

Viewpoint

Defining Telehealth for Research, Implementation, and Equity

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Abstract

When the COVID-19 pandemic spurred a disruption in health care delivery, the role of telehealth shifted from an option to a near necessity to maintain access when in-person care was deemed too risky. Each state and many organizations developed temporary telehealth policies for the COVID-19 emergency, each policy with its own definitions, coverage, government cases, and regulations. As pandemic-era policies are now being replaced with more permanent guidelines, we are presented with an opportunity to reevaluate how telehealth is integrated into routine health care delivery. We believe that the timing and nature of the sequential steps for redefining telehealth are critical and that it is important to develop a clear and agreed-on definition of telehealth and its components at this time. We further suggest a necessary preliminary step is to support clear communication and interoperability throughout the development of this definition. Precise and standardized definitions could create an unambiguous environment for clinical care for both patients and providers while enabling researchers to have more precise control over their investigations of telehealth. A consensus when defining telehealth and its derivatives at this critical stage could create a consistent expectation of care for all patients and those who set the standards of care, as it has for other clinical scenarios with clear guidelines.

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KEYWORDS

telehealth; telemedicine; standards; health equity; public health; digital health; delivery of health care

Introduction

The pandemic accelerated the swift adoption of telehealth [1-4]. As the emergency mode of health care delivery during the pandemic draws to a close for many entities and organizations, questions regarding sustainability, definitions of equitable access, and the future of telehealth arise [3]. Between June 6 and November 6, 2020, nearly one-third of all health visits were conducted remotely as telehealth visits, a considerable expansion compared to prior years [1]. Although 43% of hospitals reported the capacity of supporting telemedicine in 2019, 95% of health centers reported using telehealth during the COVID-19 pandemic, which reflected a rapid increase in use [1]. However, the emergency adoption of telehealth has led to widely differing practices, varying definitions of what constitutes telehealth or telemedicine, and a spectrum of state rules; this variability may

be linked to the rapid adoption of telemedicine during the pandemic emergency phase. This new and expanded adoption has at times included exemptions from the usual regulatory processes; these exemptions are now being reevaluated [5,6]. The end of the emergency adoption period opens an opportunity to reevaluate the standards and definitions of telehealth and its components and may reveal the more subtle risk of perpetuating suboptimal practices adopted during the emergency phase of the pandemic.

We will employ the World Health Organization (WHO) definition of equity which explains that equity “is the absence of unfair, avoidable, or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically or by other dimensions of inequality (e.g., sex, gender, ethnicity, disability, or sexual orientation)” [7]. We propose that a clear and

standardized definition of telehealth, ideally developed through consensus across a wide variety of organizations, must be established to support better implementation and evaluation and to contribute to greater equity in health care access overall.

Definition

To define telemedicine, some sources distinguish between telehealth and telemedicine, while other sources use the terms interchangeably [8-14]. Telemedicine definitions commonly agree that it encompasses the remote diagnosis and treatment of patients by telecommunications infrastructure, while telehealth is commonly considered a superset of telemedicine, defined as any services used to provide care remotely (eg, live conferencing, remote patient monitoring, and personal health apps) [8,9,11]. Already, the terms telemedicine and telehealth both appear to leave room for interpretation and have a broad scope; telemedicine is often the narrower of the 2 terms, though still vaguely defined. With the introduction of derivative terms such as mHealth and eHealth [15], coupled with the different technologies (eg, video visit, audio-only visit, and email- and text-based correspondence) and communication methods (synchronous or asynchronous) that may be used for a telemedicine visit, the expectations for what types of care telemedicine encompasses are further obfuscated.

Standardized definitions in clinical disciplines, as in other disciplines, can help categorize information and encourage more precise communication relating to the area of interest [16-18]. We argue that this situation presents an opportune time to establish a standardized definition of telehealth, with explicit classifications of its modalities, applications, scope, and relationships to other modes of health care. Prior to the expansion of telehealth during the pandemic, telehealth had limited applications in both urban and rural settings, including but not limited to tele-critical care and tele-neurology applications [4,19,20]. Patients communicating with providers and having clear expectations when doing so is known to improve engagement in care; this could be an indirect impact of improving definitions in the field of telehealth [21,22]. As telehealth expands, knowing what the term constitutes will enable more precise communication between providers, patients, policy makers, and researchers.

Clear definitions could support patients in scheduling and requesting visits with greater clarity of the scope of telehealth and expectations of what will occur during their visit as well as potential outcomes to anticipate at the end of the visit. Providers can also benefit by recommending services that stand to offer the best anticipated utility given the combination of patients' conditions, needs, and expectations. For example, video visits are not always possible or even desired by patients [23]. However, phone calls or chat box correspondence may not be enough for clinicians to gauge a patient's health properly for a specific condition. Another factor can be what is covered by a payor or state's coverage for telehealth-related services. Hence, with greater control of the nomenclature used to describe telehealth services, providers can work with patients to recommend the most appropriate type of care, which can lead to greater outreach to patients, quality of care, and return on

investments for both patients and physicians. Westby et al [24] provide a case of a patient who had a telehealth visit that can offer an example of the importance of matching expectations with patient understanding of what is offered. Because the patient had concerns regarding his ability to use the technology for a video visit, the clinic staff scheduled the patient for a telephone visit. This resulted in several potentially unanticipated benefits to both the patient and provider, including the patient being comfortable disclosing his challenges with reading, which the providers were unaware of, and the patient being able to spell his medication names directly from the bottles to the provider. The providers were able to clarify the instructions for his medications, which the patient misread due to his difficulty with reading. Audio-only visits are generally not considered telehealth visits in every state or institution, whereas video visits are accepted as telehealth universally [11]. Westby et al [24] note that the Center for Medicare and Medicaid, at the time, had a narrower definition of telehealth than the WHO and excluded telephone visits from reimbursement. Had the clinic's staff not been precise about describing the nature of the visit at the time of scheduling with the patient, and instead simply scheduled a "telehealth visit," the patient could have assumed it to be a video visit and may have chosen to cancel the appointment without the barriers to his participation being brought to light. Patients may not be aware of the options and accessibilities that are offered to them, especially when every state, institution, and payor may have different stipulations of what constitutes a telehealth visit.

Similar arguments regarding the need for a standardized interpretation of telehealth have been made previously, with attempts to develop a common "taxonomy of telemedicine," but this has not gained widespread adoption [18]. Regulation and credentialing are governed by state governments, where each state defines telehealth and telemedicine and its coverage laws independently, and no 2 states are alike in their definitions and regulations [11]. While some states alternate in their use of terms such as telehealth and telemedicine, other states use them interchangeably and even add a variety of terms with a tele-prefix to refer to a remotely delivered version of a term [11].

We found it instructive to compare definitions across US states when examining how significant the framing of telehealth vernacular can be. The term telehealth may be effective in Missouri, defined in a way that encompasses a variety of visit types, but because Maryland might have a different definition for the term, it may not be as effective there. For example, the State Telehealth Laws and Reimbursement Policies Report 2021 shows only 15 states cover audio-only visits, whereas all 50 states reimburse for live video visits [11].

These nonstandard definitions and regulations lead to difficulty in designing and implementing telehealth studies across states. An effectiveness study on telehealth in Missouri, for example, would not be easily compared to a separate study done in Maryland. This discrepancy also creates confusion among patients and providers and makes policies that are needed across states or on a national level challenging to implement. Cross-state billing, for example, is not approved in many cases and poses a barrier for many clinicians who practice outside of a distant patient's state health care network [3].

Evaluations

Researchers across different disciplines interfacing with telehealth in their work could benefit from standardization and precision in the associated definitions [25,26]. We propose that a consensus in definitions could allow investigators to better communicate both in proposals and sharing the products of their work related to telehealth. Because telehealth comprises a large variety of interventions, it is difficult to generalize its effectiveness as different interventions can yield varied results [25]. A precise nomenclature can help researchers identify intended interventions and independent variables, leading to clearer and more precise conclusions [16-18,27,28].

Current studies underway on new telehealth programs vary in scope and outcome measures, ranging from measuring use data, such as adherence measures that count the number of app downloads, to data on the number of appointments scheduled by patients and providers, and the number of completed telemedicine visits [29]. We note that these quantitative analyses might not include qualitative perspectives that could correlate to clinical outcomes. Namely, there has been a lack of evaluations comparing the cost-effectiveness of telehealth to usual care and examining the patient experience [29-31]. Once standardized telehealth definitions are established, there will be an opportunity to better compare and understand the outcomes of in-person care compared to telehealth since the beginning of the COVID-19 pandemic. Standardized definitions have been found to be useful in other clinical research disciplines, such as for cardiovascular outcomes (eg, for metabolic syndrome and primary cardiovascular disease prevention), where studies with differing scopes can be analyzed using agreed-on basic characteristics and shared definitions [32].

The 2017 National Quality Forum report *Creating a Framework to Support Measure Development for Telehealth* proposed a more quality of care–driven measurement framework made to guide outcome measures about overall experience and care delivery outcomes [33]. This quality of care–motivated framework includes 4 key domains: access to care, financial cost and impact, experience, and effectiveness. Subdomains were also proposed, which include a measurement framework to correlate with clinical and quality of care outcomes. The adoption of this framework would support our aim of standardizing investigations and linking them to care delivery. These domains have a direct impact on quality of care, but this framework has yet to be used as a standard practice [29].

Telehealth is evolving and expanding rapidly with new research, facets, and associated technology. Telehealth today is not the same as it was last year, especially after its expansion in the era of COVID-19. For example, with the rise of smartphone technology, mHealth today is not the same as mHealth 10 years ago [15]. For studies of telehealth to have a fair comparison, normalized definitions and classifications of the different types of care provided via telehealth are required because this can make comparisons across studies easier, both geographically and through time [29].

A large number of organizations and institutions are defining telehealth and doing so on terms that suit their stakeholders, which has created a unique challenge. It is much easier to change a single normative definition than several definitions all at once. Now that organizations such as the US Centers for Disease Control and Prevention, the Office of the National Coordinator for Health Information Technology, the American Academy of Family Physicians, the American Medical Association, state and federal payors, as well as local private payors and institutions are all developing their own definitions, this exacerbates the complexity of developing unified definitions [9,11,13,34,35]. We risk definitions not being updated on the same cycle and further diverging over time.

Standardized definitions will help further to evaluate the system and measure and follow impacts on equity. There are observed trends in the adoption of telehealth from a patient perspective [4,23,36-38]. As Rodriguez shows, there are differences in the use of telehealth services across various ethnic groups [23]. The motivation or explanation from a patient stakeholder perspective warrants further investigation to guide equitable approaches. Failure to account for the patient perspective, especially in health disparity populations and underrepresented populations, can lead to further marginalization and exacerbation of health inequalities [39]. On an enterprise level, institutional resources can vary, which can directly impact the resources available to clinicians and providers and patterns of technology adoption.

There are many different facets of inequity, including structural racism, wealth, sexism, geographic location, and more, which contribute to overall health inequity and social determinants of health [40-42]. We propose that clear definitions of available telehealth services, though they may not solve all forms of inequity, have the potential to reduce misunderstandings, miscommunications, and confusion, all of which contribute to a lack of access to telehealth services. More attention is needed to understand the impact that interventions addressing patient preferences regarding digital health, digital literacy, and technological access will have on equity.

As telehealth rapidly evolves, we propose that attention should be paid to maintaining equity in part through clear definitions and acknowledging the access differentials that may vary across institutions and populations.

Conclusions

Consensus is critical in terms of both equitable access and clinical and other research on the growing field of telemedicine and telehealth. Our scope of interest is in these areas, recognizing the importance of definitions across the institutional level, including interactions with third-party payors, which we have not addressed in this work. Looking to the future, health care organizations can consider consistent and agreed-on standardized definitions to benefit all stakeholders by providing clearer communications, comparable policies, precise and controlled evaluations, and by supporting the delivery of equitable care. This consensus is especially important now as telehealth could be taking on a larger role as part of routine clinical access to care. It is important that we agree on a common

nomenclature soon to make full use of its benefits and prevent future backtracking.

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Authors' Contributions

JR initiated the conceptualization of this viewpoint, but all 3 authors contributed substantially. All authors contributed to the methodology. The original draft was written by JR, then heavily modified by all 3 authors. Review and editing were done primarily by JR but all 3 authors contributed substantially.

Conflicts of Interest

None declared.

References

1. Demeke HB, Merali S, Marks S, Pao LZ, Romero L, Sandhu P, et al. Trends in use of telehealth among health centers during the COVID-19 pandemic - United States, June 26-November 6, 2020. *MMWR Morb Mortal Wkly Rep* 2021 Mar 19;70(7):240-244 [FREE Full text] [doi: [10.15585/mmwr.mm7007a3](https://doi.org/10.15585/mmwr.mm7007a3)] [Medline: [33600385](https://pubmed.ncbi.nlm.nih.gov/33600385/)]
2. Koonin LM, Hoots B, Tsang CA, Leroy Z, Farris K, Jolly B, et al. Trends in the use of telehealth during the emergence of the COVID-19 pandemic - United States, January-March 2020. *MMWR Morb Mortal Wkly Rep* 2020 Oct 30;69(43):1595-1599 [FREE Full text] [doi: [10.15585/mmwr.mm6943a3](https://doi.org/10.15585/mmwr.mm6943a3)] [Medline: [33119561](https://pubmed.ncbi.nlm.nih.gov/33119561/)]
3. Shachar C, Engel J, Elwyn G. Implications for telehealth in a postpandemic future: regulatory and privacy issues. *JAMA* 2020 May 18;2375-2376. [doi: [10.1001/jama.2020.7943](https://doi.org/10.1001/jama.2020.7943)] [Medline: [32421170](https://pubmed.ncbi.nlm.nih.gov/32421170/)]
4. Chu C, Cram P, Pang A, Stamenova V, Tadrous M, Bhatia RS. Rural telemedicine use before and during the COVID-19 pandemic: a repeated cross-sectional study. *J Med Internet Res* 2021 Mar 24:e26960 [FREE Full text] [doi: [10.2196/26960](https://doi.org/10.2196/26960)] [Medline: [33769942](https://pubmed.ncbi.nlm.nih.gov/33769942/)]
5. Policy changes during COVID-19. U.S. Department of Health & Human Services. URL: <https://telehealth.hhs.gov/providers/policy-changes-during-the-covid-19-public-health-emergency/> [accessed 2022-03-30]
6. Poll: voters overwhelmingly support urgent action to permanently protect access to telehealth. Telehealth Access for America. URL: <https://telehealthaccessforamerica.org/poll-voters-overwhelmingly-support-urgent-action-to-permanently-protect-access-to-telehealth/> [accessed 2022-03-30]
7. Health equity. World Health Organization. URL: https://www.who.int/health-topics/health-equity#tab=tab_1 [accessed 2022-03-20]
8. What is telehealth? *NEJM Catalyst*. 2018 Feb 1. URL: <https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0268> [accessed 2022-03-30]
9. Telehealth and telemedicine. American Academy of Family Physicians. URL: <https://www.aafp.org/about/policies/all/telehealth-telemedicine.html> [accessed 2022-03-30]
10. How to make the most of a telemedicine visit. Mayo Clinic. URL: <https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/questions-about-telemedicine/art-20485831> [accessed 2022-03-30]
11. State telehealth laws and reimbursement policies report, fall 2021. Center for Connected Health Policy. 2021 Oct. URL: <https://www.cchpca.org/resources/state-telehealth-laws-and-reimbursement-policies-report-spring-2021/> [accessed 2022-03-30]
12. Chaet D, Clearfield R, Sabin JE, Skimming K, Council on Ethical and Judicial Affairs American Medical Association. Ethical practice in telehealth and telemedicine. *J Gen Intern Med* 2017 Oct;32(10):1136-1140 [FREE Full text] [doi: [10.1007/s11606-017-4082-2](https://doi.org/10.1007/s11606-017-4082-2)] [Medline: [28653233](https://pubmed.ncbi.nlm.nih.gov/28653233/)]
13. AMA telehealth quick guide. American Medical Association. URL: <https://www.ama-assn.org/practice-management/digital/ama-telehealth-quick-guide> [accessed 2022-03-30]
14. Practice management. American Academy of Pediatrics. URL: <http://www.aap.org/en-us/professional-resources/practice-transformation/telehealth/Pages/What-is-Telehealth.aspx> [accessed 2022-03-30]
15. Ali EE, Chew L, Yap KYL. Evolution and current status of mhealth research: a systematic review. *BMJ Innov* 2016 Jan 05;2(1):33-40. [doi: [10.1136/bmjinnov-2015-000096](https://doi.org/10.1136/bmjinnov-2015-000096)]
16. Andrews J, Bogliatto F, Lawson H, Bornstein J. Speaking the same language: using standardized terminology. *J Low Genit Tract Dis* 2016 Jan;20(1):8-10. [doi: [10.1097/LGT.000000000000157](https://doi.org/10.1097/LGT.000000000000157)] [Medline: [26579837](https://pubmed.ncbi.nlm.nih.gov/26579837/)]
17. Awaysheh A, Wilcke J, Elvinger F, Rees L, Fan W, Zimmerman K. A review of medical terminology standards and structured reporting. *J Vet Diagn Invest* 2018 Jan;30(1):17-25 [FREE Full text] [doi: [10.1177/1040638717738276](https://doi.org/10.1177/1040638717738276)] [Medline: [29034813](https://pubmed.ncbi.nlm.nih.gov/29034813/)]
18. Bashshur R, Shannon G, Krupinski E, Grigsby J. The taxonomy of telemedicine. *Telemed J E Health* 2011 Jul;17(6):484-494. [doi: [10.1089/tmj.2011.0103](https://doi.org/10.1089/tmj.2011.0103)] [Medline: [21718114](https://pubmed.ncbi.nlm.nih.gov/21718114/)]

19. Weigel G, Ramaswamy A, Sobel L, Salganicoff A, Cubanski J, Freed M. Opportunities and barriers for telemedicine in the U.S. during the COVID-19 emergency and beyond. Kaiser Family Foundation. 2020 May 11. URL: <https://www.kff.org/womens-health-policy/issue-brief/opportunities-and-barriers-for-telemedicine-in-the-u-s-during-the-covid-19-emergency-and-beyond/> [accessed 2022-03-30]
20. Herasevich V, Subramanian S. Tele-ICU technologies. *Crit Care Clin* 2019 Jul;35(3):427-438. [doi: [10.1016/j.ccc.2019.02.009](https://doi.org/10.1016/j.ccc.2019.02.009)] [Medline: [31076043](https://pubmed.ncbi.nlm.nih.gov/31076043/)]
21. Flickinger TE, Saha S, Moore RD, Beach MC. Higher quality communication and relationships are associated with improved patient engagement in HIV care. *J Acquir Immune Defic Syndr* 2013 Jul 01;63(3):362-366 [FREE Full text] [doi: [10.1097/QAI.0b013e318295b86a](https://doi.org/10.1097/QAI.0b013e318295b86a)] [Medline: [23591637](https://pubmed.ncbi.nlm.nih.gov/23591637/)]
22. Dickinson JK, Guzman SJ, Maryniuk MD, O'Brian CA, Kadohiro JK, Jackson RA, et al. The use of language in diabetes care and education. *Diabetes Care* 2017 Dec;40(12):1790-1799. [doi: [10.2337/dci17-0041](https://doi.org/10.2337/dci17-0041)] [Medline: [29042412](https://pubmed.ncbi.nlm.nih.gov/29042412/)]
23. Rodriguez JA, Betancourt JR, Sequist TD, Ganguli I. Differences in the use of telephone and video telemedicine visits during the COVID-19 pandemic. *Am J Manag Care* 2021 Jan;27(1):21-26 [FREE Full text] [doi: [10.37765/ajmc.2021.88573](https://doi.org/10.37765/ajmc.2021.88573)] [Medline: [33471458](https://pubmed.ncbi.nlm.nih.gov/33471458/)]
24. Westby A, Nissly T, Gieseker R, Timmins K, Justesen K. Achieving equity in telehealth: "centering at the margins" in access, provision, and reimbursement. *J Am Board Fam Med* 2021 Feb;34(Suppl):S29-S32 [FREE Full text] [doi: [10.3122/jabfm.2021.S1.200280](https://doi.org/10.3122/jabfm.2021.S1.200280)] [Medline: [33622814](https://pubmed.ncbi.nlm.nih.gov/33622814/)]
25. Portnoy JM, Wu AC. Is telemedicine as effective as usual care? *J Allergy Clin Immunol Pract* 2019 Jan;7(1):217-218. [doi: [10.1016/j.jaip.2018.09.002](https://doi.org/10.1016/j.jaip.2018.09.002)] [Medline: [30598177](https://pubmed.ncbi.nlm.nih.gov/30598177/)]
26. Lee KK, Thomas RC, Tan TC, Leong TK, Steimle A, Go AS. The Heart Failure Readmission Intervention by Variable Early Follow-up (THRIVE) study: a pragmatic randomized trial. *Circ Cardiovasc Qual Outcomes* 2020 Oct;13(10):e006553 [FREE Full text] [doi: [10.1161/CIRCOUTCOMES.120.006553](https://doi.org/10.1161/CIRCOUTCOMES.120.006553)] [Medline: [32967439](https://pubmed.ncbi.nlm.nih.gov/32967439/)]
27. Standardization of medical devices nomenclature: international classification, coding and nomenclature of medical devices. World Health Organization. 2019 Apr 30. URL: https://apps.who.int/gb/ebwha/pdf_files/EB145/B145_3-en.pdf?ua=1 [accessed 2022-03-30]
28. Kay C, Clifford M, Mena P, McDougall G, Andres-Lacueva C, Cassidy A, et al. Recommendations for standardizing nomenclature for dietary (poly)phenol catabolites. *Am J Clin Nutr* 2020 Oct 01;112(4):1051-1068 [FREE Full text] [doi: [10.1093/ajcn/nqaa204](https://doi.org/10.1093/ajcn/nqaa204)] [Medline: [32936878](https://pubmed.ncbi.nlm.nih.gov/32936878/)]
29. Hollander J, Neinstein A. Maturation from adoption-based to quality-based telehealth metrics. *NEJM Catalyst*. 2020 Sep 9. URL: <https://catalyst.nejm.org/doi/pdf/10.1056/CAT.20.0408> [accessed 2022-03-30]
30. Lee M, Wang M, Liu J, Holbrook A. Do telehealth interventions improve oral anticoagulation management? A systematic review and meta-analysis. *J Thromb Thrombolysis* 2018 Apr;45(3):325-336. [doi: [10.1007/s11239-018-1609-2](https://doi.org/10.1007/s11239-018-1609-2)] [Medline: [29350322](https://pubmed.ncbi.nlm.nih.gov/29350322/)]
31. So CF, Chung JW. Telehealth for diabetes self-management in primary healthcare: a systematic review and meta-analysis. *J Telemed Telecare* 2018 Jun;24(5):356-364. [doi: [10.1177/1357633X17700552](https://doi.org/10.1177/1357633X17700552)] [Medline: [28463033](https://pubmed.ncbi.nlm.nih.gov/28463033/)]
32. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. Executive summary of the third report of the National Cholesterol Education Program (NCEP) expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (adult treatment panel III). *JAMA* 2001 May 16;285(19):2486-2497. [doi: [10.1001/jama.285.19.2486](https://doi.org/10.1001/jama.285.19.2486)] [Medline: [11368702](https://pubmed.ncbi.nlm.nih.gov/11368702/)]
33. Creating a framework to support measure development for telehealth. National Quality Forum. 2017 Aug 31. URL: https://www.qualityforum.org/publications/2017/08/creating_a_framework_to_support_measure_development_for_telehealth.aspx [accessed 2022-03-30]
34. What is telemedicine in a non-US Setting. US Centers for Disease Control and Prevention. URL: <https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/telemedicine.html> [accessed 2022-03-30]
35. What is telehealth? How is telehealth different from telemedicine? Office of the National Coordinator for Health Information Technology. URL: <https://www.healthit.gov/faq/what-telehealth-how-telehealth-different-telemedicine> [accessed 2022-03-30]
36. Franciosi AN, Quon BS. TeleHealth or TeleWealth? Equity challenges for the future of cystic fibrosis care (Commentary). *J Cyst Fibros* 2021 Dec;20 Suppl 3:55-56 [FREE Full text] [doi: [10.1016/j.jcf.2021.08.025](https://doi.org/10.1016/j.jcf.2021.08.025)] [Medline: [34507897](https://pubmed.ncbi.nlm.nih.gov/34507897/)]
37. Rodriguez S. SDOH limit mHealth app use for older patients, care management. PatientEngagementHIT. 2022 Feb 16. URL: <https://patientengagementhit.com/news/sdoh-limit-mhealth-app-use-for-older-patients-care-management> [accessed 2022-03-30]
38. The Lancet Haematology. Telehealth and digital equity for older people. *Lancet Haematol* 2021 Nov;8(11):e777. [doi: [10.1016/S2352-3026\(21\)00314-8](https://doi.org/10.1016/S2352-3026(21)00314-8)] [Medline: [34715040](https://pubmed.ncbi.nlm.nih.gov/34715040/)]
39. Valdez RS, Rogers CC, Claypool H, Trieshmann L, Frye O, Wellbeloved-Stone C, et al. Ensuring full participation of people with disabilities in an era of telehealth. *J Am Med Inform Assoc* 2021 Feb 15;28(2):389-392 [FREE Full text] [doi: [10.1093/jamia/ocaa297](https://doi.org/10.1093/jamia/ocaa297)] [Medline: [33325524](https://pubmed.ncbi.nlm.nih.gov/33325524/)]
40. Benda NC, Veinot TC, Sieck CJ, Ancker JS. Broadband internet access is a social determinant of health!. *Am J Public Health* 2020 Aug;110(8):1123-1125. [doi: [10.2105/AJPH.2020.305784](https://doi.org/10.2105/AJPH.2020.305784)] [Medline: [32639914](https://pubmed.ncbi.nlm.nih.gov/32639914/)]

41. Khairat S, Haithcoat T, Liu S, Zaman T, Edson B, Gianforcaro R, et al. Advancing health equity and access using telemedicine: a geospatial assessment. *J Am Med Inform Assoc* 2019 Aug 01;26(8-9):796-805 [[FREE Full text](#)] [doi: [10.1093/jamia/ocz108](https://doi.org/10.1093/jamia/ocz108)] [Medline: [31340022](#)]
42. Braveman P, Gottlieb L. The social determinants of health: it's time to consider the causes of the causes. *Public Health Rep* 2014;129 Suppl 2:19-31 [[FREE Full text](#)] [doi: [10.1177/00333549141291S206](https://doi.org/10.1177/00333549141291S206)] [Medline: [24385661](#)]

Abbreviations

WHO: World Health Organization

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