ORIGINAL RESEARCH

# Use of Telehealth Early and Late in the COVID-19 Public Health Emergency: Policy Implications for Improving Health Equity

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***Introduction:*** **Early in the COVID-19 pandemic, primary care adopted telehealth rapidly to preserve access. Although policy flexibilities persist, but with in-person access restored, insight regarding long-term policy reform is needed for equitable access, especially for underserved, low income, and rural populations.**

***Methods:*** **We used electronic health record data to compare primary care telehealth use in practices serving primarily commercially insured patients versus clinics serving low-income uninsured patients, in March-June 2020 ("early COVID") and March-June 2022 ("late COVID").**

***Results:*** **Primary care visit mode differed significantly ($P < .0001$) between settings in both periods. In early COVID, video visits were most used in the commercially insured practices (54.50%), followed by office visits (32.76%); in the low-income, uninsured clinics, phone visits were most used (56.67%), followed by office visits (23.55%). In late COVID, 81.05% of visits to commercially insured practices and 92.04% to uninsured clinics were in-office; continuing telehealth use was primarily video. Smaller but significant ($P \leq .0001$) differences in telehealth use by race/ethnicity were also observed, with Black and/or Hispanic patients less likely than White patients to use telehealth during both periods, after adjustment for other characteristics.**

***Conclusions:*** **Findings demonstrate the importance of both phone and video visits in preserving primary care access early in the pandemic. Telehealth use declined in late COVID, but still accounted for ~20% of primary care visits in the commercially insured setting and less than 10% of visits in the community care clinics. Differences in telehealth use were largely by setting, reflecting income/insurance status, indicating disparities needing to be addressed. (J Am Board Fam Med 2023;00:000–000.)**

***Keywords:*** **COVID-19, Health Equity, Health Policy, Medically Uninsured, Pandemics, Primary Health Care, Rural Population, Telemedicine**

## Introduction

Before the COVID-19 pandemic <2% of family medicine/primary care visits, in the United States were conducted via telehealth.[1] With the declaration of the COVID-19 public health emergency in March 2020, many of the statutory and regulatory restrictions on use of and reimbursement for telehealth services were waived.[2,3] That, combined with shelter-in-place orders implemented throughout much of the country in the second quarter of 2020, led to a rapid increase in the use of virtual care options.[1] The quick transition provided an opportunity to assess the potential of telehealth to increase access to care for underserved, low income and rural populations, as well as its threat to exacerbate disparities, given the lower rates of telehealth adoption that have previously been reported in these populations.[4,5] Several studies reported that telehealth during the pandemic for low-income, uninsured, racial/ethnic minority populations relied

This article was externally peer reviewed.
*Submitted* 28 February 2023; revised 30 April 2023; accepted 8 May 2023.
This is the Ahead of Print version of the article.
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*Funding:* None.
*Conflict of interest:* The authors have no conflicts of interest to declare.
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heavily on audio-only visits.[6–8] Depending on whether use of audio-only services is demonstrated to provide similar quality of care to video visits, that may indicate a risk for exacerbating disparities in access to care. Primary care practices noted a decrease in visits among populations that may experience barriers to accessing telemedicine – that is, patients more than 65 years, with non-English language preference, Medicare, Medicare Advantage, or Medicaid insurance, and/or nonwhite race/ethnicity – with the shift to telehealth in the early months of COVID-19,[9] raising similar questions.

Currently, the public health emergency has expired on May 11, 2023.[10] The Consolidated Appropriations Act of 2023 extended many of the telehealth flexibility waivers until December 31, 2024.[11] For example, the geographic and originating site restrictions were waived so that Medicare patients can continue to use telehealth services from their home, and reimbursement for audio-only telehealth services will continue to be provided.[11] However, long-term decisions about how and for whom telehealth should be available, as well as about what additional support in terms of infrastructure and education that might need to be provided to make it effective, still need to be made. The evidence that is needed to guide such decisions includes how patients and providers use telehealth, both in situations where access to in-person care is limited, such as the early months of the COVID pandemic, and when in-person care has fully resumed.

Here, we examine utilization of in-office and telehealth (phone and video) primary care visits in practices serving primarily commercially insured patients versus clinics serving primarily low-income, uninsured patients in a large health care system in north Texas during the early months of the COVID-19 pandemic, and corresponding calendar months 2 years later.

## Methods

### *Setting*

Baylor Scott & White Health (BSWH) is the largest not-for-profit health care system in Texas, serving patients in north and central Texas. In north Texas, primary care services are provided to commercially insured and Medicare patients by family and internal medicine practices within HealthTexas Provider Network (HTPN), a multi-specialty medical group wholly owned by BSWH. BSWH patients in north Texas who are uninsured or underinsured, and who demonstrate that their family income does not exceed 200% of the federal poverty level, receive primary care services through the 8 Baylor Community Care Clinics (BCCs), which are operated or managed and staffed by HTPN. All the practices and clinics use Epic as the enterprise electronic health record platform, share the same technological infrastructure for video visits and received the same training on its use, and participate in the same organizational-level quality initiatives (for example, implementation of the patient-centered medical home model[12]).

### *Study Design*

This retrospective observational study used data extracted from Epic to compare use of telehealth (phone or video visits) for primary care visits in the commercially insured practices and those in the uninsured clinics during the early months of the COVID-19 pandemic (March 23, 2020–June 22, 2020), when shelter-in-place orders were implemented in Texas, and federal/state restrictions on the use of and reimbursement for telehealth were first waived, and late COVID-19 (March 23, 2022–June 22, 2022).

All adult patients with primary care visits during the study period were included. Primary care visits were identified based on the providers' credentials and specialty, with visits to family medicine and internal medicine physicians, physician assistants, and nurse practitioners included. The study was approved by the Institutional Review Board at Baylor Scott and White Research Institute (#021 to 142) with a waiver of the requirement for written informed consent.

### *Data Collection and Variables*

All data were extracted from Epic. Demographic data included age, sex, race/ethnicity, preferred language, marital status, and health insurance status (government issued, commercial, and uninsured/self-pay). Comorbidities (diabetes and hypertension) were identified using ICD-10 codes. The primary outcome of interest was mode of primary care visit (office, video, and phone), also obtained from Epic.

### *Statistical Analysis*

Continuous variables were summarized as mean and standard deviation, and categorical variables were summarized as frequency and percentages. Age was further categorized as 18 to 44, 45 to 54, 55 to 64, and ≥ 65 years. All summary statistics were presented by groups (uninsured clinics vs commercially insured practices). Chi-square tests were conducted to assess independence between 2 categorical variables.

The outcome of interest was mode of primary care visits. Distribution of socio-demographic variables were compared by group (uninsured clinics vs commercially insured practice) and by visit type (office, video, phone). The primary aim was to determine whether there was a differential distribution of socio-economic variables by group (uninsured clinics vs commercially insured practices) in using a specific mode of visit early and late in the COVID-19 pandemic era. Mode of visit was fitted using multinomial logistic regression to assess the statistical significance of group and socio-economic variables. Statistical significance was claimed when the estimated p-value was 0.0125 that accounted Bonferroni's adjustment for multiple testing. In addition, similar models were fitted for each group (uninsured clinics and commercially insured practices) and each time point.

## Results

In the early COVID-19 period, 147,657 patients had 191,468 primary care visits in commercially insured practices, and 4086 patients had 5511 primary care visits in the uninsured clinics. In the late COVID-19 period, 138,040 patients had 172,119 primary care visits in commercially insured practices and 4094 patients had 5705 primary care visits in uninsured clinics. Table 1 presents the characteristics of these 2 groups of patients. Patients seen in the clinics serving low-income, uninsured populations were younger than those seen in practices serving primarily commercially insured patients in both time periods; they were also more likely to belong to a racial/ethnic minority, and to have a diagnosis of diabetes.

Mode of primary care visit differed significantly ($P < .0001$) between patient visits to commercially insured practices and uninsured clinics early and late in the COVID-19 era (Table 2). Early in COVID-19, the majority of visits in

**Table 1. Characteristics of Primary Care Patients During the Early Months of COVID-19 (March 23, 2020–June 22, 2020) and Late COVID-19 (March 23, 2022–June 22, 2022) in Practices Serving Primarily Commercially Insured Patients and Clinics Serving Low-Income, Un-/Underinsured Patients**

| | | Early COVID-19 | | Late COVID-19 | |
|---|---|---|---|---|---|
| Variables | Categories | Commercial Mean (SD)/ N (%) | Uninsured Mean (SD)/ N (%) | Commercial Mean (SD)/ N (%) | Uninsured Mean (SD)/ N (%) |
| N | | 1,47,657 | 4086 | 1,38,040 | 4094 |
| Age, mean (SD) | | 55.37 (17.51) | 50.60 (12.47) | 55.57 (17.50) | 52.67 (12.21) |
| Sex, N (%) | Female | 88,616 (60.01) | 2682 (65.64) | 82,863 (60.03) | 2661 (65.00) |
| | Male | 59,037 (39.98) | 1404 (34.36) | 55,166 (39.96) | 1433 (35.00) |
| Race/ethnicity, N (%) | White | 97,088 (65.75) | 454 (11.11) | 88,433 (64.06) | 384 (9.38) |
| | Black | 20,054 (13.58) | 857 (20.97) | 18,050 (13.08) | 787 (19.22) |
| | Hispanic | 17,684 (11.98) | 2656 (65.0) | 18,025 (13.06) | 2827 (69.05) |
| | Other | 7148 (4.84) | 86 (2.10) | 8439 (6.11) | 71 (1.73) |
| | Unknown | 5683 (3.85) | 33 (0.81) | 5093 (3.69) | 25 (0.61) |
| Type of Insurance, N (%) | Uninsured/Self-Pay | 16,821 (11.39) | 3162 (77.39) | 17,034 (12.34) | 3108 (75.92) |
| | Unknown | 1391 (0.94) | 109 (2.67) | 996 (0.72) | 76 (1.86) |
| | Government/Private | 1,29,445 (87.67) | 815 (19.95) | 1,20,010 (86.94) | 910 (22.23) |
| Patients with diabetes, N (%) | Yes | 33,514 (22.7) | 1840 (45.03) | 30,498 (22.09) | 2019 (49.32) |
| | No | 1,14,143 (77.3) | 2246 (54.97) | 1,07,542 (77.91) | 2075 (50.68) |
| Patients with hypertension, N (%) | Yes | 76,190 (51.6) | 1998 (48.9) | 74,310 (53.83) | 2191 (53.52) |
| | No | 71,467 (48.4) | 2088 (51.1) | 63,730 (46.17) | 1903 (46.48) |

*Abbreviation:* SD, Standard deviation.

**Table 2. Primary Care Visits by Mode of Visit During the Early Months of COVID-19 (March 23, 2020–June 22, 2020) and Late COVID-19 (March 23, 2022–June 22, 2022) for Practices Serving Primarily Commercially Insured Patients and Clinics Serving Low-Income, Un-/Under-insured Patients**

| | Early COVID-19 | | Late COVID-19 | |
|---|---|---|---|---|
| Visit Type | Commercial, N (%) | Uninsured, N (%) | Commercial, N (%) | Uninsured, N (%) |
| Office visit | 62,734 (32.76) | 1298 (23.55) | 1,39,510 (81.05) | 5251 (92.04) |
| Phone visit | 24,385 (12.74) | 3123 (56.67) | 1028 (0.6) | 116 (2.03) |
| Video Visit | 1,04,349 (54.5) | 1090 (19.78) | 31,581 (18.35) | 338 (5.92) |
| Total | 1,91,468 | 5511 | 1,72,119 | 5705 |

commercially insured practices were conducted via video (54.50%), followed by office visit (32.76%), with phone visits accounting for only 12.74% of encounters. In the uninsured clinics, phone visits were the most common mode (56.67%) followed by office visit (23.55%), and video visit (19.78%) (Table 2). During this early COVID-19 period, visits to uninsured clinics were 4.4 times more likely to be via the phone than visits to commercially insured practices, whereas visits to commercially insured practices were 2.8 times more likely to be via video. In the late COVID-19 period, there was a major increase in office visits at both commercially insured practices (81.05%) and uninsured clinics (92.04%), and video visits accounted for almost all continued telehealth use (18.35% of commercially insured practice visits, 5.92% of uninsured clinic visits). For the uninsured clinics, use of phone visits dramatically decreased from 56.7% to 2% between the 2 study time periods. Lastly, during late COVID-19, visits to commercially insured practices were 3.1 times more likely to be via video than visits to uninsured clinics, which were predominantly in-person.

The distribution of sociodemographic variables by the mode of visits for commercially insured versus uninsured clinics during and late COVID-19 are shown in Table 3 and 4. Early in COVID-19, in both uninsured and commercially insured clinics, use of phone visits increased with increasing age, and for both time periods a decline in video visit use as age increased was seen in both uninsured clinics and commercially insured practices. Office visit use increased with increasing age both in uninsured clinics and commercially insured practices in the late COVID-19 period. For all age groups, however, the large difference in use of phone versus video visit persisted between the uninsured clinics and commercially insured practices, and a statistically significant difference in type of visit was observed by age ($P < .0001$). During both periods, office visit use was greater among Hispanics than White patients in both the uninsured clinics and commercially insured practices. Statistically significant differences in visit mode were observed for race and insurance status, driven largely by differences between uninsured clinics and commercially insured practices ($P = .0001$, 0.0038 respectively during early COVID-19 and <0.0001, 0.0001 respectively during late COVID-19).

Among patients seen at the uninsured clinics, Black and Hispanic patients were more likely to use in-person office visits than telehealth during the early COVID-19 period; among patients seen at commercially insured practices, only Hispanic patients were more likely to use in-person than telehealth visits, after adjusting for other variables. During the late COVID-19 period, both Blacks and Hispanics were less likely to use telehealth visits in both uninsured clinics and commercially insured practices.

## Discussion

The widespread adoption of telehealth after relaxation of restrictions on its use and reimbursement during the COVID-19 public health emergency provided a unique opportunity to examine its potential for preserving access to care in such situations. Two years on, with telehealth billing flexibilities still largely in place as well as most access to in-person care restored, there is the additional opportunity to examine how it is used under more normal circumstances,

**Table 3. Primary Care Patient Characteristics by Visit Type During the Early Months of COVID-19 (March 23, 2020–June 22, 2020)**

| | | Office Visit, N (%) | | Phone Visit, N (%) | | Video Visit, N (%) | | |
|---|---|---|---|---|---|---|---|---|
| Demographic Variables | Categories | Commercial | Uninsured | Commercial | Uninsured | Commercial | Uninsured | *p*-Value* |
| Age group | 18 to 44 | 15,902 (29.00) | 362 (21.31) | 4424 (8.07) | 895 (52.68) | 34,508 (62.93) | 442 (26.02) | <0.0001 |
| | 45 to 54 | 10,679 (31.78) | 433 (24.99) | 3180 (9.46) | 962 (55.51) | 19,741 (58.75) | 338 (19.5) | |
| | 55 to 64 | 12,948 (34.3) | 368 (24.27) | 4506 (11.94) | 913 (60.22) | 20,290 (53.76) | 235 (15.5) | |
| | >=65 | 23,205 (35.54) | 135 (23.98) | 12,275 (18.8) | 353 (62.7) | 29,810 (45.66) | 75 (13.32) | |
| Sex | Female | 36,187 (30.97) | 873 (23.65) | 15,663 (13.41) | 2094 (56.73) | 64,983 (55.62) | 724 (19.62) | 0.0004 |
| | Male | 26,545 (35.57) | 425 (23.35) | 8720 (11.68) | 1029 (56.54) | 39,365 (52.75) | 366 (20.11) | |
| | Unknown | 2 (40) | – | 2 (40) | – | 1 (20) | – | |
| Race/ ethnicity | White | 41,276 (32.97) | 124 (18.76) | 15,729 (12.56) | 378 (57.19) | 68,199 (54.47) | 159 (24.05) | 0.0001 |
| | Black | 8376 (31.25) | 273 (23.51) | 4060 (15.15) | 657 (56.59) | 14,365 (53.6) | 231 (19.9) | |
| | Hispanic | 8007 (34.26) | 864 (24.57) | 2939 (12.57) | 2006 (57.04) | 12,426 (53.17) | 647 (18.4) | |
| | Other | 3007 (33.31) | 26 (20.8) | 827 (9.16) | 61 (48.8) | 5192 (57.52) | 38 (30.4) | |
| | Unknown | 2068 (29.27) | 11 (23.4) | 830 (11.75) | 21 (44.68) | 4167 (58.98) | 15 (31.91) | |
| Type of Insurance | Self-pay | 6860 (31.27) | 1026 (24.34) | 2824 (12.87) | 2360 (55.98) | 12,251 (55.85) | 830 (19.69) | 0.0038 |
| | Unknown | 615 (32.66) | 28 (17.61) | 281 (14.92) | 91 (57.23) | 987 (52.42) | 40 (25.16) | |
| | Government/ Private | 55,259 (32.96) | 244 (21.48) | 21,280 (12.69) | 672 (59.15) | 91,111 (54.35) | 220 (19.37) | |

*Note:* *p-value was estimated from multinomial logistic regression where dependent variable was type of visit and the reported p-value was from the significance of the interaction term between the group and corresponding socio-economic variable after adjusted for Bonferroni due to multiple testing. As four tests were performed, the adjusted alpha was 0.0125.

and the extent to which it increases access to care for underserved populations.

In our retrospective analysis of telehealth use during the early months of the COVID-19 pandemic, 2 important findings have implications for long-term telehealth policies: 1) Uptake of telehealth visits for primary care was high overall but higher in the clinics serving low-income, uninsured, racial minority patient populations than in the clinics serving commercially insured patients; and 2) Audio-only telehealth options, such as phone visits, were critical for ensuring telehealth access for both older and socially vulnerable populations. The rapid shift from almost exclusively in-person primary care services in the uninsured clinics to >75% of these visits being conducted via telehealth should allay concerns that low income, minority populations cannot or will not use telehealth-based interventions intended to increase their access to care. However, the greater drop-off in telehealth use we found in the uninsured clinics compared with the commercially insured practices during the late COVID period does raise questions about whether this is due to patient preference or barriers to telehealth use. That is, outside the context of an emergency situation such as the early months of the COVID-19 pandemic created, too great of an effort on the patient's part may be required for telehealth to improve access.

Consistent with other studies which found that telehealth delivery of care for low-income, uninsured, racial/ethnic minority populations during the early months of the pandemic relied heavily on audio-only visits,[6–8] we found this was the predominant mode of telehealth primary care visits in the uninsured clinics in that period. Nonetheless, a substantial portion of visits, ~1 in 5 overall and 1 in 4 among those age <45 years, were conducted via video visits. Further research is needed to determine whether quality of care differs between phone and video visits for primary care visits.

The greater reliance on phone visits among older age groups in both settings, as well as patients seen in the uninsured clinics in general, during the COVID-19 period may indicate substantial practical barriers to video use which may perpetuate existing disparities in health care access in the virtual context. For example, low income and minority smartphone owners are more likely to cancel or cutoff service for a period of time because of cost,[13]

**Table 4. Primary Care Patient Characteristics by Visit Type for Late COVID-19 (March 23, 2022–June 22, 2022)**

| | | Office Visit, N (%) | | Phone Visit, N (%) | | Video Visit, N (%) | | |
|---|---|---|---|---|---|---|---|---|
| Demographic Variables | Categories | Commercial | Uninsured | Commercial | Uninsured | Commercial | Uninsured | *p*-Value* |
| Age group | 18 to 44 | 36,378 (73.2) | 1264 (90.74) | 127 (0.26) | 36 (2.58) | 13,193 (26.55) | 93 (6.68) | <0.0001 |
| | 45 to 54 | 23,120 (79.67) | 1687 (91.83) | 91 (0.31) | 26 (1.42) | 5808 (20.01) | 124 (6.75) | |
| | 55 to 64 | 27,735 (83.77) | 1573 (92.31) | 153 (0.46) | 40 (2.35) | 5220 (15.77) | 91 (5.34) | |
| | >=65 | 52,277 (86.7) | 727 (94.29) | 657 (1.09) | 14 (1.82) | 7360 (12.21) | 30 (3.89) | |
| Sex | Female | 83,250 (79.55) | 3462 (91.78) | 673 (0.64) | 82 (2.17) | 20,727 (19.81) | 228 (6.04) | 0.3004 |
| | Male | 56,250 (83.39) | 1789 (92.55) | 355 (0.53) | 34 (1.76) | 10,850 (16.08) | 110 (5.69) | |
| | Unknown | 10 (71.43) | – | 0 (0) | – | 4 (28.57) | – | |
| Race/ ethnicity | White | 89,215 (80.53) | 474 (86.03) | 780 (0.70) | 11 (2.00) | 20,785 (18.76) | 66 (11.98) | <0.0001 |
| | Black | 18,520 (81.67) | 1019 (92.13) | 107 (0.47) | 9 (0.81) | 4049 (17.86) | 78 (7.05) | |
| | Hispanic | 18,637 (83.47) | 3640 (92.95) | 89 (0.4) | 93 (2.37) | 3601 (16.13) | 183 (4.67) | |
| | Other | 8226 (80.32) | 85 (87.63) | 25 (0.24) | 3 (3.09) | 1991 (19.44) | 9 (9.28) | |
| | Unknown | 4912 (80.6) | 33 (94.29) | 27 (0.44) | 0 (0) | 1155 (18.95) | 2 (5.71) | |
| Type of Insurance | Self-pay | 16,771 (78.6) | 4001 (92.3) | 148 (0.69) | 98 (2.26) | 4418 (20.71) | 236 (5.44) | 0.0001 |
| | Unknown | 1080 (81.39) | 101 (98.06) | 12 (0.9) | 0 (0) | 235 (17.71) | 2 (1.94) | |
| | Government/ Private | 1,21,659 (81.4) | 1149 (90.69) | 868 (0.58) | 18 (1.42) | 26,928 (18.02) | 100 (7.89) | |

*Note:* *p-value was estimated from multinomial logistic regression where dependent variable was type of visit and the reported p-value was from the significance of the interaction term between the group and corresponding socio-economic variable after adjusted for Bonferroni due to multiple testing. As four tests were performed, the adjusted alpha was 0.0125.

and are also more likely to reach their maximum data limit (precluding access to video visits) for a month.[13] Analyses of the broadband access necessary to support video telehealth show large disparities by race and income, with poorer and minority communities having less access.[14] Data from the US Department of Health and Human Services show that Black, Latino, and Asian adults are more likely than their White counterparts to use audio rather than video telehealth services.[15] If, as some research suggests,[16–19] video visits offer superior care to phone visits, infrastructure investments in internet access and video-enabled devices will be needed to ensure equitable telehealth access. In the short-term, however, telehealth policies and related reimbursement must support less resource- and technology-intensive options, such as phone visits, to preserve access when it is threatened by emergency situations. Ensuring the goal of long-term equitable telehealth access cannot come at the price of exacerbated disparities in the short-term.

Much of the flexibility around reimbursement for providing telehealth services is time limited. Although Congress has made permanent the telehealth flexibilities related to behavioral health by extending coverage of tele-behavioral services delivered to patients in their homes and via audio-only technology, and allowing rural health centers and federally qualified health centers (FQHCs) to serve as distant sites for the purposes of delivering mental health services via telehealth, similar action is necessary for physical health.[20,21] The Consolidated Appropriations Act of 2023 extended many of the COVID-era telehealth flexibilities through December 2024, but permanent removal of restrictions related to site-of-service, geography, and technology that limit coverage of audio-only telehealth is needed. The latter is especially important given inequities in internet access, especially in rural areas and among people of color.[15]

State level policies also impact patients' and providers' continued ability to access and provide telehealth. Several states have already tightened the licensing rules they relaxed to enable out-of-state telehealth provision during the pandemic.[22] Moreover, there is still much room for improvement in the permanent adoption of policies at the state level that ensure access to telehealth for Medicaid and private payer patients. As of fall 2022, 36 states and Washington, DC, explicitly allowed the patient's home, and 30 states and Washington, DC, a school-based setting, to be eligible originating sites, although frequently with restrictions. Only 34 states have permanently adopted reimbursement

policies for audio-only services in some capacity (again, frequently with limitations).[23] Our results add to the growing evidence that coverage of audio-only telehealth services is needed to ensure access for vulnerable populations such as those covered by Medicaid. For private payers, although 43 states and Washington, DC, had laws governing reimbursement for telehealth services in 2022, only 24 states have explicit payment parity with in-person services, which is considered critical to reducing provider-side barriers to the large-scale adoption of telehealth.[23]

Permanent relaxation of the restrictions on provision of and reimbursement for telehealth services is necessary for improving access to and through telehealth, but it will not be sufficient. As our results as well as other studies demonstrate, patients with lower incomes and/or lower educational attainment, and belonging to racial and ethnic minorities, are significantly less likely to use video visits when engaging with telehealth,[24] and, in the late COVID period examined here, used telehealth substantially less frequently for primary care. Research is needed to investigate the barriers patients and providers face in connecting through video visits, and then addressing the relevant factors – likely both internal and external to health care itself. For example, disparities in the availability (and affordability) of the broadband internet needed to support video visits (which also has important economic and societal implications),[25,26] lies outside the control of the health care system and, thus, needs to be addressed by state or federal governments and/or in cooperation with other affected industries.

In contrast, health care systems' requirements that telehealth visits be conducted through patient portals creates barriers to use[27] which need to be addressed, for example, by providing navigation or digital health literacy services and/or options that allow workarounds, such as sending patients a link via text message or e-mail that enables direct access to the video visit.[28] Importantly, for many patients currently facing barriers to using video visits, both the infrastructure and "usability" aspects will likely need to be addressed, meaning that, done in isolation, neither is likely to demonstrate meaningful success in improving access and use. The combination of federal policy initiatives aimed at narrowing the digital divide through investments in broadband infrastructure[29] with a structured approach to telehealth readiness and development of efficient workflows for both patients and clinicians, offers a meaningful opportunity for achieving a proequity approach to the use of technology.[8,30]

### *Limitations*

Although the data are from a large health care system using a robust electronic health data infrastructure, there are limitations to the findings including lack of randomization and the possibility of unmeasured confounders for which we were not able to adjust, as well as the geographic limitation of including only practice in north Texas, which may limit generalizability to states or regions with different policies impacting low income populations' access to health care services, social determinants of health, and technology.

## Conclusion

This study provides insight into use of telehealth at the beginning and 2 years into the public health emergency declared in response to COVID-19 pandemic among low-income and uninsured individuals' and can guide future health system technology strategies for achieving equity in telemedicine efforts. Allowing and reimbursing providers for audio-only telehealth options could ensure equitable access to telehealth in the short-term. Primary care after COVID-19 will require investments in infrastructure, patient-friendly digital health tools, and digital health literacy programs to improve access to and increase use of video visits to achieve equity.

*To see this article online, please go to: http://jabfm.org/content/00/00/000.full.*

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