

THE USE OF COMPUTERS IN MEDICINE

Анотація

У доповіді висвітлено впровадження новітніх технологій у медицину. Обґрунтовано позитивні сторони автоматизації медичних приладів, завдяки яким полегшено роботу медичних працівників. Описано основні шляхи використання комп'ютерів у медичній галузі.

Ключові слова: *IV індустріальна революція, бази даних, обстеження пацієнтів, хірургія, комунікації.*

Abstract

The introduction of technological innovations in medicine has been highlighted. The positive aspects of the automation of medical devices, which facilitates the work of medical workers, have been substantiated. The common ways of using computers in the medical field have been described.

Keywords: *IV industrial revolution, databases, patient monitoring, diagnostic test, surgical procedures, communication.*

There are various thought leaders who believe that we are experiencing the Fourth Industrial Revolution, which is characterized by a range of new technologies. The invention of computers has brought about the revolution of Information Technology. Today, computers can be found in every household as well. As the numerous benefits of using computers become more and more well-known, they are now being adopted in many unconventional areas too. One such area is hospitals and medical clinics. In the following lines, we examine some of their important uses in this area of application.

So, as I said, the importance of computer technology is steadily increasing in the health care field. Computer use in the health care field has become so common that some hospitals have at least one computer in every room. The most common ways computers are used in medicine include:

Databases, patient monitoring, diagnostic test, surgical procedures, communication.

Databases

Computers are the excellent means for storage of patient related data. Up until the turn of the century, patient records were exclusively kept on paper. Though this system works fairly well, it does have its limitations. The health care industry has expanded and so has the need to quickly access patient records from anywhere at any time. Just as the world population has increased so has the volume of medical records. Introducing computer databases to the health care field has improved the efficiency of record keeping. Computers have the ability to maintain central databases which health care professionals are able to use and access wherever and whenever. Computer databases provide:

1. Easy access to a patient's full medical history
2. Increased capacity for record keeping
3. Reduced paper usage and financial costs

Patient Monitoring

When walking into a hospital room, the abundance of machines is quite often the first thing people notice. The machines used for admitted patients are computers that can monitor vital signs through specialized computer software. The computers are able to detect and record changes in the following:

- Blood pressure
- Pulse
- Oxygen Levels

The monitors and computer software systems can help regulate fluctuations in the body. Additionally, the computers are often programmed to alert nurses and doctors of fluctuations that present a danger to the patient's health. If the statistics monitored on the screen vary too drastically, the patient is at risk and may need assistance only the doctor can provide. These software systems allow doctors to monitor more patients without being physically present when it's not necessary.

Diagnostic Tests

Doctors often use X-rays and CT scans in order to acquire more information about a patient before diagnosing them. X-rays and CT scans produce images of the body's internal structure through the use of radiation. After running these tests, doctors search for abnormalities that can explain problems. Additionally, doctors use Magnetic Resonance Imaging to assess the condition of soft tissue within the body. MRIs use powerful magnetic fields to scan and reproduce an image of the internal body structure. Without computers, doctors would need to perform invasive surgery in order to find physical and operational defects within the body as a form of diagnosis.

Surgical Procedures

Computer-Assisted Surgical Procedures are also referred to as Robotic Surgical Systems. More complex and involved surgeries not only utilize computers, but also rely on them in order to give faster and more precise products in any given medical procedure. Computers are used for tasks such as viewing internal organs, examining them, and moving surgical utensils around accurately in small incisions.

Communication

Computer networking enables quicker communication. In the field of medicine, computers allow for faster communication between a patient and a doctor. Doctors can collaborate better over the Internet. Medical professionals sitting on opposite sides of the globe can communicate within minutes by means of the Internet, so it is possible to obtain experts' opinions online. Medical practitioners can discuss medical issues in medical forums. Also, they can seek advice and share knowledge in a convenient manner over the Internet. Thus, the possibilities and uses of computers in the medical field are endless. They facilitate hospitals and clinics all across the globe by providing the important elements of accuracy, precision, and efficiency to various medical and non-medical procedures, which are carried out every day in these places.

The importance of computers cannot be stressed enough as computer technology has revolutionized the field of medicine.

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