

TELEMEDICINE

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ABSTRACT

In the fast growing economy like India where health expenditure is also increasing, to bridge the gap of resource and recipient telemedicine if applied at various levels can offer best deal. Integration and collaboration of primary and secondary care which can be advocated by technological support can be of great help, especially in a country whose 75% population lives in rural areas. Therefore through this article we are exploring the role of telemedicine in current Indian scenario.

KEYWORDS: e health, Telemedicine, Technology, Telerehabilitation.

INTRODUCTION

India is a developing economy whose approximately 75% population lives in rural areas.^[1] India is a fast growing economy where there is high incidence and prevalence of diseases and hence there has been seen a steep rise in health care expenditure. The current economic loss due to the lost disability adjusted life years (DALY) is estimated at >200 Million life years in India and disease incidence is expected to double by 2015.^[2]

Considering the present population and per-capita GDP, the increase in economic loss of productive life years in this period translates to \$200 Trillion in India alone! In countering this depletion of productivity, there is an acute shortage of physicians (1 per 1000 people) and nurses (0.8 per 1000 people) and care facilities (1 bed per 1000 people) in the country. The spread of available workforce is also disproportionate across various regions, varying from 0.25 to 2.3 per 1000 people, with over 70% of the population in rural areas and over 60% of health care work force in urban areas. Growth rate of human resources and hospitals significantly lags the disease incidence rate, and hence the gap in demand versus supply is widening at an alarming pace.

It is not practically possible to arrest this widening gap through traditional methods of building more additional hospitals and human resource,^[3] but we need to find out alternate ways where integration of technology can play a very important role.

Amalgamation of technology with health sciences, (telemedicine), at different levels can help meet the medical needs of our Massive population. Integration of

Information and technology in health services can help finding solutions.

Initially considered as futuristic and experimental, telemedicine has a lot of benefits in patient care, education, research, administration and public health.^[4]

Telemedicine can help in three major areas

1. Store and forward data
2. Remote Monitoring
3. Real time Interaction between patient and doctor

The World Health Assembly in 2013 recognized the need for health data standardization to be part of e health systems and services, and the importance of proper governance and operation of health related global top level Internet domain names including "Health" (66th World Health Assembly, 2013; Geneva, Switzerland) which was an extension of previous resolutions which have recognized potential of e health to strengthen health systems and improve quality, safety and access to care, and encouraged member states to take action to incorporate e health into the health systems and services.

One of the parameters of e health is tele health which basically means delivery of health-related services and information via telecommunications technologies.

It includes Telemonitoring, teletherapy, teleconsultation, telementoring and teleducation.^[5]

Worldwide, people living in rural and remote areas struggle to access timely, good-quality specialty medical care. Residents of distant areas often have substandard access to specialty healthcare, primarily because specialist physicians are more likely to be located in

areas of concentrated urban population. Telemedicine has the potential to bridge this distance and facilitate healthcare in these remote areas. It can also motivate practitioners to remain in rural practice through augmentation of professional support.^[6,7]

In recent years, the increasing availability of low cost ICT tools have given the opportunity to explore the effectiveness of technological solutions in providing health services within and outside the hospitals, with a consequent increasing interest for telemedicine in the rehabilitation/care field.^[8]

There is a need for integrating and collaborating primary and secondary care which can be advocated by technological support. Such application has been seen successfully in neurological patients and geriatric population.^[9,10,11]

Remote telemonitoring and telerehabilitation could be offered to patients with Parkinson's disease as well as a number of conditions requiring motion rehabilitation (for example, stroke or weight-reduction programs).

Telemedicine network can link a regional centre specializing in some disease with the primary health care provider of the patient, allowing discussion of the diagnosis, prognosis and goal setting. Web sites targeted at the disease allow patients and caregivers to access information and participate in therapy, training and support. There has been seen role of tele rehabilitation in home care of stroke survivors to guarantee appropriate care and quality of life support at home.^[12] Moreover, it has been used to manage complications of various diseases, including pressure ulcers, depression and gait disorders.^[9]

A randomised controlled trial was conducted by the author's group at the Chinese University of Hong Kong, in which 12 sessions of cognitive training were provided via videoconferencing or by face-to-face method. Significant cognitive improvement as measured by the Mini-Mental State Examination, Rivermead Behavioural Memory Test and Hierarchic Dementia Scale was observed in both treatment arms. The telemedicine group was as effective as the conventional treatment group, and well accepted by the clients.^[13]

Thus Telerehabilitation is an attractive method of delivering services to disabled patients without a need for both the patient and health care professional to be in the same location at the same time.

In India, there have been similar projects in association with ISRO to facilitate telemedicine.^[5]

Besides development of various software which supports Tele-Cardiology, Tele-Radiology and Tele-Pathology^[14] etc. and linking various premier Medical Institutes of the

country we have slowly progressed to the era of mobile technology.

Though we are progressing in this field but the obstacles are too many to cross, these include:^[4,15]

- Cost constraints
- Lack of clarity on Return of Investment (ROI) calculations
- Lack of standardized technology platforms
- Unavailability of a best-practices repository
- Licensure Strategies

But the most fortunate thing is that we are finding solutions to it and soon shall have good tele rehabilitation structure in India.

REFERENCES

1. Ashok Vikhe Patil, K. V. Somasundaram and R. C. Goyal; Current Health Scenario In Rural India; available at <http://www.sas.upenn.edu/~dludden/WaterborneDisease3.pdf>.
2. http://www.whoindia.org/LinkFiles/Commission_on_Macroeconomic_and_health_Bg_P2_Burden_of_Disease_Estimations_and_Casual_analysis.pdf.
3. P. S. Ramkumar, ITU Telecommunication Development Bureau (BDT), Geneva *Tele health in India- Landscape of Tele-Health Infrastructure at points-of-service in India*, 2011.
4. Ganapathy K. Neurosurgeon, Apollo Hospitals, Chennai, *Telemedicine in India-the Apollo experience*, Neurosurgery on the Web, 2001.
5. Lee AC, Harad N, Telehealth as a means of health care delivery for physical therapist practice. *Phys Ther*, 2012; 92(3): 463-8. doi: 10.2522/ptj.20110100. Epub, 2011.
6. Bashshur RL, Armstrong PA, Youssef ZI. *Telemedicine: Explorations in the use of telecommunications in health care*. Springfield, IL: Charles C Thomas, 1975.
7. Bashshur R, Lovett J. Assessment of telemedicine: Results of the initial experience. *Aviation Space Environ Med*, 1977; 48: 65-70.
8. T Botsis, G Hartvigsen Current status and future perspectives in telecare for elderly people suffering from chronic diseases, *J Telemed Telecare*, 2008; 14; 4: 195-203.
9. JJ Craig , JP McConville, VH Patterson, R Wootton Neurological examination is possible using telemedicine, *J Telemed Telecare*, 1999; 5: 177-181.
10. J Craig , V Patterson , C Russell , R Wootton Interactive video consultation is a feasible method for neurological in-patient assessment, *Eur J Neurol*, 2000; 7: 699-702.
11. Gregory, P., Alexander, J., & Satinsky, J. *Clinical telerehabilitation: Applications for physiatrists. Physical Medicine & Rehabilitation*, 2011; 3: 647-656.

12. Turolla et al. Telerehabilitation for stroke patients: an overview of reviews. Proc. 9th Intl Conf. Disability, Virtual Reality & Associated Technologies Laval, France, 2012; 10–12.
13. Poon P, Hui E, Dai D, Kwok T, Woo J. Cognitive intervention for community-dwelling older persons with memory problems: telemedicine versus face-to-face treatment. *International Journal of Geriatric Psychiatry*, 2005; 20: 285-6.
14. Bedi BS. Telemedicine in India: Initiatives and Perspective, E health Addressing the Digital Divide- 17th Oct, 2003.
15. Saxena G, Singh JP. E-medicine in India: Hurdles and future prospects, paper presentation at an International seminar organized at The International Institute of Professional Studies. Devi Ahilya University.