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ABSTRACT

Enhanced telehealth flexibilities in response to the Covid-19 pandemic have prompted heightened utilization across many physician specialties, yet national trends have not been assessed within dermatology specifically. In this longitudinal review of 2017–2020 Medicare billing data, we identified a 210-fold increase in teledermatology evaluation and management (E&M) visits between 2019 and 2020, which helped to slightly offset the substantial 20.1% decline in in-person E&M visits. Teledermatology comprised an overall greater proportion of E&M visits in states with the largest declines in in-person visits. Teledermatology E&M visits were primarily comprised by established patient *video* visits (74.3%), yet the relatively more substantial role of *telephone-only* visits in certain rural states may reflect limitations in technological access in these areas. Asynchronous teledermatology (including store-and-forward dermatology) also increased by 34-fold in 2020, supporting its utility for evaluation of a changing lesion or for triage purposes. The findings underscore the growing role of telehealth in dermatologic care and are important given that certain telehealth flexibilities are set to expire at the end of the Public Health Emergency without additional congressional intervention.

INTRODUCTION

In March 2020, the Centers for Medicare and Medicaid Services issued enhanced telehealth flexibilities following the Covid-19 pandemic.[1] Recent analyses have thus far demonstrated telehealth increases across all physician specialties in 2020, and survey data suggest that 96% of dermatologists utilized teledermatology during the pandemic, up from 14% previously.[1, 2] However, national and state-specific teledermatology trends have not been assessed,[1] which is important given its potential to aid in common diagnoses,[3] increase practice efficiency, reach patients without local dermatologists, and improve care flexibility.[2]

METHODS

We reviewed 2017–2020 Medicare Part B Procedure Summary datasets (the most recently available Medicare data) to identify national and state-specific teledermatology trends prior to and during the Covid-19 pandemic.[4] Consistent with Medicare classifications, teledermatology encounters included (1) *synchronous* video or telephone-only evaluation and management (E&M) visits and (2) non-E&M *asynchronous* telecommunications, including "virtual check-ins" and digital "E-visits". Trends were displayed in aggregate, for each specific teledermatology service type, and within specific states.

RESULTS

Overall, 255,656 telehealth E&M visits and 16,849 asynchronous telecommunications were analyzed. Aggregate utilization of telehealth E&M visits was 210-fold greater in 2020 as compared to 2019, while in-person E&M visits decreased by 20.1%. Asynchronous telecommunications increased substantially by 34-fold in 2020 (**Table**). Telehealth E&M utilization was notably higher in Massachusetts (8.3%), Vermont (6.2%), and New York (5.2%), with telephone-only E&M visits more frequently used in Vermont (50.9%), Wisconsin (37.3%), and Alabama (35.2%) (**Figure**).

DISCUSSION

The analysis indicates substantial growth in teledermatology in 2020, closely reflecting the average for other medical specialties (2.6%).[1] This expansion was likely facilitated by temporary government waivers, which increased the Medicare payment rate for telehealth services (audio and video) to the non-facility in-person rate across all regions.[1] Previously, Medicare telehealth was only reimbursed in specified rural regions and at the lower facility rate.[1] Despite teledermatology

growth, *aggregate* E&M visits still decreased in 2020, underscoring the importance of careful monitoring for patients with suboptimal follow-up during the pandemic.

Although teledermatology increased across all states, greater utilization in states with more substantial in-person visit declines suggests its role in addressing care gaps. While telephone-only E&M visits were infrequently used, they comprised a significant proportion of teledermatology in certain rural states (Vermont, Wisconsin, Alabama), potentially reflecting less developed rural technological infrastructure in these areas.[2] Importantly, elderly patients, minorities, and those with disabilities also have decreased digital access,[2] and mitigation of these disparities is therefore critical to promote equitable teledermatology utilization moving forward.

There are shortcomings to teledermatology, including reliance on digital technologies, potential exacerbation of language barriers,[2] lack of suitability for full-body examinations,[5] and potentially inferior diagnostic accuracy for malignant lesions.[2] Still, it offers acceptable diagnostic accuracy for a number of common of skin conditions.[2, 3] Surveyed dermatologists are comfortable using live teledermatology for rashes and follow-ups,[5] as reflected in these data by the disproportionate use among established patients. Stored digital photography also increased to a significant degree in these data and may offer specific utility for the evaluation of a single changing lesion and assist in triaging patients for in-person evaluation.[2, 5]

Limitations to this analysis include the reliance on Medicare data given that commercial payors were not required in many states to implement telehealth reimbursement parity. Additionally, these data are not available at the provider level, beyond 2020, and cannot be correlated to diagnoses. Despite teledermatology expansion, the lower facility payment rate and geographic telehealth restrictions are set to return in October 2022. As such, additional

congressional legislation may be required to support long-term use and further longitudinal assessments will be essential.

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Table. Utilization of in-person and telehealth E&M visits and asynchronous telecommunications among Medicare Part B dermatology beneficiaries, 2017–2020.

Visit/Interaction Type	Annual Volume and Proportion of Visit Type				Average Annual Percent Change (2017 to 2019)	Annual Percent Change (2019 to 2020)
	2017	2018	2019	2020		
E&M Visits						
All E&M Visits	**11,484,780**	**11,511,099**	**11,723,676**	**9,623,981**	**+1.0%**	**–17.9%**
In-Person E&M	*11,484,46 (100.0)*	*11,510,416 (100.0)*	*11,722,468 (100.0)*	*9,370,529 (97.4)*	*+1.0%*	–20.1%
New	1,676,225 (14.6)	1,628,113 (14.1)	1,620,992 (13.8)	1,210,571 (12.9)	–1.7%	–25.3%
Established	9,808,242 (85.4)	9,882,303 (85.9)	10,101,476 (86.2)	8,159,958 (87.1)	+1.5%	–19.2%
Telehealth E&M	*313 (0.0)*	*683 (0.0)*	*1,208 (0.0)*	*253,452 (2.6)*	*+96.5%*	*+20,881%*
Synchronous Video (New)	189 (60.4)	365 (53.4)	881 (72.9)	24,513 (9.7)	+115.9%	+2,682%
Synchronous Video (Established)	124 (39.6)	318 (46.6)	327 (27.1)	188,211 (74.3)	+62.4%	+57,457%
Synchronous Telephone Only (New or Established)	–	–	–	40,728 (16.1)	–	–
Asynchronous Telecommunications						
All Asynchronous Telecommunications	**240**	**264**	**433**	**15,912**	**+34.3%**	**+3,575%**
Virtual Check-in (Image Review)	–	–	47 (10.9)	2,957 (18.6)	–	+6,192%
Virtual Check-in (Communication)	–	–	111 (25.6)	4,081 (25.6)	–	+3,577%
Digital E-Visit	240 (100.0)	264 (100.0)	275 (63.5)	8,874 (55.8)	+7.0%	+3,127%

Table Footnotes. In-person Medicare E&M visits (HCPCS 99201–99215) performed by dermatologists include those in the office and outpatient hospital facility settings. Synchronous telehealth visits include video (HCPCS 99201–99215 with modifier -95 or place of service: telehealth) or telephone-only (HCPCS 99441–99443 [established 2020]) E&M visits. Asynchronous telecommunications are patient-initiated and include "virtual check-ins", potentially with image/media review (HCPCS G2010, G2012 [established 2019]) and digital "E-visits", typically through portal or email modalities (HCPCS 99421–99423 [2020]; 99444 [2017–2019]).

HCPCS = Healthcare Common Procedure Coding System.

Figure. State-specific utilization of in-person and telehealth E&M visits among Medicare Part B dermatology beneficiaries, 2019–2020.

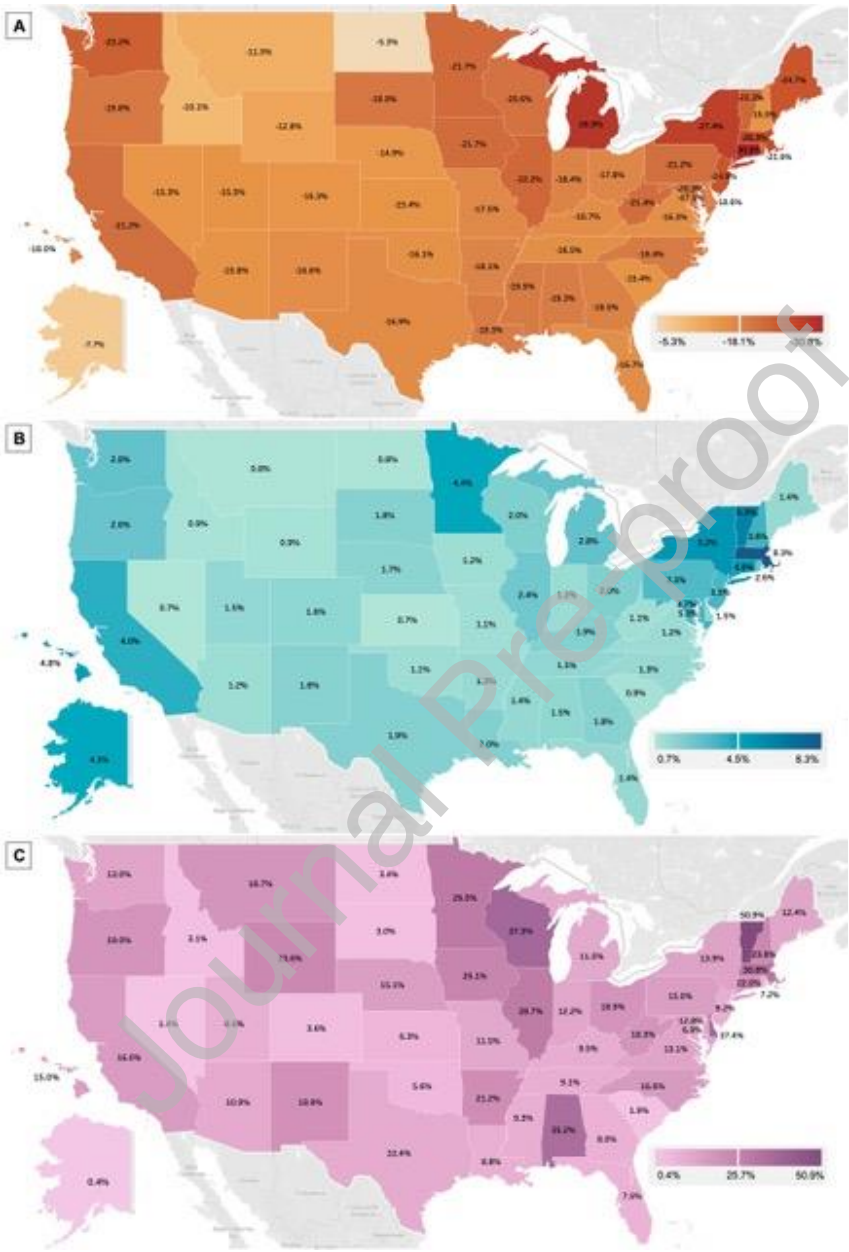

Figure Footnotes. The figure illustrates: (A) state-specific percentage change in in-person Medicare Part B E&M visits by dermatologists from 2019 to 2020, (B) state-specific proportions of all Medicare Part B dermatology E&M visits comprised by telehealth in 2020, and (C) state-

specific proportions of telehealth E&M dermatology visits that were telephone-only (vs. video) (C). Asynchronous telecommunications are not included in the figure.