# ANALYSIS OF INFORMATION SYSTEM DESIGN IN MEDICAL RECORDS STREET AT 'AISYIYAH PADANG' RSU

1Syamsul Kamal, 2Yuli Mardi

1.2 Department of Medical Records

Apikes Iris Padang

Abstract: Information system design is the process of deciphering a subject and investigating the actual situation in an entity or to find indications of components and important elements in building an information system. In designing a hospital information system, especially the design of a medical record information system, it is very necessary and needed in a hospital as well as the house of 'Aisyiyah Padang. The design of the outpatient medical record information system in the hospital already exists and needs to be analyzed again whether it is relevant for the future or not. In doing the design and analysis of the old system used the method , In conducting this research used the DFD (Data Flow Diagram), ERD (Entity Relation Diagram) method

The purpose of this research is to see and analyze the extent to which the design of the medical record information system is currently running, then look at the weaknesses of this system design and whether the current system design is useful for hospitals or is it still relevant to the current situation and what needs to be developed more specifically, analyze the requirements specification and system design, design the system interface, and evaluate the results of the analysis and design of the system.

The results obtained after conducting research at the 'Aisyiyah General Hospital are the need for ongoing system development because there are still shortcomings and weaknesses in the ongoing system design that is no longer relevant to the current state of the information system, as well as for the development and maintenance of an inpatient medical record information system. the way forward.

Index Terms – Analysis, DFD, ERD, Information System Design, Outpatient Medical Records

## I. INTRODUCTION

A medical record is a collection of facts about a person's life and history of illness, including illness, current and past treatments, written by health practitioners in their efforts to provide health services to patients. [1], according to Permenkes No. 269/MENKES/PER/III/2007 medical records are files containing patient records and documents, such as patient identity, examination results, treatment that has been given, as well as other actions and services that have been provided to the patient. patient [4]

In the 2009 Law of the Republic of Indonesia number 44 concerning hospitals, it is explained that the hospital is a health service institution that provides complete individual health services that provide outpatient, inpatient and emergency care. [2] The hospital is a public health service facility that must provide the best service and is responsible for the health care provided. The way the hospital works is very influential on the progress of the hospital itself, both in services and facilities and infrastructure. Therefore, hospitals are required to provide quality services in accordance with standards and accompanied by adequate supporting facilities, one of which is through the administration of medical records in every hospital health care service.

Hospital Information System is a process of collecting, processing, and presenting hospital data throughout Indonesia. Covers all general and special hospitals, both publicly and privately managed, as regulated in the Indonesian Constitution no. 44 of 2009 [3]

In the development of hospitals, which is the benchmark for hospitals to maintain their existence in the community and develop professionalism in hospital management, one of which is how to design and design medical record information systems. Besides that, the hospital continues to develop a medical record information system in the future, so it is hoped that after the development of an information system, especially medical records, it is hoped that there will be significant changes and developments in the hospital now and in the future. Furthermore, the system that is developed and maintained will not be left behind in the design and model for the next 10 years.

The problems in this research are:

1. How to see the old system design, its advantages and disadvantages

2. How to analyze the current hospital information system, especially the medical record information system

3. How to design and analyze the proposed system so that it can overcome problems and answer all the challenges that exist in the hospital.

In the preliminary study that discusses the design is Dzurriyatul Iflahah's Research on Analysis and Design of Dental Polyclinic Medical Record Information Systems (Case Study: Sumbersari Health Center, Saradan District, Madiun Regency) the fundamental problem in this research. With manual recording of medical records, it is not uncommon for damage or loss to occur. medical record cards, the length of time to search and create medical record cards, and the occurrence of data repetition when transferring patient register data from the register book to Microsoft Excel. To overcome these problems, a computer-based medical record information system is needed [5].

In further research, namely Sali Saliatin on the Design of Medical Record Service Information Systems at the Arcamanik Health Center in Bandung City, said the design of a medical record service information system using the PHP (Hypertext Preprocessor) programming language and MySQL database, so that this information system reduces the occurrence of data duplication, has data storage that is safer and easier to manipulate the data, search for data and easy to get reports. [6]

In the next research, namely Enggryth Yohanita Allo Posende Designing Medical Record Information Systems at the Tendea Dongi Health Center - Tentena. The Tentena Health Center records patient data and examination history in paper form. The process of recording patient identity can be done several times, so there is data redundancy. This paper recording poses several risks, namely writing errors, double notes, and the length of time to write. This can interfere with the quality of Puskesmas services to the community. In this study, a medical record information system application was developed for the Tentena Health Center. The resulting information system functions to record patient data, visit data, treatment and care history data, disease history data and patient family data. Based on the test results, the developed information system is acceptable and suitable for use at the Tendea Dongi Health Center - Tentena. [7]

The main purpose in making research is to analyze the current system, how the modeling is used, then design a new system from the current system analyzer, then see the features used and the costs incurred as a result of developing the new system.

So that later the problem or problem that will be researched is right on target, the problem limits that will be researched and discussed are getting relevant information about hospital information systems, especially the Electronic Medical Record system, looking at hospital forms manually, designing existing systems and later the development of a new system in accordance with procedures and requests from the hospital. Next, see and analyze whether it is appropriate and accurate to design and develop a hospital information system which will later be implemented in the hospital and the impact of developing the system, whether it is profitable from an economic and financial point of view or a loss in terms of purchasing tools in system development. the.

Based on the problems and background as, the author raised a research topic about "Analysis of Medical Record Information System Design at RSU 'Aisyiyah Padang'.

## II LITERATURE REVIEW

### 2.1 Hospital History

'Aisyiyah Padang General Hospital was originally established in 1966 as a maternity clinic where the founders were motivated by the presence of Muslim pregnant women complaining that there were no Islamic maternity homes, so they were forced to give birth and be treated by non-Muslim midwives. West through the A'isyiyah Maternity Clinic Foundation (YKBA) initiated the establishment of the Maternal and Child Health Center (BKIA) in the early seventies.

In 1987 the maternity clinic was upgraded to the 'Aisyiyah General Hospital (RSU-A) Padang and inaugurated by Mr. H. Azwar Anas as Governor of West Sumatra on October 16, 1987, then based on the Letter of Muhammadiyah Regional Leadership (PWM) West Sumatra Number: 629 /H.0/H/2006 dated 09 Rajab in 1427H/03 August 2006 became RSU 'Aisyiyah Padang.

In an interview with the IT head of RSU 'Aisyiyah Padang, it was found that the hospital's information system was already connected or connected to all sectors or all parts, except for the drug warehouse section. For the SIRM application program, PT NOEZADEV works with the company which is contracted annually where the hospital is the user of the application program, where the contract for the use of the program is Rp. 2,000,000 per month.

### 2.2. System

A system based on an emphasis on elements or components is a collection of elements that interact with each other to achieve certain goals and objectives of an organization. From some of these definitions, it can be concluded that the understanding of the system is as follows:

> 1). The system is a network of procedures that are interconnected, gathered together to perform an activity or to complete a certain goal.
> 2). The system is a collection of interrelated elements and is responsible for processing inputs to produce outputs.
> 3). The system is a collection (combination of objects or ideas) that are integrated with each other to achieve certain goals.
> 4). The system is something that has goals and objectives as the end result.
> 5). The system is an order (integration) consisting of a number of functional components that are interconnected and jointly aim to fulfill a certain process or job.

### 2.3. Information Systems

Is a system within an organization that brings together the needs, processing, daily transactions, supporting operations, managerial and strategic activities of an organization as well as providing the necessary reports for certain outside parties.

An information system is a system that provides specific information that supports decision-making processes at every level of the organization. An information system is a set of procedures, methodology, organization, software, and hardware needed to enter and retrieve data needed to run and manage an organization.

An information system is a combination of people, hardware, software, communication networks, data sources, policies and procedures that store, retrieve, transform, and disseminate information within an organization.

The information system will manage health data such as patient medical record data, medical officer data, basic health facility data and so on, then process it into easy-to-understand information in the form of reports [8]

## 2.4 Analysis and design of information systems

Is the process of parsing a subject and investigating the actual situation in an entity or to look for indications of components and important elements in building an information system. In analyzing the design of information systems, a system survey is needed to collect initial data and then process it into a summary of plan information, analyze ongoing information to look for indications and potential subsystems that can be created or revised, and define the needs of system components in order to prioritize components. important.

Information system design is the process by which analysis is translated into a blueprint for building software. A design creates a representation or model of the software, but unlike a requirements model (which focuses on describing the required data, functionality and behavior), a design model provides details about the software architecture, data structures, interfaces, and components needed to implement the system.\
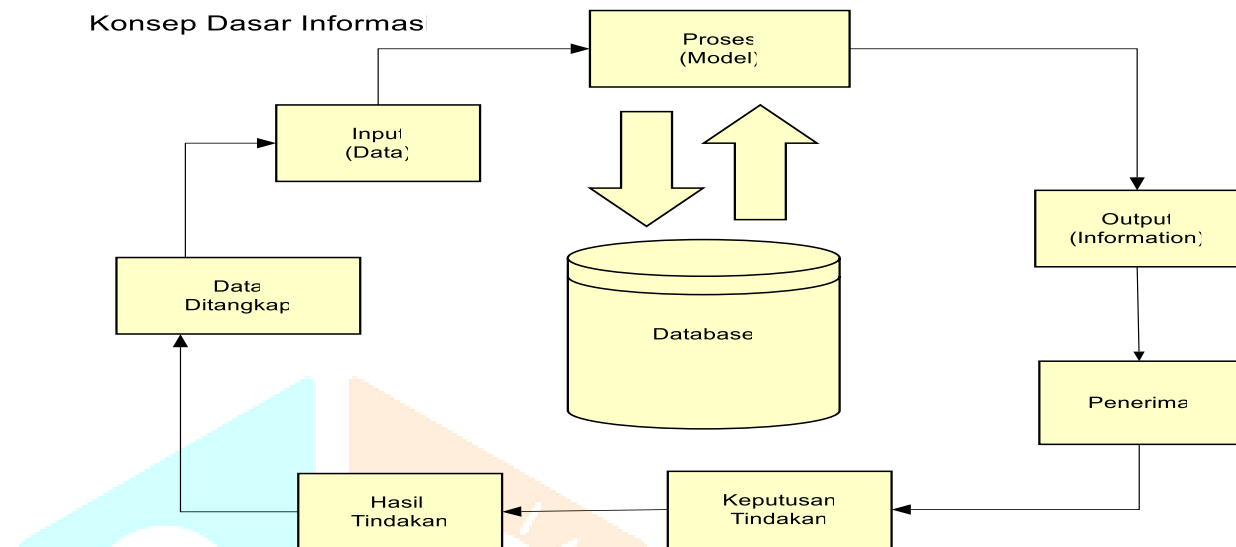


*Figure 1*
*Basic Concepts of Information Systems*

### 2.5 Hospital Information System

Hospital Information System (SIRS) is a process of collecting, processing, and presenting hospital data throughout Indonesia. This information system covers all general and special hospitals, both publicly and privately managed as stipulated in the Law of the Republic of Indonesia Number 44 of 2009 concerning Hospitals. This SIRS is a refinement of the Revised VI SIRS which was compiled based on input from each Directorate and Secretariat within the Directorate General of Health Efforts. This is necessary in order to support optimal data utilization as well as the increasing current and future data needs.

Another definition of SIRS is online-based hospital data reporting, making it faster and easier to get up-to-date information every day. SIRS can only be done on the official website of the Directorate General of Health Efforts and hospitals are required to register before using SIRS. SIRS application is called Hospital Management Information System (SIM-RS)

## III METHOD

### 3.1 Time And Place

This research was carried out at the Aisyiyah General Hospital located at Jalam Gor Haji Agus Salim Padang in September 2021, after conducting the research approximately a week later, data processing and analysis were carried out and the design of an outpatient medical record system at the 'Aisyiyah Padang general hospital.

### 3.2 RESEARCH METHODS

In conducting this research, in addition to using interviews and direct field observations, the authors also conducted research methods through 4 (four) stages, namely:

1. Analyze needs and collect data,
2. Designing a proposed outpatient medical record information system
3. Implementation of the proposed outpatient medical record information system
4. System Testing and analyzing system test results

**Metode Penelitian**
**Perancangan Sistem Informasi Rekam Medis**
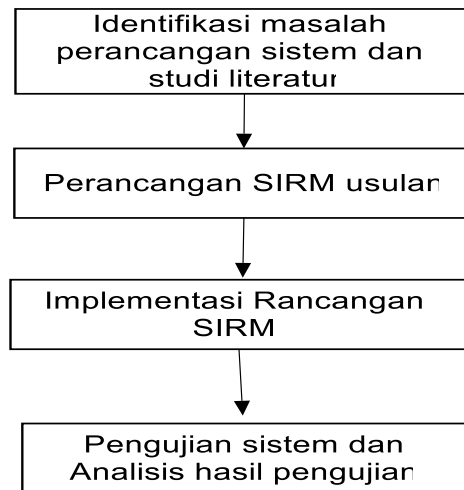**di RSU 'Aisyiyah Padang**



*Figure 2*
*Research Stages*

## IV RESULTS AND DISCUSSION

After conducting interviews with the head of IT, head and staff of Medical Records and the casemix section about the existing Hospital Information System, processing data and forms related to medical records in the field for this study. From the research results obtained from interviews and information collected in the field about the existing system design, here we can analyze and design a medical record information system for inpatients and the design can be seen in the image below:

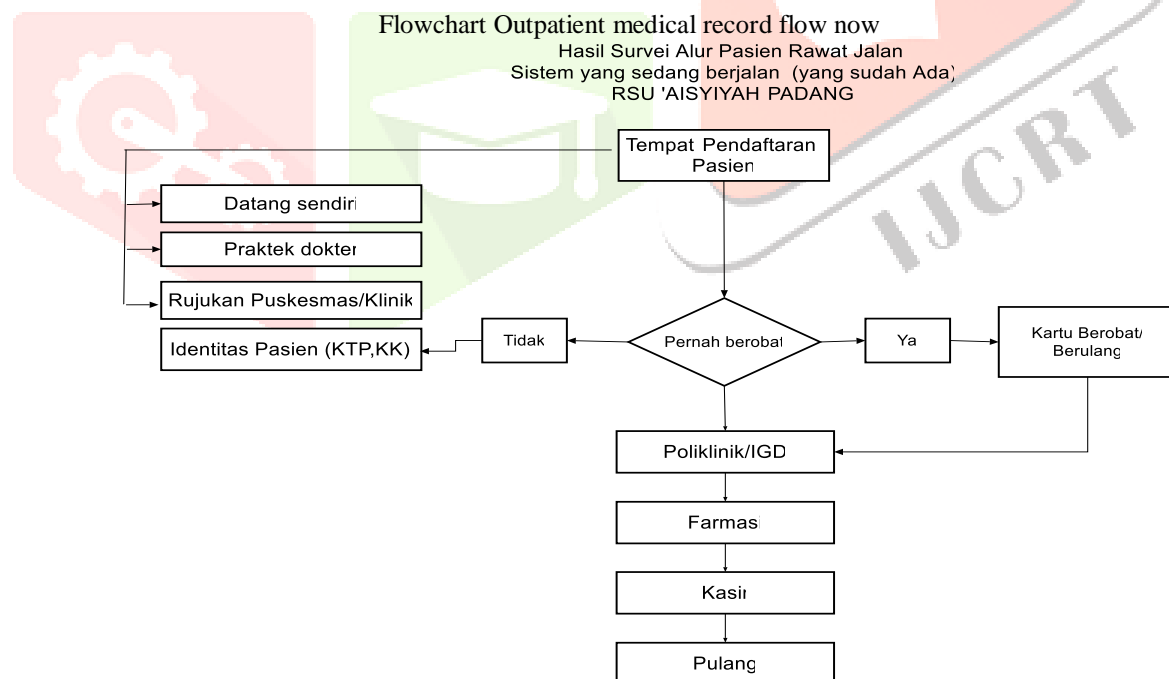## 4.1 Outpatient Medical Record Flow is In Progress



*Figure 3*
*Flow of Outpatient Medical Records at RSU 'Aisyiyah Padang*

## 4.2 Proposed Outpatient Medical Record Flow

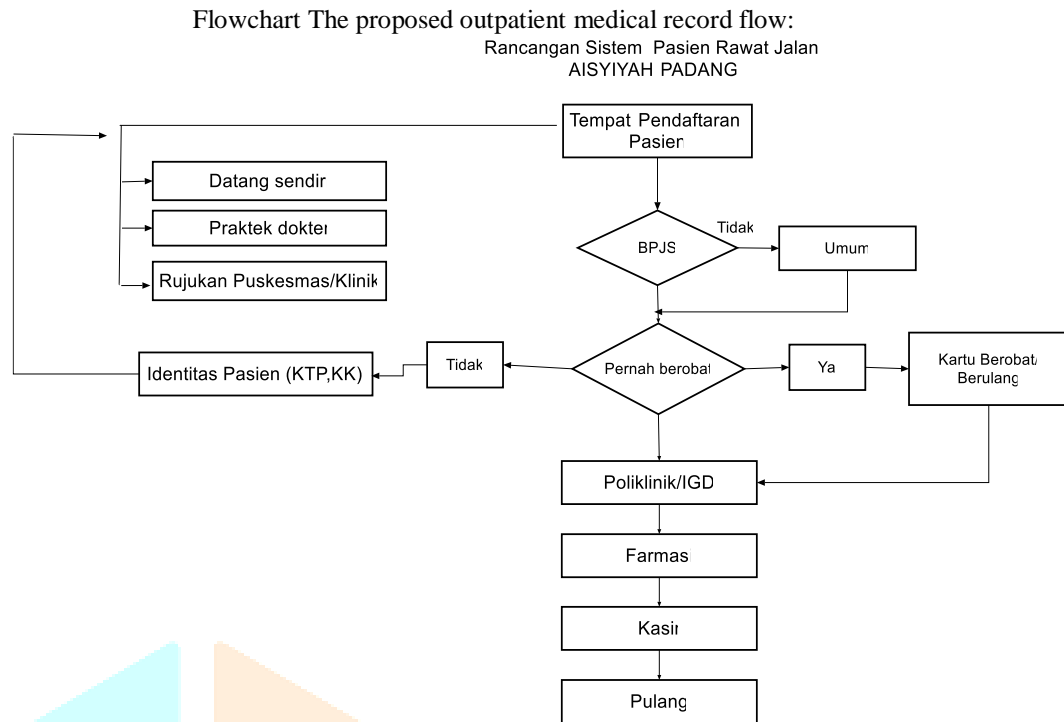Flowchart The proposed outpatient medical record flow:



*Figure 4*
*Outpatient Medical Record Flow Proposed at RSU 'Aisyiyah Padang*

In the proposal for this outpatient medical record flow, the author proposes the steps or procedures are:

1. Patients come to the hospital (Come in person, Doctor's Practice or Referral Rs)
2. Furthermore, at patient registration, they are asked whether they are BPJS patients or the general public, if BPJS or the general public are asked whether they have received treatment
3. The patient is asked whether the patient is new, old if the old patient is given a re-treatment card, if it is new patient data collection
4. Patients go directly to the polyclinic to get health service facilities
5. The patient waits for the medicine and pays at the cashier if it is public, if the patient's BPJS has been covered
6. Patient goes home

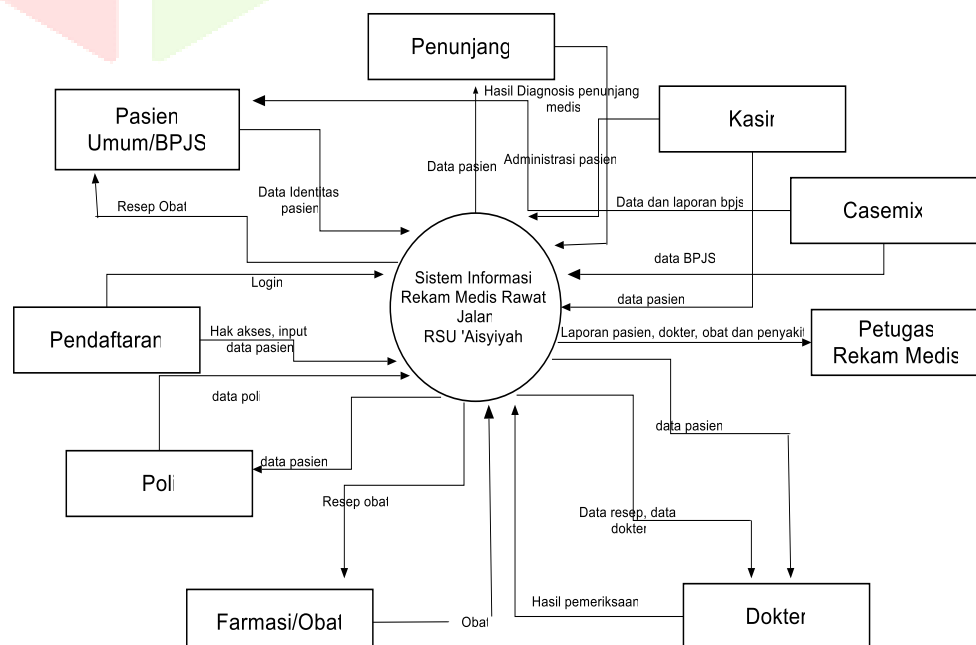**4.3 DFD (Data Flow Diagram)**



*Figure 5*
*DFD Outpatient Hospital Information System Design*

Description

In the DFD above, there are 9 tables that are interconnected and related to the outpatient RM information system, namely tables or data on Patients, Doctors, Supporters, Registration, Politics, Drugs, Casemix, RM officers, and Cashiers, all these tables are integrated and connected. each other with an outpatient medical record information system. Thus, in this outpatient medical record information system, we can see drugs given by doctors to patients, doctors who treat patients, the intended poly, bpjs reports by the casemix section, the medical support section, patient access rights to hospitals, and the money paid for. will be paid by the patient to the hospital.
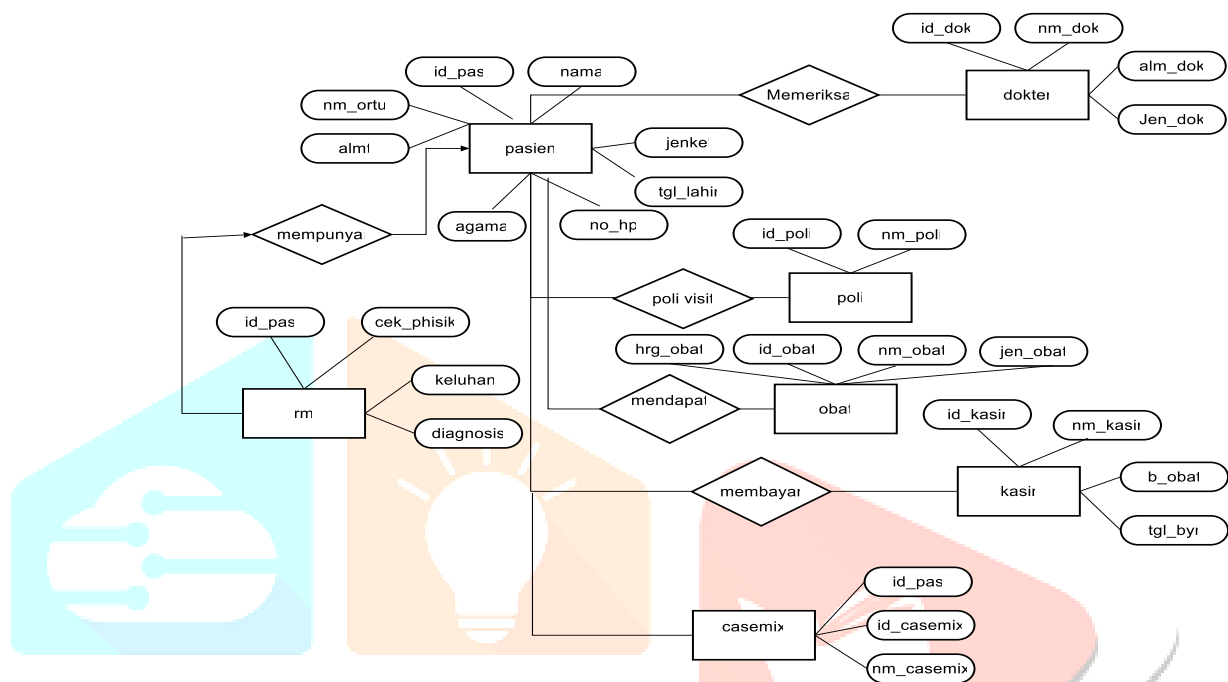
## 1.1 ERD (Entity Relationship Diagram)



*Figure 6*
*Outpatient Hospital Information System ERD System Design*

In the design of the ERD system on the outpatient medical record information system where all the existing tables are patient data, doctors, supporters, registrations, poly, drugs, casemix, rm officers, and cashiers there are relationships and interrelationships in each of the existing fields. In the picture above, it can be seen that all existing entities are interconnected with the field and we can also see the flow or algorithm of the ERD.

### V CONCLUSIONS AND SUGGESTIONS
#### 5.1 Conclusion
Based on the results of surveys and interviews in the field about the Hospital Information System at the existing RSU 'Aisyiyah Padang, the following conclusions were obtained:
1. This research only focuses on the design and design and analysis of the Outpatient Medical Record Information system.
2. The design of the SIRS at the 'Aisyiyah General Hospital is not all connected to each part of the hospital environment.
3. The existing system design needs to be modified and revised again because it is not in accordance with existing needs.
4. The design of the proposed system is only related to the outpatient Medical Record Information System at RSU 'Aisyiyah Padang which will later be developed again because this research plan is for 10 years in accordance with the existing Roadmap.

### 5.2 Suggestions
Suggestions that can be given to this hospital regarding the design of the existing medical record information system so that the plus and minus values can be seen, then whether the system that is already running is not out of date, meaning that it has been anticipated for the next 10 years, then in using the current system, are you familiar with system users by computer operators in hospitals or not.

# BIBLIOGRAPHY

[1] G. Hatta, Panduan Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan, Jakarta: Universitas Indoensia, 2013.

[2] K. RI, Undang-Undang No 44 tentang Rumah Sakit, Jakarta: Kemenkes, 2009.

[3] P. R. N. 1171, Peraturan Menteri Kesehatan Republik Indonesia Nomor 1171 Tentang Sistem Informasi Rumah Sakit, Jakarta, 2009.

[4] P. MENKES, "Permenkes No 269/Menekes/PER/III/2007," Jakarta, 2007.

[5] D. Iflahah, I. Aknuranda and N. Y. Setiawan, "Analisis dan Perancangan Sistem Informasi Rekam Medis Poli Gigi (Studi Kasus : Puskesmas Sumbersari Kecamatan Saradan Kabupaten Madiun)," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komuter,* vol. 2, 2018.

[6] S. Setialin and S. R. Agustin, "Perancangan Sistem Informasi Pelayanan Rekam Medis di Puskesmas Arcamanik Kota Bandung," *Jurnal Manajemen Informasi Kesehatan Indonesia ,* vol. I, 2019.

[7] E. Y. Allo and R. Tanone, "Perancangan Sistem Informasi Rekam Medis pada Puskemas Tandea Dongi Tantena," Fakultas Teknologi Informasi, Salatiga, 2016.

[8] Jogiyanto, Analis dan Desain Sistem Informasi : Pendekatan Terstruktur Teori dan Praktik Aplikasi Bisnis., Jakarta: Andi Yogyakarta., 2005.