembali	Tanggal kembali	Ket
1	P00001	15/05/19	F00001	000001	Husuma Purwanto		16/05/19 07:07:28	15/05/19 07:07:28 PM	
2	P00001	15/05/19	F00001	000002	Agus Mardli		16/05/19 07:07:28	15/05/19 07:07:28 PM	
3	P00001	15/05/19	F00001	000003	Lina Miana		16/05/19 07:07:28	15/05/19 07:07:28 PM	
4	P00001	15/05/19	F00001	000004	Nawya		16/05/19 07:07:28	15/05/19 07:07:28 PM	
5	P00001	15/05/19	F00001	000005	Brilian		16/05/19 07:07:28	15/05/19 07:07:28 PM	
6	P00001	15/05/19	F00001	000006	Fatih		16/05/19 07:07:28	15/05/19 07:07:28 PM	
7	P00001	15/05/19	F00001	000007	Aldi		16/05/19 07:07:28	15/05/19 07:07:28 PM	
8	P00001	15/05/19	F00001	000008	Edi Ramayadi		16/05/19 07:07:28	15/05/19 07:07:28 PM	
9	P00001	15/05/19	F00001	000009	Fatur Cahyo		16/05/19 07:07:28	15/05/19 07:07:28 PM	
10	P00001	15/05/19	F00001	000010	Wuluyo		16/05/19 07:07:28	15/05/19 07:07:28 PM	
11	P00001	15/05/19	F00001	000011	Riski		16/05/19 07:07:28	15/05/19 07:07:28 PM	
12	P00001	15/05/19	F00001	000012	Wardaya adi		16/05/19 07:07:28	15/05/19 07:07:28 PM	
13	P00001	15/05/19	F00001	000013	Jumidi Jono		16/05/19 07:07:28	15/05/19 07:07:28 PM	
14	P00001	15/05/19	F00001	000014	yemuarisman		16/05/19 07:07:28	15/05/19 07:07:28 PM	
15	P00001	15/05/19	F00001	000015	Simi Dwi Ariyanti		16/05/19 07:07:28	15/05/19 07:07:28 PM	

Boyolali, 16/05/19  
Kepala Rekam Medis RS PKU Aisyiyah Boyolali

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Picture 9. Reports of returning medical record documents late

**4. CONCLUSION**

The results of this study indicate that the application of computer filling medical record documents has been able to help the medical record unit to be able to process data in filling including tracer, recording borrowing and returning medical record documents and report reports required filling. Computer application filling medical record documents can also help officers to trace the existence of documents and evaluate the process of borrowing and returning medical record documents.

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