



Measuring Telehealth Using Publicly Available Data: Strengths and Limitations in Population, Diagnosis, Treatment, Institutional, Service, and Community Variables

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Overview

- **Background:** Publicly available licensed, data are increasingly being used in telehealth studies,
- **Problem:** Data usefulness for measuring telehealth vary greatly
- **Objective:** Provide a succinct overview of strengths and weaknesses of billing data
 1. Show comparison tables for **four different data sets**
 2. Illustrate use of the data in **US “heat maps”** of population rates for Commercially insured and Medicare beneficiaries’ telehealth use
 3. Results of data used to describe **telehealth’s role in anxiety and depression**

Data Comparisons: Number of Events in 2022, Telehealth Coding, Population Size, and Selection Bias

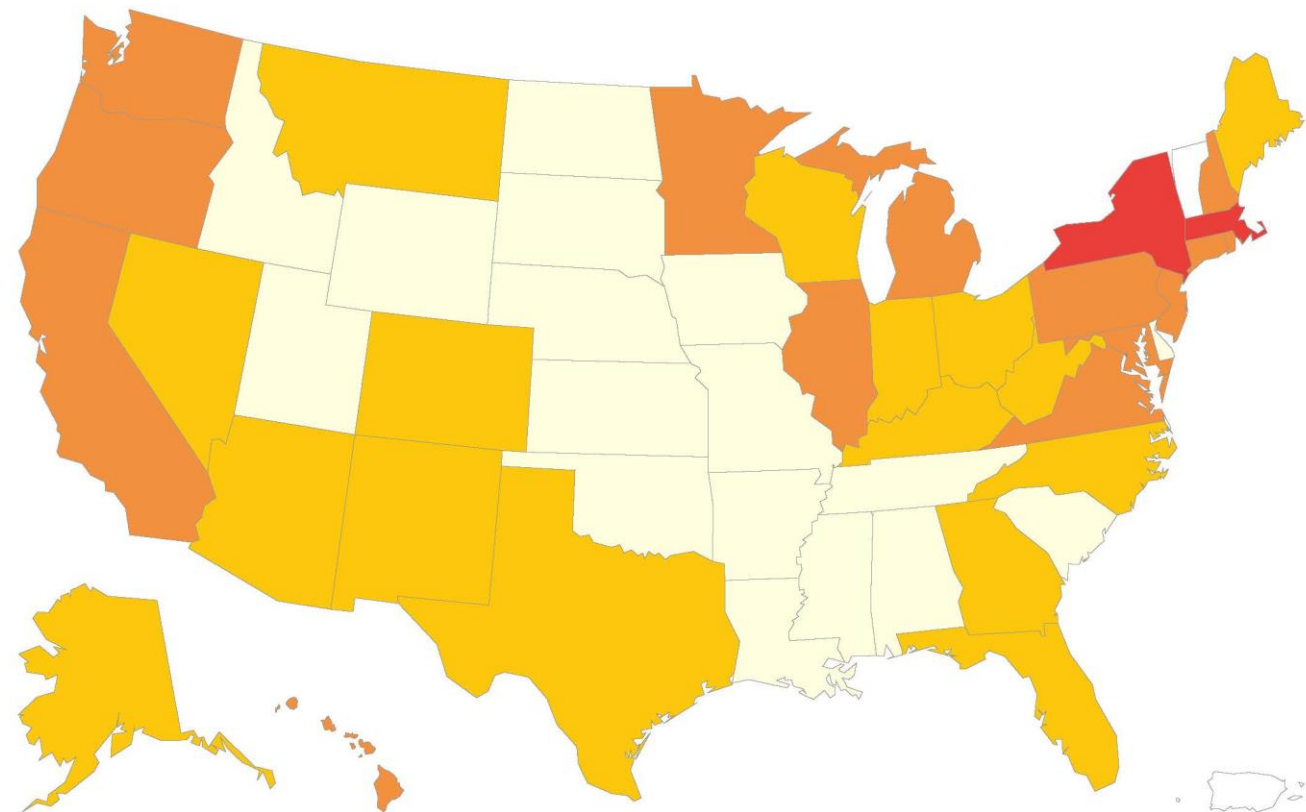
	MarketScan® Commercial	MarketScan® Medicare	Medicare 5% Limited Data Set	MarketScan® Medicaid
Total Tele Visits or consults	15,903,345	862,628	1,494,479	8,835,391
Beneficiaries in data set	19,136,928	1,371,935	3,414,596	11,016,757
Type of Coding Used:				
CPT	5.0%	11.8%	9.3%	2.4
Modifier 1	37.5%	57.9%	64.6%	60.2
Modifier 2	NA	NA	4.0%	NA
Place of service	57.6%	30.3%	22.2%	37.4
Representative of US population	Uncertain, Data are from commercially insured all states	Uncertain, Medicare patients with supplemental insurance	Yes, 5% sample of all Medicare beneficiaries	Unknown, Data from about 10 “representative” state Medicaid programs



US Heat Map of Tele-visits per 100 Private Insurance Residents age 1-64 by State

Light < 50 visits
Darkest > 200

Number of Telehealth visits in 2022 per 100 Commercially Insured Enrollees in 2022 based on MarketScan Data



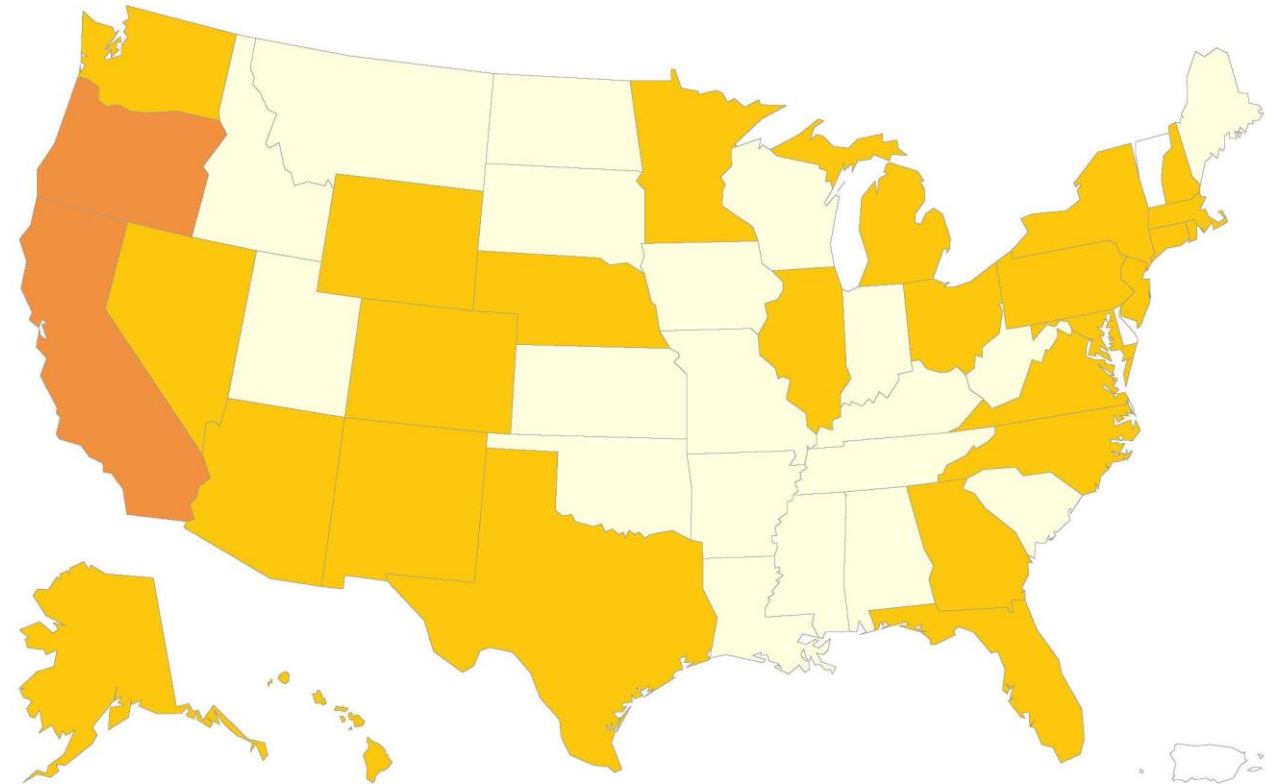
Index: <50 50-99 100-199 >200



US Heat Map by State Tele-visits per 100 Medicare Beneficiaries

Light < 50 visits
Dark 100-199 Visits

Number of Telehealth visits per 100 Medicare Enrollees based on MarketScan Data



Index ■ <50 ■ 50-99 ■ 100-199

Summary of Data Usefulness Points

- We identified **27,095,843 telehealth visits/consults**. These data represent billed telehealth utilization by **34,940,216 US beneficiaries** from all 50 states.
- **Heat Maps show overall** use of telehealth for insured patients was **78 visits per 100 individuals**.
 - commercially insured rates ranged from **25 to 242 annual visits** per 100 people ages 1-64 years
 - Medicare patient rate **21 to 122 telehealth visits** per 100 Medicare beneficiaries age 65+.
- **Medicare 5% sample is superior on record details on:**
 - Patient Demographics: age, sex, race, Dual eligibility status, date of death,
 - Diagnoses: : 25 Dx and Procedure spaces, DRG and present-on-admission indicators
 - Modifier codes for identifying services , CPT and HCPCS coding
 - Institution/Provider services : charges, payments, coinsurance and deductibles
 - States, county codes that can be linked to ARF, SDOH and rurality data sets
- The **MarketScan® data sets have an advantage in also containing prescription records.**

Prevalence of Telehealth Use in Behavioral Health

- We identified **15,903,345 telehealth visits** in the 2022 MarketScan Commercial insurance data set
- **6.6 Million** had a primary ICD-10 diagnosis code indicating a **behavioral health condition** based on the AHRQ Clinical Classifications software (CCSR) for ICD-10-CM diagnoses, v2025.1
- **We found 5,811,798 visits with a primary Dx of depression or anxiety provided to 236,395 unique patients**
 - Males=68,851 (30%)
 - Females 167,454 (70%)

Table 2: Mean (SD) Number of Telehealth Visits During 2022 by Age Group and Diagnosis

	Anxiety	Depression	Both
Age 0 to 17	9.0 (13.1)	7.8 (10.9)	41.7 (43.2)
Age 18 to 44	9.5 (14.1)	8.1 (11.6)	40.6 (41.1)
Age 45 to 64	7.9 (13.4)	7.9 (12.1)	36.2 (38.3)
Age 65+	5.2 (8.7)	4.6 (5.8)	29.1 (32.0)
Overall	9.0 (13.9)	8.0 (11.7)	39.7 (40.8)

Volume of Telehealth Visit by CPT Codes

61,241	90837: Individual psychotherapy 53 minutes
35,845	99214: Eval & management 30-39 minutes
29,877	90834: Face-to-face psychotherapy 45 minutes
29,109	99213: Eval & management 20-29 minutes
21,770	90791: Psychiatric diagnostic evaluation

Remaining 0.6% of visits were HCPCS codes: G0xx, G2xx, G9xx, H0xx, H1xx, H2xx, T1xx, and S1xx and T9xx

Rapid Scheduling of TH Visits

Days from Pre- visit to 1st TH record (Mean, SD)

Age Group	Anxiety	Depression	Both	Overall Mean (SD)
0 to 17	4.8 (8.1)	5.1 (8.4)	2.0 (3.4)	3.4 (6.4)
18 to 44	5.6 (10.0)	5.9 (10.2)	2.2 (4.3)	3.9 (7.8)
45 to 64	5.6 (9.9)	5.7 (10.0)	2.1 (3.6)	4.0 (7.9)
65+	3.6 (4.2)	3.7 (4.9)	1.7 (2.5)	2.8 (4.0)
Overall Mean (SD)	5.5 (.8)	5.7 (9.9)	2.2 (4.1)	3.8 (7.7)

Economic Benefit of TH for Depression and Anxiety

- **Time savings to patients and caregivers:**
 - Travel time to appointments
 - Transportation time for care givers
 - Waiting time for care givers
- **Cost savings to providers:**
 - Decrease in missed appointments or later reschedules
 - Ability to employ professionals living out of area
 - Decrease need for office space and parking

Estimated Savings for 2022 TH Cohort

Assumptions	Units	Number of events	Total Work Hours	US Mean Wage Hourly	Total Cost Savings
Child caregiver transport and wait	1.6 hours	656,504	1,050,406	\$31.91	\$33,518,468
5% Adult caregiver transport and wait	1.6 hours	257,764	412,422	\$31.91	\$13,160,399
95% Adult Patient self transport	0.6 hours	4,898,130	2,938,878	\$31.91	\$93,779,597
PATIENT SUBTOTAL					\$140,458,464
Improved missed appt. from 1% to 0.5%	0.75	290,589	21,794	\$30.60	\$666,904
Remote worker salary/space savings	1%	58,118	43,588	\$30.60	\$1,333,792
PROVIDER SUBTOTAL					\$2,000,696

Quotes of Patients' Perceived Benefit of Telehealth

“I think it's a **fantastic thing that you all are doing for our community** and it could **really help out a lot of people** who, like I said, are **afraid of the stigma** that comes along with mental health issues.”

“It has **completely turned my whole life around** because the behavioral therapist was able to help me realize, “Hey, maybe you need to do this, maybe you need to do that”...**sorted me out the right plan and the right track**. Then I **started realizing things and started getting better**.”

Key Takeaways

- Telehealth may increase access to high-quality mental and behavioral health services
- Telehealth services may also demonstrate cost savings for patients and health systems, compared to in-person mental and behavioral health services
- Many patients report preferring telehealth services for mental and behavioral health needs, rather than in-person services

Questions?

Please feel free to reach out to
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