Rapid adoption of Telehealth Technology can leave Patients and Data at risk.

Vidhi Patel

University of San Diego

Introduction

As the coronavirus disease (COVID-19) spread across countries in 2019, the need for new approaches to offer high-quality patient care and manage the disease's spread became increasingly critical. The use of telemedicine and virtual software in the battle against COVID-19 has a lot of promise. Several ways to managing and controlling the COVID-19 pandemic have been proposed by several nations. Telemedicine and virtual software platforms let clinicians and patients receive medical treatment by removing physical obstacles. The fast growth of telehealth, particularly during the coronavirus disease 2019 (COVID-19) pandemic, combined with a patchwork of rules and standards increases the risk of liability and legal difficulties. Telehealth has certain drawbacks, such as the inability to do complete physical examinations, the potential for technological problems, security breaches, and regulatory restrictions. Telehealth also confronts several legal and regulatory challenges, including a wide range of rules, regulations, and practice standards. "Most telehealth platforms are highly encrypted and in accordance with Health Insurance Portability and Accountability Act standards and regulations, but no platform is 100% safe from hackers or data breaches. Another barrier to wider acceptance and implementation of telehealth is the concern about the privacy and security of telehealth systems." (Gajarawala & Pelkowski, 2021). According to Landi (2021), San Diego Scripps Health was hit by a cyberattack that forced the health system to take a portion of its IT system offline for several weeks, disrupting care and forcing medical personnel to rely on paper records. The five-hospital health system is now facing several class-action lawsuits from patients alleging that system leaders failed to keep their medical data safe from hackers.

Literature Review

The growth and evolution of telehealth has opened new paths for efficient and affordable healthcare services in the United States and around the world. The objective of this review is to examine the factors that might leave patient and patient's medical data at risk when implementing telehealth. Despite the promise of these technologies, a variety of clinical, ethical, and logistical challenges accompany the remote delivery of such services. Among these challenges are issues involving security, competence, the therapeutic alliance, usability, and technical difficulties.

Article 1 review- Telemedicine was originally developed to provide basic care to rural and poor patients. Higher rates of telemedicine use became the norm in many practices since the 2019 coronavirus pandemic. The increased concentrate on patient satisfaction, the availability of effective and quality care, and therefore the minimization of costs has also led to increased implementation of telemedicine. Patients and healthcare professionals have reaped the advantages of telemedicine, but its widespread adoption has been hampered by regulatory, legal and reimbursement hurdles. "Some disadvantages of telehealth include limitations with performing comprehensive physical examinations, possibilities for technical difficulties, security breaches, and regulatory barriers. Some critics to telehealth use worry that telehealth may adversely affect continuity of care, arguing that online interactions are impersonal and dangerous in that the virtual provider does not have the benefit of a complete history and physical examination to aid with diagnosis and treatment. Although face-to-face encounters are necessary in many circumstances in which auscultation or palpation is necessary, telehealth should be considered as an adjunct and best used to supplement in-person visits." (Shilpa & Jessica, 2020).

Article 2 review- Medical practice and information and communication technologies are combined in telemedicine. It has been shown to be highly successful for distant health care, particularly in places where health facilities are few. However, numerous difficulties frequently obstruct the adoption of these technologies. Among them, ethical and legal issues are among the most complicated and varied. "The growth of telemedicine is rapid and could lead to future cost savings. However, the risk of misdiagnosis is greater, and the legal statutory clauses are not standardized or universal. This often leads to varying standards and coverage offered by service providers, including the dangers of a decrease in quality of handling ethical and legal concerns to be ahead of the competition.[5,6]The cost of telemedicine services is practically the same as that of services performed in face-to-face interactions. There is no assurance of pay equality among in-person health care and telemedicine providers. On the other hand, liability and potential issues such as negligence and malpractice will also have an impact on telemedicine." (Nittari et al., 2020).
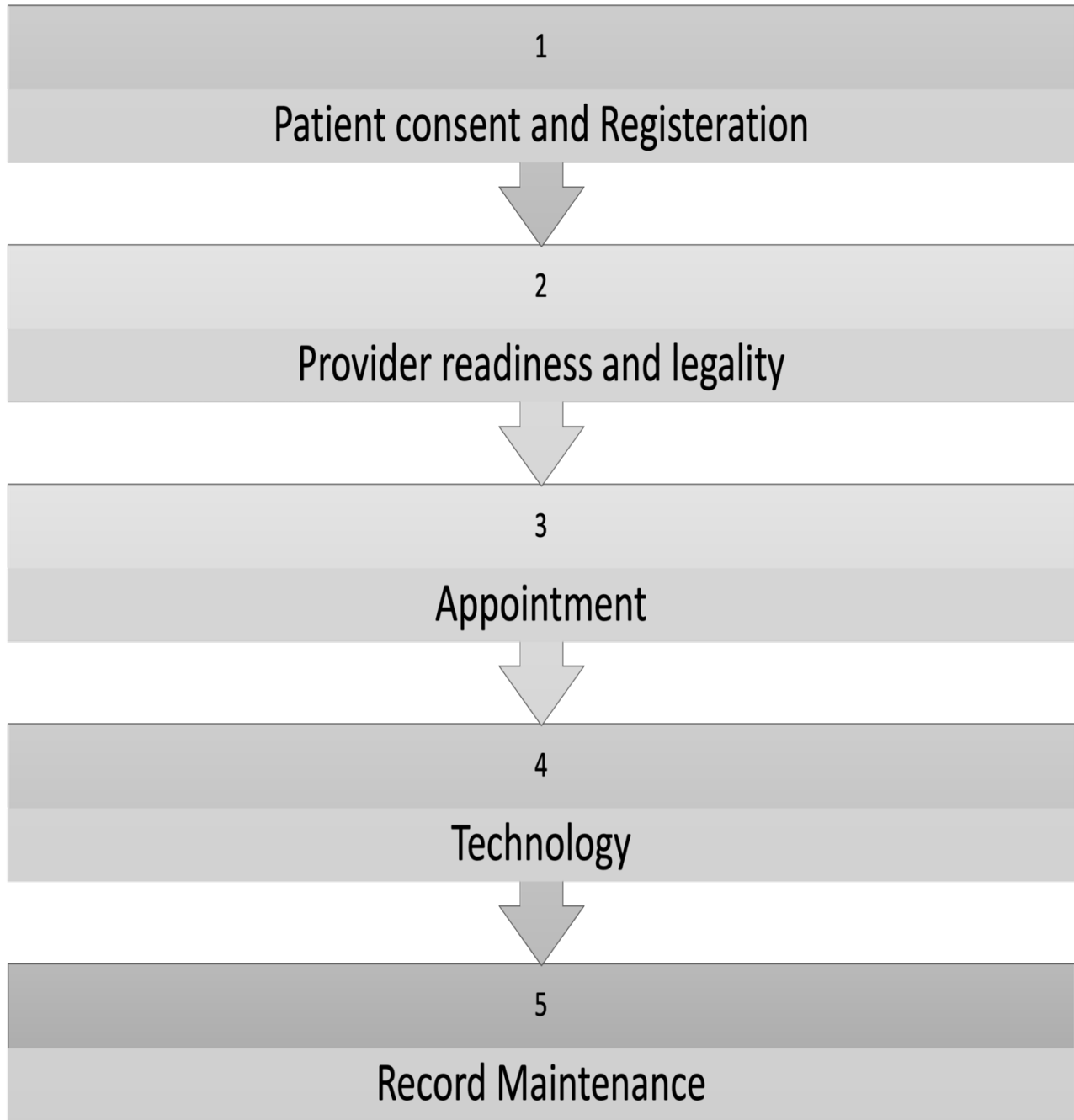
Article 3 review-Telehealth laws and regulations differ considerably from state to state and are continuously changing. This leads to a lack of clarity among health-care institutions and groups regarding standards and recommendations. Providers should be aware of state and federal legal obligations and follow them while following best practice standards to ensure patient safety. "Telehealth also faces many legal and regulatory hurdles including large variations in rules, regulations, and guidelines for practice. This variability contributes to the confusion for providers engaged in the practice of telehealth. Health care providers should keep risk management strategies in mind and familiarize themselves with potential telehealth legal risks and implications." (Gajarawala & Pelkowski, 2021).

Article 4 review- In the context of telehealth and telemedicine, the duty to protect privacy and confidentiality is at least as essential as it is in hospital and office settings. Specific responsibilities change as telehealth/telemedicine interactions progress. As a result, health-related websites are required to disclose their privacy rules so that users are aware of the information gathered on them ("Electronic health and medicine encounters involve a wider range of third parties than traditional health care encounters. Some encounters are protected under privacy laws and regulation, but others may not be protected and may carry additional risks. For example, websites that offer health information may not actually be as anonymous as visitors think; they may leak information to third parties through code on a website or implanted on patients' computers. Similar concerns may apply to home monitoring devices and mobile health applications to which current privacy protections may not apply."

Telehealth may compromise continuity of care, according to critics who argue that online interactions are impersonal and risky since the virtual physician lacks the advantage of a comprehensive history and physical examination to help diagnosis and treatment. The understanding of these problems is critical to the future growth of telemedicine as an important component of the health-care system.

Identified Solution

Patients have highlighted ease, efficiency, communication, privacy, and comfort as significant factors in using telehealth. Patients and providers communicate via telephone, e-mail, video chats or conferences, the Internet, and remote equipment in telehealth, which encompasses a wide range of practices and specializations. However, numerous challenges to telehealth practice remain to be addressed. Instead of focusing on hardware, technology developers should concentrate on developing Telehealth software applications in the future. Overall, they stressed the need of gerontologists and healthcare professionals' participation in the development of effective Telehealth technology. "Government legislation could, for example, address data protection and medical liability issues. National policies were seen as necessary to endorse a standardised adoption of Telehealth across the country and to promote educational support through undergraduate training and continuous professional development." (*The International Journal on Advances in Life Sciences* 2012). "Medical images exchanged over public networks require a methodology to provide confidentiality for the image, authenticity of the image ownership and source of origin, and image integrity verification. The integrity provided by the proposed algorithm is implemented on a block-level of the partitioned-image, thus enabling localized detection of tampered regions. The algorithm was evaluated with respect to imperceptibility, robustness, capacity, and tamper localization capability, using MRI, Ultrasound, and X-ray gray-scale medical images." (Al-Haj & Amer, 2014). When some systems may convene a telehealth session without storing any of the information provided, specific authorizations are required if the telehealth sessions are recorded and stored with the electronic health record (EHR). Some users may record the session but then discard the recording once it is over.

1

Patient consent and Registeration

2

Provider readiness and legality

3

Appointment

4

Technology

5

Record Maintenance

Steps in the process of Telehealth to prevent risking patient care and data.

Steps in the Process	Failure Mode	Failure Causes	Failure effect	Action to reduce the failure
1	Lack of Information	Not providing the correct information about telehealth	Unable to understand the different style of care	Full and proper explanation of the whole process regarding Telehealth.
	Sign consent form	May cause legal issues	Unable to understand the right of a patient	Explaining the consent form and terms included
	Full Patient registration	Delay in proper care	Delay in care due to multiple admirative reasons	Explaining the reason for Full registration to provide best care
2	Lack of information	No proper information	Unable to deliver proper care	A training program for provider with all the required information
	Laws and regulations	Legal issues	Legal issues	A proper understanding about the state and government implemented laws and regulation.
	Lack of acceptance	Not comfortable in adopting new ways of healthcare	Unable to deliver needed care	
3	Making appointment	May feel lack of deserved care	Patient may not wish to sch appointment d/t lack of that personal attention from provider	
	Actual appointment			
	Follow up appointment			
4	Application	Older population may be less acceptance toward the technology	May recreate frustration or anxiety in patients	
	Connectivity/ network			
	Acceptance			
5	Database	Getting private health information leaked.	May risk patient privacy and confidentiality	Proper installing of firewalls etc
	Health information			
	Privacy and continentality			

Failure mode and Effect Analysis

Process Step #1	**1**	**Process Step**	Patient consent and Registration		
	2	**Potential Failure Mode**	Lack of Information	Sign consent form	Full Patient registration
	3	**Potential Cause(s)**	incorrect information about telehealth	May cause legal issues	Delay in proper care
	4	**Severity**	1	4	4
	5	**Probability**	Frequent	Occasional	Frequent
	6	**Hazard Score**	4	6	8
	7	**Action (Eliminate, Control, or Accept)**	Control	Control	Eliminate
	8	**Description of Action**	Full and proper explanation of the whole process regarding Telehealth.	Explaining the consent form and terms included and get it signed before actual appointment	Explaining the reason for Full registration to provide best care.

Process Step #2	**1**	**Process Step**	Provider's readiness and legality		
	2	**Potential Failure Mode**	Lack of information	Laws and regulations	Lack of acceptance
	3	**Potential Cause(s)**	No proper information	Legal issues	Not comfortable in adopting new ways of healthcare
	4	**Severity**	4	4	1
	5	**Probability**	Occasional	Occasional	Uncommon
	6	**Hazard Score**	6	6	2
	7	**Action (Eliminate, Control, or Accept)**	Control	Eliminate	Control

	8	Description of Action	A training program for provider with all the required information	A proper understanding about the state and government implemented laws and regulation.	Proper training for provider explaining the benefits of telehealth

	1	Process Step	Appointment		
Process Step #3	2	Potential Failure Mode	Making appointment	Actual appointment	Follow up appointment
	3	Potential Cause(s)	May feel lack of deserved care	Lack of personal/phy sical comfort	Due to lack of deserved care patient unlike to schedule follow up
	4	Severity	4	4	1
	5	Probability	Frequent	Frequent	Frequent
	6	Hazard Score	8	8	4
	7	Action (Eliminate, Control, or Accept)	Control	Accept	Eliminate
	8	Description of Action			

	1	Process Step	Technology		
Process Step #4	2	Potential Failure Mode	Application	Connectivity/ network	Acceptance
	3	Potential Cause(s)	Technical issues with the software/ app	Issues with network or internet connection	Older population may be less acceptance toward the technology
	4	Severity	4	7	1

5	**Probability**		Frequent	Frequently	Occasional
6	**Hazard Score**		8	12	3
7	**Action (Eliminate, Control, or Accept)**		Control	Control	Accept
8	**Description of Action**		Proper training and explanation about how to use the app	This issue is very hard to resolve	A proper assistance can lower the anxiety

Process Step #5	1	**Process Step**	Record maintenance		
	2	**Potential Failure Mode**	Database	Health information	Privacy and continentality
	3	**Potential Cause(s)**	Errors made in large database risking the whole database	Incorrect health information uploaded/updated.	Getting private health information leaked.
	4	**Severity**	7	10	7
	5	**Probability**	Frequent	Occasional	Frequent
	6	**Hazard Score**	12	12	12
	7	**Action (Eliminate, Control, or Accept)**	Proper installing of firewalls etc	Attention to details while updating patient health information	Proper installing of firewalls etc
	8	**Description of Action**	Installing the firewall soft to protect the database		

Quality measurement Plan

Quality standards related to accessibility and effectiveness must be established as telemedicine grows. Limited internet service availability, as well as inadequate digital literacy among some groups, may have an influence on usage. A range of additional telehealth quality indicators, such as diagnostic accuracy, financial, no-show rates, prescription adherence, and patient and provider satisfaction, should be compared to in-person treatment. Patients frequently do not have access to quality metrics. As a result, people frequently pick physicians based on online evaluations, which are poor indicators of quality.

Consider the program's financial impact on patients and their families/caregivers, the care team and the wider health system, insurance providers and other payers, and the greater community when calculating financial impact and program cost. The following are examples of financial impact/cost measures: Patient travel time is reduced, and the cost of the visit is reduced. how user-friendly and successful the software is for patients, clinicians, other members of the care team, and the general public This area also looks into the program's capacity to address the demands of patients and providers. The following are some examples of experience measures: Providers Acceptance and satisfaction; Patient and physician communication was straightforward, and patients were engaged in plan of care. Clinical, operational, and technological elements of a program. The socioeconomic and environmental context, the type of technology utilized, and the type of treatment being given are all factors that influence a program's efficacy and acceptance. User-friendly technology that make it easier for providers to work, and the degree to which telehealth is clinically integrated into a care environment are examples of effectiveness measurements.

Non-standard assessment metrics are critical for telehealth initiatives to improve clinical and

financial outcomes. Patient satisfaction surveys and patient experience surveys are two examples

of non-traditional ways to get input from patients.

Conclusion

Patients have identified convenience, efficiency, communication, privacy, and comfort as critical factors in using telehealth. A wide range of procedures and expertise are covered by telehealth. It entails patient-provider communication via phone, e-mail, video calls or conferences, the Internet, and remote equipment. Despite the benefits of telehealth for both patients and doctors, widespread adoption has been impeded by several challenges, including technology use among older persons and Internet bandwidth speeds in rural or underserved regions. Despite these obstacles, telehealth adoption is anticipated to grow as patients and clinicians gain experience and comfort utilizing technology instead of face-to-face contact.

References

Chaet, D., Clearfield, R., Sabin, J., & Skimming, K. (2017, June 26). *Ethical practice in*

Telehealth and Telemedicine. Journal of General Internal Medicine.

https://link.springer.com/article/10.1007/s11606-017-4082-2

Gajarawala, S. N., & Pelkowski, J. N. (2021, February 1). *Telehealth Benefits and Barriers*.

PubMed Central (PMC).

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7577680/

Gajarawala, S., & Pelkowski, J. (2021, February 1). *Telehealth Benefits and Barriers*. PubMed

Central (PMC).

https://dx.doi.org/10.1016%2Fj.nurpra.2020.09.013

Landi, H. (2021, June 22). *Scripps Health was attacked by hackers. Now, patients are suing for*

failing to protect their health data. FierceHealthcare.

https://www.fiercehealthcare.com/tech/following-ransomware-attack-scripps-health-

now-facing-class-action-lawsuits-over-data-breach

Nittari, G., Khuman, R., Baldoni, S., Pallotta, G., Battineni, G., Sirignano, A., Amenta, F., &

Ricci, G. (2020, December 7). *Telemedicine Practice: Review of the Current Ethical and*

Legal Challenges. Mary Ann Liebert, Inc.

https://www.liebertpub.com/doi/10.1089/tmj.2019.0158

Shilpa, G., & Jessica, P. (2020, October 21). *Telehealth Benefits and Barriers*. The Journal for

Nurse Practitioners.

https://doi.org/10.1016/j.nurpra.2020.09.013