

DISRUPTIVE INNOVATIONS IN HEALTHCARE

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1 INTRODUCTION:

Health care is the most important sector of human life, due to which human beings are able to take care of themselves and keep themselves fit and fine, cure the diseases, and get proper health treatment. Since the evolution of technology, the health care sector is also improved by a much larger scale. We have witnessed a number of technical innovations made In the health care over the years, such as smart ventilators, diagnosis machines, and what not..

2 Technical developments and innovations in health care:

2.1 Artificial Intelligence in HealthCare-

AI is the most promising and evolving technology. AI in health sectors is under continous development.

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 Cancers 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.

The Montefiore Medical Institute of USA, has developed a technology names **PALM(Patient Centred Analytics Learning Machine).** Its work is to collect the Patient's data over many hospitals and areas, their critical situations and their treatments, and it analyses using Artificial Technology that a patient suffering from Respiratory disease can go up to which level of criticality and what treatment must be provided. A lot more innovations is being made to improve this field further.

2.2 Cloud Computing in Healthcare-

Data is the most important thing in this human world, and healthcare sector too. Cloud computing helps us to store any kind of data in multiple clouds

which can be accessible through anywhere in the world.

This technology is contributing to store patients' data in hospitals and make it accessible to doctors so **asto study the case by history of patient.**

Philips and many other companies has developed a **Handheld Ultrasound Machine**, which is as small as our smartphones and uses the Cloud computing to send the data to Cloud and then to our smartphone. **It scans the body part and then send its data to its cloud where the data is processed and converted to accessible formats and then sends it directly to us through mobile application.** We can directly see the scanned film on our smartphones.

Patient monitoring by doctors has now become easier as they can keep track of the real time vital info from anywhere and anytime through cloud.

Google has developed a Cloud Healthcare API for storing patients' data, for hospitals, medical insurers, and Med-Tech developers. The future of data, is cloud computing.

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 in HealthCare-

Nanotechnology comprises of Science an Technology in a nano scale. The most emerging technology of current time, nanotechnology has wide role in health-care.

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.

3 Other Innovations In Health care-

- **3D Bio printing Of Organs** are an alternative for organ failure diseases.
- Prosthetic Hands and Legs for physically disabled controlled through **AI-ML that works on our senses.**
- **Smart ventilators** which are small in size can be carried through remote areas where there is lack of medical facilities.
- **Patient Monitoring System** with advanced alarming and real time patient monitoring.
- Many devices like **MRI and Dialysis machines** have improved with a smaller size and better features.
- **Virtual Reality (VR) Cameras and monitors** are introduced in health sector which helps doctors to check the condition of inner part of the body, very precisely.

A lot more innovations are being made in the health care sector, and the graph of innovation is exponentially increasing. This sector works in correlation with the emerging technologies, and thus all the development in any kind of technology has some or the other applications in health care unit. Therefore, we say, **Technology is the future of health care, and as the technology grows, health care facility grows.**