

Improving Patient Experience with Telemedicine



The term Telemedicine was first coined in the 1970s, literally meaning “**healing or providing treatment at a distance**”.

Broadly, telemedicine can be described as delivering healthcare services using Information & Communication Technologies (ICT) for diagnosis, medical treatment, prevention of injuries, chronic illness, and exchanging of crucial patient data over the online platforms in a safe and secured manner.

The four key elements in telemedicine are:

1. Providing Clinical Support to the healthcare system consisting of providers and patients.
2. Overcoming geographical barriers by connecting users who are in different physical locations.
3. Adopting varied ICT or digital tools and technologies.
4. Improving health outcomes and overall patients’ experience.

People Facing Challenges In Rural Areas To Avail Healthcare Services

Approximately 15% of the population in the US lives in rural areas.

Reasons?

They feel that choosing to live in a rural community means lower living-cost as well as a low pace of life, unlike the urban areas where life seems so fast and hectic! Moreover, they can enjoy access to expansive and open recreational areas, less crowded offering privacy.

However, living in rural areas brings inevitable healthcare challenges as compared to living in urban areas.

What are those challenges?

- Poverty Rates Are high
- The percentage of older adults is higher who are more prone to develop chronic health problems
- Major rural populations don't have health insurance
- Very little access to healthcare facilities, like hospitals, clinics that are usually far away.
- Higher rates of problematic patterns and misuse of opioids, methamphetamine, tobacco, cigarettes, etc.
- Increasing rates of chronic health problems like obesity, high blood pressure, diabetes
- Greater exposure to environmental hazards like higher concentrated chemicals used for farming

Telemedicine solves the above challenges in the rural areas by connecting people to the healthcare service providers via three modes:

- **Realtime Interactive Telemedicine**
- **Store-and-forward Telemedicine**
- **Remote Patient Monitoring Telemedicine**

Real-Life Example

Challenge- Generally, most of the patients suffering from OSA (Obstructive Sleep Apnea) do not get easy access to specialists for sleep care, and the reasons are varied. Financial crunch, geographical barriers, technology gaps are some of the challenges these patients face.

Telemedicine Solutions- In such cases, a patients' health can improve in a high-quality manner if diagnostic evaluation is done by a certified sleep medicine physician using telemedicine tools and technologies. **How:**

- Real-time interaction between patients/family member/caregiver and the Sleep care Specialist using video camera via live video on mobile or desktop. Real-time Interactive telemedicine is applicable here.
- Healthcare Providers can access EHR, forms, charts, etc., and can be retrieved via digitally scanning or emailing securely. The store-and-forward telemedicine method applies here.
- Accessing and remote interpretation of several diagnostic studies like polysomnography, home sleep apnea testing, actigraphy.
- It is easier to obtain PAP downloads while in areas where connectivity is limited, technicians can do the printing of cards, scan that data and send to physicians who ultimately interpret them and do the further diagnosis.
- Specialists use digitally enabled tools like high-resolution cameras, electronic stethoscopes, which do help in an efficient and effective physical examination of patients concerned on a remote basis.

Telemedicine Addressing Pain Points of Patients

1. Pain Point - *Doctors, Physicians, Specialists are Miles Away*

People face geographical barriers when want to see medical specialists for in-person visits. They face a challenge for commuting to a farther location due to lack of transport facilities, leaving behind small children or elderly parents at home becomes non-feasible, not managing work schedules in between to seek medical advice or see physicians. Sometimes, some specialists stay in other countries. Then what to do? These challenges patients do face across the globe.

❖ Solution – *Tele-consultation, Real-Time Interactive Telemedicine*

Tele-consultations, taking online appointments with specialists (remote-booking) at a convenient time, date and no need to travel out of the comfort zone of home. Telemedicine helps patients to meet this major healthcare barrier efficiently and effectively. Healthcare services are conveniently provided to patients via online mode using smartphones or mobile phones. Real-time interactions occur via live audio/video sessions based on the scheduled appointment that's been done remotely. Patients benefit in terms of huge savings of time, money, and no travel issues. The medical facility is available round the clock.

2. Pain Point – *Elderly Patients Cannot Move Out for Diagnostic Tests*

In case of emergency or patients suffering from acute pain, such as elderly patients who cannot move out of home, face a big challenge to go for diagnostic tests. Bedridden patients, those living in rural areas or farther and not having transport facilities to visit pathology labs or diagnostic centers, distance is so far that cannot imagine for an in-person visit.

❖ Solution – *Home Diagnostics Facility by Specialists*

Telemedicine helps them by going to patients at their comfort place/home and collecting the samples, conducting diagnostic tests as recommended by doctors. Certified pathologists do the job of making a hassle-free diagnostic test at home. The reports are shared online with patients as well as their doctors. Real-time or store-and-forward telemedicine helps for better patient care. Even doctors can access diagnostic test reports from Electronic Health Records –EHR of patients. And adequate medical follow-ups are carried out.

3. Pain Point – *Neuro- patients lack 24*7 medical care*

Patients suffering from memory loss, Alzheimer's, dementia, live pathetic conditions if not given timely medical attention. In such cases, constant monitoring by a neurologist/consulting specialist is needed. Family members, caretakers, caregivers feel drained and helpless because it is not easy to manage these patients. They need constant, expert memory care, personal care, they forget to eat, drink, and there is no body-mind coordination. They become very aggressive and don't know the difference between days

and nights. Thus, persons with cognitive disorders, mental illnesses face a greater level of healthcare challenges.

❖ **Solution – *TeleNeuroPsychology Telemedicine Helps Them***

If you are a caregiver or family member of a patient dealing with memory loss, early-stage, or with some diagnosed memory disorder, you will naturally feel distressed, but, telemedicine comes to your rescue here. TeleNeuroPsychology is the telemedicine type that is exclusively dealing with patients with cognitive disorders. A timely, consistent, convenient neuropsychological consultation and assessment are meticulously done via phone calls, mobile video calls, direct talks between the doctor and the patient and family members take place. Techniques that comply with a standard evaluation process are effectively implemented that leads to a genuine and fair assessment of the specific patient using video technology. A study has found out that this type of telemedicine service proves to be a very feasible and reliable alternative to conventional in-person consultations and assessments of patients' cognitive behavior and neuro-psychology.

4. **Pain Point – *High-Risk Patients suffering from Chronic Diseases***

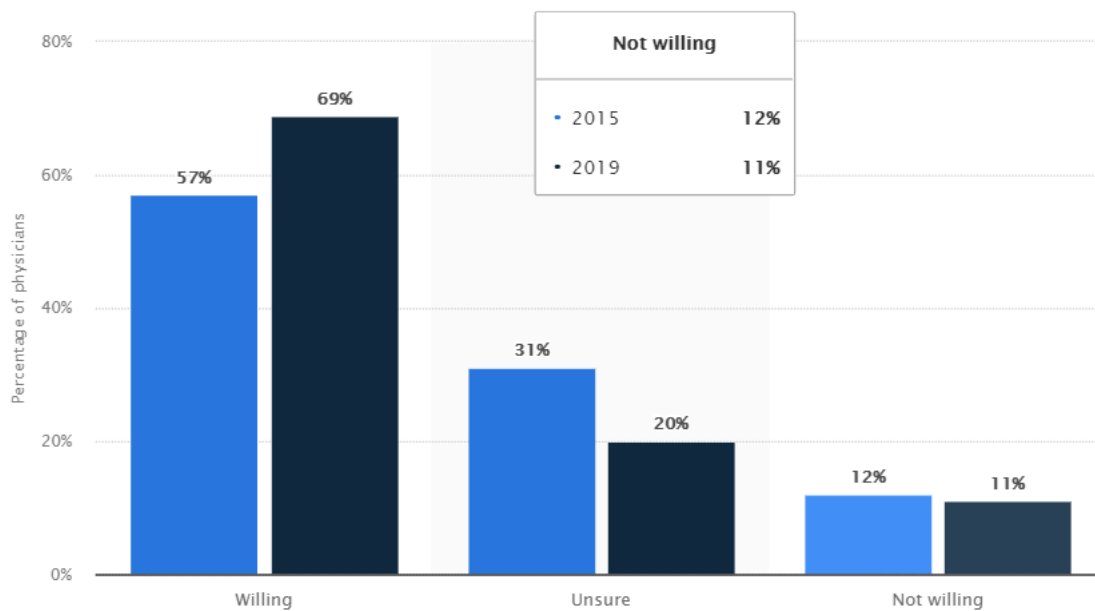
Patients who suffer from chronic diseases like diabetes, blood pressure, severe heart conditions need proper healthcare services, constant monitoring on a timely basis. Sometimes, when patients get discharged from hospitals, after heart surgeries, for example, need constant aftercare and monitoring. The challenge lies in how and in what manner. There is a constant risk of health deteriorating, and need constant monitoring and clinical assessments of their vital signs, symptoms, conditions improving or not, etc.

❖ **Solution – *Tele-nursing and RPM telemedicine for them***

Chronic patients can do self-monitoring for constant updates about their health conditions, reporting to specialists accordingly. This is the RPM telemedicine technology that addresses the pain point of patients suffering from chronic diseases like heart problems, diabetes, etc. The IoT- led devices like glucose-meters that manage diabetes patients, oximeters that measure blood-oxygen levels, surveillance monitors that monitor dementia patients constantly, heart-rate monitors that manage congestive heart failure, etc. are the ways RPM telemedicine is handling them with genuine care. Telenursing adopts a methodology where nurses do constant monitoring of patients, their health symptoms via video calls, and other digital tools. Think of the rural areas where people have limited healthcare facilities. Patients leverage telemedicine for their treatment which requires a long-form of monitoring and consultation, and continuous follow-ups.

5. **Pain Point – *Expensive Home Care Medical Equipment & Language Barrier***

Patients suffering from certain chronic conditions adversely affect mobility, quality of life as well as daily activities. They need constant support like ambulatory aids to walk, to move from one place to another, bath aids and daily personal care, respiratory aids, sleep machines aid, behavioral therapies, and many more examples surface under this segment. Moreover, these patients hail from different parts of the world speaking different languages. These challenges make patients have a tough time and they desperately seek dedicated healthcare services from providers.



❖ Solution – *Specialized Homecare medical Equipment and Interpreters*

Telemedicine overcomes the given challenges. Healthcare providers provide specialized homecare medical equipment for the safety and mobility of patients suffering from multiple chronic illnesses. For instance, for patients suffering from complete/partial hearing loss, who don't speak English, telemedicine service provides trained medical interpreters proficient in multiple languages. Also, there happens to be a home supply of :

1. *Ambulatory /Walking Aid: Walkers, crutches, canes, power wheelchairs, scooters*
2. *Bathing Aids: Reachers, transfer benches, shower chairs, bedside commodes*
3. *Respiratory Aids: For sleeping aid, CPAP & BiPAP machines, respiratory management like ventilators, oxygen cylinders, tracheostomy supplies*
4. *Home Medical supplies: Braces & supports, hospital beds & accessories*

Benefits of Telemedicine for Healthcare Providers

As per Statista

Report -2021, in the United States, 57% of physicians showed willingness for video visits with patients to enhance the patient-health experience during 2015. The graph increased to 69% in 2019.

1. Enhanced Patient Health Outcomes

Patients prefer video consultations with doctors, physicians and tend to comply with medical advice like follow-up recommendations if conducted online via video visits. This gives an ample opportunity to the healthcare providers to leverage telemedicine procedures to derive maximum patient health outcomes on the brighter side. With ever-changing healthcare dynamics and post-pandemic preferences, video visits are being considered as an effective methodology for enhanced patient engagement and experience. Telemedicine helps the providers tremendously in terms of lifestyle coaching, health monitoring like medication, remote patient monitoring for managing chronic diseases, especially when patients get discharged from hospitals after critical surgeries like heart surgery.

2. Flexible Scheduling & Virtual Mode

Healthcare providers like physicians, doctors, hospitals can utilize virtual treatment methods for patients across the globe, at their convenient time zone on a remote basis. There is no time constraint, no location mandate because a doctor can conduct video visits from his residence and need not be present at a clinic or hospital. Modern telemedicine tools and technologies offer the providers to do their job virtually from anywhere and at just any time. This way, they can extend their work timing, even can opt for weekend operations without being available physically onsite. More work means more growth opportunities!

3. Balanced Work-life

Improved work and life balance are some of the telemedicine benefits that healthcare providers. They can see their patients beyond traditional office hours, can have the option to work from home or private clinics apart from hospitals they serve in. They can efficiently maintain a healthier and balanced work-life as per choice. Medical providers generally don't get time to go for vacation and unwind or relax. But, adopting telemedicine technology, this challenge is no more. The providers can go on vacation and be on duty as well! They can conduct video visits from any location thereby giving managing quality patient care on time when needed!

4. Easy Digital Sharing

Healthcare specialists can share patients' records, images with their peer specialists for opinion or urgent medical treatment on a virtual basis. For instance, the Store-and-forward telemedicine allows a healthcare provider who is examining a patient at some specific location, to share his medical information simultaneously with another specialist sitting at some other part of the world!. providers to share medical information. The latest telemedicine equipment and digital technologies facilitate a smooth process herein. Several integrated visual/audio recording devices, a digital stethoscope that records and shares a patient's lung/heart sounds, etc. help an efficient healthcare service for the best patient care outcomes.

5. RPM for Stress-free Treatment

Telemedicine such as RPM (Remote Patient Monitoring) helps doctors, nurses, and the entire healthcare management to deliver quality care to patients who undergo some critical surgeries or are suffering from chronic illnesses. For example, A diabetic patient needs constant monitoring when returning home after being discharged from the hospital. Post-discharge, he needs constant monitoring by the respective consultant doctor in case he needs emergency care at an odd hour at his home, etc.RPM reduces this tension of these providers. They can adopt this type of telemedicine solution that can manage patients' chronic conditions efficiently and on time. Monitoring from distance, from remote locations is possible now. Nurses can keep an eye on ailing heart-patient post-surgery. Certain modern telemedicine tools and equipment like IoT-powered grip strength sensors can manage a Parkinson's patient. Blood pressure cuffs can help measure BP and data is shared in a constant flow.

6. Increased Revenue

Telemedicine offers the healthcare business a big opportunity to grow and fetch greater revenues. Online consultations, video visits are often more efficient and productive in terms of saving time and cost, both. Consequently, patients are satisfied with doctors consulting online and giving so much time for the same. For doctors/physicians, there's no hurry to take another patient as pre-booking for an appointment has been scheduled online and the process is carried out on a remote basis only. Patients need not wait in a queue for their turns. A cashless payment system, digital payment involving insurers who will reimburse treatment for patients, opens up the scope of revenue growth while huge cost reduction is assured as office space or office staff is not required all the time.

7. Immune to Competition

On-demand In-Person healthcare service is helping the sector immensely. Patients can opt for on-demand in-person care rather than going for a traditional physician care practice. There are retail walk-in-clinics, stand-alone urgent care operation facilities, which are the ways telemedicine is helping healthcare providers to deliver. Moreover, health institutes, organizations are increasingly fusing online consultations, virtual patient care, and monitoring, etc. within their physical existence. The entire process is very cost-effective and allows a smooth operation giving improved patient care and treatment. In addition, the number of organizations offering online video visits continues to grow. Thus, adding a telemedicine system to the existing traditional practice is the best way to stay immune to competition in the market.

Digital is the Key Driver

Telemedicine means care of specific patients through video consultations, remote monitoring, virtual medicine recommendations while transmitting critical data adhering to security protocols, all these functions are effectively led by advanced digital technologies. Significant digital tools and technologies empower telemedicine practices in the healthcare realm taking it to an entirely new level enhancing patient healthcare outcomes.

Real-Time & Online Audio/Video Live Interactions

This is one of the major digital enhancements allowing telemedicine a big success amongst the stakeholders. Providers and patients both have welcomed this space in telemedicine. A complete telemedicine solution is specifically built to connect patients with consulting doctors in the virtual mode. There's no barrier in terms of geography, location, time zone, etc. Telemedicine follows certain security guidelines and does not adopt the general teleconferencing tools. The very system needs to adhere to protocols of HIPA (Healthcare

Insurance Portability and Accountability Act) and the likes. Telemedicine works on a model that guarantees protection of patients' information that is confidential and sensitive.

Examples are:

1. **Teleneuropsychology** - Digitally enabled real-time telemedicine methodology provides treatment to patients suffering from a cognitive disorder. The techniques while complying with a standard evaluation process, effectively and efficiently provide neuro consultation to neuro patients, dementia patients, using video technology.
2. **Telepharmacy** – When patients are critically ill and cannot move out of their homes, tele-pharmacy technology helps for a smoother medication facility. While online consultation is being carried out with a doctor, pharmaceutical advice is given parallel and the medicines are prescribed and delivered to patients automatically. This is possible owing to the digital capabilities of the telemedicine solution adopted here.
3. **Telenursing** – AI-ML digital technologies are facilitating remote nursing facilities for advanced patient care. Elderly patients, patients who have been discharged from chronic illnesses like heart surgeries, diabetes, Parkinson's, dementia, etc. need constant monitoring and emergency nursing services 24*7. To cater to this acute demand, telenursing uses mobile-based video calls, IoT-based check-ups, healthcare equipment, all these together help for smooth collaboration between nurses and primary caretakers of patients.

Store and Forward Telemedicine

This telemedicine calls for maintaining and managing patients' data required during the treatment process on a remote basis. Video recordings, x-ray images, ultra-sound reports, and multiple images, prescriptions medical history, diagnosis lab reports, sound files, and several other clinical data become imperative for the emergency procedure during treatment processes. Store-and-forward or asynchronous telemedicine technology helps to securely send them on digital formats, accessible only to authorized members. **Examples are:**

1. **Teleradiology** – Teleradiology incorporates digital technologies to conduct the radiology process smoothly at the micro-level. The technology helps radiologists to see cases, from a remote location. Radiologists can now smoothly coordinate with consulting physicians, specialists are available at different locations via remote teleradiology process. MRI, CT Scans, X-ray reports can be easily shared/accessed online and treatment carries on smoothly without hiccups.
2. **TeleDermatology** – Teledermatology is the type of in-store-and-forward telemedicine technology that helps dermatologists to conduct treatment on a digital basis. Like, in a skin-lesion clinic, nurses can send images of skin lesions, lab reports to consulting dermatologists on a remote basis. Dermatologists, in turn, give adequate views, diagnose based on reports and recommend treatment plans specific to patient condition. Skin cancer detection is a major diagnosis done using the teledermatology technique.
3. **TeleOphthalmology** – Teleophthalmology telemedicine type facilitates real-time interaction between patient-doctor for the eye-screening process. This is done on a remote basis, involves certain methods like a patient can send optical images to his consulting ophthalmologist and can get early detection of ocular anomalies, if there. In another example, advanced retinal cameras can digitally capture eye screenings of patients for

specific diabetic retinopathy, which are then transmitted to consulting eye specialists on a remote basis, for review and medical recommendation.

4. **TelePathology** – Digitally enabled pathology is the area where digital plays an important role. Telepathology helps to store and forward pathology-related images, videos that are data-rich and specific to patients' treatment. Here, patients are not required to go in-person for medical tests, diagnostics, and avail of virtual, inter consultations with pathologists and specialists on a remote basis. Virtual-Slide System, Real-Time System, Image-based System are a few telepathology types that are helping the telemedicine sector globally.

Remote Patient Monitoring (RPM)

RPM (Remote Patient Monitoring) is the telemedicine type that allows healthcare professionals, medical team to monitor their patients suffering from chronic illness, higher risks, on a remote basis. RPM also called telemonitoring, is considered a significant healthcare telemedicine tool using which doctors, nurses do administer treatment monitoring to the patients discharged from the hospital as they need a constant watch for any emergency requirement, and how they are progressing. They check their vital statistics, health improvements for a distance.

Conclusion

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Fresh references

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