Utilizing E-Health Website Application to Generalize Health Services

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Abstract. The purpose of this study is to create a solution for the problem for lack of equitable of health services. The method used in this research is descriptive method to explain the flow of the program design. This design flow used the water fall method including the design stage, program development, testing phase, program development and program checks. The Results from the research indicates that Telemedicine is useful for establishing network communication with health care centers both in Indonesia and abroad because it can expand the access to the patient care quality especially for regions and served populations who need them most.

1. Introduction
In this era of globalization, information systems and information technology are absolute things that are needed in everyday life in any field. This rapid development is enough to change the lifestyle of people in an era that has been affected by the era of modernization. Nowadays, all things cannot be separated from technology. such as daily activities, government activities even to large-scale business market activities. it cannot be denied that technology is one of the supporting tools that greatly contribute in the progress and continuation of life of the wider community. Thus, there is no reason for any individual or organization to ignore the sophistication of information systems technology because it has a lot of benefits

The use of information technology is very important considering the many problems of life related to the welfare of society. For that it is very important for the government to immediately develop various facilities using information technology-based facilities are sophisticated and modern. Including health services which is needed by the community, especially in the low economic conditions. Currently the development of health cases became one of the main focuses of the government's attention. This requires a tool for the fulfillment of the community's need for health and convenience in accessing the health, namely health supported by technology.

The government responds to technologically advanced developments very well and enthusiastically in order to develop the country’s infrastructure as well as solving solutions for health problems that are not evenly distributed. Telemedicine can be used to build communication network with health service center both in Indonesia and abroad. Japan is one of the hospitals that utilize telemedicine. According to Lygeia et al. the most important thing in health service is Patient-centered care as one pillar of a high-performing, high-quality health care system. It is a key component of many efforts to transform care and achieve better population health. The development of technology in health service is to help
people to access health service such as secure e-mail messaging between patients and providers, or mobile health apps—have created new opportunities for individuals to participate actively in monitoring and directing their health and health care. The focus of the article is also in improving health care system to improve individual health [1].

According by Joaquin et al found that e-health has so many benefits for the people moreover in the developing countries such as improving communication between institutions, assist in ordering and managing medications, and help monitor and detect patients who might abandon care show promise. Beside of that, mobile device also help the implementation of e-health in improving data collection time and quality and the result is to ensure the future health investments are well-targeted [2]. Through an analysis of recent data on adults' and children's computer use and experiences, this Data Watch shows that use of computers and the Internet is widespread and that significant percentages of the public are already using the Internet to get health information. Implications for the future of health communication on the Internet also are explored [3].

Caroline et al focus on accelerating the adoption of health IT because it will require greater public-private partnerships, new policies to address the misalignment of financial incentives, and a more robust evidence base regarding IT implementation [4]. Wail and Taleb on their research discusses an experimental scenario for an e-health monitoring system (EHMS) that uses a service-oriented architecture (SOA) as a model for deploying discovering, integrating, implementing, managing, and invoking e-health services. Such a model could help the healthcare industry to develop cost efficient and dependable healthcare services [5].

The success of implemented E-Healthy is explained by Caleen, she describe that “Hello Health,” the Brooklyn-based primary care practice that is fast becoming an emblem of modern medicine because Hello Health is a paperless, concierge practice that eschews the limitations of insurance-based medicine. Hello Health is popular and successful, largely because of the powerful and cost-effective communication tools it employs: Web-based social media. Indeed, across the health care industry, from large hospital networks to patient support groups, new media tools like weblogs, instant messaging platforms, video chat, and social networks are reengineering the way doctors and patients interact [6]. Beside of that, the collaboration among providers, combined with government support, will help advance widespread consumer adoption of online health care [7]. on engage in health information seeking via the Internet. Consumers are taking a communication perspective to review why public health professionals should be concerned about the topic, considers potential benefits, synthesizes quality concerns, identifies criteria for evaluating online health information and critiques the literature [8]. In general, the use of health information technology should lead to more efficient, safer, and higher-quality care, there are no reliable estimates of the prevalence of adoption of electronic health [9]. Including its applications, strengths, limitations, and evidence base. Including its applications, strengths, limitations, and evidence base in E-Healthy [10].

From the previous research, some things have not been explained, so the implementation Information technology brings its own dynamics and projects must recognize that the application of technology will change the dynamics of problems including on issues of community welfare. For example, it could be a result that was never expected, but it turned out to be better than expected. It happens when people apply technology according to their own needs, which may not be planned by their advocates. Such a thing is good, indicating the success of intervention in response to social needs. Information technology can be an effective tool to fight poverty, but the dissemination of technology should not be the ultimate goal. Radical changes in organizational roles and responsibilities will occur; therefore it is necessary to enforce mechanisms that can change less effective management mechanisms. Such measures usually require direct government intervention. In addition, Telemedicine will help this problem.

2. Methods
The research used the design flow method with waterfall flowchart. the first stage is the design (planning) making the program, the second is designing programs that have been designed and then
entered the stage of programming is commonly called (coding), after the program has been made in the testing stage (test the program), then the last is the development of programs has been created and tested.

3. Results and Discussion

3.1. The history of Telemedicine

Telemedicine is a subset of Telehealth, which includes the delivery of remote clinical services and nonclinical elements of the health care system. But in practice, the two terms are often used interchangeably. E-Care is often used as a synonym for telemedicine in the sense that doctors are almost connected with patients. Telehealth refers to a broader spectrum of long-distance healthcare services than telemedicine and does not require clinical services. This includes nonclinical services such as continuing medical education, provider training and administrative meetings. In contrast, telemedicine refers specifically to the use of medical information exchanged with the aim of improving patient health. This relates to the use of electronic communications to provide clinical services without requiring the patient to enter the doctor's office.

The idea of health inspection and evaluation using telecommunication network devices is not something new. After the introduction of the telephone, telemedicine experiments have been conducted for the first time by transmitting "EKG" recordings over the telephone network "analog system". Although the transmission distance is only a few kilometers, but the clinical value is not that significant. After that, several times is attempted to transmit heart and breath sounds between doctors and patients. As a medical practitioner, there may have been complaints from patients about the length of time they waited before being consulted. No wonder if so enter they will issue a complaint at length. The provided time will not enough especially if they come from out of town. This is a boost for the development of telemedicine. (Figure 1)

![Telemedicine system flow](image)

**Figure 1.** Telemedicine system flow.

3.2. Concept of Telemedicine

Telemedicine is an application of clinical treatment whose development utilizes telephones, internet, and other communication networks to transfer medical information. The term telemedicine is often misinterpreted by the term e-health or telehealth. Telemedicine refers only to clinical services,
whereas telehealth includes both clinical and nonclinical services such as education, administration, and medical research while E-health is used in terms that include telehealth such as electronic medical records, and other components in IT health (information technology). In practice, telemedicine is applied in the concept of Real Time (Synchronous), shaped like the use of a telephone or even a surgical robot depending on the patient's condition, after that Store and Forward which can collect medical data and send data to a doctor at the right time. Then the application of Telemedicine is divided into Micro Scale which is implemented by one of the health service agencies in a limited scale and also the Macro or sectorial scale which is only limited to one subsidy of medical science / health service field. (Figure 2)

3.3. Specialties on Telemedicine

Some medical specialties are early adopters of telemedicine and have encouraged the development of specialized solutions to their expertise. As a result, there are several major niche telemedicine specializations. Here are some of the most popular telemedicine specialties:

3.3.1. Teleradiology. Teleradiology is one of the earliest areas of telemedicine, beginning in the 1960s. The teleradiology solution was developed to expand access to x-ray diagnoses in small hospitals around the U.S. which may not always have radiologist staff, or may not have sufficient time access. That means patients entering the ER, especially when not working, have to wait for a diagnosis. Teleradiology solutions now offer service providers in one location to send patient radiographs and record them safely to qualified radiologists at other sites, and immediately consult on the patient's condition.

3.3.2. Telepsychiatry. Telepsychiatry enables qualified psychiatrists to provide patient care remotely, expand access to behavioral health services. Telepsychiatry is very popular because of the lack of numbers of psychiatrists in a region, and because psychiatrists often do not require the same physical examination as other medical fields.

3.3.3. Teledermatology. The teledermatology solution is usually a store-and-forward technology that allows public health providers to send photos of rashes, moles, or other skin anomalies, for remote diagnosis. As a front-line care provider, primary care practitioners often become the first medical professional to discover potential problems. The teledermatology solution enables PCP to
continuously coordinate patient care, and provides quick answers as to whether further investigation is required from a dermatologist. (Figure 3)

![Teleradiology Workflow](image)

**Figure 3. Teleradiology Specialization.**

In the last decade, there has been a great interest in the possibility of using telemedicine as a home nursing aid that is Home Telenursing. Feasibility studies into various types of technology have been driven by the hope that the care of chronically ill patients can be provided cheaper or of higher quality than traditional home visits. Although this study shows that patient satisfaction is not a problem, small evidence of cost effectiveness has been obtained. The organization Kaiser Permanente recently reported the first randomized controlled trial of home videophones. In these patients the new trial was diagnosed with various chronic conditions (congestive heart failure, chronic obstructive pulmonary disease, cerebral vascular accident, cancer, diabetes, anxiety, and need for wound care) treated at home. Patients in the intervention group were provided with "home videophones, electronic stethoscopes, and digital blood pressure monitors". Over the course of 18 months, patients in the telemedicine group received 17% fewer home visits by nurses than control patients, but they had more phone contacts with nursing staff (in addition to “visits” of the video). Measures of treatment quality in both groups were similar. Patients receiving telemedicine are pleased with the equipment and treated as effectively as the control patients. The average cost of care in the telemedicine group was 27% lower than in the control group. This is an important result, but because nursing practice in the United Kingdom is somewhat different from that in the United States. The potential for telenursing tends to be different, and thus this work needs to be acted upon in a British setting.

### 3.4. Challenges of Telemedicine Development

In most cases, telemedicine is a net gain. This broadens access to quality patient care, especially to the areas and served populations who need it the most. This provides a way to reduce health spending and involve today’s connected patients. This has the potential to change the delivery model of health services for the better. However, telemedicine also has some disadvantages, based on cyberspace interactions, and because of the social and technological barriers that may change in the future. The good news is that with the widespread popularity and widespread acceptance of telemedicine, we are likely to see telemedicine counter resolve with its passage of time. Because of course it all takes time for an adjustment. With technological advances and new displacement policies that increasingly support telemedicine, the government continues to find ways to improve telemedicine and make it a viable form of health care, even profitable for many medical workers. Then telemedicine Progress can be better measured when a legal framework is introduced and implemented. In addition, E-Health policies are developed, more human resources are trained, regular funding is undertaken, and long-
term plans are made. However, Telemedicine must compete with many legal and ethical considerations, especially in the areas of patient privacy and confidentiality. However, in developing countries, other issues are increasingly prominent. Cross-border legality is a concern of developing countries using telemedicine services to connect with health professionals from more than one country. An important question that needs to be addressed Overcome in this scenario is, which country's laws are applicable or have jurisdiction over these services. A number of problems can occur when health legislation in countries implements telemedicine. Uncertainty may affect the use of such services in industries and developing countries. In addition, the lack of information about policies and legal guidelines on the use of telemedicine in a clinical context may be a deterrent to the adoption of such practices.

4. Conclusions
From this research, it can be concluded that to build or develop good service or community infrastructure, it needs good idea. And the idea must be best and best targeted. In addition, development and development must be harmonized to support the success of programs undertaken by the government to improve services to the community.

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