

kjvuygf

by Nbvcytrd Ytrdjh

Submission date: 27-Apr-2020 02:51AM (UTC+0300)

Submission ID: 1308492387

File name: Rev1.Telemedicine.edited_1.edited.docx (73.62K)

Word count: 3074

Character count: 18351

Telemedicine

12

Student's Name

Instructor's Name

Date

Abstract

Telemedicine is a broad topic that needs to be fully and comprehensively comprehended specifically on critical aspects upon which this novel medical technology is based. Broad light on technological position of telemedicine and nature of situations that call for its application is shed by various researchers. Subsequently, more individuals have gone ahead to elaborate on the various trends in telemedicine as well as establishes the various issues in this medical technology. Of course, every technological progress has its good as well as dark side, hence focusing on telemedicine affirmed pros and cons as well. Since telemedicine has been in existence for a while though has not been widely adopted, familiarizing with the current events rather status of this technology besides citing its amended and yet to be enacted legal provisions is critical. Consequently, although telemedicine is widely acclaimed, little is known about this guest technology's precise operation and fact-based evidence(s) to support or refute the claim. Lastly, establishing some of telemedicine intended or unintended consequences as well as offer recommendations for further telemedicine technology improvement ideas before considering its other uses is an important aspect.

Telemedicine

For the past three decades, researchers, clinicians, and interested parties in healthcare services have been carrying out investigations on how improved computer as well as telecommunication technologies could be utilized in application to advance health care. However, at the juncture of their attempts and efforts lies telemedicine. The latter entails merging of typical technologies with their counterparts in advanced information technologies field. Thus, the resultant technology entails an advancement that offers support to healthcare without geographical location limitations through communication and electronic information technologies. While traditionally telephones were used to connect clinicians and patients during consultations, and utilization of radio waves to connect emergency staff to medical centers, this is not the case with telemedicine. With telemedicine, principally tentative novelties such as tele-surgery are used in which a surgeon gets visual and perceptible data to lead mechanical tools to carry out a surgery from a distinct geographical location. Underlying this two concepts is an arrangement of audio, video and facts broadcast technologies besides applications. Additionally, to patient care, such varied technologies pose a multiple current as well as possible uses in diverse professional education, entire public health, research, and administration. These multiple uses normally allow costs for huge amount of expensive information as well as communication investment to spread more in a broader manner.

Despite telemedicine visits sharply increasing in US in past few years, vast majority of American adults yet get care from clinicians in person instead of through remote technology. As of 2016, thirty-two states passed parity laws mandating insurance coverage as well as reimbursement for various telemedicine visits. Based on private health insurance claims information from 2005 all the way to 2017, telemedicine visits per year rose from 206 in 2005,

an equivalent of 1 per 1000 persons exceeding 202,000 visits in early 2017 which was an equivalent of 7 people per 1000. The compound growth rate per year was 52 percent on average from 2005 to late 2014 while compound growth rate of 261 percent per year was recorded from 2015 to early 2017. Thus, if such growth rates prevail, in a decade telemedicine will seem to be a quite common aspect.

Telemedicine Analysis

As a result of convenience telemedicine offers, patients in metropolises and remote areas are scrambling for its evident benefits. A recent study showed that the net worth of telemedicine industry by 2021 will be more than 41 billion dollars (Manocchia, 2020). Hence, necessitating a look into its current and future trends. In modern society, the app culture is ingrained and widespread building prospects of advanced telemedicine applications which shall to a greater degree enhance provider-patient interactions and communication. Also, the future is promising advent of better healthcare applications that will facilitate personalized patient information storage and retrieval with a single swipe.

Global Telemedicine Market size from 2015 to 2021(in billion U.S dollars)	
2015	18.1
2016	20.2
2017	23
2018	26.5
2019	30.5
2020	35.5
2021	41.2

Table 1: Global Telemedicine Market size from 2015 to 2021(in billion U.S dollars)

Moreover, healthcare specialists are on the speedy upsurge annually. This has prompted physicians' migration away from grander infirmaries and the rise in community-based

practices. The latter owes its explanation to massive infirmaries that provide their extra expert services in decentralized settings. Hence, as global evolution continue, it is projected that budding healthcare mavens in predilection of telemedicine flexibility will unceasingly spearhead decentralization by paving way to their telemedicine practices in hordes.

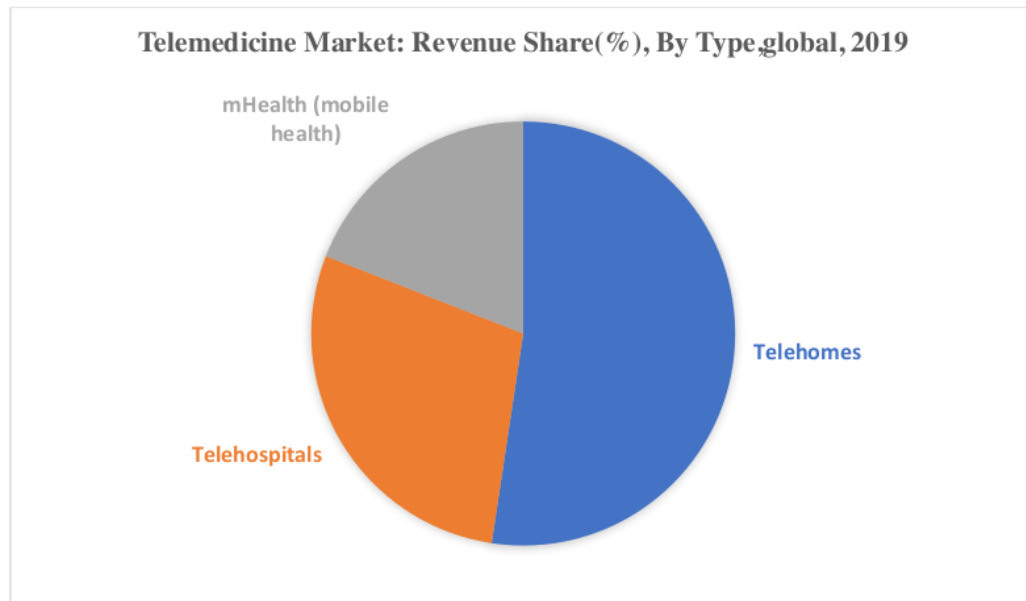


Figure 1: *U.S. telemedicine market, By Service*

Again, telemedicine entirely relies on technology thus not immune to cyber-attacks. However, the more telemedicine industry perpetually continues to take action to brace security, supplementary rigorous measures of cybersecurity will emerge (Barnett et al., 2018). Meanwhile, a good number of smaller practices are straining in face of immutable threats such as severe state regulations to stay operational and in business. These small firms have reverted to established telemedicine organizations for answers leading to consolidation trend. The arrival of easy to utilize, widespread and secure distributed software will soon disrupt and make obsolete telemedicine industry and hospitals' patented software and hardware. The former promises to be affordable and user friendly than proprietary systems deployment. Lastly, telemedicine's ease

and convenience will bring about a trend of fewer trips to emergency quarters for treatable illnesses.

While telemedicine sounds like a dream come true for easier and quicker medical services, several issues entangle it. First, all telemedicine services, restrictions and reimbursement rates are determined by a state legislature post-enactment of telemedicine parity law (Scott Kruse et al., 2018). Hence, despite the availability of parity laws in many states, amending state legislation has a grave impact on practices in telemedicine in a given state as it comes with downsides such as clumsy process as well as time-intensive. Next, in comparison to the conventional medical services, telemedicine services' compensation process is not that forthright. Compensation guidelines via private players and state medical aid programs are affected by continuous modifications of state telemedicine policy landscape.

Furthermore, healthcare professionals in meagre private practices are at a blink of telemedicine budget constraints. This is because as more solutions using telemedicine increase, telemedicine choices become sundry. For that reason, many programs demand procurement, implementation as well as worker training of this novel technology. These undertakings require heftier capital investment. Correspondingly, telemedicine industry endeavors to break loose provider-patient geographical barricades. However, current healthcare providers are licensed based on state and are required to operate within one and only one state of approval. This is an issue with a great impact on telemedicine.

In almost all scenarios, telemedicine is deemed to provide a net advantage. It holds a feasible promise to expand accessibility of quality healthcare for patients and to also transform for better the model of healthcare delivery. However, based on its virtual collaboration nature, technological and societal barriers with prospects of transforming the future, its downsides are

worth deliberation too (Boxer & Ellimoottil, 2019). The thrust behind telemedicine field is to deliver more convenient and accessible healthcare. This not only gives telemedicine the power to go beyond geographical barricades to healthcare access but also revolutionize the model of care delivery into a more convenient one.

Similarly, by making typical physician visits more efficient besides ironing out creases such as unnecessary ER visits and lack of conformity to medication, telemedicine can lower healthcare spending by saving on healthcare expenses. Also, despite geographical location of a patient, he or she can see the required specialist on a rare condition such as cancer. As an argumentation to this, telemedicine eases primary healthcare physicians' consultation process with other medical professionals on a given case of a patient. In a nutshell, telemedicine extends experts refers to accessibility. Through this medical technology, patients are likely to be engaged based on telemedicine potential to frequently and conveniently connect them with their respective doctors. Lastly, telemedicine amounts to better healthcare results as it facilitates easier follow-ups by healthcare providers, to ascertain positive responses to treatment by patients.

Nevertheless, just like many other solutions of technology, telemedicine podiums are not exempted from equipment procurements as well as employee training. Thus, demanding practical equipment and training (Chen, 2017). Parallel to retail health treatment, consumer-facing telemedicine organizations provide patients with hefty advantage of on-demand healthcare services, thus with such models in operation, healthcare continuity is bound to breakdown and eventually decrease. Besides, no one can underestimate the worth of in-person doctor visits. They have proved a number and again how significant they are in calling situations. Hence, telemedicine should be best adopted as visits supplementary. Lastly, with continuously evolving

state policies, the elephant in the room is telemedicine reimbursement. It is complicated to navigate recompense before a shifting policy landscape.

Current telemedicine status is on the speeding wheels of evolution. As exponential technological advancements occur, so does prevalence of affordability and accessibility to fundamental tools of telemedicine. For instance, in the United States, video-chat applications such as Facetime have been utilized by majority of the population and are easy to access on mobile devices and computers (Vargas et al., 2018). So are technologies out there for real-time video telemedicine? Although US rolled out telemedicine primarily to aid patients in rural remote areas access healthcare services, today it has gradually been adopted as a convenient medical care tool. Therefore, patients have contributed more to its adoption as many prefer spending less time in a physician waiting lobby as well as receive instant care for minor and urgent ailments. It is this expectation coupled with readily available healthcare professionals that have resulted in triumphing of telemedicine firms today.

Similarly, advancement of mobile health has revolutionized telemedicine field. The wide assortment of mobile health applications combined with innovative consumer-friendly mobile devices has prompted ¹⁰ a good number of patients to start utilizing the power of technology to monitor besides tracking personal health. For instance, without requiring a visit to a doctor's office, home-based mobile devices could accept vitals and measure hypertension among other illnesses on behalf of a healthcare professional. Hence, as technological proactiveness among patients advance, patients will acquaint themselves with various alternatives via telemedicine on healthcare accessibility.

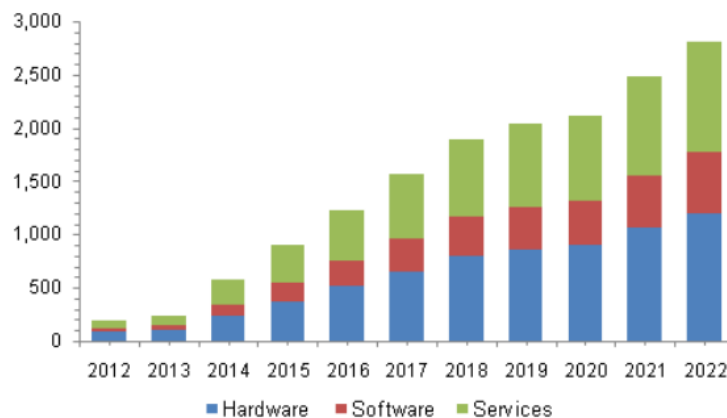


Figure 2: *U.S. telemedicine market, by product, 2012-2022 (USD million)*

Notably, fundamental telemedicine provisions are still in development phases

spearheaded by medical associations such as AMA. As states announce new legislation to endorse a policy of telemedicine, provisions for telemedicine remain in a persistent flux. Consequently, telemedicine provisions are likely to contrast from one state to the other based on the following key tenets: Parity laws. These laws demand that compensation of amount equating to in-person treatment should be adhered to by all private companies, albeit particulars of restrictions differ from state to state (Liu & Liu, 2017). Also, as a recap to the plus of telemedicine, it can provide its services beyond geographical boundaries. Thus, the cross-state licensing provision yet to be enacted will aid telemedicine healthcare providers to offer care to patients in the neighboring states without necessarily requiring operation license of that state.

Again, there is a patient informed provision in some states which require telemedicine providers to acquire knowledgeable consent of the patient for any telemedicine amenities. In this regard, the ball is in the coat of the providers to ensure the patient is informed on telemedicine facilities and associated expectations. These consents range from verbal, written to none. Also, provision of online prescriptions in some states aims to provide explicit regulations on treatments that could be prescribed as well as those that cannot. For example, *schedule II* medications for

chronic ailments are protected from telemedicine prescriptions as they require in-person visits while schedule III & V medicines can be prescribed through telemedicine services. Lastly, the provision of preexisting physician and patient affiliation requires all telemedicine provider as well as their patients to have a prior existing rapport. This calls for at least a single in-person visit between the doctor and the patient. However, in face of actions from organizations such as *DoctoronDemand* which connect patients with random on-call physicians, this provision is steadily transforming.

The most recent political ideology on telemedicine could be attributed to Senator Jake Corman's response to Governor Wolf. According to Corman, it is amidst the ongoing global pandemic that the need for telemedicine services has been better illustrated. He advocates for telemedicine's benefit to plummet in-person contact in healthcare environments to be a critical way out for people suffering from chronic ailments and mitigation for COVID-19 spreading (Corman, 2020). However, he cites Governor Wolf's political ideology as a hindrance to his constituents as well as Pennsylvanians' access to life-saving medicine. According to Wolf, one of many drugs on FDA's Risk Evaluation and Mitigation Strategies list was an abortion drug which according to him was to be administered in-person in a clinical environment. Thus, Wolf deems the lives of Pennsylvanians would be in danger if according to FDA the drug was not safe to be administered outside a clinical setting.

Nevertheless, Senator Corman upholds that the significance of telemedicine in the US healthcare system could last beyond COVID-19 pandemic and it is their responsibility to ensure the tool was used carefully. He deems making telemedicine a choice for Pennsylvanians would increase communities' quality of life, lower costs of healthcare and

upsurge patients and doctors bond. Besides, he cites telemedicine's ability to conduct visits through technology as a plus to as it would diminish unnecessary emergency room visits, maximize limited physicians' resources, lower hospital readmissions while creating numerous savings on the healthcare costs. Hence, he urges governor Wolf not to deny his constituents' access to healthcare based on planned parenthood ideology.

Yes. Telemedicine is a no brainer and it is fully working. To establish this, research, statistics, as well as findings, are critical. The figures of global telemedicine market indicate that the industry is exponentially growing. For instance, in 2014 the number stood at 17.8 billion dollars with projected growth in 2020 (Research and Markets, 2020). Also, in 2015, an estimated 800,000 virtual consultations took place in the US alone, and associated parties are continuously fueling it up. Through a survey, it was established that 84 percent of care senior managers deemed telemedicine to be vitally significant while 90 percent were in a quest to create or roll out a telemedicine program (Lacktman & Vernaglia, 2014). Similarly, as telemedicine foundation is quickly being made, a study showed that eager patient long to use telehealth amenities post acquaintance with its benefits as well as functioning.

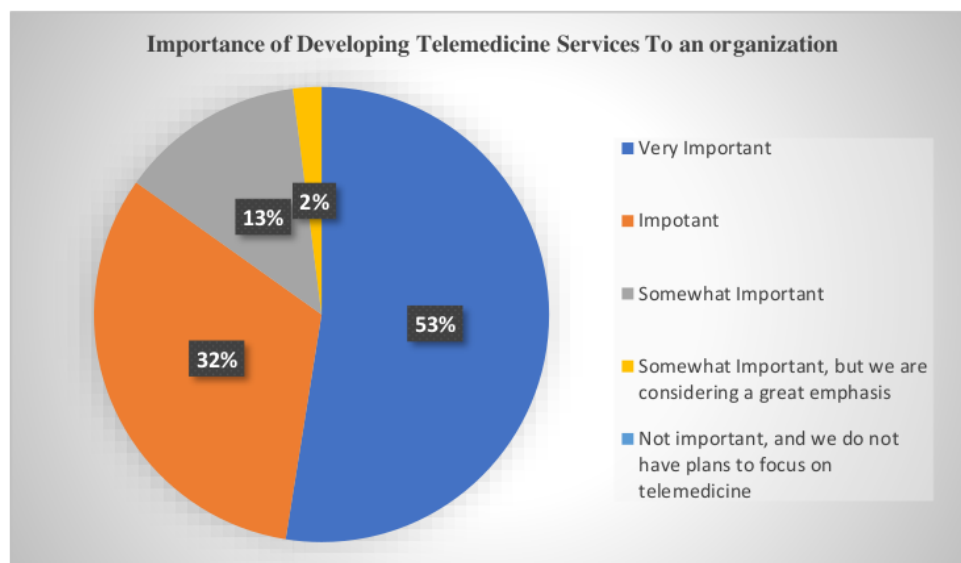


Figure 3: *Executives responses on Importance of Developing Telemedicine Services To an organization*

Future improvement ideas for telemedicine industry will include personal facial expressions' emotions analysis to monitor an individual's wellbeing. Using advancements in technology, smart timepieces and glasses will monitor an ailing individual's health data as well as carry out real-time transmission to a health specialist (Wen et al., 2019). Correspondingly, attempts by companies such as *Augmedix* are underway to facilitate automatic transcription of patient's documents during a visit. Improvements in robotic surgery will facilitate surgeons to carry out operations from afar distances. However, to move at a similar pace, telemedicine industry will have to do away with critical barriers such as necessities for all medical practitioners to be licensed based on a specific state. Also, the projected multi-billion growth of the telemedicine industry is enough evidence that the industry is operational.

Although it is pretty difficult to pinpoint a specific aspect as an intentional or unintentional consequence of telemedicine, a critical analysis of telemedicine trends could help cite a few. It was never intended to have almost all medical services go online but growth in technology such as robotics, sensors and artificial intelligence facilitated it. Suppose skills gap shall arise among healthcare professionals due to exponential growth of telemedicine technology, it should still be viewed as an unintentional consequence of telemedicine. Finally, telemedicine is destined to stay and much is in store for an optimistic telemedicine future. Hence, states that shall remain rigid towards enacting favorable telemedicine provisions will face a hard time opposing its benefit and development which was never premeditated.

In conclusion, according to my viewpoint in the findings of this paper, in the Healthcare arena, there is an emerging paradigm shift. The conventional sporadic model as well as infirmity-based healthcare is experiencing a swap by an approach that is patient-centered, where by patients are continuously coupled to care providers of their choice. The thrust behind this shift

is the necessity to optimize Healthcare system performance as well as enabling it through technological advancements. This model of care delivery is summed up in single term telemedicine. In the findings of this paper, it is evident that the role telemedicine is playing is unrefutable, this health technology has evolved from simple mobile communication to complex algorithm-driven systems. The findings build up a solid lump of evidence to back the positive effect of telemedicine in care provision to patients and related upshots. Thus, the field of telemedicine is profoundly refining patients' health at the same time upholding a revolutionary promise to Healthcare services conveyance.

1

References

Barnett, M. L., Ray, K. N., Souza, J., & Mehrotra, A. (2018). Trends in telemedicine use in a large commercially insured population, 2005-2017. *Jama*, 320(20), 2147- 2149.

9

Boxer, R. J., & Ellimoottil, C. (2019). Advantages and utilization of telemedicine. *mHealth*, 5.

6

Chen, E. T. (2017). Considerations of telemedicine in the delivery of modern healthcare. *American Journal of Management*, 17(3).

Corman, J. (2020, April 23). *OP-ED: Telemedicine*. Retrieved from www.senatorcorman.com:
www.senatorcorman.com/2020/04/23/op-ed-telemedicine/

3

Lackman, N. M., & Vernaglia, L. W. (2014, November 11). *2014 Telemedicine Survey Executive Summary*. Retrieved from
<https://www.foley.com/en/insights/publications/2014/11/2014-telemedicine-survey-executive-summary>

Liu, X., & Liu, S. (2017). Research on Telemedicine and Its Legal Regulation. *Chinese Medical Ethics*, 30(11), 1317-1321.

1

Manocchia, A. (2020). Telehealth: Enhancing Care through Technology. *Rhode Island Medical Journal*, 103(1), 18-20.

7

Research and Markets. (2020, January). Global Telemedicine Market Outlook 2022. Retrieved from https://www.researchandmarkets.com/reports/3766749/global-telemedicine-market-outlook-2022?utm_code=qn3csn&utm_medium=CI

2

Scott Kruse, C., Karem, P., Shifflett, K., Vegi, L., Ravi, K., & Brooks, M. (2018). Evaluating barriers to adopting telemedicine worldwide: A systematic review. *Journal of telemedicine and telecare*, 24(1), 4-12.

- Vargas, D. A. B., Castiblanco, K. A. D., & Pico, L. E. A. (2018). Current Status of Technology and Telemedicine Services in Colombia. *International Journal of Applied Engineering Research*, 13(20), 14517-14530.
- Wen, C. N., Ning, H. C., & Tsao, K. C. (2019). The Future of Telemedicine for Biomedical Laboratory Scientists. *Journal of Biomedical & Laboratory Sciences*, 31(3), 66-76.

ORIGINALITY REPORT

8%

SIMILARITY INDEX

5%

INTERNET SOURCES

2%

PUBLICATIONS

7%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to Adtalem Global Education

Student Paper

1%

2

myresearchspace.uws.ac.uk

Internet Source

1%

3

Submitted to Wilmington University

Student Paper

1%

4

Submitted to A.T. Still University - Missouri

Student Paper

1%

5

www.statista.com

Internet Source

1%

6

Submitted to Colorado Technical University
Online

Student Paper

1%

7

Submitted to CSU, Long Beach

Student Paper

1%

8

Submitted to University of New South Wales

Student Paper

<1%

9

Submitted to Bridgepoint Education

<1%

10

Submitted to DeVry, Inc.

Student Paper

<1%

11

Submitted to University of Huddersfield

Student Paper

<1%

12

www.mightystudents.com

Internet Source

<1%

Exclude quotes Off

Exclude matches Off

Exclude bibliography Off