

## Overview on Recent Advances Techniques in Medicine

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### DESCRIPTION

Technology plays an important role in modern day's biomedical research and healthcare which make the line between engineering and medical science thinner than ever. And with the fast growth of technology medical machines and the computers become smaller, faster, and smarter, help to make modern healthcare system effective for patients. The fast growth of information technology helps to improve the flow and availability of data and other knowledge to understand medical science and improve the diagnosis, treatment, and prevention of disease. The improvement of technology and medicine sector is continuously improving through many years. Consistent advances in pharmaceuticals and other medical field competent to saved millions of lives and improved a lot of lives. With the passing years technology continues to improve.

With the improvement of medical technology a revolutionary changes also introduced in society, politics and economics. Like with the development of genetics science and technology lots of changes happen in medicine and usages of medicine. With an advanced technology medical industry rapidly creating new ways to enhance lives and save huge health care costs.

On growing digital technology is also becoming an indivisible part of the modern healthcare system. More and more complex medical devices benefits patients with quality and secure healthcare services.

The fast developments in genetics and genomics such as the human genome project provided a huge efficacy in diagnosis and treatment. The arising of Next-Generation Sequencing (NGS) made possible genetic diagnosis. Genetics developments also start providing rapid and accurate variant analyses based on NGS data. These advances methods revolutionized diagnosis and treatment of hereditary diseases.

Developments of genomic tools and data also changed the nature of medical discovery, providing scientists an opportunity to confine the testing hypotheses focused on the individual patients. With the help of those first references a lot of diagnosis and treatment got improved. The systematic genetic mapping in families and populations also helped scientists to pinpoint the genetic variants that cause human disease. The genotype-phenotype relationship and Polygenic Risk Scores (PRSs)

discovered from genome-wide association studies, open the opportunity to diagnosis and treatment of rare genetic mutations. Genetics development also helps to produce effective vaccines for various kinds of viral or bacterial diseases. DNA vaccines are considered as a third-generation vaccine. In which antigenic materials are encoded as DNA plasmids for in vivo production of adaptive immunity. RNA (Messenger RNA) is also use to produces vaccines. Those vaccines help patients' cells to produce proteins which will trigger an immune response inside the body.

The inclusion and improvement of Artificial Intelligence (AI) and medical machine learning in the health care sector is a modern trend. This modern incorporation is intended to assist medical personals to diagnosis and treatment. Using of medical devices with sensors and algorithm starting to play relevant roll in diagnosis, monitoring the delivery of drugs and extends treatment possibilities of diseases. AI also helps in target therapy to specific areas of the body in the case of tumors or other sensitive infections. Doctors are now using mobile app to measure and monitor patient acute and chronic wounds over time. Database of wound images allow a single scan of any wound and help doctors to make faster diagnoses and taking decision about treatment before the patient even arrives to the emergency room.

3D printing technology is used in present days to improve prosthetic limbs and printing medication and organs this process is known as bio printing. This facility increases the ability to produce customize and personalized medical products and equipment. Bio printing also increase cost efficiency by reducing producing cost.

Nanotechnology is also helping medical sector in more precise treatments. Nanotechnology allows a less invasive, less costly, and less complicated medical experiences than traditional methods. Those medical Nano devices are already in widespread use in many parts of the world. Recent advancements in medical sector actually transformed healthcare to more accessible, more affordable, and easier than ever. These advancements in medical sector need proper vigilance and regulation policy in order to protect the patients from any unwanted effects. Proper regulation and policies allow patients with full benefits of these advances in medical technology.

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