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Original Article

Medical Record Information System (MRIS) at Hospital X

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Abstract - *The development of information technology has now entered into a very important stage, where all parts are currently utilizing information technology. Hospital X is one of the leading institutions in Indonesia, where more and more students and lecturers are expected to have health facilities in the form of clinics that can help the community of Hospital X. At present, the clinical facilities at Hospital X still apply the patient's face-to-face system with doctors. Whereas to optimize the concept of the clinic is the existence of communication which is limited to the face-to-face system between the patient and the doctor. The purpose of this study is to propose the design of a medical record system model, where the activities contained in this system will not be limited by place and time. The objectives of this study are divided into three parts: modelling system, testing system and implementation system. The result of the research that has been done is to make this system an alternative for patients in communicating with doctors.*

Keywords *- medical record, communication, information technology*

I. INTRODUCTION

The development of information technology supports all roles in everyday life, where the use of good information technology will make good results too. Hospital X is a hospital that has applied information technology to support the exchange of information in daily life. The use of information technology is an example in the field of health services for the Hospital X community. The new Paradigm from the clinic applies a management pattern in the form of a medical record information system with the aim to improve reliable services with the best quality in the face of global competition. Besides that, the level of user satisfaction in utilizing the system makes the quality benchmark of a clinic. Satisfaction is a reaction to the experience experienced while using the system.

Hospital X Clinic does not have a medical record information system, so there are some problems. One of the problems is a waste of time and effort for the registration process. The registrar will open patient registration manually every day. Therefore, patients must come to the clinic if they want to get the initial queue number. Patients come to register and pick up the queue number, and they will be examined. This can cause a waste of time and energy, both from the patient and the registration party. The second problem that arises is the waste of place and time in searching for medical record documents. Registrants must search the patient's medical record documents on a large document rack. In addition, if there is a new patient, the officer will make a new medical record so that in the future, there will be a larger storage room for the patient's medical record. In fact, registration officers sometimes experience loss of medical record documents because they are tucked into other medical records or not in the order of other medical records. This can cause doctors and patients to lose their history of treatment. The third problem that exists at Hospital X clinic is that patients cannot remember the treatment they have done and the schedule for their treatment.

As one of the concepts of a clinic is to record all activities that occur every day. Activity recording includes treatment transactions (recording patient's disease history), medications given and doctors serving patients. Therefore, the clinic needs an accurate and reliable information system to provide services to users in utilizing information technology advances. Information technology was created as a supporting tool to make and develop systems better. That way, the clinic can improve services and overcome common problems that exist in each activity.

The writing structure of the research proposal is as follows: in the second section, we provide information about the research that is reflected in the strategic research plan. In the third section, we provide information about the literature review (reference) used in helping research writing. In the fourth section, we provide information about what methods will be used in the study. In the fifth section, we provide information about the conclusion of the research.

II. RELATED WORD

Information is data that has been classified or processed, or interpreted to be used in the decision-making process. Information processing systems will process data into information or process data from useless forms to be useful for those who receive it. Value of information related to decisions. If there is no choice or decision, then information is not needed. An Information System is an

output created by utilizing computer technology to provide more value to a company to increase profits (Abishov, Asan, Kanat, & Erkisheva, 2014; Köylüoğlu, Duman, & Bedük, 2015). If a company wants to advance, then the use of information systems must be optimal because the information system is the main key in winning a competitive competition today (Chvatalova & Koch, 2015, Raka-Gilang, 2016, Fajar et al., 2012). The use of this information technology is web-based. This web-based goal is because there is no time and place limit (Pinho, Franco, & Mendes, 2018, Andi, 2016).

A clinic is a service that provides health services to individuals or groups organized by one medical staff (doctors, nurses, specialists and dentists. A good clinic is one that uses information technology, where all activities (transactions) carried out by all data are stored in information technology media Transactions are in the form of storing patient data, drug entry and data, treatment data, doctor data, test results and payments (Ismail, Abdullah, & Shamsuddin, 2015).

The medical report contains facts about the patient's characteristics and condition, request for diagnosis and treatment, examination results and progress achieved and patient's approval of actions (Bagley & Altman, 2016; Feufel, Robinson, & Shalin, 2011; Huvila et al., 2018). The purpose of medical records: Future medical records must still support patient services and improve the quality of patient care, the medical record system must increase the productivity of health care professionals and reduce administrative costs and labour costs contacted by providing health services and financing, upcoming medical records must support clinical research and health services. According to Jang, Yu, Kim, Moon, & Kim (2013), must be able to accommodate future development of health services, policy, management and financial technology.

III. METHODOLOGY

This study uses the DSAD (Development Soft Analysis Design) method, where this method combines two methods, namely SSM (Soft System Methodology) and SDLC (System Development Life Cycle).

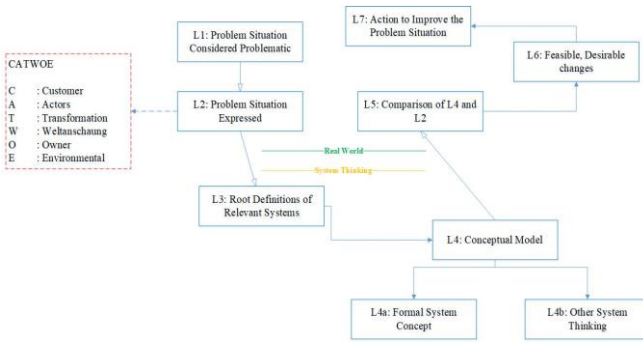

Fig. 1 Conceptual Model of DSAD

SSM is a method used to compare a situation, current situation and future circumstances. From the current state (real world), there are several stages such as L1, L2, L5, L6 and L7. Whereas in the future situation (system thinking), there are several stages such as L3, L4, L4a and L4b.

A.Problem Situation Considered Problematic

This section will be explained the problems that occur; there are reasons why a medical record information system must be built. This reason is that Universitas Mercu Buana wants to make clinics at Universitas Mercu Buana able to take advantage of information technology progress. By building this information system model, it will be easier for Universitas Mercu Buana to see the health level of the entire community.

B.RootDefinitions

Explain an activity consisting of several parts called CATWOE (Customer, Actors, Transformation, Welthacuung, Owner and Environmental). This section will be connected to each other, which is to see the relationship between L1 and L2. Before entering stage L4, L3 will see whether the problem has been explained in detail or not in L1 and L2. If it is, then it will go into stage L4. If the problem is not finished, it will return to L1 and L2 until the problem is explained in detail.

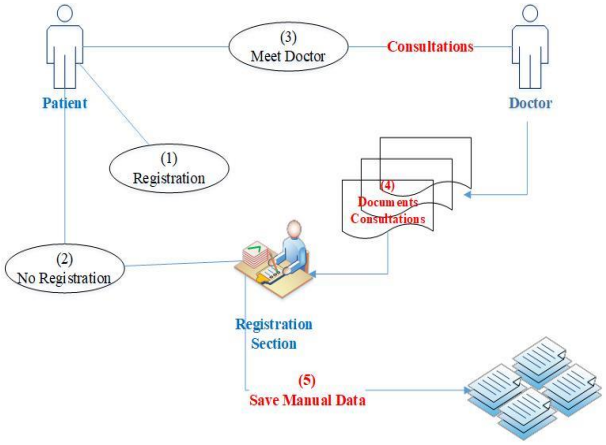

Fig. 2 Problem Situation

C.Conceptual Model

After L3 is explained in detail, the next step is to enter into L4. That is, in this section, a model that will be adapted to the existing problem will be made. The development of this model consists of two parts, namely: Formal System Concept (a) and Other System Thinking (b). In the Formal System Thinking, it is explained that the system model that will be made has been adapted to the needs of the user, and the Thinking Other System is explained that the system model that will be made can be added with other features so that it will make it easier for users to use the system.

D.Action to Improve the Problem Situation

At this stage, the final part in determining the system will be built or not, because if the L1-L4 process of the user agrees, the steps in L5-L7 can be done. The L5-L7 stage is to build a system that can facilitate users in using the system. The system that is built must be in accordance with the needs of the users.

IV. RESULTS

The results of the research that has been done have obtained a system model called the Medical Record Information System at Hospital XThe results of this medical record information system model to have three actors: super admin, admin and head office. Where every actor has different activities, Super admin has all access in using the system; admin can only perform medical record transactions (patient health checks, administration of drugs, indicating patient's disease). Head office only has activities to view reports.

Fig. 3 Login users

Login is an initial condition before an actor uses a medical record information system. Actors must enter a username and password. If the username and password are entered correctly, then the actor can use the system. If the username and password are incorrect or not registered, the actor cannot use the system.

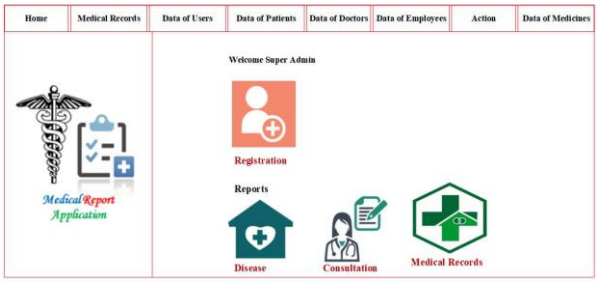

Fig. 4 Super Admin Home

In the super admin page, super admin has several activities that can be used, such as medical record, manage data of users, manage data of patients, manage data of doctors, manage data of employees, manage data of medicine.

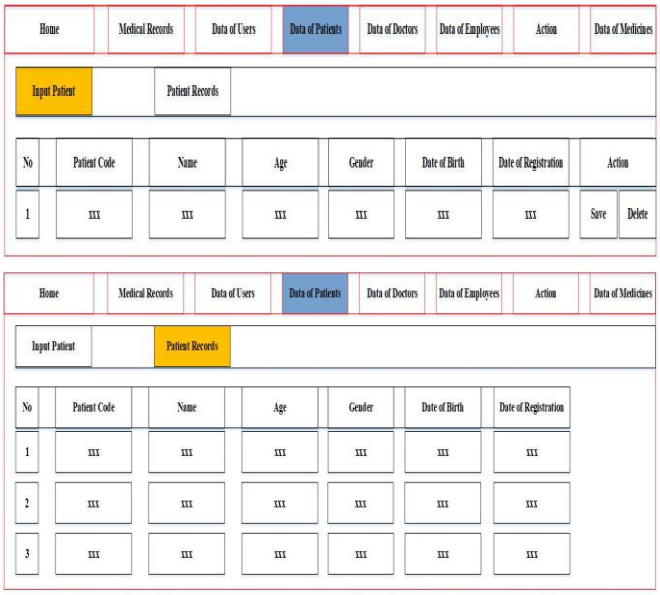

Fig. 5 Super Admin Manage Data of Patients

Super admin manages patient data by entering new data, and then super admin can see data that has been entered. If patient data wants to be changed or deleted, the super admin can also do it.

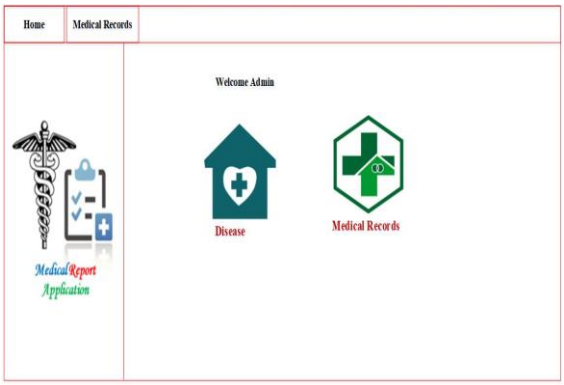

Fig. 6 Home of Admin

The admin can check the patient's health, then the results of the examination are stored in a system called medical records. The doctor can enter disease symptoms from the patient and diagnose what disease is being suffered by the patient. Then the doctor can also enter or prescribe medication to patients according to the disease experienced by the patient. All of these activities are stored in the system, and if the clinic wants to find patient data, just search for the data.

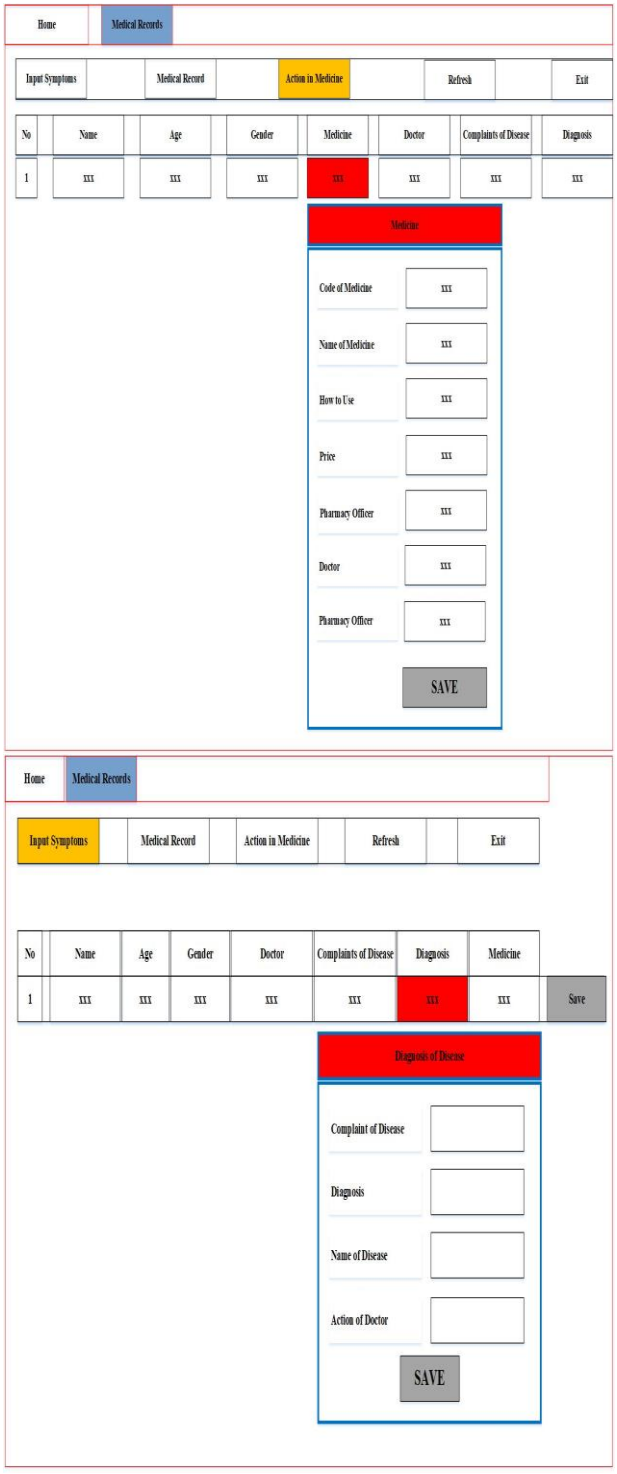

Fig. 7 Admin Manage Medical Record

In the head office activity, only see the medical record report. The report is in the form of a report of a patient, report of disease, report of doctor, report of medicine and report of medical.

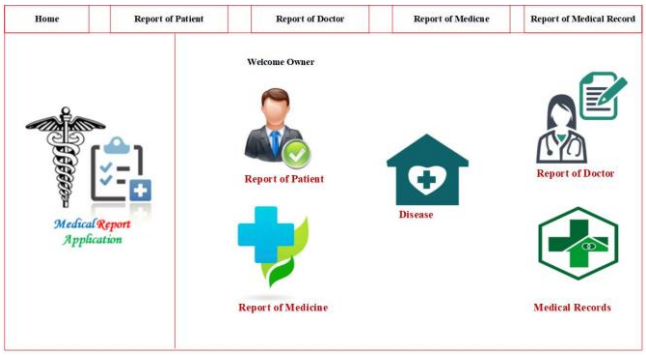

Fig. 8 Home of Head Office

V. CONCLUSION

Based on the description and results of the analysis that has been carried out, it can be concluded, among others:

- The existence of this medical record information system can help the process of storing data that is more well-organized
- Can help doctors in filling out medical record data systemically and see who patients are taking medication
- Can help the head office in seeing the overall medical record report

This Medical Record Information System produces a report consisting of a report of the patient, report of disease, report of doctor, report of medicine and report of a medical report.

REFERENCES

[1] Abishov, N., Asan, D., Kanat, A., & Erkisheva, Z., Development of an Automated Information System University Management. Procedia - Social and Behavioral Sciences, (2014). https://doi.org/10.1016/j.sbspro.2014.07.434

[2] Andi Nugroho., Information Web Application and Registration of Participants of Seminars, Workshops, Talkshows at the National Seminar on the Application of Telematics (Sinaptika) Year., National Seminar on Indonesian Information Systems, (2016) 1-8.

[3] Bagley, S. C., & Altman, R. B., Computing disease incidence, prevalence and comorbidity from electronic medical records. Journal of Biomedical Informatics, (2016). https://doi.org/10.1016/j.jbi.2016.08.005

[4] Chvatalova, Z., & Koch, M., Optimizing of Information Systems in Companies: Support of Sustainable Performance. Procedia - Social and Behavioral Sciences, (2015) .https://doi.org/10.1016/j.sbspro.2015.11.488

[5] Fajar Masya, Elvina, Fitri Maria Simanjuntak., Web-based Public Complaint Service System in the POLRI Public Relations Division. National Seminar on Information Technology Applications, (2012) 1-6.

[6] Feufel, M. A., Robinson, F. E., & Shalin, V. L., The impact of medical record technologies on collaboration in emergency medicine. International Journal of Medical Informatics, (2011). https://doi.org/10.1016/j.ijmedinf.2010.09.008

[7] Huvila, I., Enwald, H., Eriksson-Backa, K., Hirvonen, N., Nguyen, H., & Scandurra, I., Anticipating ageing: Older adults reading their medical records. Information Processing and Management, (2018).https://doi.org/10.1016/j.ipm.2018.01.007

[8] Ismail, N. I., Abdullah, N. H., & Shamsuddin, A., Adoption of Hospital Information System (HIS) in Malaysian Public Hospitals. Procedia - Social and Behavioral Sciences, (2015).https://doi.org/10.1016/j.sbspro.2015.01.373

[9] Jang, J., Yu, S. H., Kim, C. B., Moon, Y., & Kim, S., The effects of an electronic medical record on the completeness of

documentation in the anaesthesia record. International Journal of Medical Informatics, (2013). https://doi.org/10.1016/j.ijmedinf.2013.04.004

[10] Köylüoğlu, A. S., Duman, L., & Bedük, A., Information Systems in Globalization Process and Their Reflections in Education. Procedia - Social and Behavioral Sciences,(2015). https://doi.org/10.1016/j.sbspro.2015.04.610

[11] Pinho, C., Franco, M., & Mendes, L., Web portals as tools to support information management in higher education institutions: A systematic literature review. International Journal of Information Management, (2018).https://doi.org/10.1016/j.ijinfomgt.2018.04.002

[12] Raka Yusuf, Gilang Widi Darmawan., Web-Based Application Using the Fabricjs Javascript Library for Making Punakawan Comic Strips. National Seminar on Information Technology and Multimedia, STMIK AMIKOM Yogyakarta, (2016) 1-6.