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Unpacking a Telemedical Takeover: Recommendations for Improving the Sustainability and Usage of Telemedicine Post-COVID-19

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Telemedicine technology and regulation have been steadily growing over the last 2 decades. Prior to the coronavirus disease-2019 (COVID-19) pandemic, the availability of telemedicine in health systems and coverage of telemedicine were variable. Sudden and improved access to telemedicine was propelled by the COVID-19 pandemic, during which governments, insurers, and health systems ramped up telemedical utilization with short-term exceptions and waivers. As in-person care opportunities open back up, the presence of telemedicine is not receding and thus its widespread adoption needs to be facilitated outside pandemic-specific conditions. Long-term funding for telemedicine acquisition, centralized electronic health records, extended waivers related to telemedicine coverage and use, a Medicaid expansion that involves parity in telemedicine and in-person care, a nationalized licensure system, and an assessment of what types of care settings can and cannot utilize telemedicine are necessary recommendations to improve the sustainability of telemedicine after the pandemic.

Key words: COVID-19, pandemic, telehealth, telemedicine

Telemedicine is a powerful tool that has seen fast growth throughout the coronavirus disease-2019 (COVID-19) pandemic. Pre-pandemic data citing reduced hospital readmissions, more effective triaging, improved clinic efficiency, and improved patient outcomes with telemedicine were evaluated to inform care in one of the largest international public health emergencies. The combination of health care surges, media coverage, government changes, and insurance policy changes led to its rapid adoption in the health care system. For telemedicine to be a sustainable and universal presence in health systems, there need to be systemic changes in funding for telemedical equipment acquisition, telemedicine care access and provision, and telemedical coverage.

OVERVIEW OF TELEMEDICINE PREPANDEMIC

Telemedicine involves the use of technology to deliver clinical care at a distance.[1] The physician and the patient are physically separate from one another in the telemedical care delivery process. Discussions of telemedicine have existed since the telecommunication work of inventors such as Graham Bell and Hertz in the late 19th century.

Care types

The technology required for telemedicine and the universality of technological gadgets have greatly grown in the last 20 years. There are 3 overarching areas of telemedicine care: synchronous video, asynchronous video, and remote patient monitoring. Synchronous video is also known as real-time video and refers to a live engagement between a clinician and a patient with audiovisual tools. Asynchronous video, also known as store-and-forward video, refers to patient care that is not handled simultaneously for the provider and the patient. It typically involves sharing data, reports, videos, or imaging via secure and confidential data transmission. Remote patient monitoring (RPM) or telemonitoring is a form of telemedicine that is rooted in surveillance. Personal data or health information is sent remotely and monitored to track trends, often of chronic conditions.

From both the patient and provider perspectives, telemedicine offers several benefits in the care process. Patients can avoid traveling and long waiting room times. There is less exposure risk with other patients, and appointments are more convenient to integrate into work lives.[2] Physical privacy is also protected, as many patients can receive their care within the comfort of their homes. From the provider perspective, there is potential to minimize missed appointments in the office and engage more patients with less downtime.[3,4] Scientific literature has validated the

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potential for telemedicine to improve both patient and provider safety.[5]

Privacy

The Health Insurance Portability and Accountability Act (HIPAA) of 1996 governs most US privacy concerns associated with health care, and in 2009 the Health Information Technology for Economic and Clinical Health (HITECH) Act expanded the use of HIPAA into entities like telemedicine businesses. The HITECH Act also established breach-of-privacy notification requirements for health information.[6] The Federal Trade Commission oversees best practices in telemedicine and prevents fraud in production or distribution.

The Department of Health and Human Services (HHS) oversees enforcement of the HIPAA through the Office of Civil Rights (OCR).[7] Despite these acts and organizations, there are unequivocally concerns in protecting personal health information (PHI) in telemedicine. Introducing more stakeholders and more systems that patient data need to go through presents increased risks. In 2018, the United States spent over $67 billion on PHI breaches.[8]

The American Telemedicine Association has a governing body of guidelines regarding what types of care providers can provide via telemedicine. Many of the guidelines mirror in-person care guidelines that the American Medical Association provides.[9]

Internationally, there is great variability in telemedical privacy legislation. For example, the European Union has the General Data Protection Regulation, which telemedicine falls under, whereas in Japan there are the Medical Practitioners' Act and the Ministry of Health, Labour, and Welfare to oversee telemedicine.[10]

Coverage prepandemic

Before COVID-19, Medicare, Medicaid, and private carriers already reimbursed telemedicine in all states in the United States, but the scope of coverage was heterogenous. The reimbursement model under Medicare required a provider at an official distant site to provide care to a patient at an approved originating care site, which would receive reimbursement for hosting the telemedicine experience.[3] Medicaid policies varied by state, but every program reimbursed synchronous telemedicine in some format. Some states also reimbursed asynchronous telemedicine and RPM, and most states required providers to have an established relationship with patients before providing telemedicine care. Twenty states had parity laws in effect regarding telemedicine and in-person care, but they were ambiguous and did not mandate equivalence in payment or coverage.[11]

In 2019, the Centers for Medicare & Medicaid Services (CMS) released their Physician Fee Schedule, which expanded their model for telemedicine reimbursement from 2018. Specifically, they would cover more asynchronous engagement and RPM through brief virtual check-ins and patient-initiated e-visits. This expanded benefits for patients with chronic conditions.[12]

Utilization

A 2019 white paper by JD Power analyzed national data on telemedicine utilization and found that individuals in rural areas were more likely to believe telemedicine would cost more than in-person care. It also identified that usage of telemedicine was higher in the Western United States than in the Northeast. Young adults aged 18 to 24 years engaged most in telemedicine, and senior citizens engaged least. In the survey, 75% of consumers thought their insurance and health system did not offer telemedicine, and 35% were unaware of the services provided. This lack of awareness was more pronounced in rural and suburban areas over urban areas.[13]

Leading up to COVID-19, data in several medical specialties indicated that telemedicine could save hundreds of dollars per patient per visit and cut health care costs in the long term.[14-16]

TELEMEDICINE CHANGES DURING THE COVID-19 PANDEMIC

The value of engaging in telemedicine in times of disaster was already established in the scientific literature, but COVID-19 tested these descriptions and hypotheses.[17,18]

In the United States

Administrative changes

Virtual care coverage was greatly expanded to keep up with the escalating caseload of COVID-19 patients. Through the 1135 waivers, Coronavirus Preparedness and Response Supplemental Appropriations Act, and section 1812(f) of the Social Security Act, CMS expanded access to telemedicine for Medicare beneficiaries. As of March 6, 2020, Medicare covered synchronous telemedical visits in various patient settings, including home, instead of just approved originating sites. Parity was granted for telemedicine reimbursement for physicians, and patients did not have to be in an established relationship with the provider to fall under waiver 1135. For quicker virtual check-ins that fell more into RPM, the participating practice did not need to establish a relationship with the patient to bill for telemedicine.

For asynchronous e-visits, the billing practices continued to require an established relationship with the patient before reporting telemedicine services. The previously established coinsurance and deductibles also still applied for these services. Clinicians such as nutritionists or speech therapists who might not have independently billed Medicare had a newfound capacity to do so for their e-visits under special billing codes.[19] For Medicaid, CMS developed Appendix K of the 1915(c) waiver, detailing actions states could take to supplement care with technology, such as creating an emergency hotline, expanding qualifications of providers to provide telemedicine, and modifying coverage requirements. As of August 4, 2020, 41 states temporarily waived the need for providers to be licensed in the state in which they are providing telemedical care.[20]

The effects of COVID-19 on private insurance financing of health care were varied. Aetna, for example, created full parity in reimbursement and payment structure for telemedicine and in-person visits. In addition to mirroring the in-person copay, Aetna offered free outpatient mental health counseling for their plan holders with no copay through the end of September 2020.[21]

In response to increased usage, the OCR in the HHS waived penalties for HIPAA violations for providers who serve patients via less secure or standard telemedicine technologies, such as Skype. Many states maintained their regulations about ways that health information needs to be protected so these states were not affected by the federal waiver.[22]

Global changes

Global adaptation in telemedicine reflected the accelerated changes that took place in the United States.[23] In March of 2021 when the COVID-19 pandemic was declared a global emergency by the World Health Organization, a series of scale-ups of telemedical care proceeded.

China piloted rapid uptake of mental health care provision, especially with mobile apps and chat platforms.[24] Australia also partnered in rapid recognition of the mental health burden caused by the pandemic. They used funding from their Medicare Benefits Schedule for telehealth delivery by many care providers in both rural and urban areas.[25] France passed a decree during the pandemic which allowed for reimbursement and provision of telehealth services. They eventually allowing for funding for nonphysician providers also.[26] The United Kingdom notably ramped up utilization of video consultation services, specifying criteria for when its usage is and is not appropriate.[27] Importantly, sufficient infrastructure was not available in all nations to provide telehealth care.

SUSTAINABILITY POST-PANDEMIC

From experience in the pandemic, it has been clear that many inpatient and outpatient services can successfully utilize telemedicine instead of in-person interaction.[4]

Usage in the United States

Telemedicine usage increased overall throughout the COVID-19 pandemic. From fee-for-service Medicare data during the pandemic, 22% of rural beneficiaries and 30% of urban beneficiaries engaged in telehealth. In a transition from earlier data, Northeastern states showed more telehealth service utilization than Western and Rocky Mountain states. About 30% of females and 25% of male patients have engaged in telemedicine, and dual-eligible beneficiaries had higher telehealth use than other groups.[28]

Beneficiaries of fee-for-service Medicare who received telehealth care grew from 13 000 to almost 1.7 million by May of 2020.[29] While these data represents telehealth and not telemedicine, the growth in telehealth suggests that telemedicine utilization has also considerably expanded. There is high potential for telemedicine to stay in health systems—a McKinsey analysis predicts that over $250 billion or 20% of current US health care spending could involve telemedicine.[28]

Another analysis from the Commonwealth Fund found that while there was a strong surge in telemedicine visits in April of 2020, the number has declined in the months thereafter.[30] This dip may be attributed to the reopening of in-person options for patients, but it may also reflect barriers with offered telemedical options. Due to how quickly telemedicine was adopted, it is critical to find ways to check the quality of care provided. As parity laws continue to be established by states in the United States, telemedicine care must match the standards of in-person care or exceed them.

These are some of our recommendations for facilitating a sustainable platform for telemedicine use in the health care system as it recovers from the COVID-19 pandemic.

GROWTH AND EXPANSION

In the United States

Financing and investments

Federal and state governments have seen the potential for benefit in investing in telemedicine and should subsidize the adoption process. Between the technology, the ancillary staffing, and routine maintenance, transitioning may not be financially feasible for many smaller health systems, and governmental support would mitigate this. Before the pandemic, the Federal Communications Commission's Connected Care Pilot proposal provided an 85% discount on connectivity for broadband-enabled telemedicine to successful applicants, and the COVID-19 Connected Care pledge provided $200 million for telehealth. These programs should be expanded with lower selectivity to prioritize universal platform acquisition.

Funding should be allocated based on the financial means of the center and the percentage of patients who receive uncompensated care or are served by Medicare and Medicaid. Low-income rural health systems or safety-net hospitals with more patients served by the CMS are more likely to lack comprehensive telemedicine services and benefit from the funding. These relative distributions can be mirrored to the distributions of funding that the HHS allocated in the Provider Relief Fund in April of 2020 ($12 billion for high-COVID-19-volume hospitals and $10 billion for Critical Access Hospitals and Rural Health Clinics).[31]

Continued funding from the government should be dependent on the appropriate use of telemedicine care by all staff, privacy breaches and the patient volume that the hospital can transition over and maintain virtually. The American Recovery and Reinvestment Act proposed a similar array of requirements for health systems related to electronic health records (EHRs) to receive funding.[32]

Centralization of the EHR should be another metric to provide financial incentives to the health care systems since this integration can optimize workflows in telemedicine. When the EHR and telemedicine are coupled together in a centralized system, they can eliminate redundancies in system engagement. For example, reports from telemedicine visits can automatically be added to the patient EHR. The lowered administrative work on the provider that this centralization can achieve has been shown to facilitate fewer reporting errors, less physician burnout, less administrative work, and more time for patients.[33]

Government regulation

Originating site waivers for Medicare should persist and patients should not be required to travel to a designated site to receive telemedical care—these services should be accessible at home. Rural clinics and Federally Qualified Health Centers should continue to serve as distant sites for patients. Unlimited authority for the secretary of the HHS to create waivers for services such as telemedicine should be legalized during all health emergencies. The Protecting Access to Post-COVID-19 Telehealth Act reintroduced in January of 2021 advocated for the changes above and a 90-day window for waivers post-crisis, but it has not been passed yet and should be championed.

An executive order from the Trump administration in August of 2020 charged the HHS with advancing a new payment model to transform rural health care outcomes, likely with the assistance of telehealth. The Department of Agriculture was also tasked with improving the telemedicine and communication infrastructure in rural health care settings. This intention as it relates to telemedicine can be furthered by Congress, which can propose a broad program that makes telemedicine accessible all over the country, including inner cities and rural areas. Even with arguably mainstream technological access today, many populations still struggle and this situation must be considered for sustainable telemedicine care—in a series of studies on technology use, over 20% of Americans in rural areas cited high-speed internet as a challenge, which is important for telemedicine.[34-36]

For Medicaid, states should all have the opportunity to participate in a telemedicine expansion that provides parity in coverage between telemedicine and corresponding in-person care. Permanent interstate licensure waivers for telemedicine practice should be included in this expansion to broaden the networks of patients who can be reached. A national telemedicine provider licensing system would maximize provider networks for patients and eliminate administrative work for physicians who might work in several locations or serve geographically disparate populations. This already exists in specific care systems—in 2018, the Department of Veterans Affairs permitted providers to engage in telemedicine irrespective of the state in which the patient resided. Several compacts of health providers also enable them to practice telemedicine in a larger geographical radius. These compacts exist for providers such as nurses (Nurse Licensure Compact), physical therapists (Physical Therapy Interstate Licensure Compact), and psychologists (Psychology Interjurisdictional Compact). There is a compact for physicians called the Interstate Medical Licensure Compact, but this focuses on accelerated licensure acquisition in each state instead of a universal license. None of these compacts for providers include all 50 states, and they are relatively short-term privileges, indicating the need for a nationalized licensure system for physicians.

Safety and security

In this time where there continue to be lifted restrictions on the exact criteria for fulfilling telemedical visits in good faith, there are safety and security concerns for patients, who must have high health literacy to seek out and understand how their privacy protection changes under the pandemic legislation. Concrete oversight of data privacy of patients during this time has been proposed.[37]

Telemedicine even before the pandemic showed room for improvement, as it related to centralized government regulation of privacy and oversight.[9]

As the pandemic situation improves and governmental expectations return to normal, health care systems should adopt full telemedicine platforms. Relaxed regulations on telemedicine technology requirements have allowed more health systems to start doing televisits with Facetime and Skype, but all health systems will need comprehensive telemedicine platforms to have reliable audio and video, appropriate encryption, and privacy protection.[38] We are not currently at a stage where we have universalized privacy protections for commercial social platforms as it relates to telemedicine, which prompts primary reliance on systems with validated security.

Meaningful use criteria for EHRs are a foundational document to use to derive expectations for all telemedicine platforms. Like EHRs, telemedicine platforms should improve quality, reduce health disparities, improve care coordination, and maintain the security of PHI.

In furthering legislation related to telemedicine patient safety, the Taskforce for Telehealth Policy (TTP)'s recent report involving COVID-19-induced change should be referenced, as it involves a multidisciplinary team of stakeholders.[39,40] Protocols that specify when telemedical visits necessitate an in-person care touchpoint must be embedded into onboarding for all patients.[41]

Global change

Due to observation of the significant barriers in universalizing research, education, and structure of telemedicine use, international guidelines for such use in emergencies need to be established. A "pandemic playbook" is critical to ensure that all telemedicine providers can participate in data sharing for epidemiology and research. Monitoring of global trends will also be important in identifying what channels are most

useful to patients for telemedical communication and education. Simulations that depict communication modes and funding streams to amplify telemedicine during outbreaks are essential to have within each nation's infrastructure.[42]

Care provision barriers

Aside from current barriers and limitations in funding, security and safety changes, accessibility models, and playbooks for emergencies, there are unequivocally, unwillingness and barriers to adopting telemedicine from the provider side. All recommendations are proposed on the basis that health care providers are strong proponents of telemedicine as a net positive for health systems. But telemedicine is an evolving and complex framework that is not understood or preferred by all care providers. Some providers are also resistant to the onboarding process because they feel separated from the telemedicine training paradigm.[43,44]

This resistance can be mitigated by intentional involvement of care providers in the onboarding and training process.[45] It can also be mitigated by continuous learning and quality improvement. Continuous training in the realm of telemedicine will be a vital investment of health systems to ensure the sustainability of telemedicine. Technology evolves quickly and all staff members need to be onboarded to adjust to these changes.[46] Continuous evaluation of telemedicine services will also be important—clinical outcomes of patients receiving telemedical care need to be routinely compared with equivalent in-person patient care, and providers and patients must be routinely surveyed to gauge their satisfaction and frustration.[47]

CONCLUSIONS

Telemedicine has swiftly ramped up in adoption and utilization over the course of the COVID-19 pandemic. If it is going to remain a feature of the health care system both in the United States and globally, the models in which systems are funded to receive telemedicine platforms, licensure requirements, coverage criteria, and boundaries of telemedicine care provision need to change.

Targeted investment in telemedicine in the following months of this pandemic can open a battery of possibilities regarding future use. With a connected network of providers and centralized records, patients can maximize their agency in seeking care providers. This autonomy was previously reserved for those patients who were willing to pay out of pocket or with select private insurance plans. Providers could minimize burnout with expanded flexibility in their shifts and annual schedules that incorporate telemedicine-focused days into their bundled vacation and work-from-home allotments. This duality of benefits for both providers and patients could improve outcomes in health care and reduce long-term costs for health systems. In the United States, the nationalized provision of telemedical care and the inequities in access that it mitigates could be a driver toward other nationalized health care mechanisms such as Medicare for all.

Until these long-term changes become a reality, it is critical to advocate for rapid adoption and funding for telemedicine platforms.

REFERENCES

1. Baquet CR. An overview of telemedicine. *J Assoc Acad Minor Phys*. 1997;8(1):2-10.
2. Hailey D, Roine R, Ohinmaa A. Systematic review of evidence for the benefits of telemedicine. *J Telemed Telecare*. 2002;8(suppl 1): 1-30. doi:10.1258/1357633021937604.
3. Alvandi M. Telemedicine and its role in revolutionizing healthcare delivery. *Am J Accoun Care*. 2017;5(1):e1-e5.
4. Albritton JA, Dalto J, Wayling B. Using Telehealth to provide the right care at the right time—anywhere. *Qual Manag Health Care*. 2018;27(2):106-108.
5. Alotaibi YK, Federico F. The impact of health information technology on patient safety. *Saudi Med J*. 2017;38(12):1173-1180. doi:10.15537/smj.2017.12.20631.
6. Center for Connected Health Policy. *Current State Laws & Reimbursement Policies*. Sacramento, CA: Center for Connected Health Policy; 2019.
7. Becker CD, Dandy K, Gaujean M, Fusaro M, Scurlock C. Legal perspectives on telemedicine part 1: legal and regulatory issues. *Perm J*. 2019;23:18-293. doi:10.7812/tpp/18-293.
8. Zhou L, Thieret R, Watzlaf V, Dealmeida D, Parmanto B. A telehealth privacy and security self-assessment questionnaire for telehealth providers: development and validation. *Int J Telerehabil*. 2019;11(1):3-14. doi:10.5195/ijt.2019.6276.
9. Hall JL, McGraw D. For telehealth to succeed, privacy and security risks must be identified and addressed. *Health Aff (Millwood)*. 2014;33(2):216-221. doi:10.1377/hlthaff.2013.0997.
10. DLA Piper. Telehealth around the world: a global guide. https://www.dlapiper.com/en/italy/insights/publications/2020/11/telehealth-around-the-world-global-guide/
11. Harvey JB, Valenta S, Simpson K, Lyles M, McElligott J. Utilization of outpatient telehealth services in parity and nonparity states 2010-2015. *Telemed J E Health*. 2019;25(2):132-136. doi:10.1089/tmj.2017.0265.
12. Karl J. Why Medicare's expanded telehealth reimbursement matters. https://healthtechmagazine.net/article/2019/08/why-medicares-expanded-telehealth-reimbursement-matters. Published 2019.
13. Truex G. As Telehealth Technology and Methodologies Mature, Consumer Adoption Emerges As Key Challenge for Providers. https://discover.jdpa.com/hubfs/Files/Industry%20Campaigns/Healthcare/Telehealth_WP_v6_071919.pdf. Published 2019.
14. Nord G, Rising KL, Band RA, Carr BG, Hollander JE. On-demand synchronous audio video telemedicine visits are cost effective. *Am J Emerg Med*. 2019;37(5):890-894. doi:10.1016/j.ajem.2018.08.017.
15. Anderson J, Ganguli I. Unpacking the potential for virtual care. *J Gen Intern Med*. 2019;34(12):2906-2907. doi:10.1007/s11606-019-05201-5.
16. Robeznieks A. How these 4 specialties used telemedicine to save nearly $600,000. https://www.ama-assn.org/practice-management/digital/how-these-4-specialties-used-telemedicine-save-nearly-600000. Published 2019.
17. Lurie N, Carr BG. The role of telehealth in the medical response to disasters. *JAMA Intern Med*. 2018;178(6):745-746. doi:10.1001/jamainternmed.2018.1314.
18. Hollander JE, Carr BG. Virtually perfect? Telemedicine for COVID-19. *N Engl J Med*. 2020;382(18):1679-1681. doi:10.1056/NEJMp2003539.
19. CMS.gov. Medicare Telemedicine Health Care Provider Fact Sheet. https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet. Published 2020.
20. fsmb. U.S. States and Territories Modifying Requirements for Telehealth in Response to COVID-19. https://www.fsmb.org/siteassets/advocacy/pdf/states-waiving-licensure-requirements-for-telehealth-in-response-to-covid-19.pdf. Published 2021.

21. American Society of Clinical Oncology. Private payers: telemedicine and telehealth. https://www.asco.org/sites/new-www.asco.org/files/content-files/advocacy-and-policy/documents/2020-Telehealth-and-Private-Payer-Guide.pdf. Published 2021.
22. National Policy Center—Center For Connected Health Policy. Telehealth coverage policies in the time of COVID-19. https://telehealthresourcecenter.org/resources/telehealth-coverage-policies-in-the-time-of-covid-19/. Published 2020.
23. Dorsey ER, Topol EJ. Telemedicine 2020 and the next decade. *Lancet*. 2020;395(10227):859. doi:10.1016/S0140-6736(20)30424-4.
24. Liu S, Yang L, Zhang C, et al. Online mental health services in China during the COVID-19 outbreak. *Lancet Psychiatry*. 2020;7(4):e17-e18. doi:10.1016/s2215-0366(20)30077-8.
25. Zhou X, Snoswell CL, Harding LE, et al. The role of telehealth in reducing the mental health burden from COVID-19. *Telemed J E Health*. 2020;26(4):377-379. doi:10.1089/tmj.2020.0068.
26. Ohannessian R. Telemedicine: potential applications in epidemic situations. *Eur Res Telemedicine*. 2015;4(3):95-98. doi:10.1016/j.eurtel.2015.08.002.
27. Greenhalgh T, Wherton J, Shaw S, Morrison C. Video consultations for Covid-19. *BMJ*. 2020;368:m998. doi:10.1136/bmj.m998.
28. Henry TA. *COVID-19 Makes Telemedicine Mainstream. Will It Stay That Way?* Chicago, IL: American Medical Association; 2020.
29. Verma S. Early impact of CMS expansion of medicare telehealth during COVID-19 [published online ahead of print July 15, 2020]. *Health Affairs Blog*. doi:10.1377/hblog20200715.454789.
30. Mehrotra A, Chernew M, Linetsky D, Hatch H, Cutler D. The Impact of the COVID-19 Pandemic on Outpatient Visits: Practices Are Adapting to the New Normal. https://www.commonwealthfund.org/publications/2020/jun/impact-covid-19-pandemic-outpatient-visits-practices-adapting-new-normal. Published 2020.
31. AAFP. CARES Act Provider Relief Fund. https://www.aafp.org/family-physician/patient-care/current-hot-topics/recent-outbreaks/covid-19/covid-19-financial-relief/cares-act-provider-relief-fund.html. Published 2020.
32. American Recovery and Reinvestment Act of 2009. https://www.fcc.gov/general/american-recovery-and-reinvestment-act-2009. Published 2009.
33. Robertson SL, Robinson MD, Reid A. Electronic health record effects on work-life balance and burnout within the I(3) Population Collaborative. *J Grad Med Educ*. 2017;9(4):479-484. doi:10.4300/jgme-d-16-00123.1.
34. Cubanski J. *Possibilities and Limits of Telehealth for Older Adults During the COVID-19 Emergency*. Washington, DC: Kaiser Family Foundation; 2020.
35. Anderson M, Perrin A, Jiang J, Kumar M. 1*0% of Americans Don't Use the internet. Who Are They?* Washington, DC: Pew Research Center; 2019
36. Robert Wood Johnson Foundation. *Life in Rural America*. Princeton, NJ: National Public Radio, Robert Wood Johnson Foundation; 2019.
37. Bassan S. Data privacy considerations for telehealth consumers amid COVID-19. *J Law Biosci*. 2020;7(1):lsaa075. doi:10.1093/jlb/lsaa075.
38. Bestsennyy O, Gilbert G, Harris A, Rost J. Telehealth: A Quarter-Trillion-Dollar Post-COVID-19 Reality? https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality. Published 2020.
39. NCQA. *Taskforce on Telehealth Policy (TTP) Findings and Recommendations*. Washington, DC: NCQA; 2020.
40. Kaundinya T, Agrawal R. Next Steps for Chronic Illness Care After the Taskforce on Telehealth Policy (TTP) Report. https://www.researchgate.net/publication/349992440_Next_Steps_for_Chronic_Illness_Care_After_the_Taskforce_on_Telehealth_Policy_TTP_Report. Published 2021.
41. Sentell T, Foss-Durant A, Patil U, Taira D, Paasche-Orlow MK, Trinacty CM. Organizational health literacy: opportunities for patient-centered care in the wake of COVID-19. *Qual Manag Health Care*. 2021;30(1):49-60.
42. Smith AC, Thomas E, Snoswell CL, et al. Telehealth for global emergencies: implications for coronavirus disease 2019 (COVID-19). *J Telemed Telecare*. 2020;26(5):309-313. doi:10.1177/1357633X20916567.
43. Ayatollahi H, Sarabi FZ, Langarizadeh M. Clinicians' knowledge and perception of telemedicine technology. *Perspect Health Inf Manag*. 2015;12(Fall):1c.
44. Green T, Hartley N, Gillespie N. Service provider's experiences of service separation: the case of telehealth. *J Serv Res*. 2016;19(4):477-494. doi:10.1177/1094670516666674.
45. Edirippulige S, Brooks P, Carati C, et al. It's important, but not important enough: eHealth as a curriculum priority in medical education in Australia. *J Telemed Telecare*. 2018;24(10):697-702. doi:10.1177/1357633x18793282.
46. Clemensen J, Rothmann MJ, Smith AC, Caffery LJ, Danbjorg DB. Participatory design methods in telemedicine research. *J Telemed Telecare*. 2017;23(9):780-785. doi:10.1177/1357633x16686747.
47. Board on Health Care Services; Institute of Medicine. *The Role of Telehealth in an Evolving Health Care Environment*. Washington, DC: National Academies Press; 2020.