RUNNING Head: THE INNOVATION OF TECHNOLOGIES IN HEALTH CARE
SETTINGS

Research Paper: Information Technology for the Health Professions

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THE INNOVATION OF TECHNOLOGIES IN HEALTH CARE SETTINGS

Abstract:

This paper is written on the importance of Information Technology, and the procedures of how care providers can use these technologies to their advantages to make a difference in health care settings. I outline the structures of the technologies and demonstrate the opportunities it has brings to health care organizations. It's not only helps care providers do a more efficient job, but it also helps to detect more illnesses for patients that results in more lives saved.

Information technology also provides a clear path for the health-providers in reach their goals by providing an effective and efficient service to their patients in a shorter time frame. Thus, the implementation of information technologies will help health care settings to fulfill their vision by 2020; of improving human life, adapting to new technologies, provide a safer and healthier place for care-givers and their patients.

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Section 1: Forefront of Health Care Technology

The three topics I choose from the organization settings of health care information to write for my term paper are: 1) health information technology, 2) health systems/integrated delivery, 3) physicians practices. I chose health information technology for my first choice because it is the forefront of patient's safety in hospitals across the country and throughout the world. It is very essential for today's health care and their patients where it helps to eliminate human errors where sometimes caregivers accidentally make negligent mistakes that can be a very high price to pay.

We are now living in the twenty-first century and everything is going digital. In order for the health care system to properly take care of its patients it has to adopt health information technology. My second choice is health systems/integrated delivery because it was created as a model in health care designed to reduce costs and improve outcomes in an effective and efficient manner. This is good for healthcare organizations to save on resources by going paperless and to help to make the world a healthier place. My third is physicians practice because HIT will be of great help for them in helping to achieve the goals as a caregiver.

Section2: Health Information Management

1. Terms and concepts of Health Information Management- According to the office of AHIMA, "health information management (HIM) is the practice of acquiring, analyzing, and protecting digital and traditional medical information vital to providing quality patient care" (Office of AHIMA, 2013). Therefore, for them adapting to the skills and administering the computer information system concept that will prepare more knowledge for a future healthcare care-giver, of how to treat and care for their patients

in a professional and caring manner. This will help them to deliver a more quality service to their patients in an efficient time frame.

2. The current environment for health care information management including policy- is according to AHIMA, "current environment for health care is the code of ethics created by the America Health Information Management in which each health care provider's responsibilities are to be carried out. The managers are to demonstrate professionalism to their patients, their co-workers, employees, and the general public, by showing commitment and integrity during the coding process"(AHIMA). The code of ethics helps mangers follow the rules and regulations and in that way they can stick to the policy of their organization.

3. Some of the types and sources of data, methods of collections, and use in a health care setting are: According to the office of Health Resources and Services Administration (HRSA) "some source of method for collecting data are patients and staff surveys, focus-group discussions, independence observations, and random sampling. These sources are simple data collection planning that gathers useful, reliable, and resource-efficient data in helping to prevent error in the data processing" (Office of HRSA, 2011).

4. Characterize the types of health information systems. 1) According to Burke and Weill, some types of sources that use in health care settings are "the electronic health record (EHR) that can be used to collect and store, then generate the patients' entire medical and personal history by one or more encounters at any given time. The electronic medical record (EMR) is an electronic system that stores patient's information at one location. 2) Radio frequency identification (RFID) are tags input devices that are

implanted in patients and are used to keep track of medical devices serves as medications for patients. RFID can be from a wrist band, a card with a magnetic stripe, or glasses that Alzheimer's patients wear in case they are lost for identification. 3) Telemedicine delivers the whole range of medical care for patients to physician or vise-versa from a distance" (Burke &Weill, 2013). These are some of the many methods used to collect data in the health care setting, which helps the care-giver do a more effective and efficient job.

5. The differences between data, information, and knowledge- Hunter Whitney with Search Data Management defines, "data as unprocessed facts and figures without any added interpretation or analysis. Information is the data that has been interpreted so that it has meaning for the user. Knowledge is the combination of information, experience and insight that may benefit the individual or the organization" (Whitney, 2014)

6. Information management can affect a health care organizations ability to achieve its goals by having access to health electronic tools system; it provides faster and more accurate care for patients. This is a great opportunity for the health care organization to be able to assist more patients with a higher degree of accuracy.

Section 3: Information Systems Assessment, Selection, and Implementation

1. The different purpose, use and key functions of an administrator are according to Abilash Sinha, an administrator is responsible for overseeing a health organization. Their job "includes staffing, directing, planning, organizing, communicating, controlling and coordinating and motivating employees" (Sinha, 2012). An administrator will document the information in the computer to make it easier to access when needed. As

opposed to key function of clinical information system Burke and Weill defines clinical

information system (CIS), "as clinical information in which the care-giver inputs patients'

information into the computer for easy retrieval, such as patient's medical history and

other relevant information that helps health care personal make decisions" (Burke and

Weill, 2013).

2. The factors for adopting the influence and implementation of a health

information systems are very essential in today's technology world that we are living in,

especially since the needs for health care providers is in high demand. Health

information technology helps care providers to keep up with the fast trend of today's

lifestyle by working at a faster pace in caring for their patients in a more effective and

more efficient manner. Another important factor for adapting the health information

system is that it helps to save on resources by not having to store thousands of files

with patient's information, creating a healthier environment by lessening the debris that

causes pollution.

3. To outline a process and criteria for selecting a new information system a

physician or a health organization thinking of buying a new information system has to

think of the prospective of the advancement of the equipment, such as the cost and

effectiveness, the improvement of patients safety, and how If it can serve for one or

more facilities. An example, purchasing an EHR system is better than buying an EMR

system, why, the EMR system was designs for a single facility that provides patient's

information and primary doctor to their specialty doctor. As opposed to EHR that serves

all of EMR purpose, plus handles the financial historic health information, pharmacy

records and payment, allows physicians to retrieved patients information from different

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states and internationally as well, and easy accessible to patients to update their

information at any given time.

4. The office of Introduction to Network Operating System wrote, "Technology

data is by one creating, updating, reading and deleting data on network software. A

stand-alone system is when the user types a command that requests the computer to

perform a task. The request goes over the computer's local bus to the computer's CPU.

A network operating system ties all computers and peripherals plus interoperates with

other servers such as Windows NT. Apple computers can interoperate with both

NetWare and Windows NT servers" (office of INOS).

Section 4: Management of Information System and resources

1. The resources that an organization needs to manage health care information

effectively including the methods of financial investment, is to invest in technologies that

can do multi-tasking that provides better outcomes. As Betty Wong wrote, "the more

advance technologies can be more reliable and flexible in supporting the organization

mission for providing an effective and efficient outcome" (Betty Wong, 2002).

2. The role and responsibilities for managing a health Information department is

its locus within the health organization to be able to use the technology tools to improve

productivity tasks to achieve effectiveness. Thus, display a locus control is training staff

in procedures, policy and regulations of how to handle medical records in a safe way.

As the office of TPN wrote, "Managers that have an internal locus of ensuring that their

lives and actions are empowered, diligently, to achieving the goal in making a position

change" (Office of TPN, 2014)

3. As Burke and Weill wrote, "The roles of Health care managers are to get adapted to the Health information management culture, where they can learn how to uses the technology to promote the expansions of doing a better job in their health care settings" (Burke & Weill, 2013).

Section 5: Assessing Emerging Technologies

1. Over the years the health care organization has transformed form an ordinary caring facility to an extraordinary care environment. The reason for this is the access of the new advanced technologies that allows the care providers to deliver a more effective and efficient service to patients. These new technologies according to Stephen L. Grimes help to make a difference in the clinical information systems, "are imaging, robotics, telemedicine, genomics, and nanotechnologies could yield unprecedented improvements in the quality of patients care and in the economics of care" (Grimes, 2013). These medical devices were the relevant tool that was needed to help care providers provide an effective caring for patients.

The healthcare providers are depending heavily on these devices even though the devices are very expensive. They are helping to detect many hidden illnesses that generally took a longer time to discover. By learning the benefits of these advanced technologies and communication systems, care providers need to educate themselves on how to handle these new infrastructures to create a greater impact over the next decade.

2. Nanotechnology and pharmacy are two of the new advanced technologies in the health care setting assessing the benefits it offers according to Burke and Weill, "even though it is still in the experimental stage, nanotechnology will have the ability to

treat many illness conditions. One area that shows a promise is treating skin cancer. It will enter into the blood stream with tiny particles nanoparticles (or tiny chemical robots), which are made of protein and polymers. By introducing the small particles in the blood stream, it binds the particles to the surface of the skin cells and prevents delivery of genetic codes delivered RNA interference.

The use of nanotechnology sets off a chain reaction in the form of oxygen that can kill cancer cells. Also the use of nanotechnology is the treatment of toenail fungus, cold sores (in clinical trials), and cystic fibrosis infections" (Burke & Weill). Is a privilege for healthcare to have access to nanotechnology to help fight cancer which is one of the deadly diseases in the world today.

3. The attitude for employee adoption to the use of new technologies may be difficult in the beginning. The reason being many of the employees are not accustomed to change, and sometimes they react with a negative attitude because they feel timid or confused about learning new procedures. However, if healthcare leaders properly implemented a structured strategy by communicating clearly and honestly about the change and the importance and benefits it offers they will comply.

Also care provider leaders allow the employee to voice their opinion and provide relevant information for them to better understanding, by explaining the procedures step by step it will be easier to convey. As Didier Bonnet wrote, "managers have to plan and budget for adoption from the start. Such as what it will take for employees to realize the benefits beyond the technology deployment efforts" (Bonnet, 2014). Therefore, it's the manager's duty to communicate the value for the adoption of the new technologies and the effectiveness it will provide if all the employees adapted to the new change.

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Section 6: Evaluate the value of Information Technology

I believe a criterion that is best to use to evaluate the impact of the health information management to help achieving their goals is that mangers have to create strategies planning structure with motivation for their employees that will help them to achieve the organizations overall goals. Buchbinder and others wrote that, " it is an outcome expectancy in which an employee's motivation to put forth effort on the job depends on the expectations that the individual will be able to perform a task and that successful performance will result in valued outcomes" (Buchbinder 2012). By the employees receiving the incentives it will motivate them and the organization will be reaching the goals of their expectations.

Especially for the older group of people they may have an idea of how to use a computer; but information technology requires more than that. As Burke and Weill wrote, "the push is to use IT in all aspects of healthcare, from electronic health record to integrated hospital information technology systems" (Burke and Weill, 2013). Therefore, when the employees are adapting to the changes then it is easier for the manager to evaluate the process of the changes weather to know if they are getting better outcomes.

Section 7: Security and Privacy

1. The legal and regulation requirements pertaining to health information use strong securities for how care providers and their employees must handle the patients information. Over the years people's information has gotten into the wrong hands and has caused lots of problem for health organizations and their employees. As Lisa A. Gallaher wrote, "the exchange of information and data has become very critical when

delivering the quality patient care services and the effectiveness of healthcare organizations. The benefits of sharing the health information appropriately among physicians, patients, and other authorized personnel in health care is very critical, therefore it must be well secured.

The regional health information (RHIO) is a group of organizations created to improve the safety, quality, and efficiency of delivering health information properly" (Gallagher, 2007). For this reason RHIO has outlined safe procedures for physicians and their employees on how to handle people's information to keep it secure. Also Burke and Weill wrote, "Congress has passed the HIPAA Act in 1996 for the purpose of protecting the privacy of individually identifiable health information" (Burke & Weill, 2013). This makes the health organizations mindful of how they share information and be more careful when using and discussing it with clients.

2. The office of HRSA wrote that, "Every organization is to ensure that their health information technology is supposed to be protected with security of protected health information (PHI) and HIPAA law that requires the measure to guard against unauthorized users. Below are some of the areas that are required to safeguard:

a. Administrative Safeguards- refers to forcing the policies and procedures that come with their practicing to protect the privacy, security, and confidentiality of the patient's health information.

b. Physical Safeguard- for IT and PHI refers how to measure to protect the facilities and the hardware that store PHI. Physical treats, weather in paper or electronic formation, affects the security of health information. Also procedures and policies must be in place to physically safeguard health IT.

c. Technical Safeguard- these safeguards are build into the health IT systems to protect health information and control access to it. This includes measures to limit access to encrypt and decrypt electronic information to electronic information that helps to guard against unauthorized access to that information while it's being transmitted to others. Again the policies and procedures are required to address the steps of how to practice safeguarding the system" (HRSA).

3. The ethical issues that are related to the usage of health care data are that care providers have to ensure the safety of patient's information. Sometimes many types of mistakes such as giving patients the wrong medication or entering the incorrect dosage to patient's medication may occur. Even though this is dangerous, we are human and sometimes mistakes do happen.

That is why having the EMR can help to catch incorrect mistakes that are entered into the computer. The office of AHIMA wrote, ethical obligations are central to the professional's responsibility, regardless of the employment site or the method of storage, security, and collection of health information" (AHIMA, 2008).

Section 8: Systems and Standards

1. According to Jim Geier, the characteristic and components of architecture "are the protocols and components necessary to satisfy the application requirement. That is creating a plan for all the different parts working together to implement the overall system. Databases are a system that stores information such as files, email messages, video etc. Networks are a software program that controls other software and hardware running on a network"(Geier, 2004).

2. According to Mary Brandt, "some major types and classifications of health information standards are: 1) development organization (SDOs) that addresses different aspect of varieties of health informatics and information. 2) Health informatics standards pay significant roles as electronic data management increases. 3) Explicit mandatory standards of where it categorizes the privacy security in the proposed HIPAA privacy and security rules" (Brandt, 2000).

3. Burke and Weill wrote also wrote, "the certification for EHRs is for the system to meet the criteria that were developed by Secretary of health and Human Services and must fully adopted over a five years period. The EHRs is design in a standard format from a patient's personal history, medication and allergy list, vital signs, laboratory results, and all care-providers the patients had and are seeing, among other things. This makes it easier to retrieves, and also it must accessible from any computer screen" (Burke & Weill, 2013).

4. According to Savell and Foldy, "Public health is an external body relevant to health informatics and electronic health records. The reason being Public health has benefitted from, and has often pioneered, informatics analysis and solutions. Public health informatics is a subdomain of the larger field known as biomedical or health informatics. Public health surveillance tools are powerful and sophisticated but user friendly to accomplish the work and proposing a vision for identifies challenges and opportunities, and suggests approaches to attain the vision" (Savell & Foldy, 2012).

Section 9: Summarization and/or Conclusions

I learned from doing the research of the great advancement Healthcare information (IT) have on health care settings by providing efficiency for care-providers and their patients. Healthcare is one of the largest and most important organizations in the world. Thus, for having access to the information technologies patients will feel more comfortable going to the doctor, because of the better technology to take care of their illnesses.

The electronic health records (EHR) is the foundation of computerized health information system where it retrieves information, finds errors that are overlooked, and speeds up the process for treating patients, Since the health care organization is in high demand, the EHR system can provide the need to keep up with the fast trend of today's technology world. Electronic health system is designed where doctors, and nurses have easy access to patient's information plus, pharmacists have access to lab and medication results etc. Also it designates the different parts of the information record available to each group of care-givers to see; which results in confidentially for the concern of the patients.

There are some other technologies that make a great impact on the health care settings, such as 1) robotics equipped programs with artificial intelligence to see, hear, and respond to the environment in helping physicians to perform surgery. 2) Telemedicine technology provides the ability for physicians to reach out to patients and help them even though they are far away and be able to see the physician face-face. 3) Nanotechnologies that hold promise to treat many illnesses, such as skin cancer by

entering into the blood stream with tiny particles to binds the articles to the surface of the skin cells.

Information technology has really delivered it promises, in transforming the delivery of healthcare to a new horizon. It has fulfilled its promise by providing security, efficiently, and works for everyone in healthcare settings in playing their roles to fulfill the missions. Information Technology is related to Saint Leo Core values of "integrity where they believe "in order for them to exceed their excellence demands everyone including students and faculty need to be consistent, honest and just in word and deeds and to deliver nothing less. Also related to core value of excellence everyone at Saint Leo individually and collectively work hard together by learning the skills and knowledge that is required to make a difference in the communities" (Office of Saint Leo University).

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