

Differences in Telehealth During COVID-19 Between Commercial and Medicaid Enrollees

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The COVID-19 pandemic prompted a large shift to the provision of telehealth, due to benefits that include reduced risks of COVID-19 transmission and more convenient access to care. However, use of telehealth—defined as synchronous video or audio-only visits between a patient and provider—during the pandemic has varied across populations and settings. Existing studies using Medicare and commercial claims data have shown that telehealth use peaked in the spring of 2020. Although use declined in 2021 and 2022, telehealth use remains dramatically above the prepandemic baseline. Studies have consistently demonstrated lower rates of telehealth among rural patients since the start of the pandemic. However, findings regarding telehealth use among low-income and minoritized patients are inconsistent, with some studies showing greater utilization of telehealth among the underserved and others showing the opposite.¹⁻¹⁰

Low-income patients, including Medicaid beneficiaries, may have greater demand for telehealth because they confront additional challenges accessing in-person visits (eg, travel costs, lack of paid sick leave). On the other hand, Medicaid beneficiaries may also face greater barriers related to the digital divide and may use providers who have fewer resources available to deliver services via telehealth. Despite the unique barriers and facilitators that Medicaid patients may face, very little research has explored telehealth use among Medicaid beneficiaries or compared the telehealth utilization of Medicaid beneficiaries with that of other populations of patients.

In addition, little is known about how health plan type affects use of telehealth. As in Medicare and commercial insurance environments, Medicaid patients may be insured under a fee-for-service (FFS) or managed care (MC) model. These plan types vary not only in terms of provider payments and financial incentives but also in terms of access to providers, patient financial responsibility, and network breadth. Among commercial insurance plans, FFS is the dominant payment model. In contrast, MC dominates in Medicaid. Medicaid MC predominantly relies on capitated payment models. Although MC with capitated payment models eases administrative burden on the government insurer, it also raises concerns, as cited in a recent report by the Office of Inspector General, of potential

ABSTRACT

OBJECTIVES: To compare how in-person evaluation and management (E&M) visits and telehealth use differed during the COVID-19 pandemic between commercially insured and Medicaid enrollees, and to assess how insurance plan type—fee-for-service (FFS) vs managed care (MC)—and enrollee characteristics contributed to these differences.

STUDY DESIGN: Retrospective cohort analysis of 2019 and 2020 data from the commercially insured California Public Employees' Retirement System (CalPERS) and the California Medicaid program (Medi-Cal).

METHODS: We conducted unadjusted comparisons of per capita E&M visits and the share of visits conducted via telehealth by payer (CalPERS vs Medi-Cal) and plan type (FFS vs MC). We estimated linear regressions of telehealth use that adjusted for patient demographics, rurality, and internet access. Among Medi-Cal enrollees, we examined telehealth use differences based on race, language, and citizenship status.

RESULTS: Regression-adjusted share of telehealth visits as a proportion of all E&M visits was 22.6% for CalPERS FFS patients (the reference group), 38.2% for Medi-Cal FFS patients, 46.0% for Medi-Cal MC patients, and 53.5% for CalPERS MC patients. Among Medi-Cal enrollees, telehealth use as a share of all E&M visits was higher among Spanish speakers, female enrollees, and rural enrollees. Across most demographic characteristics, Medi-Cal patients enrolled in FFS were less likely to receive telehealth compared with those enrolled in MC.

CONCLUSIONS: During the first year of the COVID-19 pandemic, California MC enrollees had higher rates of telehealth use compared with FFS enrollees, regardless of insurer. Among FFS enrollees, those enrolled in Medicaid had higher rates of telehealth use compared with those insured by CalPERS. Telehealth policies should be aware of this heterogeneity, as well as its implications for equity of telehealth access.

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TAKEAWAY POINTS

- ▶ Increased use of telehealth during the COVID-19 pandemic has raised concerns about equitable access among lower-resourced populations, but few direct comparisons of telehealth use exist.
- ▶ Compared with enrollees in a large, commercially insured managed care plan, Medicaid managed care enrollees had lower use of telehealth.
- ▶ However, compared with enrollees in a large, commercially insured fee-for-service plan, Medicaid fee-for-service enrollees had higher use of telehealth.
- ▶ Both insurer and plan type interact to affect uptake of telehealth, indicating heterogeneity that policy makers may wish to address when writing future telehealth policies.

underprovision of care.¹¹ Thus, although the role of Medicaid MC in accessing telehealth has not been studied, it is critical to understanding the impact of a dominant benefit model on access to care for a low-resourced population during the COVID-19 pandemic.

To address these gaps in the literature, we compared telehealth use prior to and during the COVID-19 pandemic across 2 disparate populations—a commercially insured population with employer-sponsored insurance and Medicaid beneficiaries—to ascertain how uptake of telehealth use is influenced by insurance type, after adjusting for potential confounders such as internet access and rurality. Unique to our study is the ability to observe variation in health insurance type for both populations. We use this variation to assess differences in use of telehealth across different sources of insurance coverage (eg, commercial insurance vs Medicaid) and insurance plan type (eg, capitated MC vs FFS). Within each population, we also examine differences in telehealth utilization by patient demographics. The results of this study can inform policies to ensure equitable access to telehealth.

DATA AND METHODS

CalPERS and Medi-Cal Medical Claims Data

Our primary sources of data were medical claims and encounter data for 2 California populations. We obtained data for our commercially insured cohort from the California Public Employees' Retirement System (CalPERS), which provides health insurance benefits for all State of California employees and their dependents, as well as select California municipalities and local government organizations. CalPERS provides health insurance to 1.5 million individuals and is the second-largest public purchaser of health benefits in the United States. CalPERS enrollees select their insurance plan from several options, including a fully integrated health plan offered by Kaiser Permanente, several non-Kaiser health maintenance organization (HMO) plans, and preferred provider organization (PPO) plans. The non-Kaiser HMOs are not capitated for non-primary care services and predominately pay non-primary care providers based on a FFS arrangement. Given our interest in understanding how payment incentives affect the provision of telehealth, we characterized these plans as FFS and the Kaiser HMO as MC. PPO plans were also characterized as FFS.

We obtained data for the population of California Medicaid beneficiaries from the California Department of Health Care Services; this is known as the Medi-Cal population. Medi-Cal has the largest Medicaid population in the country, providing insurance to approximately 13 million individuals. In California, Medi-Cal is administered at the county level. Across the 58 counties in California, there are several types of Medi-Cal programs, including Medicaid MC plans and county-administered plans. Many counties have both a county-

administered plan, which are predominately FFS, and a privately administered MC plan. Similar to our CalPERS comparison, we compared differences between Medi-Cal FFS and MC plans.

For both populations, we obtained medical claims and encounter data covering January 2018 through December 2020. Claims data contain detailed information on utilization and payment, whereas encounter data contain detailed information on utilization only. Both claims and encounter data contain patient-level demographic information, including patient age, sex, and 5-digit zip code. We merged data on county-level broadband internet access from the 2020 5-year American Community Survey. In addition, the Medi-Cal data uniquely contain individual-level race/ethnicity, spoken language, and citizenship status. We used these data to examine disparities in telehealth use within the Medicaid population.

In-Person and Telehealth Encounters

Within each population, we identified both in-person and telehealth visits. We limited our analyses of in-person visits to evaluation and management (E&M) visits only. We focused on E&M visits because these services are more likely to be delivered via telehealth. We also calculated the total number of in-person E&M visits as well as the share of total visits (in-person and telehealth) that were conducted through telehealth.

Analyses

We assessed both changes in total E&M encounters and the share of E&M encounters conducted using telehealth during April to December 2020, the first months of the COVID-19 pandemic, and how these changes compared between patients enrolled in FFS and MC insurance plans. To estimate changes in overall E&M care, we compared per capita total E&M visits against the per capita number of visits for those same months in 2019.

We first assessed unadjusted rates in both outcomes. Although unadjusted trends allow for population-level comparisons, they do not account for underlying differences between patient populations that may affect use of health care services in general and specifically during the pandemic. For example, commercially insured populations may have lower risk of COVID-19 exposure due to higher likelihood of living in lower-density housing. They may have easier access to telehealth because they reside in areas

TABLE 1. Characteristics of Study Population^a

	All plan types, 2019, n	All plan types, 2019, %	All plan types, 2020, n	All plan types, 2020, %	All visits, 2019, PMPTY ^b	All visits, 2020, PMPTY ^b	Telehealth as a proportion of all E&M visits, 2019, all plan types ^b	Telehealth as a proportion of all E&M visits, 2020 all plan types ^b
All	10,185,113	100.0%	9,687,428	100.0%	3.34	3.21	14%	49%
Sex								
Female	5,632,631	55.3%	5,359,769	55.3%	3.48	3.49	15%	51%
Male	4,549,882	44.7%	4,324,515	44.6%	3.17	2.87	13%	47%
Age in years								
0-5	1,615,995	15.9%	1,434,807	14.8%	2.93	2.14	13%	45%
6-18	2,975,154	29.2%	2,663,647	27.5%	2.69	2.23	11%	47%
19-50	3,996,506	39.2%	4,007,091	41.4%	3.31	3.54	16%	51%
51-64	1,597,458	15.7%	1,581,883	16.3%	5.05	5.02	16%	49%
Rurality								
Urban	9,511,342	93.4%	9,046,142	93.4%	3.33	3.19	14%	49%
Rural	673,771	6.6%	641,286	6.6%	3.51	3.51	27%	56%
Households without internet access								
1st quartile (lowest share without internet access)	2,637,739	25.9%	2,511,256	25.9%	3.50	3.35	16%	51%
2nd quartile	2,641,185	25.9%	2,516,950	26.0%	3.37	3.23	11%	47%
3rd quartile	2,774,972	27.2%	2,615,713	27.0%	3.09	2.87	11%	47%
4th quartile	2,131,217	20.9%	2,043,509	21.1%	3.44	3.47	22%	52%

E&M, evaluation and management; PMPTY, per member per truncated year (April-December).

^aDenominators of E&M visits correspond to the category level (eg, E&M visits PMPTY where the numerator and denominator are both for female patients).

^bAll *P* values < .001, within column and category (eg, "All visits, 2019, PMPTY" is significantly different for female patients than for male patients).

with higher rates of broadband internet. Conversely, Medicaid beneficiaries, who are more likely to rely on public transportation to get to a provider, may consider telehealth a more attractive way of accessing health care during a public health emergency.

To compare differences adjusting for patient and environment characteristics, we first estimated multivariable linear regressions that adjusted for plan type (CalPERS FFS, CalPERS MC, Medi-Cal FFS, Medi-Cal MC), enrollee sex, age, rurality, and internet access. To assess differences in the proportion of visits that were delivered via telehealth between Medi-Cal FFS and MC beneficiaries, we estimated separate regressions for each Medi-Cal plan type and used a Wald test to compare differences across models. In these models, we included additional enrollee characteristics unique to the Medi-Cal data, including race, spoken language, and documentation status (US citizen or resident, undocumented, refugee). All analyses were conducted in SAS version 9.4 (SAS Institute). This study was approved by the RAND Corporation's institutional review board.

RESULTS

Characteristics of Study Population

Table 1 presents characteristics of the study population. Although enrollment can vary across month, from April to December 2020, there were 1,198,148 unique patients insured through CalPERS, of whom 327,926 were enrolled in an FFS plan (27.4%) and 870,222 were

enrolled in an MC plan (72.6%). There were 8,489,280 unique patients insured through Medi-Cal, of whom 1,566,691 were enrolled in an FFS plan (10.3%) and 6,922,589 were enrolled in an MC plan (89.7%).

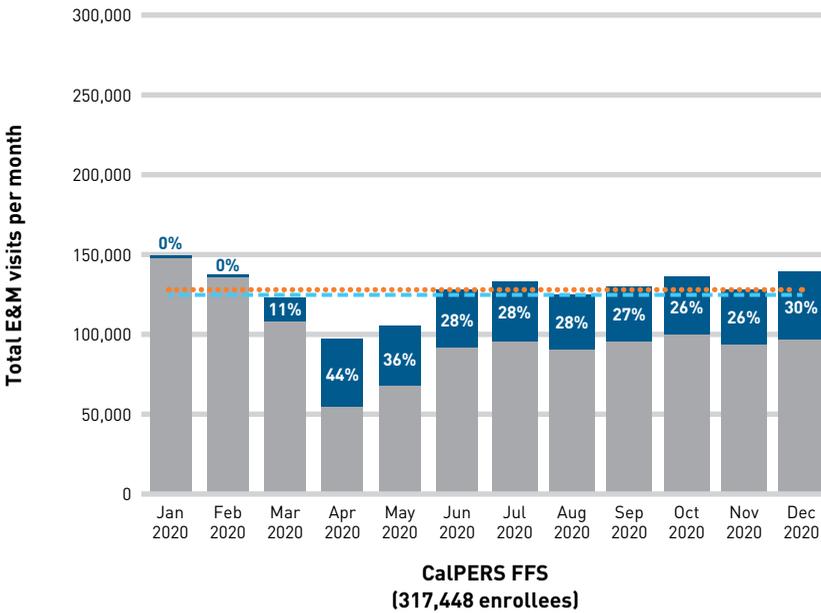
The majority of our sample was female (55.3%). Female patients were more likely to have any E&M visits compared with male patients in both 2019 and 2020, and in univariate analyses, they were slightly more likely to use telehealth as a visit modality. Individuals aged 0 to 64 years were included in our data set, with those aged 19 to 50 years comprising the plurality of our cohort (41.4%). Use of E&M visits overall increased by age, with those aged 0 to 5 years having 2.14 visits per member per truncated year (PMPTY; April to December) and those aged 51 to 64 years having 5.02 visits PMPTY in 2020. The vast majority of our cohort resided in an urban area (defined as a metro area using rural-urban continuum codes); only 6.6% lived in an area considered rural. In unadjusted analyses, rural residents had higher use of any E&M visits in 2020 at 3.51 PMPTY compared with 3.19 PMPTY for urban residents. Less than one-fourth (21.6%) of our cohort resided in an area with limited internet, where up to 29.7% of the population had no household internet access.

Descriptive Trends in Overall Telehealth Use

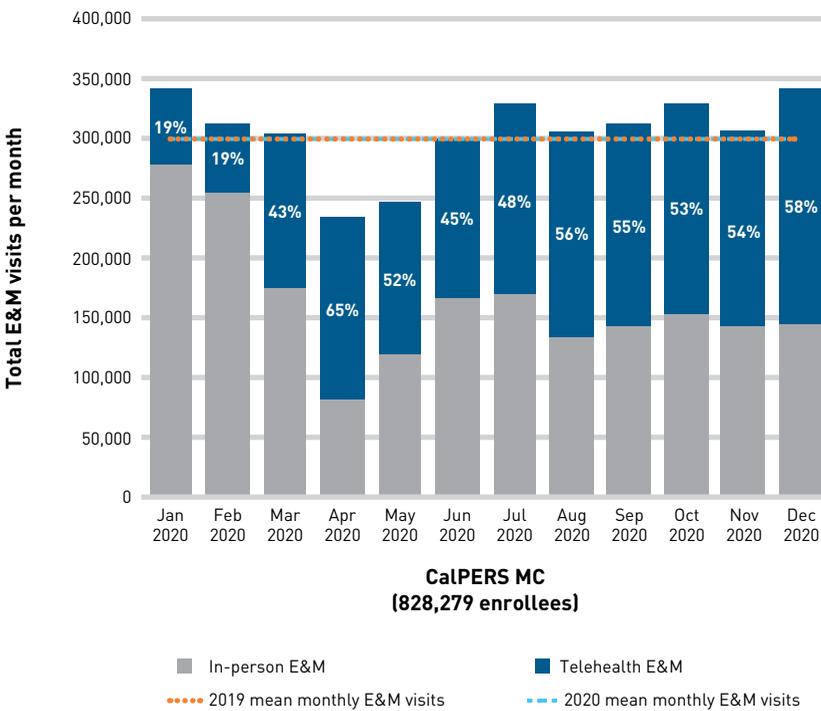
The **Figure** presents trends in telehealth use over the study period (April-December 2019 and April-December 2020) for the CalPERS and Medi-Cal populations, and within each population, MC and FFS plans. In examining these time frames, we found the use of telehealth

FIGURE. Unadjusted Trends in E&M and Telehealth Visits, by Payer and Plan Type*

A. CalPERS FFS



B. CalPERS MC



in addition to in-person care resulted in 2020 care rebounding to 2019 levels for CalPERS patients only (for those enrolled in both MC and FFS). In contrast, in 2020, although there was large uptake of telehealth in the Medi-Cal populations, 2020 care did not fully rebound to 2019 levels for Medi-Cal beneficiaries, either those in FFS or MC (Figure); telehealth use was not sufficient to offset the large declines in in-person care for Medi-Cal patients. In 2020, the mean (SD) monthly telehealth use as a proportion of E&M visits was as follows: 54.0% (5.8%) in CalPERS MC, 50.3% (4.4%) in Medi-Cal MC, 44.0% (3.0%) in Medi-Cal FFS, and 30.3% (5.9%) in CalPERS FFS. Thus, in unadjusted analyses, both CalPERS and Medi-Cal MC enrollees were more likely to use telehealth as a visit modality than were CalPERS and Medi-Cal FFS enrollees.

Unadjusted Population-Level Differences in Use of E&M and Telehealth Visits

Table 2 presents changes in both in-person E&M visits and telehealth visits as a proportion of total visits across the 4 plan types. Within the CalPERS population, reductions in E&M visits were driven by FFS enrollees; there was no change in total E&M service use in MC enrollees (a reduction of 0.26 E&M visits per enrollee for FFS enrollees vs a reduction of 0.03 E&M visits per enrollee for MC enrollees). Conversely, for Medi-Cal beneficiaries, reductions in total E&M visits occurred among both FFS and MC enrollees, with each experiencing an average reduction of 0.1 E&M visit per enrollee. CalPERS MC enrollees had the lowest amount of telehealth use (0.3% of E&M visits), whereas Medi-Cal FFS enrollees used telehealth the most (22.1% of E&M visits).

Regression-Adjusted Differences in Telehealth Use

Regression analyses show a significant difference across plan types in likelihood of receiving care via telehealth after adjusting for age, sex, rurality, and internet availability (all $P < .001$) (Table 3). Because of a large sample size, we are poised to find significant differences; therefore, we focus the reader's attention on the magnitude of these differences. Relative to CalPERS FFS enrollees, the shares of telehealth

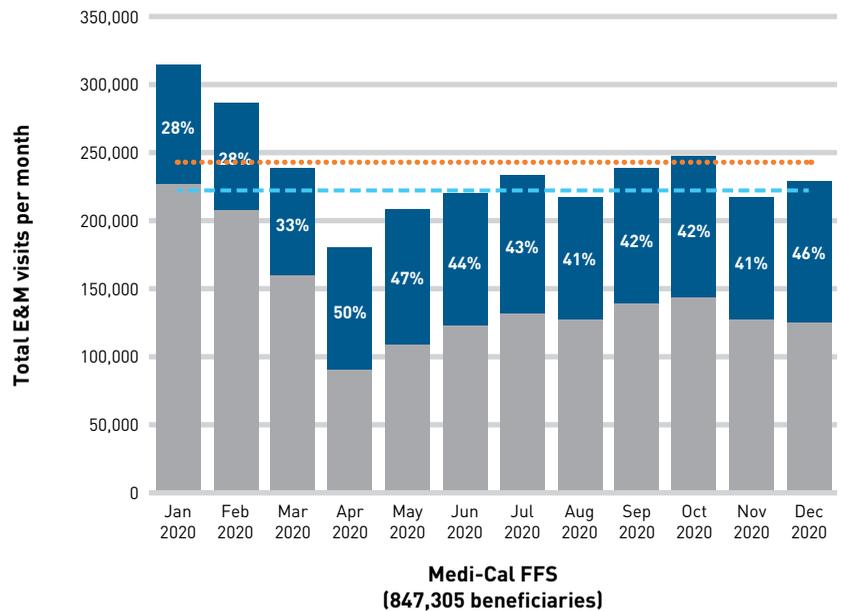
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visits were 31.0, 15.6, and 23.4 percentage points higher among the CalPERS MC, Medi-Cal FFS, and Medi-Cal MC populations, respectively. The predicted, regression-adjusted share of telehealth visits as a proportion of all E&M visits was 22.6% for CalPERS FFS patients (the reference group), 38.2% for Medi-Cal FFS patients, 46.0% for Medi-Cal MC patients, and 53.5% for CalPERS MC patients. Female patients were slightly more likely than male patients to receive care via telehealth (predicted probability of 45.8% vs 43.2%, respectively). Individuals aged 0 to 5 years and 6 to 18 years were less likely than adults to receive care via telehealth (adjusted shares of 40.5% and 41.0%, respectively). Older patients, aged 51 to 64 years, were slightly more likely to receive care via telehealth than those aged 19 to 50 years (adjusted 48.9% vs 46.4%, respectively). Those who lived in rural areas had an adjusted 52.4% of their E&M visits through telehealth, compared with 44.1% among those who resided in urban areas. No clear pattern emerged with respect to internet availability in the community and use of telehealth. We estimated sensitivity analyses limiting regression models to (1) children only and (2) adults only. Results from these models were similar to those for all ages and can be found in the [Appendix Table](#) (available at [ajmc.com](#)).

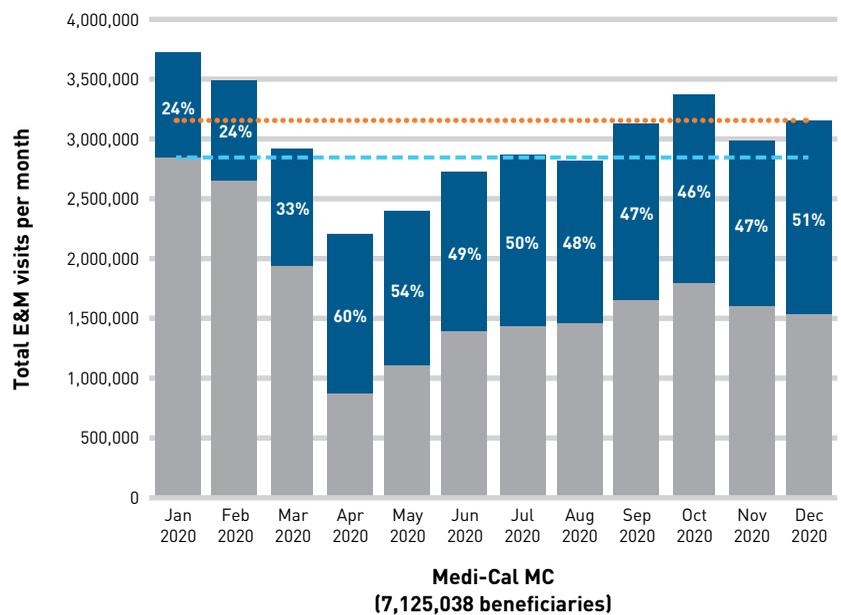
As noted above, Medi-Cal data contain rich patient-level demographic information. We leveraged these characteristics to explore differences in telehealth use among patients of different races/ethnicities, spoken language, and documentation status, after adjusting for age, rurality, and internet availability, and how these differences varied across FFS and MC plans ([Table 4](#)). Within each plan type, telehealth use as a share of all E&M visits was higher among Spanish speakers, female enrollees, and rural enrollees. Demographic differences varied by plan type (eg, undocumented and refugee enrollees had lower telehealth use than US citizens in FFS plans but higher rates in MC plans). However, across most demographic characteristics, Medi-Cal patients enrolled in FFS were less likely to receive telehealth compared with those enrolled in MC. Differences were particularly pronounced for patients aged 51 to 64 years and those who were undocumented or refugees. Wald tests revealed statistically

FIGURE. (Continued) Unadjusted Trends in E&M and Telehealth Visits, by Payer and Plan Type^a

C. Medi-Cal FFS



D. Medi-Cal MC



In-person E&M
 Telehealth E&M
..... 2019 mean monthly E&M visits
 - - - - 2020 mean monthly E&M visits

CalPERS, California Public Employees' Retirement System; E&M, evaluation and management; FFS, fee-for-service; MC, managed care; Medi-Cal (California Medicaid).

^aThese figures show trends in per capita use of in-person E&M visits (bottom grey bars) and telehealth visits (top orange bars). Within each bar, the monthly share of E&M (in-person and telehealth) visits that are conducted via telehealth are displayed. The dotted and dashed lines represent the per capita 2019 and 2020, respectively, mean monthly E&M visits.

TABLE 2. E&M Visits by Plan Type

	E&M visits PMPTY, 2019	E&M visits PMPTY, 2020	Telehealth as a proportion of E&M, 2019	Telehealth as a proportion of E&M, 2020	Absolute difference from 2019 to 2020 in proportion of telehealth
CalPERS, all	3.20	3.15	11.73%	46.85%	35.12%
CalPERS FFS	3.57	3.31	0.30%	29.90%	29.60%
CalPERS MC	3.06	3.09	16.60%	53.70%	37.10%
Medi-Cal, all	3.64	3.45	14.83%	49.39%	34.56%
Medi-Cal FFS	2.11	2.20	22.10%	45.30%	23.20%
Medi-Cal MC	3.64	3.45	14.40%	50.00%	35.60%

CalPERS, California Public Employees' Retirement System; E&M, evaluation and management; FFS, fee-for-service; MC, managed care; Medi-Cal (California Medicaid); PMPTY, per member per truncated year (April-December).

TABLE 3. Regression Results: Telehealth as a Proportion of All E&M Visits*

	Coefficient	Adjusted telehealth rate
CalPERS FFS	Ref	0.226
CalPERS MC	0.310*	0.535
Medi-Cal FFS	0.156*	0.382
Medi-Cal MC	0.234*	0.460
Male	Ref	0.432
Female	0.0259*	0.458
Aged 0-5 years	-0.0594*	0.405
Aged 6-18 years	-0.0546*	0.410
Aged 19-50 years	Ref	0.464
Aged 51-64 years	0.0245*	0.489
Urban	Ref	0.441
Rural	0.0828*	0.524
1st quartile (lowest share without internet access)	Ref	0.473
2nd quartile	-0.0585*	0.415
3rd quartile	-0.0496*	0.424
4th quartile	0.00753*	0.481

CalPERS, California Public Employees' Retirement System; E&M, evaluation and management; FFS, fee-for-service; MC, managed care; Medi-Cal (California Medicaid); ref, reference.

* $P < .01$.

*This regression estimates the share of E&M visits conducted virtually, among the combined Medi-Cal and CalPERS population. Regression models are estimated using linear regression.

significant differences in use of telehealth across Medi-Cal plan types (FFS or MC). Thus, although population differences exist between both plan types, the gradient of these differences is generally larger for FFS plans than for MC plans. These results indicate disparities in telehealth use within Medi-Cal that are associated with plan type, with fewer disparities existing in MC plans.

DISCUSSION

The COVID-19 pandemic introduced barriers in access to care and rapidly introduced new modalities of care delivery, particularly telehealth. As with many other forms of medical care, less-resourced patient populations may not have the same access to telehealth as

higher-resourced populations. In this study, we compared changes in the use of E&M visits, the most common mechanism by which primary care and specialty care is delivered, between a large commercially insured population and the largest Medicaid program in the country. To date, there are few direct comparisons of telehealth use between Medicaid and commercially insured patient populations.¹² Within each population, we also compared differences in telehealth use among MC and FFS insurance plans, under the assumption that the financial incentives and organizational structure of MC may enable broader use of telehealth that in turn lead to smaller overall reductions in service use.

Our findings of more widespread use of telehealth among MC plans are consistent with this hypothesis. In both CalPERS and Medi-Cal, telehealth represented a larger share of overall care in MC than in FFS plans. Among both populations, rural populations had a greater proportion of their care delivered via telehealth, potentially suggesting that telehealth can lessen physical access barriers for E&M care. Among the Medi-Cal population, disparities in use of telehealth varied when examining FFS and MC plans, but telehealth use was higher among most Medi-Cal subgroups in MC plans. Within all 4 groups, telehealth use as a proportion of overall visits remained relatively steady from April to December 2020, indicating there were not temporal variations in use of telehealth in the first 9 months of the pandemic.

The appropriate level of telehealth utilization within hybrid care models that include in-person and telehealth visits is unclear and will likely vary by clinical needs and patient and provider preferences. However, our study

reveals large variation in the proportion of visits that were delivered via telehealth across populations and plans, suggesting that further research is needed to determine not only how much telehealth is too much but also whether utilization patterns reveal true preferences about care vs structural barriers to the ideal mix of in-person and telehealth visits. Interestingly, although other literature has shown that rural residents use telehealth at lower rates,^{1,6} our data showed that telehealth visits represented a larger share of overall care among rural populations, suggesting that California and Medicaid rural enrollees may have better access to telehealth than other populations. Some studies showing lower telehealth use among rural residents may be identifying general barriers to care that keep utilization relatively low across all modalities.

Limitations

This study is not without limitations. Although we focused on a large, commercially insured population and the population of California Medi-Cal enrollees, our sample originates from a single state. California providers may have been better equipped to transition to telehealth during the pandemic. Most notably, Kaiser Permanente, a major provider of MC in California, may have been better equipped to implement telehealth.¹³ Future studies should examine if there are similar differences in other states and settings. Although we attempted to case-mix adjust our findings to account for differences in disease burden across populations, the quality of these data was poor, resulting in their ultimate exclusion from the models. Poor data quality may have been due to MC plans submitting encounter data and FFS plans submitting claims data. We used data for the entirety of the CalPERS and Medi-Cal populations for 2019 and 2020; it is not clear whether results will generalize to future years. If providers and patients became comfortable with telehealth as a visit modality, our results may underestimate use of telehealth in subsequent years. Conversely, if cost sharing for telehealth increases relative to its 2020 levels, our results may overestimate use of telehealth in subsequent years. When comparing differences across plan types, providers contracting with MC plans may themselves be paid through capitation or FFS, even if the plan itself received capitated funding. We were also unable to distinguish between audio vs video telehealth visits in the data. Previous research has found high rates of audio telehealth visits among federally qualified health centers, which disproportionately serve Medicaid patients.¹⁴ Thus, although we did not find disparities in use of telehealth, there may be disparities in access to video-based telehealth that we are not able to ascertain in our data.

CONCLUSIONS

This study highlights the substantial differences in use of telehealth across populations and insurance plan types, with telehealth use being larger among MC enrollees than among FFS enrollees. Of all 4 groups we studied, commercially insured FFS enrollees had the lowest use of telehealth. The unique Medicaid data allowed us to study disparities. In these evaluations, we found generally larger disparities in FFS Medicaid plans compared with MC Medicaid plans.

Our results provide important insight into how COVID-19 altered care delivery patterns for historically underresourced populations and how plan types contribute to these differences. ■

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TABLE 4. Regression-Adjusted Differences in Use of Telehealth in the Medi-Cal Population*

	Medi-Cal FFS		Medi-Cal MC		P (FFS vs MC)
	Coefficient	Adjusted telehealth rate	Coefficient	Adjusted telehealth rate	
Race/Ethnicity					
White non-Hispanic (ref)		0.374		0.451	
Hispanic	-0.0000399	0.374	0.00628*	0.457	<.01
Black non-Hispanic	-0.0305*	0.343	-0.00402*	0.447	<.01
Asian	0.00139	0.375	0.00412*	0.455	.24
Alaska Native or American Indian	0.0642*	0.438	0.0114*	0.462	<.01
Other	0.0497*	0.423	0.0198*	0.471	<.01
Language					
English (ref)		0.357		0.444	
Spanish	0.0726*	0.429	0.0494*	0.494	<.01
Other	0.152*	0.509	-0.00327*	0.441	<.01
Sex					
Male (ref)		0.360		0.444	
Female	0.0461*	0.406	0.0231*	0.467	<.01
Age in years					
0-5	-0.00213	0.382	-0.0866*	0.400	<.01
6-18	-0.0202*	0.364	-0.0753*	0.411	<.01
19-50 (ref)		0.384		0.486	
51-64	0.0258*	0.410	0.0287*	0.515	.02
Rurality					
Urban (ref)		0.375		0.451	
Rural	0.128*	0.503	0.0925*	0.544	<.01
Broadband internet access					
1st quartile (lowest share without internet access) (ref)		0.410		0.481	
2nd quartile	-0.0802*	0.330	-0.0539*	0.427	<.01
3rd quartile	-0.0330*	0.377	-0.0515*	0.429	<.01
4th quartile	0.0203*	0.430	0.0163*	0.497	.003
Documentation status					
US citizen/resident (ref)		0.414		0.455	
Undocumented	-0.162*	0.252	0.0317*	0.487	<.01
Refugee	-0.0469*	0.367	0.0438*	0.499	<.01

FFS, fee-for-service; MC, managed care; Medi-Cal [California Medicaid]; ref, reference.

* $P < .01$.

*This regression estimates the share of evaluation and management visits conducted virtually among the Medi-Cal population. Regression models are estimated using linear regressions. Separate models are estimated for Medi-Cal FFS and MC plans.

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eAppendix Table.

A. Regression Results, Telehealth as a Proportion of all E&M visits for Children Only

	Coefficient	Adjusted telehealth rates
CalPERS FFS	(ref)	0.189*
CalPERS MC	0.347*	0.536*
Medi-Cal FFS	0.201*	0.390*
Medi-Cal MC	0.221*	0.410*
Male	(ref)	0.408*
Female	0.00340*	0.411*
Age 0 - 5	0	0.402*
Age 6 - 18	0.0118*	0.414*
Urban	(ref)	0.402*
Rural	0.105*	0.508*
Lowest quartile without home internet	(ref)	0.420*
2nd quartile	-0.0552*	0.365*
3rd quartile	-0.0136*	0.406*
Highest quartile without home internet	0.0305*	0.450*

Notes: This regression estimates the share of evaluation and management visits conducted virtually, among the combined Medi-Cal and CalPERS population. Regression models are estimated using linear regressions. *P<0.01

B. Regression Results, Telehealth as a Proportion of all E&M visits for Adults Only

	Coefficient	Adjusted telehealth rates
CalPERS FFS	(ref)	0.252*
CalPERS MC	0.296*	0.548*
Medi-Cal FFS	0.135*	0.387*
Medi-Cal MC	0.240*	0.492*
Male	(ref)	0.446*
Female	0.0399*	0.486*
Age 19 – 50	(ref)	0.464*
Age 51 - 64	0.0242*	0.488*
Urban	(ref)	0.466*
Rural	0.0687*	0.535*
Lowest quartile without home internet	(ref)	0.507*

2nd quartile	-0.0606*	0.447*
3rd quartile	-0.0716*	0.435*
Highest quartile without home internet	-0.00811*	0.499*

Notes: This regression estimates the share of evaluation and management visits conducted virtually, among the combined Medi-Cal and CalPERS population. Regression models are estimated using linear regressions. *P<0.01