

Benefits of Computer Use in Health Care Systems

Improved Quality of Care

Automated hospital information systems can help improve quality of care because of their far-reaching capabilities. An example is the HELP system, which is a complete knowledge based hospital information system. It supports not only the routine applications of an HIS including ADT, Order Entry/Charge Capture, Pharmacy, Radiology, Nursing documentation, ICU Monitoring, but also supports a robust decision support function. Use of the HELP integrated system showed that the risk of wound infection decreased significantly when antibiotics were given in the 2 hours before surgery at LDS Hospital in Salt Lake City. Also, the HELP system detected 60 times as many adverse drug reactions in patients as the traditional method at LDS Hospital. The computer-detected reactions - 95 percent of which were moderate to severe - occurred in 648 patients over 18 months. Given this information, one can argue that decision support within the HELP system improved:

- Data interpretation

- Patient Diagnosis

- Clinical Protocols

In addition to alerting physicians to abnormal and changing clinical values, computers can generate reminders for physicians. For complex issues, computer workstations can integrate and use patient records, knowledge databases, and research plans. Investigators have shown that Physicians reminded electronically were twice as likely to give vital shots and vaccinations like the flu vaccine to patients at a high risk during the winter in a 3-year trial by Indiana University investigators. Due to vaccination of high-risk patients, winter hospitalization, ER visits, and tests for respiratory ailments were reduced by 15 to 30 percent. Also, at Beth Israel hospital in Boston,

computer alert notifications assisted physicians in the prevention of serious kidney diseases. When creatinine levels rose in patients, the computers sent an alert message to physicians, which allowed them to act quickly in the treatment of patients. Nonetheless, computers provide physicians and healthcare providers worldwide an easier method in which they can treat and care for patients.

Decrease in Costs

When a healthcare provider orders a test by computer, it can automatically display information that promotes cost-effective treatment and testing. At Wishard Memorial Hospital in Indianapolis, total costs decreased \$594 per admission when physicians used computers to write all inpatient orders. The workstations were linked to a comprehensive electronic medical record system. Total charges per admission were several hundred dollars less when workstations were used to write all inpatient orders at the hospital. This could result in millions of dollars being saved nationwide. Additionally, physicians ordered 14 percent fewer tests per outpatient visit when using computer workstations at the large primary care facility in Indianapolis.

Computers also allow the use of a paperless, electronic system. Not having to print out test results, test information, appointment information, etc. could significantly decrease paper waste and, in turn, save trees and money. Also, with computers comes electronic mail. E-mail is a great tool when sending out information. In a healthcare setting, it could benefit patients and healthcare providers alike by keeping appointment dates organized and easy to access. If a patient communicates with a physician through the Internet, it could reduce the percentage of in-office visits. People will reduce instances of having to go for an actual visit to the clinic, saving time and money.

Uniformity with Future Use

Through utilizing computers in healthcare systems, a standard of uniform medical references can take place in hospitals and offices throughout the world. By this concrete system, healthcare services, hospital expenses, & the effectiveness of treatment can all be evaluated on the same basis. Because of this, accuracy and productiveness is ensured. Currently, there are two large databases being used in the United States. One system is employed in 12 states that have community hospitals while the other system is used across the country in over 900 hospitals. However, there are a variety of databases available including the following:

- Meditech
- Cerner
- McKesson
- Epic Systems
- Siemens Healthcare
- CPSI
- Healthcare Management Systems
- Self-developed
- Healthland
- Eclipsys

In a world constantly growing and expanding, adding healthcare to the growing list of fields that utilize computers is a sensible approach. Technology is constantly improving, and the healthcare areas can use this to their advantage. Also, as an environmental concern, paperless medical record systems are more practical and earth-friendly. As uniform systems develop around the globe, doctors, nurses, researchers, and countless other individuals can come together for a common goal of improving healthcare. The future can involve records that all utilize medical terminology and evaluation in an effective way. Through this collaboration, the healthcare system has a positive outlook for future workings.

Patient Knowledge

Computers allow patients to grasp a visual perspective on their health. Radiographs, x-rays, and several other visual representations could aid in patient knowledge of their own health. These systems create a more advanced way of recording, analyzing, and understanding a patient's situation. Without the advanced technologies that a computer creates, both patients and health care providers are not as informed as they could be with a computer's help. Along with visual representations, patients can use the Internet to help inform themselves of certain things going on in health care. Not only can users look up general information about their personal situation, but they can find answers to frequently asked questions for specific things that they are interested in finding information about.

Computers provide an easier way to look up a patient's information if they ask for it. The alternative to that would be having to rummage through papers that could have gotten lost or misplaced. Clearly, that is not the ideal scenario. Patient portals make it easier for individuals and caregivers to address individual health and healthcare because they can enhance the quality and the frequency of health-related communications. Computers can help patients become more informed about certain prescribed drugs and treatments, as well. Patient knowledge is a very important thing and, without computers, patients would be much more ill-informed.

The Internet

The availability of the Internet has brought significant changes to health services. The fact that the number of elderly people in the U.S. and other industrialized nations is rising is beginning to put pressure on health services. There are not enough resources to take care of the elderly without the Internet. This increase in the elderly is one reason for the increase in home care. With "Internet access available to everyone and the advent of wireless technologies, advanced telehomecare is a possibility for a large proportion of the population" (Herzoga, 2003). New developments, such as "network technologies that connect sensors and input devices in the patient home to a home health care provider" made home care for even gravely ill patients a possibility.

In one study, it was found that it's possible to hook monitors in the patient's home to the health care provider via the Internet. Because this is possible, health care for the elderly has improved.

The system has four "networks":

1. sensors, input devices, and the processing unit for evaluation and display of measurement data in the patient's home
2. the network between the patient home and the health care provider for transmitting data from the home to a central server
3. the Intranet, or interior systems, of the health care organization
4. a mobile network that gives authorized home caregivers in the field access to services on the health care Intranet

The data that the monitors gather reflects the patient's condition. Then, that must be transmitted quickly and accurately to the health care provider. The only way it can be done is via the Internet.

Patient Accessibility

Through the use of computers in healthcare, patients are able to be more pro-active in their lifestyle choices. Using applications to track their daily activities and improve healthy decisions, computers help patients navigate their lives in a beneficial manner. For example, the current app "Fitbit" allows users to track their sleep and physical activity throughout the day with suggestions on how to improve themselves. Additionally, social networking is involved in which users can be motivated to interact with other users as inspiration or encouragement. Other apps allow consumers to count the calories consumed throughout the day or look up nutrition content for nearby restaurants. By taking advantage of these computer applications, patients are taking the steps to a safer and healthier lifestyle.

Without computers utilization for doctor and patient communication, all interaction must take place in the office or over the telephone. Computer usage allows doctors to be able to stay in contact with their patients more often and thoroughly by communicating through technology. Not only can doctors check up on patients, but they can also provide them with suggested material to access. This material can be used during surgery recoveries or treatment processes. Furthermore, taking advantage of computers provides another option to patients for contacting hospitals and doctors' offices with important questions instead of having to go to the ER. Communication is expedited as well as expanded upon between doctors and patients when computers come into play.

Works Cited

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