Information Technology in Public Health Aspects: A Literature Review

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Abstract---*Information technology in the health sector is very important, especially to improve the quality of health services in hospitals. If the quality and service facilities at the hospital increase, so will the human soul that is helped. Information technology helps diagnose diseases, find the right medicine, find out various types of diseases, and analyze internal human organs that are difficult to see. Information technology in the form of Computerized Axial Tomography (CAT) System is useful for drawing the structure of parts of the brain and taking pictures of all immovable organs using X-rays. Dynamic Spatial Reconstructor (DSR) system that can be used to view images from various angles of the body's organs. Single Photon Emission Computer Tomography (SPECT), is a computer system that uses radioactive gas to detect body particles that are displayed in the form of images. Another form is Position Emission Tomography (PET) is also a computer system that can display images using radioactive isotopes. Besides Nuclear Magnetic Resonance is a diagnostic technique by magnetizing the nucleus (atomic center) of a hydrogen atom. DNA computer, which is able to diagnose disease while giving medicine.*

Keywords---*Information Technology, Health Aspects, Public*

I. INTRODUCTION

Information Technology plays a major role in improving global citizen health services.
Information Technology in the health sector has shown a very significant role to help the human soul. Information Technology is technology that can help humans create, change, store, communicate or disseminate information. The development of technology and information in the world is very rapid, where every thing related to humans and human activities are always related to technology and information. The development of Information and Communication Technology has covered various fields. In developed countries, the use of information technology in the world of health begins with health services that are offline, followed by online services to take advantage of advances in technology. The development of Information and Communication Technology also plays an important role in the medical field. Technology in the world of health has a very important role, especially in providing the quality or quality of health services in hospitals.

Along with the development of technology and information, as if it has created a new standard that must be met in the world of health. This makes the medical record in Indonesia challenged to continue to develop the quality of information technology-based health services. However, it is undeniable that there are still many obstacles in the application of information technology for health management in hospitals. If still in the development of transaction information systems for example: administrative, financial and demographic data. Understanding of health workers in hospitals against the potential of Information Technology is very weak, because of the wrong understanding in the application of Information Technology, it is. Therefore, strengthening the aspects of knowledge and skills is one of the keys. The development of information technology shows the emergence of various types of technology-based activities such as e-government, e-commerce, e-education, e-medicine, e-laboratory and so forth. Wayan Wardiana (2002) the use of technology can be through email facilities, websites, filling online forms and so forth.

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Telemedicine or E-Medicine, has been used routinely since the early 1990s. According to Jiang Tian and Huglory Tianfield, E-Medicine has a large impact on the traditional health system. Information technology in the form of Computerized Axial Tomography (CAT) System which can be used to draw the structure of parts of the brain and can take pictures of the whole body that is not moving by using X-rays. As for the moving organs using the Dynamic Spatial Reconstructor (DSR) system which can be used to view images from various angles of the body's organs and many more computer systems in providing patient treatment services. Information is also very important and very basic for patients because all that is about information is information, so it must be managed very well and safely because a good information system is needed in order to benefit the patient's treatment.

AI. Literature Review

Hospital Information System is an integrated information system that is prepared to handle the entire hospital management process. As for some examples of Information Systems, namely:

1. Diagnostic and action services for patients

Patients must get services by the hospital, of course, patients will be examined by a doctor through several examinations and actions. Surely the doctor and patient will communicate with each other and produce medical records, informed consent (consent given by the patient to the doctor to do something after getting an explanation or information), Prescriptions, Reports and so forth.

2. Medical Records

Medical/health record is a written record or description of service activities provided by a medical/health service provider to a patient. Medical/health records include: the patient's complete identity, records about the disease (diagnosis, therapy, travel observations), notes from third parties, laboratory examination results, x-rays, ultrasound examinations, etc. as well as resumes. Medical/health records must be made immediately and completed in full no later than 48 hours after the patient returns or dies.

3. SmartCard

Smart Card can be used by medical interpreters to know the history of the illness of patients who come to the hospital because in the card the medical interpreters can find out the patient's medical history.

4. Computers

Computers make it easy to register and charge fees.

Utilization of Computer Technology in Medical Devices

Sophisticated medical technology is a tool for doctors, and aids for doctors, and aids will reduce the burden on nurses. Progress in medical services, including medical devices with sophisticated computerized systems. As for some medical equipment that uses computer systems, namely:

1.CT Scan

CT Scan combines a series of X-ray scans taken from various different angles. Then the computer will process to produce images of bones and soft tissue in the body. CT scan also diagnoses muscle and bone abnormalities, such as tumors or fractures in the bone. Determine the location of tumors, infections, or blood clots. Guide medical procedures when performing surgery, biopsy, or radiation therapy. Detect and monitor certain conditions and diseases, such as cancer, heart disease, nodules in the lungs, and masses of the liver. Look for injuries or internal bleeding.

2. Sin X can be used to see the condition of bones, teeth and other organs without direct surgery on the patient's body. Usually, ordinary people call it the '' RONTGENT PHOTO'. X-rays are used to take photographic images known as radiographs. X-rays may penetrate the human body but are absorbed by parts that are more dense like bones. X-ray images are used to detect bone defects, detect broken bones and work around the state of organs in the body. 3.USG knows the inside of the body without surgery, such as the vision process

4. Phacoemulsification is a cataract operation without stitches using advanced medical devices.

5. As for several operations using medical devices, namely:

-Bypass heart surgery

-Gender Change

-Display Facial Beauty

6. The Computerized Axial Tomography (CAT) system is used to draw brain structures and take pictures of all immovable organs by means of X-rays.

DSR (Dynamic Spatial Reconstructor) system, which sees images from various angles of the body's organs.

SPECT (Single Photon Emission Computer Tomography), is a computer system that uses radioactive gas to detect body particles displayed in the form of images

PET (Position Emission Tomography) is a computer system that displays images using radioactive isotopes

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NMR (Nuclear Magnetic Resonance), which is a diagnostic technique by magnetizing the nucleus (atomic center) of a hydrogen atom. With the emergence of the use of computers in the field of medicine, it is very helpful for a doctor in diagnosing the disease while giving medicine.

Information and Online Health Consultation

Online Health Information and Consultation which is a service providing information and consultation about health problems online.

Advantages and disadvantages

We no longer doubt that technological developments also affect the progress in health services, for example computers that are very helpful in health services in hospitals. The benefits that can be provided by computers in patient treatment services are numerous, such as:

1. Can make it easier for officers when doing rotgen on the patient's body so that the disease and its causes can be found.
2. Can diagnose, therapy, care and monitoring.
3. Administration in the Hospital.
4. Database of employees in the hospital.
5. Laboratory of health analysis and can conduct research in the field of health.
6. Conducting research.

Computer shortages in patient treatment services, such as:

1. Requires huge funds to implement this program.
2. Also must require skilled personnel to be able to run it.
3. If there is interference on the server while being used.
4. Influence the health of those who use it.
5. Affects the position of the spine.

It is well known that gene sequences intrinsically have an inherent ability to process information like a computer. Therefore, trillions of biomolecular machines that work with more than 99.8% accuracy can be packaged in a drop of solution. DNA computers use nucleotide strands as data input, and biologically active molecules as data solutions can produce logical control systems of biological processes. This machine is even capable of doing mathematical problems.

The role of computers in the health sector is very many and important. Examples of roles in the health sector include:

• Administration

With the existence of computers in the world of administration, especially in hospitals, this is very helpful in storing, grouping, and processing data. Without a computer it might be very difficult to check the amount of data - patient data, drug stocks, and other data in the hospital. But with a computer, checking patient data, drug stocks and hospital financial data will be easier and more practical to do. With the presence of computers and sophisticated systems at the hospital, it will make it easier to run a system at the hospital.

• Medical record

Every time we visit a hospital or go to a hospital, we will fill out forms, our visit information, and the drugs (prescriptions) we receive in the service will be part of our personal health history that is kept by the medical records officer in the file storage section. Example: e-Health if implemented can help the government to develop programs that can help the work of doctors, nurses, and other health workers to exchange information electronically, can retrieve patient medical record data anytime and anywhere if needed, and collaborate by providing other health services directly through the internet. Health services in this way will provide a lot of savings in terms of document costs, administration of services and provide benefits and provide the best health service satisfaction to patients more quickly.

• Pharmaceutical sector

In the field of medicine, computers also play a very important role in pharmacy. For example: for prescription and drug dosages and to store data on the prices of these drugs. In addition, computers can also help to group various drugs based on their use.

• Diagnose an illness

Computers can also be used to produce photos that are much better than the patient's body. X-rays are a traditional technique that records two-dimensional shadows of bones on film. With the DNA computer that has been specially designed in the field of health to be able to diagnose an illness is not difficult anymore, because by using a computer it will be faster, easier and accurate to find out the name and type of a patient's disease.

BI.   Discussion

Information technology can be used for storing and processing hospital administration data, conducting research in medicine, diagnosing diseases, determining the right medicine, and analyzing the inside of human organs that are difficult to see. Besides the role of other information technology in this field is the medical record. Retrieval of patient data is done online so that it can be accessed anytime and anywhere needed. In this way the use of costs can be reduced. Media in Health Educational media are tools or channels used to deliver messages (Machfoedz & Suryani, 2008). Media is

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something that delivers learning messages between the message giver and the message recipient. Learning media are media used in learning, which include teaching aids in teaching as well as a means of carrying messages from learning resources to recipients of learning messages (Anitah, 2009). Media as a presenter and distributor of messages, educational media in certain respects can represent educators presenting learning information to students. Humans use the senses to interact with their environment so as to influence those interactions the media are used. The more senses used to receive a message, the easier it will be received or understood (Suparman, 2012). Research Results Herlina, Sanjaya, & Emilia, (2013) states that the use of telephone and SMS media can improve understanding, insight, and information needs during care and childbirth, this study aims to look at the benefits of SMS technology as a medium for health promotion, especially towards knowledge pregnant women about complications and nutritional intake. Research results by Cormick et al., (2012) show that cell phones will be an approach to provide support to pregnant women from low socioeconomic levels in middle-income countries, because the majority of women interviewed said it was easier to access communication via cellphones. The health education process is the process of transferring information about health that is expected through communication. The communication component is composed of the sender and receiver of the message, the contents of the message, the media and the effects of the message.

Electronic Media Electronic media as a means of conveying messages or health information has different types, among others: Television Television conveys messages or health information in the form of audio visual, can be in the form of plays, soap operas, question and answer discussion forums about health issues, reality shows, lectures, TV Spot, quiz quizzes and so on. Radio Radio is an electronic equipment that can be used to listen to the latest news, can find out some important and new events and events, life problems and so on. Radio can be used as a learning medium that is quite effective. Video Video is a technology for sending electronic signals from a moving picture. The general application of video signals is television, but it can also be used in other applications in the fields of engineering, science, production and security. Slides Slides are worksheets where presentations are made. Slides can be found in a software on a computer called a power point. This slide can be used during education with the help of an LCD or projector. Flim Strip Film frame or slide is a transparent film that is generally measuring 35 mm and given a 2x2 inch frame. In one package contains several film frames that are separated from each other. Internet The Internet is short for interconnection-networking is all computer networks that are interconnected using the global system standard Transmission Control Protocol/Internet Protocol Suite (TCP/IP) as a packet exchange communication protocol (packet switching communication protocol) to serve billions of users throughout the world. Some applications that can be used with the internet are Website, Blog, Social Media services (Facebook, Twitter, Kaskus, Instagram and others) that can be used either through computers, tablets or cell phones (Pustekom, 2007).

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IV. Conclusion

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Advances in information technology in the health sector provide many benefits, especially in equitable access to and information on health. The development of technology about health information providers or health diagnostic tools that can be used alone can bring concern to the existence of the profession of doctors and other health professionals in the midst of society. Advances in information technology have made nursing in Indonesia challenged to continue to develop the quality of information technology-based nursing services. Information is very important, because everything related to public health is information that is well managed and safe. The internet as a channel for finding disease data and communication is the hope of many people in various countries, especially in developing countries.

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