

TELEMEDICINE SERVICES

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India is facing the double burden of both, communicable and non-communicable diseases. In the last two decades, there has been a steady increase in the prevalence of non-communicable diseases such as cardiovascular issues, high blood pressure, stroke and cancer. Nearly 50% of deaths in India are because of non-communicable diseases. Cardiovascular diseases account for nearly 25% of deaths in India. It is alarming that the young and middle-aged are becoming vulnerable to these lifestyle and stress-linked diseases. Our healthcare strategy should be focused to control, contain and prevent these diseases.

Apart from establishing a tertiary care system, it is essential to strengthen primary and secondary healthcare strategies. There are a few hi-tech, five-star hospitals in the metro cities with state-of-the-art technology, expertise and highly qualified, experienced specialists in all disciplines. But these alone are not sufficient to provide uniform, high quality services to the cross-section of society. There is a need to improve the healthcare delivery system in the rural and semi-urban areas both by the government and the private sector.

Every district hospital should have an intensive care unit so that all medical emergencies can be treated and the golden hour benefits can be passed on to patients. Using modern-day technology—either telemedicine or an app—you can always connect the semi-urban and rural hospitals with tertiary care hospitals.

There has been a sea-change in all branches of medical sciences as well as healthcare delivery systems. Due to innovations both, in discovery of new

drugs, imaging gadgets, surgical and interventional hardware, and procedures have become less invasive, resulting in shorter hospital stay and early return to work. Today, many diseases which required surgery are treated by non-surgical or minimally invasive procedures, endoscopic surgeries, angioplasty, stenting procedures, device closures, heart failure devices, etc.

Organ transplantation involving heart, pancreas, bone marrow, liver and kidney is evolving rapidly. More Centres are doing these procedures now. And in spite of this, we are lagging behind in this sector compared to many other developed nations. This is because of lack of awareness, false sentiments and other logistics. Obesity management by bariatric surgery, knee replacement and hip replacement are growing.

DIGITAL HEALTHCARE

Telemedicine, digitalization, digital healthcare, mobile healthcare services through messaging apps, app-cloud systems, social media websites, etc, are being used for consultations, follow up, exchange of medical reports and even for coordinating the treatment in less accessible areas. Home care is another new area. Diagnostic services are taken to the doorstep. This will particularly help senior citizens who cannot go to the hospital frequently. Using telemedicine and app-cloud systems, we can facilitate early diagnosis and management of heart attacks, even in small clinics, and taluk and village hospitals where there is lack of facilities and expertise. ECG, X-ray, scan reports, etc., can be sent to specialist Centres faster. The initial treatment can be given there itself in the form of thrombolysis and after a few hours of stabilization, they can be transferred to the nearest super-specialty hospital where angioplasty facilities are available. The same concept can be applied to other medical and surgical emergencies.

RESEARCH FOCUS

Some of the research areas attracting academicians are in cancer, stem cells, leadless pacemakers, subcutaneous ICD, non-surgical valve replacements, heart failure devices, neuro sciences, robotic surgeries, road map navigational system in operation theatres and cardiac Cath lab, vaccines for diseases such as HIV, H1N1, infections, dengue and atherosclerosis. Genetic and gene therapy is an exciting area researchers are interested in. Alzheimer's disease is another sector of research.

Many implants, devices and imaging equipment are expensive. Most of them are imported. If multinational companies establish their units in India, it will be less expensive and more affordable.

Information technology has virtually revolutionized and simplified the dissemination of knowledge, medical information, data collection and review of medical records and various investigations. Considering the explosion of technology, overdependence on various diagnostic gadgets and investigations is

not a healthy practice. In this process, we will be losing the humanitarian touch. The talk, touch and treatment method is still appreciated.

Modern technological advances improve the outcomes if applied sensibly. It is true because of digital technology, some doctors attached to multiple hospitals are trying to treat patients based only on reports. This can end up with over diagnosis and mismanagement in a few cases. One should also keep in mind the errors and over-sensitivity of some medical equipment-driven reports. Corroborative evidences, comprehensive evaluation and analysis of patients' symptoms should be the ultimate approach before taking major medical decisions.

Telemedicine can be broadly **defined as healthcare service delivered through telecommunication networks**. Telemedicine is the transfer of patient's electronic medical data for diagnosis, treatment as well as clinical education. In other means telemedicine is the integration of computer hardware, specially designed software, video conferencing system, medical equipment and communication media.

Telemedicine is the process by which the delivery of healthcare can be facilitated through use of Information and Communication Technology.

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 less costly healthcare
- Continuous education and training for rural healthcare professionals
- Very useful in follow-up of cases
- Adds thousands of skilled specialists to the healthcare team, immediately.

Objectives of Telemedicine

- The main object of implementing the Telemedicine System to help the patients to consult in all parts of the State, both remote and rural areas, to supervise, clinics, healing centers, nursing homes, hospitals, homes for the sick, aged etc., without making any discrimination on the basis of caste, creed, religion or language and thereby to promote the system of health care.

- To implement patient friendly Telemedicine System to meet the health qualitative needs of the people and to economize on the treatment delivered through the system.
- To conduct or assist in conducting competitions, Exhibitions, Seminars, Conferences in the field of Telemedicine, health care etc. to ensure human resource development in the field of Telemedicine and associated field to optimize accountability at all levels.

OVERVIEW:

- Comprehensive electronic medical record which includes patient's clinical information along with personal and family history.
- Incorporates patient's medical data in form of images, video, audio and report.
- The data can be acquired by digital camera or web camera, high resolution scanner, CD-ROM or interfacing with medical equipment's.
- Patients file which has medical data is compressed and transferred through various communication media.
- The expert doctor can give opinion in text, hand written and prescription format as well as in informal way during video conferencing.
- Video Conferencing System: During video conferencing data can be sent to the Centre and it supports the live medical image conferencing.