

## Management Information System of IMBI Puskesmas, Jayapura Utara District

Sitti Nur Alam<sup>1</sup>, Siti Nurhayati<sup>2</sup>, Preselia Kwando Bonai<sup>3</sup>

Information System Study Program, Yapis Papu University Jayapura - Indonesia

E-mail: azkadar@gmail.com<sup>1</sup>, nurhayatist.siti21@gmail.com<sup>2</sup>, liakwa29@gmail.com<sup>3</sup>

### Abstract

*Imbi Jayapura in carrying out its duties and functions, supported by patient registration management, management of each poly, pharmacy management, laboratory management, and administrative management. The recording process in all management is still manual, and patient registration services can only be done using a prospective patient having to come directly to the Puskesmas, a manual registration process so that it takes a long time to provide health services at the Puskesmas. It is deemed necessary to have a system that can support all management activities. There is no accumulation of patients when registering, faster in service, and accurate in solving patients and reporting problems. This study encourages IMBI puskesmas to serve prospective patients who wish to register online using the website, carry out medical record management at each clinic, pharmacy and laboratory quickly and precisely, and carry out the direction of patient reports at Puskesmas Imbi speedily and accurately. This research resulted in the Puskesmas Imbi Jayapura Management Information System used by Puskesmas officers to manage all Puskesmas activities.*

**Keywords:** Management Information System, Puskesmas Imbi

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### 1. Introduction

The Puskesmas is a government agency engaged in public health services at the village level. The role of Puskesmas is significant in supporting the performance of health agencies above it, such as hospitals, as an effort to prevent and control public health. To improve the quality of health services at the Puskesmas level, in particular, a good concept or system is needed so that later quality, effective and efficient health services can be realized and can improve the performance of the Puskesmas [1].

In the management at the Imbi Health Center, there are still deficiencies, namely the recording process for each poly, which is even recorded in the book which results in reporting not happening quickly and precisely because it takes a long time and patient registration services can only be done by means of prospective patients having to come directly to the Imbi Puskesmas, search and manufacture of outpatient cards, and medical cards still use handwriting. Patient data is even written in books, so it takes quite a long time to process patient registration at the Puskesmas Imbi registration counter [2].

### 2. Literature review

#### 2.1 Previous Research

Application of Management Information Systems at Putri Hijau Hospital Medan. Data collection on health at the Putri Hijau Hospital in Medan is still very difficult, so that fast, precise, and accurate health information is still scarce. By implementing an information system, computerized management can produce fast, detailed and precise information. This study aims to determine the factors that influence the application of management information systems at the Putri Hijau Hospital in Medan. Analysis of the implementation of the hospital management information system (SIMRS) at Kardinah Tegal Hospital ".

This study discusses the hospital information system that has an essential role in clinical and administrative services. Hospitals need a Management Information System (SIM) to improve the quality of medical services [3].

The Hospital Management Information System (SIMRS) is designed to integrate the hospital's main functions into one unified system stored in a central database. It is necessary to improve in terms of human resources by implementing training on the use of the Hospital Management Information System (SIMRS) to be used optimally for clinical functions and to support comprehensive patient services at the Kardinah Tegol Regional General Hospital. Management Information System of Kencong Health Center (SIMPUS) in Jember Regency Using End-User Computing (EUC) Satisfaction Method ”.

This study discusses user perceptions of the Puskesmas Management Information System (SIMPUS) at dental BP need to add a clinical odontogram, and the emergency room needs to be added when the patient arrives at the health service facility, the patient's introductory identity, and the patient's health summary before leaving the emergency room users such as writing the date of birth, address, name of the drug, and the type of drug which caused the data to be inaccurate and the ER could not divide the time between filling out the Puskesmas Management Information System (SIMPUS) and serving patients [4]. All respondents said that the Kencong Health Center Management Information System (SIMPUS) format was simple, good and suitable for its users, and by using the Puskesmas Management Information System (SIMPUS), the work was punctual [5].

There needs to be training and user support, end-user involvement, considering special units, the involvement of doctors, implementing SOPs, and socialization to help Puskesmas management optimize usage. Based on the background, the formulation of the problem is that it takes quite a long time in the patient registration process because it must be recorded in a book so that there is an accumulation of patients at the patient registration counter; prospective patients must come directly to the Imbi Health Center if they want to register, record each poly, laboratory, administration businesses and pharmacies that still record using handwriting so that it takes a long time to carry out health services and produce reports and there is no management information system at the Imbi Health Center which is used to process data, register patients and make reports quickly and accurately [6].

The purpose of this research is to carry out patient registration services quickly so that there is no accumulation of patients when registering at the Imbi health center counters, serving prospective patients who wish to register online using the website, managing medical records at each clinic, pharmacy and laboratory quickly and accurately. And carry out the management of patient reports at Puskesmas Imbi quickly and accurately [7]. The benefit of this research is that patient registration counters can work effectively and efficiently because using a system created, prospective patients can register online without having to come directly to the Imbi Health Center counters, doctors, policymakers of each policeman, pharmacists and laboratory officers can carry out the more effective and efficient recording of patient medical records. And the management of Puskesmas Imbi can immediately see all perperiodic reports.

## **2.2 Management information System**

SIM is a set of subsystems that are interconnected, gather together and form one unit, interact and collaborate with one another in certain ways to perform data processing functions, receive input in the form of data, then process it (processing) and producing output (output) in the form of information as a basis for decision making that is useful and has real value that can be felt as a result both at that time and in the future, supporting operational, managerial and strategic activities, the organization, by utilizing various the resources available and available for these functions to achieve their goals [8].

## **2.3 Public Health Center**

Puskesmas is a functional organization unit that organizes health efforts that are comprehensive, integrated, evenly accepted and affordable by the community with active community participation and using the results of the development of appropriate science and technology, at a cost that can be borne by the government and the wider community optimal health status, without neglecting the quality of services to individuals in accordance with geographic conditions, area size, transportation facilities, and population density in the working area of the Puskesmas. In order for the reach of Puskesmas services to be more even and wider, Puskesmas need to be supported by supporting Puskesmas, placement of midwives in villages that are not yet covered by existing services, and mobile Puskesmas. In addition, community participation is mobilized to manage Posyandu [9].

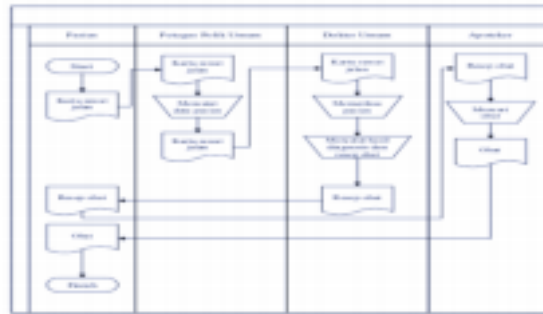
### 3. Methodology

#### 3.1 Data Collection

The data collection methods used in this study were interviews by conducting questions and answers with related sources, observation or observation by making direct observations at the research site, and literature study by reviewing previous references that supported this research [10].

#### 3.2 Current System Analysis

The system flow currently running can be seen in the following figure:



**Figure 1.** Current System Flow Map

The picture above shows the Flowmap system that is running in general polyclinic starting from the patient submitting an outpatient card to the general policeman, then the officer records the patient's data and then the outpatient card is given to the doctor to examine the patient, the doctor will write down the results of the diagnosis and drug prescription, then the drug prescription is given to the patient. After the patient receives the prescription, it is then submitted to the pharmacist and pharmacist to find the drug to be given to the patient.

#### 3.3 PIECES analysis

Based on the results of interviews, observations and literature studies, the results of the analysis of the current system requirements and the proposed system using the PIECES framework for six aspects (Performance, Information, Economy, Control, Efficiency, Service) were obtained. This analysis is used to get more specific root causes and symptoms of the problem because it uses performance, information, economy, system security, efficiency and service aspects. The aspects that have been mentioned above will be analyzed one by one so that the main problems that exist can be identified [11]. This is important because usually what appears on the surface are only symptoms of the main problem.

#### 3.4. System planning

The following is a use case diagram in the Management Information System at the Imbi Health Center. Use case diagram of patient registration management which consists of 1 actor, namely the counter clerk and 21 use case, where the counter clerk can enter the counter clerk's page if they have successfully logged in [12]. After logging in, the counter clerk can perform patient registration management activities consisting of adding JKN patients, adding KPS patients, adding private patients, editing JKN patients, editing KPS patients, editing private patients, deleting JKN patients, deleting KPS patients, deleting private patients, see JKN patients, see KPS patients, see private patients, look for JKN patient data, look for KPS patient data, look for private patient data, print JKN patient treatment cards, print KPS patient treatment cards, print private patient treatment cards, view reports, search report, print report. The use case diagram of patient registration management can be seen in the following figure:



Figure 2. Use Case Patient Registration Management

## 4. Results and Discussion

### 4.1 Home Page Views

The home page is the main page of the Imbi Jayapura Health Center Management Information System which is displayed to users without having to log in first. The home page design can be seen in the following image:

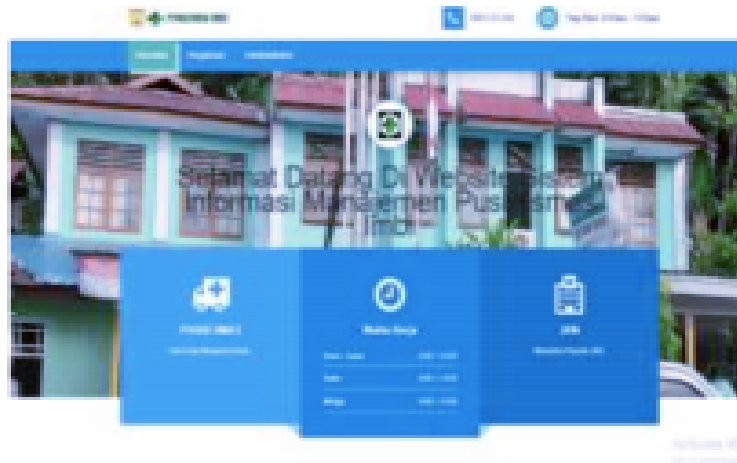


Figure 3. Home Page Views

### 4.2.4.2 Display of JKN Patient Online Registration Page

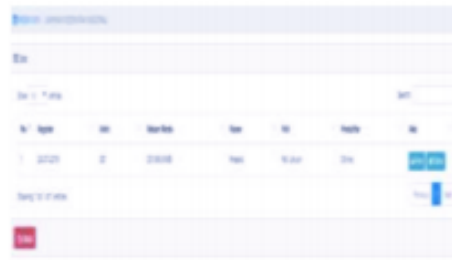
The JKN patient online registration page is the page used by JKN patients who are going for treatment for the first time to register online without having to come directly to the Puskesmas. The appearance of the JKN patient online registration page can be seen in the following image:



**Figure 4.** Views of the JKN Patient Online Registration Page

#### 4.3 Display of the Online Treatment Registration Page for JKN patients

The online registration page for JKN patients is a page used by JKN patients who have already been treated to register online without having to come directly to the puskesmas. The appearance of the online registration page for JKN patients can be seen in the following image:



**Figure 5.** Display of the old JKN patient online registration page

#### 4.4 Login Page Views

The login page is a page where users or officers at the Imbi Health Center must log in first to access the Imbi Jayapura Health Center information system. The login page display can be seen in the following image:



**Figure 6.** Display login page

#### 4.5 Admin Main Page Display

The main page is a page that displays all menus in the Management Information System of the Imbi Jayapura Health Center which will be displayed to users who have access rights to login. The main page display can be seen in the following image:



Figure 7. Main page display

#### 4.6 Views of the New JKN Patient Registration Page

The new JKN patient registration page is the page used to register JKN patients for the first time being treated at the Puskesmas counter. The appearance of the new JKN patient registration page can be seen in the following image:

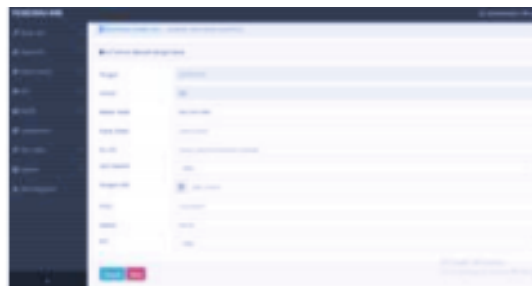


Figure 8. Display of the new JKN patient registration page

#### 4.7 Display of Old JKN Patient Treatment Registration Page

The JKN patient treatment registration page is the page used to register JKN patients who have already been treated at the Puskesmas counter. The appearance of the old JKN patient registration page can be seen in the following image:



Figure 9. Display of the Old JKN patient registration page

#### 4.8 General Poly Page View

The General Poly page is a page used by General Poly officers and general gPs who have access by logging in to the Imbi Health Center management information system to manage patient data on General Poly. The General Poly page view can be seen in the following image:



Figure 10. General Poly page view

#### 4.9 Dental Clinic Page Views

The Dental Polyclinic page is a page used by Dental Polyclinic officers and dentists who have access by logging in to the Imbi Health Center management information system to manage patient data at the Dental Clinic. The appearance of the Dental Poly page can be seen in the following image:



Figure 11. Display of Dental Clinic page

#### 4.10 MTBS Poly Page Views

The IMBI Poli page is a page used by MBTS Poli officers and MTBS doctors who have access by logging in to the Imbi Health Center management information system to manage patient data in general polyclinic. The IMCI Poly page view can be seen in the picture:



Figure 12. MBTS Poly page view

#### 4.11 Nutrition Poly Page Views

The Poli Gizi page is a page used by Poli Gizi officers who have access by logging in to the Imbi

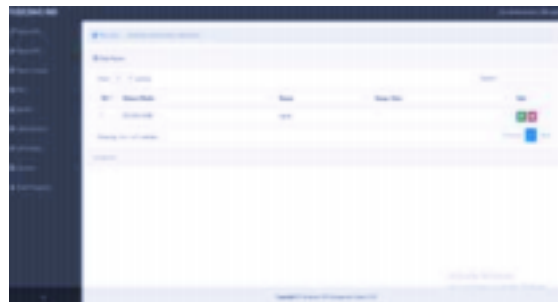
Health Center management information system to manage patient data at the Nutrition Poly. The poly nutrition page display can be seen in the following image:



**Figure 13.** Display of Nutrition Poly page

#### 4.12 KIA Poly Page Views

The KIA Poli page is the page used by the MCH POLRI officers who have access by logging in to the Imbi Health Center management information system to manage patient data at the MCH Poly. The appearance of the KIA Poly page can be seen in the following figure:



**Figure 14.** MCH Poly page view

#### 4.13 Pharmacy Page Views

The pharmacy page is a page used by pharmacists who have access by logging in to the Imbi Health Center management information system to manage drug data and prescriptions from each Poli at the pharmacy. Pharmacy page display can be seen in the following image:



**Figure 15.** Pharmacy page view

#### 4.14 Laboratory Page Views



The laboratory page is a page used by laboratory personnel who have access by logging in to the Imbi Health Center management information system to manage patient data in the laboratory. The laboratory page display can be seen in the following image:



Figure 16. Display of Pharmacy page

#### 4.15 Incoming Mail Page Views

The incoming letter page is the page used by administrative officers who have access by logging in to the Imbi Health Center management information system to manage incoming mail data for administration. The page view of incoming mail can be seen in the following image:



Figure 17. Display of incoming mail page

#### 4.16 Outgoing Mail Page Views

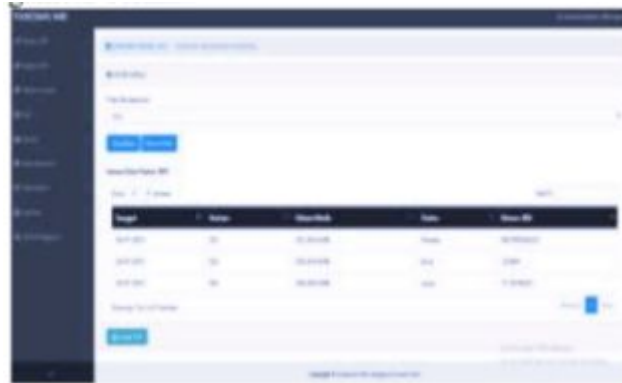
The outgoing letter page is the page used by administrative officers who have access by logging in to the Imbi Health Center management information system to manage outgoing mail data in administration. Outgoing mail page display can be seen in the following image:



Figure 18. Outgoing mail page view

#### 4.17 Report Page Views

The report page is the page used by the Puskesmas management who has access by logging into the Imbi Health Center management information system to manage patient-related report data at the Imbi Health Center. The report page display can be seen in the following image:



**Figure 19.** The report page view

#### 4.18 User Data Page Views

The user data page is a page used by admins who have access by logging in to the Imbi Health Center management information system to manage user data in the Imbi Jayapura Health Center management information system. The user data page display can be seen in the following image:



**Figure 20.** Display of user data page

### 5. Closing

Finally, the following conclusions can be drawn:

- After testing the system, patients can register online through the Imbi Health Center Management Information System.
- Counter clerk, general policeman, dental policeman, integrated management poly officer for sick toddlers, maternal and child health policeman, nutritionist, pharmacist, lobbyist, administration officer of Puskesmas management and admin can use the Management Information System

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