



Data Processing System Hospitalization Web-Based In Hospital

1st Yunita Wisda Tumarta Arif
Faculty of Health Sciences Duta Bangsa University
Surakarta, Indonesia
yunita_wisda@udb.ac.id

3rd Nurul Stevia Ningrum
Faculty of Health Sciences Duta Bangsa University
Surakarta, Indonesia
nurul_stevianingrum@fikes.udb.ac.id

2nd Sri Widodo
Faculty of Health Sciences Duta Bangsa University
Surakarta, Indonesia
sri_widodo@udb.ac.id

ABSTRACT

Hospitals as health service agencies need the existence of an information system that is accurate and reliable, and sufficient enough to improve services to patients. Data management in hospitals is one of the important components in realizing an information system in hospitals, namely for managing health service data in the form of a web-based inpatient data processing system in hospitals. The object of this research is the inpatient installation at the General Hospital of Assalam Gemolong Sragen. The flow of inpatient data processing procedures at the Assalam Gemolong Sragen public hospital is still done manually, starting from inpatient registration to processing incoming patient data, leaving patients and moving patients having several problems. One of the efforts to overcome these obstacles is by building a web-based inpatient data processing information system in the hospital.

This type of research is a descriptive study conducted with the method of data collection, observation and interviews using a cross sectional approach. The research method consists of 4 stages: system planning, system analysis, system design and system implementation. The aim of this research is to create a web-based inpatient data processing information system in the hospital so that it can improve the ongoing system and as input for decision making in the inpatient unit. The result of this study is a web-based inpatient data processing system at the Assalam Gemolong General Hospital in Sragen. Inpatient data processing system is made web-based with the hypertext preprocessor programming language (PHP) and data storage with MY SQL.

Keywords: *system, hospitals, information, data*

I. INTRODUCTION

Hospital as a health service institution requires the existence of an information system that is accurate and reliable, and sufficient enough to improve services to patients. Data management in hospitals is one of the important components in realizing an information system in the hospital, namely for managing health service data in the form of medical records. Medical Records are written evidence of the service process provided by doctors and other health professionals who provide services to patients. The medical record administration system starts from the time the patient is accepted for health services, until the service ends.

Managing medical record data manually has many weaknesses, including it takes a long time, data inaccuracy often occurs, resulting in more misinterpretation and the workload of officers compared to using a computerized system. This also determines the speed of information flow required by users and the hospital environment. According to Sudra (2014: 3.73) Inpatient Unit is a part of clinical service that serves patients because their condition must be treated. In this treatment there can be several possibilities, namely:

- a. Surgery had to be done so it had to be referred to the operating room.
- b. Must be assisted in labor so it must be referred to the delivery room.



- c. Intensive supervision must be carried out so that it must be referred and treated in an intensive room.

The aim of this research is to create a web-based inpatient data processing information system in the hospital so that it can improve the ongoing system and as input for decision making in the inpatient unit. The object of this research is the inpatient installation at the General Hospital of Assalam Gemolong Sragen. With this system, it is hoped that it can be a consideration in making decisions to facilitate the management of medical record data at the General Hospital Assalam Gemolong Sragen

II. METHODE

A. *Types and Design of Research*

This type of research uses descriptive research, which is a study that aims to see a description of phenomena (including health) that occur in a certain population [2]. Descriptive research is used to make an assessment of a condition and a program in the present, then the results are used for planning the improvement of the program.

The approach used is cross sectional, which means a study to study the dynamics of the correlation between risk factors and effects, by means of approach, observation or data collection at once.

B. *Research Variables*

Variables can be interpreted as measures or characteristics possessed by group members that are different from those of other groups. [3]. The identification of the variables used by the writer in the preparation of this final project includes:

1. Flow of inpatient data processing procedures

Inpatient data processing procedure flow is the procedure for inpatient data processing.

2. Patient Data

Patient data contains patient personal data or patient personal identity which is used as input in patient registration information.

3. Doctor's data

Record and store data which includes doctor's code and name of doctor who provides medical services to patients.

4. Officer Data

Data containing the name of the officer and the officer code.

5. Diagnostic Data

Store diagnostic data which includes the diagnosis code and name of the patient's disease diagnosis.

6. Ward Data

Ward data records and stores data which includes ward code and ward name.

7. Incoming Patient Transaction Data

Data that records and stores patient admission data.

8. Outgoing Patient Transaction Data

Data that records and stores patient data out of hospitalization, discharge to go home or referred to another hospital.

9. Moving Patient Data

Data that records and stores patient data to move wards.

C. *Subject and Object*

The following are the subjects and objects in:

1. The subjects of this study were registration officers, inpatient data processing officers and ward nurses at the

General Hospital Assalam Gemolong Sragen.

2. The object of this research is the inpatient installation at the General Hospital Assalam Gemolong Sragen.

D. Data Collection

1. Data Sources

Sources of research data include primary data sources and secondary data sources.

a. Primary data

Primary data is data or facts obtained directly by data processors [1]. Primary data in this study are the results of observations and interviews regarding inpatient registration activities and inpatient data processing flow at the General Hospital Assalam Gemolong Sragen. The primary data obtained were doctor data and ward data.

b. Secondary Data

Secondary data is data or facts obtained from other people so that the data source used can be in the form of information[1]. Secondary data in this study were obtained from existing data at the General Hospital Assalam Gemolong Sragen in the form of inpatient approval form.

2. Data Collection Techniques

The data collection methods used in this study are:

a. Observation Method

Observation is a planning procedure, which includes seeing, listening, and recording the number and level of certain activities or certain situations that have something to do with the problem

being studied[3]. In this study, the authors made observations on the implementation of inpatient registration activities and inpatient data processing at the General Hospital Assalam Gemolong Sragen then took notes regarding the problems to be studied.

b. Interview Method

The interview is a method used to collect data, where researchers get information or information verbally from a target researcher[3]. Data collection in this method is done by direct question and answer with inpatient registration officers and data processing officers so that the authors will obtain clear data.

3. Research Instruments

The instruments used by the author in this study are:

a. Observation Guidelines

Observation guidelines are guidelines that contain things that must be known, namely by observing or taking notes systematically on the problem under study. In this study the authors observed the activities of inpatient registration and data processing at the General Hospital Assalam Gemolong Sragen.

b. Interview guidelines

Interview guide is asking questions both orally and in writing to obtain information. The interview guidelines used in this research are in the form of a sheet of paper containing several questions that the writer uses to obtain information. The information conveyed by the sources will serve as a guide for the author in conducting the



research. Resource persons in this study were inpatient registration officers, ward officers and data processing officers at the General Hospital Assalam Gemolong Sragen.

E. Data Processing

Data processing in general hospital assalam gemolong sragen is as follows:

1. Collecting data which includes patients, the doctor, the officers, data the diagnosis, data ward, patients in transaction data, transaction data patients out and data patients move.
2. Editing and reforms to correct the data it collected before processed.
3. Data sets collected in accordance with the classification to table a patient, the doctor, table officer, table table, diagnosis table, ward patients in, table transactions the patients out, table transactions patients moved.
4. The presentation of the data provides the data that has been diinput and processed so that yields information output

F. Data analysis

Data analysis used to describe or concluded the data that has been collected. Data analysis used in this research was:

1. Descriptive analysis disentangle and describe the state of in the field then analyze to design and the new system pengembangan more effective and efficient.
2. Visualize analysis showed the results of the study which output in the form of information and processed in computerized report.

G. System Development

According to [5], a system is a set of elements that are related to one another in such a way as to achieve certain goals, or an order in which there is a unity of various elements that are interconnected regularly towards the achievement of elements within certain environmental boundaries. There are four stages in the development of this system, including:

1. Planning

At this stage, a potential information system project is described and arguments for proceeding with the project are presented. Based on the preliminary survey, the researcher made a plan to create a web-based inpatient data processing information system at the General Hospital Assalam Gemolong Sragen. In addition, researchers also conducted previous research studies on similar information systems to increase understanding and comparison of research authenticity.

2. Analysis

This stage can be interpreted as a process to understand the existing system. In this study the authors identified the problems that exist in the General Hospital Assalam Gemolong Sragen, namely the process of recording inpatient registration and processing inpatient data which is still handwritten by inpatient registration officers, ward officers and data processing officers. The data input process is still being repeated by officers from paper to computer. Therefore, Assalam Gemolong General Hospital, Sragen, requires a system that changes from conventional to computerized.

3. Design

This stage is a complete design as a claim for system developers in developing applications.

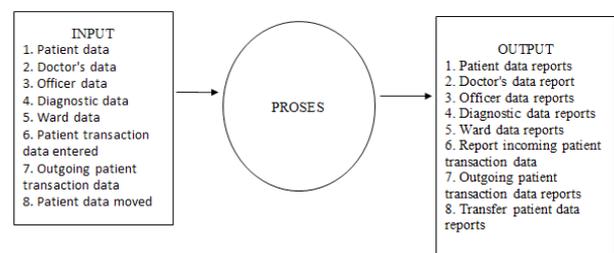
4. Implementation

Implementation is the process of creating and installing a complete system, both hardware, software and human resources. This stage is an activity to implement a plan that is structured so that it can be realized with a programming language.

The system currently running at the General Hospital Assalam Gemolong Sragen is as follows:

B. Conceptual frameworks

A conceptual framework is a description and visualization of the relationship or relationship between concepts or variables that will be observed or measured through the research to be carried out[4].



Picture 1. Conceptual Framework

Inpatient data processing information systems require input in the form of patient data, doctor data, staff data, diagnostic data, ward data, incoming patient transaction data, outgoing patient transaction data and patient moving data. These data will be used as input in the processing of patient data. Then the processed data will produce reports in the form of patient data reports, doctor data reports, diagnostic data reports, ward data reports, incoming patient transaction data reports, outgoing patient transaction data reports, moving patient data reports and daily inpatient census reports.

C. System Design

System design is the planning of the entire system design consisting of Data Flow Diagrams (DFD), database design, input design, output design and how to operate it.

a. Data Flow Diagrams (DFD)

Data Flow Diagrams (DFD) consist of context diagrams, tiered diagrams, DFD level 0 and DFD level 1.

III. RESULT AND DISCUSSION

A. Flow and procedures of inpatients at the General Hospital Assalam Gemolong Sragen

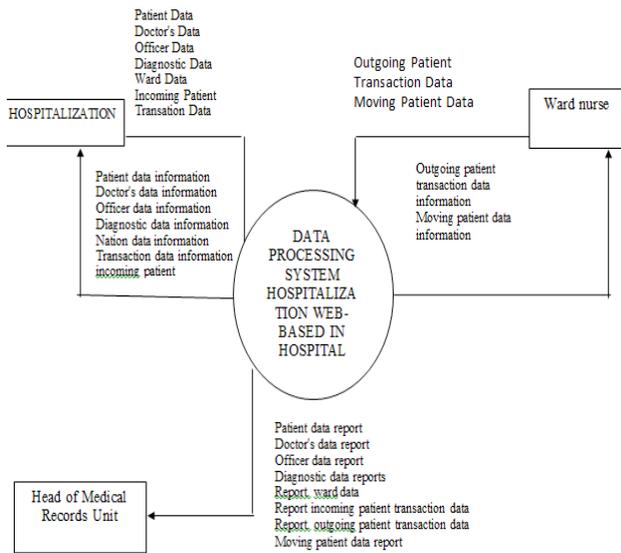
The data processing system for inpatients at the General Hospital Assalam Gemolong Sragen is done manually, which is done by recording the patient's identity on the inpatient consent form and register book which is carried out by inpatient registration officers. At the registration service, the registration officer records the name, gender, age, medical record number, address, surgery or medical procedures will be performed and the payment method is written manually on the inpatient consent form and records the name, medical record number, age, address, date of admission, date of discharge and diagnosis in the inpatient register book.

These data are recorded manually and the data writing is repeated so that it takes a long time to record and then it can cause the flow of recorded patient information to be unsustainable. These data will be recapitulated every day to produce a report which is reported to the head of the medical records unit. These reports run the risk of being inaccurate and not up to date because they take a long time. With the computer-based information system, it is hoped that it can help the performance of officers.



1) Context Diagram

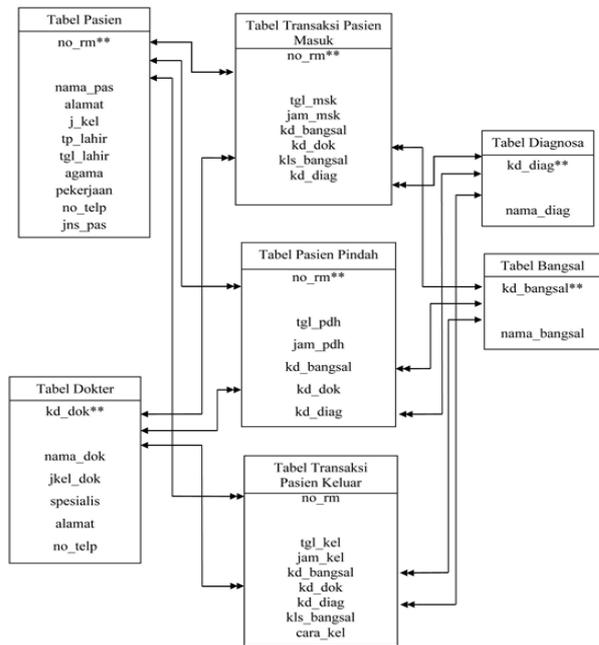
The context diagram is part of a data flow diagram that functions to map the environmental model, which is presented with a single circle that represents the entire system [8]



Picture 2. Context Diagram

2). Database Design

According to Sutanta, (2011) a database system can be interpreted as a set of connected data (interrelated data) that is stored together on a medium and functions as a provider of information for its users. Database is a collection of several files or tables that are interconnected between one file and another file. The database design in this study is as follows:



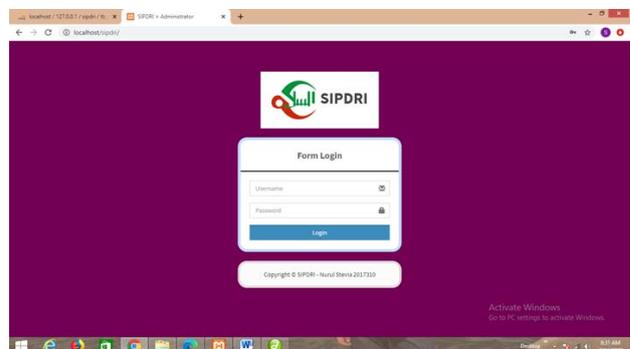
Picture 3. Database Diagram

3). System Implementation

The implementation of the Inpatient Data Processing Information System at the General Hospital Assalam Gemolong Sragen is as follows:

a. Implementation of Officer Log-in

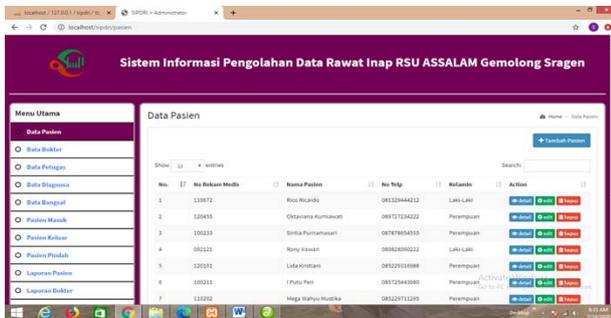
Officer login begins by opening a browser application available on the computer:



Picture 4. Officer Login

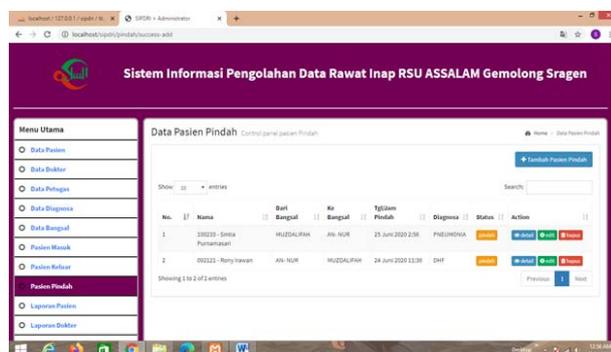
After the display appears as above and entering the Id-Pass-

word, the main menu will appear as shown below:



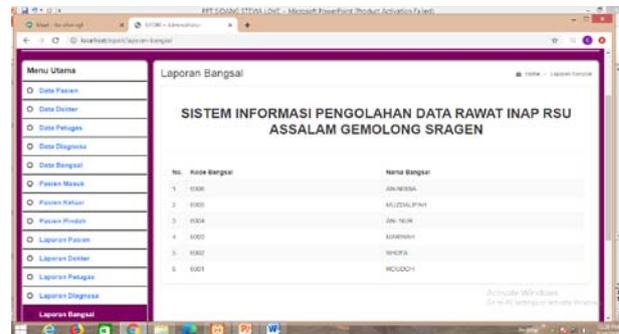
Picture 5. Dashboard

On the main menu there are 3 menus, namely Master, Report, and Exit. In the master menu there are patient masters, officer masters, diagnosis masters, doctor masters, ward master data, incoming and outgoing patient masters.



Picture 6. Master out going patient

In the master menu there are Patient data report, Doctor's data report, Officer data report, Diagnostic data reports, Report ward data, Report incoming patient transaction data, Report outgoing patient transaction data, Moving patient data report.



Picture 7. Report incoming patient transaction data

IV. CONSLUSION

1. The flow and procedure of inpatient data processing at the General Hospital Assalam Gemolong Sragen still use the manual system resulting in the information generated from inpatient services is not sustainable and has an impact on the quality of service.
2. Inpatient Data Processing Information System, which was built using the PHP programming language and MySQL database, is expected to accelerate the processing of patient data and make it easier for officers to make reports to the head of the medical record unit. Inpatient data processing information systems require input in the form of patient data, doctor data, staff data, diagnostic data, ward data, incoming and outgoing patient transaction data, patient data moving. Then the processed data will produce reports in the form of patient data reports, doctor data reports, diagnostic data reports, ward data reports, incoming patient data reports, outgoing patient transaction data reports, moving patient data reports and daily inpatient census reports.

V. REFERENCES

- [1] Budi, S.C. 2011. *Manajemen Unit Kerja Rekam Medis*. Yogyakarta: Quantum Sinergis



- [2] Madcoms. 2013. *Kupas Tuntas Adobe Dreamweaver CS6 Dengan Pemrograman PHP & MySQL*. Yogyakarta : Andi Offset
- [3] Notoatmodjo, S. 2018. *Metodologi Penelitian Kesehatan*. Jakarta: Rienka Cipta
- [4] Rustiyanto, E. 2011. *Sistem Informasi Manajemen Rumah Sakit yang Terintegrasi*. Yogyakarta: Gosyen publishing
- [5] Sudra, R.I. 2014. *Rekam Medis*. Universitas Terbuka.
- [6] Sutanta, E. 2011. *Basis Data dalam Tinjauan Konseptual*. Yogyakarta: Andi Offset.
- [7] Susilowati, Sinta. Riasti, Berliana Kusuma. 2011. Pembuatan Sistem Informasi Klinik Rawat Inap Primahusada Widoro Pacitan Berbasis Website. *Journal Speed*, 3 (1) ; 29-34
- [8] Yakub. 2012. *Pengantar Sistem Informasi*. Yogyakarta: Graha Ilmu.