EMERGING TECHNOLOGIES IN HEALTH CARE

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1   INTRODUCTION:

The Era of technology has brought a huge impact on every aspect of human life. The range of technological impact is undefined, as it is continuously expanding. One of the impact of technological development is in the sector of health care. Almost all the emerging technologies has a very big impact on the healthcare. The methods of diagnosis, Treatment and everything involved in health care has developed by contribution of technology. Many technologies are under development, such as AI-ML, Data Science, Computer Programmes, and many more for the use in health care.

2   Emerging Technologies and Their Applications In Health Ca

2.1   Artificial Intelligence and Machine Learning -

In the health care sector, AI and ML is being used in developing medical devices that is easy and full of features for both patients and doctors. Artificial limbs are an innovation of AI with mechanics. AI and ML can be used to monitor real-time data of patients, increasing the accuracy of treatments. AI-ML are in further development for many medical devices such as in CT Scans, ECGs, Ultrasounds, Dialysis, ventilators, MRIs, and many more. AI is being implemented in Radiology for faster and precise scans such as Chest Scans, and MRIs and even in the remote areas where medical facilities are not available. In Oncology, The AI has most promising results for Diagnosing Cancer by advanced PET scans and their cure by advanced algorithms. Many handheld devices are developed such as Wrist ECGs, BP machines, to detect and diagnose using Artificial Intelligence. A lot more innovations is being made to improve this field further.

2.2   Data Cloud and Data Science-

Cloud computing helps us to store any kind of data in multiple clouds which can be accessed through anywhere in the world. This technology is contributing to store patients' data in hospitals and make it accessible to doctors so as

to study the case by history of patient. Using this technology, it is easier to store the medical records of a patient, for better diagnosis and treatments. A patient's previous detailed health records would be available at any time making it easier for doctors to treat Cloud helps us in many medical devices such as in Patient Monitoring Systems, Patients' real time data can be monitored by doctors wirelessly using cloud computing. In ECGs, cloud computing is used to generate reports on mobile phones.

2.3   Information Technology And Computer Science-

Computer Science is a helping hand in the innovation of Medical Care. **Data Science, a branch of Information technology provides us the best way to analyse and process data.**
Computer Science also involves in the process of developing different **software which run the medical devices and complex machines, for example, the Imaging software uses in CT and MRI is a development by the Field of CS and IT.**
Easy and compatible software is an innovation of this field. The software used in newer machines are easier to operate and with a number of features, for instance, the **software used in dialysis machines can be operated by users easily, and has many features to control the process.**

2.4   Nanotechnology-

Nanotechnology is being used to develop nano-sized diagnostic tools which can flow into our blood and get a proper diagnosis of our body and its functioning. Drug delivery through Nano Robots (Nanomedicine) is under development to part of the body where medication is not accessible. Removal of Damaged cells through nanotechnology is a strikethrough in health care. Now, portable machines and many devices, using the Nanotechnology are under development which will provide easy and accessible treatments to remote and village areas, where there is a lack of medical treatment. In many devices, this technology is being implemented for better features, such as the dialysis membranes, in Dialysis machines can be improved by nanotechnology so dialysis will be required less frequently.

3   Semiconductors-

Semiconductor devices are in use in current time for multipurpose activities. Its development is also being made in the field of Medical care by developing smart chips used in devices for better performance and accessibility.

4   3D- Bioprinting-

The technology of 3D Printing in medical unit is known as 3D Bioprinting. 3D Bioprinting is used to create and develop artificial organs using Biomaterials. It is also used to develop certain drugs and medicines. The advantage of 3D Bioprinting is that its products are long lasting and also takes less time to develop.

5   Robotics-

The Robotics technology in health care has a wide application. Robotics surgery has been developed performing complex surgeries.