


Exploring the role of telehealth in providing equitable healthcare to the vulnerable patient population during COVID-19

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Abstract

The COVID 19 pandemic resulted in widespread telehealth implementation. Existent health disparities were widened, with under-represented minorities (URM) disproportionately affected by COVID. In this study, we assess the role of telehealth in improving access to care in the URMs and vulnerable populations. We noted a statistically significant increase in the number of visits in Hispanic or Latino patients (15.2% increase, $p < 0.01$) and Black patients (19% increase, $p < 0.01$). Based on payer type, there was a statistically significant increase in the number of visits in the Medicare (10.2%, $p = 0.0001$) and Medicaid (16.2%, $p < 0.01$) groups. We also noted increased access to care with telehealth in patients who were 65 and older (10.6%, $p = 0.004$). This highlights the importance of telehealth in increasing access to care and promoting health equity in the URM and vulnerable patient populations.

Keywords

Telehealth, health equity, under-represented minority, vulnerable population, COVID-19, pandemic

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Introduction

Telehealth, which is practicing medicine with the aid of technology from a distance,¹ has been an important part of the modern health care system. Initially, telehealth facilitated health care services in rural areas.¹ With the facility of technology within our reach, telehealth is no longer a remote idea but an absolute possibility. Telehealth offers convenience, access, and time savings for patients.²

The coronavirus disease 2019 (COVID 19) pandemic resulted in robust digitalization of healthcare with wide-scale telehealth implementation. Several studies have examined the effects of telehealth utilization in vulnerable populations.³ Early evidence has shown that disadvantaged communities were challenged with limited technological literacy and need for immediate medical attention since they were disproportionately affected by the COVID 19 pandemic.^{4,5} The initial implementation of telehealth accentuated the already existent gaps in health disparities.^{6,7} Specifically, trends showed significantly lower rates of telehealth usage in patients older than 65, predominantly in elderly Black and Hispanic patients.^{8,9} However, most studies have examined the early effects of telehealth, and therefore, data on the impact of telehealth over a prolonged period is scarce. So the question remains: after the initial phase-in period of widespread telehealth implementation,

what is the impact of telehealth on access to care over a prolonged, mid-pandemic time period?

Our goal was to study the impact of telehealth in improving access to care, particularly with respect to vulnerable populations and under-represented minority groups (URM) during such a time period.

Methods

The HonorHealth (HH) Medical Group comprises of 70 primary and specialty care clinics within the Phoenix/Scottsdale area in the state of Arizona. This retrospective cohort analysis was exempted by the HonorHealth Institutional Review Board. In this study, we compared the total number of visits in our outpatient primary care clinics

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during the pre- and post- telehealth implementation period. Data was extracted from Epic slicer dicer, which is a database tool part of the Electronic Health Record,(Epic Systems Corporation; Verona, Wisconsin). Encounter data from all primary care clinics were included from January 2019 to February 2020 (pre-pandemic, pre-telehealth implementation) and March 2020 to February 2021 (mid-pandemic, post-telehealth implementation). Encounters were stratified by ethnicity/race, payer type, and age. Descriptive statistics with 2- sample t-interval tests were used to compare the differences in the percentages of number of visits for these metrics. Significance was set at $p < 0.05$.

Results

The total number of visits was higher across URM when compared to the pre-telehealth period. As can be seen in Table 1, there was a 15.2% increase in the total number of visits of patients who identified as Hispanic or Latino ($p < 0.01$), and a 19% increase in total visits of patients among Black patients ($p < 0.01$). The rise in the total number of visits was 6.8% in patients that identified as White (p value of 0.058). There was, however, a 4.1%

decline in the number of visits in other minorities groups, predominantly Asian patients (p value of 0.007). Overall, telehealth utilization in different ethnic/racial groups comprised of 38.2–45.1% of total visits, with the Black patients having the highest rate of utilization.

When stratified by payer-types, visit utilization was also significantly increased in both Medicare and Medicaid patients, with increases of 10.2% ($p < 0.01$) and 16.2% ($p < 0.01$), respectively. Conversely, the rise in visits in patients with private insurance was small and was not statistically significant (See Table 1). Telehealth visits represented approximately one-third of all visits for each group.

When examined by age, there was not a statistically significant increase in visits in patients 18–65, but there was a statistically significant increase in those > 65 (10.6%, $p < 0.01$). The overall percent use of telehealth between those 18–65 and those > 65 was comparable (37.5% and 33.8%, respectively).

Discussion

Over a 12-month, mid-pandemic time period, there was a significantly higher number of visits with the implementation of

Table 1. Average number and percentage of total number of visits in the pre- and post-telehealth implementation cohort, stratified by race/ethnicity, age and payer type with the later cohort further branched out into office and telehealth. Note statistically significant rise in the percentage of visits with telehealth application in the African American, Hispanic, Medicaid, Medicare and > 65 patient populations.

Characteristics	Pre-Covid, pre-telehealth implementation (Jan 2019 to Feb 2020)		Mid-Covid, post-telehealth implementation (Mar 2020 to Feb 2021)			
	Mean number of office visits (%)	Mean number of office visits (%)	Mean number of telehealth visits (%)	Mean number of total visits (%)	% Increase in total visits pre and post telehealth	p - value
Race/Ethnicity						
African American	2522 (3.90)	1647 (54.9)	1355 (45.1)	3002 (4.30)	19.0	0.0001
Hispanic	8505 (13.15)	6053 (61.8)	3749 (38.2)	9802 (14.03)	15.2	0.0047
White	51939 (80.32)	32496 (58.6)	22956 (41.4)	55452 (79.34)	6.8	0.058
Other	1702 (2.63)	915 (56.0)	718 (44.0)	1633 (2.34)	−4.1	0.007
Payer type						
Medicare	86590 (25.12)	64098 (67.2)	31355 (32.8)	95453 (26.17)	10.2	0.0001
Medicaid	41425 (12.02)	29966 (62.2)	18185 (37.8)	48151 (13.20)	16.2	<0.01
Private	216727 (62.87)	134720 (60.9)	86451 (39.1)	221171 (60.60)	2.1	0.25
Age						
18–65	328953 (69.05)	212618 (62.5)	127457 (37.5)	340075 (67.60)	3.4	0.2
65+	147457 (30.95)	108023 (66.2)	55133 (33.8)	163156 (32.40)	10.6	0.004

telehealth among most racial and ethnic groups, Medicare and Medicaid patients, and those > 65 years old. These findings contradict previous research in the beginning of the pandemic in 2020 that assessed telehealth in its formative stages.^{8,9} The strength of our study is the evaluation of telehealth over a prolonged period of time. Some studies conducted during the pandemic have also reported improved utilization of telehealth in Black patients while low utilization in Asian patients which are similar to findings in our study.^{10,11} However, there are reports that have suggested low utilization of telehealth in Blacks and Hispanic/Latino as well.^{12,13} While the motivation is there to use telehealth, some of the obstacles could be logistic hindrances such as decreased availability or poor broadband coverage, financial strains leading to difficulty in affordability of devices, data plan and internet or use of less user-friendly telehealth services in decreased use of telehealth by the URM.¹⁴

Data on telehealth use during the pre-pandemic times has shown Asian community to adapt well to technology with higher rates of video visits as compared to Whites.¹⁵ Therefore, during the pandemic, the trend of low telehealth utilization in Asian patients is interesting. Some obstacles include lack of patient centered care via telehealth, increasing general biases noted towards Asian population particularly during COVID 19 pandemic which may preclude them from seeking care as well as language barriers for non-English speaking patients.¹⁶ Further studies are needed to investigate the barriers in detail.

Several studies have documented lesser use of telehealth in the older patient population.^{15–17} This may be due, in part, to concerns with older individuals finding lack of comfort with the use of technology in conjunction with chronic conditions such as diminished vision, hearing, cognitive and motor abilities.¹⁸ Our results suggest the opposite. We noted a significant increase in the number of visits after the implementation of telehealth. We also found that rates of telehealth utilization were similar between those under 65 and those over 65. Similarly, our Medicare patients also had a significant increase in health care utilization. Taken together, these results suggest that early concerns regarding the ability of this population to manage telehealth should be mitigated. Instead, telehealth should be viewed as a method to increase access to care in older patients, including those who may have restricted physical mobility and chronic medical illnesses that require frequent medical attention.

Telehealth works to remove barriers associated with in-person visits such as long distance commute, missed time from work, difficult parking and challenges with billing, especially for chronically ill patients.¹⁹ These barriers to care may be accentuated more in patients with lower socioeconomic status.^{14,16} Using Medicaid patients as a surrogate for lower socioeconomic status with several comorbid conditions, our results highlight that telehealth improves access to care for this vulnerable population.

This may be, in part, due to the ability of telehealth to reduce such barriers.

Although telehealth has certain limitations, an argument can be made regarding the more appropriate usage of resources and practice of high value care.¹⁹ Telehealth allows physicians to triage patients and provide them with the appropriate level of medical services.²⁰ Several low acuity cases are easily addressed via virtual visits which in turn prevent overcrowding in ER and clinics.^{19,20} Physicians can review labs and medication list virtually and can somewhat assess patient's home environment to determine safety.¹⁶ In addition, some have suggested that telehealth allows physicians to complete a greater number of encounters in the same allocated time, perhaps due to the exclusion of in-person patient rooming and physical examinations.²¹

While telehealth did not make up the majority of total visits for our patient groups, it did account for approximately 32–45% of visits, and allowed for more total visits to be completed across all patient groups. Taken together, this may suggest that telehealth is a viable option to simultaneously improve access to care and better triage appropriate health care utilization. It is imperative to create well-designed telehealth software, easy to use by patients with comorbid conditions, hiring skilled workers, provision of quality yet accessible broadband coverage to all patients and using translation services for Non-English speakers, among many other measures to maintain the sustainability of telehealth in our healthcare system.^{7,22}

Our study has several limitations. First, the data is from one health care system in one state. This may not reflect overall national trends, and therefore limit generalizability. Additionally, it is unclear if the increase in number of visits mid-pandemic is solely attributed to the incorporation of telehealth or need for higher medical care, including acute sick care visits related to COVID itself. Further study is needed to explore the differences in telehealth utilization stratified by visit type (i.e. acute care vs. chronic care).

Conclusion

Our results suggest that telehealth is a means for improving access to care, particularly for URMs and vulnerable populations. As in-office visits return to the predominant encounter type, the authors encourage primary care physicians and leadership of healthcare organizations to maintain and support the use of telehealth in an effort to provide equitable care. More studies are warranted to examine trends in, barriers to, and sustainability of telehealth usage in vulnerable populations and URMs in the primary care setting.


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References

- Daniel H and Sulmasy LS. Health and Public Policy Committee of the American College of Physicians. Policy recommendations to guide the use of telehealth in primary care settings: an American college of physicians position paper. *Ann Intern Med* 2015; 163: 787–789.
- Charles BL. Telehealth can lower costs and improve access. *Healthc Financ Manage* 2000; 54: 66–69.
- Hron JD, Parsons CR, Williams LA, et al. Rapid implementation of an inpatient telehealth program during the COVID-19 pandemic. *Appl Clin Inform* 2020 May; 11: 452–459.
- Pierce RP and Stevermer JJ. Disparities in use of telehealth at the onset of the COVID-19 public health emergency. *J Telemed Telecare* October 2020. doi:10.1177/1357633X20963893.
- Vahidy FS, Nicolas JC, Meeks JR, et al. Racial and ethnic disparities in SARS-CoV-2 pandemic: analysis of a COVID-19 observational registry for a diverse US metropolitan population. *BMJ Open* 2020; 10: e039849. Published 2020 Aug 11.
- Poeran J, et al. Pre-existing disparities and potential implications for the rapid expansion of telehealth in response to the coronavirus disease 2019 pandemic. *Med Care* 2021; 59: 694–698.
- Gallegos-Rejas VM, Thomas EE, Kelly JT, et al. A multi-stakeholder approach is needed to reduce the digital divide and encourage equitable access to telehealth [published online ahead of print, 2022 Jun 22]. *J Telemed Telecare* 2022: 1357633X221107995. doi:10.1177/1357633X221107995.
- Fuerst ML. Black & hispanic patients used telehealth less during pandemic. *Oncology Times* 2021 Jan 5; 43: 35.
- Weber E, Miller SJ, Astha V, et al. Characteristics of telehealth users in NYC for COVID-related care during the coronavirus pandemic. *J Am Med Inform Assoc* 2020; 27: 1949–1954.
- Campos-Castillo C and Anthony D. Racial and ethnic differences in self-reported telehealth use during the COVID-19 pandemic: a secondary analysis of a US survey of internet users from late March. *J Am Med Inform Assoc* 2021; 28: 119–125.
- Zhang D, Shi L, Han X, et al. Disparities in telehealth utilization during the COVID-19 pandemic: findings from a nationally representative survey in the United States. *J Telemed Telecare* October 2021. doi:10.1177/1357633X211051677.
- US Bureau of Labor Statistics Labor force characteristics by race and ethnicity, 2018. Published October 2019. Accessed April 16, 2020. <https://www.bls.gov/opub/reports/race-and-ethnicity/2018/home.htm>.
- National Telecommunications and Information Administration, U.S. Department of Commerce *Falling Through the Net: Defining the Digital Divide*. Government Printing Office; 1999.
- Anderson M and Kumar M. Digital divide persists even as lower-income Americans make gains in tech adoption. Pew Research Center. Published May 7, 2019. Accessed May 20, 2020.
- Reed ME, Huang J, Graetz I, et al. Patient characteristics associated with choosing a telehealth visit vs office visit with the same primary care clinicians. *JAMA Netw Open* 2020; 3: e205873. Published 2020 Jun 1.
- Eberly LA, Kallan MJ, Julien HM, et al. Patient characteristics associated with telehealth access for primary and specialty ambulatory care during the COVID-19 pandemic [published correction appears in JAMA netw open. 2021 Feb 1;4(2): e211913]. *JAMA Netw Open* 2020; 3: e2031640. Published 2020 Dec 1.
- Rodriguez JA, Betancourt JR, Sequist TD, et al. Differences in the use of telephone and video telehealth visits during the COVID-19 pandemic. *Am J Manag Care* 2021; 27: 21–26.
- Narasimha S, Madathil KC, Agnisarman S, et al. Designing telehealth systems for geriatric patients: a review of the usability studies. *Telemed J E Health* 2017; 23: 459–472.
- Wallace S, Wyatt J and Taylor P. Telehealth in the NHS for the millennium and beyond. *Postgrad Med J* 1998; 74: 721–728.
- Mann DM, Chen J, Chunara R, et al. COVID-19 transforms health care through telehealth: evidence from the field. *J Am Med Inform Assoc* 2020; 27: 1132–1135.
- Baughman D, Zain A and Waheed A. Patient adherence to hemoglobin A1c testing recommendations in telehealth and in-office cohorts during COVID-19. *JAMA Netw Open* 2021; 4: e2127779. Published 2021 Sep 1.
- Thomas EE, Haydon HM, Mehrotra A, et al. Building on the momentum: sustaining telehealth beyond COVID-19. *J Telemed Telecare* 2022; 28: 301–308.