Emerging Trends of Telemedicine in India

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Abstract

Telemedicine could be a generic term that is employed to outline numerous aspects of health care at a distance. In its long term application, telemedicine may be outlined because the use of telecommunication technologies to supply medical data and services. The key facet of telemedicine is that the use of electronic signals to transfer data from one website to a different. Telemedicine is turning into most recognized as bearing on remote clinical care and consultation through the utilization of electronic imaging instrumentality. By exploitation Telemedicine technologies and a well-planned timeline, the AMEDD (Army Medical Department) has with success drawn down its hospital complement from one hundred sixty five hospitals to simply sixty two hospitals within the force structure-a sixty two decrease. Telemedicine services that integrate electronic medical records will decrease the quantity of cases wherever doctors cannot access patient's records. In line with the Institute of medication, concerning half-hour of physicians couldn't have accessed their patient's files in existing non-telemedicine systems and seventieth of the records were incomplete.

Keywords: Utilisation, Importance, Services in Health Care, Relevance.

1. Introduction

Telemedicine could be a chop-chop developing application of clinical medication wherever medical info is transferred through the phone or the net and generally different networks for the aim of consulting, and generally remote medical procedures or examinations. Telemedicine could also be as straight forward as 2 health professionals discussing a case over the phone to phone, or as advanced as victimisation satellite technology and video-conferencing instrumentation to conduct a time period consultation between medical specialists in two completely different countries [3]. Telemedicine typically refers to the employment of communications and knowledge technologies for the delivery of clinical care. Care at a distance (also known as "in absentia" care), is associate recent apply that was typically conducted via post. There has been a protracted and winning history of in absentia health care that, because of trendy communication technology [1], has evolved into what we all know as trendy telemedicine In its early manifestations, African villagers used smoke signals to warn individuals to remain aloof from the village just in case of great sickness. Within the early decennium, individuals living in remote areas in Australia used two-way radios, steam-powered by a generator driven by a group of bicycle pedals, to speak with the Royal Flying Doctor Service of Australia [2–5]. The terms e-health and telehealth square measure sometimes incorrectly interchanged with telemedicine. Just like the terms "medicine" and "health care", telemedicine typically refers solely to the supply of clinical services whereas the term telehealth will consult with clinical and non-clinical services like medical education, administration, and analysis. The term e-health is commonly, significantly within the UK and Europe, used as associate umbrella term that features telehealth, electronic medical records, and different elements of health IT.

2. Need of Telemedicine

The folks in Asian nation, significantly in rural and remote square measures are found troubled to access timely medical treatment. The region of the country is characterised by densely inhabited communities meet Brobdingnagian distances; there's an absence of qualified personnel in bound

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sectors of the health service. Telemedicine has return originally to serve rural populations, or any those that square measure geographically spread, wherever time and also the price of travel build access to the most effective medical aid troublesome [4]. The major would like of Telemedicine services in Asian nation as follows Brobdingnagian population (above one billion) with inequitable distribution of resources seventieth of India's population lives in rural areas whereas seventy fifth of qualified consultants follow in urban centres [5–7]. Brobdingnagian acreage with troublesome inaccessible tract seasonal isolation of some tracts of land e.g. owing to floods, snow, etc.

3. Importance of Telemedicine

Telemedicine is associate forthcoming advancement in health science arising out of the effective fusion of knowledge and Communication Technologies (KCT) with bioscience having monumental potential in meeting the challenges of supply to rural and remote areas besides many alternative applications in education, coaching and management in health sector [8, 9]. Actual that means of Tele-medicine is providing medication from remote place.

Other benefits of Tele-Medicine are as follows:

- Reduce the inconvenience and price of patient transfers.
- Cut back inessential period of time for health professionals.
- Remove distance barriers and improve access to quality health services.
- Facilitate patients and rural practitioner's access to specialist health services and support.
- Cut back isolation of rural follow by upgrading their information, information through Tele-education or Tele-information.
- It should additionally cowl playing surgery and operations victimisation remote controlled and processed devices in close to future on wide scale.

In Asian country this may prove a boon as a result of it'll give services of consultants even in remote areas while not travelling there. Patients won't need to trip railway line cities for treatment however are going to be able to get treatment from AIIMS, Old Delhi even sitting at a so much village of geographical area. It will additionally impart coaching and education via Tele-conferences. Less range of doctors,

hospitals and facilities of equipments won't become a reason for improper treatment of a patient.

4. Challenges Faced while Implementing Telemedicine in India

As we know that more than sixty percentage of Indian population are living in rural areas. They are having poor infrastructure and lack of computer knowledge [12–14]. For the implementation of Telemedicine one must have computer knowledge. Due to all these reasons various problem faced in India while implementing Telemedicine.
 These are as follows:

- Lacking of infrastructure in rural areas like road facilities, electricity etc.
- By applying such technology in the country people fear for losing the job.
- People are hesitating for using telemedicine due to lack of computer knowledge and also not aware of technology too.
- People are thinking that the technology is very costly.
- Medical staffs, doctors are also not aware of such technology very well.
- Communication and languages are another problems .In India very few people know English very well [42–45].

5. Benefits for using Telemedicine

Telemedicine becomes the boom for Indian health care sector. This can change the rural health care practices by using such a developed technology of medical facilities to the rural areas. People who are living in rural areas are not getting good medical facilities. Through this technology they are able to get the health services to their home itself [32-36].
 Apart from these some other benefits are as follows:

- Telemedicine is not so costly. Anyone can afford such facilities.
- It is also used even having fewer resources too.
- It helps in providing services in rural areas.
- It helps in exchanging of knowledge among medical professionals.
- It helps in education of medical professionals.
- It helps in saving the life of people in war, floods, earthquake etc.
- It also helps in improving coordination among medical professionals.

5.1 Convenience

Pencilling in a very lunch-hour visit together with your MD will prove difficult, particularly once a can't-miss telephone call absorbs the majority of your afternoon. Telemedicine eases this drawback. Through video, Web chat, or phone, staff will follow-up on a prescription or diagnosing with a MD they have been seeing for years if that MD so provides telehealth services or with a replacement doctor in their network, says Kathy Dunmire, vice chairman of product management for BlueCross BlueShield of North Star State. The insurance firm partners with yank Well, a telehealth company that connects physicians to shoppers from their offices and houses. Once you register, you'll be able to check up on a replacement in-network physician's background, she says. The goal of telehealth is to make AN expertise that closely mirrors a conventional doctor visit.

5.2 Less Time within the Lounge

We've all flipped through an equivalent year-old issue folks or folks whereas waiting our address see our medical aid MD or medical practitioner. Telemedicine eliminates this method, in line with Dunmire. "Online care is basically a giant and for our members. It takes a few of minutes to register and place your health history in," then you are able to get the health care you wish, she says.

5.3 Cost-efficiency

An increasing range of doctor's area unit charging less for a telemedicine consultation than they would for an in-person visit. Telemedicine may scale back travel expenses, in line with Paula Guy, chief officer for the Georgia Partnership for Telehealth, bureau that seeks to extend Georgians' access to health care services through technology [18, 19]. This is often very true for those living in rural communities. Rural families World Health Organization would commonly travel hours out of their thanks to access key health services will jazz from the comfort of their couch.

5.4 Expedited Transmission

Expedited Transmission of MRIs or X-rays for a second opinion. Maybe you're you area unit buried below a business proposal point and are unable to urge a second opinion concerning your thyroid condition. E-mailing AN imaging or X-ray of the inflamed space to a specialist for a second opinion simply may be your grace. One amongst the beauties of telehealth is that it will improve communication between patients and their medical practitioners. In-person visits and communication mail are not any longer the sole choices for receiving and causation medical documents.

5.5 Privacy Assurance

Telemedicine complies with HIPAA laws that aim to stop personal or secure medical documents from being leaked [31]. "You would not need to Skype together with your MD and bring up all of your personal case history," says Dunmire.

6. Steps Involved in Implementing Telemedicine

- Frame vision
- Planning of financial matter
- Establishment of efficient and healthy working environment
- Providing good and standard health care services
- Training
- Leadership
- A good plan
- Right implementation
- Marketing strategy
- Evaluation

7. Diagnosis Involved in Telemedicine

- Tele-dermatology
- Tele-radiology
- Tele-cardiology
- Tele-pathology
- Remote ICU monitoring
- Ambulance monitoring
- Mobile telemedicine unit
- Electronic health record

8. Procedure

8.1 Sampling

The subjects will be purposefully sampled from among the patients that attended the podiatry service at a community health centre. The inclusion criteria needed participants to possess a designation of polygenic disorder or idiopathic peripheral pathology and to possess received the

Telemedicine consultations for management of a high risk foot complication. The carer/spouse of any patient who met the factors was additionally invited to participate within the study. Attributable to the future nature of a high risk foot complication, carers/spouse inevitably gets involved within the management and therefore the project aim was to incorporate the impact of the condition on their life additionally. Several participants were excluded from the study attributable to co-morbidities that affected their ability to participate.

8.2 Recruitment

The initial invite to participate will be through a telephone to every prospective participant who will ask if he/she would have an interest in having a one-on-one interview about their diabetic foot malady and therefore the telemedicine service phone calls to the possible participants were created by someone neutral to the service in anticipation of reducing the chance of coercion. The possible participants are advised the interviews were to be conducted by the chiropodist who had provided the service and who was additionally probably to continue providing a medical specialty service within the gift and/or future.

They are additionally suggested that non-participation wouldn't have an effect on the receipt of their gift service or any future service which they were able to withdraw from the study at any time with none threat of the medical specialty service being withdrawn from them. If an expression of interest to participate was revamped the phone, the Participant Information Sheet and a letter of interest was forwarded by mail [41]. This was then followed by another telephone seven to 10 days later to rearrange the interview time. The second telephone was additionally created by the neutral one who once more reinforced the voluntary nature of participation within the study. Due to health problem one patient and 2 carers were unable to participate.

9. Data Assortment

Interviews are conducted at a community health centre, with the inquirer following a semi-structured interview script for a patient or a carer/spouse. Patients and carers are interviewed on an individual basis, and every one interviews were-to-one, with the interviewer and answerer solely gift. The Participant info Sheet was mentioned with the participants before commencement to make sure the interview method was understood and to once more reinforces the voluntary nature of participation [22–25]. Problems regarding confidentiality and storage of information

were highlighted and therefore the consent kind is signed indicating both permission to interview and access the participant's medical records. A digital note taker was accustomed record the interviews that took close to one 5 hours and field notes were recorded at the conclusion of every interview. Prompts and probes are enclosed within the interview scripts and despite the tiny sample size there is adequate knowledge collected to point saturation had been achieved. Following the interviews the info was transcribed by the inquirer for thematic analysis. The transcription method was primarily the start of research as this allowed the researcher to start the method of immersion within the knowledge.

10. Data Analysis

Combinations of a post-positivist paradigm and school of thought have driven the analysis of the info collected during this study. Post-positivism, performing from the angle of what is a 'given' presents a right away expertise of the events that happened and allows the researcher to induce as shut as potential to the events within the field being researched [37–39]. This has been applied to analysis of the info that relates to the telemedicine service. A phenomenological approach has been applied to analysis of the info relating the experience of living with diabetic foot malady. Within the absence of numbers to produce validity the study aim is to specialize in the gathering of in-depth knowledge from the topics and create an understanding of the lived expertise for the patients. A codebook was created for every topic space and themes were at the start known that are consistent with the queries being asked. The responses in every theme were categorized into Code Labels. Every Code Label was then given a definition and outline, as well as exclusions and inclusions. Thematic analysis was continued by reflective on the info to identify core consistencies, meanings and emerging themes.

11. Rigour

Consistency and similarity within the development of the codes and themes is checked and verified through use of a freelance inter-rater.

12. Bias

The Inter-rater who checked for consistency within the development of themes known that prompting had occurred

throughout the interviews that raised each rigour and bias problems. It must thus be recognized that there are a unit limitations with reference to findings in relation to advantages of the service [40]. But it should even be noted that the initial prompts were literature primarily based and were found to steer to more spontaneous and voluntary responses around the problems.

13. Technological Issues

Tele-medicine technology differs in each scenario and may vary from phone to phone calls postoperatively to preventing diabetic complications in youngsters by employing a common game system, to live, interactive voice and video patient education, to downloadable knowledge devices employed by patients with knowledge taken by Tele nurses [15, 20, 21, 26, 27]. Studies report varied technology approaches employed by varied varieties of suppliers in several settings with numerous unwellness entities. For instance, phone to phone technology has historically been used as a Tele-Medicine mechanism. Whereas employing a technology that's already in situ in several patients' homes, this technology will be wont to deliver vital aspects of health care, as well as education, psychosocial medical care and emotional support.

One of the foremost common technology configurations for Tele-Medicine applications uses two-way audio and video, or teleconference instrumentality. This technology permits patients and caregivers to speak effectively, whereas permitting caregivers the good thing about seeing the patient. Alternative technologies will be incorporated into the most audio and electronic equipment to transmit specific health care knowledge like force per unit area and pulse [7, 11, 17]. These technologies makes nursing potential as a result of knowledge to support patient safety in home care will be retrieved from home Tele-Medicine devices if correct word and knowledge standards area unit utilized. One innovative technology that has recently begun to be studied would enable patients to be monitored remotely with even less of a time burden placed on the nurse and therefore the patient. Infrared technology offers maybe the foremost continuous methodology of telehealth watching instrumentality. Infrared scanners are shown to be effective in coverage deviations from a daily routine. With this technology, the watching of senior or dependent patients is completed from a far off location [10]; patients will be monitored reception, in an exceedingly rest home, or within the hospital. Safety of the patient will be assessed

while not the patient on purpose moving into front of a camera or work on to talk to nurses.

14. Conclusion & Suggestion

Telemedicine can still be a dynamic influence at intervals the profession of medication. Advantages of this innovation are in 2 primary areas medical advantages and value benefits. First, telemedicine may be a logical extension of the expansion of the technical and technological aspects of health care. The medical advantages of a vigorous telemedicine program area unit associated with however professionals use the technology. A modification of an illustrious analogy employed in instructional analysis once applied to telemedicine summarizes the medical impact of telemedicine. Telemedicine and data technologies area unit mere vehicles that allow the delivery of health services however that don't have any bigger impact on health care than the truck that delivers our groceries has on nutrition. It's the content of the vehicle that allows effective health care, not the vehicle itself [46].

Second, price effectiveness is probably going to be the foremost vital outcome of telemedicine. The many prices of treatment and therefore the enlarged needs for services that area unit projected for consequent many decades forecast a price advantage for the organizations that perceive and utilize technologies effectively [28–30]. Certainly, telemedicine is merely one class of technology, however it should shortly be the "ears and eyes" of the health care organization.

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