Digital Information System for Doctors' Practice Schedule Changes at Hospital X South Tangerang

Supriadi Supriadi[1], Farrah Tazkia[2]

[1,2] Vocational Education Program, Universitas Indonesia, Depok, Indonesia
supriadi@vokasi.ui.ac.id

Abstract. Information about changes in doctors' practice schedules at the RS X Polyclinic is conveyed by writing the names of doctors who will not be practicing on that day on an A5-sized sheet of paper, which is then printed and displayed on the security desk in the hospital lobby. This causes patients to often be unaware of changes in the doctors' practice schedules, so they always ask the front office staff directly to get the information. The purpose of this study is to create and implement a digital information system for changes in doctors' practice schedules to replace the old method in order to be more effective and efficient. This research is applied research. It involves replacing the old method of the changes doctor practice schedule information system with a simple digital information system based on Canva, connected to a Quick Response (QR) Code link and accessible through the Google Lens application on a mobile phone. This digital information system will be analyzed for effectiveness and efficiency through interviews with front office staff and several patients. The interview results indicate that the digital information system for changing doctors' practice schedules using QR Codes makes it easier for patients to access the information because it can be done simply by using Google Lens and can be carried out both inside and outside the hospital. This system eliminates the use of paper that was previously used as an information medium in the old system, thereby directly resulting in paper usage efficiency.

Keywords: QR Code, Doctor's Practice Schedules, Digital Information.

1 Introduction

Hospital is a health facility organized by the government or private sector that functions to provide basic health services, referrals, and support. [1] Hospitals are also providing health services that play a significant role in accelerating the improvement of public health by offering complete individual health care services and providing essential health resource components to support the implementation of health efforts . In the Government Regulation of the Republic of Indonesia Number 47 of 2021 concerning Hospital Organization, it states that, 'A hospital is a health service institution that provides complete individual health services, offering services such as outpatient care, inpatient care, and emergency services.[2]

One of the healthcare services in hospitals is outpatient services. Outpatient care is a service provided to patients in the hospital without the patient being admitted or registered as an inpatient. This outpatient service is provided to patients by diagnosing the diseases they experience, observation, medical rehabilitation, treatment, as well as other health services without staying in the hospital.[3]

Outpatient healthcare services are closely related to doctors as healthcare providers. Scheduling doctors' practices is very important so that all outpatient healthcare services can run smoothly. However, in reality, even though the doctors' practice schedules have been well arranged, sometimes the scheduled doctors are unable to attend. Some of the causes include being out of town or other unavoidable commitments, which can affect the services of the outpatient unit. Several studies in hospitals mention that information on doctor schedules and changes in doctor schedules is still done manually. [1] states that Sultan Iskandar Muda Nangan Raya Hospital has not yet displayed doctor scheduling information, so the public who wants to know the doctor's schedule have to visit the hospital. Meanwhile, information such as announcements of changes to doctor practice schedules and other information related to hospital services is still local, carried out by posting a sheet of paper or a poster on the hospital bulletin board. In addition, the scheduling system at Yukum Medical Centre Hospital still uses paper, and if patients want to find out information about doctor schedules, they can ask the information unit.[4]

At present, many people still have difficulty obtaining important information such as the types of services or doctors' schedules from a hospital, so they have to go to the location to get information about the doctors' practice schedules. On the other hand, to obtain health services, a patient usually has to go through several procedures such as coming to the hospital to register, queueing, and so on. This scheduling mechanism is very troublesome and inefficient.[5]

Hospital X is a type C general hospital located in South Tangerang, Banten. This hospital provides outpatient services for patients with specialized cases. Although doctors' practices are well scheduled, there are still doctors

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P. N. G. Akbar and K. A. Safitri (eds.), *Proceedings of the 8th International Conference of Vocational Education, Applied Science and Technology (ICVEAST 2026)*, Advances in Social Science, Education and Humanities Research 1034,
https://doi.org/10.2991/978-2-38476-620-8_4

who cannot practice according to the established schedule. This can be caused by various factors such as unexpected matters, the doctor's health condition, or other commitments that cannot be neglected. Changes in doctor's practice schedule cause adjustments in services such as rescheduling examinations, redirecting patients to other doctors, delaying service times, and others. Information about changes in the practice schedule at the Polyclinic of X Hospital is usually communicated by writing the names of doctors who are not practicing on a single sheet of A5 paper, printed and displayed on the security desk in the Polyclinic lobby. This information usually includes the names of the doctors who not practicing or changes in the schedule on that day.

The information of changes in doctors' practice schedules by writing doctors' names on this A5-sized sheet of paper causes patients to often be unaware of the changes in the doctors' schedules, as the information is only posted on a small paper that is not noticeable due to its small writing and size. Patients also often ask questions without looking or reading it first, which causes front office staff to repeatedly explain. Writing information about changes in doctors' practice schedules using paper is done every day, and the paper is used only once and cannot be reused, which greatly leads to paper waste.

Based on these conditions, what system can inform changes in doctors' practice schedules at the X Hospital polyclinic, which will eliminate the use of paper, be easily accessible by patients, and reduce issues related to conveying information about changes in doctors' practice schedules using the old method.

The aim of this research is to create and implement a digital information system for changes in doctors' practice schedules to replace the old method so that it is more effective and efficient.

2 Materials and Methods

This research is applied research in which a problem is sought for a solution and then the positive impact of that solution is analyzed. The problem in this study is that information about changes in doctor practice schedules at Hospital X is still created on a sheet of paper placed on the security desk, causing patients to be unaware of the information. The solution provided is to create a digital information system for changes in doctor practice schedules using the website canva.com online. This digital information can be linked to a Quick Response (QR) Code created using the ME QR application. Through the Google Lens application available on mobile phones, the QR Code can be scanned so that patients can access the digital information in doctor practices changes schedules created on the Canva.Com Website.

The QR Code is printed and placed on an acrylic stand with A4 paper size, then positioned in several strategic locations in the hospital where patients can easily access the QR Code. To determine the impact on effectiveness and efficiency of using this digital information system for changing doctor schedules, interviews were conducted with front office staff and several patients.

3 Results and Discussion

The use of QR codes in access and healthcare services in hospitals has become one of the digital innovations developed to improve service efficiency, comfort, and user satisfaction. By scanning QR codes, patients and their families can conveniently access various services, such as online registration, doctor practice schedule information, laboratory test results, health education, and electronic queue systems without having to wait in a physical line.[7]

The digital information system for changes in doctors' practice schedules can be accessed through a QR Code that will connect to the website canva.com containing changes in doctors' practice schedules at the outpatient clinic of Hospital X. There are two ways to access the website: the first way is where the QR Code on the acrylic stand, which has been placed in several strategic locations in Hospital X, can be directly scanned using the Google Lens application on a mobile phone. With this method, patients will be directly connected to the website containing digital information on changes in doctors' practice schedules at Hospital X's outpatient clinic. The second way is by uploading a photo of the QR Code that has previously been saved on the mobile phone, then inserting the photo into the Google Lens application, which will connect to the digital information on the changes in doctors' practice schedules. To make it easier for patients to access information about changes in doctor schedules and doctor practice schedules, the QR Code, which has been mounted on acrylic, is placed at strategic points such as the Security Information Desk, Front Office on Floors 1 and 5, Nurse Station on Floors 3, 4, and 5, Pharmacy on Floor 5, and lastly at the Laboratory on Floor 5. The placement of the QR Code with acrylic in these locations is because

they are areas with relatively high patient traffic, making the QR Code more visible and easily accessible to patients seeking this information. The acrylic stand, which is the size of an A4 paper, will be more noticeable to patients passing by.

The development of this digital information system for changes in doctors' practice schedules has received appreciation from patients at the X Hospital polyclinic. Patients feel that the information about changes in doctors' practice schedules, which was previously only typed on a piece of paper and posted on a media above the security desk, was not visible, so patients did not realize that the writing on the paper contained information about changes in doctors' practice schedules. Based on interviews with front office staff, patients often ask the front office directly to get information about changes in doctors' schedules because they do not know that the information about changes in doctors' practice schedules has been posted at the security desk. However, with the digital information system for changes in doctors' practice schedules that can be accessed via QR Code, the number of patients coming to the front office staff to ask about changes in doctors' practice schedules has significantly decreased.

Interviews conducted with several patients mentioned that patients felt the digital information system for changes in doctors' practice schedules was very helpful because the QR Code access was available in easily reachable places. In addition, accessing information on changes in doctors' practice schedules was considered very easy, as by simply scanning the QR Code using the Google Lens application on a mobile phone, the information on changes in doctors' practice schedules could be obtained. Access to digital information about changes in doctors' practice schedules, besides scanning the QR Code available at strategic locations in RS X, also be done by uploading a photo of the QR Code to the Google Lens application where the QR Code photo has been previously saved on the phone. In this way, patients able to access information about changes in doctors' practice schedules from anywhere. This method is more effective for patients because they can get confirmed information about changes to doctors' schedules without having to go to RS X first.[5]

In addition to making it easier for patients to access information about changes in doctors' practice schedules, there are some minor difficulties experienced by elderly patients in using this QR Code access feature. However, these difficulties can be resolved with the help of security personnel and front office staff who are familiar with how to access this information properly.

The use of digital information for changes in doctors' practice schedules, using the website canva.com linked to a QR Code, is completely free. The front office staff, who have been updating information on changes to doctors' practice schedules using a piece of paper, can now update information on changes to doctors' practice schedules simply on the website canva.com. Canva is a platform for creating graphic designs and publication content that is easier and faster than other graphic software. This magical tool can be used online through a desktop browser or by downloading the mobile application through the App. [6] in this way, Hospital X does not need to create a digital information system for changes to doctors' practice schedules by paying expensive professional programmers.

The use of paper in delivering information about changes to doctor practice schedules in the old way can be permanently eliminated with the use of digital information about changes to doctor practice schedules. This is because the digital information about changes to doctor practice schedules is in online digital form and does not require any paper at all. Therefore, the efficiency of paper use by this new system is very high.

4 Conclusion

Digital information about changes in doctors' practice schedules at Hospital X through accessing via QR Code is very effective, where patients can easily access this information using the default application available on their phones, namely Google Lens. Access to this information can be done both within Hospital X and from outside Hospital X.

The website used for delivering digital information about changes in doctors' practice schedules is completely free. Therefore, Hospital X does not need to spend a large amount of money to hire a professional computer programmer to create this application. The use of paper for delivering information about changes in doctors' practice schedules in the old way can be permanently eliminated, allowing Hospital X to achieve efficiency in paper usage.

Acknowledgments. This research received no external funding.

Disclosure of Interests. During the preparation of this manuscript/study, the author used DeepL [https://www.

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