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COMPUTERS IN MEDICINE

Today computers are everywhere: from patient bedsides, medical carts, nurse stations, laboratories to operating rooms. Let's dwell on their most common medical applications.

1. Medical imaging is widely used in hospitals to create images of a human body for study and diagnosis. It includes magnetic resonance imaging (MRI), ultrasound, CT scans and X-Rays. Even X-Ray imaging now uses computers for image adjustment and transfer.

2. Computers are used to assist in planning, teaching and performing many surgical procedures. RAS devices enable a surgeon to use computer and software

technology to control and move surgical instruments through one or more tiny incisions in the patient's body (minimally invasive) for a variety of surgical procedures.

3. Computer networks and the Internet have increased the means of communication between medical professionals with email, instant messaging, video chats and webinars.

4. Hospitals began to use the Electronic Medical Record. Electronic Health Records is a digital version of a patient's paper chart that is instantly available to authorized health providers. EHRs are built to share information with other health care providers and organizations – such as laboratories, specialists, medical imaging facilities, pharmacies, emergency facilities, and school and workplace clinics – so they contain information from all clinicians involved in a patient's care.

5. A computer network is a far more secure way to store and organize patient records. Filing patient records in cabinets or on shelving is quickly being phased out, with computer systems offering a more efficient solution. Traditional filing systems are problematic. In an emergency, medical staff need fast access to patient records. If it's a life or death situation, rummaging through a cabinet to find a patient file wastes precious time.

6. Supercomputers are able to handle massive amounts of research data and analyze millions of possible outcomes (for example the mapping of the human genome). This helps doctors plan treatment much faster.

7. Modern computer-based patient monitoring machines allow heart rate, respiratory activity, blood pressure and other critical vital signs to be collected automatically in digital form. Computer monitoring machines cut down on the time spent on routine tests in doctors' offices.

8. Computers in the healthcare field have vastly increased the amount of knowledge that medical staff can access. Doctors can consult medical databases to learn more about a specific disease or treatment plan. Computers can run simulations to try and find causes and cures for diseases and work with other machines to increase the chance of success.

9. Knowing what medications are in stock is crucial for patient treatment. Therefore, keeping inventory lists up to date is very important. If a doctor prescribes something that is not in stock without knowing, they could slow down recovery. Instead, using a computer to track inventory would alert the staff immediately when something is wrong so they can change their treatment plan if needed.

10. Not all patients can access a hospital due to their health condition, which means sometimes doctors and nurses have to go offsite to treat people. Laptop computers are portable so can accompany doctors and nurses on home visits, allowing them to access the hospital network even when not on site.

Of course, these are not all the advantages of computers in medicine, but we discussed the main details.