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The Emergence of Health Information Technology

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Information technology has revolutionized the world in countless ways. One particular area of our lives that has been transformed by information technology is the area of health care. The United States Department of Health and Human Services describes health information as the following: "Health information technology makes it possible for health care providers to better manage patient care through secure use and sharing of health information."(heathhit) The following discusses the complications , benefits, and evolving technologies in a field of study that is continually developing.

To give the reader a broad understanding of health information technology (HIT) and its roots let us begin with the first attempt at using a computer to document patient information. In 1966, at the University of Wisconsin, the first computer was used to record medical history. Unfortunately, the amount of machinery required and the limited capacity of software quickly ended the project. (Lehmann et al., 2006) Approximately at the same time Morris Collen was

also leading a project to process patient records electronically for the medical group Kaiser

Permanente. By 1971 he had some success and more than one million patient records were

stored in the Kaiser Permanente database. (Lehmann et al., 2006) While many people may think

of information technology as a relatively new addition to the field of medicine it is clear that

implementation of IT has been developing for over forty years.

   The use of HIT can be a controversial subject when it comes to dealing with the expense

of implementing new technologies. "…the biggest impediment is financial, which results in the

misalignment of cost and benefits." (Hersh, 2273) While the hospital or physician who pays for

the technology may see some benefit, Hersh says 11%, many other branches of the medical field

benefit at no expense when electronic medical records (EMRs) are utilized. On the flip side the

savings when implementing EMRs is significant and something to consider. According to a

group of authors who have explored the savings and cost of health IT there is $12.5 billion in

potential savings when only electronic-claims and online enrollment are evaluated. (Girosi, 80)

An important dynamic of applying EHRs is to decide whether or not whoever pays for them

should reap the financial benefit. Since the clinic, hospital, or institution that incurs the initial

cost of attaining equipment, transferring records, and the expense of maintenance wants to

benefit from there expenditures there is a discrepancy as to how they should be reimbursed. One

way for physicians and hospitals to recover some of their expense would be to implement a "pay

for performance" system. (Hersh, 2274) In fact, "policy makers in the U.S. have employed a

variety of cost-control and supply-side mechanisms, including prospective payment systems,

managed care…and pay-for-performance." (Hofmann, 5) These methods could help alleviate

some of the financial burden and also help divide the expense among insurance companies,

laboratories, and patients. Another problem is how to ensure that everyone has the opportunity

to apply the use of electronic medical records. The Office of the National Coordinator for Health Information Technology (ONC) was developed to promote HIT on a national level. Part of their mission is to make funds available on both a national and federal level in order to pursue that technology has a place to thrive in all communities. (healthit.hhs.gov)

Another significant issue involving health information technology is whether or not it improves patient care. One positive effect of HIT is that a physician is able communicate with a patient via computer. (Hersh) A patient, whether being discharged from the hospital or leaving a doctor's office, can be overwhelmed with information. The use of electronic medical records as a reminder is just one way the medical field can use modern technology to ensure a patient is receiving quality care through something as simple as an email. Quality of health care can also mean a doctor having the capability of seeing your health record as a whole. "The primary means of coordination is often through discussion…about… other services…" (Chapter 7)If a doctor grasps the full picture of a patient's health then they can give a better diagnosis or prescribe a more fitting drug that ensures a higher quality of care. The more the practitioner knows about a patient the more likely the patient is receiving more accurate care.

Cutting edge technology is constantly being developed in many fields of study and altering the way we live our lives. One particular new technology that has the possibility of changing health IT is the use of RFID (radio frequency identification). This wireless technology can track and locate objects using an electronic product code network. (Hoffman, 285) While the use of RFIDs is not new to the world it is an emerging technology in medical care of humans. RFID has the ability to inspect and detect counterfeit drugs. Also, this technology is capabale of keeping completely automated records that would save not only save time, but be able to track and identify supplies, patients, and health care staff. With the rising cost of health care at the

forefront of medical related problems the development of new technologies could be a factor in

resolving many problems. However, as with many things, there are negatives and a few kinks

that would need to be worked out before applying RFID use. Many people know that you can

not use cellular phones in hospitals. The reasoning behind the prohibited use is due to the

elector-magnetic interference in life saving equipment. The same issues could occur with the use

of RFID technologies. However, test have shown that newer medical equipment would be

slightly effected, but in some cases older equipment could have higher levels of interference.

(Hoffman, 287) Another way RFID technology could be used would be to actually implant a

RFID device into a patient. This technology has already been approved by the FDA and would

allow the name of a patient and their EMR to be displayed over a secure website. (Bria, 36) This

emerging technology seems to be on pace to dramatically impact the way we deal with health

care.

Security is a significant issue when dealing with technology and peoples personal

information. In one book the author tries to relate to the reader that e-mail is not a secure way to

communicate with a doctors office. For example, many people find e-mail to be a simpler way

to communicate about important information, such as lab results. The problem with that is that

unless you are using encryption technology your personal information could be read by others.

(Dennis, 54) Using internet for basic information you would not mind others knowing should

not be a problem. When dealing with the possibility of sensitive information internet users need

to understand the level of security they are communicating through. In The Journal of the

American Medical Association privacy is noted as an "issue [that] exist whether the medical

record is paper or electronic." (Hersh) The ability for personal information to be shared does

not start with electronic medical records, but happens instead when personal information is

shared. Hersh, in the same article, discusses the importance of instilling a demand for privacy in our culture. The world will never be perfect, but working to give confidence to users is an important step toward the advancement of information technology in health.

While many road blocks still exist for the advancement of HIT to be fully appreciated the use of technology in the modern world is not only inevitable, but also vital. Many studies have shown that without implementing and developing new technologies our health care system will continue to struggle. The hope is that by realizing the potential benefits of this new science health care will be of higher quality, more affordable, and more easily available for people access around the world.

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