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BACKGROUND

- The use of virtual care has accelerated since the emergence of COVID-19 pandemic.
- As with other conditions, COVID-19 disrupted diagnosis and treatment of type 2 diabetes mellitus (T2DM)
- ~33 million Americans have T2DM¹ and 1.4 million new cases were reported in 2019²
- As diabetes practices adopted telemedicine, we hypothesize that some socio-demographic characteristics will be associated with the uptake of telemedicine in diabetes care
- This study aims to analyze the differences in patient characteristics between new and existing type 2 diabetes mellitus (T2DM) patients that utilized virtual care.

METHODS

- Adult patients (age ≥ 18 years) with T2DM who had a virtual care (phone or video) visit between April 1, 2020 and March 31, 2022 from the OptumLabs Data Warehouse[®] were identified
- The date of the first virtual visit was defined as the **index date**. Patients were required to be continuously insured at least 1 year prior to their index date (baseline) and at least 90 days of follow-up coverage.
- Patients with type 1 diabetes and those with missing age or gender were excluded.
- T2DM patients were categorized as **newly diagnosed** and as **existing** T2DM patients based on whether a diabetes diagnosis was observed in the baseline or not.
- During COVID-19, there were frequent changes in reimbursement codes (CPT, HCPCS). Our code were guided by CMS.³

RESULTS

- A total of 1,864,203 unique T2DM patients were eligible, with 18.5% identified as newly diagnosed and 81.5% as existing T2DM patients.
- On average, newly diagnosed T2DM patients were younger than existing T2DM patients.
- Majority (54.5%) of newly diagnosed T2DM patients were commercially insured compared to only 38.6% existing T2DM patients.
- For Existing T2DM patients (Table 1),**
 - 61.2% were White, 17.9% Non-Hispanic Black, 12.7% Hispanic and 8.2% others.
 - Of this population, 12.7% had a household income ≥ \$125,000
 - 13.3% had at least a Bachelor's degree
 - 80.3% reside in a metropolitan area.
- For newly diagnosed T2DM cohort (Table 1),**
 - 59.7% were White, 15.3% Non-Hispanic Black, 13.4% Hispanic, and 11.6% others.
 - Of this population, 15.9% had a household income ≥ \$125,000
 - 14.9% had at least a Bachelor's degree
 - 82.0% reside in a metropolitan area.
- More of the newly diagnosed T2DM cohort had higher household income, higher education, and resided in a metropolitan area compared to patients with existing T2DM.
- Socioeconomic characteristics also differed among Medicare Advantage and commercial patients with both existing and newly-diagnosed diabetes cohorts.
 - For existing cohort,**
 - 7.6% vs. 20.9% had household income ≥ 125K
 - 13% vs. 17% had at least a bachelor's degree
 - 77% vs. 85% lived in metropolitan area
 - For newly diagnosed cohort,**
 - 8.7% vs. 22.0% had household income ≥ 125K
 - 12% vs. 17% had at least a bachelor's degree
 - 78% vs. 85% lived in metropolitan area

Table 2: Patient Characteristics by Existing and Newly Diagnosed Diabetes

	Existing Diabetes			New Diabetes		
	Total (N=1,520,023)	MCR (N=933,722)	COM (N=586,301)	Total (N=344,180)	MCR (N=156,802)	COM (N=187,378)
Age						
N	1520023	933722	586301	344180	156802	187378
Mean (SD)	66.2 (12.8)	73.3 (8.4)	54.9 (10.2)	60.9 (14.8)	72.5 (9.2)	51.2 (11.2)
Median	68.0	73.0	56.0	62.0	72.0	53.0
Q1, Q3	58.0, 76.0	69.0, 79.0	49.0, 62.0	51.0, 72.0	68.0, 78.0	44.0, 59.0
Range	(18.0-87.0)	(21.0-87.0)	(18.0-87.0)	(18.0-89.0)	(21.0-89.0)	(18.0-89.0)
Gender						
Female	752297 (49.5%)	500486 (53.6%)	251811 (42.9%)	166718 (48.4%)	83050 (53.0%)	83668 (44.7%)
Male	767726 (50.5%)	433236 (46.4%)	334490 (57.1%)	177462 (51.6%)	73752 (47.0%)	103710 (55.3%)
Race						
Asian	65588 (4.3%)	31858 (3.4%)	33730 (5.8%)	16618 (4.8%)	5320 (3.4%)	11298 (6.0%)
Non-Hispanic Black	271810 (17.9%)	187793 (20.1%)	84017 (14.3%)	52804 (15.3%)	26365 (16.8%)	26439 (14.1%)
Hispanic	192697 (12.7%)	110004 (11.8%)	82693 (14.1%)	46148 (13.4%)	17868 (11.4%)	28280 (15.1%)
Unknown	59497 (3.9%)	25648 (2.7%)	33849 (5.8%)	23295 (6.8%)	7953 (5.1%)	15342 (8.2%)
Non-Hispanic White	930431 (61.2%)	578419 (61.9%)	352012 (60.0%)	205315 (59.7%)	99296 (63.3%)	106019 (56.6%)
Household income						
<\$40K	472977 (31.1%)	348682 (37.3%)	124295 (21.2%)	94020 (27.3%)	53942 (34.4%)	40078 (21.4%)
\$40,000-\$74,999	447642 (29.4%)	301051 (32.2%)	146591 (25.0%)	92524 (26.9%)	48678 (31.0%)	43846 (23.4%)
\$75,000-\$124,999	342579 (22.5%)	183096 (19.6%)	159483 (27.2%)	79142 (23.0%)	32458 (20.7%)	46684 (24.9%)
\$125,000-\$199,999	134948 (8.9%)	54849 (5.9%)	80099 (13.7%)	36284 (10.5%)	10356 (6.6%)	25928 (13.8%)
≥\$200,000	58087 (3.8%)	15893 (1.7%)	42194 (7.2%)	18573 (5.4%)	3277 (2.1%)	15296 (8.2%)
Unknown	63790 (4.2%)	30151 (3.2%)	33639 (5.7%)	23637 (6.9%)	8091 (5.2%)	15546 (8.3%)
Education level						
Less than 12 th grade	8696 (0.6%)	4956 (0.5%)	3740 (0.6%)	1886 (0.5%)	717 (0.5%)	1169 (0.6%)
High School Diploma	481892 (31.7%)	330036 (35.3%)	151856 (25.9%)	97281 (28.3%)	51000 (32.5%)	46281 (24.7%)
Less than Bachelor's Degree	791766 (52.1%)	481486 (51.6%)	310280 (52.9%)	176386 (51.2%)	80749 (51.5%)	95637 (51.0%)
Bachelor's Degree Plus	201801 (13.3%)	104712 (11.2%)	97089 (16.6%)	51130 (14.9%)	18847 (12.0%)	32283 (17.2%)
Unknown	35868 (2.4%)	12532 (1.3%)	23336 (4.0%)	17497 (5.1%)	5489 (3.5%)	12008 (6.4%)
RUCA						
Metropolitan	1220240 (80.3%)	721753 (77.3%)	498487 (85.0%)	282252 (82.0%)	122882 (78.4%)	159370 (85.1%)
Micropolitan	118985 (7.8%)	87205 (9.3%)	31780 (5.4%)	23295 (6.8%)	13530 (8.6%)	9765 (5.2%)
Small town	59552 (3.9%)	44415 (4.8%)	15137 (2.6%)	11870 (3.4%)	7170 (4.6%)	4700 (2.5%)
Rural	31122 (2.0%)	22915 (2.5%)	8207 (1.4%)	6068 (1.8%)	3696 (2.4%)	2372 (1.3%)
Unknown	90124 (5.9%)	57434 (6.2%)	32690 (5.6%)	20695 (6.0%)	9524 (6.1%)	11171 (6.0%)
Health plan						
COM	586301 (38.6%)		586301 (100.0%)	187378 (54.4%)		187378 (100.0%)
MCR	933722 (61.4%)	933722 (100.0%)		156802 (45.6%)	156802 (100.0%)	

Figure 1: Month and year of virtual and inperson visits among all/existing diabetes cohort

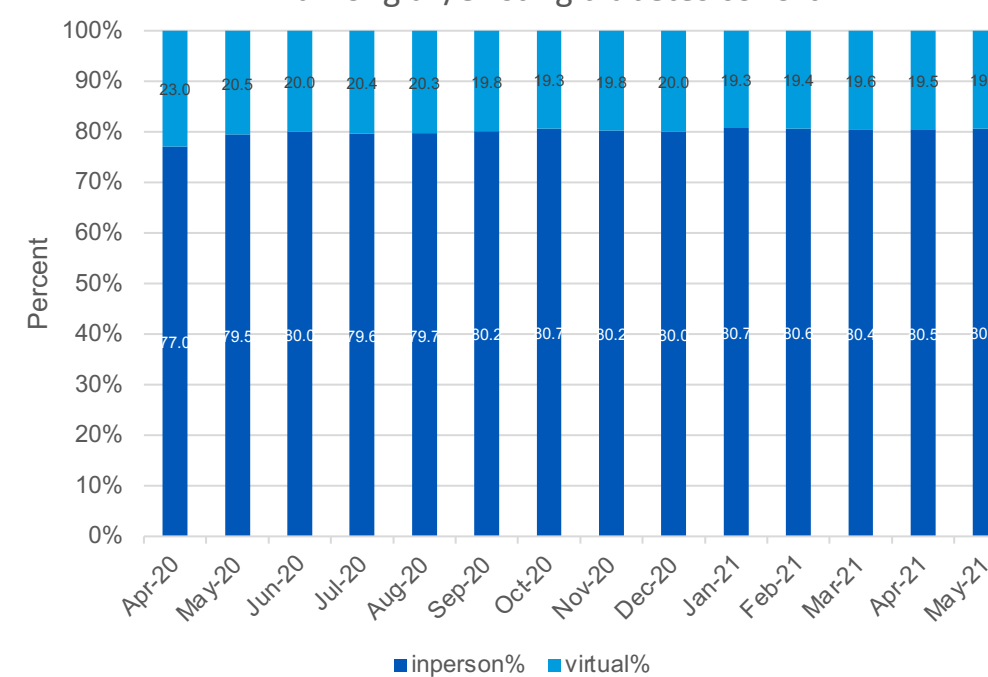
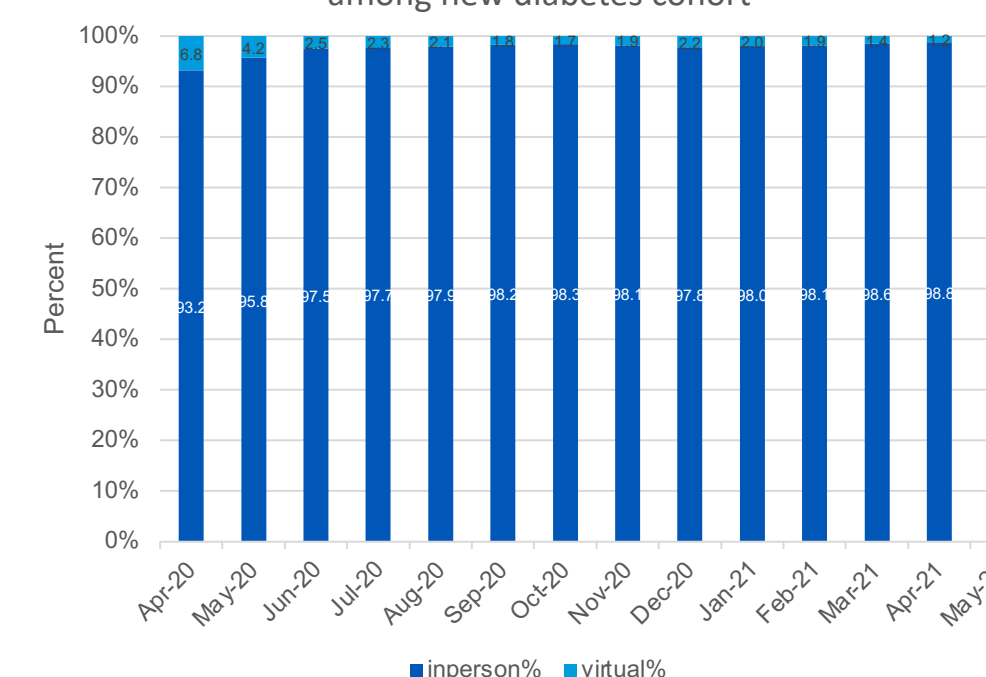


Figure 2: Month and year of virtual and inperson visits among new diabetes cohort



DISCUSSION

- Through March 31, 2022, this study reveals a large variation in the use of telehealth among individuals with T2DM.
- Specifically, our descriptive results appear to support concerns that disparity in telehealth may increase by income status, education, and geographic location.
- As telehealth technologies advances and mature, it will be paramount to understand how different populations prefer different modes of telehealth.

LIMITATIONS

- A key limitation is the challenge in defining what telehealth encompasses, especially during the COVID-19 pandemic, during which reimbursement codes changed frequently, and hence definition of telehealth itself.
- Optum Labs data includes only insured population, as such the results don't reflect national trend

CONCLUSION

- T2DM patients that used virtual care were heterogenous in terms of their baseline characteristics.
- This underscores the emerging trend that virtual care can potentially play only a complementary role in managing patients with diabetes as all-size-fits-all approach may not work.

REFERENCES

¹Centers for Disease Control (CDC) 2023. National Diabetes Statistics Report. <https://www.cdc.gov/diabetes/data/statistics-report/index.html> (viewed 05/03/2023)

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³Center for Medicare and Medicaid (CMS) 2023. Elimination of Telehealth Modifiers for Telehealth Services. <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/downloads/MM10152.pdf>