# Health Care Service Through Internet Communication Technology

## Manilal Daya Amipara

Electronics & Communication Department, Balaji Institute of Engineering & Technology, Junagadh, India

### Email address:

amipara.manilal@gmail.com

**Abstract:** The health care is prime issue in India and what is a scenario today is discussed and in a present situation, using technology available today, what can be done and how the situation can be improved and/or managed is explained in this paper. Rural area always lack with resources and infrastructures. The one of the solutions is to use wireless communication system to help the rural population. Major part of India is in remote or rural where the facilities lack. The tele-medicine and remotely operated medical services and its network infrastructure is the solution for the rural India and the best use of Internet communication Technology (ICT) wirelessly, is a solution to provide latest health care facility from world best experts from anywhere.

**Keywords:** Health, Medical Services, Technology, Wireless, Satellite

## 1. Introduction

The health care and medical treatment to a living being is prime and for-most requirement. It is basic need of human being and need to be address on top most priority. It is fundamental right of each one and duty of society to provide the facility to everyone equally.

The world wide it has to be first and foremost prime consideration as well as goal to achieve healthy society as an individual every country and globe as a whole.

The pollution has affected directly body condition as well as indirect effect of bad eco condition has created effect of so called slow poisoning which makes slow adverse effect in a body and net result is, on a long run we realise very late and by that time curing of damage goes from bad to worst. Knowing is the first remedy, so that one can take care from the beginning of live till end. But it is neither always possible nor long term effect is fully known. Many a times lot of things are 'taken into granted' that nothing will happen. Many a time lot of things are unavoidable. But world health as a whole we need to works on a large scale to have a solution of ill-health. It should not only a solution but also quick remedy, quick expert advice and quick facilities as required.

It is not at all difficult to cop up the issue. Technology is the answer. With the aid of latest technology of wireless, Internet communication Technology (ICT), it has become possible to bring expertise available at any corner of the world to the other corner of the world. Patient can be made visible (in front of the doctor) from far end to expert as well as it is possible to seek an advice that to on the spot from any corner to any corner of the world. Technology has removed the distance limitation as well as visibility limitation.

The consideration of the aspect of health care explained, to understand in Indian perspective, one need to think scenario of Indian villages and small towns as measure Indian population dwells in these area. The water, cleanliness, sanitary etc conditions are very poor. Means and resources of entertainments are limited or nil. In such scenario, the doctors and other ancillary staff are either hardly or not at all willing to move from urban to rural area. Rural area always suffer from non availability of experts/doctors or scarcity of doctors, poor hygienic conditions also prevails more.

The novel way of providing the services for those sector of people, is through remote monitoring/control and service provision. [1]

The health services expected are diagnostics, symptom based treatments, tele-consultation and wherever needed, referrals to the Sky Health Centres. These centres use remote

diagnostic devices for measurement of basic parameters such as blood pressure, heart rate, electrical activity of the heart and pulse rate. The patients can be connected to doctors at central medical facility via computers and webcams. [1]

The Central Medical Facility Centre (CMFC) is to be facilitated by latest medical facilities, test and diagnostic equipments, Remote Control and Monitoring Unit (RCMU), all connected through wireless network to rural area. This avoids huge investment in facilities to be created multiple times as every where it is not required to installed and CMFC is used by multiple people on shared basis. This can be defined as 'Demand Assign Sharing of Utility (DASU). This concept drastically reducing the cost of infrastructure and also makes expertise available for all.

Question arise at this juncture, Can Telemedicine Alleviate India's Health Care Problems? One of the strongest answers to this question is telemedicine project of World Health Organisation. Under this project, the villagers had access to the doctor via a telemedicine project launched by World Health Partners (WHP) to provide health care services to 1,000 villages in Uttar Pradesh's Bijnor, Meerut and Muzaffarnagar districts. Set up in 2008, WHP, a U.S.-headquartered international non-profit, provides basic health care and reproductive health services by harnessing local market forces to work for the poor. [2, 3]

The organization's model is to draw on private sector capacity through social franchising, innovations in labour management, and low-cost technologies to develop a scalable and sustainable health care service delivery model. It can be considered also Public Private Partnership (PPP). The mode of execution can be based on mutual understanding between local and/or general authority body and local people representatives.

The telemedicine network comprises around many local individuals called Sky Care Providers and entrepreneur-run centres. The Care Providers are given training and low-cost mobile solutions to perform diagnostics, symptom based treatments tele-consultations and, wherever needed, referrals to the major Health Centres. These centres use remote diagnostic devices for measurement of basic parameters such as blood pressure, heart rate, electrical activity of the heart and pulse rate. The patients are connected to doctors at central medical facility via computers and webcams.

Apart from treating basic ailments, also can be focused on detection and treatment of tuberculosis, visceral leishmaniasis, childhood pneumonia and diarrhea."There's a huge, unmet health care need in our rural hinterlands. The challenge is to make health care affordable for the masses and attractive to the providers at the same time. Telemedicine is a good strategy to strengthen the existing human resources available in health care. The scale, however, will come only through effective government intervention. Access to health care in India gets limited by the affordability factor and hence telemedicine or the remote diagnosis, monitoring and treatment of patients via video conferencing or the Internet has a very important role to play. It is at a fairly nascent stage right now having started only about a decade back, but it is

undoubtedly a fast-emerging trend, led by growth in the country's information and communications technology sector. Telemedicine is the way ahead. We can't go far with conventional brick-and-mortal hospitals, the country has the potential to develop innovations that can be adopted in other parts of the world, we are thinking of IT [information technology] as just electronic medical records, This shortchanges IT's full potential. Driven by extreme need, India is inventing new ways to use information technology to improve health care.

IT is a hub of IT expert and IT industries. Also Communication Technology emerged as fastest growing sector and today it is available at all the corner of India.

Lists the reasons why telemedicine will take off fast in India:

a. A severe shortage of doctors, especially in rural areas
b. Very high patient volumes
c. Widespread availability of mobile networks
d. Rapid growth in the availability of low-power, hand-held medical monitoring devices, and the shift away from the proprietary, local area network-based medical image archiving and communications systems to a networked tele-enabled system

Innovations in telemedicine will accelerate in India, where access and cost are critical issues. These telemedicine innovations will be adopted in the U.S., where cost and access are becoming increasingly talked about. This is a classic reverse innovation story [4, 5].

## 2. Method

### 2.1. Ground Realities

Some of the major players in telemedicine in India at present:

I. Narayana Hrudayalaya, Apollo Telemedicine Enterprises,
II. Asia Heart Foundation,
III. Escorts Heart Institute and Aravind Eye Care.

### 2.2. Prediction

The prediction is that it is only a matter of time before we see a huge spurt in the use of telemedicine. In the early days, satellite was the only means of managing the telemedicine program and keeping satellite connectivity was not very easy, However, now with many ways of videoconferencing wirelessly, there are many options available. With the stabilizing of technology platforms, technical problems are extremely rare. Around 10years ago, the initiative is managed through satellite connectivity provided free of cost by the Indian Space Research Organization (ISRO). The availability of Technical experts in the area of wireless and wireless/mobile system, IT experts, gazettes required for diagnosis etc has increased in many folds during last ten to fifteen years. The last decade has accelerated multi-sectors development and heading to fulfil the required assets

In the coming years, most of the medical treatment will be

through telemedicine either in the same city or in other cities/countries. Distance is No bar. There will be enough gadgets available at home to check lot of pre condition or early precautionary checks like blood pressure, blood sugar, ECG, oxygen saturation, even ultrasound. Patients will consult the doctors through mobile phones or videoconference through cell phones [3]. Even lot of useful and handy gazettes are produced and made available for impaired or differently able people so that they can live and survive independently alone without day to day support and in case of emergency, message goes automatically to concern people or doctors on event of health issues

## 3. Result

Today's scenario is some of the things, discussed earlier are already happening.

I. Leading telecom player Airtel tied-up with Healthfore (a division of Religare Technologies). Fortis Healthcare (a Religare group company) as the knowledge partner to offer Mediphone services to its customers. This service allows subscribers to access basic medical guidance on non-emergency health problems over the phone. The service is available around-the-clock at quite cheaper rate for each consultation.

II. Other telecom players like Aircel and Idea have launched similar services in collaboration with HealthNet Global, a Hyderabad-based emergency and health care management services firm. The subscribers who call to seek health advice are visited by paramedics who come with a laptop and medical diagnostic equipment and conduct consultations via video conferencing. This is also gaining traction among insurance companies.

III. Microfinance firm Equitas also launched tele-health care delivery centers in association with Health Net Global. The project is funded by Fem Sustainable Social Solutions (FemS3), nonprofit company operating in the social business space. Equitas' Consult 4 Health and Call 4 Health products, developed exclusively for the firm by the Centre for Insurance and Risk Management.

IV. Chennai-based Institute for Financial Management and Research, allow its members to consult physicians from Apollo Hospital over video with a nominal charge of consultation. The patient's data is also stored for any further diagnosis and treatment in the future.

These are few players initially who has taken a lead and provided start up but more many to enter and will enter soon. It is expected that the healthy competitive environment will offer economical and affordable services.

It is an Endeavour to improve the quality of lives. Health care is a source of significant financial stress for this segment. The initiative will bring a revolution by providing health care to the doorstep of our fellow members and the best medical care anytime, anywhere any one. [6]

The modes of oparandi can be as suitable to all. As a part of digital India, services can have on a digital resources utilisation. One example is: A phone-based (call based) medical advice services can be established which can work on a membership based model. The family membership plans for predefined period with defined number of members; during which, members are entitled to unlimited phone consultations with team of doctors. Members can also avail of discounts at selected diagnostic centres. The new products are developed and some under way through innovative way. Low-cost ECG machines, which were developed in India and can take digital images that can be emailed to cardiologists anywhere in the world. This gives poor patients in remote rural areas access to world-class care. [7, 8]

Another example is 3nethra (Tri netra) from Bangalore-based Forus Health. Developed with the aim of enabling mass pre-screening outside the hospital environment, 3nethra is a portable, non-invasive device that helps in early detection of eye diseases like cataract, diabetic retina, glaucoma and cornea related issues. The digital information taken by 3nethra can be easily transmitted electronically. Even a minimally trained technician can operate it. The idea is to develop a solution that is cost effective. The device developed is available for one-sixth the cost of present diagnostic devices. Also, it uses only 10watts of power. It can run for four hours on a UPS, making it ideal for rural areas [which face enormous shortage of power].

## 4. Discussion

But even as the telemedicine scenario in India is seeing significant developments, challenges still remain.

The greatest challenge is getting enough medical specialists to see patients in remote locations [9, 10, 11]

To gain the patients to trust the opinion by the doctors yet to achieve because psychologically we are habitual to sit in front of doctor and doctors check-up by his/her touch. People are to counsel and made them to use the facility more and more forever.

Enough trained man power in the area of not only medicine but also technical field to aid the doctors for smooth operation without discontinuity of services required to arrange and made available round the clock to operate such centre.

In case of natural calamity like floods, earth quake etc wide spread diseases in a short span (e. g. Cholera due to over flooding occurred in Surat or earth quake occurred in Latur, Kutchh, the Tsunami attack etc), requirement of experts, medicines, infrastructures etc demand arises on a immediate basis and on a peak, it becomes almost impossible task to cop up.

The potential of telemedicine in India is still under-realized because of lack of awareness among the masses and lack of a business model that caters to all the stakeholders. Telemedicine will never reach the critical mass for take-off until doctors are excited about it and unless people clam our for it as a cost-effective method. We need public-private-partnerships to drive telemedicine in India. The entire

ecosystem needs to be strengthened.

# 5. Conclusion

The currently available technology offers a solution to provide best health care even in rural at remote place. Person sitting at farthest corner of the world can avail expert medicine practitioner's services from any expert of the field from any corner of the world at any time. Emergency cases can be handled quite easily without any mental tension. Top of it, it can be availed at an affordable cost. The satellite and other wireless/mobile services are of a greater help in this kind of solutions.

The best fruits can be taken away when there is an epidemic effect, may be due to natural calamity or any other reason/s.

The essential requirements are on a mass scale and aid to reach in a short span, on a large scale. It is herculean job to manage in a short span and in case of delay casualty may cause lots of lives to be lost due to non urgent availability/ies of experts/aids/infrastructure. Such critical issues can be address with speed and reduced panic level.

India, as a country need to develop a local conditioned suitable Model for operation. The patient community or a common public required to counsel and remove psychological barrier and make them understand that the Model is for them, very useful and best for them. It can provide best services and right as well as economically affordable solution. More and more people need to join to avail services.

The helping hands to doctors that is medical field helping hands and technologists who can support process for operation and maintenance for 24 X 7 un- interrupted services can be made available. The instruments with high reliability are to be manufactured so that high MTBF provides long services and easy replaceable units offer service continuity.

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