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Telehealth in Urology Beyond COVID-19

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Introduction: Implementation of telehealth (TH) accelerated during the COVID-19 pandemic and has become a vital part of health care delivery. As we move toward the post-COVID-19 era, clinical practice has demonstrated a need for updated policies and quality improvement to solidify the role of TH in the urology care setting. The AUA Census data were used to explore trends, benefits, and barriers to urology TH implementation.

Methods: The AUA Workforce Workgroup and Telehealth Taskforce analyzed data from the 2019-2022 AUA Census. Pertinent variables included utilization, patient satisfaction, care settings, quality, and diagnoses amenable to TH.

Results: Pre-COVID-19 TH utilization increased from 11.9% to 81% during and after the COVID-19 pandemic. TH is predominately used in metropolitan academic centers, with usage increasing from 12.8% to 83% in these areas during the pandemic. Usage also increased in non-metropolitan areas from 3.8% to 61.2%. Overall, 76.7% reported increased ease of scheduling follow-ups, 62% ease of ordering tests, and 69.5% ease of accessing patient data in favor of audio visits vs in-person visits. TH utilization increased from 42.4% to 65% for initial visits and 66.8% to 82% for follow-up visits. Over 80% of practicing urologists younger than 54 years desire the use of telemedicine for follow-up visits. TH increased patient access to care by 51.6%, and 54% of urologists expressed desire to continue using or increase utilization of TH. The top 3 barriers of patient's ability to receive telemedicine were 67.6% noting lack of knowledge in using patient portal/software needed for telemedicine visits, 49.6% had lack of adequate conferencing tools, and 43.9% lacked high-speed internet service to enable video visits. In total, 53.4% of urologists would absolutely or probably increase usage if payment parity of TH was comparable with that of in-office E/M services.

Conclusion: TH implementation accelerated during the COVID-19 era. In the post-COVID-19 era, TH continues to be important across multiple areas including patient and physician satisfaction and increasing access to care, particularly in rural areas. Barriers exist, especially concerning payment parity, and could be eliminated through advocacy for policy updates and standardization of technology.

Key Words: Telehealth, payment parity, equitable healthcare, patient access

Submitted January 14, 2024; accepted March 26, 2024; published June 25, 2024.

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THE United States is shifting to a post-pandemic mindset, and the health care industry faces new opportunities and challenges with respect to the utilization of telehealth (TH). "TH is the use of a technology-based virtual platform to

https://doi.org/10.1097/JU9.0000000000000153
Vol. 2, e00056, June 2024

deliver various aspects of health information, prevention, monitoring, and medical care."[1] TH was a pivotal, cost-effective adaptation allowing safe interactions between health care providers and patients. TH has multiple proven benefits, including decreased travel costs and lost time/wages, increased care accessibility, and enhanced patient-centered health care.[2,3] TH when used efficiently can have significant impacts such as improved patient access in areas with provider shortages, increased satisfaction of care, and decreased mortality rates in rural communities.[4] Studies have found structured telephone support and other forms of home telemonitoring reduce the risk of all-cause mortality and heart failure-related hospitalizations. Between improvements in health-related quality of life and increased awareness about positive self-care behaviors, TH also increases patient satisfaction.[5]

Before the pandemic, TH was not widespread even with the aforementioned benefits. The rapid implementation of TH increased utilization and changed the face of medicine. As we transition out of crisis mode, integration of TH into permanent clinical practice should be considered. Increased payment and reduced regulations played a large role in the ability to rapidly implement TH during the pandemic.[6] Updated policies are needed to help evolve TH achieve higher quality of care, improve patient satisfaction, and maximize the associated benefits.[7] In this study, the AUA Workforce Workgroup and TH Taskforce focus on the use of TH within the scope of urology patient care to promote knowledge to support updated policies and broader application in the post-COVID-19 era.

METHODS

A literature review was used with Medical Subject Headings terms, including TH, pre and post COVID-19, reimbursement, barriers, and advantages. Utilization data were gathered using the 2019, 2020, 2021, and 2022 AUA Census report within section 8 titled Telemedicine. Questions included were related to "patient consultation topics for which practicing urologists utilize telemedicine," "participation in telemedicine programs (by practice setting, and metropolitan status)," "anticipated continuation of using telemedicine after the COVID-19 pandemic abates," "types of visits my patients may prefer if telemedicine services continued to be offered in the future (in-person vs telemedicine)," "key barriers to patients' ability to receive telemedicine services," and "having quality improvement tools specific to the provision of telemedicine would be helpful."

Data in the AUA Annual Census were collected and analyzed using weighted survey methodology. Each year, 2 data files were established. One file was a population file containing basic demographic, geographic, and certification information for all practicing urologists in the U.S. in the respective year. The second file was a sample data file containing a broad range of information collected from the Census. To adjust for nonresponses and resulting biases in the 2022 AUA Census sample, a standard poststratification weighting technique was used. Identified factors include sex, geographic location, certification status, and years since initial certification. These factors are used to develop stratification cells for calculating sample weights. The population file and Census survey sample file were linked through poststratification factors, and each respondent's contribution was assigned a sample weight.

Data collection for AUA Annual Census begins in late April and ends each year in September. Each respondent was assigned an identification number before the submission of responses to the Census questions. This step ensured the results could be linked to the population file and no respondent could take the survey more than once. Those urologists who were either practicing outside the U.S. or in residency training were removed from this study. After the poststratification weighting adjustment, the Census data were analyzed with IBM-SPSS Complex Samples 27.0.

RESULTS

Utilization

Before the pandemic, overall TH usage, defined by the percentage of urologists using this technology, was 11.9% in 2019.[8] The 2020 Census reported an increase in TH usage, specifically 68.5% in private practice and 76.2% in academic institutions.[9] Of the physicians reporting using TH in 2020, 93.9% used compensated video visits and 77.3% used phone calls to reduce appointment times.[9] In 2021, 14.6% of urologists used TH for initial patient visits, 70.2% used TH for follow-up clinical visits, and 93.3% reported the desire to continue to use TH after the pandemic.[10] The 2021 Census reported 92.7% of academic centers, 50.7% of solo practices, and 81.9% of private practice used telemedicine.[10] Before COVID-19, TH usage was used mainly within metropolitan academic centers for follow-up and postoperative appointments. In 2019, approximately 12.8% of TH usage was in metropolitan centers and 3.8% in non-metropolitan areas.[8] 2021 data found TH usage to be 83% in metropolitan areas vs 61.2% in non-metropolitan areas.[10] The 2022 Census found telemedicine usage for follow-up visits remained stable compared with that reported in 2021—82.6% usage in metropolitan areas and 68.9% usage in non-metropolitan areas.[10,11] TH has commonly been used for initial visits for erectile dysfunction, recorded at the highest rate of 60.1%, and a range of other diagnoses including elevated PSA/prostate cancer, urinary tract stones, urinary incontinence, prostatitis, voiding dysfunction, hematuria, and infertility.[9] For all the conditions listed, urologists expressed a desire for the creation of guidelines for telemedicine.[10] The conditions with the highest need for guidelines were hematuria, elevated PSA, and urinary tract stones (Table 1).

Benefits

In 2021, 51.6% of urologists found audio visits increased patient access to care and 72.7% reported improved

Table 1. *Conditions Per the AUA Census With the Highest Need for Guidelines*

For Which of the Following Conditions Would You Like to See Guidelines for Telemedicine? (Multiple Selections)

Conditions With Needs of Guidelines for Telemedicine	Practicing Urologists Represented		
	Number	Percent (%)	+/- MOE (%)
Hematuria	5,510	39.4	2.9
Elevated PSA/prostate cancer	5,065	36.2	2.9
Urinary tract stones	4,960	35.5	2.9
BPH	4,933	35.3	2.9
Erectile dysfunction	4,744	33.9	2.9
Pelvic pain/Orchalgia/Prostatitis	4,350	31.1	2.8
Urinary incontinence/Voiding dysfunction	4,280	30.6	2.9
Other urological malignancies	3,443	24.6	2.6
Infertility	3,078	22.0	2.6

Data source: Weighted samples from the 2022 AUA Annual Census.

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ease while scheduling visits, along with over 62% reporting ease of ordering tests and 69.5% reporting ease of accessing patient records during the visits.[10] Overall, 65% of providers reported their patients either desire telemedicine or are open to the opportunity if the same quality of care could be offered.[10] Data indicated 88.2% of practicing urologists younger than 54 years were more likely to offer telemedicine follow-up appointments in 2022.[11] Telemedicine usage increased throughout the nation and allowed 30% of urologists to offer telemedicine services across state lines.[11]

Barriers

Key barriers for the usage of telemedicine are lack of knowledge in using the patient portal/software, inadequate conferencing tools, and lack of access to high-speed internet service to enable video visits.[10] There was a decrease in patient satisfaction with audio TH; 67.1% of providers reported their patients were more satisfied with in-person visits.[10] In 2022, 53.4% of practicing urologists reported a willingness to change TH usage if payment parity was comparable with that of in-office services.[11] The results indicated 54% of physicians plan to use telemedicine or increase utilization moving forward (Table 2 and Figure).

DISCUSSION

TH utilization dramatically increased during the COVID-19 pandemic from 11.9% to 64% across the nation. The rapid implementation of TH increased payment opportunities to motivate the adoption of TH and prompted minimal regulations to achieve maximum usage during the beginning of the pandemic.[6] Relaxed regulations allowed 30% of urologists to offer telemedicine services across state lines. Before the COVID-19 pandemic, TH was used mainly in metropolitan areas because of multifactorial problems in non-metropolitan areas such as payment parity, technological capability of medical electronic record systems, and access to specialists.[6] In 2019, it was reported TH usage was 12.8% in metropolitan areas compared with 3.6% in non-metropolitan areas. The numbers drastically changed in 2021 where TH usage was 83% in metropolitan areas compared with 61% in non-metropolitan areas. The utilization numbers continued to show the importance of TH and its new role in health care practice in 2022 where TH usage for follow-up visits remained stable at 82.6% in metropolitan areas and 68.9% in non-metropolitan areas.

The increased usage and expansion of TH outside of metropolitan areas allowed improved access to care, elimination of travel times, and comparable patient satisfaction.[13] Results found 65% of patients desired TH and were open to the opportunity if the same quality of care could be offered. While data found increased patient satisfaction with video calls compared with audio only, many of the barriers including patient navigation of the portal and lack of technological knowledge were found to play a large role in satisfaction. Many of the barriers to TH are because of lack of knowledge surrounding technological advancements.[14] As physicians await TH policy adjustments, 54% of urologists plan to maintain or increase TH usage within the upcoming years,

Table 2. *AUA Census Report on If Payment Parity of TH Services Compared To in Office Evaluation Change TH Usage*

Would Payment Parity of Telehealth Services to Comparable In-Office Evaluation/ Management (E/M) Services Change Your Usage of Telehealth as a Modality?

	Practicing Urologists Represented		
Comparability	Number	Percent (%)	+/- MOE (%)
Yes	6,965	53.4	3.1
Absolutely yes	3,535	27.1	2.5
I would increase my telehealth usage	3,468	26.6	2.5
Probably yes	3,429	26.3	2.5
I would increase my telehealth usage	3,325	25.5	2.5
Unsure	2,358	18.1	2.3
No	3,721	28.5	2.5
Probably no, I would keep offering the same level of telehealth service	2,787	21.4	2.4
Absolutely no, I would keep offering the same level of telehealth service	934	7.2	*
Total reported	**13,044**	**100.0**	
Not reported	932		
Total	**13,976**		

Data source: Weighted samples from the 2022 AUA Annual Census.

*The estimated valued should be used with caution due to small samples. Sums from numbers and percentages may contrast with calculated totals due to intrinsic rounding errors

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emphasizing the importance of quality improvement tools being put in place. The integration of TH has been slow, but in chronic conditions, TH has been used frequently and efficiently.[15] One example of TH usage in a chronic condition, specifically audio-only visits, is erectile dysfunction. It was reported 25.2% of practicing urologists were able to follow up with patients about erectile dysfunction using TH. A range of other diagnoses including elevated PSA/prostate cancer, urinary tract stones, urinary incontinence, prostatitis, voiding dysfunction, hematuria, and infertility were found to be suitable for TH follow-up visits.

One of the most important benefits of TH is improved access to remote communities.[4,16] TH is a proven health care modality increasing access to care and can be used across state lines.[17] A total of 45 million Americans live in rural and remote communities and are generally found to be in worse health conditions compared with urban residents. Traveling 40 miles to the nearest hospital is the average distance traveled by patients living in rural communities.[4] Video-based encounters require broadband internet, and inadequate broadband infrastructure is a large barrier to TH implementation. Within rural populations, at least 17% of people lack broadband internet access, highlighting the importance of TH resources such as audio calls, which do not require internet access.[16] During the COVID-19 pandemic, when schools were transitioned to web-based learning, numerous studies evaluated access inequalities regarding technology and broadband internet access. TH policies are in a unique position where furthering TH will allow expansion of broadband internet, increased access to care, and increased research and funding opportunities for rural areas. Lack of policies could result in widening of health disparities in rural populations.[18] Studies looking at audio-only calls, which do not require broadband internet, in patients with chronic heart failure (CHF) found audio-only calls with "structured telephone support and telemonitoring were effective at reducing the risk of all-cause mortality and CHF-related hospitalizations, as well as they improve quality of life, reduce costs, and evidence-based prescribing."[5]

Provider-level engagement can also improve TH utilization. A study performed by Levy et al in a general surgery outpatient procedure setting, using Lean methodology, found standardized TH scheduling processes improved TH utilization and usage without the increase in adverse events for veteran populations.[19] Results found an improvement of TH utilization in elective, outpatient general surgery follow-up appointments from 32% to 93% after

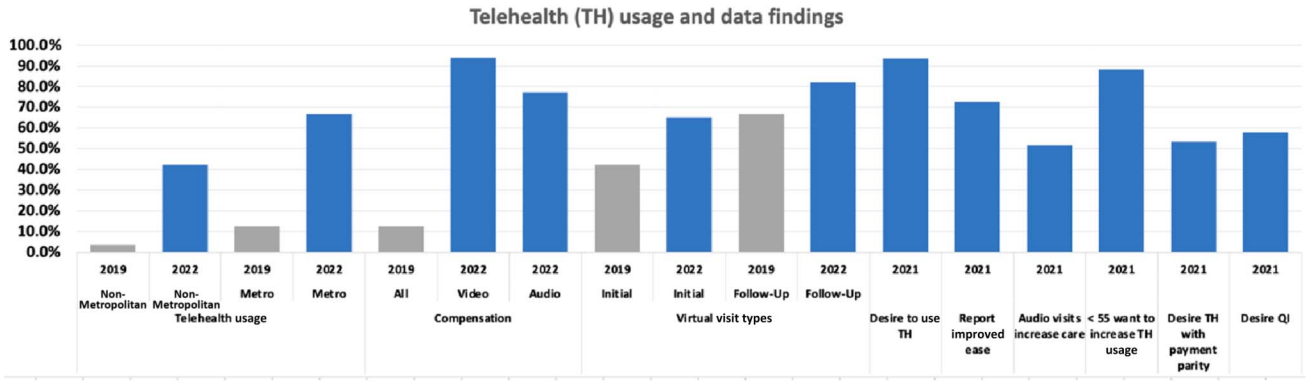

Figure. Pre vs. Post Pandemic TH usage and provider sentiment towards TH. Comparing non-metropolitan to metropolitan usage, video and audio compensation, and initial vs. follow up visit usage. Provider sentiment towards TH moving forward.

implementation and standardization of TH processes. No increases in adverse events were found, and substantial clinic spots were repurposed to increase access. The study emphasized the importance of creating a standardized process-driven approach for TH implementation. An important topic addressed in the study was the lack of billable opportunities in frequent elective general surgery procedures because of the 90-day global surgery period. Some of the procedures include hernia repair, cholecystectomy, and soft-tissue excisions. Postoperative appointments involve patient transport, clinic time, and resources. The implementation of TH in surgical specialties postoperatively can be a tool for reducing non-billable costs, increasing clinic availability and the opportunity to see new patients, as well as effectively and appropriately treat postoperative patients.

Surgery is not the only area of medicine advancing TH. The American Heart Association (AHA) published a policy statement supporting TH and provided a "comprehensive review of the scientific evidence evaluating the use of telemedicine in cardiovascular and stroke care and to provide consensus policy suggestions" to further ensure improved patient access to health care.[20] TH interventions have the unique opportunity to improve health care across multiple areas. TH can enhance the quality of care by reducing transportation costs, improving patient safety, enhancing patient engagement, reducing overuse, increasing access to care, improving medication adherence, and enhancing provider-to-provider communication.[20] Structured telephone support programs using audio-only services for heart failure suggest telephone support may reduce rehospitalization by approximately 25% and has no significant impact on either all-cause readmission rates or all-cause mortality.[5] Telemonitoring in ambulatory patients with heart failure can improve mortality by 17% to 47% during 6 to 12 months of follow-up and reduce hospitalizations by 7% to 48%. The use of TH in acute stroke (telestroke), a TH intervention of stroke therapy using telestroke-assisted thrombolysis therapy, is an evidence-based and recommended care method as a Class I intervention by the AHA.[20] The AHA deems TH vital for future management of cardiovascular patients, specifically stroke and cardiovascular disease. To overcome barriers such as lack of reimbursement, technological restrictions, and lack of legal consensus across varying states, the AHA desires partnership with other organizations to focus on specific policy objectives to eradicate barriers to adoption.[20]

One of the largest reasons behind the slow adoption of TH is attributed to suboptimal payment structures and regulatory laws.[2] The Centers for Medicare and Medicaid Services report TH coverage for Medicaid patients varies from state to state and under the Consolidated Appropriations Act; many Medicaid patients will no longer be able to receive TH services. The variability of TH rules in each state creates unclear standards and guidelines among the health care community.[7] In 2021, 53.4% of practicing urologists reported a willingness to change their TH usage if payment parity was comparable with that of in-office services. The desire for payment parity remained stable in 2022 because 50% of urologists reported the desire to increase telemedicine use if payment parity remains. Medical organizations hope to address the lack of meaningful reimbursement by requiring health plans to pay providers for TH services at the same or equivalent rate compared with in-person visits, demonstrating payment parity.[20] Payment parity will likely remain a barrier because many states have not renewed legislation that would allow for TH to be comparable with in-office visits.

The health care world is facing a technological revolution, challenging the model and structure of in-person-based medicine.[21] TH was used as a temporary enhancement during the COVID-19 pandemic. As we transition out of crisis mode, we should consider what we learned to inform policy and to better serve our patient population. As we adjust to the new technological reality, data show 88.2% of practicing urologists younger than 54 years were more likely to

offer telemedicine follow-up appointments in 2022. As new medical students, residents, and fellows continue to enter the workforce, TH policies and utilization will be a new vital part of training. If implemented universally, TH can increase patient access to care, reduce the cost of health care services, and increase physician utilization.[22]

TH is a clinical resource that can change the field of medicine and improve patient-centered care. As we move into the post-COVID-19 era, it is vital TH undergoes policy updates to achieve maximum utilization and address important barriers such as payment parity and potential widening of health inequalities. Policies simplifying care across state lines and providing standardization for providers, instead of variable individual state rules, would be beneficial. General surgery departments and groups like the AHA have shown the advantages of TH when implemented effectively in the patient care setting. TH can help decrease travel costs, increase accessibility for patients in rural areas, and provide improved quality of care. Lack of standardization and updated policies surrounding TH runs the risk of increasing health care disparities and allowing current barriers to remain in place.

Limitations to this study are attributed to the Census data being a population-based and weighted survey that is self-reported, nonvalidated, and subject to bias or misrepresentation. Rural data are based on the primary office location on file, so the coverage for each area may extend beyond the area reported in the Census. As a survey, the AUA Annual Census is subject to sampling and estimate areas. Another limitation is the cross-sectional nature of this study. Further research should investigate the longitudinal effects of TH over time.

CONCLUSION

Urology practices are continuing to increase their use of TH across the nation. Successful TH implementation leads to increased patient satisfaction, fewer barriers to care, and improved ease regarding obtaining patient history and ordering further diagnostic testing. Barriers to implementation include lack of knowledge, insufficient standardization of patient experience, and limited access to broadband internet. Audio-only TH overcomes a multitude of barriers and allows for increased access to care for patients in rural settings. One of the largest barriers includes payment parity and its effect on adequate reimbursement for physicians and their time. Updated policies addressing payment parity, standardization of patient experience, and resource allocation can improve TH usage for both the provider and the patient. Further research is warranted to better understand how TH utilization can improve urologic care.

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