

Designing and Creating Web-Based Outpatient Information System At Panti Community Health Center (Puskesmas)

Jember

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3 Designing and Creating Web-Based Outpatient Information System At Panti Community Health Center (Puskesmas) Jember

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Abstract. Community Health Center is the first level and foremost health service unit in the health service system that is adjusted with the condition, needs, demand, ability, and innovation as well as the local government policy. Generally, the data processing in the community health center is done manually so that to archive the patients' data, it consumes both time and paper. The aim of this research was to design a web-based outpatient information system program to ease the data processing. The design and creation of the web-based outpatient information system used waterfall method and it consisted of: (1). *Requirement Analysis and Definition*, (2). *System and Software Design*, (3). *Implementation and Unit Testing*, (4). *Integration and System Testing*. This research resulted in the program output of outpatient information system that could be used by the officer to create the web-based medical record.

1. Introduction

The community health center as the first level and foremost health service unit had to do some main and alternative health efforts that are suitable with the condition, need, demand, ability, and innovation as well as the local government policy. The community health center is a functional organization unit that is also the health development center of the society in which also plays a role in guiding the society besides giving an overall and integrated health service in their working area in the form of main activity (Depkes, 1991)

The data processing system at Panti community health center was done manually on registration activity that consumed time and paper to archive the patient's data as well as diagnose and prescription activity done by the doctor for the patient's medical record. The pharmacy counter especially on the payment part in creating the drug bill was done manually, the supply part in making the report of drug inclusion and exclusion in a certain period was also done manually so that consumed time and the error level percentage was also high, the drug supply was not well recognized because it was not processed by using competent and computerized technology.

The manual data processing system needed computerized data processing as the tool to help the community health center administration. This could increase the productivity of the officer and the report result could be obtained faster and accurate so that the health service could be done well and focused. This information system was created because of the need and difficulty in getting the relevant information, comprehensive, and testable.

Based on the East Java Province Regional Regulation No 11 year 2005 about Public Services at East Java, the standard of public service in Panti community health center oriented on the minimum standard service or *Standar Pelayanan Minimum (SPM)* in giving service to the public by having 3 minutes length for registration counter, 10 minutes length for general polyclinic service, and 3 minutes



length for pharmacy service. In fact, the service at the registration counter was not appropriate with the standard.

Based on the survey conducted at Panti community health center in July 2015, from 20 patients who visited the community health center, they got 6 minutes average service, 20 minutes general polyclinic service, and 5 minutes pharmacy service. This happened because the officer was difficult to find the patients' data so that it caused the patients' card duplicated. This duplication could happen because the document had no copy so that it would be easy to be lost or broken. This problem caused the patients became emotional because the service took time and made the queue long every day. Moreover, the report register was not practice enough because it was copied over and over, the time needed for report writing was relatively long because it needed to be recapped into the ledger of the community health center. The monthly report of the community health center was late up to two months.

By the existing problem in the registration counter, it brought out the patients' perception of the unorganized community health center quality. Those several problems could also influence the service quality given by the officer because the officer felt that their workload increased so their service might not be satisfied, the system could not run well as expected because of its incomplete data although the information system was created to reduce the incompleteness of the data.

2. Literature Review

Research Problem

In this research the research problem could be formulated as follows 'How to design and create web-based outpatient information system at Panti Community Health Center Jember?'

Research Objective

Designing and creating web-based outpatient information system at Panti Community Health Center Jember.

3. Working Methodology

The research methods of "Designing and Creating Web-Based Outpatient Information System at Panti Community Health Center Jember" research was qualitative. This research used waterfall method based on the reference of Rosa A.S & M.Shalahuddin (2013) to design and create the web-based outpatient information system at Panti Community Health Center, The data collection methods used in this research were interview and observation. The instruments of this research were interview and observation guides.

4. Experiment and Result

4.1 Analysis

This step studied and analyzed the process of outpatient services in the community health center. The problem faced by the community health center, at the time, was the activity of the registration and service unit that was done manually. The problem emphasized in the registration part when the patient did not bring the Treatment Index Card or *Kartu Index Berobat (KIB)* to get the treatment. This caused the officer felt difficult in finding the patient's data as they worked together in two. If the data could not be found, the officer would create new data for the patient. This would influence the doctors' performance in giving the treatment because they could not know the patients' disease profile because of the new data.

4.2 Design

The designing activity was the designing step of the integrated outpatient data information system that would be created by using UML with Rational Rose Enterprise Edition application program and the database processing created by using MySQL5.5 Command Line Client software. The following were the steps of UML design that had been designed from the medical record data of the theory above.

4.2.1 Unified Modeling Language

The system design was needed to build the information system design easily.

4.2.2 User Interface Design

After creating the system design by using UML, the *user interface* design was then created.

4.3 Coding

The next step was a coding step from the design that had been created in a programming language. This step was the coding step to the program from the decision support system design that had been designed previously. The following were the stages of the system implementation.

a. Database creation

The database functions to accommodate the tables that had been created in class diagram design.

b. Program creation

Coding activity was the translating stage of program design that had been collected in the form of codes by using language programming and prototype creation from Dreamweaver CS6, XAMPP for the web server and Mozilla Firefox 27.0.1 as the Web browser.



4.4 Testing

The system testing resulted in some forms in which generated the same result as the manual calculation. The information system in this research was not limited to the outpatient but also integrated with the counter/pharmacy. Therefore, the patient could go directly to the pharmacy without bringing the prescription after they had been registered and examined by the doctor.

This research had a limitation on the information system in the form of financial management in which it could not report the financial recap at Panti community health center as well as the examination and drug price.

5. Conclusion

Based on the result of the thesis entitled 'Designing and Creating Web-Based Outpatient Information System at Panti Community Health Center Jember', it can be concluded that:

1. Based on the identification of SimPus weakness, the registration system was done manually, there was no integration of the information system in the registration, examination, and reporting processes such as a daily report that was needed by the Community Health Center.
2. Based on the needs analysis by using interview and observation, there needed a web-based outpatient information system application that could ease the administrator to process the data such as adding, deleting, as well as changing the data. The facility that could ease the patient to have registration and examination was also needed.

3. The creation of web-based outpatient information system at Panti community health center was done in two stages; creating the system design (Flowchart system, Use Case Diagram, Activity Diagram, Sequence Diagram, Class Diagram creations) and creating database design (database and table creations).
4. The website application was created by using Adobe Dreamweaver CS5.5. software with HTML and PHPMy Admin language programming.
5. The web-based outpatient information system at Panti community health center application was tested by using the black-box technique. The result of the testing process was that all the functions of the information system could be run well; online or offline.

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