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Telemental Health Utilization in Commercial Health Insurance Plans in the United States From 2010 Through 2019

Aziza Arifkhanova, PhD; Andrew Elhabr, PhD; Christian Murray, MS; Jaya Khushalani, PhD; Antonio Neri, MD; Jennifer Kaminski, PhD; Richard W. Puddy, PhD; and Turgay Ayer, PhD

Abstract

Objective: We sought to characterize patterns of utilization of telemental health among commercially insured individuals over the decade preceding COVID-19.

Methods: We developed telemental health service groups from the US PharMetrics Plus database, using diagnostic codes to identify those diagnosed with mental health conditions and procedure codes to capture mental health visits delivered via telehealth sessions. We analyzed 2 indicators of utilization between January 1, 2010, and December 31, 2019: (1) the percentage of patients with mental health needs who used telemental health services and (2) the percentage of all mental health services provided via telehealth. We stratified our analyses by year, patient gender, patient age, and geographic region.

Results: The proportion of mental health visits delivered via telemental health increased from 0.002% to 0.162% between 2010 and 2019. A larger proportion of males received telemental health services as compared to females; however, the proportion of mental health visits delivered via telehealth was higher for females than for males. Patients aged 18 to 34 years and those in the western US had the highest utilization compared to other age groups and geographic regions.

Conclusions: Telemental health utilization comprised a small fraction of overall mental health services and beneficiaries in the IQVIA PharMetrics Plus claims data, but increased over time, with differences documented in utilization based on patient gender, patient age, geographic region, and type of telemental health claim. Evidence from this study may serve as a pre-pandemic baseline for comparison against future evaluations of telehealth expansion policies.

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Author affiliations are listed at the end of this article.

Mental disorders represent a significant medical and economic burden in the United States.[1–3] Prevalence estimates for mental health indicators among US children and adolescents aged 3–17 years suggest that approximately 4% ever had a parent-reported diagnosis of depression, 10% ever had parent-reported diagnosis of attention-deficit/hyperactivity disorder (ADHD), and 9% had parent ever told by a health care provider of anxiety or related problems.[2] Among adults, about 19%–20% reported receiving any mental health treatment in the past 12 months, 14%–18% reported taking medication for their mental health condition, and 6%–12% reported that they had received counseling or therapy, according to 2019 data.[4] In 2019 it was estimated that approximately 17.3% (43.9 million) of US adults reported spending over $106 billion for treatment of mental disorders, and costs are expected to further rise with increasing prevalence of illness.[3,5,6]

Moreover, survey data spanning 2020–2021 showed that there was an unmet need for care and treatment for mental health or behavioral health, with about 48% of children and adolescents aged 3–17 years with a mental or behavioral health condition[7] and 28% of adults aged 18 and older with a mental illness reporting not receiving the needed care for their condition.[8] Untreated or undertreated mental and behavioral health can contribute to a degradation of quality of life, with an estimated loss of 28.9 years in quality-adjusted life expectancy associated with depression during the life span of those aged 18 years.[9]

Federal policies have sought to address availability, accessibility, affordability, and reimbursement of treatment for both public and private insurance. At the Federal level, the 1996 Mental Health Parity Act, the Patient

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Clinical Points

- Telehealth as a treatment modality has been used for years, but it was unclear what telemental health related utilization patterns were prior to the COVID-19 pandemic.
- Telemental health utilization could be encouraged for relevant clinical cases in the future, as population-level increases suggest that providers and patients are gaining more experience with that mode of treatment.

Protection and Affordable Care Act (ACA), and the 2010 Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA)[10,11] have been correlated with greater integration of physical, mental, and behavioral health services in both public and private health plans, increased financial protection for consumers, improved access to care and treatment services, and higher utilization of certain mental and behavioral health services.[12,13] Both the ACA and MHPAEA were associated with increased utilization of outpatient mental and behavioral health care services, especially among low-income individuals.[12,14] However, utilization varies between states that have expanded Medicaid and those that have not, and gaps remain in addressing persistent income, racial/ethnic, and gender disparities.[12,15–19]

Telehealth enables provision of health care services remotely when the patient and provider are not physically in the same room. Telehealth can be synchronous (ie, "live" interaction) or asynchronous (eg, via an electronic system to store and forward the message to a patient).[20] A review of telemental health suggested that it can be effective at delivering mental health services in the short term, exhibits high patient satisfaction and convenience, and is potentially cost-effective compared with face-to-face interaction.[21] However, results are mixed with respect to sustaining achieved therapeutic gains among patients, as well as the acceptability of telehealth among health care providers when compared with face-to-face interventions.[21–23] Also, concerns persist about the quality of services, potential exacerbation of inequities due to digital exclusion, barriers to entry for both providers and consumers due to a lack of proper infrastructure (ie, broadband, capacity, training), and differences in adoption across age groups.[17,21,23–29] Similar concerns have been raised about varying effectiveness of telemental health for different populations of children and various therapeutic interventions.[25,30] Nonetheless, federal and state policies continue to be enacted since the start of the COVID-19 pandemic to expand reimbursement for and use of telehealth services among public and private health plans.[28,29,31]

A growing body of research on telemental health use after expansion of telehealth parity policies exists.[32] Previous research has characterized increases in utilization of telemental health services among the publicly insured[33–36] or a mix of publicly and commercially insured beneficiaries.[37] Less is known about the utilization of telemental health specifically among commercially insured patients at the national level prior to expansion of telehealth. This study reports the results of an evaluation of telemental health utilization in the US from 2010 through 2019 in a large administrative claims dataset of commercially insured patients.

METHODS

Data

We used the United States IQVIA PharMetrics Plus database to obtain data from January 1, 2010, through December 31, 2019.[38] IQVIA PharMetrics Plus is a health claims database with data on demographics, encounters with a provider, hospitalizations, and prescription drugs for over 150 million unique patients. PharMetrics Plus includes commercially insured enrollees, including enrollees that have commercially managed Medicare and Medicaid. This database includes representation from a variety of geographic areas, employers, payers, and providers.

Approach

Informed by previous research,[33–35,37,39–43] we developed telemental health service groups, using diagnostic (all primary and non-primary) codes to identify individuals of any age diagnosed with mental health conditions and procedure codes to capture mental health visits that were delivered via telehealth sessions. For diagnostic codes, we used *International Classification of Diseases*, Ninth and Tenth Editions (*ICD-9* and *-10*); for procedure codes, we used Healthcare Common Procedure Coding System (HCPCS) and Current Procedural Terminology (CPT) codes. To identify whether a visit was a telehealth visit, we filtered data by place of service and CPT modifier codes (see Supplementary Appendix 1). The Telemedicine group consisted of visits with a telemedicine HCPCS code. The Behavioral Assessment group consisted of visits with a behavioral assessment CPT code, and a place of service code or CPT modifier associated with telehealth. The Therapeutic Services group consisted of visits with a therapeutic service CPT code, and a place of service code or CPT modifier associated with telehealth. Finally, the Evaluation and Monitoring group consisted of visits with an evaluation and monitoring CPT code, and a place of service code or CPT modifier associated with telehealth. For the main analyses, data from the 4 service groups were combined to comprise telemental health services.

For inclusion, a claim had to be associated with a mental health diagnosis code, covering a wide range of mental health conditions such as depression, schizophrenia, and ADHD (see Supplementary Appendix 1 for definitions and codes). We removed duplicate

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Table 1.

Size of the Population Served by Telemental Health at the Patient Level: Patient Characteristics by Age, Gender, and Region: Unique Number of Patients, United States, 2010–2019

	Unique number of patients			
Patient characteristic	Numerator: total number of unique patients utilizing telemental health services[a]	Denominator: total number of unique patients utilizing mental health services	Ratio of total number of unique patients utilizing telemental health services to total number of unique patients utilizing any mental health services	Number of patients utilizing telemental health services per 100,000 patients utilizing any mental health services
Total	129,893	41,561,287	0.313%	312.5
Gender				
Male	53,185	16,590,931	0.321%	320.6
Female	76,708	24,970,356	0.307%	307.2
Age group				
0–17 y	27,453	7,337,990	0.374%	374.1
18–34 y	44,990	10,172,506	0.442%	442.3
35–54 y	39,763	15,040,334	0.264%	264.4
55–64 y	14,114	7,178,434	0.197%	196.6
≥ 65 y	3,573	1,832,023	0.195%	195.0
Patient's region				
Northeast	12,352	8,782,401	0.141%	140.6
Midwest	46,472	11,665,188	0.398%	398.4
South	44,050	14,986,859	0.294%	293.9
West	26,331	5,529,554	0.476%	476.2
Unknown or missing	688	597,285	0.115%	115.2

[a]For gender, age group, and patient's region, Pearson χ^2 values are statistically significant with $P < .001$.

visits and claims with missing information on age and gender. We excluded any annual visits in which the patient was not continuously enrolled for the entire year. Further, to ensure we captured mental health visits, we excluded any claims for which the billing provider was not a mental or behavioral health provider specialist, based on a previously published categorization.[44]

We analyzed utilization based on patient-level and visit-level indicators. To characterize the size of the population served by telemental health, we calculated the percentage of patients with mental health needs who used telemental health services as the total number of unique patients utilizing telemental health services divided by the total number of unique patients utilizing any mental health services. Results were presented as a percentage and as the number of patients with mental health needs who used telemental health services per 100,000 patients receiving any mental health services. To characterize the volume of telemental health services, we calculated the percentage of all mental health visits that were provided via telehealth at any setting (inpatient or outpatient), by dividing the total number of telemental health visits by the total number of mental health visits. Results for telemental health visits were displayed as a percentage and as the number of telemental health visits per 100,000 mental health visits. We further stratified size of the telemental health population and volume of telemental health services by age, gender, and geographic region and examined Pearson χ^2 tests to determine whether the variations in utilization within age, gender, and region categories were statistically significant (eg, we examined if the volume of telemental health services at the visit level was different for males and females). We also characterized the percentage of mental health services provided via telehealth each year to understand changes in telemental health service use over time.

RESULTS

From 2010 to 2019, there were 41,561,287 unique patients who had a total of 737,532,962 mental health visits. Of the 41,561,287 patients, 129,893 (about 0.3%) unique patients had a total of 371,556 telemental health visits, with an average of 3.7 visits per patient over the whole time period. Of the 371,556 (about 0.05%) telemental health visits, Therapeutic Services comprised 190,580 (51.3%) and Evaluation and Monitoring comprised 177,089 (47.7%). Telemedicine (3,596 visits) and Behavioral Assessment (291 visits) codes combined captured less than 2% of telemental health visits during this time period.

As shown in Table 1, the overall percentage of all patients with mental health needs who received telemental services was 0.313% (or 312.5 patients receiving telemental health services per 100,000 patients receiving any mental health services) from 2010 to 2019. A larger proportion of males received telemental health services as compared to females. Specifically, per every 100,000

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Table 2.

Volume of Telemental Health Services at the Visit Level: Characteristics by Age, Gender, Region, and Year: Number of Visits, United States, 2010–2019

Characteristic	Total number of visits		Utilization	
	Numerator: total number of telemental health visits[a]	Denominator: total number of mental health visits	Ratio of total number of telemental health visits to total number of mental health visits	Telemental health visits per 100,000 mental health visits[b]
Total	371,556	737,532,962	0.050%	50.4
Patient's gender				
Male	139,522	281,141,819	0.050%	49.6
Female	232,034	456,391,143	0.051%	50.8
Age group				
0–17 y	66,846	144,391,386	0.046%	46.3
18–34 y	135,506	172,420,522	0.079%	78.6
35–54 y	118,852	255,659,922	0.046%	46.5
55–64 y	39,619	128,315,005	0.031%	30.9
≥ 65 y	10,733	36,746,127	0.029%	29.2
Patient's region				
Northeast	53,319	167,100,493	0.032%	31.9
Midwest	120,102	212,754,570	0.056%	56.5
South	99,868	248,209,230	0.040%	40.2
West	96,559	101,318,590	0.095%	95.3
Unknown or missing	1,708	8,150,079	0.021%	21.0
Year				
2010	1,127	51,307,314	0.002%	2.2
2011	2,170	58,884,532	0.004%	3.7
2012	3,899	61,457,724	0.006%	6.3
2013	11,048	74,645,689	0.015%	14.8
2014	17,791	73,520,637	0.024%	24.2
2015	32,570	86,618,405	0.038%	37.6
2016	45,821	93,973,482	0.049%	48.8
2017	52,081	77,521,598	0.067%	67.2
2018	77,516	80,725,505	0.096%	96.0
2019	127,533	78,878,076	0.162%	161.7
Total	371,556	737,532,962	0.050%	50.4

[a]For gender, age group, and patient's region, Pearson χ^2 values are statistically significant with $P < .001$.
[b]Numbers are rounded to the nearest decimal. There are 50.4 telemental health visits per 100,000 mental health visits: (371,556/737,532,962) × 100,000 ≈ 50.4.

unique male patients receiving mental health services, 320.6 received telemental health services, whereas per every 100,000 unique female patients receiving mental health services, 307.2 received telemental health services. With respect to age, 18- to 34-year-olds had higher utilization than other age groups. Specifically, 442.3 out of 100,000 18- to 34-year-old patients receiving mental health services utilized telemental health services, whereas this rate was as low as 195.0 per every 100,000 patients older than 65 years receiving mental health services. At the regional level, patients from the western US had significantly higher utilization as compared with other regions: 476.2 of every 100,000 patients receiving mental health services in the West region used telemental health services, whereas this number was as low as 140.6 for every 100,000 patients receiving mental health services in the Northeast region.[45] Pearson χ^2 test indicated that variations within age, gender, and region were statistically significant at the $P < .01$ significance level.

Table 2 presents the visit-level analyses. Overall, 50.4 visits per 100,000 mental health visits (about 0.050%) were via telehealth between 2010 and 2019. The proportion of

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Figure 1.

Volume of Telemental Health Services at the Visit Level by Gender, 2010–2019

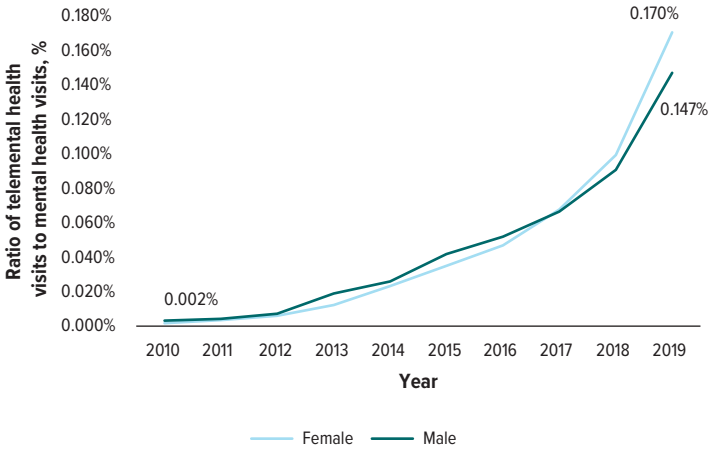
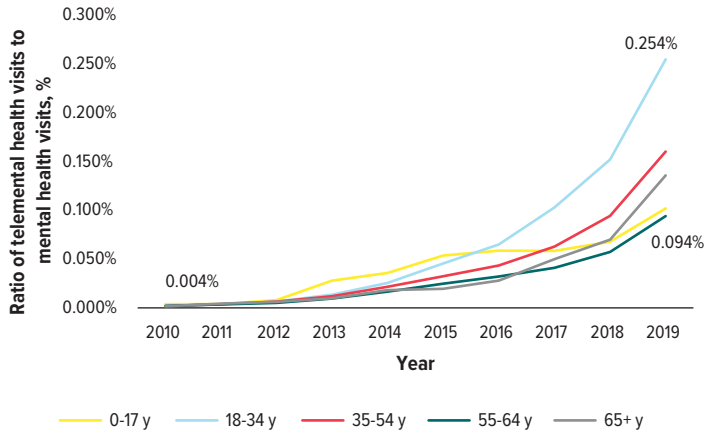


Figure 2.

Volume of Telemental Health Services at the Visit Level by Age Group, 2010–2019



mental health visits delivered via telehealth was higher for females than for males (50.8 vs 49.6 telemental health visits per 100,000 mental health visits for females vs males). Similar to the patient-level results, the proportion of mental health visits delivered via telehealth was highest (78.6 telemental health visits per 100,00 mental health visits) for 18- to 34-year-olds as compared to other age groups; patients aged 65 years and older had the smallest proportion of telemental health visits, with 29.2 telemental health visits per 100,000 mental health visits. The West region had the largest proportion of mental health visits delivered via telehealth (95.3 telemental health visits per 100,000 mental health visits), with the Northeast region having the smallest (31.9 telemental health visits per 100,000 mental health visits) compared to other regions.

Also shown in Table 2 is the proportion of mental health visits delivered via telehealth each year, which increased from 2.2 telemental health visits in 2010 to 161.7 telemental health visits in 2019 per 100,000 mental health visits. Figures 1, 2, and 3 display the growth over time of the proportion of mental health visits delivered via telehealth separately by gender, age group, and geographic region. Similar to results from the pooled analyses of telemental health visits across years, the largest increases over time were found for females, individuals aged 18 to 34 years, and the West region.

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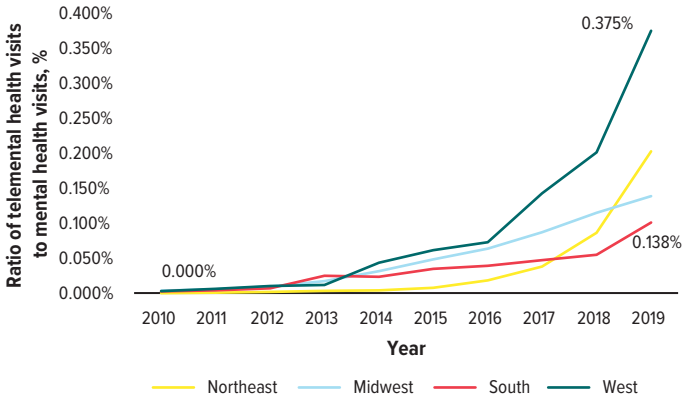
Figure 3.

Volume of Telemental Health Services at the Visit Level by Patient's Region, 2010–2019[a]



[a]Graph does not include "Unknown" category for patients with missing or unknown information on patient's region.

DISCUSSION

Overall, we found that the proportion of mental health visits delivered via telemental health comprised less than 0.2% of all visits, yet they increased by almost 7,261% (from about 0.002% to 0.162%, ie, an increase by 0.16 percentage points) over the decade preceding the COVID-19 pandemic. Previous studies similarly found increases in utilization of telemental health services using different data sources and definitions of utilization. Barnett and colleagues documented increases of the number of telemental health visits per year from 2005 to 2017, using data on privately insured and Medicare Advantage enrollees from OptumLabs Data Warehouse.[37] Creedon et al analyzed IBM MarketScan data from 2012 to 2017 and reported an increasing number of 18- to 64-year-old Medicaid beneficiaries meeting mental health disorder diagnostic criteria who received a telemedicine visit for mental disorder treatment.[33] The increases in the number of telemental health visits or number of beneficiaries receiving telemental health services could reflect an increase in the adoption of telehealth as a care delivery modality, or a population-level increase in need for mental health services,[46] or a combination of both.

Other studies examined changes in use of telehealth services for mental health independent from any changes in the need for mental health services in the Medicare population. Patel et al investigated claims data on Medicare Part B beneficiaries for the years 2010 to 2017, finding an increase in both rural and urban areas in the number of telehealth-delivered specialty mental health visits per year per beneficiary who met mental health or substance use disorder diagnostic criteria.[35] Mehrotra and colleagues' analysis of Medicare Part B beneficiaries in rural areas from 2004 to 2014 similarly reported an increase in number of visits per beneficiary.[34] Finally, Wang et al noted increases in use of telemental health service for serious mental illness in non-metropolitan counties between 2010 and 2018.[36] Our results provide unique information specifically about the increase in the percentage of patients utilizing mental health services who participate via telehealth and percentage of mental health service visits conducted via telehealth among commercially insured patients with mental health needs. Our results expand on previous findings by using a broader dataset that includes commercially insured patients during a pre–COVID-19 telehealth expansion time period. Future research could compare the utilization of telemental health services in rural and urban areas using more updated data that would include COVID-19 public health emergency (PHE) years. Further, to evaluate effectiveness of telemental health services, future research could compare the rates of hospitalization for patients managed via telemental health modality versus in-person care. Insurance coverage and reimbursement policies pre–COVID-19 PHE have changed since the PHE declaration. Generally, pre-COVID policies at the federal level limited the reimbursement for telehealth for Medicare beneficiaries to non-metropolitan counties.[36,47] At the state level, although most states reimbursed for synchronous telehealth before the PHE declaration, fewer than half reimbursed for asynchronous telehealth activities, and only 23 mandated that reimbursement for telehealth be on par with reimbursement for in-person services.[47] Declaration of a PHE allowed the Centers for Medicare and Medicaid Services (CMS) to enact a 1135 waiver,[48] which allowed CMS to provide payment parity for most telehealth services on par with payment for in-person visits. The Consolidated

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Appropriations Act of January 2023 extended most of these parity exceptions through December 2023,[49] and HHS granted Health Insurance Portability and Accountability Act of 1996 (HIPAA) flexibilities through a notification of enforcement discretion for telehealth.[14]

These expansions enabled providers to use different telehealth service modalities and be eligible for reimbursement, as well as extended the types of providers that can provide these services, such as Federally Qualified Health Centers and Rural Health Clinics. All states have enacted some form of telehealth service reimbursement parity policy for Medicaid services since the COVID-19 PHE declaration, and 43 states have since enacted some form of telehealth service reimbursement parity policy for private insurers.[50] These federal and state policy changes expanded access to health care through telehealth; our results can provide a baseline for future investigation of the impact of telehealth policies affecting private insurance.

The provision of telemental health services can be affected by variation among states' licensing regulations, especially when a patient is located in a different state than the provider.[51,52] Although in-person visits were required for prescribing schedules II–V controlled substances prior to COVID-19 PHE, prescription via telehealth has been allowed for authorized providers without a prior in-person examination as clinically appropriate during COVID-19 PHE.[53,54]

We found that a larger proportion of males received telemental health services as compared to females; however, the proportion of mental health visits delivered via telehealth was higher for females than for males. For both indicators of utilization, patients aged 18 to 34 years had the highest utilization compared to other age groups. In addition, we observed that almost all claims were for therapeutic services or evaluation and monitoring, with few for initial behavioral assessments. Whether these patterns are due to differences in how and why providers offer telemental health services, differences in which patients are amenable to receiving mental health services via telehealth, differences in how providers identify a visit as telehealth, or differences in effectiveness of telemental health for different populations or different mental health needs cannot be determined with these data but offer questions for future inquiry.

Limitations

Although the IQVIA PharMetrics Plus database is diverse, it is a convenience sample of most commercially insured patients, with lower representation for those ages 65 and older as well as in western US states compared to other regions of the US.[38] We excluded the small percentage of claims for which the billing provider was clearly not a behavioral or mental health provider. Furthermore, patients who were not continuously enrolled in a health plan for 12 months were excluded. Lastly, our results did not adjust for race, ethnicity, rurality, or insurance type due to excessive missing information for these variables.

CONCLUDING REMARKS

Telemental health utilization comprised a small fraction of overall mental health services and beneficiaries but increased over time among commercially insured individuals, with differences documented in utilization based on patient gender, patient age, geographic region, and type of telemental health claim. Evidence from this study may serve as a pre-pandemic baseline for comparison against future evaluations of telehealth expansion policies enacted during the COVID-19 public health emergency declaration.

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Author Affiliations: Centers for Disease Control and Prevention, Atlanta, Georgia (Arifkhanova, Murray, Khushalani, Neri, Kaminski, Puddy); Georgia Institute of Technology, Atlanta, Georgia (Elhabr, Ayer).

Corresponding Author: Aziza Arifkhanova, PhD, 1600 Clifton Rd MS V24-5, Atlanta, GA 30329 (nzn7@cdc.gov).

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Supplementary Material

Article Title: Telemental Health Utilization in Commercial Health Insurance Plans in the United States From 2010 Through 2019

Authors: Aziza Arifkhanova, PhD; Andrew Elhabr, PhD; Christian Murray, MS; Jaya Khushalani, PhD; Antonio Neri, MD; Jennifer Kaminski, PhD; Richard W. Puddy, PhD; and Turgay Ayer, PhD

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LIST OF SUPPLEMENTARY MATERIAL FOR THE ARTICLE

1. Appendix 1

DISCLAIMER

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Appendix 1

Definitions and codes

Diagnostic and procedure codes used to generate tele-mental health services groups

We developed four tele-mental health services groups using IQVIA PharMetrics Plus data (Quarter 3 2020 version, Native format) over the study period ranging from 2010 to 2019. The 4 groups are: Telemedicine, Behavioral Assessments, Therapeutic Services, and Evaluation & Monitoring. We used diagnostic and procedure codes specified below for each group. To identify telehealth visit, we used point of service (POS) and Current Procedural Terminology (CPT) modifiers.

Telehealth related filter, based on place of service and CPT modifiers
POS = 02
CPT modifiers: 95, G0, GQ, GT

Numerator: Description of groups
Each of the four tele-mental health services groups has been developed using diagnostic codes (ICD9 and ICD10) as well as procedure codes (HCPCS and CPT codes). The insurance enrollment requirement is as follows:

- Pharmacy and Medical: Patient has been covered for at least 12 Months

After retrieving "Patient Export" tables per each year, we additionally filter the data by point of service (POS = 2) and CPT modifiers associated with "Telemedicine" setting.

Diagnostic codes
If any of the 12 available diagnoses had a Mental Health ICD-9 or ICD-10 diagnostic code, we included it regardless of whether it were primary or non-primary mental health diagnosis.
Mental Health related ICD-9 codes: 290-319
Mental Health related ICD-10 codes: F01-F99, A81.00-A81.09, G30-G31.1, G44.2-G44.219

Procedure codes
Telemedicine HCPCS codes: G0406, G0407, G0408, G0425, G0426, G0427, G2010, G2012, G2061, G2062, G2063
Behavioral Assessments CPT codes: 96150, 96151, 96152, 96153, 96154, 96155, 96156, 96160, 96161, 99050, 99051
Evaluation and Monitoring CPT codes: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245
Therapeutic Services CPT codes: 90785, 90791, 90792, 90801, 90802, 90804, 90805, 90806, 90807, 90808, 90809, 90810, 90811, 90812, 90813, 90814, 90815, 90816, 90817, 90818, 90819, 90821, 90822, 90823, 90824, 90826, 90827, 90828, 90829, 90832, 90833, 90834, 90836, 90837, 90838, 90839, 90840, 90845, 90846, 90847, 90849, 90853, 90857, 90863, 90865, 90867, 90868, 90869, 90870, 90871, 90875, 90876, 90880, 90885, 90887, 90889, 90899, 95970, 95974, 95975, 96101, 96102, 96103, 96105, 96110, 96111, 96112, 96113, 96116, 96118, 96119, 96120, 96121, 96125, 96127, 96130, 96131, 96132, 96133, 96136, 96137, 96138, 96139, 96146

Billing providers
Emergency Medicine Physician, General Practice/Family Practice, Internal Medicine, Hospital, Mental Health/Substance Abuse Facility, Nurse Practitioner, Pediatrics, Physician Assistant, Psychiatry, Psychology, Registered Nurse, Skilled Nursing Facility/Long Term Care, Social Work, Not Available, Other, Other Facility, Other Specialty, Unknown

Denominator: Description of group
We created denominator on the basis of mental health ICD-9/10 diagnosis codes to be present in all Numerator groups. We chose to have denominator defined as any mental health related visit without setting specified (i.e., it could include outpatient, inpatient, ER, or telehealth session as a setting). We specified patient selection period per each year with enrollment requirement to be at least 12 months of Medical and Pharmacy coverage during a specific year.

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