E-governance applications in public healthcare for rural areas of Uttarakhand

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ABSTRACT

Current scenario in healthcare sector in Uttarakhand is disappointing. Public health service run by Government is overburdened and collapsing. Hilly geographical size, increase population density, lack of transport, inaccessibility, illiteracy, poverty, poor nutritional status, diversity in food habit and life style are various impediments. Government priorities for providing health service to rural areas is yet to be fulfilled. At this stage low budget from state for health, lack of funds and coordination have triggered down trend in health services in rural and hilly areas. As medical science is fast developing and information resource is pouring in, there is urgent need for dissemination knowledge by interlinking primary, secondary and tertiary level health centers using the ICT and e-Governance applications. This will help health personal to deliver high quality services. IT giants are experimenting for e-Governance application in health sector both in Government and private hospitals, This paper reviews use of e-Governance through ICT applications at National Level and also in Uttarakhand province. It presents facts on tele-medicine, tele-referal services and health information dissemination by Video conferencing, Some suggested services using ICT in healthcare are explained in this paper also. Use of Mobile phone to communicate health related alerts using SMS services in rural areas suggested here in this paper.

Introduction

E-healthcare can be defined as the use of ICT to support the delivery of healthcare support and services directly to people outside the conventional care centers such as Hospitals or residence, in case of hilly and rural areas of Uttarakhand this can be a better support system. A E-healthcare system can be as simple as providing a patient with the means to provide SMS alert about vaccination of his child or a remote care provider of their need for assistance.

The pressure on healthcare services in Uttarakhand like state is well known. Some of the reasons are, Shortage of human resource, constraint of fund, higher sensitivity of patients for health issues, high expectation for best quality treatment at lowest cost without inconvenience. There has been undue delay in implementing E-healthcare in developing states like Uttarakhand due to following reasons :

(1)Absence of competition in health sector – for long time healthcare is handled by Public Health System (PHS) by state government, with no competition.

(2) Poor customer with low bargaining power

(3) Non-existence of funding system like insurance or social security agency.

(4) Week professional culture among doctors to adopt new ICT applications

(5) Doctors and nurses are not familiar to work with computer.

(6) Lack of computer-aid in medical and nursing education.

This system can be simplified by the use of ICT applications like telemedicine, SMT based services. ICT can enable health related information in the web and even on mobile phones and this can be offer in PPP model, Some services like help customer contact, allocate patient to different level of health care, provide electronic forum for patient interaction and build e-prescription system shall be started in starting phase . It is high time to explore how doctors and IT personnel can work together to reduce health care cost, deliver high quality service and cover rural mass using ICT.

Due to hilly areas population, lack of infrastructure, low per capita income, diseases and illiteracy, it is felt that nearly 70% of vulnerable populations are in the villages and out of reach. Here comes the concept of Village E-health Centers to provide basic health care via online video-conferencing and the use of telemedicine.

Execution and success of ICT application lies in the hands of Doctors and Medical staff, not on IT or ICT industry. Training, interest and commitment of medical fraternity is needed for reaping the final benefit. IAMI (Indian association of Medical Informatics), IMIA (International Medical Informatics association) and AMIA (American Medical Informatics association) are supervising the ethical and legal issues of ICT application to help the growth of this new frontier of E-health service in India

E-health Scenario in India

According to EU ICTs for Health:" e-Health describes the application of information and communications technologies across the whole range of functions that affect the health sector, from the doctor to the hospital manager, via nurses, data processing specialists, social security administrators and - of course – the patients."

Wipro for Delhi Municipal Corporation (DMC): Wipro provided Hospital Information System (HIS) to six hospitals of DMC. This HIS has 28 modules meeting the hospital needs, like

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Patient registration, demographic details, outpatient visits, doctors' appointment scheduling, Admission/ Discharge/ Transfer, Order Entry, Laboratory/ Radiology/ Cardiology Result Reporting, Operation Theatre Management and Pharmacy etc.

CMC LTD: India Healthcare Project in Andhra Pradesh: Hand held mobile computing devices like Personal Digital Assistants(PDAs) are being provided to Primary Health Centers (PHCs) and Auxiliary Nurses and Midwives (ANMs). While nursing or counseling the beneficiaries, the ANMs collect data using the PDA in the villages. At the PHC they transfer the data from PDA to the desktop. All data that is available on the desktops at various PHCs is transferred to the district level and State Health Commissioner's office using available network. Data compilation and report generation could now be done at the PHC level, district level and State level. Application of ICT at grass root level covering 459 ANM in 67 PHC in Nalgonda district of Andhra Pradesh.

Current E-health Scenario in Uttarakhand

In the 11th five year plan (2007-2012) the objective of Directorate of Medical Health & Family Welfare is "Health for All".Under this

• To provide medical heath services in states remotest and disadvantaged blocks 3080 new subcenters will be established 275 new PHCs 35 new CHCs

• Apart from the above in district Bageshwar and Champawat specialist hospitals will be established.

• To reduce neo natal mortality, neo natal intensive care units will be established in all districts, in order to reduce neo natal mortality.

• To establish & strengthen emergency services in 10 district hospitals situated in national road routes in order to respond to road accidents and natural disasters. Further, it is proposed to establish 5 new blood banks.

• To strengthen paramedical staff and to train nurses, a nursing institute will be established in Dehradun.

• To serve difficult and disadvantaged areas 10 Mobile Hospital Vans will be acquired.

SGPGIMS Telemedicine Programme in Uttarakhand

Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS) located in Lucknow, capital of Uttar Pradesh, a state in northern India, is a tertiary level referral academic medical center involved in teaching and training of super specialist medical professionals with 23 academic departments. It is the first tertiary care hospital in public healthcare sector in India to adopt Information Technology (IT) for healthcare delivery.

The national and international medical partners of the SGPGIMS Telemedicine Network include; all three Medical Colleges of Orissa located at Cuttack, Berhampur and Burla, two district hospitals of Uttarakhand State Almora & Sirnagar.

Tele-consultation

It is helping physicians and health care specialists at partner hospitals to get help from the SGPGIMS experts to diagnose and treat patients over distances using telemedicine technology. In September 2000, the first experiment was carried out using store and forward technology on Public Switched Telephone Network (PSTN) to exchange electrocardiogram (ECG) between District Hospital, Pithoragarh, Uttarakhand and SGPGIMS, Lucknow, Uttar Pradesh located 275 km apart. The exchange of video clippings of 30 patients, typed and hand written notes ultrasound and radiographic images, and audio clippings provided images

of satisfactory quality. Later in the same year similar experiment was carried out with Balrampur and Civil Hospitals located in Lucknow city. Another state-wide telemedicine network project started with the support of Uttarakhand state government in April 2004 in which two district hospitals of Uttarakhand state in the hilly region got networked with SGPGIMS for tele-consultation services. Both real time and store and forward technology were used to provide these services.

Suggested E-health services for Uttarakhand

Some E-heath care activities modules for Uttarakhand may be:.
a) Tele-consultation
b) Tele-follow up
c) Pre-referral Screening
d) Treatment Planning

Tele-consultation

This service will help physicians and health care specialists at partner hospitals to get help from the experts all over the India and abroad to diagnose and treat patients over distances using telemedicine technology.

Tele-follow up

Tele-follow-up clinics in the Departments of like Rheumatology, Endocrine Surgery and Nuclear Medicine may established to help the patients from the hilly parts of state of Uttarakhand , who had undergone primary treatment at city hospitals like Haldwani or Dehradun ,they not come to again for their follow-up. It has made an impact in terms of saving their time, money and efforts by avoiding frequent physical follow-up visits to major cities of Uttarakhand. Their follow up is done in real time using telemedicine technology.

Pre-referral Screening

Doctors of city based Medical Colleges or Hospitals in Uttarakhand who want to refer patients to other cities like Delhi ,Lucknow may discuss with the consultants of hospitals before referring the patients to metro cities hospitals like AIIMS.

Tele-education

Tele-Education should be understood as the development of the process of distance education (regulated or unregulated), based on the use of information and telecommunication technologies, that make interactive, flexible and accessible learning possible for any potential recipient.

Different modules of tele-education can be practiced depending upon the requirement and need of the remote side such as tele-CME, tele-conference tele-consultation, surgical treatment planning , tele- mentoring ,lectures, case discussion etc.. Tele-education can be planned at different levels.

Tele- Education of postgraduate students of medical colleges

To provide latest knowledge in medical science , distance medical education program for the post-graduate students can be offered, linking through ISDN. Facilities of various Departments such as Endocrine Surgery, Surgical Gastroenterology, Urology, Pathology, Rheumatology, Radiology, Nuclear Medicine, Neurosurgery, Neurology may took part in it.

Tele- education for district hospital doctors

With an aim to develop and improve the professional career and consultation skills of the rural and remote doctors, we can use telemedicine technology in various projects. In these programs, the specialties and topics chosen for these programs were based on the needs and demands of the users at the remote end which they thought would be helpful in their day-to- day clinical work.

Similar activities may be offered tol district hospitals of Uttarakhand or in the remote hilly areas through ISDN media and District Hospital network through fiber optic cable network.

Tele- education of paramedical workers and hospital administrator

This teaching and training activity can started using ICT for the nurses and hospital administrators for district hospitals of Almora , Srinagar and later that can extended to other District Hospitals, and medical colleges of Uttarakhand to improve the patient care skills and healthcare facilities in these hospitals.

Conclusion

This paper analyses the scope for application of ICT in healthcare services for Uttarakhand . Effective use of IT and ICT in hospitals and Medical Colleges supported by Networking and Video Conferencing will help to increase efficiency, quality of Patient care and patient satisfaction as a support system . As as part of E-healthcare system ,Telemedicine aims to deliver specialist care at doorstep to the helpless patients in remote and hilly areas. Presently ICT implementation in health services is in infancy but its further use in both medical education and healthcare industry will revolutionize the healthcare provided by Government hospitals and corporate sector. This paper purposed a good use of ICT as a support in public health care system . Some suggested services are covered in this paper , that services when executed will save precious time and cost for rural area citizen of Uttarakhand .Finally good quality health care delivery at doorstep in low cost would help the state with the support of ICT.

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