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Adopting Telehealth During The COVID-19 Era: The Urologist's Perspective

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OBJECTIVE	To evaluate the urology providers' (through a range of training levels) experience utilizing telemedicine given the rapid nationwide implementation of telemedicine in urology practices due to COVID-19. Several studies focusing on the patient's perspective have illustrated that telemedicine is comparable to traditional office visits in terms of cost, communication, and overall satisfaction. However, there is sparse data on the provider's experience.
METHODS	With IRB approval, we assessed provider satisfaction with telemedicine at Urology programs in the U.S. through an electronic survey. The 25-question survey was based on the Patient Assessment of Communication of Telehealth which is a validated 33 question instrument that has been utilized to assess the quality of patient-provider communication in telemedicine. Experience with telemedicine was assessed in 2 categories: technical aspects and communication with patients. Variables were rated using a 5-point Likert Scale.
RESULTS	There were 144 responses to the survey. 50% of providers reported not receiving any formal training in using telemedicine. This differed significantly by training level with 55% of attendings having had received training vs 20% of residents. Providers felt they would most benefit from training in billing (52%) rather than equipment use (33%) or communication (28%). 87% of providers felt comfortable discussing sensitive topics while only 55% felt comfortable using telehealth to schedule surgery ($P < .001$).
CONCLUSION	Urology providers are generally satisfied with their experience communicating with patients via telemedicine and the majority would opt to continue utilizing telemedicine. Nevertheless, many providers are hesitant to schedule surgery via telemedicine. Providers would benefit from formal training in telemedicine. UROLOGY 156: 289–295, 2021. © 2021 Elsevier Inc.

Telemedicine has altered the way physicians provide patient care and continues to improve access to healthcare. Recently, surgeons have incorporated telemedicine modalities into pre- and post-operative visits and specialty consultations in fields such as ophthalmology, orthopedic surgery, and urology.¹ Prior to the onset of the COVID-19 pandemic, urology departments at large academic centers were utilizing telemedicine for adult and pediatric consultations involving the management of several common urologic conditions including uncomplicated nephrolithiasis and urinary tract infections.² Urologists have reported the successful use of telemedicine in shared decision-making counseling for prostate cancer treatment, administration of behavioral therapies for urinary incontinence, and post-operative follow-up care.²

Since telemedicine's inception, there has been extensive research regarding patient satisfaction with telemedicine visits compared to traditional in-person clinic visits. Surgical specialties utilizing telemedicine modalities for perioperative care have deemed it both a cost-effective method and have reported relatively high rates of patient satisfaction.³ When assessing patients with localized prostate cancer treated by radical prostatectomy, a randomized controlled trial found that there was no statistical difference in patient trust of the provider or overall patient satisfaction when comparing traditional and video follow-up visits.²

With the rapid implementation of telemedicine into many urologic practice models during the Coronavirus (COVID-19) pandemic there are many unanswered questions regarding provider satisfaction, barriers to use, and effectiveness of communication. As it is evident that telemedicine is likely here to stay for the foreseeable future, we sought to investigate and explore the urology provider's view of it and better delineate how we can adjust our telemedicine encounters to better improve communication and training.

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MATERIALS AND METHODS

Study Design, Setting, and Eligible Participants

We utilized a cross-sectional study design to assess provider satisfaction and opinions regarding telemedicine across academic Urology programs throughout the United States. Attending faculty, residents, fellows, and midlevel providers including Nurse Practitioners and physician assistants at accredited U.S. Academic Urology Programs were eligible to participate. Variables of interest were assessed via survey administration. The survey was administered via institutional email to program directors who were then instructed to share the survey with all eligible participants at their respective institutions. This study design was approved by the Institutional Review Board at the Medical University of South Carolina.

Study Measures and Data Collection

We designed a 25-question survey to explore provider satisfaction with telemedicine for urology visits. The survey was modeled using the Patient Assessment of Communication of Telehealth survey which is a validated 33 question instrument that has been utilized to assess the quality of patient-provider communication in telemedicine studies for over a decade.^{4,5} RedCap was utilized as a survey tool and for data collection.⁶ Demographic variables including age, gender, level of training, and urban vs rural setting were collected. Providers' experience with telemedicine was assessed in 2 broad categories: technical aspects and communication with patients. These variables were rated using a 5-point Likert Scale. All responses were anonymous with no identifiable data. Consistent use of telemedicine prior to COVID-19 was defined as using telemedicine for at least 1 patient encounter a month prior to January 1, 2020. We inquired upon whether providers had received any training prior to the utilization of telemedicine in practice as well as the type of training received. Types of training included online education, formal in person training sessions, and training in the form of paper handouts. Online education was defined as interactive modules that providers completed while in person training were defined as lectures and/or training sessions where a live educator was present and directing the telemedicine training.

Statistical Analysis

Data analysis was performed using RedCap software and SPSS. Descriptive variables were analyzed with counts and percent for categorical variables and means and standard deviations for quantitative variables. Differences in satisfaction among training levels were assessed using chi-square test or Fisher exact test for expected counts <5 for categorical variables and ANOVA for quantitative variables respectively.

RESULTS

144 providers responded to our survey completely. As detailed in Table 1, 50% of respondents identified as attending urologists, while the remainder was broken down between fellows (2.8%), residents (27.1%), and midlevel providers (defined as Nurse Practitioner or Physician Assistant) (19.4%). Most of the respondents practiced in an urban setting (91.7%) vs rural, and in the academic setting (89.6%) vs community practice (10.4%). 29 of the 144 respondents did not utilize telehealth (20%) during the pandemic.

Only 11.1% of practitioners who responded to our survey reported using telemedicine for patient visits consistently prior

Table 1. Participant characteristics (n = 144)

Age (y)*	43.9 (14.7)
Gender n (%)	
Male	90 (62.5)
Female	54 (37.5)
Non-conforming	0 (0)
Training Level n (%)	
Resident	39 (27.1)
Fellow	4 (2.8)
Attending	73 (50.7)
NP/PA	28 (19.4)
Practice type n (%)	
Academic	120 (89.6%)
Community	14 (10.4%)
Practice specialty n (%)	
General Urology	38 (36.7)
Urologic Oncology	22 (21.0)
Female pelvic medicine	23 (21.9%)
Men's Health	5 (4.8%)
Pediatric	7 (6.7%)
GU Recon	2 (1.9%)
Endo/stone	6 (5.7%)
Other	2 (1.9%)
Practice setting n (%)	
Rural	11 (8.3)
Urban	122 (91.7)

* Mean (SD)

to the onset of the COVID-19 pandemic (Table 2). Of those who had utilized telemedicine pre-COVID, 56.3 % reported using video conference as their primary modality for visits (Table 2). After the onset of COVID-19, the number of providers reporting consistent use of telemedicine for visits increased to 79.9% (Table 3). Doxy.Me, Epic, and Zoom were the most utilized platforms (Table 3).

The majority of providers reported seeing greater than 6 patients a day via telemedicine visits (54.4%) (Table 3). This was significantly different amongst provider type with the majority of midlevel providers reporting seeing <6 patients/day via telemedicine visit (77.8%) while residents and attendings reported seeing greater than 6 patients per day via telemedicine ($P < .001$) (Supplementary Table 1). Most providers reported spending an equal amount of time preparing for virtual clinic visits as they would typically spend preparing for in-person visits

Table 2. Characteristics of participant telehealth use prior to COVID-19 (n = 144)

Consistent Use of Telehealth Prior to COVID-19 n (%)	
Yes	16 (11.1)
No	128 (88.9%)
Primary modality of telehealth- before COVID-19 n (%)	
Phone visit	1 (6.3%)
Video conference	9 (56.3%)
Both	6 (37.5%)
Primary platform n (%)	
Doxy. Me	2 (13.3)
Skype	1 (6.7%)
Epic	3 (20.0%)
Facetime	0 (0.0%)
Zoom	4 (26.7%)
Other	5 (33.3%)

Table 3. Characteristics of participant telehealth use during COVID-19

Primary Modality of Telehealth n (%)	
Mostly Phone	21 (14.6)
Mostly Video Conference	59 (41.0)
Equal Phone and Video	35 (24.3)
None	29 (20.1)
Primary platform n (%)	
Doxy. Me	18 (19.1)
Skype	1 (1.1)
Epic	17 (18.1)
Facetime	1 (1.1)
Zoom	25 (26.6)
Other	32 (34)
Number of patients seen via telehealth during clinic day n (%)	
1-3	27 (23.7)
3-6	25 (21.9)
6+	62 (54.4)
Time spent preparing compared to in person clinic n (%)	
Greater	32 (27.6)
Less	13 (11.2)
Equal	71 (61.2)
Training modality n (%)	
Online	31 (27.0)
Hand outs	23 (20.0)
Formal in person training	4 (3.5)
No training	57 (49.6)
"I would benefit from training in these areas:" n (%)	
Communication	32 (27.6)
Equipment/Software Use	38 (32.8)
Billing	60 (51.7)
Other	24 (20.7)
"I do my own billing for telehealth visits" n (%)	
Yes	65 (56.0)
No	51 (44.0)

(61.2%) (Table 3). Many providers (49.6%) reported having no formal training (Table 3), this did differ significantly among provider type with a greater percentage of attendings and mid-level providers reporting receiving formal training (62.3% and 54.4% respectively) vs 20.0% of residents (Supplementary Table 1). 52% of providers expressed that they would benefit from additional training, primarily in the area of billing (Table 3).

Urology providers were overall satisfied with the use of telemedicine for outpatient visits. The majority of respondents reported that audio and video quality was acceptable, and that the equipment was easy to operate (Table 4). Most providers felt satisfied with the level of care they were able to provide and most felt they were able to adequately assess the patient, regardless of training level (Supplementary Table 1). Although 87% of providers reported feeling comfortable discussing sensitive topics via telemedicine, only 55% reported feeling comfortable scheduling patients for surgery, a difference that was statistically significant ($P < .001$). Only 4.3% of providers answered disagree or strongly disagree when asked if they would like to continue offering telemedicine appointments when restrictions from COVID-19 are eventually relaxed (Table 4). Irrespective of training level, most urology providers expressed overall satisfaction with the use of telemedicine for outpatient urology visits.

Table 4. Provider satisfaction with telehealth in general (N = 115)

The Audio Quality was Acceptable n (%)	
Strongly Agree	24 (20.9)
Agree	75 (65.2)
Neutral	15 (13.0)
Disagree	1 (0.9)
Strongly Disagree	0 (0)
The video quality was acceptable n (%)	
Strongly Agree	16 (16.8)
Agree	72 (75.8)
Neutral	5 (5.3)
Disagree	2 (2.1)
Strongly Disagree	0 (0.0)
The telehealth equipment is easy to operate n (%)	
Strongly Agree	28 (24.3)
Agree	62 (53.9)
Neutral	20 (17.4)
Disagree	5 (4.3)
Strongly Disagree	0 (0.0)
I am adequately reimbursed for my time spent in Telehealth clinic visits n (%)	
Strongly Agree	8 (7.1)
Agree	28 (24.8)
Neutral	64 (56.6)
Disagree	9 (8.0)
Strongly Disagree	4 (3.5)
I would like to continue providing Telehealth appointments after COVID-19 n (%)	
Strongly Agree	45 (39.1)
Agree	41 (35.7)
Neutral	24 (20.9)
Disagree	2 (1.7)
Strongly Disagree	3 (2.6)

DISCUSSION

The ongoing COVID-19 pandemic has dramatically changed the landscape of health care and will continue to do so as our society navigates the associated challenges and begins to recover. Our goal as urologists is to provide the best possible medical care to our patients, protecting our patients from unnecessary exposures, ensuring their care is not negatively impacted, while also protecting our staff as best as possible. Although risk factors for morbidity and mortality from the novel COVID-19 are still being elucidated, preliminary inpatient data have shown that risk factors common to our patient population such as diabetes, hypertension, COPD, and malignancy are associated with a higher risk of death, intensive care treatment, and ventilation.⁷ Urologic telemedicine allows for (1) fewer patient contacts, (2) lower rates of infection among staff, and (3) continuation of urological care by qualified urologists.⁸

There are several factors that should be considered when analyzing whether telemedicine is a sustainable, acceptable long-term alternative for the in-person urology clinic visit. Ample data has illustrated that telemedicine is cost-effective and acceptable if not preferred by the patient. At the onset of the COVID-19 pandemic, Boehm

et al demonstrated that 84.7% of urologic patients in their prospective study preferred telemedicine visits over traditional face-to-face visits.⁹ Physician satisfaction, specific to the urology provider, with telemedicine is less well studied, however there is data to suggest that urologists who were early adopters of telemedicine have indicated high satisfaction.^{8,10} A prospective randomized trial assessing 270 post-operative urology patients showed no significant difference in patient satisfaction with in-person rounding vs tele rounding while inpatient.¹⁰ More recently, Pinar et al showed that 80% of urologists reported via questionnaire that they were satisfied with telemedicine visits with 100% of urologists reporting no added stress with facilitating telemedicine visits.¹¹

Currently, suggested barriers to telemedicine from the provider perspective include technological literacy, lack of standardized telemedicine training, changes in traditional workflow, and concerns over the efficacy of patient encounters.¹² Our study is unique in that it addresses these areas of concern specifically among providers, of all training levels, who did not necessarily choose to use telemedicine but were left with little option during the ongoing pandemic. Audio and video quality as well as ease of operation were not major concerns expressed by our respondents. Technological literacy and efficacy of visits were likewise not major concerns amongst respondents. However, our data indicate that there is a dearth of standardized training among urology providers that differs according to training level. Standardized training was universally lacking amongst attendings, midlevel providers, and resident, however was remarkably low amongst urology residents. Khusid et al recently published data focusing on resident well-being during the COVID19 pandemic and report that 82% of residents have not been adequately trained on how to perform effective telemedicine visits.¹³ Lack of formalized training whether it be in the form of online modules, live instructor, or handouts may be partially attributable to the necessary rapid implementation of telemedicine visits during the acute crisis phase of COVID and can lead to overall decreased satisfaction of the provider's experience with telemedicine.

It was noted that about 50% of the residents reported utilizing telehealth versus a significantly larger percentage of attendings and midlevel providers (89 and 96% respectively). (Table 3). There are several possible explanations for this. During the pandemic, residents were often mobilized to various units (Intensive care units, Emergency room, etc.) which meant fewer opportunities to participate in Telemedicine visits. In terms of the discrepancy between residents and attendings, we offer several hypotheses. Attendings may place more emphasis on resident education by having them see new patients via face to face visit whereas they may believe there to be less value in having house staff see established patients via video visit. Attendings may have a higher comfort level following with established patients via telehealth visits. Moreover, residents in general are likely spending less days in the clinic per week than attendings, given their inpatient,

consult, and surgical responsibilities. Additionally, clinic days may vary based on block rotation schedules.

Our study also accessed the provider's experience with communication and care provided via telemedicine. Over 95% of providers agreed or strongly agreed that they would continue to offer telemedicine appointments even after the pandemic has abated. Providers generally agreed that they were able to adequately assess the patient and 87% felt comfortable discussing sensitive topics via telemedicine. However, only 55% of providers reported that they felt comfortable scheduling patients for surgery via telemedicine despite reporting adequate assessment of the patient and satisfactory discussions regarding care plans via telemedicine. We did not inquire further upon potential barriers to making the decision to schedule surgery therefore we can only speculate on why providers may be reluctant to do so. It is understandable that one would be uncomfortable scheduling a patient for procedures without a recent physical exam and that providers may be more comfortable discussing risks and benefits in person. In retrospect our survey could have been designed to further assess confounding factors such as whether or not providers were more willing to book established patients for surgery vs newer patients. This is a limitation of our study. Nevertheless, our findings suggest that although medical management of urologic pathologies via telemedicine is feasible, there is room for improvement in regards to the pre-operative discussion.

Another unique aspect of telemedicine that warrants discussion as a possible barrier to implementation is reimbursement. Prior to the COVID-19 pandemic, only 34 states had telemedicine parity laws requiring commercial insurers to reimburse virtual clinic visits.³ Previously, Medicare would only reimburse for telemedicine visits if the visit originated from a hospital or clinic setting, not from the providers home.⁷ Moreover, providers were often coding only for level 2 visits for telehealth appointments as physical exam were not performed. on virtual platforms. The Department of Health and Human Resources has more recently relaxed the standards for telemedicine patient communication under the 1135 Stafford Act waiver. The Centers for Medicare and Medicaid services have also established accommodations that allow for physicians to conduct audiovisual virtual visits from any location.¹⁴ These emergency provisions also allow for the use of non-HIPAA compliant virtual modalities such as Skype to provide patient care. As legislature is rapidly evolving, the ability to offer telemedicine visits improves, however this leads for opportunity for more confusion regarding billing.

Our study provides valuable information to the changing field of urology practice during COVID-19 however there are additional more general limitations that must be considered. Our respondents primarily represent the academic urology experience. This is helpful in that we can begin to assess how experiences differ among training level however we are limited in that we can extrapolate less to the private practice and

rural provider experiences. Additionally, our respondents represent a small fraction of the providers in the academic setting and as with many survey studies, generalizability is limited by response rate.

CONCLUSION

The COVID-19 pandemic has dramatically increased the number of urology providers of all training levels utilizing telemedicine for patient encounters at academic urology institutions throughout the US. Providers are overall satisfied with the utilization of telemedicine and would like to continue to incorporate it into practice even after social distancing guidelines are lifted.

Nevertheless, there are specific areas of improvement that should be addressed as it is apparent, telemedicine is here to stay. Our data indicate that providers would benefit from additional training with billing and equipment use, and unfortunately, the majority of providers are not receiving any formal training. Additionally, there is some level of discomfort with scheduling patients for surgery via telemedicine which should be further explored in order to best care for our patients. In conclusion, telemedicine is a sustainable and desired modality for urologic care for providers.

SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.urology.2021.03.051>.

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EDITORIAL COMMENT



The authors address the rapid evolution/revolution that Covid has forced upon the healthcare system. For too long we have been trapped in a century old model of care delivery. That has changed forever. It is critical that the new opportunities and challenges created by this inflection point be addressed and solved. There are increasingly numerous published works focusing on the general effects on healthcare and on urology in particular.¹⁻⁸

There are a number of questions that yet need to be answered.

- Must we create a general training program that will be helpful for physicians and residents?
- Might there be scripted formats that could assist in making sure that key points of discussion with patients during telehealth visits are not overlooked?
- Could pre-visits for screening with physician extenders be of value in expediting care?
- Will reimbursement via federal and private payers adequately recognize the value added to patient care by using this format of interaction?
- What is the role of pre-op / post-op care and counseling for surgery and/or procedures?
- Can an informed consent be obtained via this type of discussion and documentation?

The data presented in this study is limited in a variety of ways. However, we should not conclude that fact makes the findings unpersuasive. The rapidity of change that the delivery system has undergone makes those types of assumptions invalid, as they are based in thinking from old, static paradigms. Clearly, more web connected physicians will be quicker to adopt the use of virtual technology in healthcare. A shift away from any level of in person care or interaction will be resisted by some no matter what.

We must reject any attempt to remove face to face interactions with physicians for the majority of care as that is not going to be acceptable to most patients and providers. However, virtual visits, virtual examinations and remote data collection are all acceptable and should be considered an extension of direct care, not a replacement for direct care.

These changes have implications for training programs as well. The data presented showed that usage among residents and physicians in training was significantly lower than attendings. I do not find this surprising as physicians in training are more focused on direct interaction as part of their acquisition of clinical acumen. That experiential acumen is what makes the more

rapid adoption of telehealth, virtual visits and remote data access acceptable to senior physicians. This is especially true in the case of established patients or patients with chronic disease or recurrent bouts of illness in a specific organ system (ie, hypertension, diabetes, etc.). Also, routine post-procedure follow-ups (beyond the immediate post-op or procedure period) could in many cases be accomplished remotely.

In both the academic and private setting, these new formats can and will improve efficiency and expand patient access to care. The main barrier on the patient side is adequate access to broadband and a computer interface. Cell phones, which have become seemingly ubiquitous, can easily provide the basic level of technology needed for a satisfactory interaction.

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AUTHOR REPLY



1. Must we create a general training program that will be helpful for physicians and residents?

Yes. Prior to the onset of the COVID-19 pandemic, the majority of urology providers were not regularly utilizing

telemedicine modalities in their practice model. However, now that telemedicine has been successfully implemented during the pandemic, it is likely that it is here to stay in the field of urology. This hypothesis is supported by our finding that 95% of our respondents reported that they would continue incorporating telehealth visits into their practice after the pandemic has abated. As reported in our research, many providers (49.6%) reported having received no formal training in the field of telehealth. Based on this data and the projected persistence of telemedicine in healthcare models, a general training program for all levels of providers would be immensely beneficial. Such a program would be expected to enhance provider comfortability with telemedicine platforms and improve the efficiency of patient care provided.

2. Might there be scripted formats that could assist in making sure that key points of discussion with patients during telehealth visits are not overlooked?

Telemedicine encounters should provide the same level of patient care as a traditional in-person clinic visit does. Each provider has their own unique style and rhythm for patient encounters and different styles for developing rapport with patients. These nuances may be lost if a scripted encounter were implemented.

3. Will reimbursement via federal and private payers adequately recognize the value added to patient care by using this format of interaction?

Because of the pandemic, new legislature has removed several barriers for reimbursement and HIPAA compliance for telehealth encounters, but it remains to be seen if these changes will hold up once the pandemic has abated. We suspect that if reimbursement is equal in these 2 types of encounters, then physicians will choose the modality that is most effective for each individual patient and encounter.

4. Could pre-visits for screening with physician extenders be of value in expediting care?

Yes. Advanced practice providers can triage new patients via video-conferencing or phone call to determine if patients can continue seeing an APP or if they require escalation to a telemedicine visit with a physician or a further in-person clinic visit with either an APP or physician.

5. What is the role of pre-op / post-op care and counseling for surgery / procedures?

Prior to the COVID-19 pandemic, urologists utilized telehealth modalities for post-operative visits. During the pandemic, many of these visits were conducted via telehealth. Our data demonstrated that most providers felt satisfied with the level of care they were able to provide and most felt they were able to adequately assess the patient, regardless of training level. As such, telehealth likely can continue to be utilized for uncomplicated pre-op/post-op care.

6. Can an informed consent be obtained via this type of discussion and documentation?

One of the findings extrapolated from our data is that 87% of providers reported feeling comfortable discussing sensitive topics via telemedicine. However, only 55% reported feeling comfortable scheduling patients for surgery, a difference that was statistically significant ($P < .001$). Though neither of these parameters specifically discussed informed consent, we have reason to think that

comfortability scheduling patients for surgery is inclusive of the informed consent process.

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