Xournals

Academic Journal of Bioinformatics

ISSN UA | Volume 01 | Issue 01 | June-2018

Telemedicine: Future of Healthcare

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Available online at: www.xournals.com

Received 12th March 2018 | Revised 20th March 2018 | Accepted 13th April 2018

Abstract:

To making a patient's life easier by allowing remote diagnosis and treatment without the constraints of distance and time telemedicine services shows a great impact. Telemedicine is used in many clinical specialties and across numerous healthcare settings, which range from mobile patient-centric applications to complex interactions amongst clinicians in tertiary referral hospital settings. During the past decade, more and more people have been able to avoid physically going into work by telecommuting from their home computer to diagnosing their emergency health problems. Telemedicine technologies have been presented as solutions to the challenges of equitable, cost-effective and efficient health service provision for over two decades. The success of telemedicine Services success was reported by many groups after performing and evaluating different clinical trial onshore. This paper discusses some recent areas of significant development and progress in the field of telemedicine, with the purpose of identifying strong trends in both research and practice activities.

Keywords: Telemedicine, Healthcare, Technologies, Trials

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Introduction

To provide technology and advancement of healthcare many programs and developments are used in all around the world. The use of electronic communication and information technologies to provide or support clinical care at a distance is known as telemedicine. It can be used in the remotest parts of the world or in places as close as a correctional facility, helping to eliminate the dangers and costs associated with the transportation of prisoners to a medical center. Also on the horizon for telemedicine is the development of robotics equipment for tele-surgery applications which would enable a surgeon in one location to remotely control a robotic arm for surgery in another location. The military has been at the forefront of development for this type of technology because of the obvious advantages it offers for use on the battlefield.

In today's rapid advancement the information and telecommunications technology are revolutionizing life and business around the world. The impact of new technologies on the health sector comes with many new applications of these technologies. Telemedicine is essentially the use of both information technology and telecommunications to provide health services or support health service provision over a distance. In developed as well as in developing countries telemedicine is being used in academic medical centers, community hospitals, managed-care companies, and in rural hospitals. With the Advancement in digital communication, telecommunication, and the Internet introduce an unprecedented opportunity to remote access to medical care. Telemedicine is currently employed in patient care, professional and patient education, research and public-health applications. It has been applied and studied in rural and city environments, by the public and private sector. Telemedicine providers are expanding day by day and now it covers the entire spectrum of health care practices, from cardiology to trauma medicine, from dentistry to toxicology, and from gynecology to ophthalmology.

Type of Telemedicine and Their Uses

Phone-Only Consultations: Between physician and patient telephone service is frequently used for telehealth. Telephonic consults can be through landlines or wireless devices for both regular phones and smartphones. To support regular care and communication between physician and patient Telephone consults occur far more than video consults and have been used over many more years.

The former chief consultant for telehealth services Adam Darkins explained that, "for many patients, the telephone is often their entrée into the health care system. Data from primary care suggests that 66% of patients call their doctors for reassurance, explanation of a worrying symptom, or advice. Sixteen percent of calls are for medication and are made because patients want to be seen immediately. Typically, women are much more likely than men to call a doctor for a telephone consultation."

Interactive videoconferencing: videoconferencing involves a patient in one location and a provider in another using real-time, two-way transmission of digitized images. In order to establish network for treatment of vulnerable and hard to reach population, Videoconferencing networks may be sponsored by hospitals, managed care plans, academic health centers, physician practices, and states using federal grant funds. The quality of internet for telemedicine depend on high-speed Internet connection or broadband with sufficient bandwidth to enable all connections to send and receive large amounts of complex data quickly and accurately.

Store-and-forward technology: For the purpose of diagnosis digital images are used for the patient which we can call as store and forward technology. At the patient's site of care digital images are captured and for interpretation the images are forwarded to a clinician at another site. The process is usually asynchronous. This form of telemedicine is increasingly used in radiology and dermatology. In some consults like patients can send photos of a skin rash or of the back of their throat to the treating primary care physician, this form of telemedicine is used.

Remote monitoring: it is a type of telemedicine technology that involves the use of devices to remotely collect and send patient data to a monitoring station for interpretation. Passive observation and recording of vital signs, use of alarms, sending of information to a practitioner, and support for self-management of care, this type of range of activities are covered in this type of telemedicine.

Review of Literature

Garshnek and Burkle, (1999) Disaster management utilizes diverse technologies to accomplish a complex set of tasks. Despite a decade of experience, few published reports have reviewed application of telemedicine (clinical care at a distance enabled by telecommunication) in disaster situations. Appropriate new telemedicine applications can improve future disaster medicine outcomes, based on lessons learned from a decade of civilian and military disaster (wide-area) telemedicine deployments. This manuscript

reviews the history of telemedicine activities in actual disasters and similar scenarios as well as ongoing telemedicine innovations that may be applicable to disaster situations. Emergency care providers must begin to plan effectively to utilize disaster specific telemedicine applications to improve future outcomes.

Challacombe and Dasgupta, (2003) telemedicine is here to stay. In future, increasing numbers of UK hospital trusts will link up to carry out teleconferencing with each other, facilitating rapid diagnosis and management decisions and improving medical education. Further in the rapid growing field of surgical robots the telesurgery become valuable and in the form of transconultation telemedicine proved the provision of healthcare by bringing a wider range of services.

Volkert, (2000) Telemedicine require a regimen of treatment, it is a potentially miraculous treatment that promises improvements to our delivery systems, bettering quality, access and eventually even costs. Its future solution to our health care system's problems of access, quality and costs is best insured by a collaboration of efforts-by the federal, state and private sectors, by bureaucrat, physician and technician.

Gamasu, 2015 more and more people around the world utilizing tele hospital clinics leads to a huge development in real time world medicine system. For diagnosing of emergency problem Telemedicine system help positively in real time applications. Videoconferencing equipment and robotic technology also helped to make doctor's offices and medical facilities as close to one another as the nearest computer screen**.**

Wilson and Maeder, (2015) the area of telemedicine offer promise of further studies and the method of enhancement for application of the method of telemedicine. It has the potential which would contribute significantly to the advancement of healthcare. Two major drivers of contemporary telemedicine development are a high volume demand for a particular clinical service, and/or a high criticality of need for clinical expertise to deliver the services.

Dinesen, et al. (2016) in global health care telehealth plays an important role, it will be increasingly important to develop a strong evidence base of successful, innovative telehealth solutions that lead to scalable and sustainable telehealth programs. For identifying and rapidly replicating best practices multinational research agenda can provide a uniform framework, while concurrently fostering global collaboration in the development and rigorous testing of new and emerging telehealth technologies.

Conclusion

Telemedicine system help for positively in real time applications and it is enhanced for diagnosing for emergency problems. But technical difficulties have been problematic in telemedicine. For telemedicine technology the systems must be reliable and able to withstand environmental conditions, interference, and power interruptions. The equipments of Telemedicine should be quick and easy to repair. New communication technologies and miniaturization of computers and biosensors will enable a far greater variety of users to engage in field-level use of telemedicine during large-scale and complex scenarios. But overall performance of telemedicine is very impressive, more and more people around the world utilizing tele hospital clinics leads to a huge development in real time world medicine system.

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