

Telemedicine introduction:

Take an example of a passenger flying in airplane and he gets medical emergency in the form of sudden Chest pain and there is no doctor available on board. Using some devices the crew record passenger's vital parameters like pulse, blood pressure, Electrocardiogram and sent to cardiologist on the ground in a city. The cardiologist reviews all information on his computer and replies with suggested treatment. The whole process takes in real time and due to timely treatment the life of passenger is saved. Here, the doctor doesn't need to move; examination as well as treatment is done while patient was flying high in the sky!!

Above is not a fairy tale but a reality now a day!! This is Telemedicine / Telehealth or ehealth. One can imagine tremendous advantage. Even Surgeries can be performed at remote place; patients can be advised treatment without moving from home!!

Telemedicine is future of healthcare in 21st Century. Using Telemedicine one can reach to unreachable. And thus quality healthcare can be provided to any part of world by citing at one place.

People living in rural and remote areas struggle to access timely, quality specialty medical care as specialist are more likely to be located in urban areas. Because of innovations in computing and telecommunications technology, many elements of medical practice can be accomplished when the patient and health care provider are geographically separated. This separation could be as small as across town, across a state, or even across the world. Broadly defined, telemedicine is the transfer of electronic medical data (i.e. high resolution images, sounds, live video and patient records) from one location to another. This transfer of medical data may utilize a variety of telecommunications technology, including, but not limited to: ordinary telephone lines, ISDN, Internet, intranets and satellites.

Telemedicine is utilized by health providers in a growing number of medical specialties, including, but not limited to: dermatology, oncology, radiology, surgery, cardiology, psychiatry and home health care.

Tele is a Greek word meaning "distance" and Mederi is a Latin word meaning, "to heal". Time magazine called Telemedicine "healing by wire". Though initially considered "futuristic" and "experimental"; Telemedicine is reality today and has come to stay. In Telemedicine one transfers the expertise, not the patient. Hospitals of the future will drain patients from all over the world without geographical limitations.

DEFINITION OF TELEMEDICINE

Telemedicine can be broadly defined as healthcare services delivered through computer and information communication technology to a distance place. Video cameras and medical equipments can also be added to enhance facilities.

In simplest terms, Telemedicine can be explained as two doctors or doctor-patient discussing the case on a phone. Practiced telemedicine is more than simple voice communication over telephone lines.

In other means telemedicine is the transfer of patient's medical data in electronic format like Patient's demographical information and history, images like X-ray, CT scan and MRI;

ECG; video of sonography, endoscopy, angiography and pathology; audio of electronic stethoscope and doppler; for diagnosis, treatment as well as clinical education.

WHO (World Health Organization) has recognized telemedicine as a cost effective and practical method to deliver healthcare to all. In this new era of the interconnected world, it is being viewed as the future means of delivering healthcare.

The terms e-health & telehealth are at times wrongly interchanged with telemedicine.

Telemedicine often refers only to the provision of clinical services while the term telehealth can refer to clinical and non-clinical services such as medical education, administration and research.

E-health including patient portals, remote monitoring of vital signs, continuing medical education, and nursing call centers, are all considered part of telemedicine and telehealth. This may further includes electronic medical records, and other components of health IT.

HISTORY OF TELEMEDICINE

While the explosion of interest in telemedicine over the past four or five years makes it appears that it's a relatively new use of telecommunications technology, the truth is that telemedicine has been in use in some form or other for over many years.

In fact first telephone call can be argued as telemedicine call. "Watson, come here I want you" said Alexander Graham Bell on March 20, 1876, when he inadvertently spilled battery acid on himself, while making the world's first telephone call. Little did Bell realize that this was indeed the world's first telemedicine consultation!!

The National Aeronautics and Space Administration (NASA) played an important part in the early development of telemedicine. NASA's efforts in telemedicine began in the early 1960s when humans began flying in space. Physiological parameters like pulse and blood pressure were transferred using telemedicine from both the spacecraft and the space suits during missions. These early efforts and the enhancement in communications satellites fostered the development of telemedicine and many of the medical devices in the delivery of health care today. NASA provided much of the technology and funding for early telemedicine demonstrations.

In India, Telemedicine was used during Kumbh mela & during earthquake in Gujarat in year of 2001. Telemedicine services are utilized during tsunami in coastal areas in South India. And many more such pioneering efforts have done in India and across globe.

"I think it is a very wonderful contribution to the healthcare of the people who live in rural villages and I hope that people all over the world will follow your lead, because if they do then the benefits of high-tech medicine can go to everyone and not just people who live in big cities"

Quote by Mr. Bill Clinton, former president of United States during his visit to Telemedicine center at South India.

BENEFITS OF TELEMEDICINE

- Specialty healthcare accessible to under-served rural and urban populations.
- Easy and quick access to specialists.
- Cut down cost of travelling and associated costs for patients.
- Better organized and cost effective healthcare.
- Continuous education and training for rural healthcare professionals.
- Very useful in follow up cases.
- Adds thousands of skilled specialists to the healthcare team, immediately.

TYPES OF TELEMEDICINE

Store and Forward Telemedicine: The method by which patient's medical data are acquired and stored locally and later forwarded to expert doctors at other centers. The remote centre receives the expert doctor's opinion within 48 hours or more. This is typically used for non-emergency situations. Also, in this case, the doctor's presence may not be required at the time of data transfer.

Real time Telemedicine: The method by which patient's medical data is transmitted as it is being acquired. One example is video conferencing with attachment of medical equipments like sonography machine, endoscope etc. The video and medical data transfer is done in real time and an expert opinion can be sought instantly.

Hybrid Telemedicine: Hybrid Telemedicine covers features of Store and Forward as well as Real Time Telemedicine.